

Searching for the Binding Constraint to Digital Financial Inclusion in Pakistan: A Decision Tree Approach

Imran Khan and Dr. Karrar Hussain Jaffar

Abstract

Over the last decade, Pakistan has seen improvements in the coverage of its networks of bank branches, ATMs, and mobile money agents. However, the country is lagging behind comparator countries when it comes to the financial inclusion of its population; according to the latest estimates, barely 20 percent are currently included. By using the Claessens and Rojas-Suarez (2020) decision tree methodology, this paper assesses the potential demand- and supply-side constraints limiting the usage of digital payment services to identify which constraints are binding. Our main finding is that Pakistan's institutional weaknesses constitute the most important binding constraint. These weaknesses have incentivized the creation of a sizable informal economy that has resulted in a preference for cash over the use of formal financial channels for the majority of the population. Reflecting institutional deficiencies, the imposition of a withholding tax on financial transactions undertaken by individuals who did not file tax returns has further encouraged a move toward cash and away from digital finance. On the demand side, Pakistan lags behind comparable countries on various indicators such as technical literacy, awareness about the functionality of products, and social inclusion of women. Nevertheless, we find that these constraints are severe only for specific subpopulations. Consistent with our conclusion that institutional weaknesses, the binding constraint, have created deep incentives to remain informal, a considerable proportion of mobile phone-owning financially excluded individuals continue to choose to be financially excluded in spite of having high levels of technical literacy, functional awareness, and trust.

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Abbreviations

AMA	Asaan Mobile Account
ANA	Agent Network Accelerator
ATM	automated teller machine
BISP	Benazir Income Support Programme
CGAP	Consultative Group to Assist the Poor
CNIC	Computerized National Identity Card
DPS	digital payment services
EIU	<i>Economist</i> Intelligence Unit
EMI	electronic money institution
FII	Financial Inclusion Insights
ICR	initial capital requirement
IMF	International Monetary Fund
ITU	International Telecommunication Union
IVR	interactive voice response
KYC	know-your-customer
LDCs	Least Developed Countries
MFI	microfinance institution
MNO	mobile network operator
NFIS	National Financial Inclusion Strategy 2015
OTC	over-the-counter
PKR	Pakistani rupees
POS	point of sale
PRISM	Pakistan Real-Time Interbank Settlement Mechanism
PSO	payment system operator
PSP	payment service provider
RSP	Rural Support Programme
RTOB	real-time online banking
SBP	State Bank of Pakistan
SDGs	Sustainable Development Goals

Foreword

Financial inclusion, especially through digital means, is broadly regarded as a catalyst for development and a driver of economic inclusion. While a large number of countries have implemented policy changes to advance digital financial inclusion, results are mixed and there is a substantial divide between countries that have achieved great success and those that continue to lag behind.

To support policymakers' efforts to improve the effectiveness of their financial inclusion strategies, in early 2020 CGD published an analytical framework, *A Decision Tree for Digital Financial Inclusion Policymaking*, that allows a systematic identification of the most problematic constraints in country-specific settings. Many constraints can restrict financial inclusion, but to different degrees. Therefore, the Tree aims at diagnosing which constraints are binding, i.e., impeding significant usage of digital financial services. Without this kind of analysis, gaps in financial inclusion strategies may persist and policymakers may focus attention on non-binding constraints, obstacles whose solutions will not deliver significant improvements unless other first-order impediments are addressed.

The Tree methodology uses a deductive top-down approach to analyze various potential demand and supply causes (branches in the tree). An important feature of the analytical framework is that it calls for analysis of the observed (or shadow) prices of digital financial services to identify the most pressing (binding) constraints. Application of the methodology involves benchmarking with a wide-ranging set of indicators, including aggregate and micro-level statistics as well as survey data to reflect providers' and consumers' perceptions.

In this paper, Imran Khan and Karrar Jaffar apply the Tree methodology to the case of Pakistan.

Recent estimates indicate that Pakistan significantly lags behind peer countries in financial inclusion, with only around 20 percent of its population using financial services. Given Pakistan's many economic and development challenges, unraveling the cause of this poor outcome is not an easy task.

This paper analyzes the fee structure of digital payment and transfers services in Pakistan and comparable countries and shows that fees in Pakistan are relatively high, indicating significant supply-side constraints. To systematically analyze each supply and demand branch of the decision tree, Khan and Jaffar rely on a large variety of datasets. Beyond using valuable information from the State Bank of Pakistan and international organizations, the authors creatively exploit one of the richest surveys about financial inclusion, the Financial Inclusion Insights (FII). Based on FII data, the authors construct several indices to assess whether the demand for digital financial services by different populations was affected by constraints such as a lack of awareness of the benefits of digital financial services, technical illiteracy, and low levels of trust in financial service providers.

Khan and Jaffar's conclusions about the binding constraints in Pakistan are clear, yet complex: institutional deficiencies, reflected in distortionary policies (and other factors)

that foster informality and a strong preference for using cash for transactions, are the binding constraints for digital financial inclusion. The enactment of a high withholding tax on cash withdrawals for individuals who are not tax filers is an illustrative example of this quandary as this policy increased the preference for cash at the expense of formal financial channels.

Unfortunately, there is no easy fix; but understanding the complicated dynamics around informality and the preference for cash is paramount for policymakers in Pakistan. Until those baseline issues are properly addressed, many individuals will remain financially excluded and will not reap the benefits that digitalization has brought to financial inclusion.

This is the second in a series of five policy papers that employ the Decision Tree methodology that my colleagues and I developed to disentangle the most pressing constraints to financial inclusion in countries where the low levels of inclusion are truly concerning and a hindrance to prosperity. The other four papers study Ethiopia, India, Indonesia, and Mexico.

To learn more about this project, find these papers, and read additional material, please visit cgdev.org/page/policy-decision-tree-improving-financial-inclusion.

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1. Introduction

The financially excluded are those who do not have the opportunity to benefit from formal finance, be it the safety of depositing savings in a bank, the convenience of paying through a credit card transaction, or the security of gaining a bank loan when needed. It is for this reason that financial inclusion has been recognized as an important enabler for 8 of the 17 Sustainable Development Goals (SDGs) of the United Nations (UNCDF n.d.).

Like other countries, Pakistan has been trying to increase its levels of financial inclusion. Pakistan's National Financial Inclusion Strategy 2015 (NFIS) aimed to financially include 50 percent of the country's adult population by 2020 (SBP 2015b). In 2018, Pakistan launched the Enhanced Financial Inclusion Strategy, focused on the enhancement of digital payments, among other goals such as increasing the deposit base and supporting financing for small and medium enterprises and for agriculture (UNCDF n.d.). In pursuance of the enhanced financial inclusion strategy goals, the State Bank of Pakistan (SBP) also launched the Regulations for Electronic Money Institutions in 2019. These regulations allow nonbanking institutions to issue e-money for their customers to make digital payments (SBP 2015b). However, according to the Financial Inclusion Insights (FII) survey conducted in 2020, Pakistan's financial inclusion level was still low, at 21 percent (FII 2021a).¹

This paper is an attempt to identify the binding constraints that preclude Pakistan's digital payments and transfer services from helping the country achieve its financial inclusion targets. The paper relies on the decision tree methodology of Claessens and Rojas-Suarez (2020). To undertake the analysis, the paper uses a variety of international and local data sources, including industry-level statistics as well as survey datasets.

Section 2 provides an overview of the landscape of digital payments and transfers in Pakistan. Section 3 briefly explains the analytical framework that is used in this paper. Section 4 compares the prices of various digital financial payment and transfer services in Pakistan with prices in a group of comparator countries. Consistent with the analytical framework, the subsequent sections maximize the use of available data to analyze constraints affecting the supply of and the demand for digital payments and transfers in Pakistan, and to determine which are binding. Section 5 focuses on the supply side, Section 6 on the demand side. Section 7 brings together the analysis from throughout the paper to present conclusions about the root cause of the problem of very low usage of digital payments and transfers in Pakistan.

¹ While the NFIS uses the Global Findex survey (World Bank 2017) to measure financial inclusion, we opted to use data from FII's 2020 surveys (published as FII 2021a and FII 2021b) because the latest estimates from the Global Findex survey are from 2017.

2. The landscape of digital payments and transfers in Pakistan

For this paper, we consider an individual to be financially included if he or she owns a formal financial account² that can be used to make digital payments. While ideally, the definition would exclude individuals who own an account but do not really use it, there are no available data on dormant accounts; thus, we use *ownership* of an account as a proxy for *usage* of accounts.

To provide an overall view of the market for digital payments and transfers in Pakistan, this section presents the types of providers and the types of accounts that providers offer, classified by the stringency of the requirements to open these accounts. The section also discusses recent activity in the digital payments and transfers markets.

2.1. Types of financial institutions

Institutions that offer financial accounts that can be used for payment transactions in Pakistan can be divided into three broad categories: traditional banks, branchless banking institutions, and electronic money institutions (EMIs).

The first type, traditional banks, includes commercial banks as well as microfinance banks. According to the latest statistics in 2020 (SBP 2020e), there are a total of 33 commercial banks in Pakistan. They have 14,938 branches, thus accounting for 93 percent of total bank branches in Pakistan. Furthermore, there are 11 microfinance banks³ in Pakistan, and they have 1,183 branches; these constitute 7 percent of the total bank branches in Pakistan (SBP 2020e).

The second type of institution is the so-called branchless banking⁴ institutions, which offer mobile money wallet accounts that are linked to bank accounts. In Pakistan, branchless banking is the bank-led model of digital finance, as a banking license is essential for an entity to be involved in branchless banking. This model puts telecom companies at a disadvantage

² This part of the definition is consistent with that of Allen and colleagues (2016).

³ In Pakistan, the microfinance industry is divided into three distinct groups; the first are called microfinance institutions (MFIs); these are nonbank microfinance companies that offer microfinance services. Another related group of entities is called Rural Support Programmes (RSPs); these are similar to the MFIs in providing microcredit, but their focus is entirely rural. Neither MFIs nor RSPs are allowed to take public deposits; they have to utilize sources of cash other than public savings. Both MFIs and RSPs are regulated by the Securities and Exchange Commission of Pakistan. Microfinance banks are different from both MFIs and RSPs as they are licensed banks, and apart from offering microcredit services, they are also allowed to take deposits. Microfinance banks are regulated by the SBP.

⁴ Branchless banking is an alternative to conventional banking, whereby mobile phones may be used to access financial services. For cash withdrawals and deposits into branchless banking accounts, consumers rely on an agent network of existing small businesses. This paper uses the term *branchless banking* interchangeably with *mobile money*, and both are different from *mobile phone banking*, which refers to accessing traditional or conventional bank accounts through a mobile phone.

as they cannot initiate branchless banking operations on their own and, instead, have to partner with an entity that has a banking license.

For this reason, two of the biggest mobile network operators (MNOs) in Pakistan, Telenor and Mobilink, have partnered with microfinance banks to offer branchless banking products. While these partnerships are labeled “bank-led” in de jure terms, in de facto terms they are MNO-led, as the telcos dominate all aspects of these businesses. Apart from these telco-dominated entities, regular commercial banks also offer branchless banking products, including United Bank Limited’s Omni and Habib Bank Limited’s HBL Express, both of which are truly bank-led arrangements and are not offered in exclusive arrangement with one telco. There are a total of 12 branchless banking providers in Pakistan (FII 2021a). These entities share a network of 481,837 registered mobile money agents, of which 201,702 are active (SBP 2020c).

The third type of institution is the EMIs. These banking or nonbanking entities are not allowed to conduct full banking operations and are limited to offering only mobile wallet services for payment purposes. The novelty is that these institutions do not need to have a banking license to offer mobile wallet services. Thus, the introduction of EMIs officially marked an end to Pakistan’s bank-led model for providing mobile money services for payment purposes. The regulations for EMIs were announced in April 2019 (SBP 2019b), and as of April 2021, there were a total of seven authorized EMIs at various stages of licensing (SBP 2021b). Two of the seven were at the first stage of license approval and the other five were carrying out pilot operations. None of the providers had been awarded licenses to commence commercial operations. Because EMIs are at a very early stage, we will not be able to assess their impact on financial inclusion in Pakistan.

2.2. Types of financial accounts

In Pakistan, formal financial accounts can be divided into two categories, according to the stringency of requirements for opening and maintaining them. The first category includes accounts with high account opening and maintenance requirements, such as know-your-customer (KYC) requirements and minimum balance requirements, as well as high transaction limits. The second category includes accounts that have lower opening and maintenance requirements, as well as lower transaction limits. Table 1 has a breakdown of the various distinguishing features of these account types.

Table 1. Characteristics of various accounts in Pakistan, 2020

Requirement level	Type of account	KYC requirement	Minimum balance requirement	Transaction limit	Providers	Minimum mobile technology required
High requirements	Traditional bank account*	1. Computerized National Identity Card (CNIC) 2. Biometric verification 3. Proof of employment or business	PKR 10,000 for checking account** None for savings account ^a	Unlimited	Banks	Smartphone
Low requirements	Branchless banking account or mobile money wallet ^b	1. CNIC or equivalent 2. Biometric verification	None ^b	PKR 50,000 per day ^{b,**} PKR 200,000 per month ^{b,**}	Banks, microfinance banks	Basic mobile phone
	Asaan banking account ^c	1. CNIC or equivalent 2. Biometric verification	None	Total debits per month: PKR 500,000** Total credit balance: PKR 500,000**	Banks, microfinance banks	Smartphone
	EMI account ^d	1. CNIC or equivalent 2. Biometric verification	Information not available	PKR 10,000 per day** PKR 200,000 per month**	Banks, microfinance banks, and nonbanking entities**	Basic mobile phone

Source: Provided by the respective banks and MNOs: ^a Call to Muslim Commercial Bank helpline, (April 19, 2021); ^b SBP (2019a); ^c SBP (2015a); ^d SBP (2019b).

Notes: * There are exceptions, such as basic banking accounts and term deposits, which have slightly different requirements than these; this table refers to the more dominant checking and savings accounts. ** = as of April 2021. PKR = Pakistani rupees.

The first category, higher-requirement accounts, such as current (checking) and savings accounts, are offered only by traditional banks. These accounts generally offer Internet banking, and they can be accessed through a smartphone, be it through an app or the official website of the bank. These accounts can be used to make digital transfers as well as digital payments.

The second category, lower-requirement accounts, can be further divided into three subcategories. The first subcategory comprises the branchless banking or mobile money wallet accounts, which are offered by both banks and microfinance banks. These accounts

require the use of a mobile phone and thus require the financial institution to have a partnership with a telecom company, either exclusive or nonexclusive.

Pakistan's *Asaan* ("Easy") banking accounts belong to the second subcategory. These are offered by traditional banks but have lower requirements for opening and lower limits on transactions, including deposits.⁵ These features distinguish them from the regular savings and checking accounts offered by traditional banks. They are also different from mobile wallet accounts as they cannot be accessed through a basic phone but must be accessed via an app on a smartphone. Some banks that offer Internet banking on their high-requirement accounts also offer Internet banking on their *Asaan* accounts, but customers without a smartphone cannot use that feature, whether through the website or through an app.

The third subcategory contains payment accounts offered by EMIs. However, as discussed above, these accounts have yet to be commercialized.

One important point to note about the use of mobile phones to access financial accounts is that branchless banking and EMI accounts require at least a basic mobile phone. In contrast, customers of traditional banking accounts, whether they are regular checking and saving accounts or *Asaan* accounts, can access their accounts either by going to a bank branch, by using the Internet through a computer, or by using a smartphone.

In what follows, we will refer to the use of a mobile phone to access a traditional or *Asaan* bank account as "mobile phone banking." We will call branchless banking "mobile money" and its accounts "mobile money wallet" accounts.

In terms of the number of accounts, the SBP reported that by June 2020 there were a total of around 60 million traditional bank accounts (SBP 2021a). However, this number includes dormant accounts, and industry estimates of the number of active traditional bank accounts are not available. One survey of customers estimated that 80 percent of the bank accounts are active in a given 90-day period (FII 2021a), which would mean around 48 million active traditional bank accounts in Pakistan. In terms of mobile money accounts, the SBP reported 63 million accounts at the end of 2020; of these, only 37 million were active (SBP 2020c).

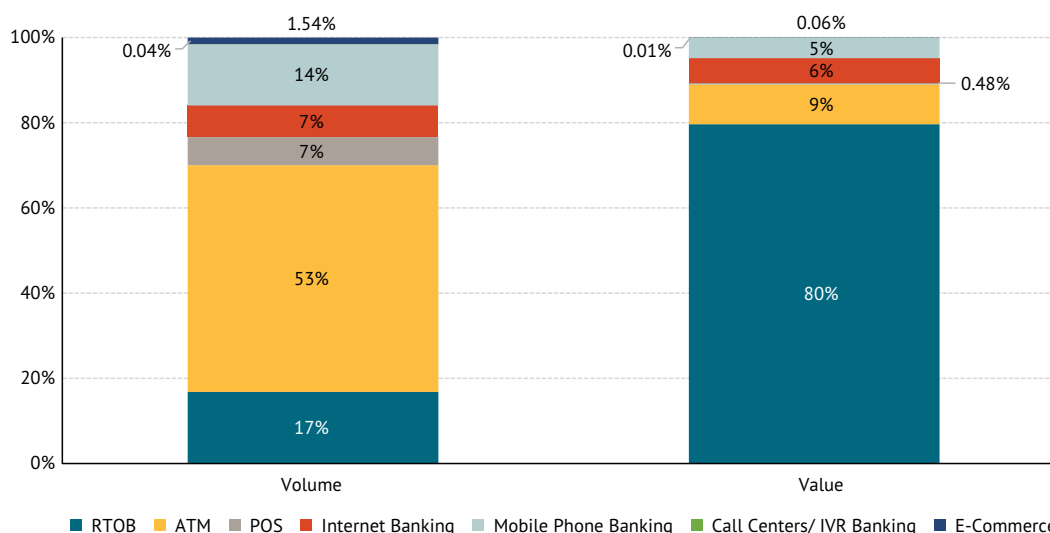
2.3. Digital payment and transfer transactions in Pakistan

Consistent with the discussion above, digital transactions in Pakistan can be divided into two main categories. The first is digital transactions (e-banking transactions) carried out through traditional banks, and the second is branchless banking transactions carried out through mobile wallets. Figure 1 shows the volume and value of the transactions carried out through these different channels. Although the statistics are for July–September 2020, the composition of the alternative channels used is representative of any quarter. During this quarter, a total of 254 million transactions were carried out, amounting to 15,285 billion

⁵ As of April 2021, these accounts can take deposits of a maximum of 500,000 Pakistani rupees.

Pakistani rupees (PKR) in value (SBP 2020d). These channels⁶ include real-time online banking (RTOB),⁷ ATMs,⁸ Internet banking,⁹ mobile phone banking,¹⁰ interactive voice response (IVR),¹¹ point of sale (POS)¹² and E-Commerce.¹³

Figure 1. Breakdown of e-banking transactions, Pakistan, July–September 2020



Source: SBP (2020d).

⁶ The terms used to describe the transaction types in Figure 1 and Figure 2, and throughout the remainder of this paper, are those used by the SBP.

⁷ RTOB transactions occur at bank branches that offer real-time and online banking services. These transactions accounted for 80 percent of the payment and transfer transactions within e-banking channels during the period studied. Within this subset, interbank fund transfers accounted for 70 percent of the value, 21 percent were cash deposits, and 9 percent were cash withdrawal transactions.

⁸ ATM transactions accounted for 9 percent of the value of the e-banking transactions. Cash withdrawals seemed to be the predominant use of ATMs, accounting for 96 percent of transaction volume and 90 percent of the value. Interbank fund transfers accounted for 6 percent of the value of ATM transactions, while cash/instrument deposits accounted for just 1 percent. Utility bill payments were only 0.41 percent of ATM transactions. In addition, 95 percent of ATM transactions were conducted using debit cards.

⁹ Internet banking is use of the Internet to conduct banking transactions. Such transactions accounted for 6 percent of the value of e-banking transactions during the period in question. Of these, 41 percent were interbank transfers, while another 38 percent were intrabank transfer transactions. Miscellaneous payments through the Internet accounted for 15 percent of these transactions, while utility bill payments accounted for 6 percent.

¹⁰ Mobile phone banking is the use of a mobile phone to access a commercial bank account. Such transactions accounted for 5 percent by value of e-banking during the period. The breakdown of these transactions is similar to that of Internet banking transactions, as inter- and intrabank fund transfers accounted for 82 percent of these transactions' value. Miscellaneous payments were 14 percent by value, and utility bill payments 4 percent.

¹¹ IVR accounted for a mere 0.01 percent of the value of e-banking transactions during July–September 2020. Miscellaneous payments through calls accounted for 74 percent of the value, while intrabank fund transfers accounted for 21 percent of the value of such transactions.

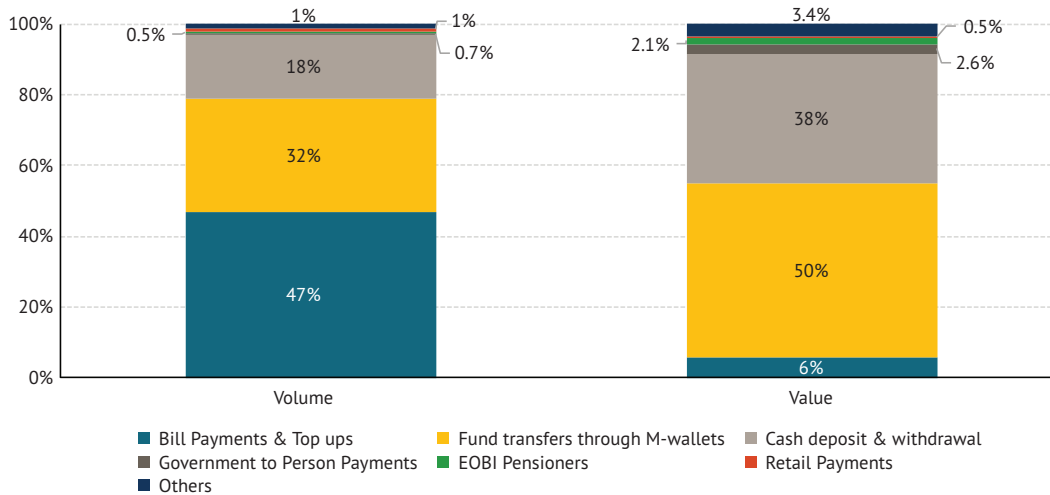
¹² POS transactions accounted for 0.48 percent of the value of payment transactions, with 54 percent of these transactions carried out using debit cards and 45 percent using credit cards.

¹³ E-Commerce transactions accounted for 0.06 percent of the value and 1.54 percent of the volume of payment transactions.

As the figure shows, ATMs have the highest transaction volume among e-banking transactions, at 53 percent. However, in terms of value, they make up only 9 percent. RTOB transactions, which include interbank fund transfers as well as cash deposits and cash withdrawals, are 80 percent by value. E-commerce transactions using traditional bank accounts make up 1 percent of e-banking by volume but only 0.01 percent by value.

Figure 2 shows the breakdown of mobile wallet transactions during the same period, July–September 2020. During this time, 422 million transactions were carried out, valued at PKR 1,210 billion (SBP 2020b).

Figure 2. Breakdown of mobile wallet transactions, Pakistan, July–September 2020



Source: SBP (2020b).

Note: EOBI = Employees’ Old-Age Benefits Institution.

As shown in the figure, mobile wallet transactions include bill payments and top-ups, funds transferred through mobile money wallets, cash deposits and withdrawals into and from mobile money wallets, retail payments, government-to-person payments, and pension payments.¹⁴ The “others” category includes interbank fund transfers, donations, loan payments (including disbursements as well as repayments), account opening transactions, cash collection/payment services, and international remittances.

Bill payments and mobile phone airtime top-up transactions accounted for 47 percent of transaction volume but only 6 percent of the value of mobile money wallet transactions. Funds transfers accounted for 50 percent by value and 32 percent by volume. Retail payments were 1 percent by volume and 0.5 percent by value. It is important to note here that the bulk of e-banking as well as mobile money transactions in Pakistan are money transfer transactions, while payments are a very small fraction of these transactions.

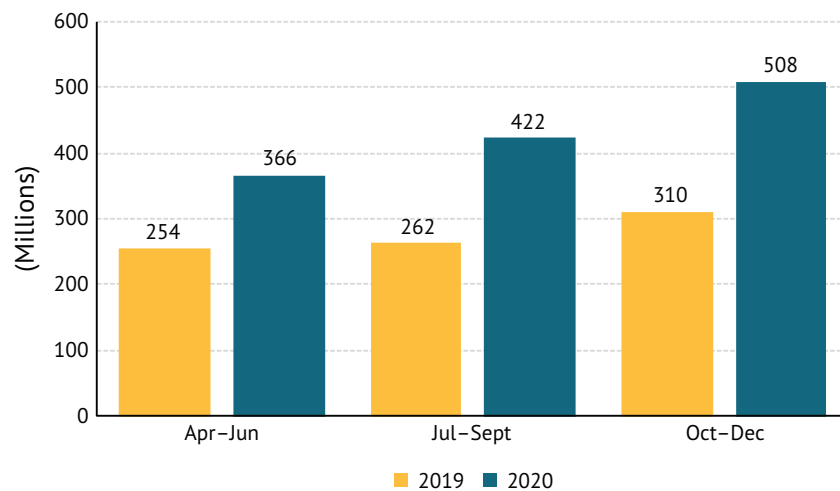
¹⁴ The Employees’ Old-Age Benefits Institution (EOBI) is an institution of the government of Pakistan that is responsible for pensions, old age benefits, and social insurance. More details at <http://www.eobi.gov.pk/>.

An essential element of the payments and transfers infrastructure is the ability of the system to perform settlements of transactions between financial institutions. In Pakistan, large-value transactions among banks are settled on the Pakistan Real-Time Interbank Settlement Mechanism (PRISM) system. PRISM settles only large-value transactions among banks and does not cover smaller, retail-level payment transactions. To address this shortcoming, on January 12, 2021, the SBP launched Raast, a mechanism that will enable real-time settlement of small-value retail payment transactions (SBP n.d.). The authorities expect it to have a positive impact on the ease and acceptability of digital payment transactions in Pakistan.

2.4. COVID-19 and digital payments

Pakistan confirmed its first case of COVID-19 on February 26, 2020 (Abid et al. 2020). Subsequently, the provincial governments (Samar 2020) as well as the federal government (*Xinbuanet* 2020) announced lockdowns starting around the end of March 2020 and lasting until the beginning of May 2020 (Khan 2020). After that, Pakistan adopted a strategy of “smart lockdowns” that were more localized in nature (Ahmad, T. 2020). During the COVID-19 crisis, Pakistan has seen an uptick in the use of mobile money wallets. Figure 3 shows the increase in the volume of mobile money wallet transactions on a quarterly basis. The largest increase was recorded in September–December 2020, with a 78 percent jump when compared with the same period in 2019.

Figure 3. Mobile wallet transactions before and during COVID-19, Pakistan, 2019–2020



Source: SBP (2019c, 2019d, 2019e, 2020a, 2020b, 2020c).

Note: Data for January–March were not reported for 2019. Therefore, a comparison could not be done with 2020 for that quarter.

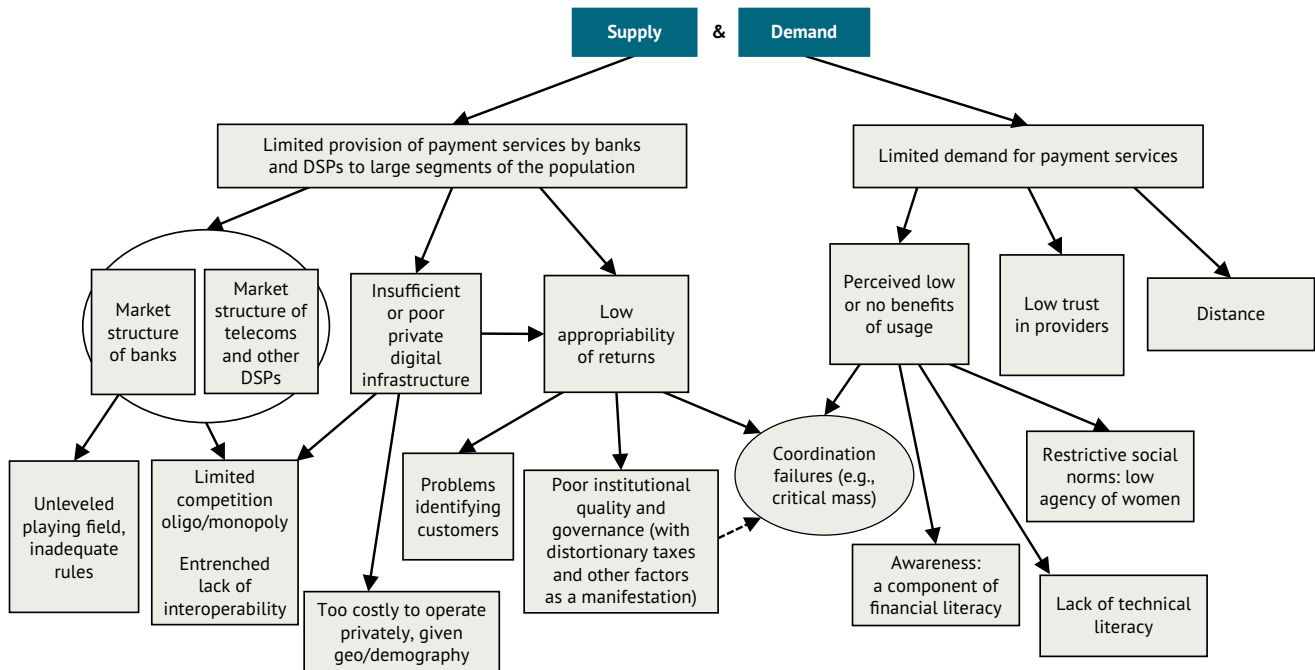
3. Analytical framework

As discussed in the introduction, this paper applies the analytical framework from Claessens and Rojas-Suarez (2020) to identify the binding constraints on financial inclusion, focusing on payment and transfer services. This section presents a summary of the key elements of this methodology, which is further developed in Appendix 1.

The Claessens and Rojas-Suarez (2020) framework, called “A Decision Tree for Digital Financial Inclusion,” divides potential constraints (branches of the tree) into those that affect digital financial service providers (supply-side constraints) and those that affect the customers of these services (demand-side constraints). Because of the different characteristics of alternative digital financial services, the framework proposes a separate tree for each specific service. In this paper, we follow the tree for payments and transfers.

The tree uses a top-down approach. The potential drivers of low financial inclusion, the upper branches of the tree, are caused by factors that are presented in the lower branches. By analyzing each branch of the tree and the branches’ interrelations, the methodology aims to find the root causes of low digital financial inclusion in specific country settings. Figure 4 shows the decision tree for payments and transfers used in this paper, which is a version of the original payments and transfers tree from Claessens and Rojas-Suarez (2020) that is slightly edited to incorporate elements specific to Pakistan.

Figure 4. Payments and transfers decision tree for Pakistan



Source: Adapted from Claessens and Rojas-Suarez (2020).

Note: DSP = digital service provider.

On the supply side, the tree identifies three factors (top branches of the tree) that could result in limited provision of services by banks as well as by telecoms and other digital service providers: constraints related to the market structure of the providers, insufficient provision of digital infrastructure, and problems providers face in appropriating the returns from their investments.

The market structure of banks and digital financial service providers is defined by the characteristics of the markets where they operate. In turn, these are affected by the rules and regulations governing these markets and their level of competition. Constraints on the provision of digital financial services can arise when regulators do not establish a level playing field that treats all types of functionally equivalent financial services similarly and when the stringency of regulations is not based on the risks that providers pose to customers and the overall financial system. Likewise, lack of competition among the providers, due to the existence of oligarchies or even monopolies, could also result in limited provision of services. The second upper-level branch is digital infrastructure, which is naturally key when it comes to the provision of digital financial services. Low provision of infrastructure can in turn result from insufficient competition in that market. The third upper-level branch is low appropriability of returns—that is, an inability of providers to capture profits from offering services. There could be numerous potential reasons for this constraint, but in the case of Pakistan, three stand out: problems in verifying the identify of customers, often related to stringent KYC requirements; poor institutional quality and governance issues, which translate to the continuous imposition of distortionary polices, including distortionary taxes, that hamper the provision of financial services; and coordination problems whereby, in the absence of a critical mass of customers, the providers can't reach the necessary economies of scale to make their services profitable. In this case, supply and demand constraints interact since a low uptake of (low demand for) the service becomes a supply constraint.

On the demand side, the tree flags three major potential constraints (upper branches) that could result in a limited demand for payment services. The first constraint relates to customers' perceptions that the benefits of subscribing to digital financial services are low or even not existent. This perception can be related to (shown in lower branches of the tree) a lack of awareness about the features of financial services; a lack of the technical literacy needed to operate a mobile phone; and the presence of restrictive social norms, particularly relevant in the case of women, who may have low agency to take up these services, even if they were interested, due to sociocultural constraints. The perception of low benefits can also be linked to coordination failures by contributing to the lack of a critical mass of demand that may limit suppliers' interest in providing the service. It should be noted that we have built on the Claessens and Rojas-Suarez (2020) framework by adding the constraints of lack of awareness, lack of technical literacy, and social norms, since we believe they are the most relevant demand-side constraints for the case of Pakistan.¹⁵ As will be discussed below, social norms in Pakistan bar women from owning mobile phones.

¹⁵ Claessens and Rojas-Suarez (2020) included financial literacy and technical literacy in their decision trees for store-of-value and credit services, but not in the tree for payments and transfers.

The second upper branch on the demand side refers to customers' low trust in financial services providers, which can result in low uptake, since customers will be reluctant to use products they do not have confidence in. Distance from financial access points, such as mobile money agents, banks, or ATMs, is the third upper branch that can also hamper uptake of services.

To identify binding constraints, we follow the systematic approach of Claessens and Rojas-Suarez (2020), who, in turn, adopted Hausmann, Rodrik, and Velasco's (2008) framework and four principles for evaluating constraints. The first principle entails considering the overall market and shadow prices for the relevant payment and transfer services. Evidence of low usage of a service is not enough to determine whether a binding constraint is on the demand or the supply side. Higher prices relative to (properly adjusted) customary prices in other countries signal the presence of a supply-side binding constraint because suppliers are willing to offer (limited quantities of) digital financial services only if they can charge high fees and commissions. In contrast, if service usage remains low even when prices are also low, it likely indicates that the demand is depressed due to specific factors related to the unwillingness or inability of consumers to use the service; that is, low prices in this case signal the presence of a demand-side binding constraint.

The second principle consists of looking for evidence about whether the relaxation of the constraint has had any impact on the adoption of the financial service. For instance, if KYC restrictions are relaxed (or eliminated) and that change results in a significantly higher adoption of formal financial accounts, then the previous KYC restrictions were most likely a binding constraint.

The third principle highlights the importance of looking for evidence of whether users are trying to bypass a constraint, which would signal that the constraint was actually binding. For instance, evidence of the unbanked and undocumented using the financial accounts of the banked to conduct transactions is likely a sign that documentation requirements are a binding constraint.

The fourth principle indicates that if users for whom the constraint is relaxed are doing better than those for whom it is not, this constraint is likely binding for a section of the population. For instance, if a lack of POS machines in certain areas of a country is resulting in low usage of credit cards, and a large proportion of people living close to shops with POS machines are also credit card holders, then this situation could indicate that weak POS infrastructure is a binding constraint for populations in areas where that infrastructure is lacking.

The following sections apply the Claessens and Rojas-Suarez (2020) framework and the Hausmann, Rodrik, and Velasco (2008) principles to the payments and transfers tree for Pakistan. Section 4 applies the first principle, offering a price comparison of relevant payment and transfer services between Pakistan and a selected set of other countries.

4. Analysis of prices for payment and transfer services: A cross-country comparison

As noted in the section above on methodology, analyzing fees charged for the provision of payment and transfer services is a first useful step to start the search for binding constraints. The behavior of these fees can provide important information to identify whether the binding constraints can be found on the supply side or the demand side of the decision tree. To this end, we begin our analysis with a comparison of Pakistan with other selected countries on fees charged for digital transfer and withdrawal services (Table 2). For each country, one representative product is chosen and compared with Easypaisa, one of the two most popular mobile money products in Pakistan, offered by Telenor Microfinance Bank.

Table 2. Mobile wallet transaction costs, Pakistan and comparators, December 2020

Country	Pakistan	Kenya	Ghana	Bangladesh	Tanzania	South Africa	Nigeria	Pakistan's position ^a
Product	Easypaisa	M-Pesa	MTN MoMo	bKash	Tigo Pesa	MTN MoMo	MTN Nigeria	
Money transfer (over-the-counter)^b								
US\$1	0.32	0.14	0.20	N/A	INA	0.11	INA	1st
US\$10	0.59	0.15	0.23	N/A	INA	0.11	INA	1st
US\$100	2.27	0.84	2.26	N/A	INA	0.11	INA	1st
Money transfer (wallet to unregistered person)^c								
US\$1	0.21	0.23	0.12	0.00	INA	0.11	0.01	2nd
US\$10	0.42	0.31	0.14	0.03	INA	0.11	0.10	1st
US\$100	1.69	1.38	1.35	0.03	INA	0.11	0.99	1st
Cash withdrawal (cash-out)^d								
US\$1	0.03	0.14	0.04	0.01	0.16	0.02	0.00	4th
US\$10	0.18	0.15	0.05	0.10	0.74	0.11	0.05	2nd
US\$100	1.50	0.84	0.46	0.95	2.12	0.34	0.49	2nd
ATM withdrawal^e								
US\$1 ^f	N/A	N/A	SNP	N/A	SNP	SNP	SNP	N/A
US\$10	0.14	0.18	SNP	N/A	SNP	SNP	SNP	2nd
US\$100	0.64	1.03	SNP	0.77	SNP	SNP	SNP	3rd

Sources:

Pakistan—Telenor Microfinance Bank Ltd., <https://telenorbank.pk/wp-content/uploads/2021/02/BranchlessBankingQ1-2021English.pdf>.

Kenya—Airtime: Safaricom, <https://www.safaricom.co.ke/personal/m-pesa/getting-started/m-pesa-tips>; other charges: Safaricom, <https://www.safaricom.co.ke/personal/m-pesa/getting-started/m-pesa-rates>; retail payments: CGAP Blog, <https://www.cgap.org/blog/fixing-hidden-charges-lipa-na-m-pesa>.

Ghana—MTN Group, <https://mtn.com.gh/insight/momo-tariffs/>; MoMo Pay: Techjaja, <https://techjaja.com/pay-good-services-without-mobile-money-charges-using-mtns-momo-pay/>.

Bangladesh—bKash, <https://www.bkash.com/support/tariff-limits/tariff>.

Tanzania—Tigo, <https://www.tigo.co.tz/tigo-pesa-tariffs>.

South Africa—Mobile Telephone Networks, <https://www.mtn.co.za/Pages/momo-mobile-money.aspx>.

Nigeria—Bitcoin Africa, <https://bitcoinafrica.io/mtn-nigeria/>.

Notes:

The prices for each product were converted from local currency into 2019 US dollars and then normalized by the GNI per capita. The resulting estimate was multiplied by 1,000 to ensure legibility in the table.

^a The higher the position, the higher the fees charged for a given service.

^b In this transaction, a person uses his or her own Computerized National Identity Card (CNIC) number and the account of a mobile money agent to send money to another person. The recipient can withdraw this money via a mobile money agent. This same method can be used to send money to a mobile money wallet account.

^c *Unregistered person* here means someone who does not have a wallet account. The wallet owner sends the money using the CNIC number of the unregistered person, and the unregistered person withdraws the amount from a mobile money agent.

^d Withdrawal of e-money as cash from a mobile money agent.

^e Withdrawal of e-money as cash from an ATM.

^f The minimum withdrawal amount for ATMs is greater than US\$1 for all the providers considered in this table.

INA = information not available; N/A = not applicable; SNP = service not provided.

Table 2 shows, for several products, the cost of conducting a transaction of US\$1, US\$10, and US\$100, normalized by the country's GNI per capita. It does not include the following services, which are offered at zero cost in virtually all of the countries under consideration: opening wallet accounts,¹⁶ cash deposits (cash-in),¹⁷ utility bill payments,¹⁸ retail payments,¹⁹ and buying airtime.

The services presented in Table 2 are all related to transfers and cash withdrawals. The table shows that for transfer transactions involving unregistered users, be it “over-the-counter” (OTC) transactions or transfers from wallet users, prices tend to be higher in Pakistan than in comparator countries. Only for smaller cash withdrawals does Pakistan drop from being the highest-priced country. On an overall basis, this exercise shows that prices in Pakistan are high. Following the decision tree framework, this suggests that supply-side constraints dominate in the digital payment services (DPS) space in Pakistan.

However, it is important to note that in addition to fees, customers incur several other costs when making a digital transaction. These could include transportation costs for traveling to a mobile money agent, the cost of a mobile phone, and the cost of data (when using a smartphone and the Internet). These essential costs paid by the consumer to access digital financial services are not included in the table, suggesting a limitation on the above interpretation of the price signals and reinforcing the need for a detailed analysis of all branches of the decision tree, on both the supply and the demand side. This analysis follows, starting on the supply side.

¹⁶ This could not be confirmed for Tanzania's Tigo Pesa.

¹⁷ This could not be confirmed for MTN MoMo in Ghana.

¹⁸ Only Ghana's MTN MoMo charges a fee, a flat US\$0.08.

¹⁹ This could not be confirmed for Tanzania's Tigo Pesa.

5. Supply-side analysis

On the supply side, potential constraints could occur because of a lack of competition in the market, including the presence of low or no interoperability of payment systems and networks; an unlevel regulatory playing field, particularly one biased against nontraditional providers; or problems faced by suppliers in appropriating returns from their investments. The latter can, in turn, be potentially explained by weak institutional quality, distortionary taxes, problems in verifying the identity of customers, or coordination failures between providers and consumers. Below, we will explore the relevance of each of these constraints for Pakistan.

5.1. Market structure

5.1.1. Limited competition through oligarchy or monopoly

This section will focus on assessing the level of competition and the presence of any oligarchies or monopolies that might be stifling the market in Pakistan.

When it comes to the banking industry in Pakistan, Khan and Hanif (2017), using PR-H statistics,²⁰ showed that competition within the banking industry in Pakistan has increased since the global financial crisis of 2008. The authors used the Boone indicator of competition to arrive at the conclusion that inefficient banks have been losing market share to more efficient banks, indicating that competition among banks increased between 1996 and 2015. Another relevant index is the Lerner index²¹ as used by Demirgüç-Kunt and Peria (2010). The index rates a country's competition from 0 to 1, with 0 indicating perfect competition, i.e., lower scores indicates higher competition. One shortcoming of this indicator is that for Pakistan its latest estimates are for 2011. However, for that year Pakistan had a score of 0.07, which is comparable to some countries in the developed world, and much lower than that for India at 0.2. Given this evidence, we conclude that there is a relatively high level of competition within the traditional banking industry in Pakistan.

For the mobile money industry, we use the Claessens and Rojas-Suarez (2020) approach to gauge the competitiveness of the financial sector in providing payment and transfer services. The approach involves three levels of assessment. The first one is to compare the product offerings of nontraditional financial service providers with those of traditional financial service providers, to assess whether nontraditional providers have a limited service offering when compared with payment services. The second is to evaluate the level of competition

²⁰ They estimated the PR-H statistic (Panzar-Rosse H statistic) by using a balanced panel of data covering 24 commercial banks operating in Pakistan from 1996 to 2015.

²¹ Described by the World Bank (2021) as “a measure of market power in the banking market. It is defined as the difference between output prices and marginal costs (relative to prices). Prices are calculated as total bank revenue over assets, whereas marginal costs are obtained from an estimated translog cost function with respect to output. Higher values of the Lerner index indicate less bank competition.”

at the individual or company level. The third is to look for evidence of cooperation among the various entities that could promote financial inclusion.

For the first assessment, we compare service offering by two of the biggest MNO (in partnership with banks) mobile money providers, Telenor (offering Easypaisa) and Jazz (offering JazzCash), with those from two of the largest commercial banks, National Bank of Pakistan and Habib Bank. Table 3 shows that traditional and nontraditional mobile money providers are offering the same services and financial products in relation to payments.

Table 3. Payment and transfer service offerings of nontraditional and traditional financial service providers, Pakistan

	Nontraditional financial service providers		Traditional financial service providers	
	Telenor Easypaisa	Jazz* JazzCash	Habib Bank Limited (HBL)	Muslim Commercial Bank (MCB)
Airtime top-up	Yes	Yes	Yes	Yes
Online shopping	Yes	Yes	Yes	Yes
Payments via QR code	Yes	Yes	Yes	Yes
Bill payment	Yes	Yes	Yes	Yes
P2P payment	Yes	Yes	Yes	Yes
Debit card	Yes	Yes	Yes	Yes

Sources:

Easypaisa—<https://easypaisa.com.pk/products-promotions/>.

JazzCash—<https://www.jazzcash.com.pk/mobile-account/>.

HBL—<https://www.hbl.com/personal/accounts/#current> and <https://www.hbl.com/personal/digital-banking>.

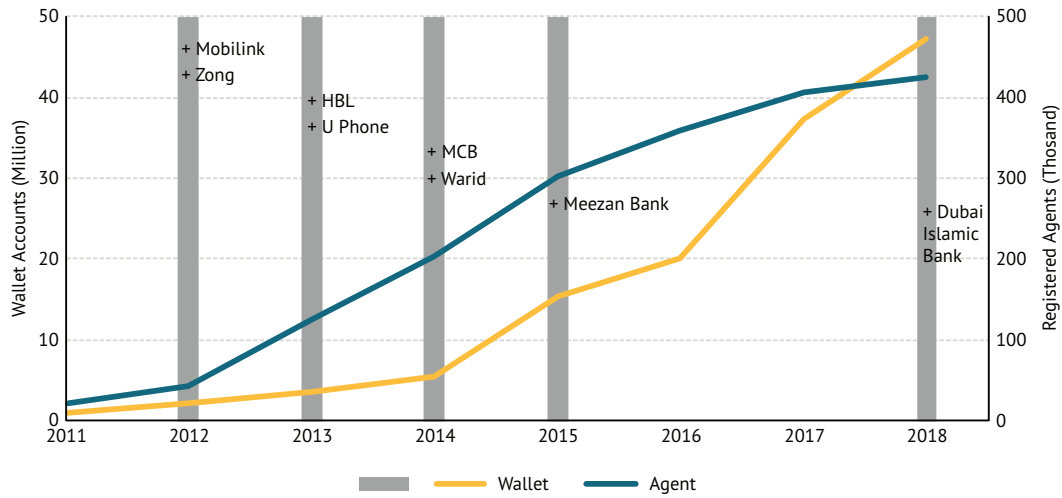
MCB—<https://www.mcb.com.pk/personal-product/current-accounts> and <https://www.mcb.mu/en/juice/support/merchant-payment>.

Notes: * Jazz was formerly known as Mobilink and JazzCash as Mobicash. P2P = person-to-person.

Moving on to the second level of assessment, the mobile money market in Pakistan has seen some intense competition over the years. Figure 5²² shows the entry of new players into the market and the subsequent increase in wallet and mobile money account and agent registrations.

²² The number of mobile wallet accounts per agent has risen from 41 to 111 during this period. Although high, this is at half the level of better doing countries such as Kenya, which had a ratio of 215 accounts per agent for 2018. See: <https://www.mobileworldlive.com/money/news-money/kenyan-mobile-money-transactions-top-27b>.

Figure 5. Market entries and number of wallet accounts and agents, Pakistan, 2011–2018

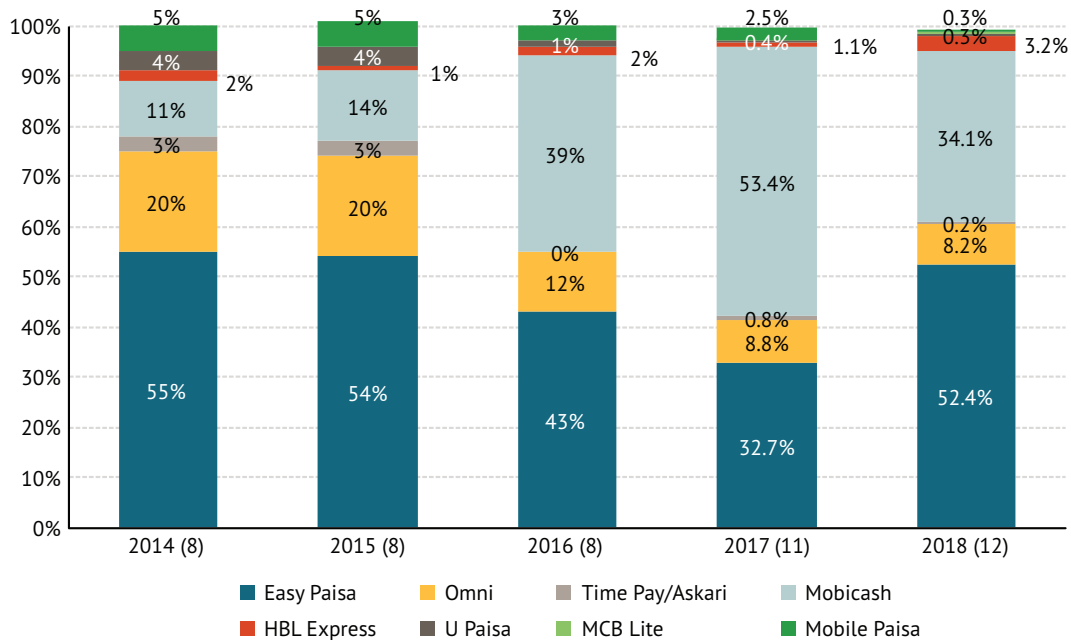


Source: SBP (2018a).

In Figure 6, we look at how market share by transaction volume evolved from 2014 to 2018.²³ As the figure shows, market shares have changed quite a bit during the course of these five years. UBL Omni, one of the earliest entrants, accounted for 20 percent of transactions at the end of 2014; however, by 2018 its share had been reduced to 8 percent. At the same time, the share of Mobilink’s Mobicash (now known as JazzCash) rose from 11 percent in 2014 to 34 percent in 2018. These changing market shares might indicate increased competition among the various providers.

²³ The number in parentheses next to each year shows the number of providers in that year. Here too we see a consistent increase in the number of mobile money providers.

Figure 6. Provision of mobile money, percentage of market share by transaction volume, Pakistan, 2014–2018



Source: SBP (2018a).

Note: Values in parentheses indicate the number of mobile money providers in existence each year.

Finally, at the third level of assessment, there is also evidence of financial technology (or *fintech*) startups collaborating with traditional players. This includes payment aggregator SimPaisa,²⁴ which is connected to all major MNOs. TezFinancial²⁵ is another such entity that offers financial products to the unbanked.

While the overall level of competition in many sectors in Pakistan might be limited, in the mobile money industry, competition has been intense, with regular entry of new players and changes in relative market shares. Given this evidence, it is unlikely that limited competition is a constraint when it comes to Pakistan’s targets for achieving financial inclusion.

5.1.2. Lack of interoperability

Lack of interoperability of digital financial networks affects competition in that it limits the consumer’s choices between different providers and products. This can restrict the number of transactions as well as the consumer appeal of digital finance.

In Pakistan, the issue of interoperability in digital finance is mostly related to the mobile money industry. This is because Pakistan is one of those very few countries that initiated

²⁴ SimPaisa, <http://www.simpaisa.com/>.

²⁵ Tez Financial Services, <http://www.tezfinancialservices.pk/index.php>.

ATM interoperability in the mid-1980s, when ATMs were introduced in the country. The first shared switch in the 1980s had two banks, and this was followed by the introduction of the MNET switch by MCB in 2001 and then the 1Link switch, backed by a consortium of 11 member banks, in 2003. In 2004, the SBP mandated that the two switches become interoperable, thus creating a network of 350 interoperable ATMs; by December 2018, this number had jumped to approximately 14,000 interoperable ATMs across Pakistan (SBP 2016a).

Interoperability among mobile money providers occurs at three different levels, according to Bourreau and Valletti (2015). The first is the mobile network level, where customers can access mobile money services using any SIM card; the second is at the agent level, where agents can offer services from different providers; and the third is at the platform level, where users of one service can send money to accounts on other services.

5.1.2.1. Interoperability at the mobile network level

At the inception of mobile money in Pakistan, there were two popular mobile money models. The first was the one-to-many model (SBP 2016c), whereby a mobile money provider could offer mobile money services to subscribers of any telecom company. This arrangement was interoperable at the network level and was popular among those mobile money providers that were not involved in a partnership with a single telecom operator; examples of providers under this arrangement include UBL Omni, HBL Express, MCB Lite, Meezan Bank, and others (SBP 2012a).

The other popular model was the one-to-one model, whereby a mobile money provider offered its services to the subscribers of only one telecom company (SBP 2016c). Examples of this type of arrangement include Telenor's Easypaisa, Jazz's JazzCash, and so on (SBP 2012). These companies also accounted for the bulk of the market share, as seen in Figure 6.

By 2015, providers under the one-to-one model dominated mobile money market transactions in Pakistan. For instance, just Easypaisa and JazzCash (formerly known as Mobicash) accounted for 68 percent of the overall volume of mobile money transactions (SBP 2016b). This constituted a problem, as the bulk of the country's mobile wallet accounts were not interoperable at the mobile network level. However, in 2016, both of these players, Easypaisa (Yusufzai 2017) and JazzCash (Tech Prolonged 2016), announced that they were switching to the one-to-many model, meaning that their mobile wallet accounts could be subscribed to from any network. Therefore, at the mobile network level, there are now no interoperability issues in Pakistan. Subscribers with registered phone SIMs can subscribe to wallet accounts other than those offered by their telecom network provider.

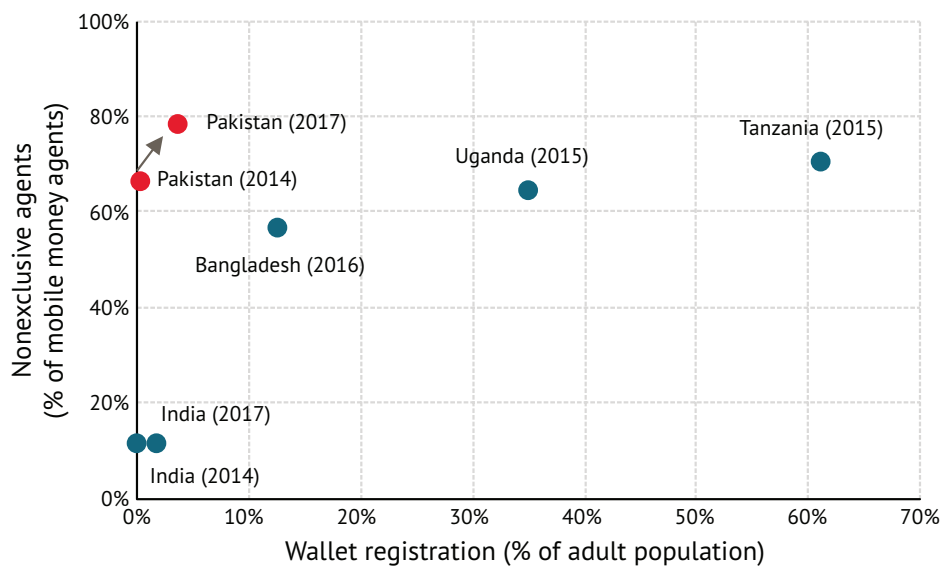
5.1.2.2. Interoperability at the agent level

Mobile money agents that are interoperable, also known as *nonexclusive agents*, can offer the services of more than one mobile money provider. According to estimates from the Agent Network Accelerator (ANA) survey, Pakistan has one of the highest levels of nonexclusivity

in the world. The 2014 ANA survey estimated it to be at 60 percent, while the 2017 ANA survey estimated it at 78 percent. According to the ANA 2017, profitability is a crucial factor that has spurred Pakistan’s nonexclusivity, with nonexclusive agents found to be twice as profitable as exclusive agents (Khan, I., et al. 2017).

Figure 7 compares Pakistan against other countries on agent exclusivity.²⁶ The figure does not show a relationship between nonexclusivity and mobile money (wallet) registration, signaling that the degree of agent interoperability is not a binding constraint in Pakistan. Countries with much higher ratios of wallet registration, such as Uganda and Tanzania, have levels of agent interoperability similar to Pakistan’s.

Figure 7. Agent nonexclusivity and wallet registration, Pakistan and comparator countries, 2014–2017



Sources: ANA surveys (Khan, I., et al. 2017) and FII surveys (FII 2015, 2016, 2017c).

However, nonexclusivity is still dependent on the mobile money agent’s option to choose to represent multiple providers. Customers cannot use the mobile money agent of a different provider. For instance, if a JazzCash customer wants to withdraw cash, it is essential to do so from a JazzCash agent and not an Easypaisa agent. Furthermore, mobile money agents who offer the services of more than one mobile money provider have to divide their investment in e-money²⁷ among the accounts of the various providers, often choosing based on their relative uptake by consumers.

²⁶ One constraint in this analysis is the lack of more recent estimates; thus, Figure 7 does not reflect the current situation.

²⁷ E-money is the electronic money that enables a mobile money agent to transfer funds to another account or pay utility bills electronically in return for receiving cash from the customer. This also enables the mobile money agent to transfer electronic money into a wallet account in return for a customer’s cash (i.e., to cash in or take a deposit).

A relevant recent development is the plan to introduce the Asaan Mobile Account (AMA), the same as a mobile money account but interoperable at the agent as well as the mobile network level. AMAs are being developed by the SBP and the Pakistan Telecommunication Authority, and all mobile money providers, as well as their agents (Hassan 2020), will be required to offer them. Thus, wallet accounts will truly become interoperable at the agent level.

Therefore, even though there is no full agent-level interoperability, it will be there soon. Moreover, even now, international comparisons show that the current level of agent interoperability is not a binding constraint on the adoption of mobile wallet accounts in Pakistan.

5.1.2.3. Interoperability at the platform level

Interoperability at the platform level allows customers of different mobile money providers to transfer funds to each other through their wallet accounts. Furthermore, it also enables holders of mobile wallet accounts to transfer funds to traditional bank accounts through account-to-account interoperability (*Mobile for Development* 2016).

In Pakistan, ATM interoperability and interbank switching services between banks are provided by 1Link, a company established in 1999 (Naji 2020). Given Pakistan's bank-led model, even the MNO-dominated mobile money providers, such as Easypaisa and JazzCash, were already connected to 1Link through their partnerships with banks. When platform-level interoperability was launched in March 2014, all of the mobile money providers got connected within that year (Naji 2020).

In the aftermath of that connectivity, the value of mobile money transactions increased by about 225 percent over three quarters, from October 2014 to September 2015 (Better Than Cash Alliance 2015), and there was a 183 percent increase in mobile wallet registrations, indicating that the lack of platform-level interoperability could have been a potential constraint. However, since then, that constraint seems to have been removed; in fact, in 2016 the GSMA, an industry association for mobile operators, referred to Pakistan as "one of the most interoperable markets in the world today" (*Mobile for Development* 2016).

To conclude, the level of interoperability in Pakistan, be it at the mobile network level, at the agent level, or at the platform level, is unlikely to constrain mobile wallet adoption in Pakistan.

5.1.3. Unlevel playing field

Rules and regulations have the potential to favor some providers over others. Such distortions create barriers to entry that hamper competition and act as a constraint on the development of financial inclusion in a country. In the next section we look at whether the differences in the rules and regulations faced by traditional banks and nonbank mobile money providers constitute a constraint on financial inclusion in Pakistan.

In many countries the absence of a legal framework for the issuance of e-money is an important regulatory constraint. Some countries, like Argentina, did not have these rules in place until 2019 (*Economist Intelligence Unit* 2020). However, Pakistan issued its Branchless Banking Regulations in 2008, becoming the first country in South Asia to do so (Naji 2020).

Access to payments as well as telecom infrastructure is another area in which regulations can act as a barrier to entry. In 2014 the SBP issued rules for payment system operators (PSOs) and for payment service providers (PSPs).²⁸ Under these rules, the PSOs and PSPs were allowed to engage in business with “banks, [financial institutions] and other PSOs and PSPs, Merchants, e-commerce service providers and any other company for the provision of services mandated to the PSO and PSP under these rules” (SBP 2014a). The Global Microscope on Financial Inclusion, from the *Economist Intelligence Unit* (EIU), describes this access to be “fair and nondiscriminatory” (2020). As a result, mobile money providers, including those dominated by MNOs, have been given access to the existing infrastructure used by traditional bank providers, including both PRISM (SBP 2010a) and the interbank switching company 1Link (Naji 2020).

The Consultative Group to Assist the Poor (CGAP) identifies e-money issuance as one of a nonbank’s four basic regulatory enablers (Staschen and Meagher 2018). Data from Africa suggest that countries where nonbank entities are allowed to issue e-money generally have higher mobile money use by people in the lowest two income quintiles than countries following bank-led models (Kendall 2012). As discussed in Section 2, Pakistan’s regulatory framework followed a bank-led model until 2019, when the EMI regulations were introduced (SBP 2019b), allowing nonbanking institutions to offer financial products. Before 2019 even the mobile money providers that are dominated by MNOs, such as Easypaisa and JazzCash, had to partner with banks to be able to offer mobile money services. Also, as discussed in Section 2, results from the new regulation cannot be assessed since no operating license has yet been granted to an EMI corporation.

Table 4 compares Pakistan’s regulations on three indicators from the EIU’s Global Microscope on Financial Inclusion for 2018 with those of other countries. It is safe to assume that with the EMI regulations of 2019, Pakistan’s position in the ranking on disproportionate requirements for mobile money service providers is likely to increase (*Pakistan Today Profit* 2019). These four indicators measure the appropriateness of the initial requirements for entry and ongoing requirements for operations for both banks and mobile money providers. The table also includes Global Findex estimates of financial inclusion for 2017 (World Bank 2017).

²⁸ The SBP defines these actors, respectively, in these terms: “Payment System Operator and Payment Service Provider (PSO and PSP) means such Authorized Party that is a company registered under Companies Ordinance 1984 and is engaged in operating and/or providing Payment Systems related services like electronic payment gateway, payment scheme, clearing house, ATM Switch, POS Gateway, E-Commerce Gateway etc. acting as an intermediary for multilateral routing, switching and processing of payment transactions” (SBP 2014a).

Table 4. Initial and ongoing requirements for banks and mobile money service providers, Pakistan and comparator countries, 2018

Country	Disproportionate requirements for banks		Disproportionate requirements for nonbank mobile money service providers ^a		
	Initial requirements for entry ^b	Ongoing requirements for operation ^c	Initial requirements for entry ^d	Ongoing requirements for operation ^e	Financial inclusion
Pakistan	75	50	67	50	21%
Kenya	100	50	100	75	82%
Philippines	75	75	100	100	34%
Colombia	100	25	100	100	46%
India	50	75	83	75	80%
Argentina^f	100	75	17	100	49%

Sources: *Economist Intelligence Unit* (2020); financial inclusion data from World Bank (2017).

Notes:

^a The EIU Global Microscope on Financial Inclusion refers to these as “e-money issuers.”

^b “Disproportionate initial requirements for banks—Do banks face disproportionate restrictions in the following areas that affect the entrance of new providers who serve low and middle income customers? 1. Funding or ownership of domestic and/or foreign institutions that perform financial services 2. Licensing requirements 3. Initial capital requirements 4. Initial operational requirements such as number of branches, locations, entry fee and/or data housing if relevant—Scores range from 0 to 100, where a higher score indicates lower disproportionate restrictions. A score of 100 indicates no disproportionate restrictions” (*Economist Intelligence Unit* 2020, 2.1.1).

^c “Disproportionate ongoing requirements for banks—Do banks face disproportionate restrictions in the following areas that hinder the operations of providers who serve low and middle income customers? 1. Market distorting pricing controls 2. Taxation of operators 3. Ongoing capital requirements 4. Ongoing capital requirements such as number of branches, location, entry fee and/or data housing if relevant—Scores range from 0 to 100, where a higher score indicates lower disproportionate restrictions. A score of 100 indicates no disproportionate restrictions” (EIU 2020, 2.1.1).

^d “Disproportionate initial requirements for e-money issuers—Do e-money issuers face disproportionate restrictions in the following areas that affect the entrance of new providers who serve low and middle income customers? 1. No legal recognition 2. Restrictions on the range of actors who can act as e-money issuers (e.g., only banking institutions) 3. Further restrictions a. Funding or ownership of domestic and/or foreign institutions that perform financial services—Scores range from 0 to 100, where a higher score indicates lower disproportionate restrictions. A score of 100 indicates no disproportionate restrictions” (EIU 2020, 2.1.3).

^e “Disproportionate ongoing requirements for e-money issuers—Do e-money issuers face disproportionate restrictions in the following areas: 1. Market distorting pricing controls 2. Taxation of operators 3. Ongoing capital requirements 4. Ongoing capital requirements such as number of branches, location, entry fee and/or data housing if relevant—Scores range from 0 to 100, where a higher score indicates lower disproportionate restrictions. A score of 100 indicates no disproportionate restrictions” (EIU 2020, 2.1.1).

^f Argentina has a low score in initial requirements for e-money issuers; however, this is the score for 2018, when Argentina did not have a legal framework for e-money issuers. More recently it has implemented a legal framework and requires from US\$0.34 million to US\$0.95 million, depending on the geographical focus of operations. This is similar to its requirements for banks, which vary from US\$0.5 million to US\$1 million depending on the area of operations.

As the table shows, Pakistan does not score a perfect 100 on any of the four indicators. The main reason is its capital requirements, which the EIU Microscope terms “disproportionate.” For instance, Pakistan’s initial capital requirement (ICR) for banks is US\$67 million, for mobile money operators US\$1.65 million, and for EMIs US\$1.3 million. In comparison, Kenya is at US\$10 million for banks and US\$0.6 million for e-money issuers. While this difference might reflect the respective risk appetites of the central banks of the two countries, it could also act as a higher barrier to entry for firms in Pakistan. India is a country that is comparable to Pakistan in its ICR for banks, at US\$75 million. However, India has another option, called the small finance bank,²⁹ that requires only US\$15 million. This lower ICR comes with a requirement of focusing operations in underserved and lower-income areas (*Economist* Intelligence Unit 2020).

Pakistan’s bank-led model might have resulted in an unlevelled playing field for nonbanking entities wanting to enter the mobile money industry. However, with the introduction of its new EMI regulations, Pakistan has allowed nonbanking entities to launch products to facilitate digital payments. Whether Pakistan’s bank-led model had been a constraint or not will be something that future analysts will comment upon.

Presently, Pakistan’s ICRs stand out against those of most of its peers. It is likely that these requirements constitute a barrier to entry for new firms and constrain the abilities and capacities of existing firms. In terms of the impact on financial inclusion, Table 4 suggests that better regulations around entry and operating requirements tend to be correlated with higher levels of financial inclusion. Considering this, it is safe to conclude that unlevel playing field issues might constitute a constraint on digital financial inclusion in Pakistan. However, it is unlikely to be a binding constraint because the financial services industry in Pakistan is quite competitive, be it the traditional banking sector or the mobile money industries.

5.2. Insufficient or poor digital infrastructure

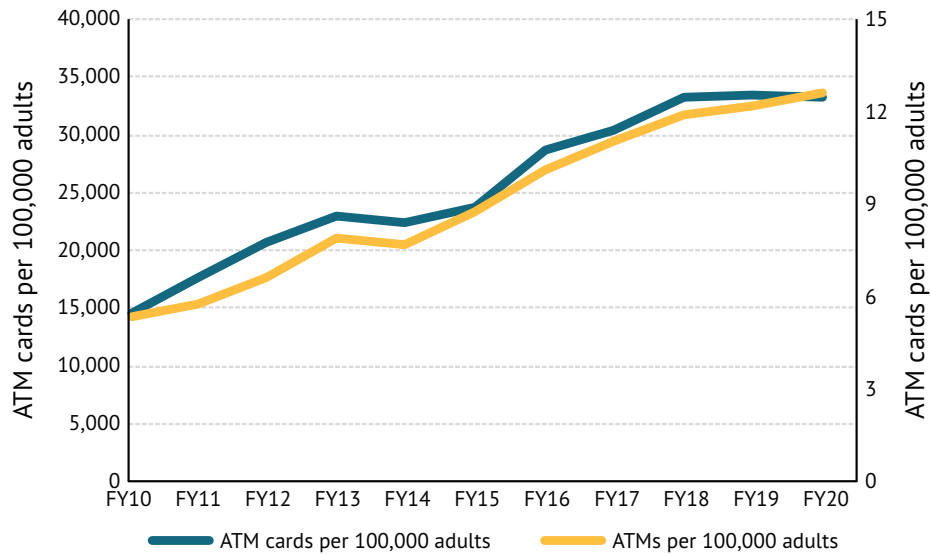
In this section we look at access to ATMs, mobile phones, and the Internet, and assess whether Pakistan’s level of access to these amenities constitutes a constraint or a binding constraint on financial inclusion. The decision tree methodology’s second principle will be applied to see whether the increase in access to these technologies has increased adoption of the related formal financial accounts. A benchmarking exercise against comparator countries also provides important insights.

²⁹ These are banks that offer basic banking services and have lower transaction limits (*Zeenews* 2014).

5.2.1. Access to ATMs

Figure 8 maps the number of ATMs per 100,000 population against the number of registered ATM cards (including debit cards, ATM-only cards, and government-issued social welfare cards) per 100,000 adult population. As expected, there is close correlation between the two variables.

Figure 8. ATM card and ATM proliferation, Pakistan, fiscal years 2010–2020

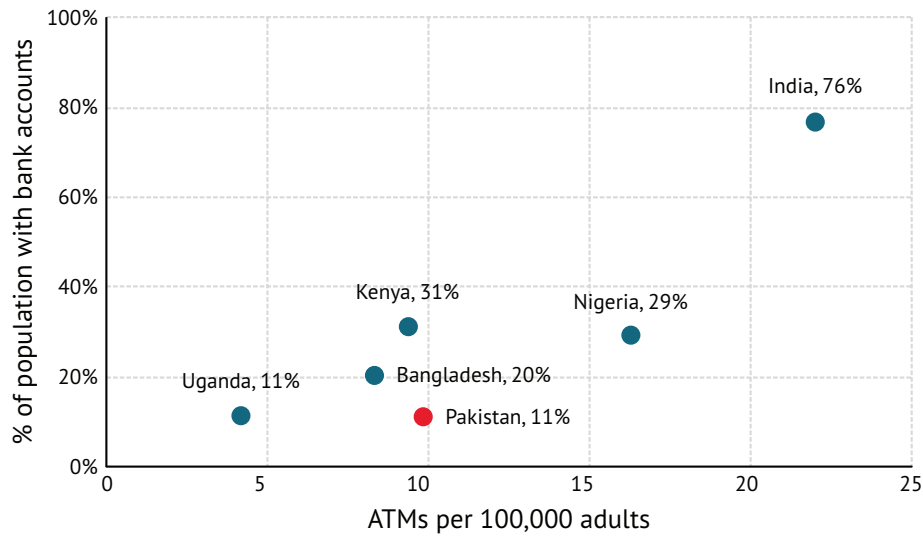


Source: SBP (2010b, 2011, 2012b, 2013, 2014b, 2015c, 2016d, 2017b, 2018b, 2019f).

Note: Estimated growth between the 1998 and 2017 censuses was used to predict annual populations. The age distribution of the 1998 census was used to predict the 2017 adult population, defined as ages 15 and up, because the age distribution of the 2017 census was not publicly available.

Besides the growth in the number of ATM cards, the number of ATM transactions has also grown, from 27 million in 2009 to 135 million in 2019. There is evidence that the rise in the availability of ATMs, from 2 per 100,000 population to 7 per 100,000 population, has been accompanied by a substantial increase in ATM registrations and in ATM transaction volume and value. Figure 9 compares Pakistan with other countries included in the FII surveys to see whether other countries have had a similar level of bank account registrations, given their levels of access to ATMs.

Figure 9. ATM availability and bank account registration, Pakistan and comparators, 2017



Source: ATMs per 100,000 population from World Bank (2017); bank account registrations from FII (2018b).

The figure shows that India has a substantially higher availability of ATMs as well as a much higher level of bank account registrations. However, when Pakistan is compared with Bangladesh and Kenya, the latter show a much higher level of bank account ownership, despite having lower ATM access than Pakistan. Similarly, with much lower ATM access, Uganda has a bank account registration level comparable to that of Pakistan.

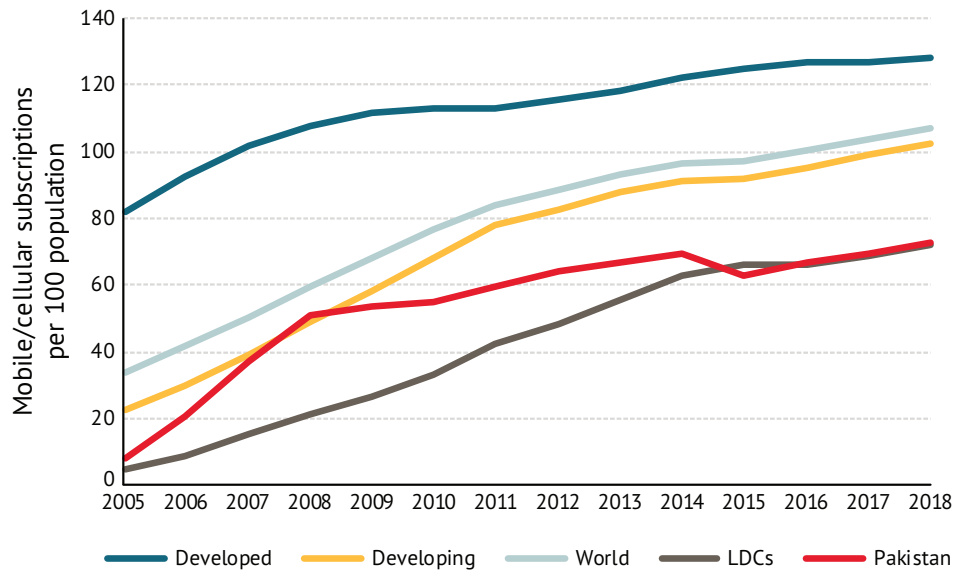
Based on this international comparison, Pakistan’s bank account adoption level is low given its ATM coverage, which suggests that Pakistan may not have tapped the bank account creation potential of its current stock of ATMs. Therefore, it is unlikely that unavailability of ATMs could be deemed a constraint on significant improvement in financial inclusion in Pakistan.

5.2.2. Access to mobile phones

Consumer access to mobile phones is crucial when it comes to adoption of mobile money wallet accounts; furthermore, smartphones are essential for utilizing the mobile phone banking services offered through traditional accounts.

Figure 10 shows the evolution of mobile/cellular subscriptions per 100 inhabitants for Pakistan, Bangladesh, Kenya, and the UN-designated Least Developed Countries (LDCs), as well as the world average. The figure shows that Pakistan’s cellular phone subscriptions have seen a substantial increase, but the gains are much lower than the global average and also lower than those in Kenya and Bangladesh. In fact, they are closer to the average of the LDCs.

Figure 10. Mobile/cellular subscriptions per 100 inhabitants, Pakistan and comparators, 2005–2018



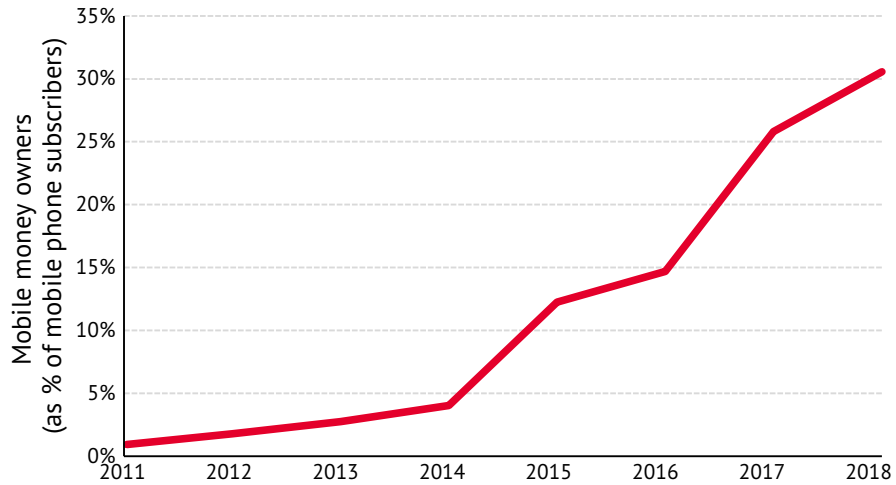
Source: ITU (2018).

Notes: The drop in cellular subscriptions in Pakistan during 2014/15 was due to introduction of a biometric SIM verification requirement, which resulted in the loss of 25 million cell phone subscribers (Lee 2015). Interestingly, at the same time, there was a 183 percent increase in mobile wallet subscriptions. This correlated with achievement of platform-level interoperability in the mobile money industry (Naji 2020), as detailed in Section 5.1.2.3.

Even though Pakistan’s cellular subscriptions are low in number when compared internationally, the country has also seen a substantial increase in cell phone access, from 8 subscriptions per 100 population in 2005 to 72 per 100 in 2018 (ITU 2018). Despite the decrease in cellular subscriptions during 2014/15, compared with 2005 Pakistan has seen a substantial increase in cellular subscriptions.

Figure 11 shows the level of wallet ownership as a percentage of mobile ownership. It is important to mention two developments that could explain the sudden spike around 2014/15. The first was the decrease in the number of subscribers, as about 25 million subscribers were lost due to new biometric verification requirements (Lee 2015). The second was the introduction of platform-level interoperability (Naji 2020), which preceded a surge in mobile wallet registrations.

Figure 11. Mobile wallet accounts as a percentage of mobile phone subscriptions, Pakistan, 2011–2018

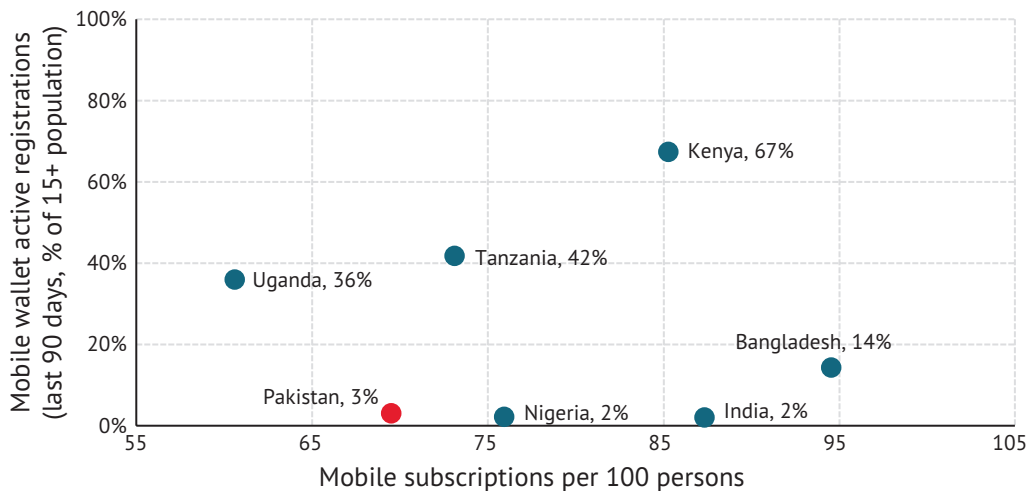


Sources: ITU (2018) and SBP (2018a).

Notes: The figure uses the total number of wallet accounts owned because the SBP’s *Branchless Banking Newsletter* does not provide estimates of active wallet account usage for all the years considered. The level of mobile phone subscription was estimated from the International Telecommunication Union (ITU) estimate of mobile phone subscriptions per 100 inhabitants.

Figure 12 compares Pakistan with FII comparator countries on mobile phone ownership levels and the corresponding mobile wallet registration levels. As the figure shows, although Tanzania and Uganda have levels of mobile phone subscriptions comparable to that of Pakistan, mobile wallet registration is much lower in Pakistan than in the two comparator countries. Therefore, Pakistan’s high level of mobile phone ownership suggests that access to mobile phones in Pakistan is not a constraint on the usage of mobile wallet services.

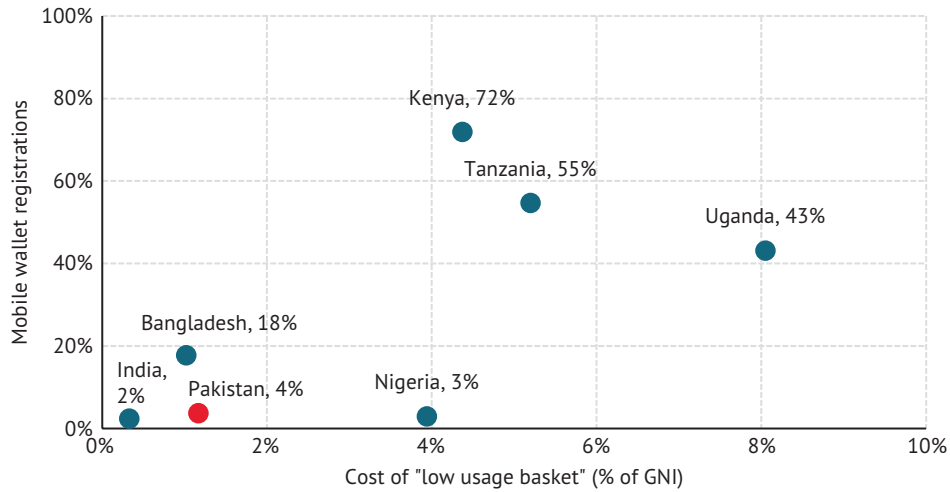
Figure 12. Mobile/cellular proliferation and mobile wallet registration, Pakistan and comparator countries, 2017



Source: ITU (2018); FII (2017c).

Another important aspect to consider is usage costs. Higher cell phone usage costs could also act as a constraint on mobile wallet adoption. Figure 13 compares the costs of a “low usage basket” of cell phone service with the mobile wallet registration levels of the FII countries.

Figure 13. Mobile/cellular proliferation, 2017, and cellular phone usage costs, 2018, Pakistan and comparator countries



Source: ITU (2018) for cellular costs; FII (2017c) for wallet registrations.

Note: The International Telecommunication Union (ITU) defines “low usage” as a minimum of 70 minutes of talk time and 20 SMS messages over a 30-day or four-week period (A4AI 2020). As the figure shows, Pakistan’s cellular phone usage costs are quite low compared with those of its comparators in the FII surveys. The combination of low cellular usage costs and low wallet registration is present not just in Pakistan but also in its neighbors in South Asia. In contrast, the African countries, except for Nigeria, show higher cell phone usage costs and higher mobile wallet registration levels.

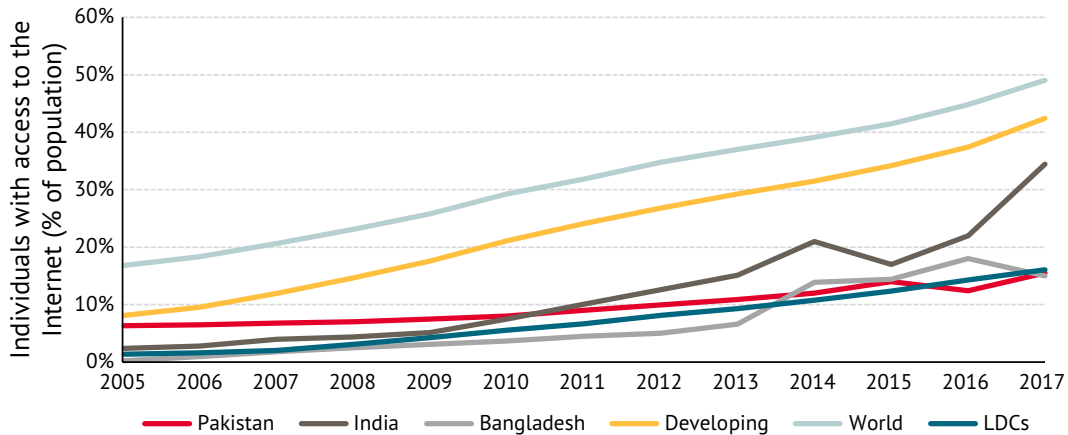
Given Pakistan’s proliferation of cell phones as well as its low cell phone usage costs, it is unlikely that access to mobile phones could be a constraint on financial inclusion in Pakistan.

5.2.3. Access to the internet

Internet access is crucial when it comes to Internet banking as well as the use of a smartphone for availing financial services. It is important to mention here that traditional bank accounts in Pakistan offer mobile phone banking services only through smartphone apps, whereas mobile money wallets can be accessed via basic phones, feature phones, and smartphones.

Figure 14 shows the level of Internet access for Pakistan, India, and Bangladesh, as well as averages for the world, developing countries, and LDCs. As in the international comparison of access to mobile phones, Pakistan lags far behind its neighbors India and Bangladesh. The access level in Pakistan is less than half that for the developing world and comparable to that of the LDCs. However, despite lagging internationally, Internet access has increased substantially in Pakistan, rising from 6 percent in 2005 to 16 percent in 2017 (ITU 2018).

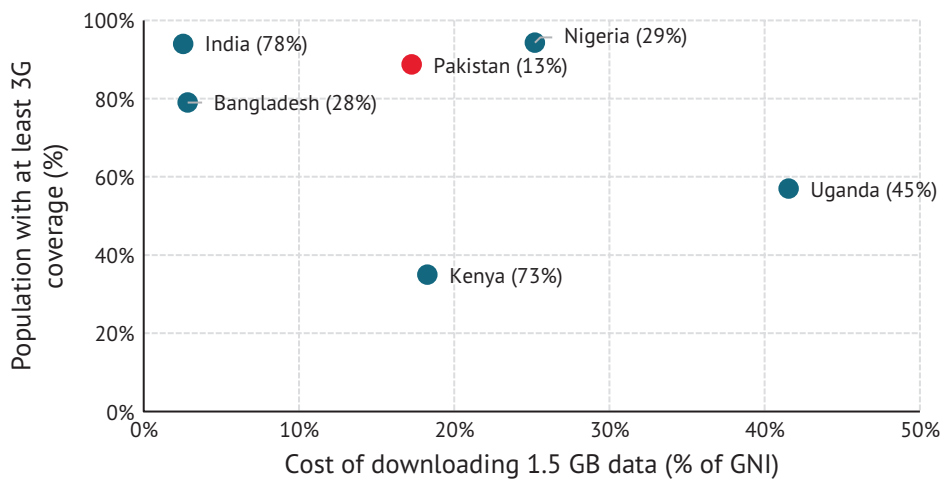
Figure 14. Access to the Internet, Pakistan and comparators, 2005–2017



Source: ITU (2018).

The use of mobile money wallet or traditional bank accounts through an app requires Internet connectivity. It could be argued that two concerns would be crucial for any potential user of such an app: first would be the Internet coverage and second the cost of using the Internet. Figure 15 compares Pakistan with comparator countries on both of these measures. The vertical axis shows the population that has at least 3G coverage (ITU 2018), while the horizontal axis shows the cost of downloading 1.5 GB of data as a percentage of the country’s GNI (ITU 2018). Both of these estimates are for 2018. A third estimate is the level of digital financial inclusion (Kantar n.d.)—that is, the percentage of the population that are subscribers to digital financial services. These estimates are specified in the brackets in front of each country’s name.

Figure 15. Digital financial inclusion and cost of Internet, Pakistan and comparators, 2018



Source: ITU (2018); FII (2017c).

As the figure shows, Pakistan exhibits comparatively lower costs as well as higher 3G coverage for its population. However, its level of digital financial inclusion (as listed in the brackets) is lower than countries with a similar cost of usage (Kenya) as well as those with similar coverage (India).

Given the relatively low cost and high coverage of the Internet in Pakistan, we can rule out lack of access to the Internet as a meaningful constraint on digital financial inclusion in Pakistan.

5.3. Low appropriability of returns

The private sector sometimes faces problems appropriating returns on its investments. As discussed in Section 3, one reason in the banking sector could be government KYC requirements that impose significant transaction costs and thereby reduce incentives for suppliers to reach low-income customers. Another reason could be poor institutional quality and governance, leading to the actual (and future expected) implementation of distortionary taxes and other policies that would reduce providers' profitability. Finally, there could be coordination failures, whereby the lack of a critical mass of customers prohibits providers from reaching the economies of scale needed to supply a diverse range of high-quality products that meets the needs of the poor, while at the same time lack of product diversity and quality drives away potential customers. We will look at each of these factors in the subsections below.

5.3.1. Problems with verifying the identity of customers

The preliminary documentation requirements of KYC could constrain the offering of financial products to large segments of the population.³⁰ Pakistan has a tiered account opening system. To open the lowest tier of mobile money accounts, level 0,³¹ only a Computerized National Identity Card (CNIC) is required. For level 1,³² the account holder has to perform a biometric verification, which can be done at a mobile money agent (SBP 2016c).³³ The entry requirements for these accounts set them apart from traditional bank account products. For most traditional banking products, there are requirements such as proof of formal employment or business ownership (Raffay 2019). These requirements are unlikely to be met by the informally employed Pakistanis who made up 71 percent of those

³⁰ Of course, KYC requirements also affect the demand for financial products, preventing many customers from attempting to open a bank account or a mobile wallet.

³¹ Level 0 accounts have the following credit and debit limits: PKR 25,000 daily, PKR 50,000 monthly, PKR 200,000 annually (JazzCash 2021).

³² Level 1 accounts have the following credit and debit limits: PKR 50,000 daily, PKR 200,000 monthly, PKR 1.2 million annually (JazzCash 2021).

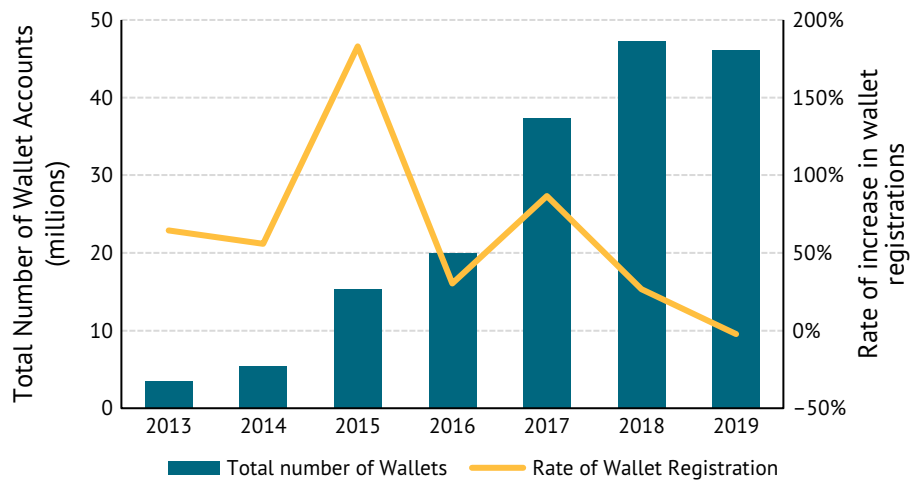
³³ There also are Level 2 accounts, with a daily credit limit of PKR 400,000 and debit limit of PKR 50,000, a monthly credit and debit limit of PKR 500,000, and an annual credit and debit limit of PKR 6 million. However, Level 2 mobile money accounts require proof of income as well as a visit to the nearest branch of the bank offering the mobile money product (not the mobile money agent) (JazzCash 2021).

employed in nonagricultural activities in 2017/18 (PBS 2018). Even for the Asaan³⁴ account, which does not require proof of income, applicants must file paperwork at the nearest bank branch.

Thus, Pakistan has very lenient identification requirements. However, availability of the CNIC is an issue, as Pakistan has one of the highest gender gaps in national ID possession. The gender gap is visible in Pakistan’s electoral rolls, as CNIC registration is a requirement to vote. The electoral rolls for 2012 show that 57 percent of voters were men, 43 percent women (ECP 2013), a gender gap of 14 percent.

In the run-up to the 2018 elections, the Election Commission of Pakistan organized a women’s CNIC registration campaign; this campaign alone is estimated to have added around 4.3 million women voters to the rolls (Free and Fair Election Network 2018). Overall, the 2018 electoral rolls showed an increase of approximately 21 million voters over the 2012 electoral rolls. This marked increase in CNIC registrations could indicate a relaxation of this constraint. Had problems in verifying customers’ identities been an issue, then the period close to the 2018 election should have seen some sort of increase in the rate of account registrations. Figure 16 looks at the progression of mobile wallet account registrations, along with its rate of change. The figure shows no consistent growth; the rate of change in wallet registrations decreased in the run-up to and the aftermath of the 2018 general elections in Pakistan.

Figure 16. Rate of mobile wallet registrations, Pakistan, 2013–2019

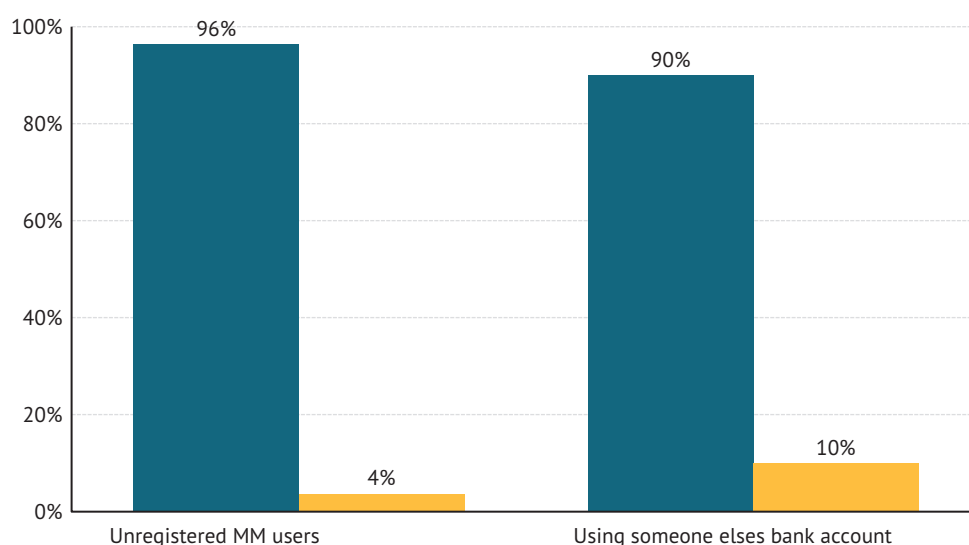


Source: SBP 2019g.

³⁴ The Asaan account has lower transaction limits (monthly credit and debit limits of PKR 500,000) than a regular bank account (NBP 2018).

If consumers are financially excluded due to KYC requirements, then, according to the third principle of the decision tree methodology, there should be some evidence that they try to bypass the constraint. One method of doing that would be to conduct an OTC transaction with a mobile money agent. Figure 17 shows the CNIC possession levels of unregistered users of mobile money and banks. Unregistered mobile money users are those who conduct OTC transactions³⁵ with mobile money agents. The other type is those who use someone else's bank account when needed. In both categories, more than 90 percent of users have a CNIC. This implies that most of those using OTC transactions or the financial accounts of other people are likely to meet the KYC requirements for registering their own financial accounts.

Figure 17. KYC requirements and unregistered formal finance usage, Pakistan, 2020



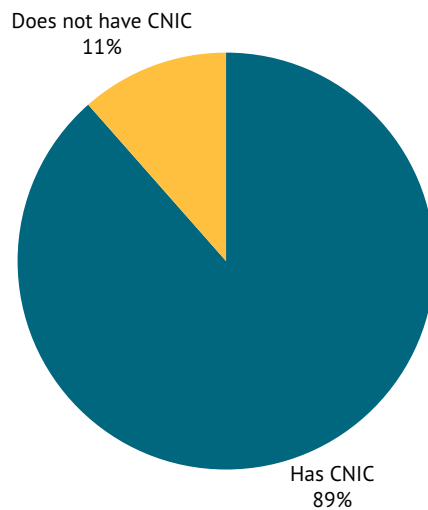
Source: FII (2021a).

Another indication that a constraint is binding is that those not subject to the constraint would be thriving³⁶ in the situation. In other words, those who are not thriving would be predominantly impacted by the constraint (principle 4 of the decision tree). Figure 18 shows the CNIC possession status of the financially excluded in Pakistan. As the figure shows, 89 percent of the financially excluded in Pakistan are estimated to have a CNIC. This is another indication that KYC requirements are not a major constraint on the adoption of digital financial accounts in Pakistan.

³⁵ That is, transactions in which people without mobile money wallet accounts can send or receive money as well as pay utility bills through a mobile money agent.

³⁶ By *thriving*, we mean showing a higher usage of formal finance.

Figure 18. CNIC ownership of the financially excluded, Pakistan, 2020



Source: FII (2021a).

Note: The FII samples respondents ages 15 and older; however, in Pakistan, the minimum age for CNIC registration is 18. Therefore, the figure is based on respondents ages 18 and older.

The foregoing analysis shows that Pakistan’s KYC requirements are not likely to act as a constraint on the unbanked getting mobile money accounts. The sudden increase in CNIC registrations has not seen similar increases in mobile money wallet account registrations. Similarly, the CNIC ownership levels of users of formal financial services who either are unregistered or use someone else’s account suggest that it is doubtful that KYC requirements constrain financial inclusion in Pakistan.

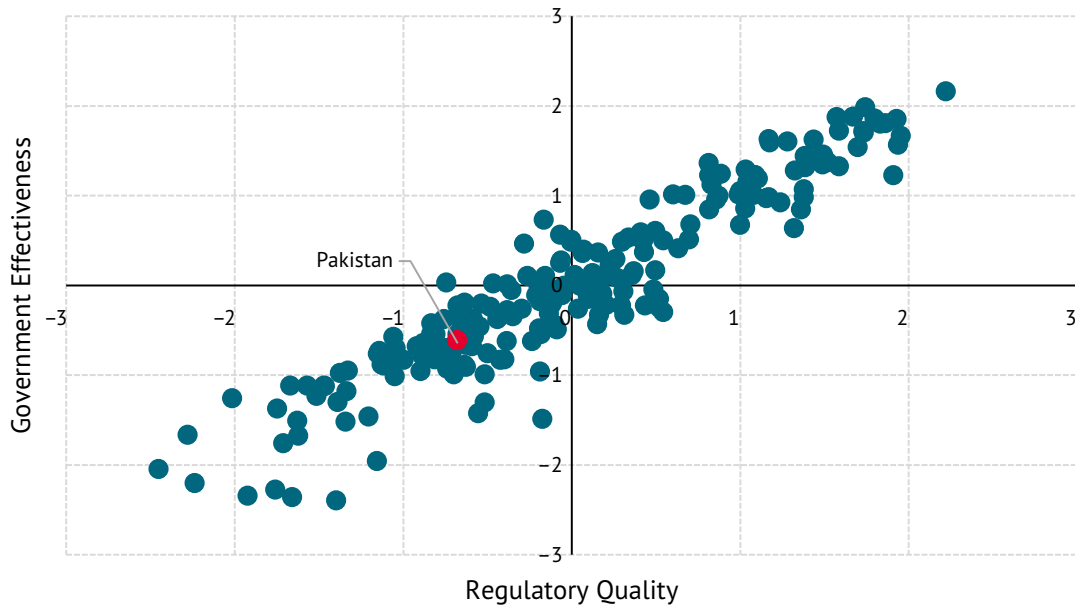
5.3.2. Poor institutional quality, and distortionary taxes and other policies

The original Claessens and Rojas-Suarez (2020) framework considered “poor institutional quality and governance” and “distortionary taxes and other policies” to be two separate nodes of the decision tree. However, in the case of Pakistan, we consider these two to be related, and therefore we discuss them together in this section.

Institutional quality in Pakistan is extremely low. Concretely, using two relevant World Bank Worldwide Governance Indicators for 2019 (World Bank 2020), government effectiveness and regulatory quality, it is clear that Pakistan significantly underperforms its peers. The first indicator “captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies” while the second “captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development” (World Bank 2020). Taken together, these indicators

signal the capacity of the government to design and implement adequate policies. In government effectiveness, Pakistan ranks 155 out of 209 countries, below Ethiopia, Guatemala, and Zambia, and in regulatory quality it does not fare much better, being in the 152nd position, below Cambodia, Guyana, and Tanzania, and similar average scores as The Gambia and Swaziland. (Figure 19). These concerning results suggest that institutional quality is a substantial problem in Pakistan.

Figure 19. Institutional quality, Pakistan, 2019



Source: World Bank (2020).

In this section we argue that these weak institutions are the root cause of the observed low digital financial inclusion in Pakistan. Concretely, we find two channels through which low institutional quality adversely impacts financial inclusion. The first relates to broadly incentivizing informality and the second to the enactment of policies that directly affect the financial sector, impacting prices and customers’ decisions to be financially included, especially digitally.

5.3.2.1. Weak institutions have promoted financial-sector informality

Weak institutions can foster the design and implementation of distortionary policies and regulations that disincentivize individuals and firms from operating in the formal sector. These policies result in severe allocation inefficiencies that are deeply rooted in the economic structure of the country and often associated with rules that govern labor markets, social insurance, taxation, and even the judicial system.³⁷ When firms and individuals face distortionary policies, they have an incentive to try to circumvent them by moving to the

³⁷ See Levy (2018) for a study of institutional weaknesses applied to Mexico.

informal sector. For instance, as explained by Shehryar (2014), bribery costs and levels of bureaucracy are factors behind the high levels of informality in Pakistan. Gulzar and others (2010) also showed that the tax burden and the level of economic freedom³⁸ affect informality in Pakistan, and the International Monetary Fund (IMF) noted that a “significant regulatory burden may contribute to driving firms in the informal economy” (2017, 10).

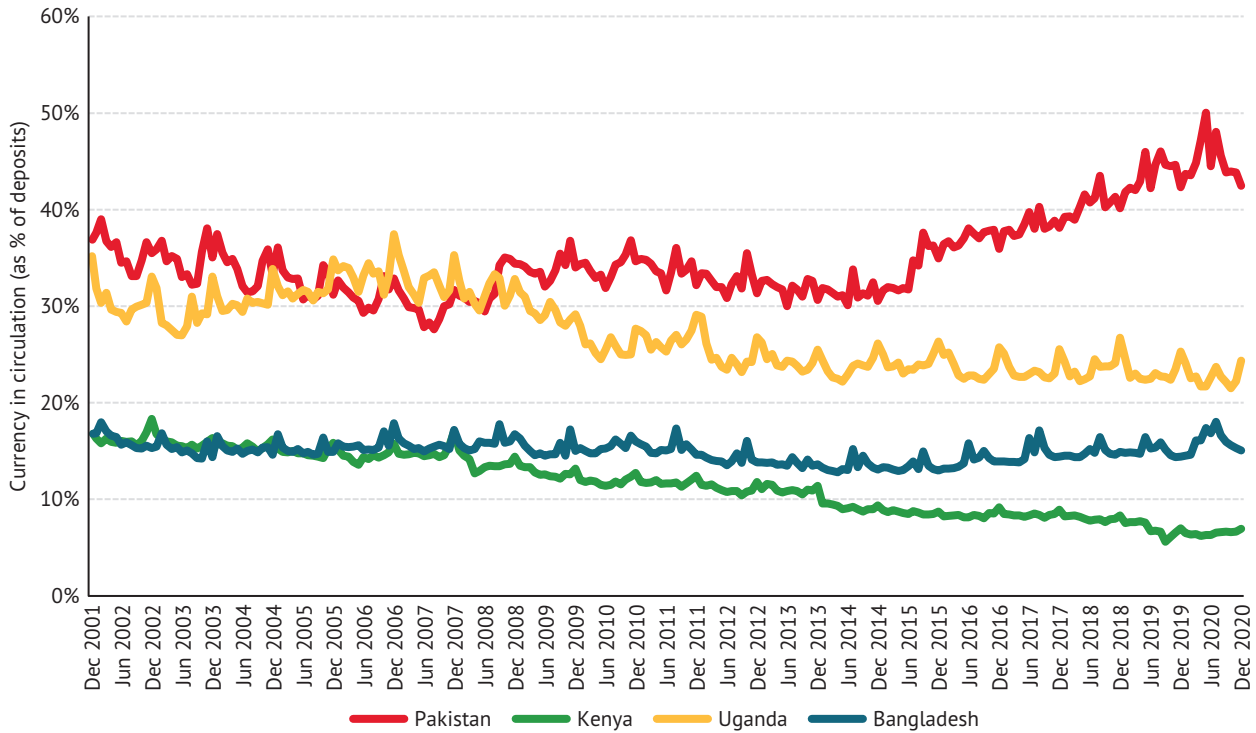
Given how deep all of these issues are in Pakistan, the informal sector is enormous. Estimates of the size of Pakistan’s informal economy vary from 35 percent to even 90 percent of the country’s overall economy (Kemal and Qasim 2012). One of the most recent estimates, done by Hayat and Rashid (2020), put the informal sector at 37.75 percent, on average, between 1995 and 2017. This informal economy employs around 72 percent of the country’s nonagricultural labor force (PBS 2019). Because these individuals undertake their activities in the informal sector, their financial transactions also take place outside the formal financial sector. Zulkhibri (2016) drew a connection between institutions, informality, and low financial inclusion, noting that improvements in governance are linked to a reduction in informality in the financial market.

A proxy for the degree of informality in the financial sector can be obtained by estimating the population’s preference for cash, measured as the ratio of currency in circulation to bank deposits. This ratio has been consistently high (around or greater than 30 percent) in Pakistan since the start of data collection in 2001 (Figure 20).³⁹ The figure also shows that in comparison to other countries with sizeable informal sectors, Pakistan’s demand for currency stands out. This could reflect how pervasive and structural the problem of informality is in Pakistan.

³⁸ A measure created by the Heritage Foundation that estimates to what extent “basic institutions ... protect the liberty of individuals to pursue their own economic interests” (Hagelin 2008).

³⁹ Although a withholding tax was initially implemented that year, potentially causing the high preference for cash, the effect would likely not have been so immediate, and other estimates indicate that informality was even higher in the 1990s.

Figure 20. Preference for cash, Pakistan and comparator countries, 2001–2020



Source: IMF (2017).

Note: Preference for cash is computed as the ratio of currency in circulation to the sum of deposits in depository institutions (other deposits plus transferable deposits). Later, we will use SBP weekly data, for consistency with the SBP analysis. While the two estimates are very similar, they do slightly diverge. We use the IMF data here since they provide a longer time span than the SBP data and because it offers comparisons with other countries.

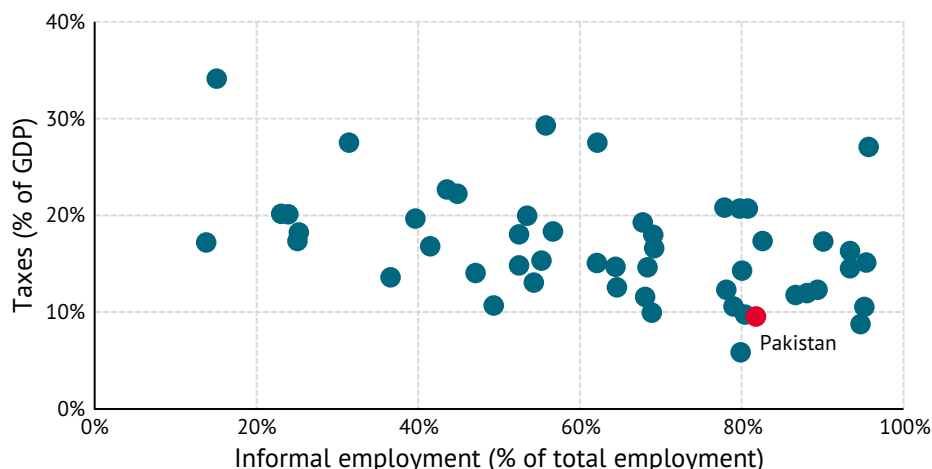
5.3.2.2. Weak institutions have led to distortionary policies that hurt digital financial inclusion

The second channel through which weak institutions have adversely affected financial inclusion in Pakistan can be exemplified by the imposition and evolution of a withholding tax on financial transactions. As explained below, when this tax was applied exclusively to tax nonfilers, the preference for cash increased even further.

The withholding tax policy was motivated by the inefficiency and inefficacy of the tax authority in Pakistan to collect taxes—a manifestation of weak institutions. Tax evasion is prevalent in the country, associated with the high degree of informality and reflected in Pakistan’s having one of the lowest rates of tax collection in the world (Figure 21). In addition, the poor fiscal situation in Pakistan makes this issue all the more challenging. The low level of tax collection has contributed to Pakistan’s persistent fiscal deficits that in turn motivate problematic distortionary policies that aim (but fail) to correct the fiscal imbalance. Since the start of IMF World Economic Outlook data for Pakistan in 1993, the country has not had a year of fiscal surplus and has averaged a deficit of more than 5 percent of GDP (IMF 2021). Furthermore, in the last 10 years, this average deficit has

been 6.7 percent, the 14th largest in a sample of 154 emerging and developing economies (IMF 2021).⁴⁰

Figure 21. Taxes and informality of employment, Pakistan and comparator countries, latest available year



Source: ILO and World Bank (2021).

In an attempt to increase tax collection and crack down on informality and tax evasion, the Federal Board of Revenue imposed a new distortionary policy that directly impacted the financial sector: the previously mentioned withholding tax. Initially enacted in 2005, a withholding tax of 0.1 percent was imposed on all cash withdrawals and transactions over PKR 50,000,⁴¹ in aggregate, per day; a 0.6 percent tax for non-filers was introduced in 2015 (the latter represented by the vertical line in Figure 22).⁴² In 2019 the tax for all transactions was amended, and only the 0.6 percent tax for non-filers remained active. This means that currently the tax is automatically charged to anyone “whose name is not appearing in the active taxpayers’ list” (Pakistan Federal Board of Revenue 2020, 448). In keeping with the negative experience that many other emerging countries have had with financial transaction taxes in the past (Rojas-Suarez 2007), this policy had severe adverse effects on the formal financial sector.⁴³

Notably, this tax created financial disintermediation, as reflected by the increased preference for cash, which was already quite high, likely fostered by the previous taxes. The original withholding tax imposed in 2005 did not seem to have a significant impact on the already high preference for cash in the country, but it is another example of distortionary policies.

⁴⁰ These persistent deficits could also be further linked to institutional deficiencies.

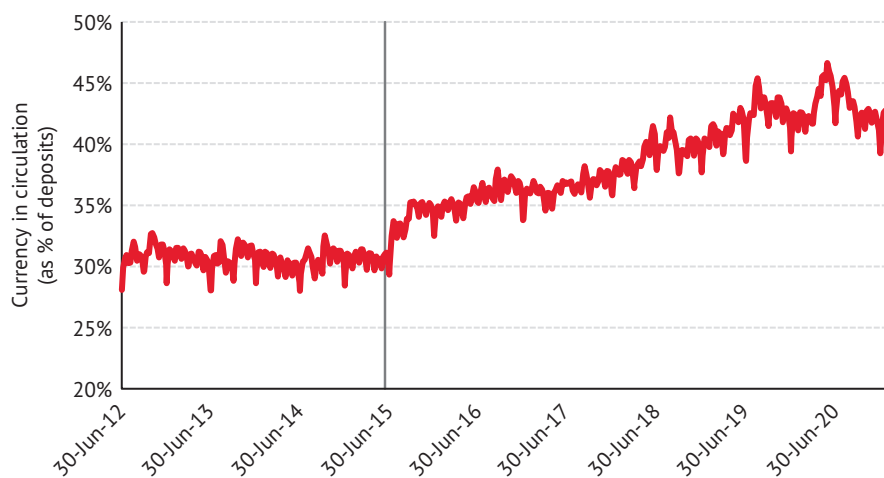
⁴¹ Approximately USD 835 at the 2005-06 exchange rate of 1 USD to PKR 59.8855 https://www.sbp.org.pk/reports/stat_reviews/Bulletin/2008/Sep_08/Pakistan_Balance_of_Payment.pdf

⁴² The 0.1 percent tax on all financial transactions was later increased to 0.2 percent in 2006 and to 0.3 percent in 2010 (Pakistan Federal Board of Revenue 2001, 2010).

⁴³ See Singh and others (2005) for examples from Colombia and Brazil, and Claessens and Rojas-Suarez (2020) for evidence from Colombia and Uganda, the latter being a tax on mobile money.

The spike in 2015, when the tax was imposed on nonfilers, however, is particularly significant;⁴⁴ the reaction was immediate as the SBP reported a drop in the ratio of business deposits as a percentage of total deposits between July 2015 and April 2017 (SBP 2017a). According to calculations by the SBP, the imposition of this tax increased currency in circulation by 3.7 percentage points during the same period (SBP 2017a).⁴⁵ More recently, the currency in circulation has increased from PKR 4.3 trillion in June 2018 to PKR 5.4 trillion in February 2020, an increase of 25 percent that the governor of the SBP has explained as a consequence of tax avoidance (Ahmad, K. 2020). In other words, banked consumers substituted informal financial channels for formal ones, and the preference for cash went from being less than 30 percent before the tax to 35 percent in one year. It has stabilized in recent times to between 40 and 45 percent (Figure 22).

Figure 22. Preference for cash, Pakistan, 2012–2020



Source: SBP (2021d).

These measures by the Federal Board of Revenue seem to be part of a larger policy initiative intending to use banking channels to crack down on tax evasion. Authorities see financial inclusion as a way of reducing tax evasion: the prime minister of Pakistan, Imran Khan, called the country’s first instant DPS system *Raast*, an Urdu word for “direct,” with the intention that it constitute a “big step” toward raising Pakistan’s tax collections, as tax evasion is easier in a cash economy (*Dawn* 2021). This statement has made clear for many that becoming part of the formal financial system is akin to inviting scrutiny from tax authorities, incurring additional costs, and taking a step toward formalization, which, as has been discussed in this section, a substantial number of Pakistanis try to avoid.

⁴⁴ Also note that nonfilers constitute a larger proportion of the population than filers.

⁴⁵ Subsequently, after protests, this tax rate was reduced to 0.3 percent. By March 2017, it was raised to 0.4 percent and was made a statute through an act. More recently, in October 2018, the tax on noncash banking transactions by nonfilers was again raised to 0.6 percent.

As a result, statements that indicate the intention of using DPS to collect further taxes, as well as specific measures like the withholding tax, have likely acted as a deterrent toward proliferation of formal financial accounts. Mughal and Schneider (2018) found that increased taxation of the formal sector acted like a catalyst in the growth of Pakistan's informal sector.

Moreover, as shown by the international experience, taxes on financial transactions have quickly lost effectiveness in increasing tax collections because of the reduction of the targeted tax base, which has often led to further increases of the tax and further disintermediation, creating a vicious circle. The experiences discussed around Pakistan's imposition of the withholding tax demonstrate its direct effect on increasing the preference for cash, a proxy for informality, and thus reducing the potential tax base and having the opposite effect of what was intended. While the policy has not in itself *created* informality (note the persistent levels of informality since 1990 and the high preference for cash before 2005, when the first withholding tax was enacted), it has exacerbated it, showing the way in which weak institutions lead to distortionary (tax) policies and increased informality, disincentivizing being financially included.

Strengthening institutions is a necessary condition to solve the problems that push individuals and firms away from the formal financial sector. These weak institutions have resulted in informality and distortionary policies, as well as additional issues, such as persistent fiscal deficits and tax inefficiencies, that further motivate problematic policies and responses. In this context, the weak institutional quality of Pakistan is the root cause of low digital financial inclusion—that is, the binding constraint on such inclusion. The withholding tax is part of the story, exemplifying how institutional issues and distortionary policies interrelate, but its removal alone would not be sufficient to cause large gains in terms of digital financial inclusion; after all, informality levels and the preference for cash were consistently high before the tax was imposed. Deeper institutional changes need to happen in order for individuals and firms to have adequate incentives to use formal financial services.

5.3.3. Coordination failures

Coordination failures are frequent in digital payment platforms, occurring when the interaction between the supply of and the demand for the digital service leaves both sides of the market depressed. For example, if there is not enough demand for DPS, providers may not invest in needed infrastructure and service improvements because they do not think there will be enough users to make offering the service profitable. Even if they do enter the market, they may not reach the economies of scale necessary to bring prices into the reach of more consumers. Simultaneously, potential customers may not perceive the benefit of taking up the service and consider that there are not enough counterparts to transact with. If such coordination problems are present, the market for DPS will remain limited.

Although, as shown in Figures 20 and 22, there is a large preference for cash in Pakistan that is, certainly, a reflection of low demand for and supply of DPS, its origin can hardly be attributed to a coordination failure derived from market imperfections. Instead, as discussed in the previous section, the source of the low usage of DPS lies in deep institutional deficiencies that have contributed to and exacerbated the expansion of informal financial markets in the country.

This is not to say that coordination problems may never become a major constraint on the expansion of DPS in Pakistan. If institutional problems were repaired, and individuals and firms had the proper incentives to actively participate in formal financial markets, other issues on the demand side (such as social norms or low technical literacy) might reveal themselves as binding constraints for certain subpopulations and constitute part of a coordination failure. At this point, however, the evidence shows that large institutional deficiencies dominate as the binding constraint.

We next analyze demand-side constraints in order to confirm that this intuition is correct and that demand-side constraints are, indeed, not binding for the majority of the population.

6. Demand-side analysis

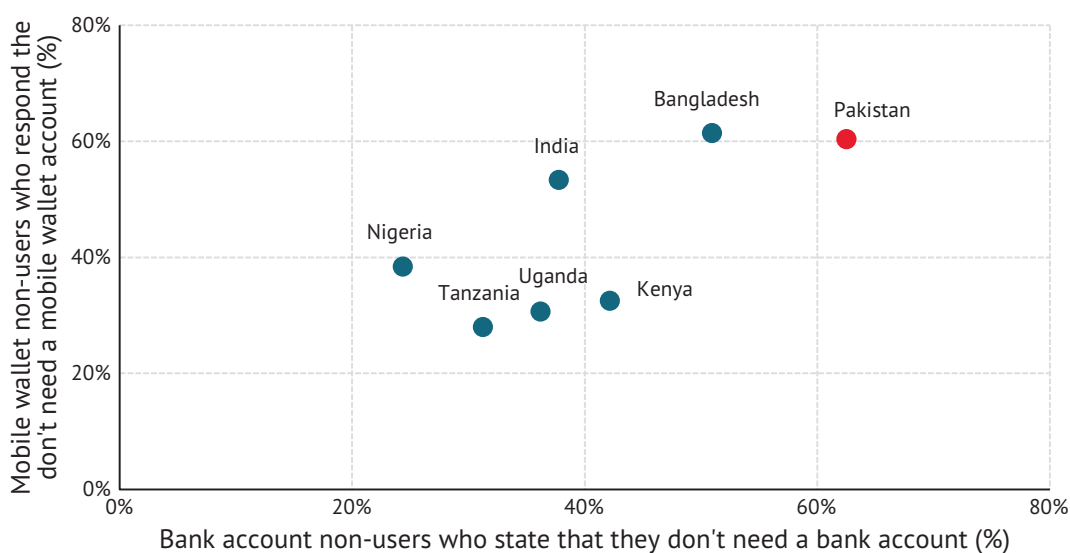
On the demand side, potential constraints could occur if consumers perceive low or no value in using digital financial services. Other potential constraints on the demand side include lack of trust in formal financial institutions and distance from financial access points.

A crucial data source for this section is the various FII surveys (FII 2015, 2016, 2017c, 2018b, and 2021a), which enable comparisons between Pakistan and similar countries in Asia and Africa. We use the FII surveys to create various indexes that measure respondents' awareness of mobile money brands and mobile money functionality as well as their level of trust in mobile money agents of technical literacy when it comes to operating a mobile phone. Each index is used to provide comparisons for Pakistan over time as well as with comparator countries. Appendixes 2-5 detail the construction of each index.

6.1. Perceived low or no benefits of usage

To begin our discussion, we first look at Pakistani people's perceptions about using payment services, using responses to FII survey questions that ask about respondents' reasons for not having a formal financial account. "No need for an account" is one of the possible responses, and we use this response as a proxy for an individual's perception of low or no benefits from having an account. Figure 23 compares Pakistan with other countries on the percentage of nonusers of bank accounts and mobile money wallet accounts who say that they do not have a financial account because they do not need one.

Figure 23. Nonusers reporting no need for a formal financial account, Pakistan and comparator countries, 2017



Source: FII (2018b).

Note: Both of the axes sum up the percentage of nonusers who said they "strongly agree" or "agree" with the statement that they do not need a bank account (x -axis) or a mobile money wallet (y -axis).

As the figure shows, Pakistan stands out among countries in the sample. More than 60 percent of Pakistanis without a bank account or without a mobile wallet account reported that the reason is no need for such an account. We interpret this result as signaling that a large proportion of Pakistanis perceive the benefits from using formal financial accounts as low or nonexistent.

We now discuss some crucial factors that could explain this outcome: financial awareness and attitudes, which are two critical components of financial literacy; lack of technical literacy; and conservative social norms.

6.1.1. Low financial awareness

Carpena and Zia (2018, 3) categorized financial literacy into three parts:

- Financial numeracy, which “deals with calculating interest rates, summing expenses, and other similar computations. These skills may facilitate better fiscal management and more effective comparisons of financial products.”
- Financial awareness, which “emphasizes fundamental financial concepts (e.g., household budgeting) as well as basic information about financial products (e.g., deposit insurance, loan fees)”
- Financial attitudes, which “encompass individuals’ perspectives on the benefits of financial services”

On financial numeracy, Pakistan scores higher than comparator countries. The 2017 round of the FII predicted that 99 percent of Pakistanis have basic numeracy, defined as “the ability to use basic math skills, including counting, addition, division, multiplication and computing short-and long-term interest rates” (FII 2018b, 3). In comparison, India was estimated at 90 percent and Kenya at 97 percent (FII 2018b). Thus, we can rule out financial numeracy as constituting a constraint on financial inclusion in Pakistan.

To measure financial awareness, we focus on consumers’ awareness of three aspects of mobile money: recognition of mobile money brands, awareness of mobile money functionality,⁴⁶ and awareness of the costs of operating a mobile wallet account.

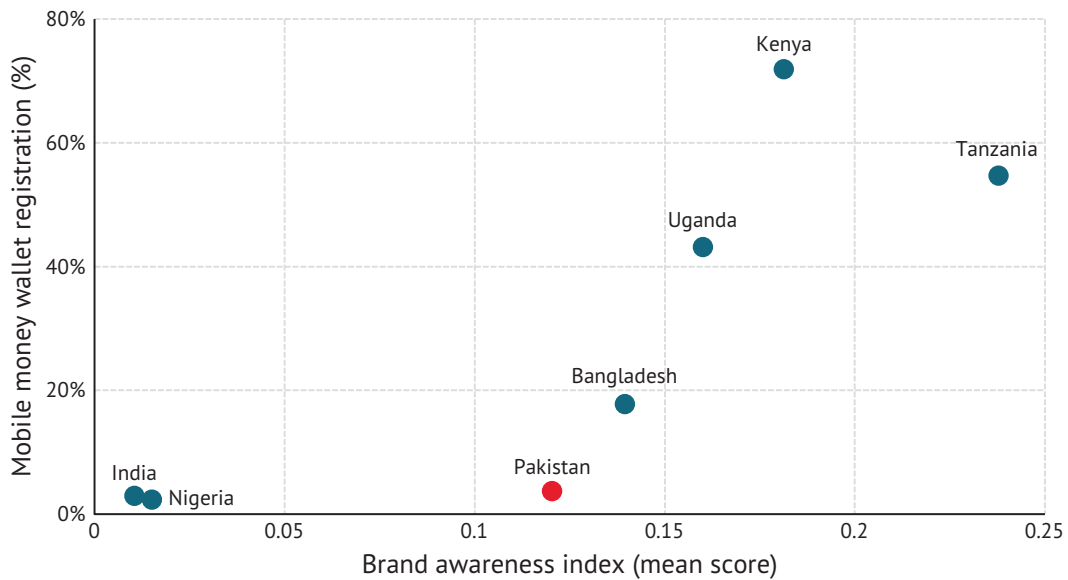
To assess brand awareness, we compared Pakistan with other countries on the basis of respondents’ unassisted recall of mobile money brands. We assessed functionality awareness by focusing on knowledge about the payment and transfer functionalities of mobile money. The assumption here is that knowledge about mobile money brands as well as its functionality is a necessary prerequisite for building a perception about the benefits of these digital financial services. Ignorance about brands and/or functions implies a perception

⁴⁶ Given the availability of data, we consider only mobile money wallet products.

of no benefit from registering for a mobile wallet account. To conduct these comparisons, we constructed two indexes, one for brand awareness and another for functional awareness.⁴⁷

Figure 24 compares Pakistan with other countries on brand awareness. The horizontal axis shows the mean score on the brand awareness index for each country, while the vertical axis shows the percentage of the population estimated to have a mobile wallet account. It demonstrates a positive relationship between recognition of mobile money brands and mobile wallet adoption rates. Kenya and Tanzania have the highest brand awareness and also the highest levels of mobile wallet registration, compared with the rest of the countries. Brand awareness is low in Pakistan but significantly higher than in other countries with similar levels of mobile money registration, such as India and Nigeria, signaling that brand awareness needs to be improved but is not a binding constraint in Pakistan.

Figure 24. Brand awareness index and mobile wallet registration, Pakistan and comparator countries, 2017



Source: Authors' calculations using data from FII (2018b).

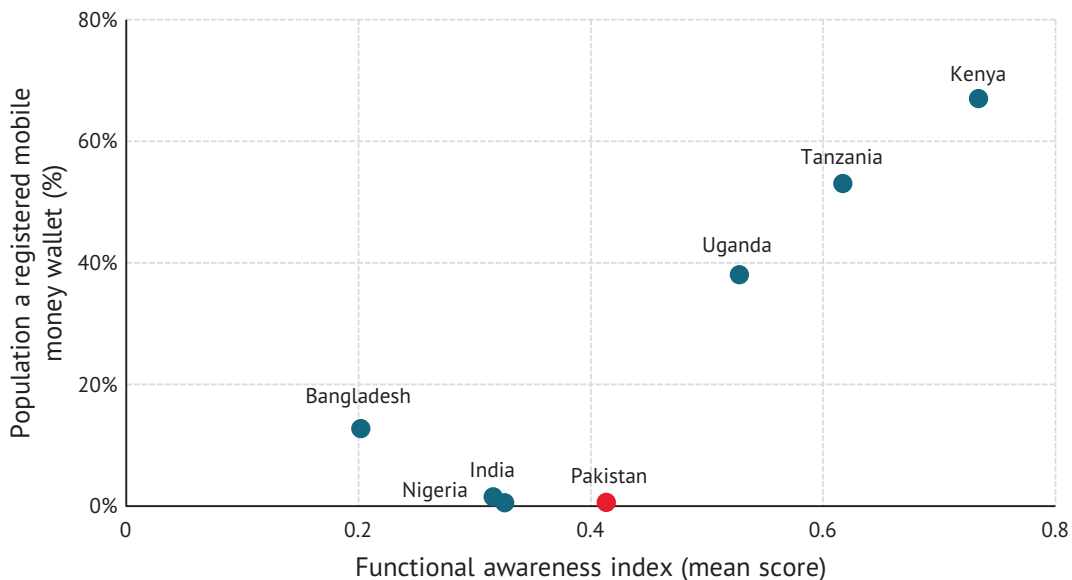
Figure 25 compares Pakistan with other countries on respondents' awareness of the transfer and payment functionalities of mobile money. As the figure shows, Pakistan is lagging behind countries such as Kenya, Tanzania, and Uganda when it comes to awareness of mobile wallets functions.⁴⁸ As with brand awareness, however, the country ranks higher in functional awareness than other countries with similar degrees of mobile money wallet registration.

⁴⁷ The construction of the brand awareness index is described in Appendix 2 and that of the functional awareness index in Appendix 3. For both indexes, higher scores represent a higher level of awareness.

⁴⁸ Within functional awareness, person-to-person transfers seem to be more widely understood than retail payments in Pakistan.

This signals that this type of awareness, while in much need of improvement, is also not a binding constraint on digital financial inclusion.

Figure 25. Functional awareness index and mobile wallet registration, Pakistan and comparator countries, 2016



Source: Authors' calculations from FII (2017c).

Besides awareness of benefits, we also consider awareness of the costs associated with these benefits. In Pakistan, mobile money wallet registration is free and there are no monthly costs. These could be powerful incentives; however, FII results show that only 5 percent of nonusers and 5 percent of unregistered users knew that there were no registration costs for mobile money wallets; similarly, only 5 percent of nonusers and 7 percent of unregistered users were aware that there were no monthly operational costs (FII 2021a). It would be safe to assume that the vast majority of mobile money nonusers and unregistered users in Pakistan are not aware of the (lack of) costs of registering and operating a mobile money wallet account.

However, and complementing the insights from Figures 24 and 25, a more nuanced analysis of consumers' lack of awareness shows that it is not a binding constraint on Pakistan's financial inclusion. Financial inclusion is low even among segments of the population that exhibit higher awareness levels. For instance, the segment of Pakistan's population that scored at or above the Kenya average on brand awareness is 26 percent. Within this subsample of 1,300 individuals, 75 percent were financially excluded and only 9.4 percent had a mobile money wallet account. In other words, a large proportion of the unbanked chose not to adopt a mobile wallet account despite being aware of the existence of various brands.

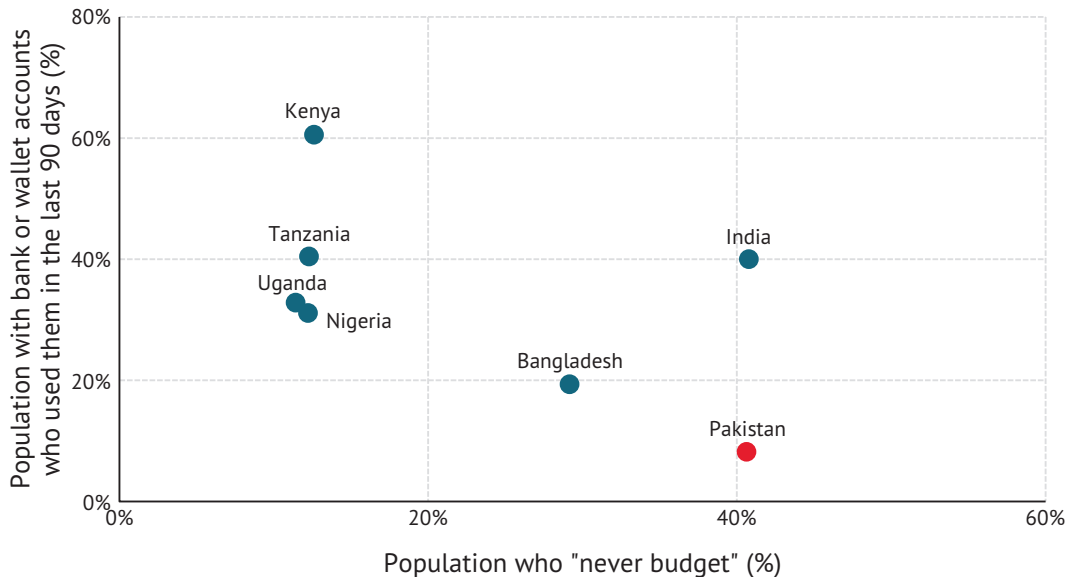
Likewise, on functional awareness, Pakistan's scores are far lower than Kenya's, with only 2 percent of Pakistanis scoring at or above the average score for Kenya. But even within this

sample of 117 functionally aware respondents, 63 percent were financially excluded and only 16 percent had a mobile money wallet account.

Therefore, while brand and functional awareness are low for mobile money in Pakistan and might be a constraint on some particular groups, we do not consider it to be a binding constraint because a large proportion of those with brand as well as functional awareness choose to remain financially excluded.

Next, we look at financial attitudes, and as a measure of these, we look at the proportion of respondents who budget their spending. Figure 26 maps the level of financial inclusion—that is, the percentage of the population with mobile wallet or bank accounts—on the vertical axis, with the percentage of the population that reports never budgeting their expenses on the horizontal axis.

Figure 26. Financial attitude and financial inclusion, Pakistan and comparator countries, 2016



Source: FII (2017c).

Note: *Active usage* is defined as respondents' use of their own formal financial account at least once during the last 90 days. * In response to FII Question FL1: "How often do you make a plan for how to spend your income, whether it is earned through a job, received from the government or from other people?" (FII 2017c).

As the figure shows, there seems to be a stark difference between African and South Asian countries when it comes to budgeting, with a far higher proportion of the population in African countries predicted to plan their expenditures, when compared with South Asian countries. For both Pakistan and India, more than 40 percent of the population reported never budgeting. Nevertheless, India has a much higher proportion of active financial account users than Pakistan.

And here again, planning and budgeting efforts do not necessarily signal greater financial inclusion. In the same survey, 25 percent of Pakistanis reported planning their expenditures “always or most of the time.” However, within that subsample, only 15 percent were financially included.

In summary, in Pakistan, a significant proportion of the financially excluded seem to have financial awareness and attitude levels that are comparable to those in countries with higher degrees of financial inclusion. This implies that an increase in the public’s financial awareness is not likely to bring about a drastic improvement in the country’s level of financial inclusion. Therefore, we rule out low financial awareness or poor financial attitude as a binding constraint for Pakistan.

6.1.2. Lack of technical literacy

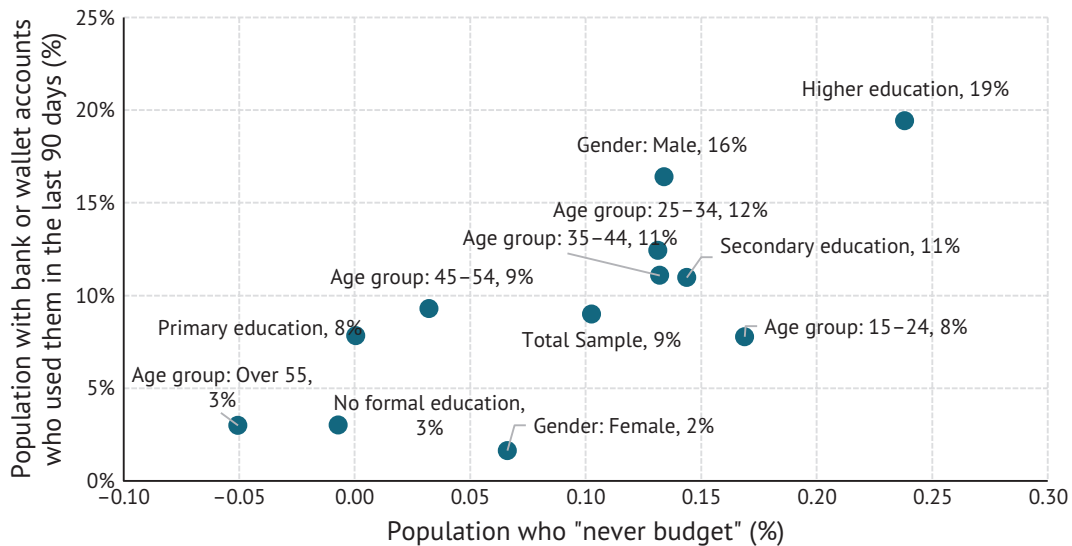
We define *technical literacy* as the ability to use a mobile phone. Lacking this ability could create perceptions of low or no benefit from using a mobile money wallet account. That is because low technical literacy can put mobile wallet users at risk of making errors while doing transactions, which can have financial consequences—creating a reluctance to use a mobile wallet account. These risks are not limited to mobile money wallets; even for traditional bank accounts, the much simpler ATM poses technical challenges and creates risks for some segments of the population. In a 2017 evaluation of the Benazir Income Support Programme (BISP),⁴⁹ it was noted that the inability of BISP beneficiaries to use ATMs put them at a risk of exploitation, as there was evidence of beneficiaries paying individuals to help them use ATM cards (Stevens 2017).

To measure technical literacy, we constructed an index based on self-reported ability to conduct various tasks using a mobile phone.⁵⁰ Between 2014 and 2020, the index for Pakistan as a whole showed an increase of 43 percent. The situation is more nuanced, however, when the index scores for various demographics are considered, as shown in Figure 27.

⁴⁹ BISP is Pakistan’s largest unconditional cash transfer program, which distributed US\$900 million to 5.4 million beneficiaries in 2016.

⁵⁰ Appendix 4 offers a detailed note on the construction of the technical literacy index.

Figure 27. Change in technical literacy index and wallet adoption, Pakistan, 2014–2020



Source: FII (2015, 2021a).

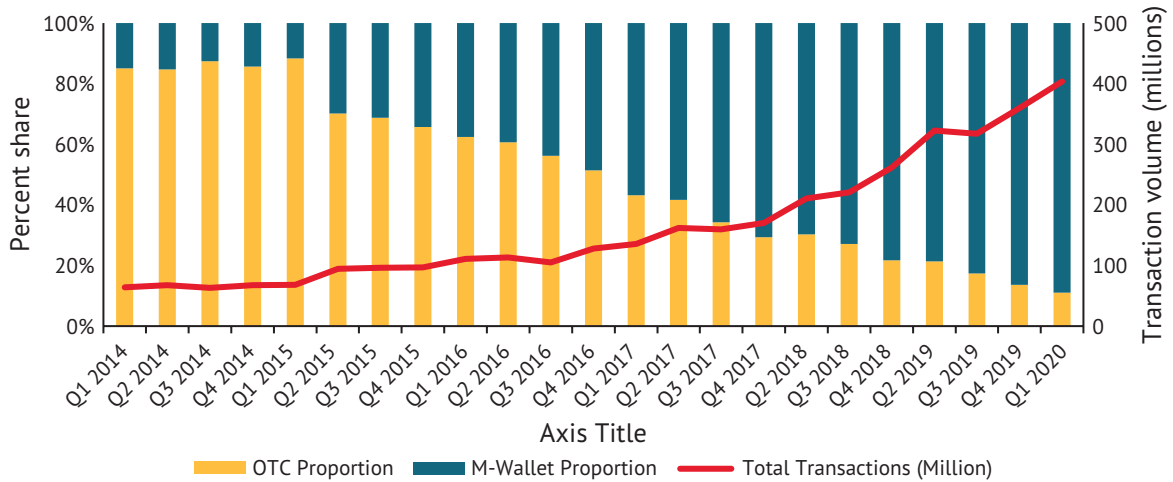
Figure 27 shows the change in the mean technical literacy index scores on the horizontal axis, while the vertical axis shows the change in mobile wallet registrations for each of the demographic groups. As the figure shows, those groups that showed the highest gains in technical literacy also showed the highest increases in mobile wallet registrations. This might be evidence that as the constraint is relaxing, there has been an increase in the adoption of mobile wallets.

Another way of looking at this situation would be to consider the role of the mobile money agent. The mobile money agent represents a conduit through which unregistered mobile money users can carry out a mobile money transaction. In such a transaction, the risk of making an error due to low technical literacy is borne by the mobile money agent and not the unregistered mobile money user. Approximately 38 percent of unregistered⁵¹ mobile money users in Pakistan cited fear of making mistakes while operating a mobile wallet account as the top reason for not getting an account (FII 2017c, Question MM 13.5).

However, since 2014, Pakistan has also seen a shift from agent-based OTC transactions toward more mobile money wallet transactions. Figure 28 shows a concurrent change in the composition of transactions, as wallet transactions rose from a mere 15 percent of overall transactions in the first quarter of 2014 to 89 percent in the first quarter of 2020.

⁵¹ These are users who use mobile money agents to conduct OTC transactions such as person-to-person transfers and utility bill payments.

Figure 28. Breakdown of transactions by volume, Pakistan, 2014–2020



Source: SBP (2020f).

The evidence shows that reliance on mobile money agents has evolved in Pakistan, as a much larger proportion of transactions are now being performed through mobile wallets than OTC. This transition has occurred at the same time that Pakistan has seen its scores on technical literacy increase. While there could be other factors explaining this shift from OTC to mobile money wallets, it is likely that the rise in technical literacy has contributed to this increase. Nevertheless, high technical literacy alone cannot explain increasing registration of mobile wallet accounts, as even within the top-scoring quartile on the technical literacy index, only 24 percent had a mobile wallet account. Further, financial inclusion among the top group in technical literacy was only 47 percent, implying that more than half of those with the highest technical literacy were financially excluded. Given all of this evidence, we can rule out the lack of technical literacy as a binding constraint.

6.1.3. Social norms

Perceptions about the benefits of a mobile money wallet account could also be low if one’s access is restricted. We argue that this is the case for women in Pakistan, as social norms limit their access to mobile money services, creating a gender gap in access.

The *Global Gender Gap Report 2020* ranks Pakistan at 151 out of 153 countries on an index that measures the width of countries’ gender gap in educational attainment, health, political empowerment, economic participation, and opportunity—the lower the ranking, the wider the gap (WEF 2020). Besides these indicators, Pakistan also has substantial gender gaps in the necessary prerequisites for access to formal finance. One of these is the CNIC, which is a necessary prerequisite for all types of formal financial accounts. Another is ownership of a mobile phone, particularly essential for acquiring a mobile wallet account. Table 5 shows the gender gap (calculated by dividing the difference between male and female ownership by the male ownership) in these two necessary prerequisites for adoption of a formal financial account in Pakistan.

Table 5. Gender gap in CNIC and mobile phone ownership, Pakistan, 2019–2020

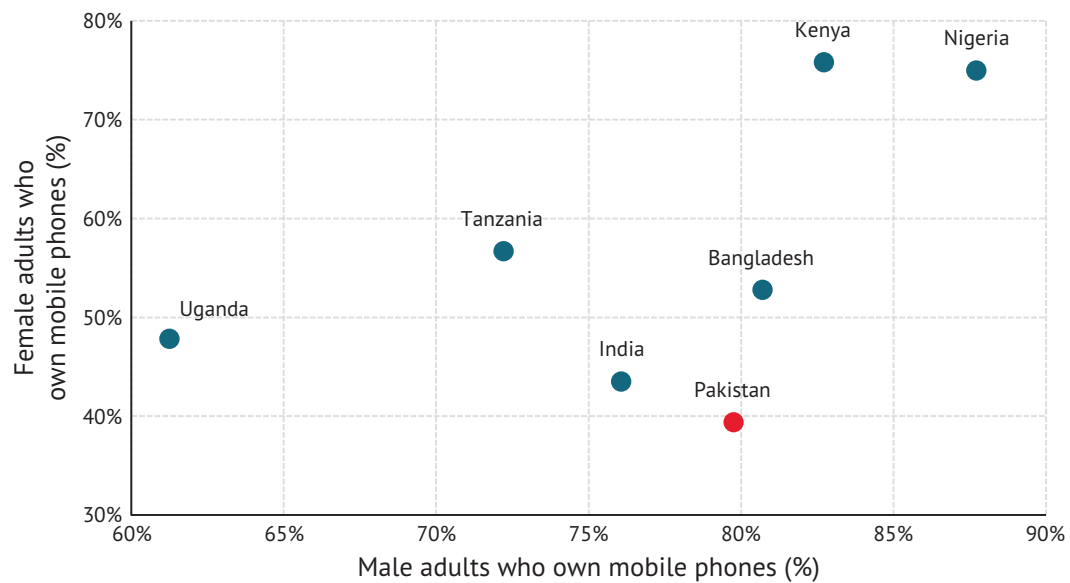
	Ownership status		Gap
	Men (%)	Women (%)	(Men – Women)/Men
CNIC—2020	55%	45%	18%
Mobile phone—2019	80%	50%	38%

Sources: CNIC—electoral rolls (ECP 2021). Mobile phone—GSMA Intelligence Consumer Survey (2019), cited in Rowntree and Shanahan (2020, 11).

Note: Electoral rolls are used as a proxy for CNIC because issuance of CNIC also results in voter registration. Percentages are based on total adult population.

The gender gap in mobile phone ownership becomes even starker when Pakistan is seen in comparison with other countries, as in Figure 29. As shown, Pakistan is fourth from the top of the list in terms of male ownership of mobile phones; however, when it comes to female ownership of mobile phones, Pakistan has the lowest in this group of comparator countries.

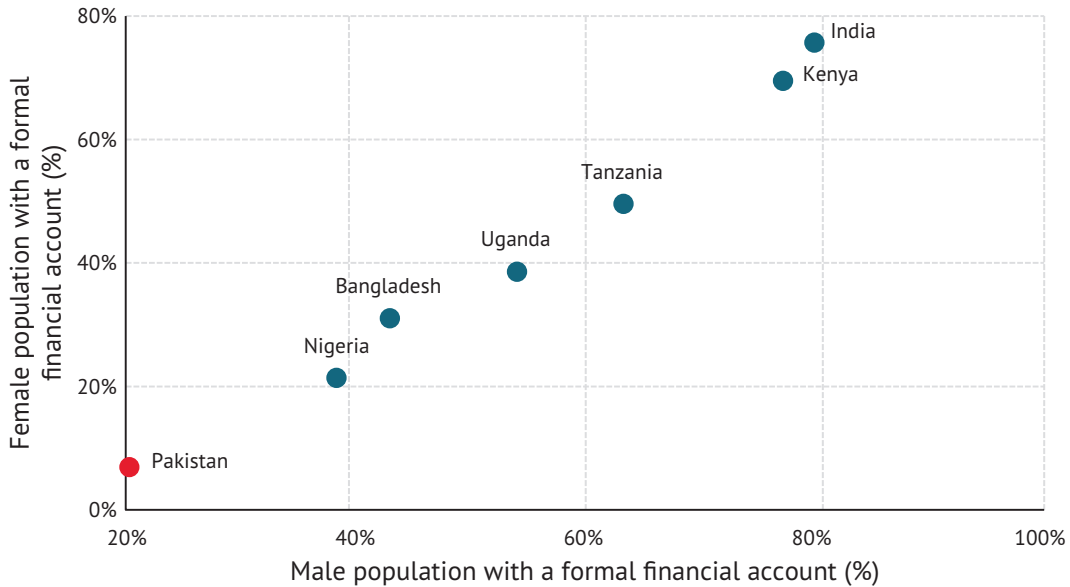
Figure 29. Mobile phone ownership and gender, Pakistan and comparator countries, 2017



Source: FII (2018b).

Figure 30 compares Pakistan with selected countries on the ownership of formal financial accounts across both genders. Here too, Pakistan has the lowest female ownership of formal financial accounts, at 7 percent, but it also has the lowest male account ownership, at 20 percent.

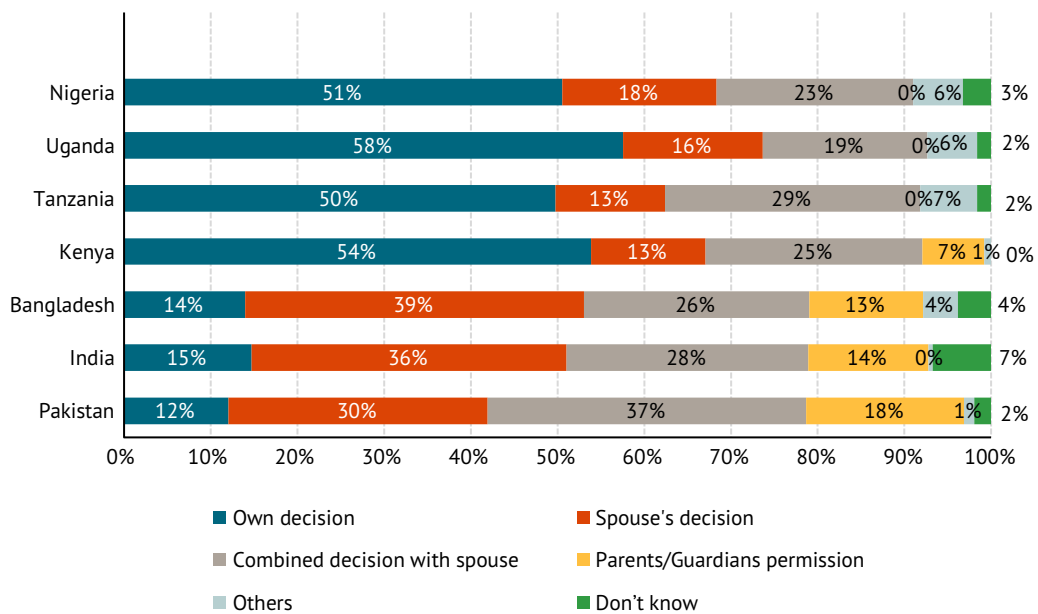
Figure 30. Financial inclusion and gender, Pakistan and comparator countries, 2017



Source: FII (2018b).

One crucial factor that could explain this low level of financial inclusion for women could be a lack of independence in making the decision to use formal financial services. Figure 31 shows the responses from women across the seven FII countries when asked who decides what kind of financial services they use, based on the FII survey conducted in 2016 (FII 2017c).

Figure 31. Women’s answer to “Who decides what kind of financial services you can use?,” Pakistan and comparators, 2016



Source: FII (2017c).

One stark contrast is between the South Asian and African countries. In all four African countries, almost 50 percent of female respondents said the decision to use financial services was their own. However, for all three South Asian countries, more than 50 percent of women pointed to their spouses as crucial in deciding the financial services that they will use, whether through a mutual decision or an exclusive decision of the spouse. It is important to note that within the same sample, Pakistan had the lowest financial inclusion of women, at 5 percent, while Bangladesh was at 17 percent and India at 40 percent.⁵² This implies that the role of the spouse might be more inhibiting toward financial inclusion in Pakistan than in Bangladesh and India.

There have been many reported incidents of women being murdered by relatives for owning or using a mobile phone (Digital Rights Foundation 2016). On International Women's Day 2021, one of the largest telecom operators in Pakistan, Jazz, launched an advertisement that showed how mere mobile phone ownership can result in violent consequences for women in Pakistan (*News360* 2021).

However, financial inclusion is also low among women who are not subject to these constraints. For instance, although women's mobile phone ownership can signal some independence in decision making, the FII conducted in 2020 shows that 89 percent of female mobile phone owners did not have a formal financial account (FII 2021a). Similarly, in 2016, of the subsample of women who reported having the freedom to choose their financial services, 90 percent did not have a formal financial account. This shows that financial inclusion might be low even among women who are relatively less affected by restrictive social norms.

To sum up, our analysis shows that when measured against comparator countries, Pakistan exhibits low financial awareness levels, especially awareness about the functionalities of mobile wallet accounts. Furthermore, half of Pakistan's population—that is, women—face social norms that restrict their decision making, thus limiting their ability to become financially included. On the other hand, financial exclusion is also high among individuals who do not face these constraints. Therefore, we conclude that consumers' perception of low or no benefits does not constitute a binding constraint for Pakistan. The evidence in this section shows it to be very likely that the binding constraints lie elsewhere, and once those other constraints are removed, the proportion of Pakistan's financially excluded population that has adequate financial awareness, digital literacy, and independence to opt into or out of financial exclusion will likely become financially included. At that stage, consumers' perceptions of low benefits of usage might become a binding constraint. However, given the evidence, Pakistan has not reached that stage yet.

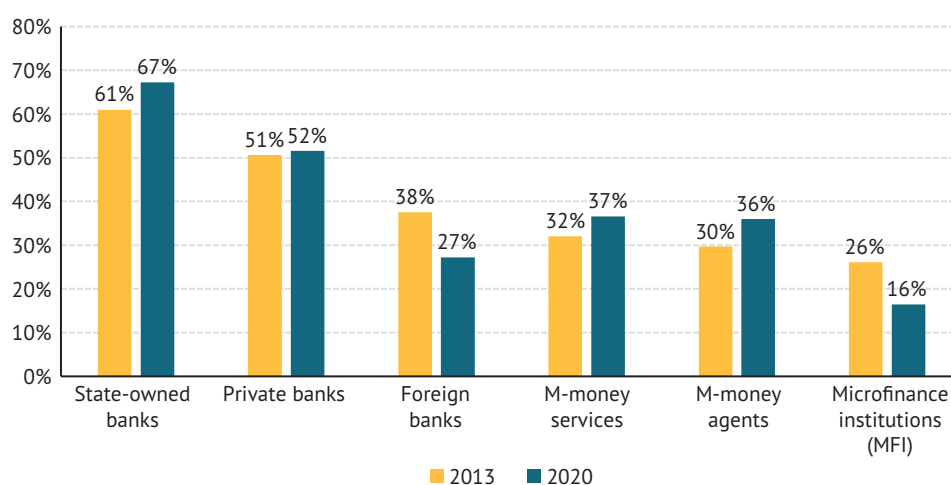
⁵² FII 2016 surveys for Bangladesh (FII 2017a), India (FII 2017b), and Pakistan (FII 2017c).

6.2. Lack of trust

A lack of trust in financial institutions can also result in reluctance to opt for formal finance. In this section, we will assess whether a lack of trust in formal finance could be a constraint or even a binding constraint for Pakistan.

Over the past few years, Pakistan has witnessed an increase in trust levels in formal financial institutions. As Figure 32 shows, this increase in trust has been most visible for mobile money services and agents. However, it is also noticeable that the traditional banking sector enjoys an even higher level of trust than the mobile money agent network of mobile money providers.

Figure 32. Trust in formal financial actors, Pakistan, 2013 and 2020



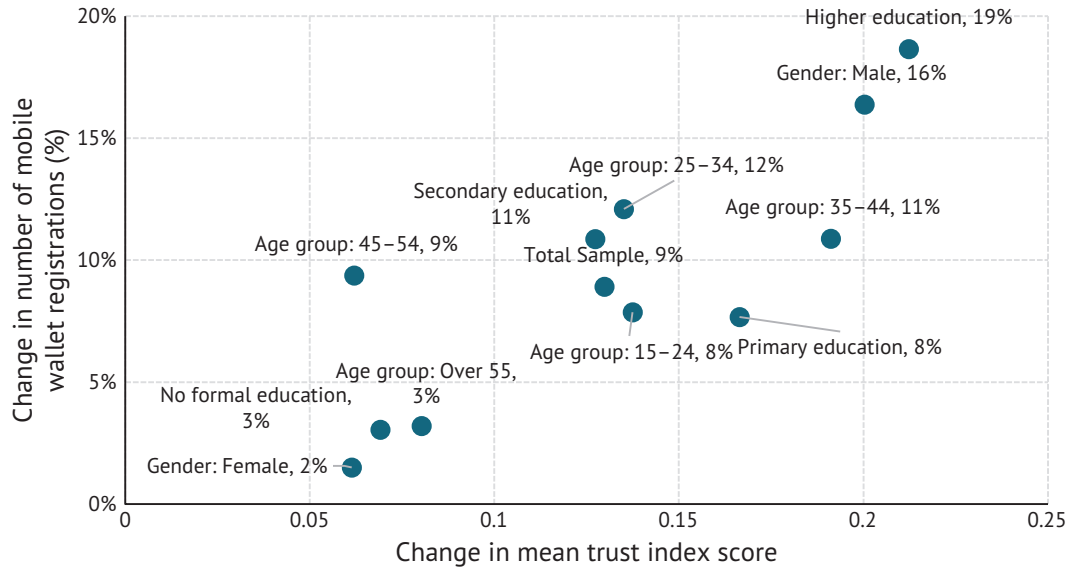
Sources: FII (2014, 2021a).

Note: Figure shows percentage of respondents who chose “fully trust” or “rather trust” to express their level of trust. This is a percentage of the complete sample, not just users of formal financial services. Among users, the trust levels tend to be even higher.

To quantify the change in trust levels, we created a trust index that measures the trust people have in the various types of formal financial institutions.⁵³ Figure 33 maps this index against mobile wallet registrations in both 2013 to 2020 for various demographics. The demographic groups that developed a higher level of trust in mobile money agents over time tended also to be the ones that showed a higher percentage increase in mobile wallet registrations.

⁵³ Details of the trust index and its construction are given in Appendix 5.

Figure 33. Changes in trust index and wallet registrations, Pakistan, 2013–2020

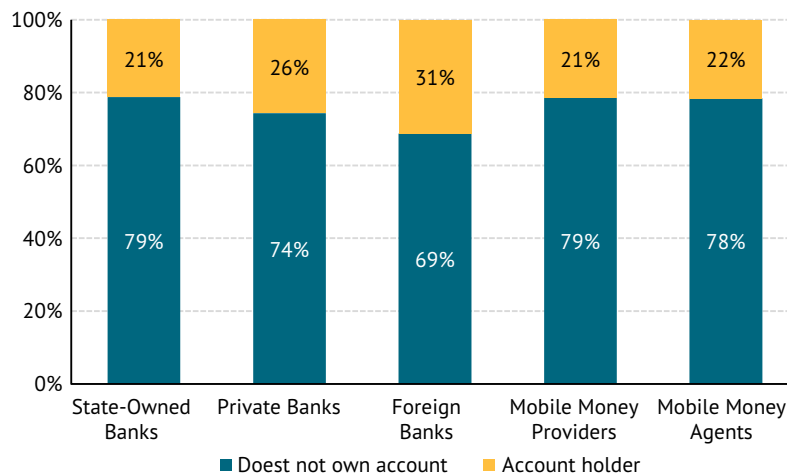


Source: FII (2014, 2021a).

Note: The percentage next to each demographic category indicates the change in wallet ownership from 2013 to 2020.

However, a substantial proportion of the financially excluded also expressed trust in formal financial institutions. Figure 34 shows the adoption of formal financial accounts among those who said they trust the various types of financial institutions. For each type of institution, it shows the percentages of those who have the relevant financial account and of those who do not. For the three types of banks, the relevant financial account is a bank account, while for mobile money providers and mobile money agents, the relevant account is a mobile money wallet account.

Figure 34. Trust levels and financial inclusion, Pakistan, 2020



Source: FII (2021a).

Note: Percentages shown are out of the respondents who chose “fully trust” or “rather trust” to express their level of trust.

As the figure shows, an overwhelming proportion of those who trust banks and mobile money providers do not have registered accounts. Therefore, we conclude that a lack of trust in financial institutions is not a binding constraint on financial inclusion in Pakistan.

6.3. Distance from a financial access point

Distance from a financial access point can be a reason not to opt for a formal financial account. Pakistan has seen increases in various types of financial access points. Table 6 shows the change in three crucial ones: active mobile money agents, bank branches, and ATMs. As the table shows, the most significant increase during this period has been in the number of active mobile money agents, which grew at 89 percent, followed by ATMs at 54 percent and then bank branches at 33 percent.

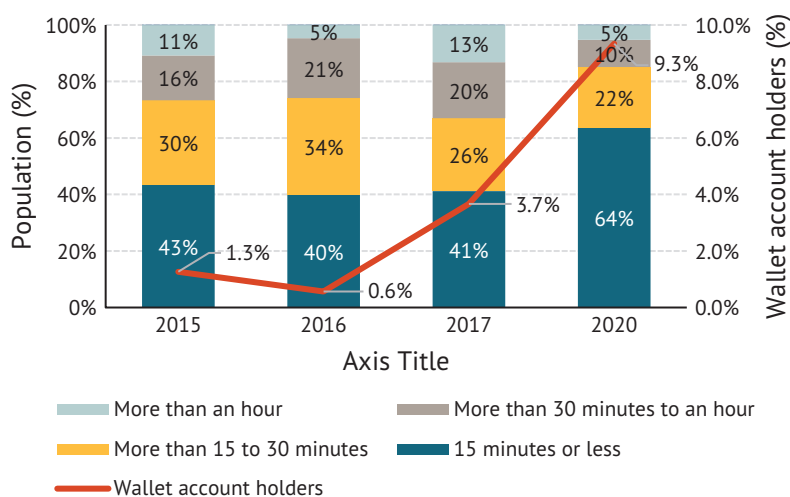
Table 6. Proliferation of financial access points, Pakistan, 2015–2020

	Jan–Mar 2015	Jan–Mar 2020	Growth (%)
Mobile money agents (active)*	183,117	193,291	89%
Bank branches**	12,073	16,069	33%
ATMs**	10,099	15,559	54%

Sources: * SBP (2018a). ** SBP (2021c).

The increase in the number of mobile money agents seems to have shortened travel times to use their services. As Figure 35 shows, the increase in respondents indicating the “15 minutes or less” commute time category rose from 43 percent in 2015 to 64 percent in 2020, during the same time that registered mobile wallet account holders increased from 4 percent to 9 percent.

Figure 35. Change in commute time to nearest mobile money agent, Pakistan, 2015–2020



Source: FII (2016, 2017c, 2018b, 2021a).

Note: Does not include respondents who answered “don’t know” or refused to answer.

Similar changes have taken place in the commute time to bank branches, with the “15 minutes or less” category increasing from 23 percent of respondents in 2015 to 31 percent in 2020 (FII 2016, 2021a). For ATMs, the same category has increased from 23 percent in 2015 to 28 percent in 2020 (FII 2016, 2021a). Furthermore, these distances are similar to those in some comparator countries. Although 2020 data are not available for India, data for 2017 show that while 28 percent of Pakistanis were estimated to live 15 minutes or less from a bank branch, 24 percent of Indians were, and while 26 percent of Pakistanis lived that close to an ATM, 21 percent of Indians did (FII 2018a, 2018b).

However, the level of financial exclusion is high in Pakistan, even for those close to financial access points. Indeed, an overwhelming majority of the population living 15 minutes or less from an access point such as a bank branch (68 percent), an ATM (67 percent), or a mobile money agent (65 percent) are financially excluded. Pakistan’s commute times to bank branches and ATMs are comparable to those of India but at the same time, Pakistan’s bank account registration levels are much lower than India’s.⁵⁴ Given the evidence, we rule out distance to a financial access point as a binding constraint for Pakistan. However, it is possible that distance from financial access points acts as a binding constraint for smaller segments of Pakistan’s population who reside in more remote areas.

7. COVID-19 and the demand for mobile wallets

In the aftermath of COVID-19 lockdowns in Pakistan, the adoption of mobile money wallets saw a significant spike, increasing from 9 percent in March 2020 to 16 percent in December 2020, based on results from the regularly scheduled 2020 FII survey (FII 2021a) and a follow-up survey conducted later in 2020 to assess the impact of COVID-19 on financial behavior (FII 2021b). The follow-up survey generated a panel dataset that covered, in this second iteration, 88 percent of respondents from the first iteration. Based on these two surveys, 7 percent of respondents who did not have either a bank or a mobile money wallet account in March 2020 went on to register a mobile money wallet account by December 2020.

Our evidence in Section 5.3.2 showed that institutional weaknesses constitute the binding constraint by incentivizing informality and thus pushing individuals away from formal financial services. Although these constraints have not been relaxed, as this is a complex and structural issue, the experience with mobile money during COVID-19 seems to suggest that the preference for cash of a certain number of individuals decreased, allowing for their digital financial inclusion. Institutional constraints were not directly relaxed, but rather, new

⁵⁴ According to the FII conducted in 2017, the level of bank account registrations was predicted to be at 10.8 percent of the adult population for Pakistan and 77.5 percent for India. Although India has a high level of dormancy, the difference remains when considering only 90-day-active bank accounts (bank accounts that have been used at least once in 90 days), which were 9.7 percent for Pakistan and 53.2 percent for India (FII 2018a, 2018b).

costs associated with the use of cash (health- and mobility-related costs) made the cost of using formal financial institutions *relatively* lower during the pandemic. In this context, for some individuals, COVID-19 made digital financial inclusion more appealing and the incentives to remain informal, as they relate to the use of DPS, weaker.

A particular aspect about the group that adopted mobile money after lockdowns was that, when compared with those who remained financially excluded, they appear to be much less constrained by the demand-side weaknesses discussed in the previous sections. For instance, on technical literacy, the pre-COVID-19 median technical literacy index score for the financially excluded was 0.13; however, for the group that adopted mobile money after the lockdowns, the average technical literacy index score at baseline, in March 2020—before they had mobile money accounts—was 0.47. Similarly, this group showed a higher awareness of mobile money functionality as well as higher trust levels at baseline. Table 7 compares the subgroup that adopted mobile money wallets with the overall financially excluded in relation to these demand-side traits.

Table 7. Demand-side constraints faced by nonusers and by those who adopted mobile money wallets after COVID-19 lockdowns, Pakistan, 2020

Variable	Financially excluded (Pre-COVID-19)	Financially excluded who registered MM wallet accounts between March and December 2020
Functional awareness index (median score)	−0.36	0.13
Technical literacy index (median score)	0.13	0.47
Fully trust or trust mobile money services (%)	29%	56%
Fully trust or trust mobile money agents (%)	29%	54%

Source: FII (2021a, 2021b).

Note: Both measures are performed on the March 2020 sample (2021a); the December 2020 sample (2021b) is used to isolate the group that registered for mobile money wallet accounts after March 2020.

However, not all individuals unconstrained by demand-side factors chose to register a mobile money account. Indeed, a significant proportion of people with relatively high levels of financial awareness, technical literacy, and/or trust in mobile money agents and services chose to remain digitally financially excluded even after the COVID-19 lockdowns. In Table 8, we consider people who were digitally financially excluded in March 2020 and remained so in December 2020, even though they started out in March with the relatively high awareness, literacy, and trust to use such services (at par or better than the median of the group that adopted mobile money wallets). As the right-hand column shows, even in the subcategory of financially excluded people who already owned a mobile phone in March 2020, a large proportion chose to remain excluded. This suggests that other constraints dominate; in particular, as advanced in this paper, our claim is that institutional constraints are binding for a substantial number of adults in Pakistan, including most of those with high awareness, literacy, and trust levels.

Table 8. Financially excluded people and demand-side constraints, Pakistan, 2020

	Remained financially excluded in December 2020 (<i>n</i> = 2,353)	Mobile phone owners* who remained financially excluded (<i>n</i> = 981)
Functional awareness index $\geq 0.13^{**}$	30%	53%
Technical literacy index score $\geq 0.47^{**}$	18%	36%
Fully trust or trust MM services (%)	29%	51%
Fully trust or trust MM agents (%)	29%	50%

Source: FII (2021a, 2021b).

Note: * Owned a mobile phone in March 2020. ** Median score of those who adopted mobile money wallets after March 2020.

Finally, a caveat applies to this section: it is still too soon to know whether these changes are transitory or permanent; that is, it is not clear whether individuals who have recently adopted mobile money wallets will continue to use them in the future or will use them only to cope with COVID-19 realities. If a substantial number of these new users become inactive in the near future, this would further prove the existence of structural factors that prevent the development of financial inclusion in Pakistan. A continuous tracking of the behavior of these individuals is needed to shed more light on this issue.

8. Conclusion

Pakistan has come a long way in the coverage of its networks of bank branches, ATMs, and mobile money agents. However, according to the latest estimates, barely 20 percent of the population is currently included in digital finance. In addition, the country is still lagging behind comparator countries when it comes to digital financial inclusion. This paper used the Claessens and Rojas-Suarez (2020) decision tree methodology to assess the potential demand- and supply-side constraints limiting the usage of DPS and to identify which, among these constraints, are binding. For this exercise, we conducted an international comparison of prices charged for using several DPS and reviewed a comprehensive set of indicators and survey data to carefully analyze the relevance of each and all branches of the decision tree.

Our analysis reveals that Pakistan’s institutional weaknesses constitute the binding constraint, as these weaknesses have incentivized the creation of a sizable informal economy that discourages the provision and usage of DFS. These structural issues have resulted in a large proportion of the country’s financial transactions being undertaken using cash as opposed to DPS.

These institutional deficiencies are reflected in distortionary policies. A prominent example is the 2015 imposition of a higher withholding tax on cash withdrawals by individuals who do not file tax returns. While the intention of the policy was to crack down on tax evasion and document the economy, the measure had the opposite effect, encouraging further informality to try to stay “under the radar” of the tax authorities. Following the implementation of the

policy, a significant rise in the demand for cash ensued, which was met by withdrawals from formal financial institutions, with consequent adverse effects on digital finance.

Our analysis of factors affecting the demand for DPS shows that although Pakistan lags behind comparable countries on various indicators such as technical literacy, awareness of the functionality of digital products, and social inclusion of women, these constraints are not binding for the majority of the population. A considerable proportion of financially excluded Pakistanis show a high demand-side readiness for inclusion, but they still prefer to remain financially excluded, a decision that is rooted in the incentives created by the country's institutional weaknesses.

The onset of COVID-19 had consequences for cash preference, as it created new health and other costs for carrying out cash transactions. These costs are likely to have incentivized a small proportion of Pakistan's financially excluded toward adopting mobile money wallets. This group of mobile wallet adopters showed lower levels of demand-side constraints than the average for the financially excluded in Pakistan; they had higher technical literacy, higher awareness of mobile wallet functionalities, and higher trust in mobile money agents and services.

However, it is also essential to highlight that a considerable proportion of the mobile phone-owning financially excluded in Pakistan, who have relatively high technical literacy, functional awareness, and trust levels, continue to choose to be financially excluded. In other words, despite the COVID-19-related costs associated with the use of cash and despite their lack of demand-side constraints, a large group of the financially excluded continues to prefer using cash. We interpret this as further evidence of prevalent structural problems, rooted in institutional deficiencies, that cause high informality. Demand-side constraints are severe for specific subpopulations (older and lower-income people, and some women) and may become binding on further financial inclusion in the future, if and when institutional deficiencies are resolved. But currently, the institutional issues are so deeply ingrained that they severely limit the expansion of digital financial inclusion in Pakistan. More than simple policy reversals are needed to address structural problems that push a majority of Pakistanis toward the cash economy and away from DPS, which have substantial potential to improve their livelihoods.

9. Appendixes

Appendix 1. The decision tree methodology: further details

This appendix extends the discussion in section 3 by providing additional details regarding the methodology used in this paper. The complete analytical framework, the principles of the methodology, and numerous examples can be found in Claessens and Rojas-Suarez's 2020 paper "A Decision Tree for Digital Financial Inclusion Policymaking."

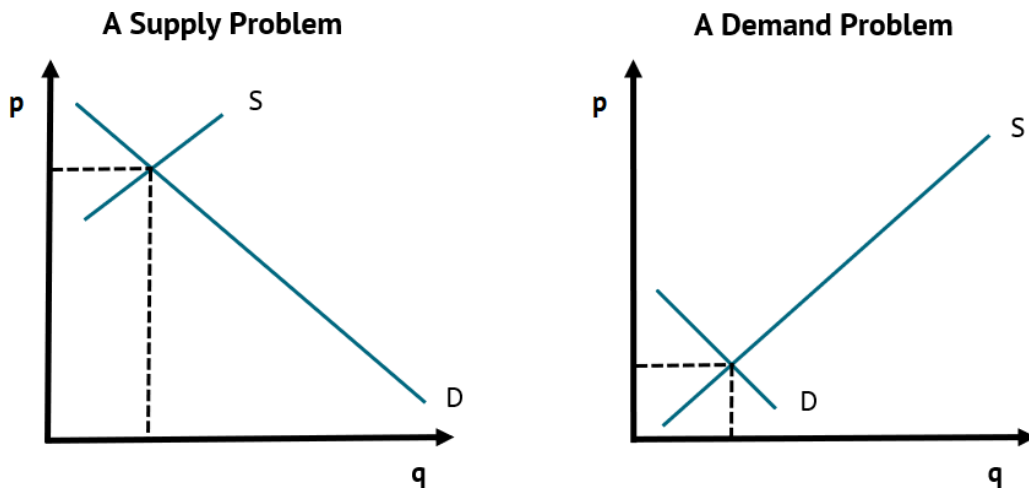
The methodology is inspired by Hausmann and coauthors' work on growth diagnostics (the 2005 "Growth Diagnostics" and the 2008 "Doing Growth Diagnostics in Practice"), which created a decision tree to identify the binding constraints on growth in developing economies—that is, the factors that are preventing countries from reaching their growth potential. The motivation behind this framework is to offer a diagnostic tool that will help policymakers to prioritize policy in areas where actions are needed the most and can have a larger impact. Many factors can be constraints; indeed, all the branches in the decision tree are determinants of financial inclusion, but the methodology seeks to find those that are *binding*.

Hence, the decision tree for digital financial inclusion outlines a set of potential constraints that analysts have to evaluate in order to determine which are binding, in the sense that they are the root cause limiting the expansion of financial inclusion. Claessens and Rojas-Suarez offered three different trees for payment, store of value, and credit services, though some constraints are naturally common for the three trees. These trees have served as a guide in the search for the binding constraints to digital payments and transfers in Pakistan.

The decision tree for digital payments and transfers is presented in Figure 2 in section 3. We evaluate all the branches (and sub-branches) of the tree to identify the binding constraints to financial inclusion, applying the following principles:

1. ***Prices of financial services are key indicators to determine whether binding constraints are (likely) on the demand or the supply side.*** Observing low quantities (low usage) does not indicate whether the constraints are affecting providers or consumers. Analysts can get an *initial* idea of whether binding constraints are on the supply or demand side by considering prices, though they should evaluate all the branches in the tree individually. Generally, if the price of a service is relatively high compared with either another similar service or the (properly adjusted) customary price charged in other countries with similar levels of development, it indicates the existence of supply-side constraints (left graph in Figure A1.1). This suggests that providers are willing to supply the service only at a high price (due to high costs or other distortions related to supply-side constraints). These high prices, as a result, exclude significant proportions of the population, who cannot afford the service. On the other hand, if the price is relatively low, this would indicate a demand-side problem, since users are unable or unwilling to use the service despite its low price (right graph in Figure A1.1).

Figure A1.1. Distinguishing between supply and demand problems



Source: Claessens and Rojas-Suarez (2020), taken from Hausmann et al (2008).

Note: S and D represent, respectively, the supply of and demand for a financial service, and p and q represent, respectively, the price and quantity used of that service. Actual usage occurs at the intersection of both curves.

In addition, in many cases, it is necessary to consider a broader definition of prices, accounting for potential unobserved shadow prices and other factors, such as opportunity costs, that affect the market equilibrium. A clear example of this is geographical constraints, where the opportunity cost of displacement is built in for customers and might cause low demand.

The three other principles indicate that a constraint is likely binding:

2. ***If relaxing the constraint results in a significant change in usage*** or other relevant behaviors. For example, if reducing or eliminating certain taxes to payment services causes a sharp rise in the usage of the service
3. ***If agents are trying to overcome or bypass the constraint*** by using either alternative equivalent services such as informal lending (when analyzing credit markets) or a combination of other, less efficient, financial instruments
4. ***If agents less intensive in that constraint are thriving***—that is, if the constraint affects only a subpopulation and those not affected by it are largely financially included. For example, in countries where institutional and governance quality is low, the ability to use financial services may depend on factors other than those driving the sound conduct of business, such as political connections. If so, one should observe that those with privilege to use the services do better than what is expected given their capacities.

Further considerations to take into account when using the decision tree methodology include these:

- ***When assessing whether a constraint (branch in the tree) is binding, analysts need to consider as many indicators as possible, including hard data as well as surveys reflecting perceptions.*** Claessens and Rojas-Suarez suggested possible indicators to use on each of the branches, but analysts should select a set of indicators based on the specific characteristics and context of both the services and the country under study. Data should encompass both aggregate and microlevel statistics.
- ***Keep in mind that removing nonbinding constraints might be necessary to expose a binding constraint.*** For instance, allowing mobile money to operate by law can ease a constraint but, while necessary, it might not be sufficient to improve financial inclusion. Relaxing this constraint might instead help to uncover a truly binding constraint, such as the lack of a critical mass of customers (a coordination problem).
- ***Acknowledge that branches can interrelate.*** In some cases, to fully evaluate a branch requires analyzing others. Analysts should draw these connections and assess which indicators to use in each of the branches to evaluate them.

Appendix 2. Brand awareness index

A2.1. Introduction

The FII conducted in Pakistan in March 2020 included a question to check the recall of mobile money brands in Pakistan (FII 2021a). The following is an attempt to use the responses to that question to arrive at a quantitative estimate of the awareness about mobile money brands in Pakistan.

A2.2. Scoring and weighting responses

Respondents were prompted, “Please tell me names of the mobile money companies that you are aware of” (FII 2021a, Question MM2). In the response, we looked for recall of the following mobile money companies (letter designations are used in the formula that follows): (a) Telenor Easypaisa, (b) UBL Omni, (c) Ufone/Upayment, (d) MCB Mobile, (e) Zong TimePay, (f) HBL Express, (g) Warid Mobile Paisa, (h) Mobilink JazzCash, (i) Alfalah Alif, (j) Finja Mobile Wallet, and (k) Askari Mobile Money.

If the respondent recalled any of the companies, the response was marked as “Yes” for that company; “No” was entered for companies not recalled. The respondent was not prompted with the name of any of the companies. Table A.1 lists the responses and the scores that they were assigned in the index.

Table A.1. Scores assigned to responses

Response	Score
1. Yes	1
2. No	0

The construction of the index is as follows (using the letters assigned to the companies earlier):

$$\text{Brand Awareness Index} = \frac{1}{11}(a + b + c + d + e + f + g + h + i + j + k)$$

A2.3. Regression results

A simple linear probability model was constructed, with mobile wallet registration as the dependent variable and the brand awareness index, along with rural/urban, gender, education, and age, as independent variables. Table A.2 lists the results of the regression.

Table A.2. Regression results for brand awareness index

Variable	Coefficient	p-value
(Constant)	.138	.000
Urban or rural	.015	.118
Gender	-.107	.000
Education	.013	.006
Age	.000	.616
Brand awareness index	.386	.000
N	3,567	
R ²	0.123	

Appendix 3. Functional awareness index

A3.1. Introduction

The FII conducted in March 2020 in Pakistan included responses to a series of four statements focused on respondents' level of knowledge about mobile money payment and transfer functions (FII 2021a). The functions assessed were storing money on a mobile wallet, withdrawing and depositing cash using mobile money, sending, or transferring money to someone, and making a payment with mobile money. The question was framed as follows: "I am going to read some statements about ways that some people use mobile money services. For each one that I read, please tell me if you knew about this way of using mobile money before I mentioned it" (FII 2021a, Question MM42). Table A.3 lists the way that these various functions were stated in the questionnaire (letter designations are used in the formula that follows).

Table A.3. Subquestions on mobile money payment and transfer services

Statements about mobile money services
a) Mobile money allows you to keep money on your phone
b) You can deposit and withdraw cash using mobile money
c) You can send money to someone using mobile money
d) You can pay for goods and services using mobile money

A3.2. Scoring and weighting responses

Respondents were asked about the extent to which they agreed or disagreed with the statements in Table A.3. The responses and the scores assigned to them in the index are listed in Table A.4.

Table A.4. Scores assigned to responses on mobile money services

Response	Score
1. Strongly agree	+1
2. Agree	+0.5
3. Disagree	-0.5
4. Strongly disagree	-1

For each individual, we used the following equation (including the letters assigned to the functions earlier) to sum and average the scores from each of the four questions and arrive at a single score for the individual:

$$\text{Functional Awareness Index} = \frac{1}{4} (a + b + c + d)$$

A3.3. Regression results

A simple linear probability model was constructed, with mobile wallet registration as the dependent variable and the functional awareness index, along with rural/urban, gender, education, and age, as independent variables. Table A.5 lists the results of the regression.

Table A.5. Regression results for functional awareness index

Variable	Coefficient	p-value
(Constant)	.160	.000
Urban or rural	.020	.039
Gender	-.064	.000
Education	.007	.143
Age	.000	.372
Functional awareness index	.137	.000
N	3,567	
R ²	0.146	

Appendix 4. Technical literacy index

A4.1. Introduction

The FII surveys conducted in Pakistan in 2014 and in March 2020 asked respondents to rate themselves on a series of 15 skills needed to operate a mobile phone (FII 2015, 2021a).⁵⁵ The question, asked only of respondents who said they owned a mobile phone, was framed as follows: “On a scale from 1 (very poorly) to 4 (very well), please tell me how well you are able to perform each of the following activities on a mobile phone” (FII 2015, Question TDL1). Table A.6 lists the functions assessed in the 2014 survey (letter designations are used in the formula that follows).

Table A.6. Subquestions on mobile phone skills, Pakistan, 2014

Mobile phone skills
a) Dialing phone numbers on your phone
b) Adding contacts to your contact list
c) Changing settings on a phone, for example, changing a ringtone, setting alarm, changing ring volume
d) Sending text messages
e) Responding to text messages from other people
f) Composing and sending picture messages
g) Forwarding a text message that you received from one person to another person
h) Using social networks like Facebook or Twitter
i) Posting pictures online, using Instagram
j) Watching video you downloaded on a phone
k) Listening to audio you download on a phone
l) Tuning in to a radio station
m) Using a chat app such WhatsApp or Viber
n) Following a text menu, for example, to redeem reward points, buy airtime, sign up for a text-message info service
o) Following an interactive voice menu or voice commands, for example, when calling the customer service line of your mobile provider or your bank

Source: FII (2015).

The data were used to construct an index that not only ranks the overall skill level for Pakistan but can also be calculated to assess the skill levels of specific demographic groups, in particular those below the national average in financial inclusion.

⁵⁵ The 2014 questionnaire was administered in other countries, and therefore comparisons are possible for those data; however, the 2020 survey was administered only in Pakistan and therefore it is not possible to compare its results with those of other countries.

A4.2. Scoring and weighting responses

Respondents were asked to assess their own level of proficiency for each of the skills in Table A.6. These responses and the scores assigned to them are listed in Table A.7.

Table A.7. Scores assigned to responses

Response	Score
1. Very poorly, always need help	-1
2. Somewhat poorly, often need help	-0.5
3. Somewhat well, occasionally need help	+0.5
4. Very well, never need help	+1
5. I never do this on my phone.	0

The index is constructed as follows, using the letters assigned to the skills earlier:

$$\text{Technical Literacy Index} = \frac{1}{15} (a + b + c + d + e + f + g + h + i + j + k + l + m + n + o)$$

A4.3. Regression results

A simple linear probability model was constructed, with mobile wallet registration as the dependent variable and the technical literacy index, along with rural/urban, gender, education, and age, as independent variables. Table A.8 lists the results of the regression.

Table A.8. Regression results for technical literacy index

Variable	Coefficient	<i>p</i> -value
(Constant)	.437	.024
Urban or rural	.004	.944
Gender	-.224	.000
Education	-.010	.796
Age	.001	.531
Technical literacy index	.091	.159
<i>N</i>	365	
<i>R</i> ²	0.06	

Appendix 5. Trust index

A5.1. Introduction

The FII conducted in Pakistan in March 2020 includes a question on respondents' trust in mobile money agents (FII 2021a). The following is an attempt to use the responses to that question to arrive at a quantitative estimate of the trust shown in mobile money agents.

A5.2. Scoring and weighting responses

Respondents were asked to express their level of trust in mobile money agents. The trust levels and the scores they were assigned are listed in Table A.9 (letter designations are used in the formula that follows).

Table A.9. Scores assigned to responses

Response	Score
a) Fully trust	+1
b) Rather trust	+0.5
c) Neither trust nor distrust	0
d) Rather do not trust	-0.5
e) Do not trust at all	-1

These scores were averaged for various demographics of interest to arrive at a quantitative estimate of trust levels by demography.

A5.3. Regression results

A simple linear probability model was constructed, with mobile wallet registration as the dependent variable and the trust index, along with rural/urban, gender, education, and age, as independent variables. Table A.10 lists the results of the regression.

Table A.10. Regression results for trust index

Variable	Coefficient	<i>p</i> -value
(Constant)	.167	.005
Urban or rural	.014	.406
Gender	-.117	.000
Education	.034	.000
Age	.000	.592
Trust index	.075	.000
<i>N</i>	1,963	
<i>R</i> ²	0.072	

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