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Financial Inclusion: Zooming in on Latin America

by Era Dabla-Norris, Yixi Deng, Anna Ivanova, Izabela Karpowicz, Filiz Unsal, Eva VanLeemput, and Joyce Wong

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Financial Inclusion: Zeroing in on Latin America*

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Authorized for distribution by Krishna Srinivasan

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Abstract

Countries in Latin America and the Caribbean (LAC) have made important strides in promoting financial inclusion of firms and households. However, while the region is broadly at par with its peers on financial inclusion of firms, household inclusion lags behind. Nonetheless, there is substantial heterogeneity across LAC countries. Reducing borrowing costs and strengthening further the regulatory environment, while taking steps to protect efficiency and stability of the financial system, could help close financial inclusion gaps. Reducing financial participation and monitoring costs and relaxing collateral constraints will help spur growth and reduce inequality though trade-offs are likely, as illustrated in the case of Guatemala, El Salvador, and Peru.

JEL Classification Numbers: D63, F43, G21

Keywords: Latin America, Financial inclusion, Growth, Inequality

Author's E-Mail Address: edablanorris@imf.org; aivanova@imf.org; ikarpowicz@imf.org;

jwong2@imf.org

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Contents

I. INTRODUCTION AND MOTIVATION

Financial inclusion holds the promise of boosting growth and reducing poverty and inequality, notably by mobilizing savings and providing households and firms with greater access to resources needed to finance consumption and investment and to insure against shocks. In addition, financial inclusion can foster labor and firm formalization, helping, in turn, boost government revenues and strengthen social safety nets. The benefits of financial inclusion could be particularly pronounced in Latin America and the Caribbean (LAC) where growth is modest and volatile, poverty and inequality remain high, savings and investment are low, and informality is rampant.

Not surprisingly, financial inclusion has become an increasingly important goal of policymakers in the region. Indeed, following a period of instability and crises, financial systems in LAC have been strengthened (International Monetary Fund, forthcoming) and progress has been made in fostering financial inclusion through the expansion of bank networks, improvements in payments systems, and the diversification of savings and credit services available for households and small and medium size enterprises (SMEs). This progress partly reflects governments' efforts to create an enabling environment for finance in general, including by liberalizing financial flows, addressing vulnerabilities in the financial sector, enhancing effectiveness of regulation and supervision, and improving the underlying physical and market infrastructure. It also reflects specific policies to promote inclusion, such as introduction of low-fee bank accounts, the use of the banking sector to channel government transfers, correspondent bank arrangements, as well as support for mobile and e-banking. Notwithstanding this progress, considerable scope for enhancing household and firm financial inclusion remains.

This study seeks to document the current status of financial inclusion in LAC, identify remaining financial inclusion gaps, and analyze the impact on growth, inequality, and financial stability when identified impediments to inclusion are removed. The paper takes a multiplicity of approaches for examining different facets of financial inclusion and its impediments, while recognizing the limitations of each of them. Based on the recently updated FINDEX dataset and Enterprise Survey data collected by the World Bank, the study develops novel and composite measures of household and firm financial inclusion, with the view of placing LAC in a temporal and cross-country perspective. It then identifies financial inclusion gaps, the underlying drivers, and policy actions that could help narrow them. In doing so, the analysis extends existing research by exploring additional determinants of financial inclusion, such as the size of the shadow economy, quality of the regulatory environment, bank income sources, and availability of bank safety buffers, and by analyzing the determinants of financial inclusion for SMEs.

On the household side, the paper explores the factors behind the reliance of households on informal finance based on the example of Colombia. On the enterprise side, it applies a novel theoretical framework for identifying the most binding financial sector frictions that impede financial inclusion in several LAC countries. This framework allows for an examination of the implications of alleviating financial frictions on inequality, growth, and productivity. Drawing on the model results, case studies are discussed to offer policy priorities for fostering greater financial inclusion.

The paper is organized as follows. Section II introduces indices for measuring household and financial inclusion and examines progress with financial inclusion in Latin America. Section III presents analysis to identify financial inclusion gaps across LAC and the underlying drivers. Shifting the focus to households, Section IV explores factors behind households' reliance on informal finance based on the example of Colombia. Section V applies a theoretical framework for identifying the most binding financial sector frictions that impede firm financial inclusion to 12 countries in the region. Section VI includes three case studies—Guatemala, Peru, and El Salvador—to offer policy priorities for fostering greater inclusion. Section VII concludes.

II. MEASURING FINANCIAL INCLUSION IN LATIN AMERICA

With the rising interest in financial inclusion across policymakers, a multiplicity of financial inclusion indicators has been developed.[1] However, multi-dimensional indices, which provide a summary measure of financial inclusion, are few (e.g., Amidžić et al, 2014, Camara, N., and D. Tuesta, 2014). We construct three multi-dimensional indices capturing different angles of financial inclusion: (i) usage of financial services by households (Findex); (ii) usage of financial services by SMEs (Enterprise Survey); and (iii) access to financial institutions (Financial Access Survey). The indices are designed to capture different facets of financial inclusion, which we define in this paper as access and effective usage of financial services by households and firms.

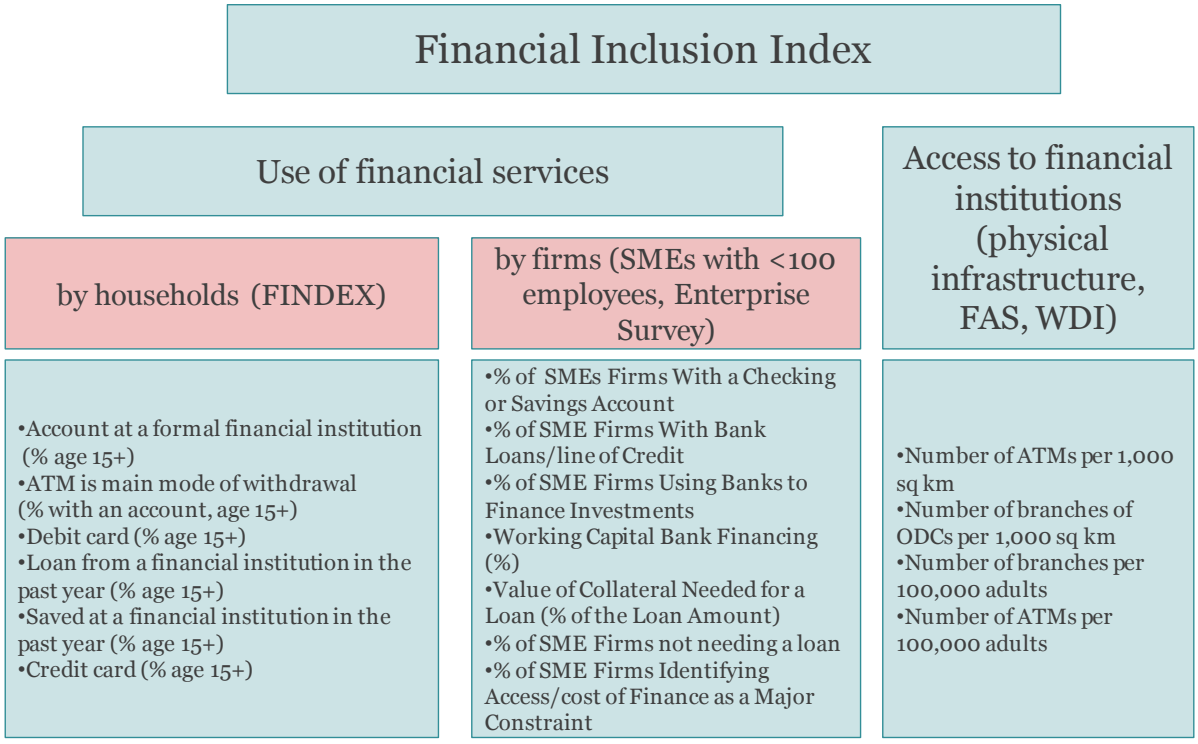
The diagram below illustrates indicators included in each of the indices (see Appendix for details). We chose indicators that cover the most important aspects of financial inclusion emphasized in the literature, while taking into account data constraints. For example, the household inclusion index encompasses information on the use of bank accounts, savings, borrowing, and payment methods but omits information on insurance due to data constraints. We also chose not to combine the three indices into a single index, notably because cross-country data coverage across households and firms varies substantially. Instead, we compare LAC to other regions, and for households across time[2], separately on each dimension.[3]

[1] Three most widely used sources are the World Bank Global Financial Inclusion dataset (Findex), which records how people in 148 countries save, borrow, and make payments, the IMF's Financial Access Survey (FAS), which provides global supply-side data on financial access for 187 jurisdictions, and the World Bank Enterprise Survey, which contains firm-level data on access to finance for a representative sample of enterprises in 135 economies.

[2] Findex data is available for two years: 2011 and 2014.

[3] We explore different aggregation methods, namely, weights derived from the principle component analysis (Camara, N., and D. Tuesta, 2014), factor analysis (Amidžić et al., 2014) and equal weights. The results are similar when using alternative measures. For simplicity of exposition we present the results for indices constructed using equal weights.

One novelty of our analysis is the construction of an index of financial inclusion for SMEs. While individual components of the Enterprise Survey data have been analyzed in the previous literature (Didier and Schmukler, 2014), a composite indicator has not been explored. The comprehensive indicator of firms' financial inclusion helps understand better the relative position of LAC on various aspects of inclusion compared to other regions, particularly since improving firms' access and use of finance is viewed as a key policy priority in the region.

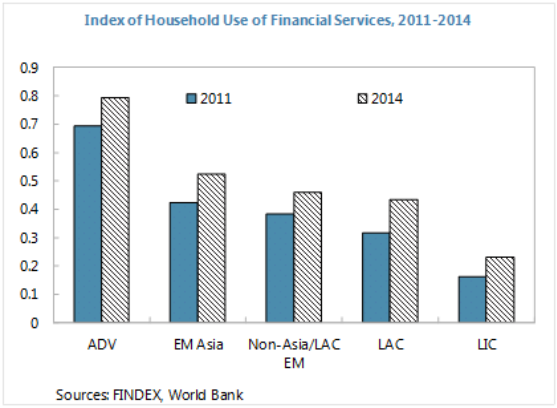


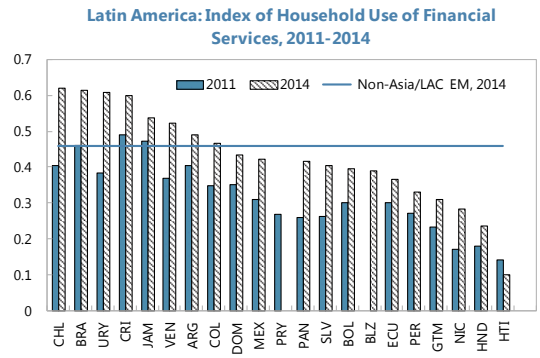
Despite notable improvements between 2011 and 2014, LAC continues to lag behind other EMs on **financial inclusion of households** (Figure 1). In 2011, only a few countries (Brazil, Costa Rica and Jamaica) scored high on household financial inclusion, compared to non-Asia EMs. In Brazil, high levels of household financial inclusion reflect, in part, a period of growth and stability as well as government policies aimed at improving distribution channels (e.g., using correspondent banking to administer the social assistance program "Bolsa Família"), promoting transparency (requiring banks to publish information on financial products), fostering financial education, and adapting regulation of financial services to the needs of low-income customers.[4] In 2014, several other LAC countries, including Chile, Uruguay, and Venezuela, joined the ranks of better-than-average-performers. In Chile, for example, the improvement can largely be attributed to efforts aimed at fulfilling commitments made under the Maya declaration.[5] Specific actions included an introduction of an electronic payment system for making transfers of state benefits, the launch of a financial

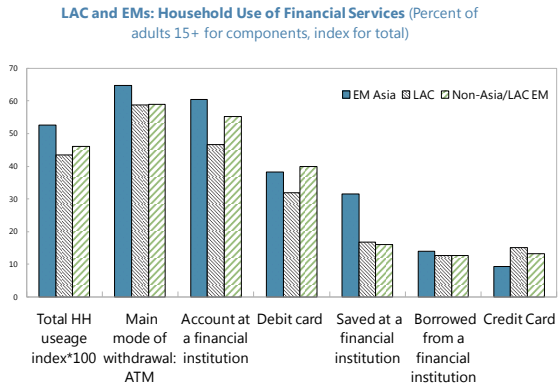
[4] See, e.g. Central Bank of Brazil (2011) and FELABAN (2011).
[5] The Maya declaration, which was launched in 2011, includes 108 institutions from 89 developing and emerging countries, which together represent 86% of the world's unbanked population. The declaration was signed by 9 LAC countries: Mexico, Chile, Brazil, Colombia, Ecuador, Peru, El Salvador, Guatemala and Paraguay.

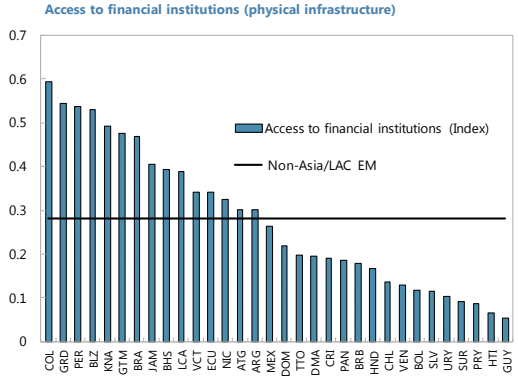
education program for beneficiaries of electronic payments, and development of a financial inclusion survey. A state bank with a well-defined financial inclusion strategy (Banco Estado) has also played an important role.

Figure 1. Household Financial Inclusion and Access to Financial Services in LAC





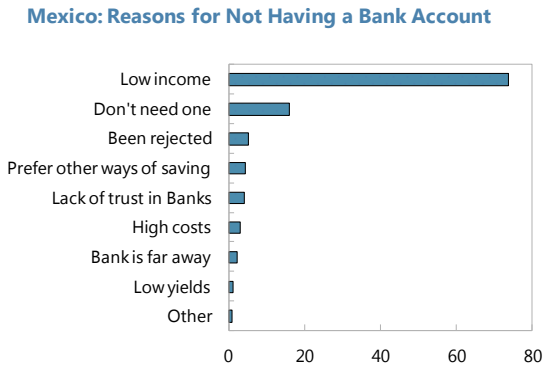




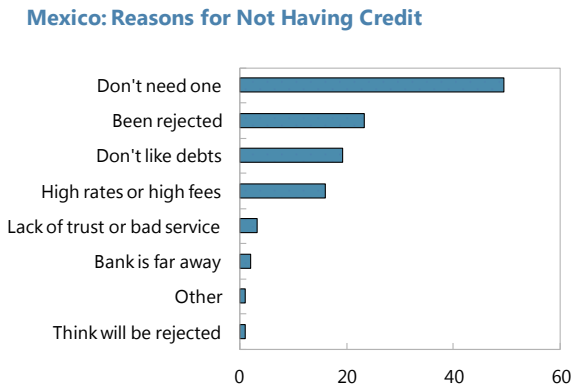
LAC lags emerging Asia in all individual components of the household index, particularly with regards to account holdings and savings at a financial institution. In 2014, only 47 percent of households in LAC had an account at a formal financial institution versus 60 percent of those in emerging Asia. There is also a significant gender gap in terms of account holdings, though it has shrunk over the past few years, notably in Mexico, Costa Rica, Venezuela, and Jamaica. This gap possibly reflects a combination of factors, including income, education and/or other differences between men and women. Results from a financial inclusion survey in Mexico, for example, indicate that low income is a constraint for 75 percent of those who do not have an account. The second most important reason quoted was the lack of a need for such an account. Rejections and other reasons, including distance to the bank, were much less relevant. Indeed, for Latin America as a whole, we find that access to financial institutions (physical infrastructure) is at par with other emerging

markets though there are parts, including the Caribbean, some Central American countries, Paraguay, and Uruguay, where access remains poor (Figure 1).[6]

Figure 2. Reasons Behind Financial Exclusion: Evidence from Mexico



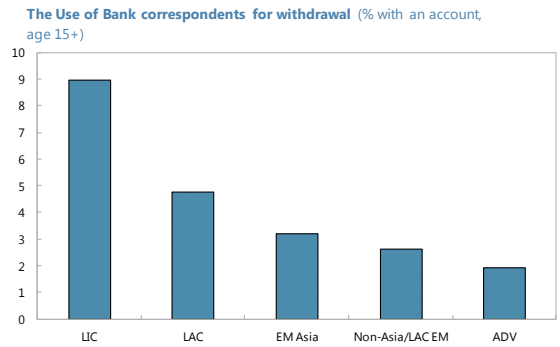
Sources: INEGI, 2012 National Survey of Financial Inclusion and Fund Staff estimates.



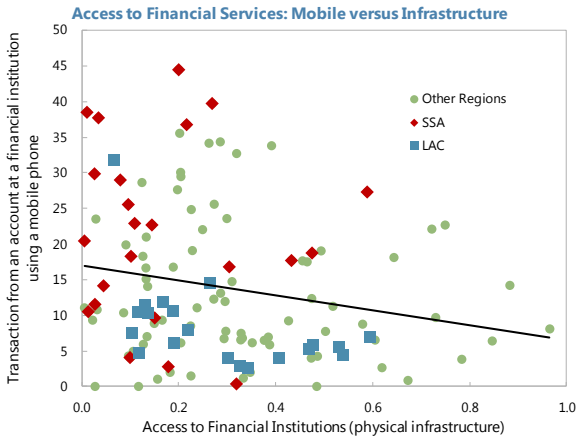
Sources: INEGI, 2012 National Survey of Financial Inclusion and Fund Staff estimates.

In terms of bank credit, less than 15 percent of adults in LAC, on average, obtain credit from a bank. While this is comparable with other EMs (slightly below EM Asia), some countries lag quite significantly (e.g., Venezuela, Haiti, Argentina, Honduras, and Mexico). Survey results indicate that a lack of demand for credit, rejections of credit applications, debt aversion, and high costs are the main reasons for not obtaining credit in Mexico.

Figure 3. Correspondent and Mobile Banking



1/ it includes the percentage of respondents with an account at a bank or another type of financial institution who report obtaining cash from their account from a bank agent who works at a sotre or goes to their home; or in some other way except ATM or bank teller.



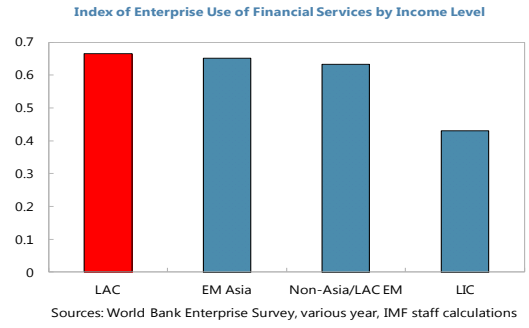
Source: Authors' calculations.

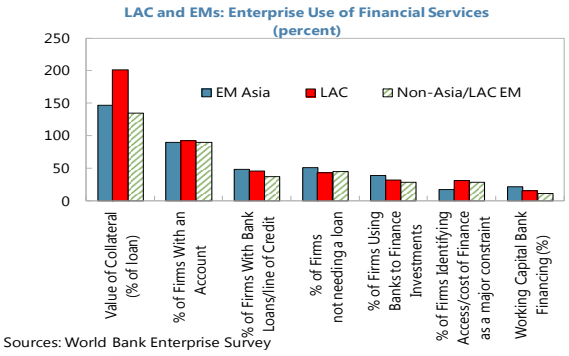
Reliance on nontraditional finance sources remains high in LAC. The region has the highest number of banking correspondents per capita in the world. Brazil boasts the oldest (since 1973) and most developed correspondent model in the region, with all municipalities covered

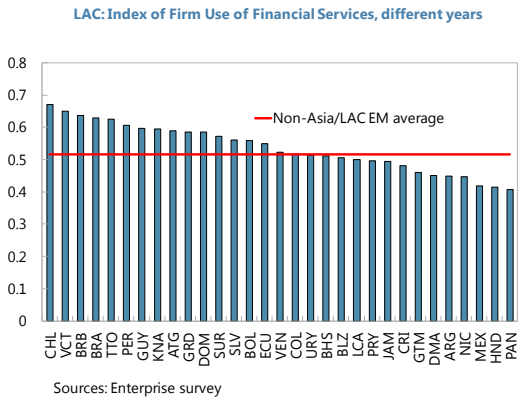
[6] However, other studies indicate that high documentation requirements (3 documents as opposed to 1 document in advanced countries, Didier and Schmukler, 2014) in a region with high informality provides disincentives for opening an account.

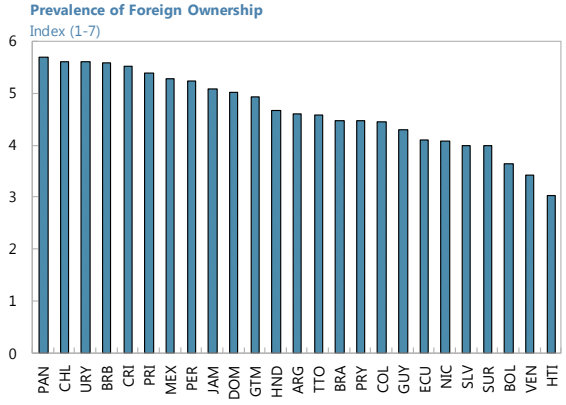
by correspondents, but Mexico and Colombia have made significant strides in recent years as well (with correspondents covering 61 and 88 percent of those municipalities, respectively). The correspondent model is helping to bridge the gap between informal and formal finance by allowing accessible retailers (food stores, gas stations, pharmacies) to act as an intermediary for basic financial transactions (deposits, withdrawal, bill payment).[7] The region has also made significant strides in developing mobile banking, in particular, in the areas that lack access to financial institutions (physical infrastructure). This said, mobile banking in LAC is not as important as it is in Sub-Saharan Africa. Despite advancements in formal finance, informal finance remains important and has been growing in the past few years. Over one-fifth of households report borrowing from friends, family or an informal lender in 2014, up from 16 percent in 2011.

Figure 4. Financial Inclusion of Enterprises









Source: Authors calculations.

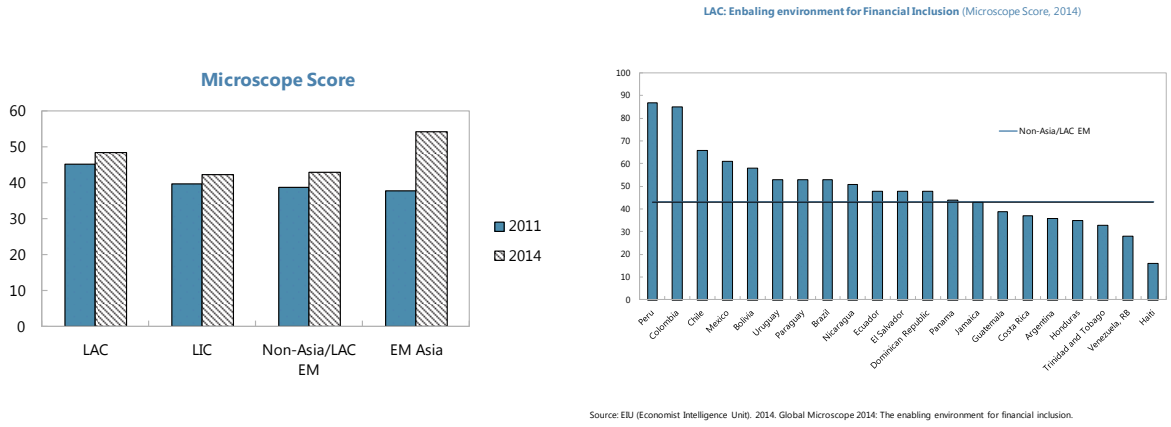
In contrast to household inclusion, LAC as a region compares favorably on **financial inclusion of firms**. Chile, Barbados, Brazil, Peru, and some Caribbean countries lead the pack. The share of firms with a loan or a line of credit (46 percent) is comparable to that in emerging Asia (48 percent). Nevertheless, collateral requirements are high and access to/cost of finance is seen as a major constraint by a large share of SMEs. In some countries, this reflects cumbersome legal systems and regulations (e.g., Peru), while in others it is

[7] Banking correspondents refer to non-financial commercial establishments that offer basic financial services under the name of a financial services provider, becoming access points to the formal financial system. This differs from correspondent banks which are financial institutions that provide services on behalf of other banks, mostly located in a different country.

information asymmetries and the lack of reliable credit information (e.g., Guatemala). The legal proceedings to collect collateral in the event of a non-payment are also burdensome in many countries (e.g., El Salvador, Peru). These constraints, in part, are being circumvented through the use of rapidly growing nontraditional financing sources, such as factoring (Chile, Mexico), and initiatives such as Bolsa de Productos (Chile).[8]

Many LAC countries have created a favorable environment for financial inclusion. According to the Global Microscope survey, which assesses the regulatory environment for financial inclusion across 12 indicators and 55 countries, while LAC has lost ground to Emerging Asia in recent years, Peru, followed by Colombia, continues to be the world champion in having a favorable and fostering environment for financial inclusion (2014). Other LAC countries (Chile, Mexico, and Bolivia) are also close to the top of the list. LAC excels in regulation and supervision of branches and agents, prudential regulation, and market conduct rules. It lags, however, on credit reporting systems, regulation of electronic payments, and regulation and supervision of deposit-taking activities. Favorable regulatory environments and seemingly low level of household financial inclusion in LAC are, therefore, puzzling. In the next section we identify financial inclusion gaps while accounting for country's fundamentals and analyze factors behind these gaps, including the quality of regulatory environment.

Figure 5. Enabling Environment for Financial Inclusion



Source: Authors calculations.

III. Financial Inclusion Gaps and Their Determinants

To construct **financial inclusion gaps**, we first identify exogenous factors (the fundamentals) that could be considered fixed in the short term. They include income per capita, education, size of the shadow economy, the rule of law, the share of foreign-owned firms, and

[8] Factoring refers to a financial transaction whereby a business sells its accounts receivable (i.e. invoices) to a third party (called a factor) at a discount in exchange for immediate financing. Factoring differs from a bank loan in three ways. First, the emphasis is on the value of the receivables, not the firm's credit worthiness. Second, factoring is not a loan—it is the purchase of a financial asset (e.g., the receivable). Finally, a bank loan involves two parties, whereas factoring involves three. Invoices are typically short term (less than 90 days), so that a market for invoice trading would be equivalent to a high-yield commercial paper market. Bolsa de Productos allows for reverse factoring.

importance of fuel exports. We compute the financial inclusion gaps as deviations of financial inclusion indices from the values predicted by these fundamentals. The calculated gaps likely capture possible policy "distortions" and "market frictions". Second, we analyze the determinants of financial inclusion gaps, such as quality of regulation, bank income sources and safety buffers, and the degree of bank competition.

We find that financial *inclusion is higher* in countries with the following fundamental characteristics (Table 1):

Higher income per capita (for both household and firm inclusion). Higher incomes reduce poverty and improve access to finance directly, by allowing higher leverage at lower cost, and indirectly, since high-income countries can afford building better physical and institutional infrastructure.

Higher education (for household inclusion). Higher education can encourage the use of financial services as it allows for better understanding of financial products and provides for higher future incomes.

Stronger rule of law (*for household inclusion).* Stronger rule of law can help enforce financial contracts and contain violent crime, thereby clarifying the rules of the game for everyone and guaranteeing safety in financial transactions—an issue of particular importance for Central America.

Lower degree of informality (*for household inclusion).* In countries with higher levels of informality, the lack of proper documentation and presentable collateral could deprive households and firms of credit opportunities and provide disincentives to save in formal financial institutions.

Lower prevalence of foreign-owned firms (for firm inclusion and overall access to financial institutions). Foreign-owned firms can obtain financing from parent companies located abroad and do not need to borrow domestically.[9] In economies dominated by foreign companies this could also lead to less developed physical financial infrastructure.

Lower fuel exports (for firm inclusion and overall access to financial institutions). There may be several potential explanations. Larger oil sector could attract financial resources and crowd out credit to other parts of the economy, thereby lowing enterprise inclusion. Alternatively or in addition, larger oil sector could discourage an overall development of the financial system due to the lower demand for financial services in a less diversified economy. Finally, this variable may be capturing some other structural characteristics inherent to oil-producing countries, for example, Islamic banking (Naceur et. al. 2015).

[9] Panama, for example, has the highest share of foreign-owned firms in LAC and the lowest share of companies that report having a bank loans or a line of credit (21 percent). However, the percent of firms identifying access/cost of finance as a major constraint in Panama is also the lowest in LAC (only 1 percent) and Panamanian companies that report not needing a loan is among the highest in the region (58 percent).

Table 1. Financial Inclusion and Fundamentals

VARIABLES	(1) HH 2011	(2) HH 2011 &2014	(3) HH 2014	(4) Firm	(5) Access to Financial Institutions (Physical Infrustructure)
log_GDP_pcap	0.0918***	0.104***	0.111***	0.142***	0.131***
	(0.0295)	(0.0190)	(0.0255)	(0.0461)	(0.0467)
Mean years of schooling (of adults) (years)	0.0173**	0.0160***	0.0162**	0.00927	-0.0189
	(0.00815)	(0.00543)	(0.00738)	(0.0120)	(0.0157)
Shadow Economies Index	-0.00118	-0.00188*	-0.00268*	-0.000872	0.00149
	(0.00143)	(0.00108)	(0.00146)	(0.00228)	(0.00216)
Fuel exports (% of merchandise exports)	-0.000506	-0.000389	-0.000285	-0.00235**	-0.00200*
	(0.000628)	(0.000506)	(0.000726)	(0.00110)	(0.00110)
Prevalence of foreign ownership, 1-7 (best)	-0.0281	-0.0159	0.00585	-0.107***	-0.0634**
	(0.0241)	(0.0155)	(0.0223)	(0.0284)	(0.0267)
Rule of Law (-2.5(weak) to 2.5(strong))	0.0733***	0.0657***	0.0502**	0.0670	0.0330
	(0.0266)	(0.0193)	(0.0242)	(0.0412)	(0.0405)
Constant	-0.414**	-0.509***	-0.614***	-0.122	-0.487
	(0.205)	(0.153)	(0.221)	(0.366)	(0.352)
Observations	78	158	80	45	111
R-squared	0.732	0.708	0.738	0.658	0.215

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The findings on the importance of income per capita, education and the rule of law for are consistent with the previous studies on household inclusion gaps (e.g., Suarez and Amado, 2014). The link to informality is also in line with the literature that took on a more descriptive approach (e.g. Didier and Schmuckler, 2014). Our findings on the determinants of financial inclusion for enterprises are novel.

The constructed financial inclusion gaps (Figure 8) suggest that LAC as a region appears broadly in line with domestic fundamentals on ***financial inclusion of households***. However, there is substantial variation across countries. Bolivia, Brazil and Jamaica have the largest positive household inclusion *gaps with respect to domestic fundamentals* while Peru, Chile, and Mexico have the largest negative gaps. In the short term, domestic fundamentals are fixed and negative gaps need to be examined with the view of identifying potential policy distortions or market frictions while positive gaps should be watched for potential excesses or inefficiencies.

In the longer run, as domestic fundamentals continue to evolve, there may be scope for further gains in financial inclusion. To identify such possibilities we have constructed *gaps with respect to an Asian benchmark* — a recognized success story on financial inclusion in countries with relatively strong fundamentals. Household inclusion gaps with respect to an Asian benchmark for LAC are largely negative with a few exceptions (e.g. Chile, Costa Rica).

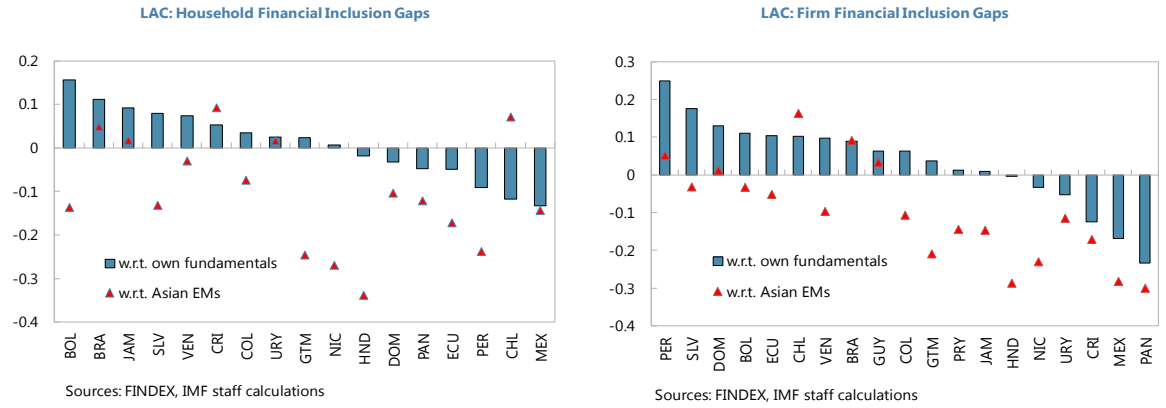
In Peru, for example, geographic isolation, high costs, and the lack of trust in the banking system, quoted by the recent survey of the Center for Financial Inclusion, could be behind a relatively large negative inclusion gaps. In Bolivia, in contrast, fundamentals are relatively weak, including low income per capita, weak rule of law, large size of the shadow economy,

and low degree of export diversification. As a result, household inclusion gap with respect to domestic fundamentals is positive, in part, due to the rapid credit expansion supported by regulated interest rates and credit quotas for certain sectors. However, when benchmarking to emerging Asia, household inclusion gap for Bolivia is negative, suggesting scope for improvements in the longer run in lock-step with strengthening domestic fundamentals.

In contrast, ***financial inclusion of firms*** has on average outpaced fundamentals in LAC though with substantial variation across countries. Peru, El Salvador, and the Dominican Republic have large positive *gaps with respect to domestic fundamentals* while Costa Rica, Mexico, and Panama[10] lag behind their fundamentals. In Costa Rica, for example, the large negative gap is mostly due to a high collateral value required for a loan, which reflects weak legal collateral framework. In Peru, in contrast, positive gap reflects a large share of firms having a loan or a line of credit from the bank and those that use banks to finance investment and/or working capital. The *gaps with respect to an Asian benchmark* are largely negative suggesting potential gains in enterprise inclusion in the longer run.

Interestingly, there are notable differences between household and firm financial inclusion gaps. For example, Peru has a positive gap on firm inclusion but a negative gap on household inclusion, while the opposite holds for Costa Rica. Mexico, in contrast, has large negative gaps on both household and firm inclusion likely reflecting the heritage of the 1994 financial crisis, which eroded trust in the financial system.[11] Hence, policies targeted at specific angles of financial inclusion may be warranted.

Figure 6. Financial Inclusion Gaps and its Determinants



Source: Authors' calculations.

To identify policy instruments that could be used to narrow the gaps, we conduct an econometric examination of the factors behind the gaps with respect to domestic

[10] The gap in Panama, however, should be interpreted with caution given the lack of demand for financing reported by the Panamanian companies.

[11] While the recent reforms undertaken by the government have led to an acceleration of credit growth, the level of credit is still at a low 20 percent of GDP.

fundamentals.[12] The results (Table 2) suggest that *higher (more positive/less negative) financial inclusion gaps are associated with*

- *Lower non-interest income (for both household and firm inclusion).* One possible explanation is that banks that have higher non-interest income have fewer incentives to extend credit to risky customers. For example, large holdings of low-risk government securities by the banks in some countries could result in higher non-interest income through bond valuation changes, which, in turn, could reduce incentives of the banks to provide loans to more risky customers. Anecdotal evidence on cases of predatory lending and excessively large number of bank fees in some Latin American countries also supports this finding.

- *Lower bank safety buffers (for household inclusion).* One possible explanation is that to maintain higher safety buffers the banks charge higher interest rates to riskier customers, which prevent inclusion of low-income households who find it too expensive to borrow. However, reverse causality cannot be excluded: higher inclusion could lead to higher losses, which, in turn, could reduce return on assets and eat up bank capital as well as possibly increase asset return volatility as riskier customers obtain financing (Sahay, R. et. al, forthcoming).

- *Lower bank efficiency (for firm inclusion),* as measured by the overhead costs. One possibility is that more efficient banks, those that are able to keep their costs in check, tend to be less inclusive. For example, there is evidence that foreign-owned banks/private banks, which are often more efficient than domestic/public banks, are also less willing to provide loans to smaller customers. As a result, financial systems dominated by domestic and/or public banks could appear as less efficient but more inclusive. However, the direction of causality is not clear. For instance, banking systems may become more inclusive at the cost of losing efficiency because higher inclusion could entail higher costs of reaching customers in remote areas and could potentially lead to higher losses associated with riskier customers.

- *Stronger regulatory environment (for firm inclusion),* as measured by the Global Microscope score. The latter captures regulatory environment for microfinance as well as other institutional aspects such as client-protection rules and credit systems, which help promote financial inclusion. It is somewhat puzzling, however, that favorable regulatory environment helps improve firm inclusion but has limited impact on household inclusion, though it helps explain the puzzle of Peru mentioned earlier. It is possible that regulatory aspects relevant for household inclusion are not well captured by the Microscope score.

[12] The gaps should be interpreted with caution given the uncertainty about a full set of exogenous fundamentals that determine inclusion. Nevertheless, they could be useful in indicating a possible area where financial inclusion is lacking.

Table 2. Determinants of the Financial Inclusion Gaps

VARIABLES	HH FI Gap 2014	Firm FI Gap 2011	Access Gap 2011
Non-Interest Income / Total income (%)	-0.00428**	-0.00515*	0.00272
	(0.00171)	(0.00289)	(0.00381)
Bank net interest margin (%)	-0.0144	-0.0202	0.0399
	(0.0137)	(0.0159)	(0.0248)
3 Bank Asset Concentration (%)	0.000987	0.000895	0.000984
	(0.00133)	(0.00127)	(0.00174)
Overhead Costs / Total Assets (%)	0.0183	0.0320*	-0.0216
	(0.0167)	(0.0157)	(0.0272)
Microscope-Overall Score (0-100, 100 best)	0.000430	0.00314*	0.000585
	(0.000967)	(0.00178)	(0.00256)
Distance to default	-0.00261**	-0.00243	-0.000316
	(0.00123)	(0.00236)	(0.00265)
Constant	0.115	0.00381	-0.303
	(0.0971)	(0.127)	(0.189)
Observations	43	30	46
R-squared	0.200	0.268	0.154

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

A word of caution, while linear regression analysis is helpful in identifying the determinants of financial inclusion and possible policy impediments, non-linear effects are possible, especially, at higher levels of financial inclusion e.g. fast credit creation without proper supervisory oversight could lead to a banking crisis, as demonstrated by the recent global financial crisis. Hence, caution is warranted when scaling up financial inclusion policies.

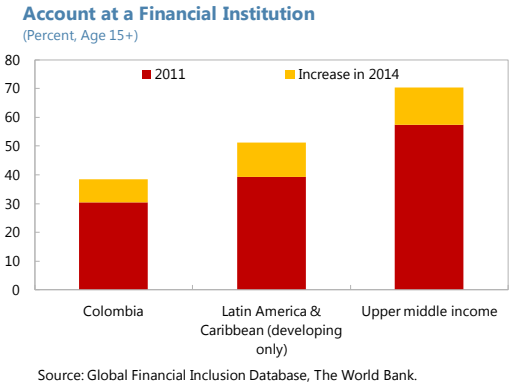
IV. Household Angle: The Determinants of Informal Finance, the Case of Colombia[13]

Informal finance in LAC is prevalent though many countries have made important progress in expanding coverage of formal finance. Even in urban areas, where presence of formal institutions is more prominent, individuals and enterprises with formal access sometimes also use informal channels for savings and borrowing. The role of informal finance is, nevertheless, often overlooked by policy makers who consider people without formal financial access as purely unbanked. Gaining more information on informal finance could provide a basis for developing products targeted to the unbanked. It could also help in designing "second generation" financial inclusion policies that offer consumption smoothing and investment opportunities which may currently be untapped or are offered less efficiently through informal finance.

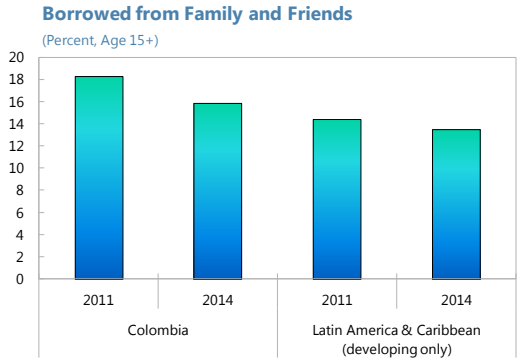
[13] This section draws from IMF Country Report (2015).

Studies on informal finance have focused on the contribution of informal finance to firm growth (Aiyagari et al., 2010 on China) and its relevance for household consumption smoothing (Carlson et al., 2015, for Nigeria; Townsend and Alem, 2014 on Thailand). Analysis of the determinants of use of informal finance is less common, with a notable exception of Klapper and Singer's (2015) study on Africa. There are also very few studies that explore the impact of removing impediments to financial inclusion in LAC. In this section, we consider the determinants of household use of informal finance using the case of Colombia as an example.

Progress with formal financial inclusion in Colombia has been impressive over recent years. Columbia particularly excelled in creating favorable regulatory environment for financial inclusion. Despite this progress, a large share of population continues to use informal finance. The share of adult population owning an account at a formal financial institution has increased from 30 to 38 percent between 2011 and 2014, but remains below LAC and upper middle income country average. Formal saving and borrowing indicators have improved, especially among the 40 percent bottom income population over this period. However, informal finance, although declining in some dimensions, is more prominent than in comparator-countries and continues to coexist with formal finance.

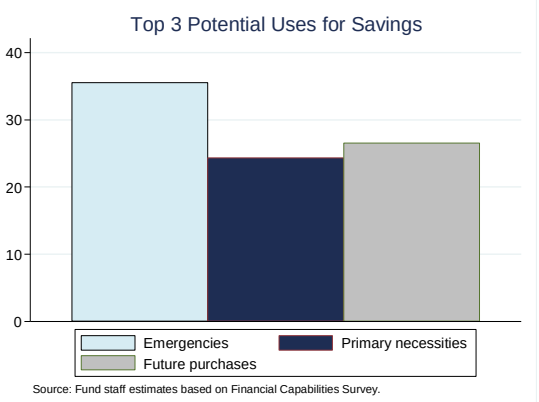


Source: Global Financial Inclusion Database, The World Bank.



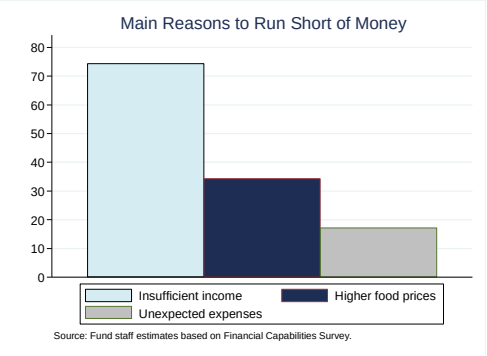
Source: Global Financial Inclusion Database, The World Bank.

Preference for financial transactions in cash is strong in Colombia, and could be associated to informal finance. In the literature, preference for cash is found to be closely linked with the use of informal finance for savings and borrowing. Across different countries, both typically depend on individuals' work status, income, age and education.[14] While large volume payments are made digitally in Colombia (almost 70 percent in 2012), the majority of small and medium value payments (90 percent) are still made in cash. In particular, consumer purchases are found to be lagging mainly because of high cost for



Source: Fund staff estimates based on Financial Capabilities Survey.

[14] See for instance O'Brien (2014) and Bagnall et al. (2014).



merchants to enroll into the credit and debit card system of payments, generally low usage (acceptance) of debit cards, and the inability of merchants to retain the VAT (Better than Cash, 2015).

The World Bank's Financial Capabilities Survey suggests that informal credit could be important for consumption smoothing. The evidence from the sample suggests that informal savings may be of a short-term nature while informal borrowing, although potentially also short-term, may be determined by factors that are more long-term in nature, such as earned income. In particular:

- 30 percent of respondents have some money left after they've met their basic needs and potentially constitute formal financial sector savers. The majority claim to save for emergencies, primary necessities, and future purchases suggesting that their savings might have a short horizon.

- 60 percent of respondents (at least occasionally) run out of money to meet basic needs, the majority of which blames it on insufficient income. A vast share, about 56 percent of these "potential borrowers," obtains credit from family, friends, loan sharks, stores and co-workers and a considerable share—27 percent—obtains credit for their purchases at retail stores. These are expected to be people with more precarious jobs and lower and more volatile incomes. A third of respondents who "run out of money to meet basic needs" borrow formally.

To empirically assess the determinants of the use of informal finance, we consider a number of determinants, including age, work status, income, education and financial knowledge. We first define the concept of informal finance user by combining answers to two different sets of questions from the Colombian Financial Capabilities Survey to include individuals who responded directly to being users of informal finance and those who claim to rely on informal channels when they run out of money for basic needs.[15] The alternate universe includes individuals in the survey who use only formal finance—people who have a mortgage, some sort of loan from a formal financial institution, a credit or debit card, or microcredit—representing about 1/3 of the subsample. In this sample we use two different specifications of informal finance based on self-assessment by respondents. In the first regression, "formal workers" include those employed in the formal sector and self-employed, informal workers are those employed in the informal sector, while "other workers" include students and house help. In the second specification self-employed are excluded from "formal" work.

[15] In 2010 a survey was introduced to study financial products use and financial education in Bogotá. This survey is as a subset of the integrated household survey. The survey contains a wealth of information regarding financial behavior of respondents. This information was complemented with Financial Capabilities Survey also administered by the World Bank in 2012, and used in developing the National Strategy on Social and Economic Policy (CONPES) document outlining the strategy for financial education. The latter allows understanding financial attitudes, capabilities and financial education in both formal and informal finance, albeit with some limitations.

We find that the likelihood of using informal credit increases with age, and decreases at higher income levels, and is significantly lower for people with a tertiary education degree (see Karpowicz and Leal, 2015). Moreover, for every incremental point improvement in the financial education score, the likelihood of using informal finance decreases by 5 percent. Formal workers are less likely to be users of informal finance compared to those employed in the informal sector; this finding holds for both specifications of informal work.[16] Recipients of government transfers and pensions are also less likely to use informal finance. This can be ascribed to government efforts to extend transfers through banking channels as part of the various recent social initiatives and financial inclusion programs.

Among people who claim to be running out of money for basic needs, informal finance is determined by education and distance to financial institutions (Table 5).[17] In this more homogeneous sub-sample, we find that greater distance from a formal financial institution and lower education levels increase the probability of being a user of informal credit in the group of people who run out of money for basic needs while other variables, including individual characteristics, income and financial education scores, are not significant.[18] Physical distance to formal finance providers may be playing a greater role for this group also because of constrained incomes.

An empirical analysis of the alternative IEFIC survey identifies broadly comparable informal finance determinants with limitations on the population studied (reported in Tables 6–7).[19] The IEFIC is administered to a pre-set cohort of inhabitants living in the capital who have answered in the general household survey that they use formal finance. This survey, which contains a richer set of information on financial products use, is narrowly focused on Bogotá.[20] Probit regression analysis relates a dummy variable capturing whether an individual is a user of formal and informal finance or exclusively a user of formal finance to possible determinants of financial products use.[21] Informal workers are employees and owners of companies with less than 5 workers, unpaid family members and housekeepers.

As in the previous specification, we find that the probability of using informal finance decreases for higher income and education levels, and is lower for formal workers and recipients of pensions (Tables 6 and 7). However, a higher financial education score, constructed from questions designed to assess financial knowledge of respondents, is

[16] This is in line with a study on financial knowledge and financial capabilities in Colombia, also based on the Financial Capabilities Survey, according to which informal sector workers are more frequent users than formal workers of informal credit and microcredit entities (Reddy et al., 2013).

[17] The alternate universe includes only individuals who do not use informal finance within a group of people who run out of money for basic needs.

[18] However, distance is significant only at 10 percent level and the coefficient is rather small.

[19] *Encuesta de Carga Financiera y Educación de Hogares*

[20] Although accounting for population density physical presence of formal financial institution may not be significantly smaller, income and infrastructure barriers make access to formal finance more difficult outside of the capital.

[21] The dummy variable takes a value of zero if the respondent claims to use at least one of the following formal financial products: credit card, mortgage, savings accounts, investment loans, student loans, stocks, fixed term deposits.

associated with a higher probability of using informal finance in the sample.[22] While counterintuitive, this finding is in itself interesting and suggests that informal finance may be offering funding solutions that, for a variety of reasons, closely meet some needs even of financially educated people who are not unbanked and warrants further consideration.

V. Enterprise Angle: Financing Constraints, Growth and Inequality

A. Application of a General Equilibrium Model to Latin America

As discussed in Section II, firms in LAC face various obstacles to financial inclusion. Access barriers, informational and institutional weaknesses constrain entrepreneurial activities and new business startups. Moreover, they prevent entrepreneurs from growing their businesses and limit investment, firm size, and growth. What implications do these constraints have for fostering growth and reducing inequality? What policies can help alleviate these constraints? In this section we apply a micro-founded structural model developed by Dabla-Norris et al. (2015) to shed light on these issues.

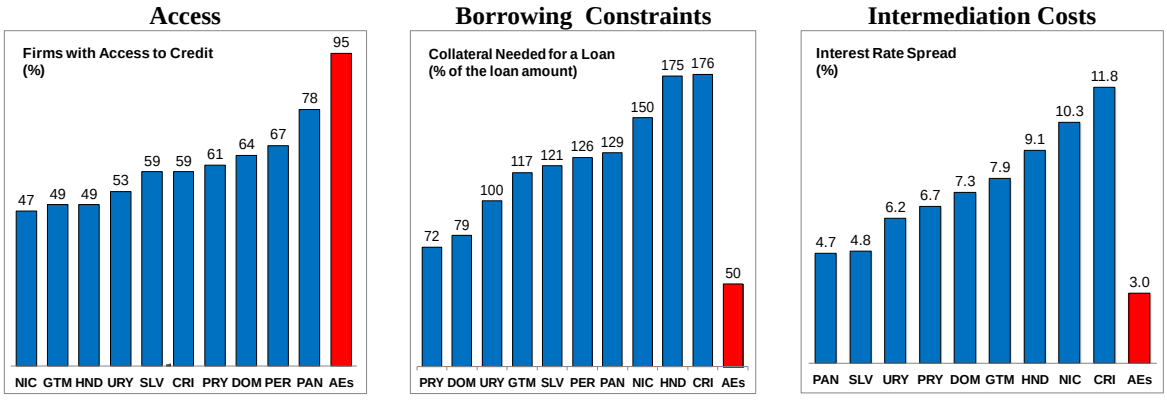
We group financial constraints into three broad dimensions:

- *Participation costs.* These typically reflect high documentation requirements by banks for opening, maintaining, and closing accounts, and for loan applications that impede access to finance. These can also reflect various forms of barriers, including red tape and the need for informal guarantors as connections to access finance.
- *Borrowing constraints.* The amount firms can borrow (the depth of credit) once they have access to banking systems is generally determined by collateral requirements, which depend on the state of creditors' rights, information disclosure requirements, and contract enforcement procedures, among others.
- *Intermediation costs.* High intermediation costs resulting from information asymmetries between banks and borrowers and limited competition in the banking system can lead to smaller and less capitalized borrowers being charged higher interest rates and fees.

Impediments to financial inclusion are country-specific (Figure 9). A comparison of firms in selected LAC countries shows that there are important differences across countries within the region. For instance, access to finance by firms varies from under 50 percent in Guatemala to around 70 percent in Peru. Similarly, while a larger number of firms have access to finance in Costa Rica than in Guatemala, collateral needed for loans by firms is 1.5 times higher in the former. Similarly, interest rate spreads (the difference between lending and deposit rates) in Costa Rica are 2.5 times higher than in Panama and El Salvador. While SMEs generally tend to be more constrained than larger firms, there is significant cross-country variation (Figure 10). For instance, only 7 percent of smaller firms in Peru report that access to finance is a major obstacle compared to around 52 percent in Colombia. Hence, the implications of relaxing these constraints for growth and inequality could have different impacts across countries.

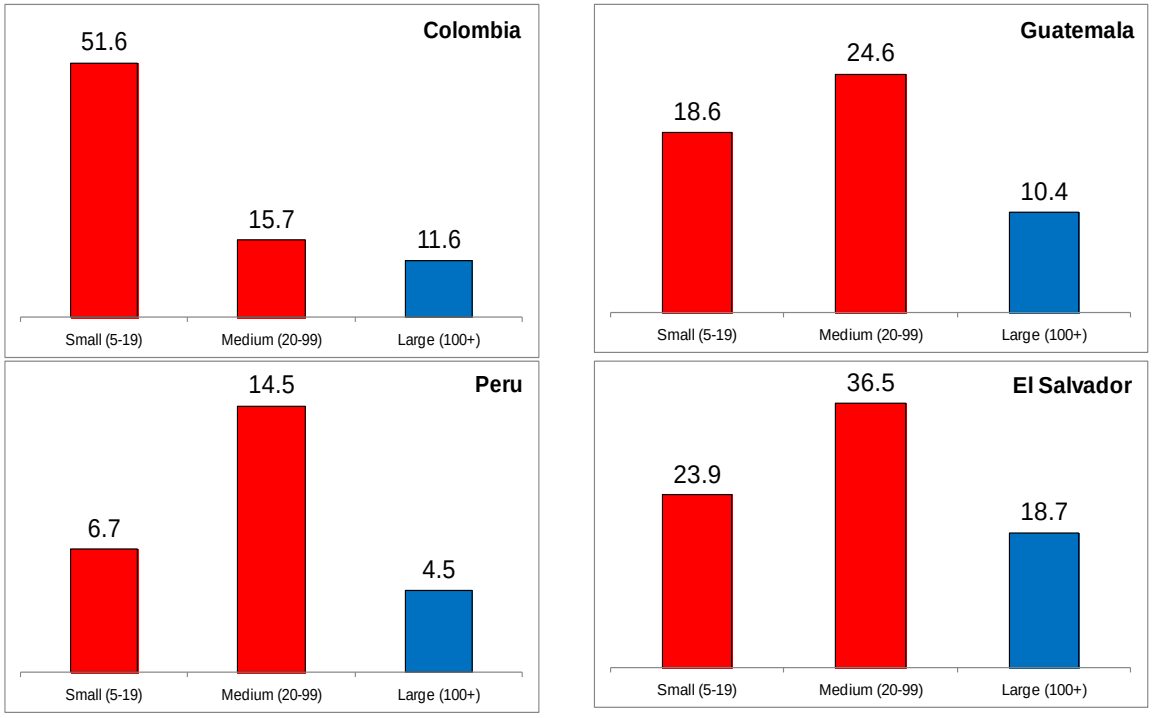
[22] These results are significant at 1 percent level and robust across various specifications.

Figure 7. Country-Specific Financial Constraints



Source: World Bank Enterprise Surveys.

Figure 8. Percent of Firms Identifying Access to Finance as Major Constraint



Earlier research, such as Moll et al. (2014) and Blaum (2013) have used quantitative models whose structural framework allowed for a normative policy analysis. The model applied in this paper captures different financial frictions in a consistent framework and allows for an assessment of their country-specific impact on growth, inequality, and financial stability. The model features an economy where economic agents differ in their talent and wealth. Each person has to decide whether to become a worker (earn wages) or an entrepreneur (earn profits) and whether to pay a fixed *participation cost* to be able to borrow from the banking system. Entrepreneurs then decide on how much of their wealth to invest in their business,

whether and how much to borrow at the going interest rate, and how many workers to employ at the going wage rate. The output from business projects depends on the amount of capital invested, the amount of labor hired, as well as on the entrepreneur's talent. In the model, the magnitude of the participation cost represents the cost of financial contracting. The higher is this cost, the more agents are prevented from borrowing and investing. Moreover, it tends to disproportionately exclude poor but talented individuals from the financial system as the fixed cost amounts to a larger fraction of their wealth.

Once in the banking system, the amount of credit available is constrained by other financial frictions. If an entrepreneur has paid the participation cost, he or she can borrow from the banking system at the going interest rate. The model assumes that a business can fail for external reasons ("bad luck"), with some probability. Given imperfect enforceability of contracts, entrepreneurs have to post personal wealth as collateral for the loan. Since banks runs the risk that entrepreneurs can defraud them, this constrains the amount that can be borrowed. Therefore, the weaker is contract enforceability the lower is the amount of leverage possible, imposing *borrowing constraints* on entrepreneurs. A second friction is modeled as arising from asymmetric information between the bank and the borrower. The underlying intuition is that if the entrepreneur does not pay back the loan, the bank cannot be sure whether the business actually failed. Banks have to pay an audit or monitoring cost to find out. Otherwise, entrepreneurs could benefit from claiming failure and keep the profits. These costs—measure of the degree of *intermediation costs* in the economy—are recuperated by banks through interest rates and high overhead fees charged on highly-leveraged entrepreneurs.[23]

In the baseline, the model is calibrated to data for 12 LAC countries. Firm-level data for 2005 from the World Bank Enterprise Survey are used, in addition to standard macroeconomic and financial variables (savings rate, non-performing loans (NPLs), and interest rate spreads) for 2010 or the latest year available. While lack of financial inclusion is an even more acute problem for firms in the informal sector, the model focuses primarily on formal sector firms. The model's key parameters are jointly chosen to match the simulated moments, such as the percent of firms with credit and the firm employment distribution, with the actual data for each country (see Dabla-Norris et al., 2015, for details).

B. Model Results

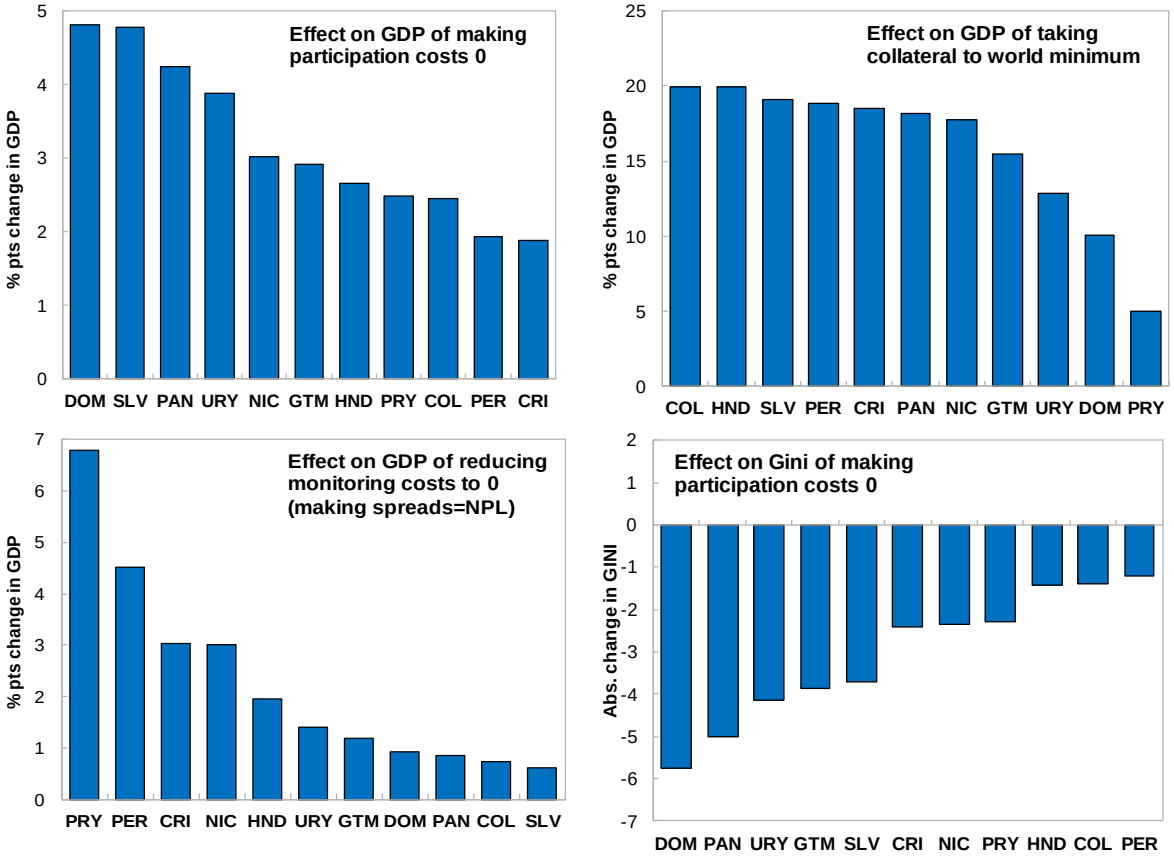
We conduct policy experiments to identify the most binding constraints to financial inclusion and examine the macroeconomic effects of removing these frictions. In the first series of experiments, we simulate policy-induced changes in the financial constraints individually and analyze their impact on GDP (Figure 11). Three simulations include: (i) reducing the financial participation cost to 0, (ii) relaxing borrowing constraints in the form of collateral requirements to the level in advanced economies (iii) increasing intermediation efficiency or reducing

[23] In the model, the bank's optimal verification strategy follows Townsend (1979), whereby verification only occurs if the entrepreneur cannot pay the face value of the loan. This happens when the entrepreneur is highly leveraged and also faces a production failure. As a result, banks only monitor if a production failure is reported and the loan contract is highly-leveraged. A low-leveraged loan implies that entrepreneurs are not borrowing much from the bank and therefore the required repayment is small.

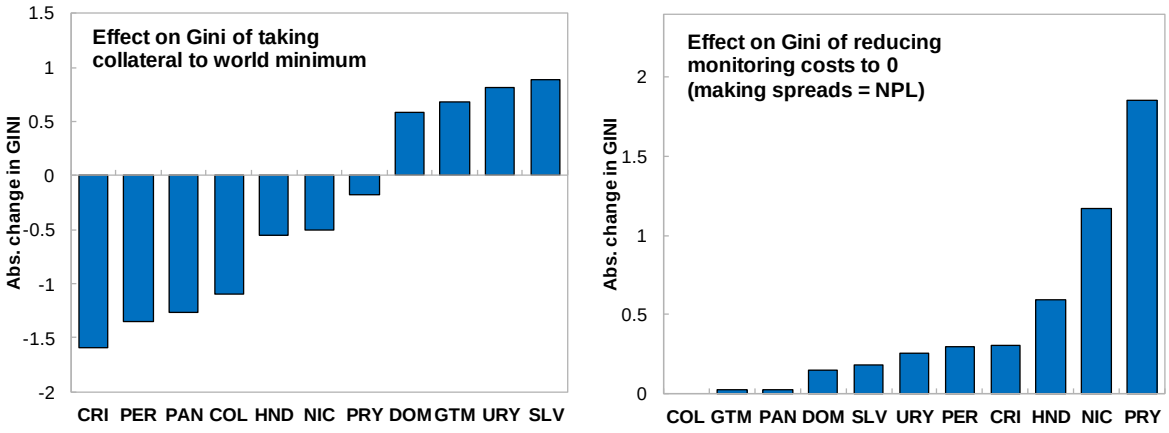
monitoring costs to 0.24. The simulations should be viewed as illustrative rather than providing definitive GDP impacts.

A decline in financial constraints pushes up GDP through different channels. A lower participation cost enables more firms to have access to the formal banking system, leading to more capital invested in production. Overall, lower participation costs result in stronger entrepreneurial activities and new business start-ups that increase aggregate output. Moreover, lower financial frictions results in a more efficient allocation of funds and higher productivity as talented increase their scale of production. Finally, fewer funds are wasted in unproductive contract negotiation, freeing up more capital for investment. The impact on GDP, however, varies across countries, depending on country-specific characteristics and the underlying constraint being alleviated. Across all countries in the sample, the largest GDP gains accrue from taking collateral requirements to the world minimum, suggesting that these are often the most binding constraints to financial inclusion. However, the magnitude of the GDP gains depends on economy-wide savings rates and existing level of constraints. For instance, the illustrative GDP impact is 4 times higher in Honduras, a country where collateral needed for loans amount is very high as compared to Paraguay, where borrowing constraints are lower.

Figure 9. Impact of Reducing Financial Constraints on GDP and Inequality



[24] Specifically, we focus on changes in the steady state of the economy when these constraints changes. These examples are illustrative, however, as the calibration for the financial inclusion process is chosen arbitrarily. Moreover, in practice, as many reforms are implemented on various fronts contemporaneously they are likely to affect the frictions in unison with additive effects.



Source: Authors' calculations.

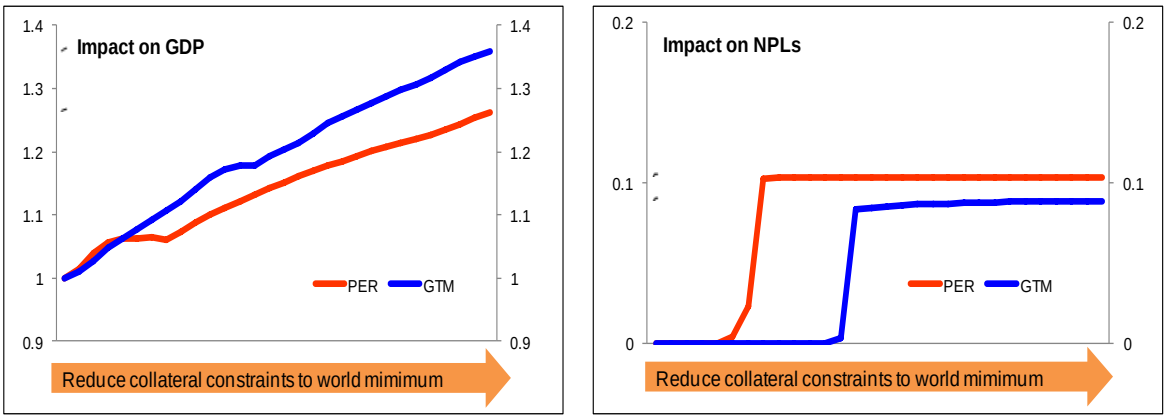
The impact on inequality of a similar relaxation in financial constraints is more mixed (Figure 11). A decline in participation costs unambiguously lowers inequality (as proxied by the Gini coefficient) across all countries. This is because individuals previously excluded from the financial system are able to obtain credit and become entrepreneurs and workers receive higher wages. The impact on inequality of relaxing borrowing constraints, however, depends on how country-specific factors interact with financial sector characteristics. Countries where a high percent of firms already has access to credit and those with initially high levels of collateral constraints (e.g., Costa Rica, Peru) experience a decline in inequality as more talented, but previously constrained, entrepreneurs expand their scale of production and hire more workers, driving up workers' wages and lowering inequality. In other countries, relaxing borrowing constraints only serves to increase leverage by talented entrepreneurs and increase their profits, which pushes up the Gini coefficient (e.g., Uruguay, Guatemala). Given the existence of other binding constraints to inclusion, lowering intermediation costs disproportionately benefits a small number of leveraged firms already in the financial system (e.g., in Paraguay, Nicaragua), leading to higher inequality.

There can be policy tradeoffs between achieving growth and equity objectives. Comparison of results across measures shows that different financial inclusion strategies have differential effects on the variables of interest. The model findings suggest that the highest growth dividends accrue from a relaxation of collateral requirements, but this policy can drive up inequality. Inequality increases if a reallocation of funds occurs by providing more credit to talented agents that could already borrow from the financial system since these agents already earn higher incomes than others. In general, entrepreneurs who are already included in the financial system benefit more from the reduction in collateral requirements and less so from a reduction in participation cost which is a fixed cost and a relatively lower share of their income. The latter, however, benefits new entrepreneurs more, decreasing inequality.[25] Nevertheless, the "poor" may still be better off overall under the lower borrowing constraints scenario, albeit not relative to the "rich."

[25] This is because "rich" entrepreneurs (possibly also more talented and more productive) can borrow much more when collateral constraints are relaxed increasing their profits, thus becoming richer. The optimal production scale of new entrants is lower and, even if they can borrow, they are not likely to achieve the same profits.

There also exist potential tradeoffs between growth and financial stability, which needs to be carefully monitored. Consider, for example, the cases of Peru and Guatemala. Relaxing borrowing constraints pushes up GDP increases in both countries (Figure 12), but NPLs also rise. Relaxing borrowing constraints provides more external credit to entrepreneurs once they pay the participation cost. This induces more entrepreneurs to join the financial system. However, NPLs increase as a relaxation of collateral constraints opens up the doors for small (and potentially riskier) new entrants who tend to be more leveraged. This phenomenon underlines a trade-off between growth and financial stability that needs to be carefully managed.

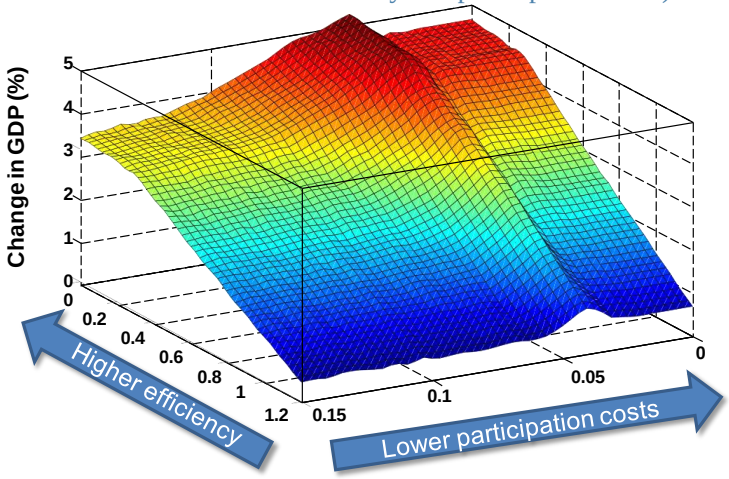
Figure 10. Impact on GDP and NPLs of a Reduction in Borrowing Constraints



Source: Authors calculations.

There can also be rich interactions between the various constraints. To examine this, we considered a 20 percent relaxation of the borrowing constraint in Peru for different levels of participation and intermediation costs. Figure 13 shows that the relative change in GDP following this policy (as compared to the case where constraints are not relaxed) depends critically on the two other financial constraints. If intermediation costs are high, the increase in GDP is smaller for all values of the participation cost. This is because while relaxing borrowing constraints provides more credit to entrepreneurs, this channel is partly blocked as entrepreneurs prefer to keep leverage ratios low in order to avoid paying high monitoring costs. This suggests that financial inclusion policies can be used in a complementary way to maximize their effectiveness. In particular, reducing intermediation costs not only directly boost GDP, but also amplify the impact of relaxing borrowing constraints.

Figure 11. Interactions between Financial Constraints in Peru
(collateral constraint is relaxed by 20% for different values of intermediation costs/efficiency and participation costs)



Source: Authors calculations.

The change in GDP when participation costs are lowered depends critically on the fraction of entrepreneurs that already have access to financial systems. Lower participation costs enable agents to borrow more from the financial system (intensive margin) since the participation cost constitutes a fixed fraction of their wealth. However, the gains from joining the financial system and obtaining more credit decline (extensive margin) once the credit access ratio is already high. Therefore, simultaneously reducing participation costs and borrowing constraints can be viewed as policy substitutes as both policies increase GDP by promoting access to credit.

To summarize, the analysis points to a number of important implications. First, the economic impact of financial inclusion policies depends on the source of financial frictions and other country characteristics. This suggests that there is no "one-size-fits-all" approach to financial inclusion. Developing tailored policies requires an understanding of the country-specific constraints faced. Second, trade-offs between growth and inequality suggest that a multi-pronged approach to foster financial inclusion is warranted. This result is important in as much as efforts to address inequality through financial sector policy are called to complement those aimed at eliminating other economy-wide distortions (e.g., in labor markets, fiscal systems) that hinder a wider redistribution of income. Finally, different financial inclusion strategies may imply trade-offs between growth and financial stability and present unintended side effects that need to be monitored and addressed. Section VI illustrates the application of model results to the cases of Guatemala, El Salvador, and Peru.

VI. Case Studies: Guatemala, El Salvador, and Peru

As the model in section V demonstrated, there is no "one-size-fits-all" solution to improving financial inclusion; the most binding constraints and drivers vary by country. This subsection examines the situation in three countries to help shed light on the different constraints to financial inclusion and potential policies. The cases of Guatemala and El Salvador help examine situations where countries could face tradeoffs between growth and inequality while Peru illustrates the potential outcome of large financial sector inefficiencies.

Guatemala

Guatemala's income distribution is one of the most unequal in the world with a Gini coefficient of 52 in 2011; 10 percent of the population receives around 50 percent of the total income while nearly one-third of the population lives on less than US$2 a day. Literacy rates are low (70 percent) and there is a strong urban-rural divide, both of which partly reflect low infrastructure and social and education spending. Although GDP growth since the recent financial crisis has been robust, PPP GDP per capita remains low at about US$7,500.

As in many other countries in LAC, gross national savings are low, at about 12 percent of GDP on average. Banking penetration is low, with only 40 percent of the population having an account at a financial institution in 2014. In a country where labor informality exceeds 70 percent, the use of savings clubs reached 12 percent in 2014 while one-fifth of the

population reports borrowing from family and friends, far exceeding the proportion of those who borrow from financial institutions (12 percent).

Among SMEs, access is relatively low, with only 60 percent of companies reporting having a checking/saving account (compared to a LAC average of 92 percent), and 45 percent have lines of credit with a bank (LAC average of 46 percent). However, these low levels of access do not appear to be driven by high costs or high levels of collateral; deposit-lending spreads are about 8 percentage points and collateral averages 117 percent of the loan (versus 201 percent in LAC). In Guatemala's case, the relatively low levels of collateral and spreads reflect high concentration of credit among a small number of large clients. Since a large part of banks' business is conducted with a small group of clients who are well known to the bank, risks remain relatively low and informational asymmetries are greatly reduced.

According to the comparative statics results of the model, the loosening of any of the three constraints will generate an improvement in growth but the lowering of spreads and levels of collateral would worsen inequality. Intuitively, this is because, due to their already relatively low levels, the loosening of these two constraints generates much larger marginal benefits for those at the top of the talent and wealth distribution. In this situation, very talented or very wealthy entrepreneurs can significantly increase their leverage and their production.

Given high levels of income inequality in Guatemala, policies which focus on loosening participation constraints, should be a key first step. Increasing social spending, especially on education, and implementing a national plan for financial inclusion aimed at fostering financial literacy would help bridge entry barriers for those who remain outside of the financial system. As demand-side barriers are addressed, regulators should also examine financial institutions' lending practices and credit concentration limits. While basic regulation is in place, there are instances where the ultimate beneficiary of loans is not clear since companies are registered under several names. Finally, as participation barriers are relaxed and previously unbanked businesses enter the financial system, credit bureau implementation should be improved in order to lower information costs (and collateral requirements), especially for new clients. At the same time, increased competition in the banking sector should be promoted to improve efficiency and maintain low spreads.

El Salvador

In recent years, El Salvador has made significant strides in reducing inequality as evidenced by the decline in its Gini index from 53 in 2000 to 42 in 2012. However, economic growth has been anemic, averaging under 2 percent for the last decade. The country is also plagued by high levels of emigration to the US, as the young seek better economic opportunities and an escape from the high levels of violence – in 2014, there were 68.6 homicides per 100,000 people, making it one of the most violent countries in the world.

Gross national savings at only 9.5 percent are even lower than in Guatemala. Despite a history of lending through large national banks with a regional presence, banking penetration in the country is low, with only 35 percent of the population having a bank account at a financial institution in 2014. The proportion of people who save either at a financial institution or a savings club is also lower than in Guatemala (only 7 percent used the latter in

2014). Nevertheless, the proportion of those who borrow from banks is much higher in El Salvador (17 percent versus 12 in Guatemala).

Financial inclusion of enterprises appears well developed, with both low cost of funds, low levels of collateral requirements and high levels of usage. Loan-deposit spreads are among the lowest in the region (at under 5 percentage points) and collateral requirements are at about 120 percent, below the LAC average. Over 90 percent of firms report having a bank account and about half of them have a line of credit. Contrary to Guatemala's case, the low levels of collateral and spreads in El Salvador likely reflect a banking sector which has had a history of large domestic banks with regional presence which were bought up first by global banks and then by Colombian conglomerates which own nearly two-thirds of the current banking system assets. The credit bureau system is relatively well developed in El Salvador, covering over 80 percent of the adult population. Furthermore, the microfinance sector is quite well developed with a significant presence of savings and loan societies and cooperative banks, although they remain mostly unregulated.

Comparative statics results from the model point to a significant positive effect on growth from lowering collateral levels, which, however, is coupled with a worsening in inequality. Just in the case of Guatemala, this is because the marginal benefits of such a move benefit those whose are wealthier/ have higher productivity. Thus, for a country whose main goal would be to raise growth, policymakers need to evaluate to what extent the trade-off with worsening inequality in the short-term would be worthwhile. In the case of El Salvador, where a focus on improving anemic growth rates is warranted, a relaxation of collateral requirements and lowering of spreads could have significant positive effects for firms at the top of the productivity distribution – the marginal gains for these firms are larger. However, a relaxation of collateral constraints which are already low could have significant effects on financial system stability.[26] For this reason, it would be important to couple reforms to promote growth through lower collateral requirements with measures to strengthen regulation and supervision (Sahay, R. et. al, 2015). Given that El Salvador is a fully dollarized economy without a lender of last resort, a strong crisis management and resolution framework should also be implemented.

Peru

Peru has been one of the most dynamic economies in LAC, growing at an average of 6.2 during the period 2002–13, the second highest growth rate in the region. At the same time, the average inflation rate was 2.8 percent, the lowest in LAC while the Gini index declined from 54 to 45. Significant gains have also been made in lowering extreme poverty which declined from 23 percent in 2002 to under 5 percent by 2014. Nevertheless, a large urban-rural divide persists and poverty among indigenous populations remains high.

Contrary to Guatemala and El Salvador, gross national savings in Peru are relatively high for the region at 23 percent of GDP (compared to LAC average of 15 percent). However, among the three case studies Peru stands out as the one with the lowest banking penetration (only

[26] Given the model's assumption of a closed economy, interest rate spreads automatically adjust when NPLs begin rising and thus function as a stabilizer. Thus, NPLs do not rise excessively in model simulations.

29 percent of adults have a bank account) and lowest proportions of people who saved or borrowed from a financial institution (12 percent and 11 percent, respectively). Survey results point to subpar financial education and preference for staying away from banks as key drivers for the low levels of banking penetration. Nonetheless, all this is despite the fact that Peru scores as the best in the world in terms of supporting environment for financial inclusion, according to the 2014 Global Microscope results.

Peru performs better in terms of inclusion of enterprises, with 85 percent of SMEs having a banking account and 63 percent having either a loan or a line of credit. However, high levels of fees (commissions), spreads, and collateral pose obstacles especially for smaller users. [27] High spreads (at about 18 percentage points) and fees partly reflect a concentrated banking system (4 banks hold 80 percent of total banking system assets) with conservative lending practices. These levels of concentration are partly a legacy of the 1998 crisis in Peru, which lead to a fall in the number of banks in the country from 27 in 1997 to 15 by 2006. Furthermore, weak regulations regarding mergers and acquisitions have allowed large banks to continue expanding.

A cumbersome legal system for collateral contributes to high levels of measured collateral (on average, 229 percent of loan). In Peru, the choice of what to accept as a guarantee for a loan is not merely an agreement between the borrower and a lender – the law specifies what type of guarantees can be used for a given type of debt and borrower. Furthermore, although mobile property can legally be accepted as collateral, most banks and vendors only accept real estate and bank accounts as collateral. Finally, in the case of default, the guarantee cannot be passed directly to the lender; it must be sold to a third party and the proceeds used to repay the loan.

Financial inclusion policies in Peru should be multi-pronged, to address enterprises' low levels of credit access and financial depth while also improving the banking system efficiency. In terms of access, income and geographical gaps are already targets under the ongoing strategy "Modelo Peru," which aims to expand mobile banking and e-money. Programs to improve basic financial literacy could also help combat mistrust in the banking system reported in surveys. Implementing a modern and simpler collateral system would also help. In contrast to the cases of Guatemala and El Salvador, relaxing collateral constraints would benefit both growth and inequality. This is because the levels of collateral are high so that the marginal benefit from reducing collateral accrues to both the higher and the lower end of the wealth distribution. Furthermore, higher levels of national savings and low credit potentially imply unexploited resources. Reforms should be introduced to foster competition in the banking sector in order to drive down spreads and commissions. Current regulations on mergers and acquisitions should also be reviewed. Finally, as more consumers enter financial markets, the regulatory and supervisory frameworks for consumer protection should be strengthened in order to protect new users and help avoid excess household debt.

[27] For example, although direct deposit is allowed, firms are charged a fee per each worker, thus pricing out many SMEs from these services.

VII. CONCLUSIONS

- LAC countries have made important strides in promoting financial inclusion over the past decade. Regulatory environments have been strengthened and access to financial institutions (physical infrastructure) has improved considerably.

- Performance on ***financial inclusion of firms*** has been particularly commendable. The region is broadly in line with other emerging markets and, on average, is better than what would be suggested by economic fundamentals (income per capita, prevalence of foreign-owned firms, reliance on fuel exports) on financial inclusion of firms. Nevertheless, country experiences vary, and a few countries have negative firm inclusion gaps. More generally, collateral requirements remain high and access to/cost of finance is seen as a major constraint by a large share of SMEs in some countries.

- In contrast to firm financial inclusion, LAC continues to lag behind other EMs on ***financial inclusion of households***, in particular, with regards to account holdings and savings at a financial institution. This, to a large extent, reflects region's weak domestic fundamentals (income per capita, education, the size of the shadow economy, and the rule of law). In fact, household inclusion gap with respect to domestic fundamentals is essentially closed for the region as a whole though there is substantial variation across countries. About half of the countries in LAC have negative household inclusion gaps, whereby the level of inclusion is below what would be suggested by fundamentals.

- In the short term, domestic fundamentals are fixed and ***negative financial inclusion gaps with respect to domestic fundamentals*** need to be examined with the view of identifying potential policy distortions or market frictions. Promising policy actions in LAC include reviewing bank income sources to lower the number and/or cap the size of the bank fees/charges, eliminating predatory practices (for example, through the introduction of usury laws), and fostering a regulatory environment for financial inclusion. Policy makers should also be aware that higher financial inclusion could be associated with lower bank efficiency and safety buffers. To counteract this, additional steps may be needed, such as measures to reduce information costs, for example, through the establishment of credit bureaus, efforts to reduce operational and other costs while reaching excluded customers (e.g., using mobile networks, correspondent banking), and measures to strengthen bank balance sheets.

- ***Positive financial inclusion gaps with respect to domestic fundamentals*** should also be examined to identify possible excesses and inefficiencies. For example, rapid scaling up of credit could have negative stability implications if not buttressed by proper regulation and supervision.

- In the longer run, bridging ***negative financial inclusion gaps with respect to the emerging market frontier*** (emerging Asia) requires efforts to improve education systems, including financial literacy, strengthen the rule of law, reduce the size of the shadow economy, diversify economies away from oil, and continue fostering economic growth to attain higher income levels. Some of these steps, including greater financial literacy and education, as well as greater labor market formality, will also help reduce reliance on informal finance.

- The ***economic impact of inclusion policies*** depends on the source of financial frictions and other country characteristics. Higher financial inclusion can help spur economic growth and reduce inequality though tradeoffs are likely. In particular, while policies aimed at lowering collateral requirements (e.g. strengthening the legal framework for managing and seizing collateral, reducing the size of collateral requirements, and creating modern collateral registry) are most beneficial for growth, they may also lead to higher inequality as marginal benefits accrue to the top of the wealth and income distribution. In contrast, policies aimed at reducing participation costs (e.g. lowering documentation requirements, reducing red tape and the need for informal guarantors to access finance) could help reduce inequality but may not yield substantial growth benefits. Hence, developing tailored policies requires an understanding of the country-specific constraints and priorities. Moreover, given potential trade-offs between growth and inequality, a multi-pronged approach to foster financial inclusion is warranted. In addition, financial inclusion strategies may lead to unintended "side effects" (e.g. increased financial instability) that need to be monitored and addressed.

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APPENDIX. DATA AND FINANCIAL INCLUSION INDICES

This section explains the construction of Index of Financial Inclusion and its components. It also provides an overview of the data and its processing for the construction of the Financial Inclusion index.

Data Sources and Processing

Table 1 shows the main data sources. The data from Global Findex covers the period for 2011 and 2014 only. The data point from enterprise survey is the latest observation available.

Indicies	Subcomponents	Variables	Sources
Use of Financial Services	Households	Account at a formal financial institution (% age 15+)	Global Findex
		ATM is main mode of withdrawal (% with an account, age 15+)	Global Findex
		Debit card (% age 15+)	Global Findex
		Loan from a financial institution in the past year (% age 15+)	Global Findex
		Saved at a financial institution in the past year (% age 15+)	Global Findex
	Firms/SMEs (Enterprise Survey, <100 employees)	% of SMEs Firms With a Checking or Savings Account	Enterprise Survey
		% of SME Firms With Bank Loans/line of Credit	Enterprise Survey
		% of SME Firms Using Banks to Finance Investments	Enterprise Survey
		Working Capital Bank Financing (%)	Enterprise Survey
		Value of Collateral Needed for a Loan (% of the Loan Amount)	Enterprise Survey
		% of SME Firms not needing a loan	Enterprise Survey
		% of SME Firms Identifying Access/cost of Finance as a Major Constraint	Enterprise Survey
Access to financial infrastructure		Number of ATMs per 1,000 sq km	IMF, Financial Access Survey
		Number of branches of ODCs per 1,000 sq km	IMF, Financial Access Survey
		Number of branches per 100,000 adults	IMF, Financial Access Survey
		Number of ATMs per 100,000 adults	IMF, Financial Access Survey

From the components to the composite index

All variables were normalized using the following formula:

$$I_{x,it} = \frac{x_{it} - \min(x_{it})}{\max(x_{it}) - \min(x_{it})}$$

Where $I_{x,it}$ is the normalized variable x of country i on year t, $\min(x_{it})$ is the lowest value of variable x_{it} over all it; and $\max(x_{it})$ is the highest value of x_{it}. For those variables that capture a lack of

financial inclusion, such as *Value of collateral needed for a loan* and *percent of firms identifying access or cost of finance as major constraint*, the reverse formula was used:

$$I_{x,it} = 1 - \frac{x_{it} - \min(x_{it})}{\max(x_{it}) - \min(x_{it})}$$

Several methods were used to estimate the weights: principal component analysis with the variables in levels and in differences, factor analysis with the variables in levels and in differences, as well as equal weights within a subcomponent of the index. For most of the methods the weights were not very different from equal weights and econometric results were robust to the method of aggregation. Thus, for simplicity of exposition the paper presents an index with equal weights.

Household Inclusion Index

Region	2011
East Asia and Pacific	9
Europe and Central Asia	29
Latin America	20
Middle East and North Africa	9
South Asia	6
Sub-Sahara Africa	31
Total	104

Region	2014
East Asia and Pacific	9
Europe and Central Asia	29
Latin America	20
Middle East and North Africa	9
South Asia	6
Sub-Sahara Africa	31
Total	104

Firm Inclusion Index

Region	M.R.A. 1/
East Asia and Pacific	9
Europe and Central Asia	2
Latin America	31
Middle East and North Africa	5
South Asia	4
Sub-Sahara Africa	28
Total	79

Access Index

Region	M.R.A. 1/
East Asia and Pacific	24
Europe and Central Asia	46
Latin America	32
Middle East and North Africa	15
North America	2
South Asia	7
Sub-Sahara Africa	35
Total	161

1/ Most recent year available.