

# Global Financial Inclusion: examining regional applications and variation using the World Bank's Global Findex Database

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## Abstract

Financial inclusion is often considered an important enabler for socioeconomic welfare in developing and emerging markets where the majority of the population is financially excluded. Continuing evolution of institutional, regulatory and financial infrastructure, as necessary conditions of an enabling environment, allows for greater and better access to and use of financial instruments by vulnerable segments in society and is expected to promote several constructive impacts. In the long term, there is macroeconomic evidence that well-developed financial systems, as drivers of economic development, have important positive effects on economic growth.<sup>1</sup> Indeed, credit, savings, insurance and payments are tools that can contribute to the economic progress of both businesses and households by allowing for consumption smoothing, contingency protection, and secure transactions and investment. A review of impact assessments found that both credit and savings products generate increases in investment and profits for microenterprises, affirming financial inclusion as an important force for business.<sup>2</sup>

Our note, by using a broad measure of financial inclusion based on the pioneering work of the World Bank's Global Findex<sup>3</sup> aims at creating a baseline country classification that can be used to benchmark financial inclusion as more data becomes available over time. For this purpose, we have identified 11 indicators, which we believe capture three of the defining forces of financial inclusion – access, usage and the environment.

We also draw some intuitive conclusions from our normalized indicators and final classification score<sup>4</sup> that could deliver potentially useful operational and actionable insights. As an additional validation, we decided to compare our score with other indicators, confirming trends between higher levels of financial inclusion and commonly used references that track development such as the Human Development Index (HDI), the Gini coefficient, and Gross Domestic Product (GDP) per capita. Our goal is to show how specific components of our score may contribute to a more vivid picture of financial inclusion in the context of global and regional trends.

A closer look both at the components of our score and the Global Findex indicators highlights weaknesses regarding concepts, assumptions and differences in the regulatory and institutional frameworks that will require country-level demand studies, which are not yet mainstreamed.

## Motivation

We started our study with a basic question in mind – is financial inclusion accurately measured? While there is no clear consensus on this front, we believe that existing data collection efforts provide an important starting point for further exploration. For policymakers and other stakeholders, who need information and the ability to quantify the benefits of financial inclusion initiatives, viewing data from the appropriate context is of paramount importance. A holistic approach to decision-making is relevant for designing regulation or other incentive structures that seek to promote select mechanisms for financial inclusion, as not all strategies may be appropriate. This implies recognizing today's heterogeneity across regions and countries.

## State of Financial Inclusion

Financial inclusion is gaining increasing prominence as a policy objective for developing and emerging markets, providing impetus for increased and more accurate measurement. The 2010 G20 Toronto Summit established financial

<sup>1</sup> See Levine (2005) and Demirgüç-Kunt and Levine (2008) for literature reviews on linkages between financial development and growth.

<sup>2</sup> See Odell (2010) for review of impact assessments in microfinance.

<sup>3</sup> See Demirgüç-Kunt and Klapper (2012) for overview and introduction of the Global Findex Database.

<sup>4</sup> See methodology for explanation of dataset and classification construction.

inclusion as a key priority, leading to the G20 Financial Inclusion Action Plan.<sup>5</sup> At present, only 50% of adults globally have an account with a formal financial institution, and only 9% received a loan in the past year.<sup>6</sup> While macroeconomic evidence connects established financial systems with positive effects on economic growth over the long term, the current body of knowledge does not yet include the same macro-relationships for financial inclusion. Current evidence focuses on the benefits of financial depth, which is not necessarily interchangeable with financial inclusion. Deep financial sectors<sup>7</sup> may have less relevance for financial inclusion depending on who has access to the system, which differs by country.<sup>8</sup> Challenges with measuring financial inclusion arise largely due to consistency issues based on regional and national variations, as well as from tracking developments over time. Other persistent issues include differing definitions of financial inclusion, as well as developing well-defined and cost-effective tools to measure demand for financial services.

### *Data Landscape*

We recognize that the World Bank's Global Findex database represents an important step towards providing a cross-country comparable foundation to explore both national and regional variations that have the potential to provide actionable insights into the state of financial inclusion. This database could also help shine the spotlight on what policies may be working overtime as more data becomes available. By focusing on the demand-side of financial inclusion using a household survey based approach, the Findex database has established itself as part of a broader framework that ultimately needs to address both supply and demand side issues.

Progress still needs to be made on supply-side

data collection as part of a more complete financial inclusion snapshot. At present, the International Monetary Fund (IMF)'s Financial Access Survey (FAS) is the only source for global supply-side data on financial inclusion, allowing for cross-country comparability for basic indicators of access and usage. Other complementary data collection initiatives also exist, such as the World Bank's Payment Systems Survey, albeit with a much narrower focus. A few ways the FAS could be expanded to serve as a more robust source for financial inclusion data include increasing data availability, adding data on SMEs, and dividing access and usage data<sup>9</sup> by type of institution.<sup>10</sup>

The IMF is well placed to take a leadership role in creating a core set of indicators that could potentially form the basis for further data efforts, an approach similar to the one currently employed by the Alliance for Financial Inclusion (AFI) and its 'Core Set of Indicators', becoming another relevant benchmark to track financial inclusion.<sup>11</sup> Interestingly, while international data classification standards already exist for various types of data, the ones for financial inclusion data and measurement do not yet exist. One idea is the IMF FAS approach, which uses definitions and statistical standards in line with the IMF's Monetary and Statistics manual, pointing to possibilities to borrow from established standards in similar areas and initiatives. Even with these global collection efforts, national statistical capacity is key in the continuing push for better comparability and actionable data. National financial inclusion surveys and the Global Findex database are complementary efforts, and a focus on one should not detract from developing the other.

### *Potential Improvements*

Importantly, data collection has to be viewed as a constantly evolving process as advances in

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<sup>5</sup> Commitment to financial inclusion was reaffirmed during the 2012 G-20 Los Cabos Summit in Mexico.

<sup>6</sup> Global Findex Data (2011).

<sup>7</sup> Financial depth commonly measured as domestic credit as a percentage of GDP.

<sup>8</sup> See Cull, Demirgüç-Kunt, and Morduch (2012) for discussion.

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<sup>9</sup> Cooperatives, credit unions and MFIs are institutions largely responsible for serving the poor.

<sup>10</sup> IFC and GPFI (2011).

<sup>11</sup> A list of five indicators that are consistent across countries designed to help track global progress on financial inclusion targets.

technology and new policies continue to revolutionize the deployment of financial services in developing markets. This raises a key question – how should we incorporate this evolution into our thinking? Part of our motivation to do this exercise was to underscore the important variations among different regions, and how policy choices need to take into account such differences. A mobile payments solution that works well in Africa may not succeed in Latin America due to a mix of different factors, including distinct institutional and regulatory environments.

In the absence of a time series that allows for dynamic comparison of data – for example to determine whether certain policies are having desired effects – drawing links between financial inclusion and broad measures of socio-economic development or other factors such as an enabling environment remains a challenge. One possible strategy to account for the evolution of financial services and products is to sort existing indicators into distinct categories that better capture the progressive multi-stage financial inclusion process.<sup>12</sup> This leads to the obvious question of how to assign specific thresholds to mark various stages. In our view, a percentile based approach using the underlying data would not fully capture dispersion. Normalized indicators that better measure dispersion should empower financial inclusion practitioners to define the required thresholds. This approach, by leveraging real world experience, provides reasonable country groupings for a more realistic depiction of the state of financial inclusion.

## Methodology

### *Initial Approach*

Our initial efforts focused on creating the database and placing Global Findex data into four sequential stages of financial inclusion. To this end, we segregated the global dataset across 11 indicators<sup>13</sup>, chosen for easy comparability

between countries, and for their capacity to represent three important dimensions behind financial inclusion: access, usage, and environment. Including the environment was important as it accounts for exogenous factors, including the existing regulatory framework. Once we had selected indicators we felt were appropriate based on the above criteria, the second part of the process was to build the dataset. Departing from the multi-stage approach, we opted to normalize each of the 11 indicators to better reflect dispersion<sup>14</sup>, and potentially allow for a more representative future division of countries into different stages.

### *Building the Dataset*

We created two groups based on relative income levels provided by the Global Findex. One group contained the entire sample population, while the other comprised the bottom 40%. To ensure the most complete data set with maximum coverage of the 148 countries (including World Bank defined country groupings) in the Findex Database, we chose to include the indicator “Domestic Credit to the Private Sector (% of GDP)” in place of “Percentage of Firms with a Loan/Line of Credit” due to a reasonably high level of correlation between the two, as well as the wider application of the former as an indicator for financial depth.

To achieve the final numerical classification used in our analysis, we took a normalized arithmetic mean of each country's data. To further streamline data analysis, we created an “Access Composite” indicator, which aggregated existing indicators covering ATMs and commercial bank branches per 100,000 adults.<sup>15</sup> We also created an “Informal Credit Composite” indicator, comprising an average of store credit, loans from family/friends, and private lenders from the Global Findex Database, to capture individuals who were not formally part of the financial sector, but still had access to certain financial products. We, however,

<sup>12</sup> See IFC and GPFI (2011) for discussion on multi-stage target setting using IFC and McKinsey & Co. research.

<sup>13</sup> For a complete list of the indicators used, please refer to Appendix 1.

<sup>14</sup> Normalized by dividing each indicator by its highest value across all countries.

<sup>15</sup> Supply side data is incomplete in many countries and further efforts to encourage measurement are warranted as outlined earlier.

found that including this composite as part of our classification score would unfairly bias the results, as we did not want to favor countries with underdeveloped financial access systems. While we could include the informal credit score with an inverse normalization, this would lower the score for countries where informal credit is the only option in contrast to countries where there is limited or no access to credit. Crucially, a low formal credit supply is arguably a necessary, but not sufficient condition for informal lenders to proliferate. The ultimate goal of financial inclusion programs is to bring all individuals under a well-regulated formal umbrella, with all the protections and safeguards formal systems can provide. Correlating the “Informal Credit” score against the all income classification score leads to a negative result as expected, and reaffirms our decision to exclude the Informal Composite from the final score.<sup>16</sup>

Importantly, we built an additional three composites to represent the dimensions we used when choosing our 11 indicators (access, usage, and environment). To create each composite we took the arithmetic average of the normalized indicators classified under each of the three dimensions.<sup>17</sup>

### *Dataset Comparisons*

We examined the dynamics between our various dimensions and their individual components, such as financial depth, and compared them to income levels (GDP per capita) to understand some of the key relationships in our data and what they may imply in terms of regional variation and general understanding. We were also looking at how our dataset could highlight some of the limitations of currently available data, and thus offer some insight on what practitioners could focus their efforts on. We present our findings in the Analysis section.

Alongside, we introduced three main data sets partly as validation and also to illustrate associations between commonly used measures of

development and our score: Gini coefficient, GDP per capita, and HDI value. We also would have liked to explore certain indicators, such as a country's legal system (common/civil law), for example, that we felt had intuitive relationships with our score. To decide whether to use the numerical score reached using data from the bottom 40%, or all income groups, we looked at the correlation between the two groups (0.988). Such a strong relationship between the two suggested that it was prudent to use the data from all income groups to provide a more representative picture of the state of financial inclusion in a given country. Moreover, countries that did not necessarily have data for the bottom 40% of income were more likely to have data for the entire sample, reducing potential bias.<sup>18</sup>

Interestingly, while most countries showed improvements in their score when data for all income groups was included in relation to the bottom 40%, some countries, including the U.K., showed minor decreases. This disparity could be due to the effect of certain indicators – such as ‘account used to receive government payments’ – which may favor lower-income individuals especially in developed markets. Additionally, as a number of countries did not have data for all 11 indicators used to find the classification score, we ran the same analysis as above on a set of countries with data for all indicators to ensure that our conclusions were not unduly affected by any incomplete information. We found that the correlation coefficients were largely similar to the worldwide set with all countries, confirming that countries missing data for one or two indicators had no substantive effect on our final conclusions and results.

We expected a strong positive relationship between ‘access’ and ‘usage’, as both dimensions represent critical elements behind financial inclusion, and a similar dynamic between both these dimensions with income (GDP per capita). We also believed that individual components of our ‘usage’ composite, such as ‘loan from a financial

<sup>16</sup> Data correlation coefficient: -0.375.

<sup>17</sup> See Appendix 1 for indicator classifications.

<sup>18</sup> Morocco is one notable example of the variation in missing data across the two income groups.

institution in the past year' and 'saved at a financial institution in the past year' would show significant variation due to different preferences and incentives across countries. Moreover, we anticipated that our 'environment' measure would show positive associations with both 'access' and 'usage', but influenced by different national institutional and regulatory regimes. We also expected that our 'informal credit composite' would show a negative relation with our other dimensions.

Alongside, we projected a positive relationship between our score and GDP per capita, due to the association between established financial systems and economic growth discussed previously. At a global level, we expected that increased financial inclusion would reduce income inequality.<sup>19</sup> Our expectation was qualified by a belief that there would be regional diversity, and that higher financial inclusion may not necessarily be accompanied by reduced inequality in certain regions already home to stark income disparities such as MENA or LAC.<sup>20</sup> With respect to the HDI, we anticipated that the relationship between our classification and the HDI value would be positive both globally and regionally. Commenting on the eventual causality between financial inclusion and human development is beyond the scope of this note.

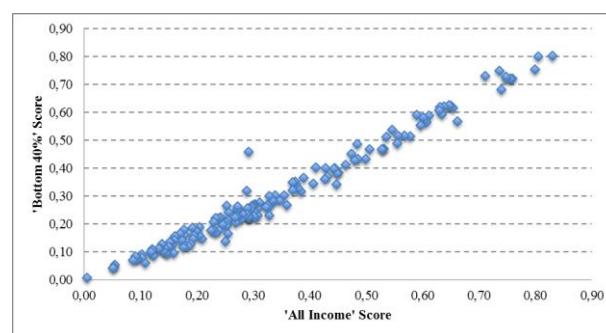
## Analysis

### Contrasting All Income with Bottom 40%

As outlined previously, our decision to use the all income population group instead of the bottom 40% in our analysis was due to the similar relationships both income groups shared with our indicators, as well as the very strong link between the two groups. Correlations between 'access' and 'usage' composites displayed minor variation, bolstered by an almost identical dynamic between

'access' and 'GDP per capita', as well as 'usage' and 'GDP per capita' when comparing the two groups. The one outlier observed in Figure 1 is Morocco, which lacks data for the majority of indicators we use in the bottom 40% income group suggesting a biased score.

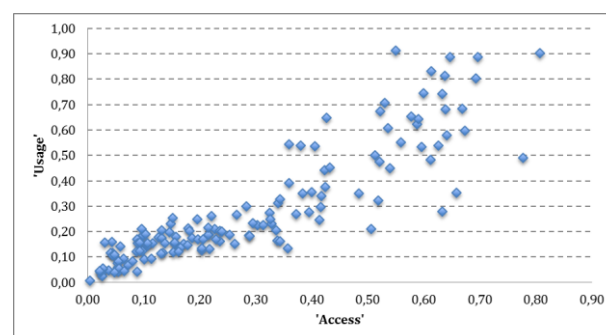
Figure 1. Relationship between income groups



### 'Access' and 'Usage'

At the core of our analysis, we noticed a strong dynamic between two of our main composites (0.886). Logically, higher access to the financial system is also associated with greater use. However, while the correlation is robust, there is evidence for country-level variation in the relationship. We notice in the graph below (Figure 2) that at higher levels, there is more dispersion in the composite scores.

Figure 2. Access and usage composites



We explored these variations by examining the individual components of our 'access' and 'usage' composites. 'Access' is positively linked to both 'loan from a financial institution in the past year' and 'saved at a financial institution in the past year' (0.52); suggesting that not all individuals with access to the formal system necessarily have taken a loan or saved at a financial institution. The relative weakness of this relationship could point to differing usage patterns globally, although access

<sup>19</sup> We examine relevant evidence and literature in our more in-depth discussion about the Gini coefficient.

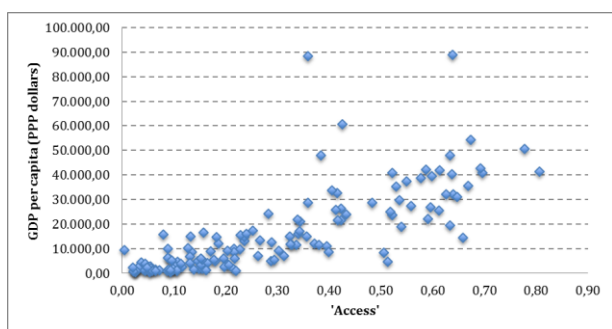
<sup>20</sup> Analistas Financieros Internacionales (Afi)'s "Access to Finance" international projects are predominantly focused in the LAC region.

is strongly correlated with 'account used to receive government payments' (0.839). This result is intuitively appealing as individuals with access to the formal financial sector are able to utilize those services to receive, depending on the country, a range of government payments. By paying individuals directly and through regulated channels rather than through district offices, for example, the scope for graft or other improper payments is significantly reduced.

**'Access' and Income ('GDP per capita')**

We also notice that higher 'access' is also correlated with increased use of 'electronic payments to make payments' (0.826). Potential explanations include countries with high levels of access are also wealthier in terms of GDP per capita as Figure 3 shows (0.775), allowing for expensive initial investments in electronic payments infrastructure by financial institutions. Moreover, the greater the number of bank clients, the greater the incentive for financial institutions to invest in infrastructure. Moving toward electronic payments is part of the process of financial development, although some countries are notably leapfrogging traditional steps in the process through the use of mobile payments among other tools.

Figure 3. Access and income

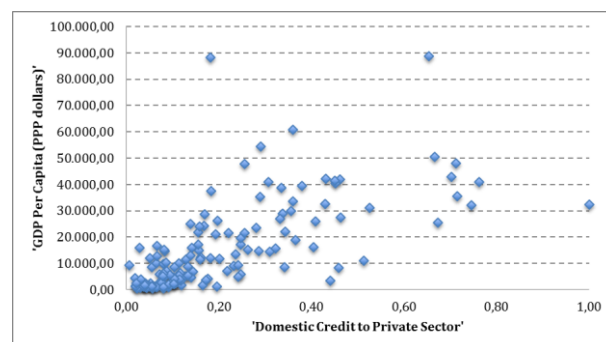


In addition, a commonly cited access indicator 'account at a formal financial institution' shares a virtually identical relationship as our wider 'access' composite with GDP per capita (0.775), reaffirming a widely observed result. When we look at another component of our 'access' composite, 'debit card', we expect a similar relationship with income as well (0.74). In most markets, a debit card is usually issued after an individual opens a deposit account at a financial institution, leading to a near-perfect

correlation in our data (0.901). While there is a much weaker relationship between GDP per capita and the 'access composite' (0.341), also part of our wider 'access' measure, we believe the result is not representative due to the incomplete data available for many countries in that particular composite.<sup>21</sup>

Financial depth, measured by 'domestic credit to the private sector', the last indicator of our 'access' average, enjoys a robust link to income (0.672), which is another intuitive result (see Figure 4). While current evidence links financial depth, a narrower measure than financial inclusion, with growth in GDP, we also see in Figure 2 that greater 'access' is associated with a larger GDP per capita. It is also interesting to note the wider dispersion at higher levels of 'access' that could indicate the potential contribution of other factors such as government involvement.

Figure 4. Financial depth and income



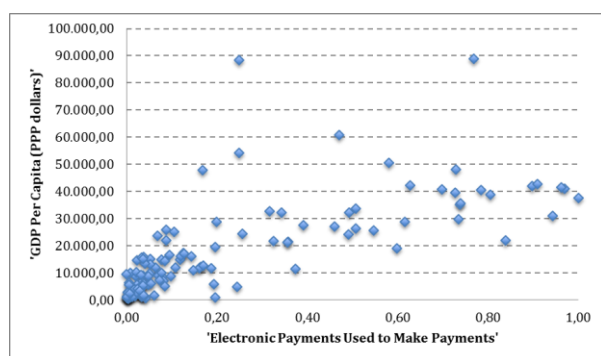
**'Usage' and Income ('GDP per capita')**

Our 'usage' indicators also echo the 'access' relationship with 'GDP per capita' (0.787). As before, we delve into the individual indicators of 'usage' to understand what is driving variation in the link. Both '3+ withdrawals in a typical month' (0.752) and 'account used to receive government payments' (0.712) display a robust positive correlation with income. In higher income economies with electronic payments infrastructure, and minimal transaction costs, the propensity to keep cash on hand is lower. In terms of government payments, we would expect significant

<sup>21</sup> See earlier discussion on measurement challenges.

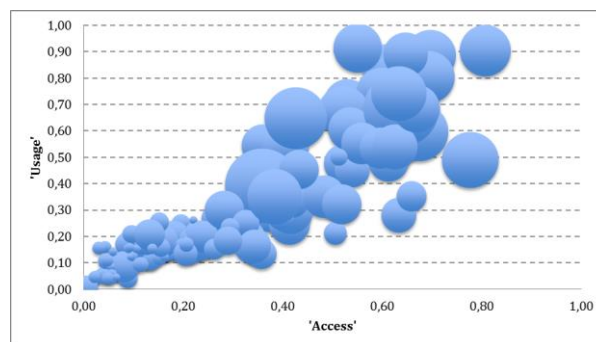
regional diversity as practices vary across countries based on both political and economic orientation. We see a strong association between electronic payments and income (0.754), linking back to our earlier discussion involving 'access' and the use of electronic payments (see Figure 5). The two outliers in Figure 5 are Qatar and Luxembourg respectively (approximately \$88,000 income per capita). The graph also showcases the more rapid increases in GDP per capita associated with increased use of electronic payments at the lower end of the scale, which becomes less drastic as electronic payment levels go up.

Figure 5. Electronic payments and income



The relationship between 'saved at a financial institution' and 'GDP per capita' is also strong and similar to the link with 'access' (0.742). On the other hand, we see a markedly weaker dynamic between 'loan from a financial institution in the past year' and income (0.393). This result is interesting in the context of the more robust link between 'loan from a financial institution' and 'access' as outlined previously (0.52). The divergence between the 'access' and 'GDP per capita' correlations underscore regional diversity, especially in terms of the importance of broad-based economic development. One example could be resource driven economies with a high GDP per capita, but underdeveloped financial systems or weak enabling environment for financial inclusion initiatives. Alongside, as we witnessed with our discussion on 'access', there could be important behavioral variation across countries, as not all individuals who saved also took a loan (0.491). We can comfortably say that either increased 'access' or 'usage' – two of the driving forces behind financial inclusion – is accompanied by higher incomes as Figure 6 below highlights (bubble size is GDP per capita).

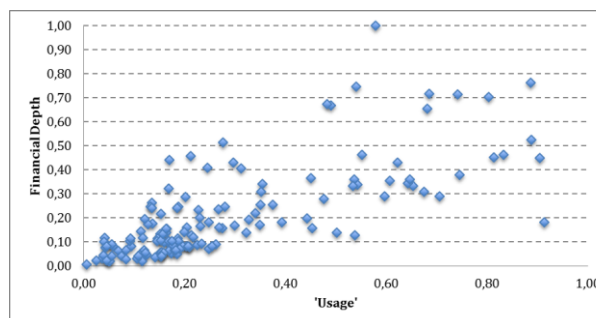
Figure 6. Access, usage and income (GDP per capita)



*'Usage' and Financial Depth*

As financial depth is a commonly used indicator, we explored its strong relationship with our 'usage' aggregate in more detail as Figure 7 shows (0.74). While a similar correlation is likely to exist for our 'access' composite, we run the risk of a biased result as financial depth is one of the indicators used to create that average.

Figure 7. Usage and financial depth



However, using 'account at a formal financial institution' in place of the broader measure of 'access' provides a useful proxy (0.752). '3+ withdrawals' (0.674) and 'saved at a financial institution' (0.704) both have relatively strong links with financial depth. Tellingly, there is a meaningfully weaker relationship between 'loan from a financial institution' and financial depth (0.423), which reinforces the limitations of 'domestic credit to private sector' as an indicator of financial inclusion. At the heart of the issue is the focus of each indicator – 'domestic credit' largely applies to corporations and other commercial activities while 'loan from a financial institution' is focused on the retail aspect of the financial sector, which is the focus of financial inclusion and the Global Findex. Interestingly, we see a negative link between our 'informal credit' composite and financial depth (-0.375), suggesting that 'informal

credit' may be crowded out in countries with deeper financial systems.

### *Environment and Financial Inclusion*

At a global level, we see that higher levels of financial inclusion, as measured by our score, are identified with a better 'environment' (0.628). Improved 'access' is also linked positively to the 'environment' (0.474), as is 'usage' (0.452). However, the relative weakness of the relationship again points to important differences in the institutional framework of countries, as not all gains in 'access' can be associated with improvements in 'environment'. We recognize a marginal improvement when correlating 'account at a formal financial institution' (0.514). Notably, we see a weaker positive association between 'environment' and 'domestic credit to private sector' (0.399). An improved environment for financial inclusion does not necessarily accompany more credit to the private sector, which is largely dominated by corporations and commercial enterprises. There is a similar weak correlation between 'environment' and 'loan from a financial institution in the past year' (0.351), again pointing to widely varying behavior across countries.

### *'Informal Credit', 'Access' and 'Usage'*

There is an intuitive negative relationship between our 'access' indicators and the 'informal credit' composite (-0.392), as we would expect increased access to the formal financial system to be associated with reduced demand for unregulated, informal financial products and services. Of the individual components of our 'access' average, 'account at a formal financial institution' displays the most similar correlation (-0.386), while '3+ withdrawals in a typical month' has a much weaker association (-0.272), as 'informal credit' is unlikely to significantly influence individuals' preferences to withdraw. Financial depth has a stronger negative correlation (-0.375), which is along expected lines. The negative relationship, although qualified by significant variation, is also visible with 'usage' (-0.299). 'Account used to receive government payments' has a similar relationship as '3+ withdrawals' (-0.266), and a similar rationale could be used to explain the link.

'Saved at a financial institution in the past year'

has a marginally stronger negative relationship (-0.34), but what is most surprising is the very weak correlation between 'loan from a financial institution in the past year' and informal credit (-0.114). While we would have expected a much weaker association, clearly there are major regional variations in the role of the informal financial sector in the economy, notably in terms of extending credit even when a formal system exists. Both 'environment' and 'electronic payments' exhibit a similar relationship with informal credit (-0.301 and -0.294 respectively). In sum, the relative weaknesses of the correlations between our indicators and informal credit is very telling, suggesting that there may be important cultural and political factors as part of the backdrop that may require further exploration.

### **Next Steps**

Even as the Global Findex provides invaluable data and represents the first step to better understanding the underlying drivers of financial inclusion, many of the indicators used remain basic and non-standardized. For example, the indicator 'account used to receive government payments' has different interpretations depending on the country context, and is not necessarily just a vehicle for the poor to receive a government subsidy.<sup>22</sup> Other relevant examples in this context are the role of informal lenders, e-money accounts that may be considered deposits depending on regulation, and the increase in credit card debts. We have examined the importance of looking at individual country level results to better understand cross-country variation, which help to promote the development and deployment of better tailored policies and financial products. Further work is needed in terms of standardization and categories of different providers<sup>23</sup>, which could be implemented by deeper involvement of national-level authorities in data collection, and agreements to coordinate and increase efforts to make data more comparable.

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<sup>22</sup> Countries may pay their civil servants, or credit tax rebates.

<sup>23</sup> As suggested in the earlier discussion about possible



The challenge of moving past traditional ideas of access and usage to better differentiating active users of the financial system through more qualitative measures still persists. Part of the measurement also entails expanding the scope to include financially underserved individuals, while also attempting to define what underserved would mean in various regional contexts. While suitability could more broadly be defined under a “quality” umbrella that also examines the depth and breadth of the relationship between financial service providers and customers, attempting to account for regional variations and institutional differences would likely favor a regional or case-by-case analysis. Gaining a deeper understanding of the barriers to entry on the supply side is also crucial to delivering a better package of services and may help with measurement and comparability. We have discussed a few ways to extend the IMF's FAS to help in this effort.

With better understanding of this impact, globally recognized benchmarks could be developed that would allow insights from one country to be shared with another – refocusing global efforts on operational, rather than ideological priorities. While the effect of financial development on growth, income inequality, and poverty reduction has been established, the same robust evidence linking financial inclusion with welfare effects is absent.<sup>24</sup> In conclusion, measuring financial inclusion requires two basic attributes: comparability and detailed country-level information. The World Bank's Global Findex greatly contributes towards managing the historic problem of comparability, but only with a deeper understanding of what drives variation between countries can we design policies and products that move past the extant challenges to take advantage of the opportunities present in each country.

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extensions to IMF's FAS.

<sup>24</sup> See Demirgüç-Kunt, Beck, and Honohan (World Bank 2008) for an overview.

**Appendix 1**

Dimension	Indicator	Source
Access	Account at a formal financial institution	WB Global Findex
Access	Access Composite (ATMs + Commercial)	WB Global Findex
Bank branches per 100,000 adults)	WB Global Findex	WB Global Findex
Access	Debit Card	WB Global Findex
Access	Domestic credit to the private sector (% of GDP)	WB WDI
Usage	3+ withdrawals in a typical month	WB Global Findex
Usage	Account used to receive government payments	WB Global Findex
Usage	Saved at a financial institution in the past year	WB Global Findex
Usage	Loan from a financial institution in the past year	WB Global Findex
Usage	Electronic payments used to make payments	WB Global Findex
Environment	Credit depth of information index	WB WDI
Environment	Strength of legal rights index	WB DB Report

Appendix 2

MENA Countries	LAC Countries
Algeria	Costa Rica
Bahrain	Brazil
Egypt, Arab Rep.	Guatemala
Iran, Islamic Rep.	Chile
Iraq	Panama
Jordan	Colombia
Kuwait	Peru
Lebanon	Dominican Republic
MENA (developing only)	Ecuador
Morocco	Honduras
Oman	Argentina
Qatar	Mexico
Saudi Arabia	Uruguay
Syrian Arab Republic	Bolivia
United Arab Emirates	Paraguay
West Bank and Gaza	Venezuela, RB
Yemen, Rep.	El Salvador
	Haiti
	Nicaragua

Appendix 3

Figure 8. GDP per capita (PPP dollars)

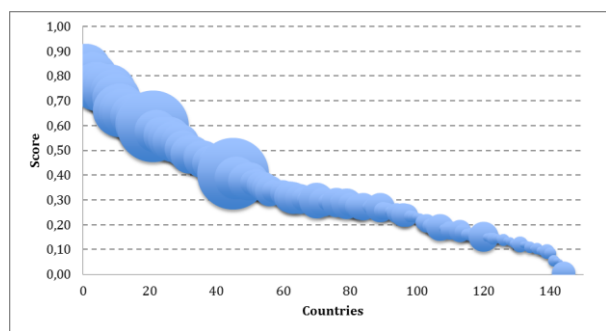


Figure 8 shows three pieces of information: the 148 countries and country groups included in the Global Findex ranked in descending order based on our composite score; on the y-axis is the score, and the bubble size represents GDP per capita. With a few notable outliers – predominantly resource rich countries with relatively lower financial and economic development such as Qatar, with a score of 0.41 but GDP per capita of \$88,314 – the trend matching higher levels of financial inclusion as measured by our score with

higher levels of GDP per capita is clear.<sup>25</sup> People in higher-income countries typically save more, and are, on average, more financially literate. Demirgüç-Kunt and Klapper also reference a similar phenomenon, noting that countries with a higher GDP per capita also have a higher account penetration, but that this relationship explains less in terms of account penetration for low and lower-middle-income countries.<sup>26</sup> These characteristics are part of a virtuous cycle that impacts all areas of the economy: more efficient resource allocation, broader access to credit, and greater accumulation of capital. Alongside, the benefits of relieving financial constraints are also very strong for their growth rates, underscoring the importance of well-designed regulation.<sup>27</sup>

Much of the link between financial sector development and higher national incomes, as measured by GDP per capita, depends on a legitimate and well-functioning institutional framework that is geared toward broad-based economic development. Countries that do not focus on building an inclusive financial system suffer when measured against other holistic indicators such as the HDI or the Gini coefficient, as we go on to explore. It is important to also note that our analysis does not provide direct evidence on the direction of causality – whether countries with higher incomes are able to build a supportive framework for financial inclusion, or countries with greater numbers of citizens included in the formal financial system are able to be more productive and thus contribute to raising economic output. As we have outlined earlier, current empirical evidence links robust financial systems and long-run economic growth, rather than financial inclusion. As part of this is due to regional diversity, we again reiterate the importance of understanding the specific factors that drive these divergences such as national resource endowments or business environments.

<sup>25</sup> Also indicated by a positive data correlation coefficient: 0.751.

<sup>26</sup> See Demirgüç-Kunt and Klapper (2012).

<sup>27</sup> See Beck, Demirgüç-Kunt, and Maksimovic (2005).

Gini Coefficient

Figure 9. Global and regional Gini index

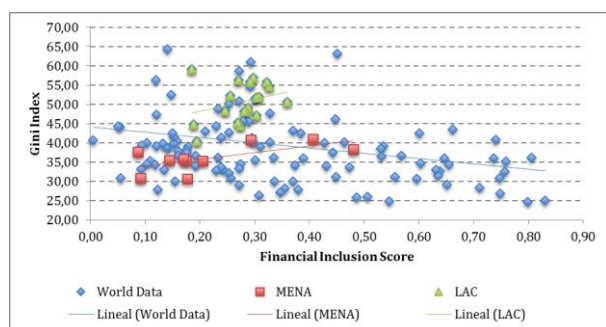


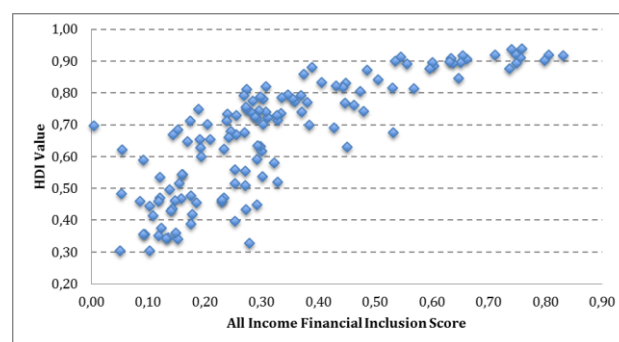
Figure 9 shows the global series of countries, and two regional series mapped by composite score on the x-axis and the Gini index on the y-axis. A higher Gini index indicates greater inequality (100 is perfect inequality). When we correlated the classification score with the Gini index, we found a negative relationship (-0.293). This negative correlation implies countries with greater financial inclusion as defined by our composite score are also associated with lower levels of income inequality. However, the relative weakness of the global correlation suggests significant regional variation that may merit further analysis. Multiple studies have established a strong negative relationship at the individual country level between indicators of financial depth and the Gini index.<sup>28</sup>

In terms of poverty reduction, a perennial issue for the developing world, data suggests that countries with higher levels of financial development have witnessed faster reductions in poverty rates (as a share of the population living on less than \$1 per day), and 30 percent of the cross-country variation in poverty reduction rates can be linked to differences in financial development.<sup>29</sup> It is this variation across countries that we need to explore by using data as a springboard to understand what factors could potentially be contributing to this variation, and what could be done to catalyze further development. The Global Findex allows us to ask these important questions, and then seek answers at an individual country level.

Randomized controlled trials (RCTs) are being used in field studies that seek to identify the causal links between access to formal financial services and the improvement in the lives of the poor.<sup>30</sup>

The importance of effective policy and an enabling environment are highlighted by empirical studies that show how deregulation of bank branching leads not just to better banking through increased competition, but also narrower income differentials by increasing relative wages and working hours for unskilled labor.<sup>31</sup> To illustrate these differences, Figure 9 also shows countries from Latin America and the Caribbean (LAC), as well as Middle East and North Africa (MENA)<sup>32</sup>. Both regions have positive correlations with their respective composite scores. For MENA countries, the correlation is (0.633), while for the LAC region the correlation is (0.292).

Figure 10. HDI Value



Human Development Index

Another exercise with our score is to examine its correlation with the Human Development Index (HDI). As Figure 10 indicates, there is a strong positive association between our score and the HDI value (highest 1), also confirmed when the two series are correlated (0.799). The importance of delivering the right financial services is underlined by data suggesting that inappropriate delivery of

<sup>28</sup> See Clarke, Xu, and Zhou (2006); Li, Xu, and Zou (2000); and Li, Squire, and Zou (1998).

<sup>29</sup> See Beck, Demirgüç-Kunt, and Levine (2007).

<sup>30</sup> See Dupas and Robinson (2011) and Brune et al. (2011) for discussion on the impact of commitment savings devices in Africa.

<sup>31</sup> See Jayaratne and Strahan (1998) for the United States, where rates of real per capita growth in income and output increase significantly following intrastate branch reform and Beck, Levine, and Levkov (2010).

<sup>32</sup> See Appendix 2 for list of countries covered by LAC or MENA designation in our methodology.

financial services is correlated with lower levels of education – for example, unsecured debt held by parents in a family is negatively related to their children's college completion.<sup>33</sup> We also notice a funnel effect as higher scores lead to a smaller dispersion in HDI values. Understanding which products are needed across different geographies is why the Global Findex is a useful starting point for policymakers, *in conjunction* with deeper analysis that can identify potential pitfalls from misdirected efforts.

The development and rapid spread of information and communication technology (ICT) may hold the key to further financial inclusion in remote or geographically large areas, as the traditional fixed costs that have burdened the formal financial system could be drastically reduced. It is important to note that a focus on financial inclusion from a social development perspective is not necessarily associated with diminished economic competitiveness: when we correlate our composite score with the World Bank's Doing Business ranking, we find a negative correlation (-0.809). This means that higher the countries score in our methodology, the better their Doing Business rank.

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<sup>33</sup> See Zhan and Sherraden (2011).

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**Access to Finance is a priority within Afi's international activity, due to its impact on poverty alleviation, financial stability and socioeconomic welfare.**

**Financial inclusion**

A financial system that lacks penetration is less efficient, riskier and more expensive for the majority of the population. It is not easy, however, to design an inclusive financial system. It is the result of several confluent factors such as proper regulation and supervision, an adequate development of the financial (banking and non-banking) industry, and the willingness and capacity of the financial operators to broaden their client base by offering services and products addressing their needs of the unbanked population.

**Financial innovation**

The application of innovative technologies to the financial sector is a proven cost-effective way of narrowing swiftly the existing gap between financial access and financial needs in most emerging and developing countries.

**Financial education**

One of the necessary conditions for expanding access to finance is the conformation of a well-informed and trained universe of clients of financial services. This contributes to the desired scenario of fair provider-customer relationships and freedom of choice for consumers. Nevertheless, financial education must be accompanied by the most appropriate institutional and regulatory framework aimed at preventing potential predatory practices from providers and at guaranteeing the existence of accessible and well-functioning consumer protection mechanisms.

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