WPS3754

Reaching out:

Access to and use of banking services across countries

Thorsten Beck, Asli Demirguc-Kunt and Maria Soledad Martinez Peria

Abstract: This paper (i) presents new indicators of banking sector penetration across 99 countries, based on a survey of bank regulatory authorities, (ii) shows that these indicators predict household and firm use of banking services, (iii) explores the association between the outreach indicators and measures of financial, institutional, and infrastructure development across countries, and (iv) relates these banking outreach indicators to measures of firms' financing constraints. In particular, we find that greater outreach is correlated with standard measures of financial development, as well as with economic activity. Controlling for these factors, we find that better communication and transport infrastructure and better governance are also associated with greater outreach. Government ownership of financial institutions translates into lower access, while more concentrated banking systems are associated with greater outreach. Finally, firms in countries with higher branch and ATM penetration and higher use of loan services report lower financing obstacles, thus linking banking sector outreach to the alleviation of firms' financing constraints.

World Bank Policy Research Working Paper 3754, October 2005

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent. Policy Research Working Papers are available online at http://econ.worldbank.org.

* The authors are with the World Bank's research department. We would like to thank Ross Levine for insightful discussions and Jerry Caprio, Stijn Claessens, Augusto de la Torre, Xavi Gine, Patrick Honohan, Leora Klapper, Anjali Kumar, Inessa Love, Susana Sanchez and seminar participants at the World Bank and the Inter-American Development Bank for useful suggestions. Hamid Rashid and Andrew Claster provided excellent research assistance.

1. Introduction

Banking sector outreach varies significantly across countries. In Ethiopia there is less than one branch per 100,000 people, while in Spain there are 96. In Albania, there are four loans per 1,000 people and the average loan size is 15 times GDP per capita, while in Poland there are 774 loans per 1,000 people and the average size of loans is only one-third of GDP per capita. This paper introduces a consistent set of cross-country indicators of banking sector outreach, shows how these can be used to predict household and firm use of banking services, explores their empirical association with other country characteristics, and relates them to firms' financing obstacles as reported by entrepreneurs. These indicators were collected through a survey of bank regulatory agencies conducted in 2003-4 and complemented with publicly available data. While these are rough indicators of access to and use of banking services, this is the first compilation and analysis of consistent and comparable cross-country data on the outreach or penetration of banking systems.

Although a large literature has established a positive association between financial sector depth and economic growth at the country, industry and firm level,[1] little is known about the breadth of financial systems across countries, the extent to which enterprises and households use financial services, and their relationship to desirable outcomes.[2] This lack of knowledge stems mostly from a dearth of adequate data (see discussion of data issues in Honohan 2004b). While the literature has developed several standard indicators of financial development, with consistent and comparable data available for the vast majority of countries over the past 40 years, to our

[1] See Levine (2005) for a review of this literature. Specifically, Beck et al. (2000), Rajan and Zingales (1998), and Demirguc-Kunt and Maksimovic (1998) provide evidence at the cross-country, industry and firm level. Also see Wurgler (2000) and Love (2003).

[2] Some exceptions include the following studies that try to measure access to financial services (and in some cases its consequences) at the household and/or firm level: Francisco and Kumar (2004) and Kumar (2005) for Brazil; World Bank (2003b) for Colombia; Wydick (1999) for Guatemala, Atieno (1999) for Kenya, Aliou and Zeller (2001) for Malawi, Caskey et al. (2004) and World Bank (2003a) for Mexico, Basu (2004) for India; Beegle, Dehejia, and Gatti (2003) and Satta (2002) for Tanzania.

knowledge, before this study no such cross-country data existed for the penetration or outreach of financial systems.[3]

Yet, the importance of broad financial services outreach can be justified in several ways. The first argument builds on the theoretical and empirical finance and growth literature, as surveyed by Levine (2005) and the importance of a well-developed financial system for economic development and poverty alleviation (Beck, Demirguc-Kunt and Levine 2004 and Honohan 2004a). Financial market imperfections such as informational asymmetries, transactions costs and contract enforcement costs are particularly binding on poor or small entrepreneurs who lack collateral, credit histories, and connections. Without broad access, such credit constraints make it difficult for poor households or small entrepreneurs to finance high-return investment projects, reducing the efficiency of resource allocation and having adverse implications for growth and poverty alleviation (Galor and Zeira, 1993).[4] Second, one of the channels through which financial development fosters economic growth is through the entry of new firms (Klapper, Laeven and Rajan, 2004) and the Schumpeterian process of "creative destruction." This implies that talented newcomers have access to the necessary financial services, including external finance. Access to finance for large parts of the population is thus seen as important to expand opportunities beyond the rich and connected and also as crucial for a thriving democracy and market economy (Rajan and Zingales, 2003). The third argument is a socio-political one and sees access to financial services on a similar level as access to basic needs such as safe water, health services, and education (Peachey and Roe, 2004).

[3] Standard measures of financial development include the ratio of credit to the private sector to GDP and the share of liquid liabilities to GDP.

[4] Capital market imperfections are at the core of theoretical models that show redistributing wealth from the rich to the poor would enhance aggregate productivity and therefore growth. In the absence of well-functioning capital markets and broad access to financial system, it is this wealth redistribution that creates investment opportunities. Also see Banerjee and Newman (1993) and Aghion and Bolton (1997).

Access to financial services, however, is not synonymous to the use of financial services. Economic agents might have access to financial services, but might decide not to use them, either for socio-cultural reasons, or because opportunity costs are too high. Therefore, it is necessary to carefully distinguish between two different concepts when discussing the outreach of the banking system – (i) access and the possibility to use financial services and (ii) actual use of financial services.[5]

This paper introduces two classes of indicators that correspond to the different concepts of access to and use of financial services. Specifically, we present data on the number of branches and ATMs relative to population and area, to capture the geographic and demographic penetration of the banking system. Higher branch intensity in demographic and geographic terms would indicate higher possibilities of access and the opportunity to use financial services by households and enterprises. To measure the actual use of deposit and credit services, we present indicators on the number of loan and deposit accounts relative to population and average loan and deposit size relative to GDP per capita. Higher ratios of the number of loan and deposit accounts per capita and lower average loan and deposit amounts relative to GDP per capita would indicate use of deposit and credit services by a greater share of the population and "smaller" clients.

Our sample of 99 countries is comprised of financially and economically developed economies as well as emerging markets and transition economies. The first part of our empirical analysis shows the predictive power of our indicators by relating them to user-based household and firm surveys. In particular, we show that our loan and deposit indicators are good predictors of the share of households with bank accounts and the share of small firms with bank loans. In the absence of user-based survey measures on the use of deposit and loan services for a broad

[5] Also see the discussion in Beck and de la Torre (2005).

cross-section of countries, our aggregate indicators provide a good approximation of the extent to which household and firms use deposit and loan services, respectively.

The second part of our empirical analysis explores cross-country variations in outreach. Correlation and regression results indicate that larger economies enjoy greater levels of outreach, suggesting scale economies in banking service provision. Controlling for country size and population density, we also find that countries' banking system structure, quality of the institutional framework supporting the financial system, and physical infrastructure explain cross-country variation in outreach.

In terms of banking structure, our analysis suggests a negative correlation between the share of government-owned banks and measures of branch and ATM penetration, while we also find that more concentrated banking systems have higher levels of outreach. The share of foreign-owned banks, on the other hand, is not significantly correlated with banking system outreach.

Regarding the link between outreach and institutional development, we find that better governance and a more effective system of credit information sharing are positively correlated with outreach. Finally, we find evidence of greater banking system outreach in countries with better communication and transportation infrastructure.

The final part of the empirical analysis in this paper examines whether variations in outreach can explain cross-country differences in firms' perceptions about the severity of financing constraints, which have been shown to be robustly correlated with firm growth (Beck, Demirguc-Kunt and Maksimovic, 2005). While economists conjecture a positive relationship between access to and use of financial services and economic development, this paper is the first to provide empirical evidence in this area.

We find that higher branch and ATM penetration and wider use of loan services are associated with lower financing obstacles, even after we control for a standard measure of financial sector depth. We confirm these findings when using firm-level observations and controlling for firm characteristics.

Notwithstanding the novelty of the indicator database, it is important to be cognizant of its limitations. First, unlike indicators used in the finance and growth literature, our data are only available at one point in time. This prevents us from exploring the relationship between financial outreach and economic development over time and from exploiting within-country variation in banking system outreach. Second, our data and analysis focus exclusively on two banking services, deposit-taking and lending, and thus abstract from other important financial services, such as payment and insurance, for which data are harder to get. In addition, we concentrate on banks and, therefore, we do not take into account other financial service providers, such as microfinance institutions or cooperatives, due to the scarcity of data on these institutions. Third, our indicators are crude indicators of outreach that do not take into account subtleties such as new delivery channels or more detailed indicators of loan and deposit size distribution. Fourth, our indicators are quantity indicators and do not capture the price dimension of outreach. Fifth, our indicators measure equilibrium outcomes, affected by both demand and supply factors. Finally, our indicators might be subject to mis-measurement, e.g. if bank clients have several deposit or loan accounts. In spite of these shortcomings, we see this data compilation effort and the associated analysis as a useful and important first step towards developing more accurate indicators of access to and use of financial services.

The remainder of the paper is organized as follows. Section 2 describes the data collection and introduces our indicators of outreach. Section 3 discusses the cross-country

variation in outreach. Section 4 shows the predictive power of our indicators relating them to household- and firm-survey based indicators of use of financial services. Section 5 examines the correlation of the outreach indicators with other country characteristics, as well as regulatory and policy variables. Section 6 relates the outreach indicators to cross-country survey indicators of firms' financing obstacles. Section 7 concludes.

2. Data: Indicator Sources and Definitions

This paper presents a new data set that seeks to measure the access to and use of banking services across 99 countries in 2003-2004. Specifically, the objective of this dataset is to construct indicators of access to physical bank outlets and use of banking services (in particular credit and deposit services). For this purpose, we developed a questionnaire that we circulated among bank regulatory agencies across countries. The main questions from this survey focus on obtaining information on the number of bank branches, number of ATMs, and the aggregate number and value of bank loans and deposits.[6] For countries that did not provide responses to our questionnaire, we gathered data from alternative sources, including government publications and official websites. A detailed list of all the sources used for each country can be found in appendix Table A.1.

Our survey refers exclusively to deposit money banks – all financial institutions that have "liabilities in the form of deposits transferable by check or otherwise usable in making payments" (IMF 1984, p. 29) - for two main reasons. First, in a majority of countries, the banking sector intermediates most of the funds in the economy. Second, the banking sector is regulated and statistical information for this sector is easier to obtain and higher in quality than

[6] We also included questions on payment transactions (value and number) and on the distribution by size of bank loans and deposits. However, most countries were unable to provide answers to these questions; hence it is not possible to conduct a systematic analysis of these data.

data for other non-bank financial service providers (such as credit unions, cooperative, finance companies, and microfinance institutions), which are often not regulated.

Using data gathered through our survey of bank regulatory bodies and from other sources, we put together the following indicators of banking sector outreach:[7]

1- Geographic branch penetration: number of bank branches per 1,000 km^2

2- Demographic branch penetration: number of bank branches per 100,000 people

3- Geographic ATM penetration: number of bank ATMs per 1,000 km^2

4- Demographic ATM penetration: number of bank ATMs per 100,000 people

5- Loan accounts per capita: number of loans per 1,000 people

6- Loan-income ratio: average size of loans to GDP per capita

7- Deposit accounts per capita: number of deposits per 1,000 people

8- Deposit-income ratio: average size of deposits to GDP per capita

Indicators (1) through (4) measure the outreach of the financial sector in terms of access to banks' physical outlets. The data for each of these indicators, across 98 countries in the case of branches and 89 countries in the case of ATMs, are shown in Table I. The indicators of branches and ATMs per square kilometers help characterize the geographic penetration of the banking sector. They can be also interpreted as proxies for the average distance of a potential customer from the nearest physical bank outlet. Higher geographic penetration would thus indicate smaller distance and thus easier geographic access. Per capita measures of branches and ATMs are used to capture the demographic penetration of the banking sector. They proxy for

[7] In previous versions of the paper, we reported combined indicators, such as principal component indicators combining the geographic and demographic penetration of branches or ATMs and residuals of a regressions of branches/ ATMs on area and population. However, unlike the indicators presented here, they are hard to interpret and imply certain assumptions about the importance of each dimension of outreach.

the average number of people served by each physical bank outlet. Higher demographic penetration would indicate fewer potential clients per branch or ATM and thus easier access.

Both area- and population-based ratios of the number of branches and ATMs have limitations as indicators of access to physical banking outlets. Most importantly, these measures assume a uniform distribution of bank outlets within a country's area and across its population. However, in reality, in many countries bank branches and ATMs are concentrated in urban areas of the country and are accessible only to individuals living within or close to urban areas.

Indicators (5) through (8) measure the use of banking services. We focus exclusively on bank deposits and loans because these are the main services offered by banks for which we were able to gather information across countries. In particular, we collected information on the number and value of loans for 44 countries, and information on the number and value of deposits for 54 countries. This information is shown in Table II. We interpret higher figures of indicators based on the number of loans and deposits to signal greater use of services. On the other hand, we interpret higher values for the average size of loans or deposits to GDP per capita to indicate that banking services are more limited in use, since they are likely only to be affordable to wealthier individuals or larger enterprises.

Like the branching and ATM indicators, the number and average size of loan and deposit accounts have a number of limitations. Most importantly, one individual or firm may receive more than one loan or have more than one deposit account, so the number of loans and deposit accounts is far from being a perfect proxy of the number of people that use these services in a country. Also, the average size of loans and deposits to GDP per capita might not be representative of the value of services that a typical individual might receive. Nevertheless, we

show below that these indicators are correlated with the underlying statistics we care about – the actual percentage of households and firms that use banking services in a country.

3. Characterizing Access to and Use of Banking Services Across Countries

Notwithstanding the limitations of the indicators presented in the previous section, it is interesting to compare countries across these dimensions. Table III Panel A presents descriptive statistics of all outreach indicators, while Panel B presents correlations.

The number of branches per area varies from less than 0.18 branches per 1,000 square kilometers (the lowest 5th percentile of the distribution) for countries such as Bolivia, Botswana, Guyana, Kazakhstan and Namibia to more than 119.65 branches per 1,000 square kilometers (the top 5th percentile of the distribution) for countries like Bahrain, Belgium, Malta, Netherlands, and Singapore. The median number of branches per 1,000 square kilometers is 4.80, which is representative of the statistics for Estonia and Sweden.

Ethiopia, Honduras, Madagascar, Tanzania, and Uganda have less than 1.24 branches per 100,000 people (bottom 5^{th} percentile), while Austria, Belgium, Portugal, Italy, and Spain are at the top 5th percentile of the distribution with more than 49.74 branches per 100,000 people. The median figure for the number of branches per 100,000 people is 8.42. Indonesia, Turkey, Iran, Colombia, Kuwait and Poland have indicators close to this value. Figures 1 and 2 plot the median geographic and demographic branch penetration, respectively, in five quintiles against GDP per capita. The figure indicates a pattern of increasing branch penetration in more developed countries.

In terms of number of ATMs per area, Tanzania, Zambia, Nepal, Madagascar and Guyana are at the bottom of the distribution with less than 0.26 ATMs per 1,000 square

kilometers, while the countries at the top 5th percentile of the distribution include Korea, Malta, Bahrain, Japan and Singapore with more than 253.12 ATMs per 1,000 square kilometers. The median for the number of ATMs per 1,000 square kilometers is 10.07. The ATM per area indicators for Sri Lanka and Costa Rica are close to this figure.

The number of ATMs per 100,000 people is lowest for countries such as Bangladesh, Nepal, Madagascar, Pakistan and Tanzania, with less than 0.58 ATMs per 100,000. On the other hand, countries such as Canada, Japan, Portugal, Spain and the United States are at the other end of the distribution with more than 101.46 ATMs per 100,000 people. The median value for this indicator is 16.63. Countries such as Mexico, Malaysia, Lebanon, Thailand and Venezuela have ATM per capita indicators close to this value. Figures 3 and 4 show that both geographic and demographic ATM penetration increases with the level of economic development.

The median value of the number of loans per 1,000 people is 80.57 loans per 1,000 people. Indicator values for the number of loans per 1,000 people in Peru, Ecuador, Jordan and Namibia rank close to the median. The lowest 5th percentile of the distribution of the number of loans per capita is 6.35 loans per 1,000 people. This includes countries such as Albania, Uganda and Madagascar. The top 5th percentile of this distribution encompasses countries with more than 700.56 loans per 1,000 people, such as Greece, Israel and Poland.

The median value across countries of the loan-income ratio is 3.75. The figures for Lithuania and Singapore are close to this value. The top 5th percentile for this indicator is 17.91 and includes countries such as Belgium, Madagascar, and Bolivia. On the other hand, the bottom 5th percentile is 0.68 and includes countries such as El Salvador, Turkey and Poland. Figures 5 and 6 indicate that the number of loans per capita increases and the average size of loans decreases as countries grow richer.

In terms of the number of deposits per capita, the median value of this indicator is 528.89 deposit accounts per 1,000 people. Guyana and Venezuela have indicators close to this value. The top 5th percentile of the distribution for this indicator is 2,569.40, (that is, more than 2.5 deposit accounts per capita) which encompasses the values for Austria, Belgium, and Denmark. The bottom 5th percentile has fewer than 61.81 deposit accounts per 1000 people. Bolivia, Madagascar and Uganda are among this group.

For 50 percent of countries in our sample, the deposit-income ratio is below 0.66. The values for Argentina, Turkey and Ecuador are close to this figure. The top 5th percentile for the distribution of the average size of deposits to GDP per capita is 6.40. Indicator values for Zimbabwe, Madagascar, and Lebanon are in the top 5th percentile. On the other hand, values for Russia, Iran and the Dominican Republic fall in the lowest 5th percentile, which includes observations below 0.11. Figures 7 and 8 show the positive (negative) association of deposit accounts per capita (average size of deposits) with economic development.

The positive association between GDP per capita and indicators of the number of branches, ATMs, loans and deposits is confirmed by the correlations shown on Table III Panel B. This table also shows that both loan-income and deposit-income ratios are negatively correlated with GDP per capita, although not significantly in the case of loans. At the same time, Table III Panel B shows that indicators of the number of banking outlets and loan and deposit accounts tend to be positively correlated with each other and negatively correlated with loan-income and deposit-income ratios.

4. Relating Outreach Indicators to Household and Firm Data

How well do our outreach indicators predict the actual use of savings and loan services by household and firms? To a large degree the usefulness of the macro-level banking sector outreach indicators we propose will depend on whether they track the micro data that we ultimately care about. Regressing user-based data from household and firm surveys on our indicators of deposit and loan use, we show the predictive power of our aggregate outreach indicators.[8] Specifically, we use country-level data on the percentage of households that have a bank account constructed from different household surveys and compiled by Claessens (2005) and Gasparini et al. (2005) and country-level data on the share of small firms with bank loans from the World Business Environment Survey (WBES).[9] While the household surveys are based on thousands of observations, WBES samples on average 120 firms per country, 40% of which are small.[10] We therefore expect a much lower degree of precision and predictive power when relating firm-survey based user data to our aggregate indicators than when using household-survey based measures. While we tried different empirical specifications, below we present the model with the highest R^2.

A regression of the share of households with bank accounts (Household share) on the log of number of deposit accounts per 100,000 (Ln deposits per 100,000) and the log of average size of deposits in US dollars (Ln average deposit size) yields the following result (robust standard errors in parentheses):

[8] We are grateful to Patrick Hohonan for this suggestion.
[9] WBES is a database of firm level surveys, which we discuss further in Section 6.1.
[10] Given the small sample size and the size-stratified nature of WBES – 40% small, 40% medium and 20% large enterprises, independent of the actual size distribution -, we focus on the group of firms most likely to be affected by cross-country variation in banking sector outreach. When we use the overall share of firms with bank loans or focus on small and medium enterprises, we obtain similar results, but at lower significance levels and with lower R^2.

Household share = -2.103 + 0.160 Ln deposits per 100,000 + 0.189 Ln average deposit size (1)
(0.278) (0.036) (0.054)

with 19 observations and an R^2 of 88%. Both variables enter significantly at the 1% level. The regression results suggest that a larger number of accounts is positively associated with more households having bank accounts, but in a non-linear way, so that the number of accounts per household increases as well with more deposit accounts. Further, a larger average deposit account balance is positively correlated with more households having bank accounts; this might partially capture the effect of higher incomes as the use of deposit services increases.[11] Table IV, columns 1 and 2, presents both the actual share of households with bank accounts and the predicted share from regression (1).[12] The correlation between the predicted share of household and the actual share of households with bank accounts is 94%.

A regression of the share of small firms with bank loans (Small firm share) on the log of number of loan accounts per 100,000 (Ln loans per 100,000) and the log of average size of loans in US dollars (Ln average loan size) yields the following result (robust standard errors in parentheses):

Small firm share = -0.357 + 0.082 Ln loans per 100,000 + 0.042 Ln average loan size (2)
(0.216) (0.028) (0.025)

with 26 observations and an R^2 of 34%. While the Ln loans per 100,000 is significant at the 1% level, Ln average loan size enters significantly at the 10% level. As in the regressions of the household indicators, both the number of loan accounts per capita and the average size of loans in US dollars enter positively, but in a non-linear manner. Table IV, columns 3 and 4, presents

[11] The average size of deposits to GDP per capita does not enter significantly in the regression.
[12] To avoid that the predicted value falls below zero or above one, we use a tobit regression to predict the share of households with bank accounts. The coefficients and significance levels are almost the same as in the OLS regression.

both the actual share of small firms with bank loans and the predicted share from regression (2).[13] The correlation between the predicted share of household and the actual share of households is 58%. Given the limited sample of firms surveyed by the WBES in each country and the lack of census data on firm financing patterns, the predictive power of aggregate loan use indicators is more limited than in the case of deposit services.

While these are preliminary results that have to be interpreted with caution due to the small number of observations, they show the potential usefulness of our aggregate outreach indicators. In the absence of consistent household- and firm-survey based measures of access to and use of financial services, these outreach indicators can be very useful since they can be used to calculate approximate values.

5. Explaining Outreach

What explains the large variations in outreach indicators across countries? Do institutional quality, regulatory policies, physical infrastructure, and the market structure of the banking system play a role? This section explores the empirical relation between our outreach indicators and an array of potential explanatory variables; Appendix Table A.2 presents descriptive statistics of the different country variables. Table V provides correlations between all of our outreach indicators and the explanatory variables, while Tables VI–IX report regression results of the different outreach indicators on (i) population density, (ii) economic size of the country, and (iii) one country characteristic at a time. In Tables VI-IX, we separate country characteristics by type, distinguishing between those measuring institutional quality (Table VI), credit information sharing and banking freedom (Table VII), banking system structure (Table VIII) and physical infrastructure (Table IX).

[13] As in the case of regression (1), we use a tobit regression to predict the share of small firms with bank loans.

Our estimations yield a number of interesting results. First, we find a strong positive association of higher outreach with the traditional indicators of financial development (Table V).[14] Specifically, we find a positive and significant correlation of private credit to GDP, liquid liabilities to GDP and total deposits to GDP with all our indicators, with the notable exception of loan-income and deposit-income ratios. Also, it does not appear to be the case that greater outreach comes at the expense of higher overhead costs to total assets or higher interest margins.[15]

Second, not surprisingly, we find outreach to be correlated with population density and economic size. In particular, more densely populated countries have higher geographic branch and ATM penetration, while there is no robust correlation with the indicators measuring demographic penetration of bank outlets and the indicators measuring the use of banking services. This is confirmed by the regressions in Tables VI-IX. At the same time, we find that larger economies have higher bank and ATM penetration and show higher use of loan and deposit services. This suggests economies of scale in banking service delivery.[16]

Third, the positive association of institutional and financial development extends to the access to and use of banking services (Table VI).[17] Here we use as one of our measures of institutional quality the Kaufman, Kraay and Mastruzzi (2003) *Governance Index*, which averages six sub-indices measuring rule of law, control of corruption, voice and accountability, political stability, government effectiveness and regulatory quality. Further, we use the Heritage Foundation *Index of Barriers to Economic Freedom* - an average of ten sub-indices including

[14] We do not include the financial sector indicators in the regressions, since unlike for the other variables, there is a strong case for bi-directional causality, which might bias the OLS coefficients and renders interpretation problematic.
[15] This interpretation has to be taken with a grain of salt since the correlations might also indicate that sectors that provide greater outreach are more competitive and therefore margins are lower as a result.
[16] Only when we control for communication infrastructure (Table IX), does economic size turn insignificant.
[17] For an overview of the importance of legal institutions for financial development, see Beck and Levine (2005).

barriers to property rights and barriers to banking freedom - and the *Cost of Contract Enforcement* indicator from the Doing Business database. While higher values of the *Governance Index* indicate a more effective institutional environment, higher values of *Barriers to Economic Freedom* and *Cost of Contract Enforcement* indicate a less developed institutional framework. The correlations suggest a positive relationship between access to and use of banking services and better governance, contract enforcement and economic freedom. These correlations are confirmed for the *Governance Index* by the regressions in Tables VI. The *Governance Index* enters positively and significantly in all but the loan-income ratio regressions. The *Barriers to Economic Freedom* indicator enters negatively and significantly (5% level) only in four of them. Finally, the cost of contract enforcement indicator is negative and significant in only three of the eight regressions. Overall, the Table VI regressions suggest a strong association of better institutional quality with banking sector outreach, but it is more difficult to disentangle the specific elements of the institutional framework that are associated with different dimensions of outreach.

Fourth, there is some indication that more effective credit information sharing and fewer restrictions on banks' activities are associated with better access, while high entry barriers are associated with lower use of lending and deposit services (Table VII). Correlations and regression results suggest that in countries with more effective credit information sharing, banks have relatively more outlets, but do not necessarily extend more loans. The indicator on *Restrictions on Bank Activities* only enters negatively and significantly in the branch penetration regressions, suggesting that banks are less likely to expand their branch network if they are restricted to their core business of deposit taking and lending. The indicator of *Entry into*

Banking Requirements enters negatively and significantly in the regression of loans per capita, providing some evidence that limiting entry results in a lower use of credit services.

Fifth, the *Share of Assets in Government-Owned Banks* is negatively associated with demographic branch and ATM penetration, while more concentrated banking systems provide more outlets and show higher use of deposit services (Table VIII). In spite of the often explicit mandate of government-owned banks to expand outreach, the correlation and regressions suggest that banking systems dominated by government-owned banks actually have less branch and ATM penetration. The *Share of Assets in Foreign-Owned Banks* is not significantly correlated with our outreach indicators. Thus, these regressions do not support frequently upheld views that government-owned banks help improve outreach while foreign-dominated banking sectors might see a worsening of outreach since foreign banks tend to cherry-pick the best and often wealthiest customers. The *Concentration* ratio, finally, is positively correlated with the branch, ATM and the deposit indicators, suggesting that banks in more concentrated banking systems have a higher penetration of physical outlets and extend deposit services to more clients.

Finally, better communication and transport infrastructure is positively associated with access to and use of banking services (Table IX). Better infrastructure reduces the cost of banking service delivery and makes the extension of bank outlets more cost-effective, thus increasing the use of banking services. We use two indicators of physical infrastructure – *Telephone Mainlines per Capita* to proxy for the communication infrastructure and *Rail km per 100 km*^{2} to proxy for the transportation infrastructure.[18] The positive correlation of infrastructure with outreach comes out not only in the correlations in Table V, but also in the regressions of Table IX, where we control for population density and economic size. Specifically *Rail km per*

[18] While the quality of the road network might be more relevant than the rail network, we do not have data on road coverage for a large number of countries. However, for the countries, for which we have data on both road and rail coverage, the correlation between the two measures is 92%, significant at the 1% level.

100 km^2 enters positively and significantly in the branch and ATM penetration and deposit indicator regressions, but not in the two loan indicator regressions. *Telephone Mainlines per Capita* enters significantly in all regressions except for the loan-income ratio regression.

While these correlations and regressions are suggestive of economic relationships between banking system outreach and other country characteristics, they have to be interpreted with caution. In the absence of a more structural model, we are silent on whether our results reflect the effects of demand or supply factors and on the causality chain between banking system outreach and other country characteristics.

6. Banking Sector Outreach and Financing Obstacles of Firms

This section shows that the outreach indicators introduced in this paper are significantly associated with cross-country variations in firm-level survey indicators of financing obstacles. Specifically we show that: (i) our indicators of outreach capture important dimensions of financial sector development beyond financial depth; and (ii) banking system outreach is associated with lower levels of financing obstacles for firms. Given the literature that establishes the importance of relaxing financing obstacles for firm growth,[19] these results also suggest that broader financial sector outreach matters for economic development. Below we introduce the firm-level survey data and the methodology before discussing our empirical findings.

6.1. Firm Survey Data

To assess the relationship between the outreach indicators and firms' financing obstacles, we use data from the World Business Environment Survey (WBES), a unique database of firm-

[19] See for example Beck, Demirguc-Kunt and Maksimovic (2005).

level surveys conducted in 1999 and 2000 for over 10,000 firms in 81 countries.[20] This database has several advantages over other firm-level databases. First, the survey includes a broad variety of firms of different ownership structures, sectors, legal forms, and – most importantly – different sizes; 80% of the surveyed firms are small or medium-sized, with fewer than 500 employees. Second, firm managers were asked about the obstacles they face in their operation and growth, including several questions related to the financial system.

Managers of the surveyed firms were asked to rate how problematic general financing obstacles are for the operation and growth of their firm. Responses varied between a rating of one (no obstacle), two (minor obstacle), three (moderate obstacle) and four (major obstacle). 36% of all firms rate financing as a major obstacle, 27% as moderate, 18% as minor and 19% as no obstacle. In addition to growth obstacles and firm size, the survey also provides general information on firms such as size, sector and ownership.

Self-reported financing obstacles might be subject to biases if slow-growing firms or firms with low efficiency and productivity report higher obstacles. Using the WBES database, Beck, Demirguc-Kunt and Maksimovic (2005) show that firms reporting higher financing obstacles indeed grow more slowly, but that this relationship is not due to reverse causation. Further, as reported in Beck, Demirguc-Kunt and Levine (2004), firm-reported financing obstacles are negatively and significantly correlated with the efficiency of investment, as measured by Wurgler (2000).[21]

While our outreach indicators are available for up to 99 countries and the WBES dataset covers 81 countries, there is no perfect overlap, so that our outreach indicator regression sample contains data for at most 7,000 firms in 71 countries.

[20] For a detailed discussion of the survey see Batra, Kaufmann, and Stone (2002).
[21] This is an investment elasticity that gauges the extent to which a country increases investment in growing industries and decreases investment in declining ones.

6.2. Methodology

To assess the relationship between outreach across countries' and firms' financing obstacles at the country and firm level, we use two different econometric methods. First, for each country, we average firms' responses regarding the magnitude of general financing obstacles they face and we conduct simple OLS regressions of the following form:

$$F_i=\beta_0 + \beta_1 \text{ Outreach}_i + \beta_2 \text{ Private Credit/GDP}_i + \beta_3 X_i + \varepsilon_I \quad (3)$$

where F is the cross-country average of firm's rating of financing obstacles, Outreach is a vector of two of the eight indicators, i is the country index and X is a set of firm-level control variables, averaged at the country level. Specifically, we control for the sample share of small and medium-sized firms, government-owned firms, foreign-owned firms, exporters, manufacturing firms and service sector firms. Since geographic and demographic penetration of bank outlets are complementary measures, we include the two branch or the two ATM indicators in the same regressions.[22] Similarly, we include the two indicators of use of lending services or the two indicators of deposit services together. We control for financial development to assess the independent association of banking system outreach with firms' financing obstacles.

Cross-country regressions have the advantage that we relate our cross-country indicators of banking system outreach to country averages of firm-level data, thus avoiding artificial multiplication of degrees of freedom. The disadvantage is that averaging does not take into account the polychotomous and censored character of financing obstacles. Also, we might lose

[22] As noted above, in previous versions we used principal component indicators, combining two outreach indicators into one. Using principal component indicators confirms the importance of branch and ATM penetration and of the use of loans for lowering firms' financing obstacles. However, this results in a loss of information. We include both indicators to assess whether both dimensions are important or one is more important than the other.

important firm-level information by averaging at the country level and cannot investigate the differential effect of our indicators on firms of different sizes.

Second, to mitigate some of the problems with cross-country regressions and to exploit firm-level variation in financing obstacles, we conduct the following regressions using firm-level data:

$$F_{i,k} = \beta_0 + \beta_1 \text{ Outreach}_i + \beta_2 \text{ Private Credit/GDP}_i + \beta_3 X_{i,k} + \varepsilon_{i,k} \quad (4)$$

where $F_{i,k}$ is the rating of financing obstacles reported by firm k in country i and X is a set of firm-level control variables. These include dummy variables for government-owned and foreign-owned firms, exporters, firms in manufacturing and services (with firms in other sectors captured in the constant) and small or medium-sized firms (with large firms being the omitted category).

Given that financing obstacle is a polychotomous dependent variable with a natural order (where higher values indicate larger financing constraints), we use the ordered probit model to estimate regression (4). We assume that the disturbance parameter ε has normal distribution and use standard maximum likelihood estimation. Since omitted country characteristics might cause error terms to be correlated for firms within countries, we allow for clustered error terms.

6.3. Results

The cross-country results in Table X suggest that firms in countries with higher branch and ATM penetration report facing lower financing obstacles. These indicators enter significantly even after controlling for Private Credit/GDP, a standard indicator of financial intermediary development. These findings suggest that a higher penetration of physical bank outlets both relative to geographic area and relative to the population helps reduce firms´

financing obstacles. Loans per capita enters negatively and significantly at the 10% level in regression (6), but loses significance once we control for financial development. The loan-income ratio enters positively and significantly when we control for Private Credit/GDP. Deposits per capita does not enter significantly in either regression, while the deposit-income ratio only enters significantly when we control for financial development.

The economic effect of outreach on firms' financing obstacles varies across the different indicators. A one standard deviation change in outreach indicators is associated with 0.07, 0.11, 0.05 and 0.16 lower financing obstacles in the case of geographic branch penetration, demographic branch penetration, geographic ATM penetration, and demographic ATM penetration, respectively.[23] This compares to a standard deviation of 0.44 in general financing obstacles across countries. Thus, cross-country results suggest that demographic penetration of bank outlets is somewhat more important than geographic penetration.

The results in Table X also suggest that financial intermediary development is not robustly associated with firms' financing obstacles, once we control for our outreach indicators. While Private Credit/GDP enters significantly and negatively by itself (column 1) and when controlling for indicators of deposit and loan use, it loses significance once we control for branch and ATM penetration indicators. The R^2 statistics suggest that while financial intermediary development and controls for firm characteristics explain 40% of cross-country variation in firms' financing obstacles, and banking system outreach alone explains 28-50% of variation, together the independent variables explain 49-79% of cross-country variation.[24]

[23] We multiply one standard deviation of the respective outreach indicator (Table III) by the Table X coefficient in the regression including Private Credit/GDP. The effect size is larger if we instead use the coefficients from the regressions excluding Private Credit/GDP.

[24] We also experimented with regressions where we include GDP per capita instead of Private Credit/GDP. While it does not enter significantly by itself, the demographic penetration ratios also turn insignificant, as does loans per capita. This result can be explained by the high correlation between GDP per capita and demographic branch and

Firm-level results shown in Table XI largely confirm the cross-country level findings discussed above. Firms in countries with higher penetration of physical bank outlets report facing lower financing obstacles, while there is no significant association between the use of deposit services and financing obstacles. Firms in countries with higher loans per capita also report facing lower financing obstacles, while the loan-income ratio does not enter significantly. These estimations include controls for firm size, ownership and sector of operation. Also, to lessen the problem of repeating observations for the cross-country variables (in particular the access and use indicators), these estimations are conducted allowing for clustered standard errors at the country level.

The firm-level regressions confirm the economically significant effect of increasing outreach on lowering firms' financing obstacles. An increase in the number of branches (ATMs) from the 25th percentile to the 75th percentile decreases the probability that firms rate financing constraints as a major obstacle by over three (eight) percentage points in the case of branches (ATMs) per population and less than one (half) percentage point in case of branches (ATMs) per area. A similar change in the ratio of loans per population decreases the likelihood that finance is rated as a major obstacle by over 8 percentage points. These marginal effects compare to 36% of firms in our sample rating financing as a major obstacle.

In unreported regressions, we also test whether the relationship between our outreach indicators and firms' financing obstacles varies across (i) banking systems with different shares of government-owned banks, and (ii) firms of different sizes.[25] We find that neither the share of government-owned banks nor firm size has a robust impact on the relationship between higher banking sector outreach and lower financing obstacles as reported by firms.

ATM penetration (68% and 78% respectively). Given the high correlation between Private Credit/GDP and GDP per capita (72%), we refrain from including both in the same regression.

[25] These results are available upon request.

To assess the robustness of our results, we conducted additional sensitivity analyses not reported here.[26] First, we controlled for a potential non-linear relationship between outreach indicators and firms' financing obstacles and patterns by including a squared term. This term did not enter significantly.

Second, as the WBES provides survey responses to more detailed questions on financing obstacles, we also estimated the regressions using survey responses on: (i) the extent to which firms report needing special connections to access finance; and (ii) the degree to which access to long-term loans are obstacles to firms' operation and growth. Our main finding that higher penetration of physical bank outlets and more extensive use of loans are associated with lower financing obstacles is confirmed in those estimations.

7. Conclusions

This paper introduces a new set of financial sector outreach indicators – indicators of the access to and use of deposit and lending services. While admittedly crude, they are the first such indicators for a broad cross-section of developed and developing countries. They are an important complement to indicators of the depth and efficiency of financial systems commonly used in the finance literature.

We also show the predictive power of our aggregate measures by relating them to user-based household and firm surveys. In particular, we show that our indicators of deposit and loan use predict the share of households with bank accounts and the share of small firms with bank loans. While preliminary results are based on a limited number of observations, they underline the usefulness of aggregate indicators, especially in the absence of consistent household and firm surveys for a large cross-section of countries.

[26] These results are available upon request.

There is a large variation in outreach across countries. We show that the new outreach indicators are significantly correlated with economic development and with traditional indicators of financial depth, such as private credit, liquid liabilities, and bank deposits to GDP.

In terms of what explains outreach, we find that geographic access to banking services is positively correlated with population density and access to and use of banking services are higher in larger economies, suggesting scale economies in banking service delivery. In addition, our regression analysis suggests that other country characteristics as well as policy variables are also correlated with higher outreach. Specifically, we find that a better communication and transportation infrastructure is associated with greater outreach. Countries with better developed institutions enjoy greater levels of outreach. Effective credit information sharing systems are positively associated with measures of access to bank outlets, while restrictions on banks' activities and entry bank requirements are negatively – albeit less robustly – correlated with outreach.

Finally, we link the new outreach indicators to firms' financing obstacles to assess the potential economic relevance of banking system outreach. Both cross-country and firm-level regressions indicate that firms in countries with higher branch and ATM penetration and more extensive use of loans report lower financing obstacles. The degree of government ownership in banking does not significantly affect the impact of outreach on firms' financing obstacles, and the effect of outreach does not systematically vary across firms of different sizes.

The indicators introduced in this paper should be seen as a first attempt at developing consistent and comparable cross-country indicators of banking system outreach. With these indicators we hope to inform the debate on access to banking services, its effects and its determinants. These indicators and their empirical relationship with desirable outcomes at the

firm, household, and country level will give us insights into the importance of access to financial services for pro-poor economic development. While cross-country evidence suggests a positive relationship between financial intermediary development and poverty alleviation, indicators of financial outreach together with firm and household data will help us disentangle the channels through which finance alleviates poverty.

References

Aghion, Philippe and Patrick Bolton, (1997). A Trickle-Down Theory of Growth and Development with Debt Overhang. *Review of Economic Studies* 64, 151-72.

Aliou, Diagne and Manfred Zeller. (2001). Access to Credit and Its Impact on Welfare in Malawi. International Food Policy Institute, Research Report 16.

Atieno, Rosemary (1999). Access to Credit by Women in Agribusiness Trade: Empirical Evidence on the Use of Formal and Informal Credit Sources in Rural Kenya. Institute for Development Economics. University of Kenya.

Banerjee, Abhijit and Andrew Newman (1993). Occupational Choice and the Process of Development. *Journal of Political Economy* 101, 274-98.

Barth, James, Gerard Caprio and Ross Levine (2004). Bank Regulation and Supervision: What Works Best. *Journal of Financial Intermediation* 13, 2004, 205-248.

Basu, Priya and others (2004). Scaling-up Access to Finance for India's Rural Poor. World Bank. Draft report.

Batra, Geeta, Daniel Kaufmann and Andrew Stone (2003). The Firms Speak: What the World Business Environment Survey Tells Us about Constraints on Private Sector Development. World Bank mimeo.

Beck, Thorsten and Ross Levine (2005). Legal Institutions and Financial Development, in: Claude Menard and Mary Shirley, eds., *Handbook of New Institutional Economics*, Kluwer Dordrecht (The Netherlands)

Beck, Thorsten, Asli Demirguc-Kunt and Ross Levine (2004). Finance, Inequality and Poverty. World Bank Policy Research Working Paper 3338.

Beck, Thorsten, Asli Demirguc-Kunt and Ross Levine (2004). Bank Supervision and Corruption in Lending. World Bank mimeo

Beck, Thorsten, Asli Demirguc-Kunt and Vojislav Maksimovic (2005). Financial and Legal Constraints to Firm Growth: Does Size Matter? *Journal of Finance* 60, 137-77.

Beck, Thorsten, Ross Levine and Norman Loayza (2000). Finance and the Sources of Growth. *Journal of Financial Economics* 58 , 261-300.

Beck, Thorsten and Augusto de la Torre (2005): The Analytics of Access To Finance: Introducing the Access Possibilities Frontier. World Bank mimeo.

Beegle, Kathleen; Rajeev H. Dehejia and Roberta Gatti (2003): Child Labor, Income Shocks

and Access to Credit, World Bank mimeo.

Caskey, John, Clemente Ruíz Durán and Tova Solo (2004). The Unbanked in Mexico and the United States. Paper presented at the International Conference on Access to Finance, Brussels, 28-29, October, World Savings Banks Institute in Association with the World Bank.

Claessens, Stijn (2005). Access to Financial Services: A Review of the Issues and Public Policy Issues. *World Bank Research Observer*, forthcoming.

Demirgüç-Kunt, Asli and Vojislav Maksimovic (1998). Law, Finance, and Firm Growth. *Journal of Finance* 53, 2107-2137.

Francisco, Manuela and Anjali Kumar (2004). Enterprise Size, Financing Patterns and Credit Constraints in Brazil: Analysis of Data from the Investment Climate Assessment Survey, World Bank mimeo.

Galor, Oded and J. Zeira. (1993). Income Distribution and Macroeconomics. *Review of Economic Studies* 60, 35-52.

Gasparini, Leonardo, Federico Gutierrez and Guido Porto (2005): Finance and Credit Variables in Household Surveys of Developing Countries. World Bank mimeo.

Honohan, Patrick (2004a). Financial Development, Growth and Poverty: How Close Are the Links? In Charles Goodhart, ed. *Financial Development and Economic Growth*: Explaining the Links. London: Palgrave.

Honohan, Patrick (2004b). Data on Microfinance and Access: Thinking About What Is Available and What is Needed. World Bank mimeo.

International Monetary Fund (1984). International Financial Statistics.

Kaufman, Kraay and Mastruzzi (2003): Governance Matters III, World Bank mimeo.

Klapper, Leora, Luc Laeven and Raghuram Rajan, (2004). Business environment and firm entry: Evidence from international data, World Bank Policy Research Working Paper, No. 3232.

Kumar, Anjali (2005). *Access to Financial Services in Brazil: A Study*. The World Bank. Washington, D.C.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andre Shleifer (2002). Government Ownership of Commercial Banks. *Journal of Finance* 57, 265-301.

Levine, Ross (2005). Finance and Growth: Theory and Evidence. Forthcoming in Philippe Aghion and Steven Durlauf, eds. *Handbook of Economic Growth*. The Netherlands: Elsevier Science.

Love, Inessa (2003). Financial Development and Financing Constraints: International Evidence from the Structural Investment Model. *Review of Financial Studies 16*, 765-91.

Peachey, Steven, and Alan Roe (2004). Access to Finance, A Study for the World Savings Banks Institute. Oxford Policy Management.

Rajan, Rhaguram and Luigi Zingales (1998). Financial Dependence and Gowth. *American Economic Review* 88, 559-587.

Rajan, Raghuram and Luigi Zingales (2003). *Saving Capitalism from the Capitalists*. Crown Business Division of Random House.

Satta, Tadeo (2002). A Multidimensional Strategy Approach to Improving Small Businesses' Access to Finance in Tanzania. Institute for Development Policy and Management. The University of Manchester.

Schuler, Sidney, Syed Hashemi and Ann Riley (1997), The Influence of Women's Changing Roles and Status in Bangladesh's Fertility Transition: Evidence from a Study of Credit Program and Contraceptive Use. *World Development* 25, 563-575.

World Bank, (2003a). Broadening Access to Financial Services Among the Urban Poor: Mexico City's Unbanked. Draft Final Report, July.

Wurgler, Jeffrey (2000). Financial markets and the allocation of capital. *Journal of Financial Economics* 58, 187-214.

Wydick, Bruce (1999). Credit Access, Human Capital, and Class Structure Mobility. *Journal of Development Studies* 35, 131-152.

TABLE I
Branch and ATM Penetration Across Countries

Geographic branch (ATM) penetration refers to the number of branches (ATMs) per 1,000 square kilometers. Demographic branch (ATM) penetration refers to the number of branches (ATMs) per 100,000 people. Reported indicators are based on data collected via a regulatory survey. The questions asked were as follows: number of Branches – "How many bank branches do deposit money banks have (combined for all banks) in your country?" Number of ATMs – "How many ATMs (automated cash withdrawal machines) are there in your country" Data sources are in Appendix A.1. and A.3. Country ordering for each indicator is included in parentheses; higher numbers reflect lower values of the indicators.

Country	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	GDP per capita
Albania	2.45 (63)	2.11 (85)	2.74 (62)	2.37 (76)	1,933
Argentina	1.40 (76)	10.01 (39)	2.09 (65)	14.91 (50)	3,381
Armenia	8.23 (43)	7.59 (55)	1.49 (68)	1.37 (78)	915
Australia	.77 (83)	29.86 (15)	1.66 (66)	64.18 (14)	26,062
Austria	52.47 (14)	53.87 (2)	84.95 (15)	87.21 (7)	31,202
Azerbaijan	3.90 (54)	4.11 (71)	.	.	865
Bahrain	135.21 (5)	13.48 (31)	269.01 (5)	26.83 (31)	10,791
Bangladesh	47.46 (17)	4.47 (67)	.61 (77)	.06 (89)	376
Belarus	2.28 (67)	4.79 (64)	2.41 (63)	5.06 (67)	1,770
Belgium	181.65 (3)	53.15 (3)	229.28 (6)	67.09 (12)	29,205
Belize	1.67 (73)	14.67 (27)	.	.	3,583
Bolivia	.13 (95)	1.53 (90)	.40 (81)	4.80 (69)	894
Bosnia	3.15 (59)	3.86 (72)	4.38 (58)	5.36 (65)	1,682
Botswana	.11 (97)	3.77 (73)	.27 (84)	9.00 (59)	4,290
Brazil	3.05 (60)	14.59 (28)	3.72 (60)	17.82 (40)	2,788
Bulgaria	9.81 (39)	13.87 (29)	21.09 (34)	29.79 (26)	2,538
Canada	1.56 (74)	45.60 (7)	4.64 (57)	135.23 (1)	26,380
Chile	1.98 (70)	9.39 (43)	5.06 (55)	24.03 (32)	4,591
China	1.83 (71)	1.33 (93)	5.25 (54)	3.80 (70)	1,094
Colombia	3.74 (55)	8.74 (47)	4.10 (59)	9.60 (57)	1,747
Costa Rica	7.52 (45)	9.59 (42)	10.07 (45)	12.83 (52)	4,365
Croatia	18.62 (27)	23.36 (19)	31.96 (27)	40.10 (23)	6,356
Czech Republic	14.73 (29)	11.15 (35)	25.84 (31)	19.57 (37)	8,375
Denmark	47.77 (16)	37.63 (10)	66.51 (18)	52.39 (17)	39,429
Dominican Republic	10.83 (36)	6.00 (60)	27.24 (29)	15.08 (49)	1,821
Ecuador	4.38 (51)	9.30 (44)	2.97 (61)	6.32 (62)	2,066
Egypt	2.45 (63)	3.62 (74)	1.21 (70)	1.78 (77)	1,220
El Salvador	14.58 (30)	4.62 (66)	34.89 (24)	11.07 (56)	2,204
Estonia	4.85 (49)	15.19 (25)	18.43 (36)	57.7 (16)	6,210
Ethiopia	.28 (88)	.41 (98)	.	.	97
Fiji	2.52 (62)	5.51 (62)	5.69 (52)	12.46 (54)	2,696
Finland	3.26 (58)	19.06 (22)	13.55 (41)	79.21 (8)	31,007
France	46.94 (18)	43.23 (8)	76.33 (16)	70.30 (10)	29,267
Georgia	2.32 (66)	3.14 (78)	.86 (75)	1.17 (80)	768
Germany	116.90 (6)	49.41 (6)	144.68 (8)	61.16 (15)	29,081
Ghana	1.43 (75)	1.60 (89)	.	.	375
Greece	25.53 (22)	30.81 (13)	39.39 (22)	47.55 (20)	16,203
Guatemala	11.49 (33)	10.12 (37)	22.93 (32)	20.20 (35)	2,009
Guyana	.12 (96)	3.12 (79)	.25 (85)	6.50 (61)	965
Honduras	.46 (87)	.73 (94)	2.22 (64)	3.56 (72)	1,001
Hungary	31.04 (21)	28.25 (16)	32.30 (25)	29.40 (28)	8,182
India	22.57 (24)	6.30 (59)	.	.	563
Indonesia	10.00 (38)	8.44 (49)	5.73 (51)	4.84 (68)	971
Iran	3.40 (57)	8.39 (50)	.51 (80)	1.25 (79)	2,061
Ireland	13.41 (31)	23.41 (18)	27.78 (28)	48.49 (19)	37,637
Israel	47.82 (15)	14.74 (26)	61.01 (20)	18.81 (38)	16,686
Italy	102.05 (7)	52.07 (4)	131.71 (10)	67.20 (11)	25,429
Japan	34.82 (20)	9.98 (40)	396.98 (4)	113.75 (4)	34,010
Jordan	5.98 (47)	10.02 (38)	5.60 (53)	9.38 (58)	1,858
Kazakhstan	.14 (94)	2.47 (82)	.39 (82)	7.01 (60)	1,995
Kenya	.77 (83)	1.38 (92)	.56 (78)	.99 (81)	434
Korea	65.02 (12)	13.40 (32)	436.88 (3)	90.03 (6)	12,634

TABLE I (Continued)
Branch and ATM Penetration Across Countries

Geographic branch (ATM) penetration refers to the number of branches (ATMs) per 1,000 square kilometers. Demographic branch (ATM) penetration refers to the number of branches (ATMs) per 100,000 people. Reported indicators are based on data collected via a regulatory survey. The questions asked were as follows: Number of Branches – "How many bank branches do deposit money banks have (combined for all banks) in your country?" Number of ATMs – "How many ATMs (automated cash withdrawal machines) are there in your country?" Data sources are in Appendix Tables A.1 and A.3. Country ordering for each indicator is included in parentheses; higher numbers reflect lower values of the indicators.

Country	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	GDP per capita
Kuwait	11.05 (35)	8.27 (51)	26.32 (30)	19.69 (36)	14,848
Kyrgizstan	.82 (82)	3.11 (80)	.	.	344
Lebanon	79.18 (8)	18.01 (24)	73.90 (17)	16.81 (44)	4,224
Lithuania	1.81 (72)	3.39 (75)	15.34 (39)	28.78 (30)	5,273
Madagascar	.19 (92)	.66 (95)	.07 (88)	.22 (86)	323
Malaysia	7.39 (46)	9.80 (41)	12.40 (42)	16.44 (47)	4,164
Malta	375.00 (2)	30.08 (14)	462.50 (2)	37.09 (25)	9,699
Mauritius	71.92 (10)	11.92 (34)	133.00 (9)	22.04 (33)	4,265
Mexico	4.09 (53)	7.63 (54)	8.91 (46)	16.63 (45)	6,121
Namibia	.11 (97)	4.47 (67)	.30 (83)	12.11 (55)	2,312
Nepal	2.96 (61)	1.72 (86)	.15 (86)	.09 (88)	237
Netherlands	163.81 (4)	34.23 (11)	223.02 (7)	46.60 (21)	31,548
New Zealand	4.19 (52)	28.04 (17)	7.53 (47)	50.36 (18)	19,021
Nicaragua	1.29 (77)	2.85 (81)	1.18 (71)	2.61 (75)	748
Nigeria	2.41 (65)	1.62 (88)	.	.	370
Norway	3.41 (56)	22.92 (20)	.	.	48,592
Pakistan	9.10 (41)	4.73 (65)	1.02 (73)	.53 (85)	464
Panama	5.16 (48)	12.87 (33)	6.49 (48)	16.19 (48)	4,328
Papua New Guinea	.20 (91)	1.64 (87)	.	.	617
Peru	.89 (81)	4.17 (70)	1.24 (69)	5.85 (64)	2,247
Philippines	21.40 (25)	7.83 (53)	14.52 (40)	5.31 (66)	989
Poland	10.25 (37)	8.17 (52)	21.72 (33)	17.31 (42)	5,487
Portugal	57.45 (13)	51.58 (5)	121.50 (12)	109.09 (5)	14,665
Romania	13.26 (32)	13.76 (30)	12.02 (43)	12.47 (53)	2,719
Russia	.19 (92)	2.24 (83)	.53 (79)	6.28 (63)	3,022
Saudi Arabia	.56 (86)	5.36 (63)	1.54 (67)	14.70 (51)	8,366
Singapore	636.07 (1)	9.13 (46)	2,642.62 (1)	37.93 (24)	21,492
Slovakia	11.33 (34)	10.28 (36)	32.21 (26)	29.21 (29)	5,922
Slovenia	2.14 (69)	2.19 (84)	64.56 (19)	66.14 (13)	13,383
South Africa	2.22 (68)	5.99 (61)	6.49 (48)	17.50 (41)	3,530
Spain	78.90 (9)	95.87 (1)	104.18 (14)	126.60 (2)	20,343
Sri Lanka	20.41 (26)	6.87 (57)	10.91 (44)	3.67 (71)	965
Sweden	4.74 (50)	21.80 (21)	6.43 (50)	29.56 (27)	33,586
Switzerland	70.54 (11)	37.99 (9)	131.10 (11)	70.60 (9)	42,138
Tanzania	.23 (89)	.57 (96)	.07 (88)	.17 (87)	275
Thailand	8.71 (42)	7.18 (56)	20.69 (35)	17.05 (43)	2,309
Trinidad and Tobago	23.59 (23)	9.22 (45)	52.44 (21)	20.49 (34)	7,769
Turkey	7.81 (44)	8.50 (48)	16.54 (38)	18.00 (39)	3,365
Uganda	.67 (85)	.53 (97)	.90 (74)	.70 (83)	245
Ukraine	.	.	.78 (76)	.93 (82)	1,024
United Kingdom	45.16 (19)	18.35 (23)	104.46 (13)	42.45 (22)	30,278
United States	9.81 (39)	30.86 (12)	38.43 (23)	120.94 (3)	37,388
Uruguay	1.23 (79)	6.39 (58)	.	.	3,308
Venezuela	1.28 (78)	4.41 (69)	4.81 (56)	16.60 (46)	3,319
West Bank-Gaza	18.33 (28)	3.27 (76)	18.17 (37)	3.24 (74)	1,026
Zambia	.21 (90)	1.52 (91)	.09 (87)	.65 (84)	413
Zimbabwe	1.11 (80)	3.27 (76)	1.15 (72)	3.38 (73)	634

TABLE II
Use of Loan and Deposit Services Across Countries

Loan (deposit) accounts per capita refers to the number of loans (deposits) per 1,000 people. Loan (deposit) – income ratio refers to the average size of loans (deposits) per GDP per capita. Reported indicators are based on data collected via a regulatory survey. The questions asked were as follows: Number of Loans – "How many loans are there in your country right now that have been issued by deposit money banks? (Please include loans from deposit money banks to individuals, businesses and others, including home mortgages, consumer loans, business loans, trade loans, student loans, emergency loans, agricultural loans, etc.)" Value of Loans – "What is the total value of these loans? (Please specify currency and units.) Number of Deposits – "How many deposit accounts are there at deposit money banks in your country right now? (Please include all current (checking) accounts, savings accounts and time deposits for businesses, individuals and others.)" Value of Deposits – "What is the total value of these deposits? (Please specify currency and units.)" Data sources are in Appendix Tables A.1 and A.3. Country ordering for each indicator is included in parentheses; higher numbers reflect lower values of the indicators.

Country	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio	GDP per capita
Albania	4.42 (43)	15.41 (4)	161.25 (47)	2.75 (9)	1,933
Argentina	154.19 (16)	1.77 (37)	368.73 (37)	.58 (29)	3,381
Armenia	41.23 (39)	1.93 (34)	111.38 (49)	1.00 (22)	915
Austria	647.64 (4)	1.84 (36)	3,119.95 (1)	.26 (45)	31,202
Bangladesh	54.73 (31)	5.22 (16)	228.75 (43)	1.60 (16)	376
Belgium	59.47 (29)	21.09 (2)	3,080.31 (2)	.38 (41)	29,205
Bolivia	9.53 (41)	27.89 (1)	40.63 (53)	5.81 (5)	894
Bosnia	114.09 (18)	3.19 (24)	429.40 (32)	1.87 (13)	1,682
Brazil	49.59 (35)	6.18 (13)	630.86 (25)	.40 (39)	2,788
Bulgaria	73.85 (26)	4.24 (20)	1,351.37 (16)	.26 (45)	2,538
Chile	417.74 (8)	1.60 (38)	1,044.82 (22)	.46 (34)	4,591
Colombia	.	.	612.21 (26)	.42 (37)	1,747
Czech Republic	.	.	1,922.83 (9)	.42 (37)	8,375
Denmark	450.99 (7)	2.09 (33)	2,706.07 (3)	.22 (49)	39,429
Dominican Republic	50.10 (34)	6.71 (11)	719.52 (24)	.10 (52)	1,821
Ecuador	77.09 (25)	2.63 (29)	419.54 (34)	.63 (28)	2,066
El Salvador	126.89 (17)	.39 (43)	456.69 (30)	.12 (51)	2,204
Fiji	67.09 (28)	4.75 (18)	444.42 (31)	1.13 (21)	2,696
France	.	.	1,800.84 (11)	.40 (39)	29,267
Greece	776.48 (1)	.83 (41)	2,417.64 (5)	.29 (43)	16,203
Guatemala	45.79 (38)	3.19 (24)	403.54 (35)	.55 (30)	2,009
Guyana	.	.	571.03 (27)	1.37 (18)	965
Honduras	67.27 (27)	6.13 (14)	287.27 (41)	.74 (25)	1,001
Iran	48.19 (36)	2.91 (27)	2,249.28 (6)	.04 (54)	2,061
Israel	709.90 (3)	1.58 (39)	.	.	16,686
Italy	328.15 (11)	2.35 (32)	975.64 (23)	.47 (33)	25,429
Jordan	80.39 (23)	8.20 (9)	465.48 (29)	1.41 (17)	1,858
Kenya	.	.	69.98 (51)	6.26 (4)	434

TABLE II (Continued)
Use of Loan and Deposit Services Across Countries

Loan (deposit) accounts per capita refers to the number of loans (deposits) per 1,000 people. Loan (deposit) – income ratio refers to the average size of loans (deposits) per GDP per capita. Reported indicators are based on data collected via a regulatory survey. The questions asked were as follows: Number of Loans – "How many loans are there in your country right now that have been issued by deposit money banks? (Please include loans from deposit money banks to individuals, businesses and others, including home mortgages, consumer loans, business loans, trade loans, student loans, emergency loans, agricultural loans, etc.)" Value of Loans – "What is the total value of these loans? (Please specify currency and units.) Number of Deposits – "How many deposit accounts are there at deposit money banks in your country right now? (Please include all current (checking) accounts, savings accounts and time deposits for businesses, individuals and others.)" Value of Deposits – "What is the total value of these deposits? (Please specify currency and units.)" Data sources are in Appendix Tables A.1 and A.3. Country ordering for each indicator is included in parentheses; higher numbers reflect lower values of the indicators.

Country	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio	GDP per capita
Lebanon	93.42 (20)	9.13 (7)	382.53 (36)	6.65 (3)	4,224
Lithuania	58.86 (30)	3.65 (23)	1,166.45 (19)	.21 (50)	5,273
Madagascar	4.38 (44)	18.35 (3)	14.46 (54)	9.31 (1)	323
Malaysia	328.97 (10)	2.95 (26)	1,250.10 (17)	.92 (23)	4,164
Malta	407.21 (9)	6.24 (12)	2,495.81 (4)	1.22 (20)	9,699
Mauritius	207.13 (15)	2.75 (28)	1,585.99 (14)	.53 (31)	4,265
Mexico	.	.	309.57 (39)	.46 (34)	6,121
Namibia	80.74 (22)	5.16 (17)	422.96 (33)	1.27 (19)	2,312
Nicaragua	95.61 (19)	2.49 (30)	96.12 (50)	4.70 (7)	748
Norway	.	.	1,610.78 (13)	.23 (48)	48,592
Pakistan	21.93 (40)	14.26 (5)	191.84 (45)	2.63 (10)	464
Panama	297.84 (12)	5.32 (15)	.	.	4,328
Papua New Guinea	.	.	119.77 (48)	2.48 (11)	617
Peru	77.92 (24)	2.45 (31)	316.19 (38)	.74 (25)	2,247
Philippines	.	.	302.05 (40)	1.77 (14)	989
Poland	773.87 (2)	.33 (44)	.	.	5,487
Romania	.	.	1,207.88 (18)	.25 (47)	2,719
Russia	54.11 (32)	4.23 (21)	1,892.28 (10)	.07 (53)	3,022
Saudi Arabia	47.45 (37)	7.73 (10)	214.13 (44)	2.28 (12)	8,366
Singapore	513.23 (6)	3.84 (22)	1,670.88 (12)	1.62 (15)	21,492
Spain	556.48 (5)	1.91 (35)	2,075.96 (7)	.44 (36)	20,343
Switzerland	.	.	1,985.84 (8)	.29 (43)	42,138
Thailand	247.87 (14)	4.56 (19)	1,423.12 (15)	.83 (24)	2,309
Trinidad and Tobago	.	.	1,073.48 (21)	.35 (42)	7,769
Turkey	264.51 (13)	.65 (42)	1,114.23 (20)	.68 (27)	3,365
Uganda	5.79 (42)	10.74 (6)	46.64 (52)	3.93 (8)	245
Venezuela	93.04 (21)	1.02 (40)	486.74 (28)	.48 (32)	3,319
West Bank-Gaza	50.15 (33)	8.25 (8)	253.99 (42)	4.91 (6)	1,026
Zimbabwe	.	.	173.56 (46)	7.98 (2)	634

TABLE III
Outreach Indicators: Descriptive Statistics and Correlations

Panel A: Descriptive Statistics

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Number of Responses	98	98	89	89	44	44	54	54
Mean	29.89	13.80	74.94	28.11	198.53	5.64	943.94	1.61
Standard deviation	79.41	15.98	289.57	32.21	222.83	5.79	858.27	2.14
Minimum	.11	.41	.07	.06	4.38	.33	14.46	.04
5^{th} percentile	.18	1.24	.26	.58	6.35	.68	61.81	.11
Median	4.80	8.42	10.07	16.63	80.57	3.75	528.89	.66
95^{th} percentile	119.65	49.74	253.12	101.46	700.56	17.91	2,569.40	6.40
Maximum	636.07	95.87	2,642.62	135.23	776.48	27.89	3,119.95	9.31

Panel B: Correlation Among Outreach Indicators and with Economic Development

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Demographic branch penetration	.292***							
Geographic ATM penetration	.896***	.084						
Demographic ATM penetration	.216**	.784***	.186*					
Loans per capita	.326**	.506***	.273*	.583***				
Loan-income ratio	.017	-.103	-.034	-.171	-.446***			
Deposits per capita	.391***	.678***	.235*	.717***	.682***	-.196		
Deposit-income ratio	-.059	-.304**	-.033	-.360***	-.320**	.618***	-.500***	
GDP per Capita	.284***	.684***	.234**	.780***	.605***	-.103	.685***	-.311**

Table IV
Predicting Use of Financial Services with Outreach Indicators

Column (1) presents the share of households with bank accounts, using data from Claessens (2005) and Gasparini et al. (2005). Column (2) presents the predicted share of households with bank accounts calculated using the coefficients from the regression of column 1 on the log of deposit accounts per 100,000 and the log of average deposit account size in US dollars. Column (3) presents the share of surveyed small firms (firms with 5 to 50 employees) with bank loans, using data from WBES, and column (4) the predicted value of the share of small firms with bank loans based on the log of loan accounts per 100,000 and the log of average loan account size in US dollars.

	Household share with bank account (1)	Predicted household share (2)	Small firms with bank loans (3)	Predicted small firm share (4)		Household share with bank account (1)	Predicted household share (2)	Small firms with bank loans (3)	Predicted small firm share (4)
Albania		.335	.038	.200	Lebanon		.786		.456
Argentina		.280	.536	.415	Lithuania		.353	.198	.387
Armenia	.089	.025	.000	.254	Madagascar		.001		.131
Austria	.814	.879		.634	Malaysia		.600	.520	.510
Bangladesh		.037	.111	.281	Malta		.905		.598
Belgium	.927	.922		.542	Mauritius		.537		.469
Bolivia		.121	.500	.251	Mexico	.250	.319		
Bosnia		.392		.385	Namibia	.284	.377		.392
Brazil	.427	.259	.280	.368	Nicaragua	.047	.177	.357	.324
Bulgaria	.002	.277	.156	.380	Norway		.837		
Chile		.459	.690	.507	Pakistan	.122	.101	.222	.260
Colombia	.412	.178			Panama			.538	.529
Czech Republic		.651			Papua New Guinea		.078		
Denmark	.991	.871		.620	Peru		.224	.600	.355
Dominican Republic		.022	.619	.354	Philippines		.226		
Ecuador	.161	.222	.412	.353	Poland			.280	.495
El Salvador		.020	.469	.313	Romania		.265		
Fiji		.391		.380	Russia		.134	.195	.362
France	.963	.863			Saudi Arabia		.621		.423
Greece	.789	.746		.585	Singapore		.977	.600	.631
Guatemala	.178	.187	.524	.318	Spain	.916	.837	.565	.604
Guyana	.137	.274			Switzerland		.879		
Honduras		.079	.441	.347	Thailand		.491		.479
Iran		.039		.319	Trinidad and Tobago		.508		
Israel				.607	Turkey		.485	.456	.415
Italy	.704	.775	.545	.580	Uganda		.003		.129
Jordan		.370		.402	Venezuela		.283	.323	.348
Kenya	.100	.094			West Bank-Gaza		.397		.338
					Zimbabwe		.337		

TABLE V
Correlation of Outreach Indicators with Other Country Characteristics

Pairwise correlation coefficients between Table I and II outreach indicators and country characteristics. Summary statistics are in Appendix Table A.2 and definitions and data sources are in Appendix Tables A.1 and A.3. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio	GDP per capita
Population Density	.882***	.000	.969***	.043	.230	-.037	.156	.005	.121
Ln (GDP)	.119	.533***	.108	.619***	.459***	-.258*	.508***	-.441***	.635***
Telephone Mainlines per Population	.338***	.717***	.251**	.800***	.746***	-.265*	.820***	-.449***	.894***
Rail Km per Sq Km	.681***	.517***	.597***	.489***	.389**	.022	.640***	-.328*	.549***
Governance Index	.350***	.655***	.284***	.747***	.685***	-.166	.751***	-.428***	.815***
Barriers to Economic Freedom	-.315***	-.552***	-.276***	-.628***	-.511***	.027	-.414***	.277**	-.694***
Cost to Enforce Contract (Percent of Debt)	-.147	-.295***	-.134	-.362***	-.345**	.075	-.452***	.207	-.344***
Credit Information Index	.162	.430***	.096	.449***	.286*	-.245	.227	-.355**	.477***
Restrictions of Banks' Activities	-.068	-.412***	-.005	-.340***	-.165	.108	-.338**	.198	-.414***
Entry into Banking Requirements	.096	.034	.079	-.007	-.333**	.179	-.042	.108	-.189*
Share of Assets in Government-Owned Banks	-.136	-.182	-.104	-.211*	.037	.010	-.115	-.129	-.225**
Share of Assets in Foreign-Owned Banks	-.075	-.197*	-.106	-.213*	-.247	.161	-.203	.104	-.299***
Concentration	.207**	.098	.184*	.042	.137	.053	.306**	-.092	.076
Private Credit / GDP	.373***	.576***	.298***	.642***	.572***	-.035	.637***	-.225	.719***
Liquid Liabilities / GDP	.400***	.353***	.339***	.425***	.494***	.010	.542***	-.099	.468***
Total Deposits / GDP	.548***	.540***	.339***	.349***	.383**	.068	.494***	.035	.501***
Overhead Costs / Total Assets	-.294***	-.274***	-.239**	-.313***	-.316**	-.220	-.377***	-.001	-.400***
Net Interest Margin	-.286***	-.399***	-.218**	-.444***	-.431***	-.101	-.493***	.255*	-.512***

TABLE VI
What Explains Outreach? Institutional Quality Indicators

OLS estimation with robust standard errors performed: *Indicator = β_0 + β_1(Determinant) + β_2(Ln GDP in US$) + β_3(Population in Thousands per Square Kilometer)*. Definitions and data sources are in Appendix A.3. Robust standard errors are in parentheses. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Governance Index	.018	.095	.029	.216	.168	-.671	.672	-.832
	(.007)***	(.013)***	(.011)***	(.026)***	(.033)***	(1.176)	(.136)***	(.304)***
Ln (GDP in US$)	.000	.022	.009	.054	.034	-.755	.109	-.353
	(.003)	(.007)***	(.005)*	(.013)***	(.012)***	(.452)	(.055)*	(.135)**
Population (in 1000) per Sq Km	.093	-.022	.366	-.027	.007	-.008	-.025	.226
	(.008)***	(.009)**	(.012)***	(.012)**	(.011)	(.291)	(.047)	(.085)**
N	98	98	89	89	44	44	54	54
R-Squared	.82	.50	.96	.65	.53	.07	.61	.28

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Barriers to Economic Freedom	-.016	-.100	-.025	-.219	-.144	-.409	-.377	.640
	(.004)***	(.016)***	(.015)	(.032)***	(.035)***	(1.389)	(.220)*	(.461)
Ln (GDP in US$)	.001	.029	.011	.071	.046	-.870	.191	-.420
	(.002)	(.008)***	(.004)**	(.014)***	(.016)***	(.537)	(.064)***	(.145)***
Population (in 1000) per Sq Km	.094	-.020	.368	-.022	.021	-.236	.062	.134
	(.009)***	(.010)**	(.011)***	(.013)	(.013)*	(.338)	(.073)	(.097)
N	96	96	88	88	43	43	52	52
R-Squared	.80	.43	.96	.56	.39	.06	.33	.20

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Cost to Enforce Contract (Percent of Debt)	.000	-.001	-.001	-.005	-.003	-.033	-.011	.001
	(.000)	(.001)**	(.000)**	(.001)***	(.003)	(.125)	(.007)	(.014)
Ln (GDP in US$)	.006	.045	.013	.103	.059	-1.033	.257	-.611
	(.002)***	(.009)***	(.004)***	(.017)***	(.017)***	(.737)	(.056)***	(.194)***
Population (in 1000) per Sq Km	.090	-.013	.372	-.001	.035	-.140	.060	.072
	(.002)***	(.004)***	(.010)***	(.010)	(.009)***	(.258)	(.027)**	(.058)
N	91	91	83	83	41	41	49	49
R-Squared	.88	.35	.95	.45	.30	.08	.44	.24

TABLE VII
What Explains Outreach? Credit Information Sharing and Banking Freedom

OLS estimation with robust standard errors performed: *Indicator* = β_0 + β_1*(Determinant)* + β_2*(Ln GDP in US$)* + β_3*(Population in Thousands per Square Kilometer)*. Definitions and data sources are in Appendix A.3. Robust standard errors are in parentheses. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Credit Information Index	.003	.018	.006	.040	.026	-.673	.009	-.251
	(.001)**	(.007)**	(.003)**	(.015)***	(.015)	(.436)	(.050)	(.159)
Ln (GDP in US$)	.005	.041	.012	.096	.061	-.953	.301	-.574
	(.001)***	(.009)***	(.004)***	(.017)***	(.018)***	(.578)	(.056)***	(.178)***
Population (in 1000) per Sq Km	.091	-.011	.373	.004	.039	-.141	.077	.062
	(.001)***	(.004)***	(.010)***	(.010)	(.007)***	(.148)	(.026)***	(.051)
N	90	90	82	82	40	40	48	48
R-Squared	.88	.37	.95	.44	.31	.13	.38	.30

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Restrictions of Banks' Activities	-.002	-.017	.002	-.015	.004	-.001	-.051	-.027
	(.001)**	(.006)***	(.003)	(.013)	(.017)	(.446)	(.046)	(.120)
Ln (GDP in US$)	.002	.037	.017	.103	.061	-.843	.185	-.521
	(.003)	(.008)***	(.005)***	(.019)***	(.020)***	(.586)	(.073)**	(.196)**
Population (in 1000) per Sq Km	.098	-.002	.379	.019	.047	-.179	.149	.006
	(.010)***	(.012)	(.002)***	(.018)	(.013)***	(.192)	(.081)*	(.090)
N	84	84	77	77	38	38	47	47
R-Squared	.80	.34	.98	.43	.25	.06	.26	.18

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Entry into Banking Requirements	.003	.010	.004	.006	-.066	.912	-.039	.209
	(.002)*	(.009)	(.003)	(.014)	(.023)***	(.506)*	(.067)	(.173)
Ln (GDP in US$)	.004	.045	.015	.109	.053	-.699	.218	-.462
	(.003)	(.009)***	(.004)***	(.017)***	(.018)***	(.560)	(.060)***	(.145)***
Population (in 1000) per Sq Km	.098	-.004	.378	.017	.053	-.246	.152	-.002
	(.010)***	(.011)	(.002)***	(.018)	(.013)***	(.198)	(.083)*	(.084)
N	86	86	78	78	39	39	49	49
R-Squared	.80	.30	.97	.41	.35	.08	.27	.18

TABLE VIII
What Explains Outreach? Banking System Structure

OLS estimation with robust standard errors performed: *Indicator* = β_0 + β_1*(Determinant)* + β_2*(Ln GDP in US$)* + β_3*(Population in Thousands per Square Kilometer)*. Definitions and data sources are in Appendix A.3. Robust standard errors are in parentheses. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Share of Assets in Government-Owned Banks	-.029	-.184	-.022	-.459	-.098	3.395	-1.069	-.840
	(.015)*	(.066)***	(.035)	(.141)***	(.248)	(7.499)	(.691)	(1.479)
Ln (GDP in US$)	.003	.043	.015	.110	.061	-.957	.225	-.438
	(.003)	(.010)***	(.004)***	(.017)***	(.018)***	(.639)	(.072)***	(.154)***
Population (in 1000) per Sq Km	.097	-.007	.378	.008	.045	-.109	.123	.007
	(.010)***	(.011)	(.002)***	(.018)	(.014)***	(.273)	(.079)	(.097)
N	81	81	74	74	38	38	46	46
R-Squared	.80	.31	.98	.46	.26	.07	.26	.15

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Share of Assets in Foreign-Owned Banks	.004	.012	.016	.060	.142	-2.960	.008	-.494
	(.008)	(.042)	(.016)	(.101)	(.170)	(3.883)	(.445)	(1.118)
Ln (GDP in US$)	.003	.040	.016	.111	.083	-1.569	.198	-.501
	(.002)	(.009)***	(.005)***	(.019)***	(.028)***	(.836)*	(.066)***	(.202)**
Population (in 1000) per Sq Km	.218	.117	.379	.237	.382	-4.195	1.617	-1.131
	(.048)***	(.061)*	(.043)***	(.086)***	(.085)***	(3.939)	(.308)***	(1.307)
N	76	76	70	70	35	35	43	43
R-Squared	.75	.27	.74	.41	.34	.15	.35	.15

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Concentration	.058	.319	.053	.481	.237	.227	2.261	-2.938
	(.021)***	(.091)***	(.038)	(.176)***	(.184)	(4.969)	(.516)***	(1.380)**
Ln (GDP in US$)	.006	.054	.016	.117	.064	-.915	.303	-.599
	(.002)**	(.010)***	(.004)***	(.018)***	(.019)***	(.646)	(.054)***	(.153)***
Population (in 1000) per Sq Km	.095	-.016	.370	-.004	.034	-.193	.032	.142
	(.009)***	(.011)	(.011)***	(.017)	(.013)**	(.260)	(.065)	(.093)
N	96	96	87	87	42	42	52	52
R-Squared	.80	.39	.95	.44	.28	.07	.47	.25

TABLE IX
What Explains Outreach? Physical Infrastructure

OLS estimation with robust standard errors performed: *Indicator* = β_0 + β_1(*Determinant*) + β_2(*Ln GDP in US$*) + β_3(*Population in Thousands per Square Kilometer*). Definitions and data sources are in Appendix A.3. Robust standard errors are in parentheses. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Rail Km per 100 Sq Km Area	.006	.024	.009	.037	.026	.446	.164	-.110
	(.002)***	(.008)***	(.003)***	(.013)***	(.027)	(.748)	(.039)***	(.048)**
Ln (GDP in US$)	.005	.039	.016	.077	.059	-1.863	.218	-.634
	(.002)**	(.014)***	(.006)**	(.023)***	(.019)***	(.891)**	(.062)***	(.233)**
Population (in 1000) per Sq Km	.072	-.125	.088	-.200	-.109	.161	-.772	.199
	(.033)**	(.073)*	(.095)	(.116)*	(.115)	(2.995)	(.210)***	(.634)
N	62	62	58	58	29	29	35	35
R-Squared	.60	.40	.53	.40	.30	.18	.58	.36

	Geographic branch penetration	Demographic branch penetration	Geographic ATM penetration	Demographic ATM penetration	Loan accounts per capita	Loan-income ratio	Deposit accounts per capita	Deposit-income ratio
Telephone Mainlines per Capita	.103	.480	.141	1.064	.800	-6.389	3.347	-3.356
	(.037)***	(.061)***	(.051)***	(.145)***	(.175)***	(5.063)	(.559)***	(1.053)***
Ln (GDP in US$)	-.003	.011	.006	.031	.009	-.460	.033	-.306
	(.004)	(.007)	(.005)	(.013)**	(.011)	(.405)	(.047)	(.117)**
Population (in 1000) per Sq Km	.093	-.019	.366	-.021	.017	.065	.007	.158
	(.007)***	(.006)***	(.012)***	(.010)**	(.010)*	(.215)	(.036)	(.054)***
N	97	97	88	88	43	43	54	54
R-Squared	.83	.53	.96	.67	.57	.08	.68	.26

TABLE X
Banking System Outreach and Firm Financing Obstacles – Cross Country Results

Financial Obstacle variable based on World Business Environment Survey "Please judge on a four point scale how problematic is financing for the operation and growth of your business: 1) No obstacle 2) Minor obstacle 3) Moderate obstacle 4) Major obstacle" Country score obtained by averaging individual score for each respondent by country. OLS estimation with robust standard errors performed: General Financing Obstacle = β_0 + β_1(Indicator$_1$) + β_2(Indicator$_2$) + β_3(Private Credit/GDP) + β_4(Share of Businesses in Manufacturing Sector among Sample Respondents) + β_5(Share of Businesses in Service Sector among Sample Respondents) + β_6(Share of Foreign Businesses among Sample Respondents) + β_7(Share of Export Businesses among Sample Respondents) + β_8(Share of Businesses Owned by Government among Sample Respondents) + β_9(Share of SMEs among Sample Respondents). Only β_1, β_2 and β_3 shown. Definitions and data sources are in Appendix A.3 Robust standard errors are in parentheses. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Geographic branch penetration		-1.124 (.188)***	-.819 (.280)***						
Demographic branch penetration		-.883 (.331)***	-.674 (.322)**						
Geographic ATM penetration				-.226 (.037)***	-.183 (.055)***				
Demographic ATM penetration				-.624 (.148)***	-.494 (.184)***				
Loans per capita						-.884 (.434)*	.073 (.292)		
Loan-income ratio						.007 (.010)	.018 (.008)**		
Deposits per capita								-.089 (.137)	.181 (.157)
Deposit-income ratio								.014 (.039)	.076 (.033)**
Private credit/GDP	-.382 (.163)**		-.207 (.163)		-.103 (.184)		-.538 (.177)***		-.748 (.204)***
N	73	71	64	64	58	32	28	39	35
R-Squared	.40	.44	.49	.50	.56	.42	.79	.28	.60

TABLE XI
Banking System Outreach and Firm Financing Obstacles – Firm Level Results

Financial Constraint variable based on World Business Environment Survey "Please judge on a four point scale how problematic is financing for the operation and growth of your business: 1) No obstacle 2) Minor obstacle 3) Moderate obstacle 4) Major obstacle" Ordered probit estimation with robust standard errors performed. Additional binary control variables (foreign ownership, government ownership, exporter, manufacturing, services, SME) included in regressions, but coefficients not shown below. Definitions and data sources are in Appendix A.3 Robust standard errors are in parentheses. * Significant at 10% level ** Significant at 5% level *** Significant at 1% level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Geographic branch penetration		-1.352	-1.136						
		(.132)***	(.245)***						
Demographic branch penetration		-.950	-.773						
		(.272)***	(.300)**						
Geographic ATM penetration				-.300	-.279				
				(.020)***	(.048)***				
Demographic ATM penetration				-.728	-.678				
				(.108)***	(.153)***				
Loans per capita						-1.045	-.901		
						(.224)***	(.229)***		
Loan-income ratio						-.002	.006		
						(.008)	(.007)		
Deposits per capita								-.027	.004
								(.115)	(.135)
Deposit-income ratio								.000	.019
								(.022)	(.021)
Private credit/GDP	-.346		-.164		-.070		-.075		-.319
	(.185)*		(.162)		(.162)		(.213)		(.252)
N	6894	7029	6001	6566	5660	3439	2695	3975	3231
Pseudo R-Squared	.02	.03	.03	.04	.04	.04	.04	.02	.02

Table A.1. Indicator Data Appendix

Country	Source	Data Current as of:	Comments
Albania	Regulator Survey	December 2003	
Argentina	Regulator Survey	December 2003	Housing loans, information provided separately, not included
Armenia	Regulator Survey	December 2003	
Australia	Regulator Survey	June 2003	
Austria	Regulator Survey	December 2003	Number of Loans and Value of Deposits reflect domestic loans and deposits only, Value of Loans and Number of Deposits reflects both domestic and foreign loans and deposits
	European Card Review	December 2002	Number of ATMs: European Payment Cards
Azerbaijan	National Bank of Azerbaijan Republic	October 2004	Number of Branches: Bulletin of Banking Statistics - Table 4.1 Number of branches of operating credit organizations
Bahrain	Regulator Survey	December 2002	Number of Branches current as of December 2003. Loan and deposit information for full commercial banks only
Bangladesh	Regulator Survey	December 2003	
Belarus	Regulator Survey	December 2003	
Belgium	Regulator Survey	December 2002	
Belize	Central Bank of Belize	December 2003	Number of Branches: Quarterly Financial Information of Commercial Banks
Bolivia	Regulator Survey	December 2002	Number of Loans actually reflects number of borrowers
	Centro de Estudios Monetarios Latinoamericanos	December 2001	Number of ATMs: Payment System Statistics in Countries of Latin America and the Caribbean 1997-2001 - Table 6: Cash Dispensers, ATMs and EFTPOS Terminals
Bosnia	Regulator Survey	December 2004	
Botswana	Regulator Survey	December 2003	
Brazil	Regulator Survey	June 2003	Number of Loans actually reflects number of borrowers
Bulgaria	Regulator Survey	December 2002	
Canada	Bank for International Settlements	December 2003	Number of Branches: Statistics on Payment and Settlement Systems in Selected Countries Figures for 2003 – Table 5: Institutional Framework
	Canadian Bankers Association		Number of ATMs: ABM Market in Canada, May 2004
Chile	Regulator Survey	December 2003	
China	Regulator Survey	December 2003	
	OTC Reporter	July 2001	Number of ATMs: "High Growth Special Situation" March 24, 2005
Colombia	Regulator Survey	December 2003	
Costa Rica	Centro de Estudios Monetarios Latinoamericanos	December 2001	Number of Branches and Number of ATMs: Payment System Statistics in Countries of Latin America and the Caribbean 1997-2001 Table 4 – Institutional Framework and Table 6 – Cash Dispensers, ATMs and EFTPOS Terminals
Croatia	Regulator Survey	September 2004	
Czech Republic	Regulator Survey	December 2002	
Denmark	Regulator Survey	December 2002	
Dominican Republic	Regulator Survey	December 2004	Number of Loans actually reflects number of borrowers
Ecuador	Regulator Survey	December 2004	
Egypt	Central Bank of Egypt	July 2003	Number of Branches: "Egyptian Banking Sector Reform Policy: Areas of Future Actions"
	Egypt Ministry of Communications and Information Technology		Number of ATMs: "E-Business – A New Way of Doing Business"
El Salvador	Regulator Survey	March 2004	
Estonia	Regulator Survey	December 2004	
Ethiopia	Ethiopian Consulate General California	December 2001	Number of Branches: Country Facts 3.8 Financial Institutions
Fiji	Regulator Survey	December 2003	
Finland	Regulator Survey	December 2003	Number of Branches and Number of ATMs current as of December 2002
France	Regulator Survey	December 2004	Number of ATMs current as of December 2003, Value of Loans, Number of Deposits, Value of Deposits current as of June 2004
Georgia	National Bank of Georgia	February 2005	Number of Branches: Bulletin of Monetary and Banking Statistics January-February 2005, Table 3.1. Financial Institutions
	Penki Koninentai	September 2003	Number of ATMs: Julija Mosina "Lithuanian Representatives Visited Caucasian Countries", September 22, 2003
Germany	Regulator Survey	December 2002	
Ghana	Bank of Ghana	December 2001	Number of Branches: Major Banks Branches Network Nationwide
Greece	Regulator Survey	December 2003	Number of ATMs current as of December 2002, Number of Loans, Value of Loans, Number of Deposits and Value of Deposits current as of January 2003 and reflect loans and deposits to domestic enterprises and households
Guatemala	Regulator Survey	December 2003	
	Centro de Estudios Monetarios Latinoamericanos		Number of Branches: Sistemas de Compensación y Liquidación de Pagos y Valores en Guatemala Junio 2004 – Table A4: Marco Institucional
Guyana	Regulator Survey	December 2003	Number of Deposit Accounts: Payment System Statistics in Countries of Latin America and the Caribbean 1997-2001 – Table 4: Institutional Framework
	Centro de Estudios Monetarios Latinoamericanos	December 1999	
Honduras	Regulator Survey	December 2003	
Hungary	Regulator Survey	December 2003	
	National Bank of Hungary		Number of ATMs: Eva Keszy-Harmath "The Payment Card Business in Hungary 2003"
India	Reserve Bank of India	June 2004	Number of Branches: Trend and Progress of Banking in India 2003-2004 November 29, 2004
Indonesia	Bank Indonesia	December 2001	Number of Branches: Annual Report 2003, Table 8.1
		January 2005	Number of ATMs: Offices of Financial Institutions and Cash Services – ATMs

Table A.1. Indicator Data Appendix (continued)

Country	Source	Data Current as of:	Comments
Iran	Regulator Survey	December 2004	
Ireland	Regulator Survey	December 2004	
Israel	Regulator Survey		
Italy	Regulator Survey	December 2002	
Japan	Regulator Survey	March 2003	
	ATM Marketplace	April 2002	Number of ATMs: Ulric Rindebro "Spain: Ahead of the ATM Curve" April 5, 2002
Jordan	Regulator Survey	December 2002	
Kazakhstan	Bank for International Settlements	December 2002	Number of Branches: Payment Systems in Kazakhstan, Table 5: Institutional Framework Number of ATMs: Payment Cards, Table 2
	National Bank of Kazakhstan	October 2004	
Kenya	Regulator Survey	December 2004	
Korea	Regulator Survey	December 2002	
Kuwait	Regulator Survey	December 2004	
Kyrgizstan	Kyrgizstan Development Gateway	November 2004	Number of Branches: List of Commercial Banks in the Kyrgyz Republic and their Branches
Lebanon	Regulator Survey	December 2003	
Lithuania	Regulator Survey	December 2003	
Madagascar	Regulator Survey	December 2004	
Malaysia	Regulator Survey	December 2003	
Malta	Regulator Survey	December 2003	
Mauritius	Regulator Survey	December 2003	
Mexico	Regulator Survey	December 2002	
Namibia	Regulator Survey	December 2003	
Nepal	Nepal Rastra Bank	October 2001	Number of Branches: Banking and Financial Statistics No. 43, Commercial Banks B9
	Nepal News	August 2003	Number of ATMs: Binam Raj Ghimire "ATMs vs. Tellers: ATMs in Nepali Banks"
Netherlands	Regulator Survey	December 2002	
New Zealand	Regulator Survey	March 2003	
	New Zealand Bankers' Association	December 2003	Number of Branches and Number of ATMs: Comparison of Payment Methods (Non-Cash) 2000-2004
Nicaragua	Regulator Survey	December 2004	
Nigeria	Central Bank of Nigeria	December 2003	Number of Branches: Major Economic, Financial and Banking Indicators, Table 2 – Financial and Banking Indicators
Norway	Regulator Survey	December 2003	
Pakistan	Regulator Survey	December 2004	
Panama	Regulator Survey	December 2004	
Papua New Guinea	Regulator Survey	December 2004	
Peru	Regulator Survey	December 2003	
Philippines	Regulator Survey	December 2002	
Poland	Regulator Survey	December 2003	
Portugal	Regulator Survey	December 2003	
Romania	Regulator Survey	December 2004	
Russia	Regulator Survey	December 2003	
	Central Bank of the Russian Federation	December 2002	Number of ATMs: Russian Payment System
Saudi Arabia	Regulator Survey	December 2003	
Singapore	Regulator Survey	January 2005	Number of loans actually reflects number of borrowers
Slovak Republic	Regulator Survey	December 2003	
Slovenia	Regulator Survey	December 2003	
South Africa	Regulator Survey	December 2002	
Spain	Regulator Survey	December 2003	
Sri Lanka	Central Bank of Sri Lanka	December 2003	Number of Branches and Number of ATMs: Annual Report 2003 Section 10.8 and Table 10.12
Sweden	Regulator Survey	December 2003	Number of Branches, Number of ATMs, Number of Deposits and Value of Deposits current as of December 2002
Switzerland	Regulator Survey	December 2002	
Tanzania	Regulator Survey	December 2003	
	Bank of Tanzania	November 2004	Number of Branches: Registered Commercial Banks
Thailand	Regulator Survey	December 2004	
Trinidad and Tobago	Regulator Survey	December 2003	
Turkey	Regulator Survey	December 2003	
Uganda	Regulator Survey	September 2004	
Ukraine	US & Foreign Commercial Service	February 2001	Number of ATMs: Olena Stephanska, David Hunter and Bela Babus "Card Payment Systems in Ukraine"
United Kingdom	Regulator Survey	December 2002	Number of Branches and Number of ATMs current as of December 2001
United States	Federal Deposit Insurance Corporation	June 2004	Number of Branches (FDIC-insured only): "Branching Continues to Thrive as the US Banking System Consolidates" October 20, 2004
	American Bankers Association	December 2002	Number of ATMs: ATM Fact Sheet

Table A.1. Indicator Data Appendix (continued)

Country	Source	Data Current as of:	Comments
Uruguay	Banco Central de Uruguay	September 2004	Number of Branches: Superintendencia de Instituciones de Intermediación Financiera Red Física de las Empresas de Intermediación Financiera Número de Sucursales
Venezuela	Regulator Survey	December 2004	
	Centro de Estudios Monetarios Latinoamericanos	December 2001	Number of ATMs: Payment System Statistics in Countries of Latin America and the Caribbean 1997-2001 – Table 6: Cash Dispensers, ATMs and EFTPOS Terminals
West Bank and Gaza	Regulator Survey	April 2005	
Zambia	Regulator Survey	December 2003	
Zimbabwe	Regulator Survey	December 2004	Number of ATMs current as of April 2005

TABLE A.2
Financial, Economic and Geographic Country Characteristics– Summary Statistics

Definitions and data sources in Table A.3.

Variable	Mean	Median	Standard Deviation	Minimum	Maximum	N
Population Density	195.64	74.52	667.66	2.45	6,967.21	115
Ln (GDP)	24.28	23.99	2.06	20.42	30.02	115
Telephone Mainlines per Capita	.22	.14	.21	.00	.74	114
Rail Km per 100 Sq Km Area	2.70	1.66	2.95	.05	12.29	73
GDP per Capita	8,268.61	2,453.97	11,736.27	96.74	48,591.84	115
Governance Index	.06	-.17	.92	-1.59	1.92	115
Barriers to Economic Freedom	2.96	3	.68	1.68	4.63	112
Cost to Enforce Contract (Percent of Debt)	23.76	17.60	22.82	4.20	136.50	105
Credit Information Index	3.32	4	2.02	0	6	104
Restrictions of Banks' Activities	5.86	6	2.44	0	12	96
Entry into Banking Requirements	7.33	8	1.29	0	8	98
Share of Assets in Government-Owned Banks	.15	.07	.21	0	.96	91
Share of Assets in Foreign-Owned Banks	.37	.24	.31	0	1	86
Concentration	.68	.66	.19	.25	1	111
Private Credit / GDP	.50	.35	.41	.02	1.63	101
Liquid Liabilities / GDP	.51	.45	.36	.05	1.90	90
Total Deposits / GDP	.61	.43	.63	.00	4.06	101
Overhead Costs / Total Assets	.05	.04	.03	.01	.11	111
Net Interest Margin	.06	.05	.03	.01	.18	111

Table A.3. –Data Appendix – Definition and Sources

Variable	Definition	Source	Date
Population	Total Population	World Bank World Development Indicators	2003
GDP	GDP in US Dollars at Market Exchange Rates	World Bank World Development Indicators	2003
Land Area	Total Land Area in Square Kilometers	World Bank World Development Indicators	2003
Exchange Rate	Market Exchange Rate in US Dollars	International Monetary Fund International Financial Statistics	2003
Population Density	Total Population / Total Land Area	World Bank World Development Indicators	2003
Ln (GDP)	Natural Log of GDP in US Dollars at Market Exchange Rates	World Bank World Development Indicators	2003
Telephone Mainlines per Capita	Total Telephone Mainlines / Total Population	World Bank World Development Indicators	2002
Rail Km per 100 Sq Km Area	Total Route Km Rail Lines / Total Land Area in 100 Square Kilometers	World Bank World Development Indicators	2002
GDP per Capita	GDP in US Dollars at Market Exchange Rates / Total Population	World Bank World Development Indicators	2003
Governance Index	Average Score on Six Governance Indicators (Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption) – Data from Surveys of Enterprises, Citizens and Experts. High score corresponds to better governance.	World Bank Aggregate Governance Indicators	2004
Barriers to Economic Freedom	Average Score of 10 Variables Scored on 1-5 Scale, Score Increasing With Barriers, Based on Factors Relating to Property Rights, Banking Freedom, Wages and Prices, Capital Flows and Foreign Investment, Regulation, Informal Market, Trade Policy, Fiscal Burden of Government, Government Intervention in the Economy and Monetary Policy	Heritage Foundation Index of Economic Freedom	2002
Credit Information Index	Scored on 0-6 Scale, Score Increasing with Availability of Credit Information,	World Bank Doing Business Indicators	2004
Restrictions of Banks' Activities	Sum of Restrictions on Banks Owning Real Estate, Insurance, Securities, and Non-Financial Firms	World Bank Bank Regulation and Supervision Database	Published 2004, Data from 2001
Entry into Banking Requirements	Number of Requirements for Banking License (0-8): Draft By-Laws, Organizational Chart, Financial Projection, Financial Information for Main Shareholder(s), Directors' Background and Experience, Managers' Background and Experience, Sources of Funds and Market Differentiation	World Bank Bank Regulation and Supervision Database	Published 2004, Data from 2001
Cost to Enforce Contract (Percent of Debt)	Total Enforcement Cost, Including Legal Fees, Assessment, Court Fees	World Bank Doing Business Indicators	2004
Share of Assets in Government-Owned Banks	Percentage of Banking System Assets in Banks 50%+ Owned by Government	World Bank Bank Regulation and Supervision Database	Published 2004, Data from 2001
Share of Assets in Foreign-Owned Banks	Percentage of Banking System Assets in Banks 50%+ Owned by Foreign Entities	World Bank Bank Regulation and Supervision Database	Published 2004, Data from 2001
Concentration	Assets of Three Largest Banks as Percentage of Total Bank Assets	World Bank Financial Structure and Economic Development Database	5 Year Average 1999-2003
Liquid Liabilities / GDP	Liquid Liabilities as a Share of GDP	World Bank Financial Structure and Economic Development Database	5 Year Average 1999-2003
Total Deposits / GDP	Total Deposits as a Share of GDP	International Monetary Fund International Financial Statistics	2003
Private Credit / GDP	Private Credit by Deposit Money Banks and Other Financial Institutions as a Share of GDP	World Bank Financial Structure and Economic Development Database	5 Year Average 1999-2003
Overhead Costs / Asset Value	Accounting Value of Overhead Costs as a Share of Total Bank Assets	World Bank Financial Structure and Economic Development Database	5 Year Average 1999-2003
Net Interest Margin	Accounting Value of Net Interest Revenue as a Share of Interest-Bearing (Total Earning) Assets	World Bank Financial Structure and Economic Development Database	5 Year Average 1999-2003

Figure 1: Median Geographic Branch Penetration
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

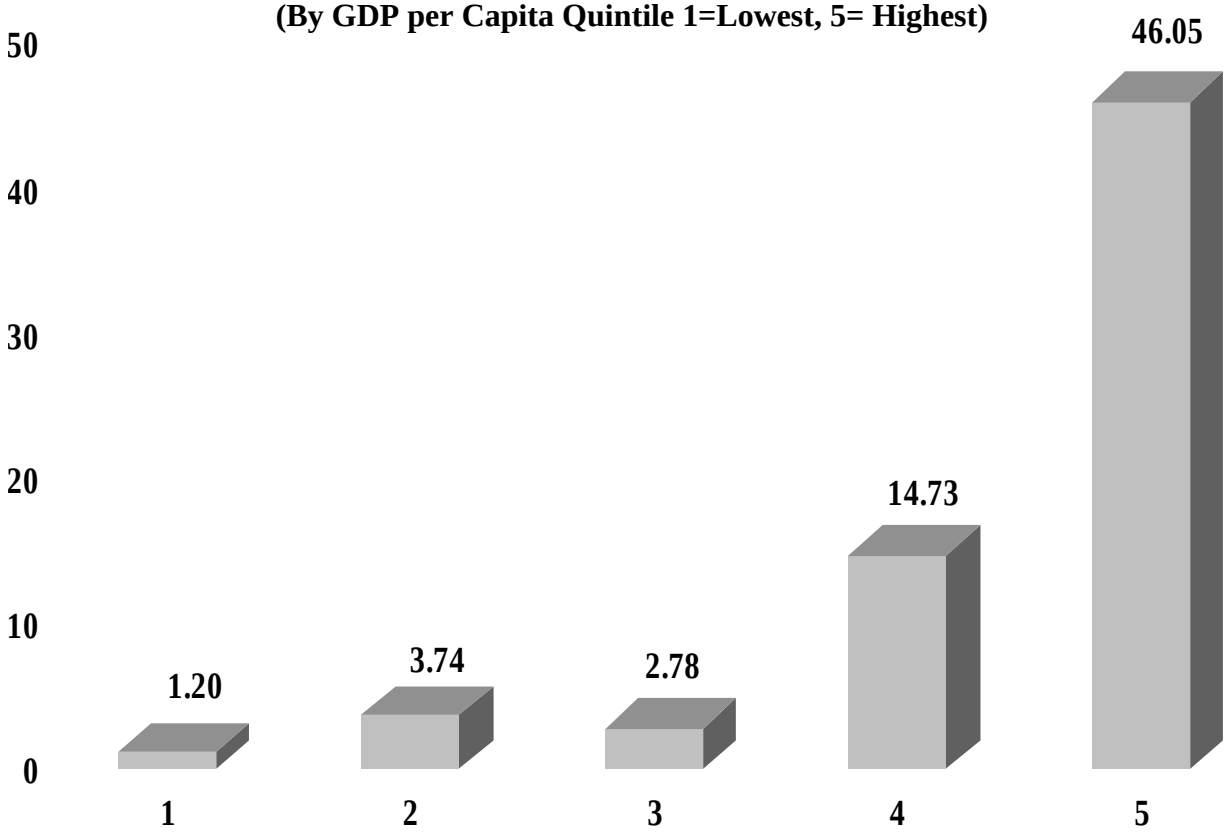


Figure 2: Median Demographic Branch Penetration
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

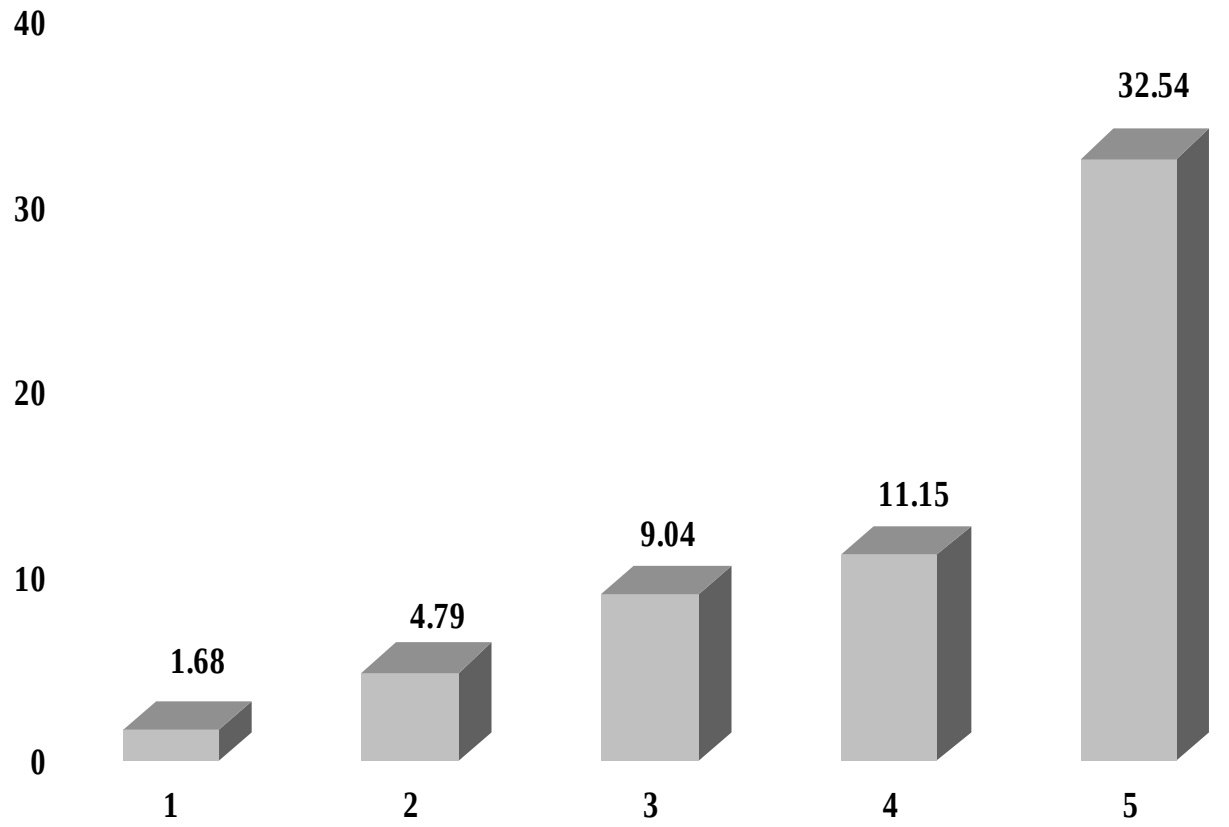


Figure 3: Median Geographic ATM Penetration
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

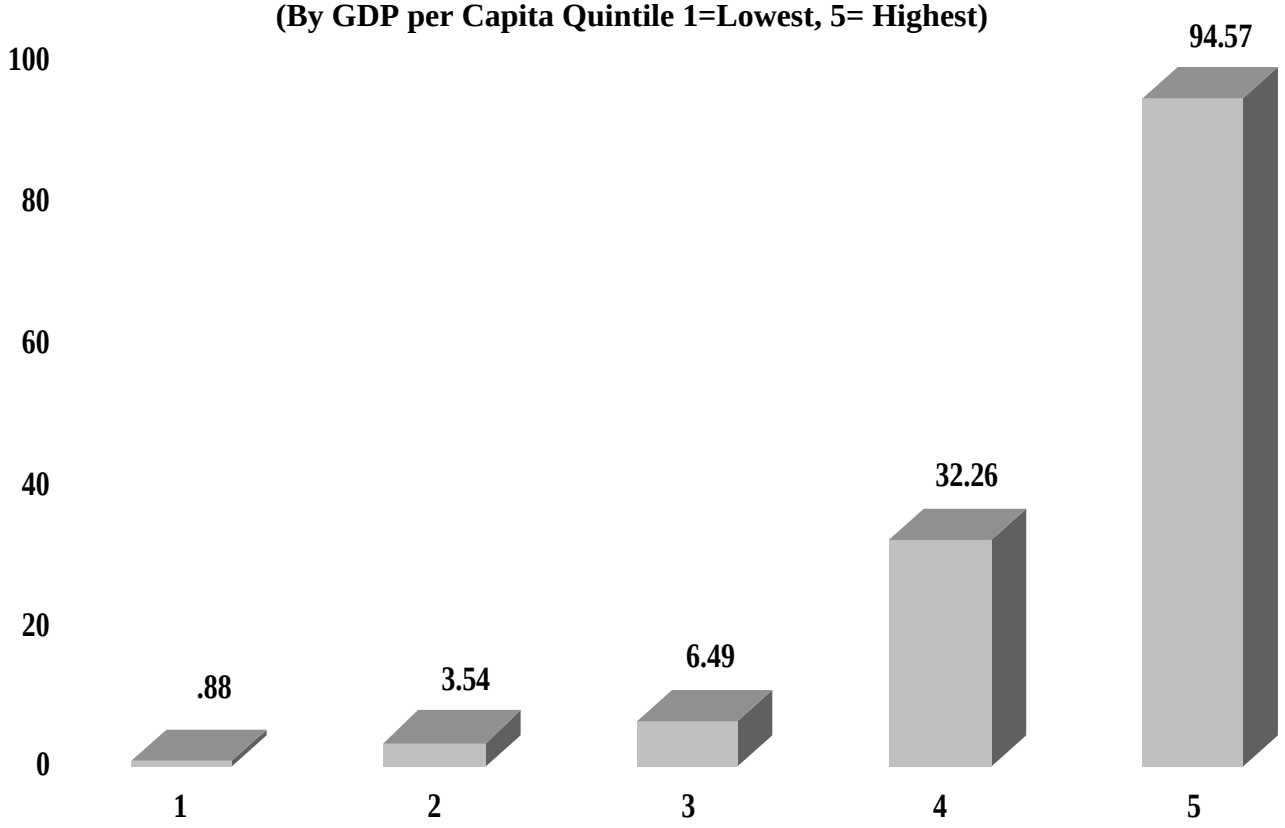


Figure 4: Median Demographic ATM Penetration
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

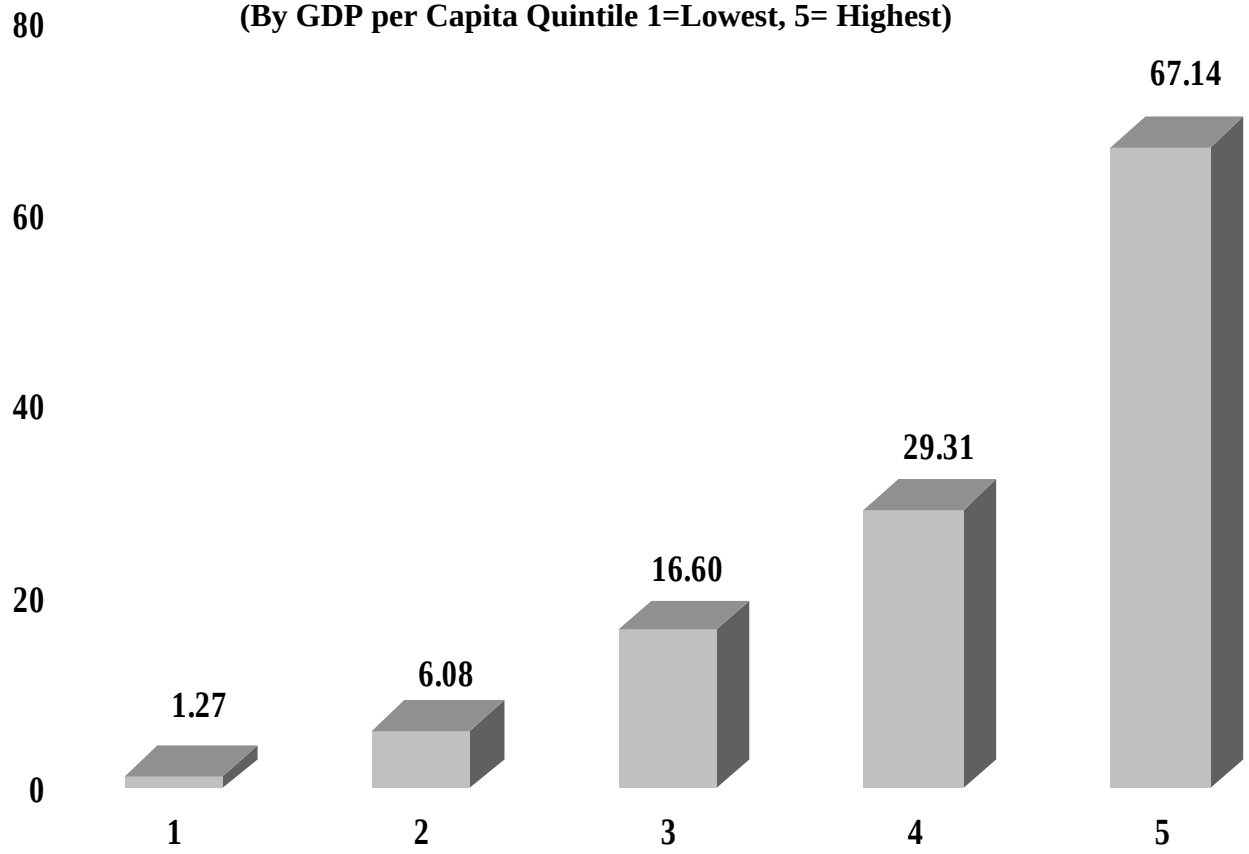


Figure 5: Median Loans per Capita
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

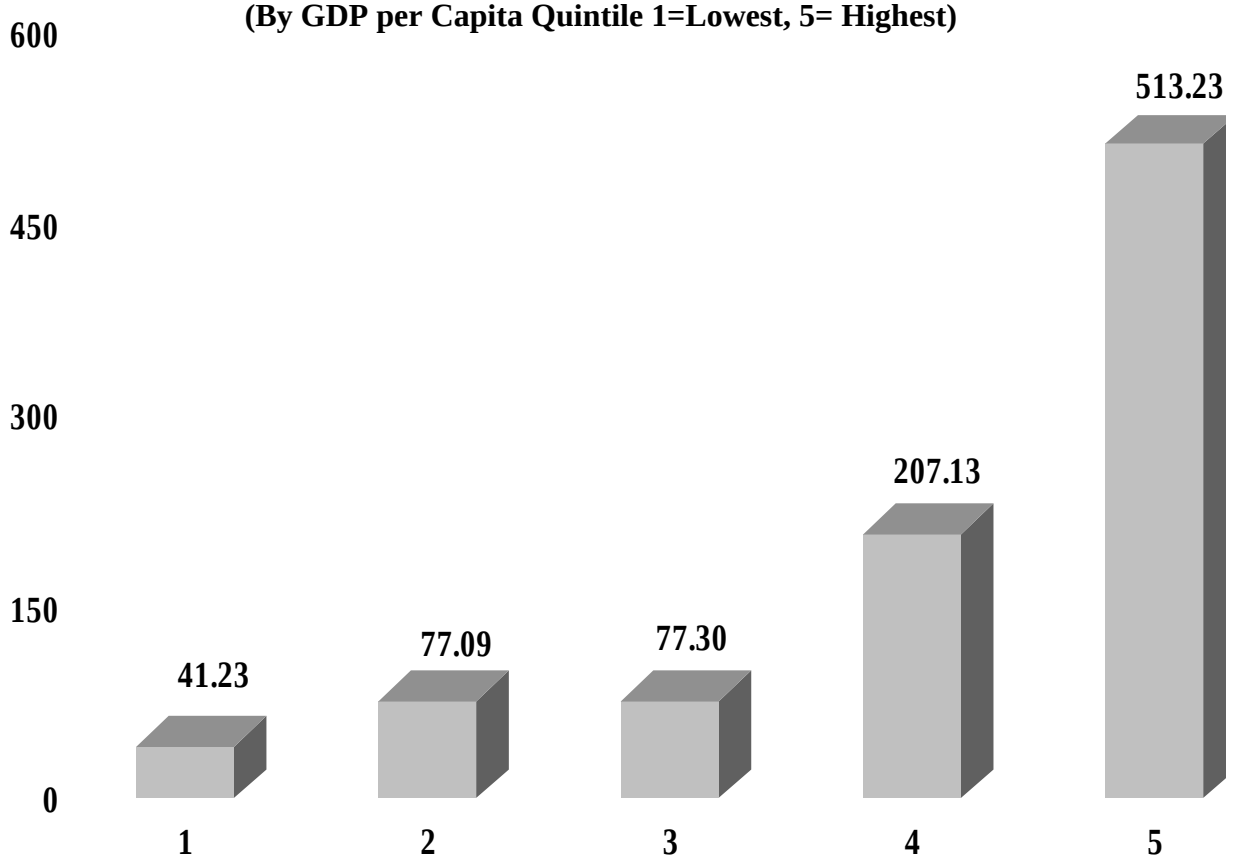


Figure 6: Median Loan-Income Ratio
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

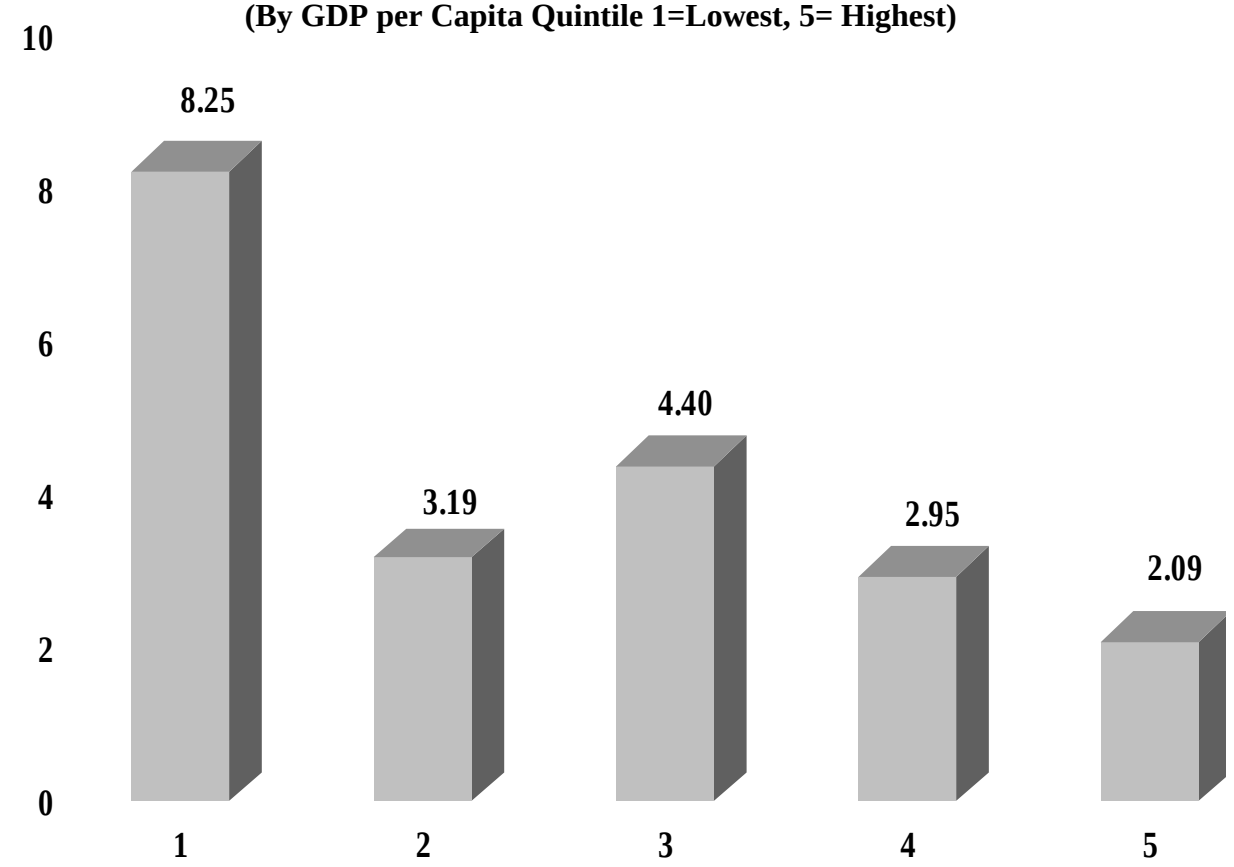


Figure 7: Median Deposits per Capita
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

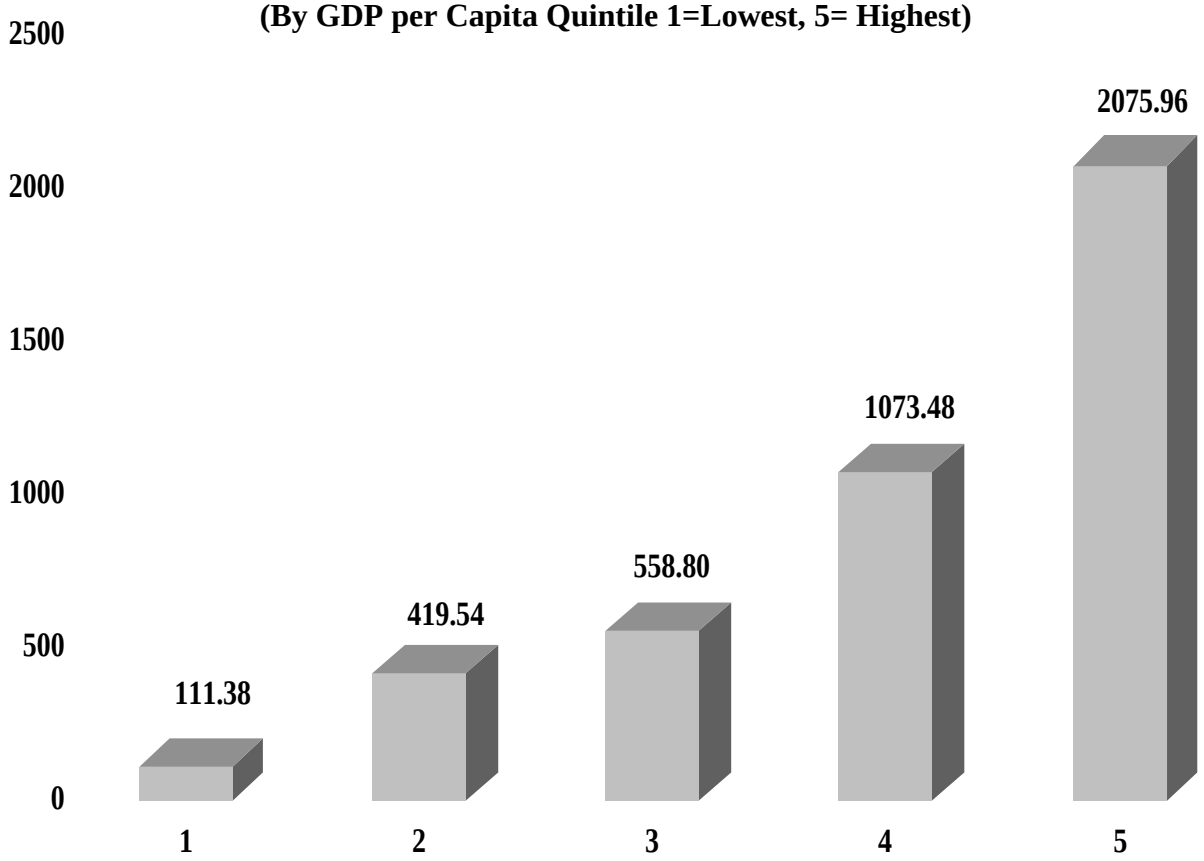


Figure 8: Median Deposit-Income Ratio
(By GDP per Capita Quintile 1=Lowest, 5= Highest)

