

# Banking Services for Everyone? Barriers to Bank Access and Use around the World

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Information from 209 banks in 62 countries is used to develop new indicators of barriers to banking services around the world, show their correlation with measures of outreach, and explore their association with bank and country characteristics suggested by theory as potential determinants. Barriers such as minimum account and loan balances, account fees, and required documents are associated with lower levels of banking outreach. While country characteristics linked with financial depth, such as the effectiveness of creditor rights, contract enforcement mechanisms, and credit information systems, are weakly correlated with barriers, strong associations are found between barriers and measures of restrictions on bank activities and entry, bank disclosure practices and media freedom, and development of physical infrastructure. In particular, barriers are higher in countries where there are more stringent restrictions on bank activities and entry, less disclosure and media freedom, and poorly developed physical infrastructure. Also, barriers for bank customers are higher where banking systems are predominantly government-owned and are lower where there is more foreign bank participation. Larger banks seem to impose lower barriers on customers, perhaps because they are better positioned to exploit economies of scale and scope. JEL codes: G2, G21, O16

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It takes more than \$700 to open a bank account in Cameroon—more than the country's GDP per capita. Fees to maintain a checking account exceed 25 percent of GDP per capita in Sierra Leone. More than four types of documents are required to open a deposit account in Bangladesh. It takes more than 20

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days to process a consumer loan application in Pakistan. It costs \$50 to transfer \$250 internationally in the Dominican Republic. While most people in developed countries take access to banking services for granted, price and nonprice barriers prevent large parts of the population in developing countries from accessing and using formal banking services.

Theory suggests that financial market frictions or barriers that prevent broad access can be a critical mechanism for generating persistent income inequality or poverty traps (Banerjee and Newman 1993; Galor and Zeira 1993). While a large empirical literature has established the importance of banking sector depth for growth of GDP per capita, productivity growth, poverty reduction, and firm growth and entry rates (Demirgüç-Kunt and Maksimovic 1998; Rajan and Zingales 1998; Beck, Levine, and Loayza 2000; Klapper, Laeven, and Rajan 2006; Beck, Demirgüç-Kunt, and Levine 2007), much less is known about the determinants and implications of access to financial services by individuals and firms. This is because data on who has access to financial services and what are the barriers to financial services remain thin and inadequate. This article contributes to closing this gap in the literature.

Using survey data from 209 banks in 62 countries, this article develops new indicators of barriers to access and use of banking services around the world, shows their correlation with existing measures of financial outreach, and explores their association with bank and country characteristics suggested by theory as potential determinants. As expected, barriers are negatively correlated with aggregate indicators of financial outreach and access (such as branches, loans, and deposits per capita and the share of the adult population with access to financial services) and positively correlated with financing obstacles reported by firms. However, some barriers seem to be more constraining than others. Specifically, minimum balances for checking accounts, annual fees, and document requirements associated with these accounts, the number of delivery channels for lending products, minimum amounts for consumer loans relative to GDP per capita, and days to process consumer loans are highly correlated with outreach measures and thus seem to constitute true hurdles to accessing formal banking services. Fees on consumer loans relative to GDP per capita are not consistently correlated with outreach. Similarly, the fees associated with international wire transfers and the use of automatic teller machine (ATM) cards seem orthogonal to most other outreach indicators.

Barriers to banking services could arise from banks' rational business decisions based on their business model, their market position, the level of competition they face, and the macroeconomic, contractual, and regulatory environment in which they operate. Some barriers could thus be seen as "optimal" in a second-best world of deficient contractual, informational, and macroeconomic frameworks. The article explores the association between a set of barrier indicators and bank and country characteristics that proxy for the business model and macroeconomic, contractual, and regulatory frameworks in order to understand which policies might be more effective at reducing these barriers. It finds that while country characteristics commonly linked with financial depth, such as

the effectiveness of creditor rights, contract enforcement mechanisms, and credit information systems, are weakly correlated with barriers, there is a strong association between barriers and measures of restrictions on bank activities and on entry, bank disclosure practices and media freedom, and development of the physical infrastructure. In particular, barriers are higher in countries with more stringent restrictions on bank activities and entry, less disclosure and media freedom, and poorly developed physical infrastructure. Also, bank customers seem to face higher barriers to credit services in banking systems that are predominantly government-owned and lower barriers to deposit services in banking systems with more foreign bank participation. As for bank characteristics, larger banks seem to impose lower barriers on customers, perhaps because they are better positioned to exploit economies of scale and scope.

This article is related to an emerging literature on access to financial services. Most of the existing research and efforts under way focus on country case studies that aim at measuring and analyzing access to financial services at the household or firm level (see Claessens 2006; Claessens and Demirgüç-Kunt 2006). Few studies examine this issue by focusing directly on banking services providers. Beck, Demirgüç-Kunt, and Martínez Peria (2007) present aggregate cross-country data on banking sector outreach (such as branch and ATM penetration, deposits per capita, and loans per capita) and show that these indicators closely track more difficult and costly to collect micro-level statistics of household and firm use of banking services. More directly related to the current article, Genesis (2005) examines the costs of using bank accounts in seven countries (Brazil, India, Kenya, Malaysia, Mexico, Nigeria, and South Africa), but unlike this article, focuses exclusively on deposit service affordability in a small number of countries.

While this article is, to the authors' knowledge, the first systematic effort to document and analyze banking barriers across countries, it is not without limitations. First, the attempt to compare standard products across a broad sample of countries is limited by differences in financial practices. For example, while checking accounts are the prevalent form of transaction account in some countries, savings accounts are in others. Furthermore, even the same type of financial product (for example, a consumer loan) might have different definitions and features in different banks and countries. This problem is difficult to overcome to the extent that countries do not offer standardized products.<sup>1</sup> For that reason barriers are assessed on different deposit and loan products. Second, fees and charges might differ because of differences in the scope and quality of the services provided rather than differences in pricing strategies. Third, the focus is on the largest banks, not on the whole banking system. While a priori this seems a restriction, focusing on the largest banks with the most widespread branching structure captures the barriers encountered by a majority of customers in a

1. The decision was made to collect information on actual barriers as opposed to "hypothetical" ones based on questions on standardized loans and deposits (products with features specified to be the same across countries) that might not exist in all countries.

country. Finally, the survey focuses exclusively on banks, and so the data do not reflect barriers to the use of nonbank financial institutions, such as postal savings banks, finance companies, and microfinance institutions. While these limitations suggest potential areas of improvement and future research, this article is an important first step in creating consistent cross-country indicators of barriers that households and firms face in accessing financial services.

The article is organized as follows. Section I discusses the survey used to collect bank-level information on barriers. Section II presents the barrier indicators and discusses their variation across countries. Section III explores the correlation of these barriers with cross-country indicators of outreach and firms' financing obstacles. Section IV relates the indicators to potential determinants of barriers, as suggested by theory, in particular, the association with features of the institutional, contractual, and regulatory environment and with measures of government and foreign ownership, the development of physical infrastructure, and the extent of information disclosure and media freedom. Section V concludes with some policy implication and areas for further research.

## I. THE SURVEY

The data set is constructed from a web-based survey with 75 questions that was sent to the five largest banks—based on total assets or number of branches—in 115 countries in 2004 and 2005.<sup>2</sup> The largest banks with widespread branching networks were selected in order to focus on the barriers encountered by the average customer in each country. Survey responses were confirmed through extensive follow-up with the banks whenever questions about the responses arose. Some 257 responses were received from banks in 88 countries. To ensure representativeness, analysis is limited to countries where the responding banks constitute at least 30 percent of the market in total loans or deposits or where the responding bank was the largest bank in the economy.<sup>3</sup> That resulted in a sample of 209 banks in 62 countries.

The sample comprises countries across all levels of financial and economic development, as measured by GDP per capita in U.S. dollars and the ratio of private credit to GDP (table 1). Countries range from Ethiopia, with a GDP per capita of about \$100, to Switzerland, with a GDP per capita of more than \$34,000. Mozambique has the lowest level of financial development in the sample, with banking sector credit at 2 percent of GDP, while Denmark and Switzerland rank at the top, with private sector credit exceeding 150 percent of GDP. The sample coverage is geographically balanced, with 15 countries in

2. Data collected from bank regulators and analyzed by Barth, Caprio, and Levine (2004) indicate that on average the five largest banks in more than 100 countries account for 73 percent of bank assets and deposits.

3. BankScope data were used to establish market share. Swaziland is the only country in which the largest bank constitutes less than 30 percent of the market, but even there, the ratio is 29 percent. In Algeria, for which there are also data only for the largest bank, the bank accounts for more than 30 percent of the market.

TABLE 1. Sample of Countries and Number of Banks Responding to Survey, 2004/2005

Country	Private credit to GDP (percent)	GDP per capita (2000 US\$)	Deposit market share (respondents share in system total; percent)	Loan market share (respondents share in system total; percent)	Number of banks that responded
Albania	8.80	1,463.21	91.42	64.24	5
Algeria	10.20	1,991.82	34.43	37.08	1
Armenia	6.10	985.93	59.63	47.28	4
Australia	97.60	22,082.67	32.59	33.59	2
Bangladesh	27.60	401.35	56.98	56.51	5
Belarus	n.a.	1,701.42	74.58	71.63	3
Belgium	71.80	23,213.42	72.56	68.57	3
Bolivia	42.50	1,039.27	58.04	58.87	4
Bosnia and Herzegovina	n.a.	1,410.06	64.04	58.96	4
Brazil	33.80	3,563.52	64.35	48.61	4
Bulgaria	30.50	1,958.16	34.87	31.65	3
Cameroon	8.90	736.71	83.83	81.36	5
Chile	70.40	5,461.71	35.50	36.05	2
Colombia	21.80	2,099.44	50.48	45.65	5
Croatia	52.60	4,933.67	63.42	63.69	4
Czech Rep.	30.30	6,137.49	43.00	43.00	2
Denmark	152.00	30,734.76	72.71	48.81	2
Dominican Rep.	26.40	2,440.57	39.27	42.61	2
Egypt	54.80	1,614.65	32.05	32.08	2
Ethiopia	19.10	131.69	93.73	85.37	4
France	87.60	23,431.63	26.23	30.08	2
Georgia	8.30	879.96	85.71	80.26	5
Germany	112.80	23,705.48	31.91	23.72	3
Ghana	11.60	278.46	69.49	68.72	4
Greece	71.10	11,960.44	56.92	58.36	3
Hungary	43.50	5,453.73	53.09	42.43	3
India	32.70	547.8	36.87	37.75	4
Indonesia	21.20	904.14	44.73	40.38	4
Israel	86.40	17,787.76	36.17	34.75	2
Jordan	68.10	2,000.12	83.61	80.36	3
Kenya	24.50	426.56	43.82	47.61	3
Korea, Rep.	125.40	12,762.22	68.95	73.54	6
Lebanon	n.a.	5,628.37	38.00	38.00	3
Lithuania	22.00	4,481.41	88.87	86.77	5
Madagascar	8.50	229.06	72.44	74.59	5
Malawi	7.80	153.58	82.36	59.73	3
Malta	105.70	9,435.9	44.56	58.34	4
Mexico	15.80	6,055.92	48.95	45.74	3
Moldova	19.20	399.62	40.16	48.32	3
Mozambique	1.90	275.95	48.78	40.34	2
Nepal	n.a.	231.59	37.86	42.40	5
Nigeria	15.90	401.62	32.22	29.31	3

(Continued)

TABLE 1. Continued

Country	Private credit to GDP (percent)	GDP per capita (2000 US\$)	Deposit market share (respondents share in system total; percent)	Loan market share (respondents share in system total; percent)	Number of banks that responded
Pakistan	24.90	566.03	47.50	44.02	3
Peru	18.60	2,206.33	81.88	76.40	4
Philippines	32.50	1,087.92	41.84	43.17	4
Romania	8.50	2,164.64	35.01	24.66	4
Sierra Leone	3.90	209.75	100.00	100.00	4
Slovak Rep.	29.70	4,494.83	58.12	51.93	3
Slovenia	42.10	10,964.99	67.48	70.68	5
South Africa	132.80	3,346.05	70.09	69.39	3
Spain	115.10	15,343.24	63.75	66.73	4
Sri Lanka	28.00	961.61	52.19	51.10	3
Swaziland	n.a.	1,358.05	43.40	29.19	1
Sweden	102.10	28,857.84	39.47	22.43	2
Switzerland	157.30	34,340.34	79.57	59.19	2
Thailand	96.30	2,355.99	38.36	36.16	3
Trinidad and Tobago	38.30	8,501.16	40.15	50.27	3
Turkey	16.90	3,196.86	50.14	38.33	3
Uganda	6.10	262.4	59.27	46.87	3
Uruguay	34.00	5,925.78	48.52	59.16	4
Zambia	6.50	338.66	46.28	34.41	3
Zimbabwe	n.a.	456.69	28.24	43.45	4

*Note:* Variables in the table are defined in table A.1.

*Source:* Authors' analysis bases on data from their 2004/2005 bank survey.

Eastern Europe and Central Asia, 14 in Sub-Saharan Africa, 9 in Western Europe, 9 in Latin America and the Caribbean, 5 in the Middle East and North Africa, 5 in South Asia, 4 in East Asia, and 1 non-European developed country (Australia).

The share of deposits captured by respondent banks exceeds 30 percent in 60 of the 62 countries in the sample, with banks in France and Zimbabwe the exceptions. The share represented by respondents exceeds 30 percent in 57 countries, with banks in Germany, Nigeria, Romania, Swaziland, and Sweden the exceptions. On average across countries, the banks that responded to the survey account for 55 percent of the deposits and 52 percent of the loans in the countries in the sample, based on data from BankScope.

## II. THE INDICATORS

This section presents the main indicators of barriers to banking across countries.<sup>4</sup> Tables 2, 3, and 4 present country-level averages, including

4. Additional indicators are in tables S.A.1–S.A.3 in the supplemental appendix to this article available at <http://wber.oxfordjournals.org/>.

TABLE 2. Barriers to Deposit Services, 2004/2005

Country	Physical access		Affordability			Eligibility Number of documents to open checking account (out of 5)
	Locations to open deposit account (out of 3)	Minimum amount to open checking account (percent of GDP per capita)	Minimum amount to be maintained in checking account (percent of GDP per capita)	Annual fees checking account (percent of GDP per capita)		
Albania	2.73	0.85	0.85	0.19	1	
Armenia	1.81	10.97	10.56	0.35	2.85	
Australia	2.59	0	0	0.16	3	
Bangladesh	2	2.28	2.28	0	4.57	
Belarus	2.71	0	0	0	1.44	
Belgium	2	0	0	0.09	1.8	
Bolivia	2	17.4	25.44	0.83	2.53	
Bosnia and Herzegovina	2.6	0.04	0.19	0.34	1.74	
Brazil	2.44	0	0	0.81	2.67	
Bulgaria	2.02	0.59	0.59	0.14	1.72	
Cameroon	1.88	116.39	55.88	7.87	4	
Chile	2.42	4.33	0	3.38	4.42	
Colombia	1.93	8.78	0	0.78	3.08	
Croatia	2.63	0	0	0.07	2.16	
Czech Rep.	2	0.23	0	0.26	1	
Denmark	2.32	0	0	0.09	1.32	
Dominican Rep.	2.67	2.94	0.58	0.66	2.66	
Egypt	2	0.35	0.18	0.4	n.a.	
Ethiopia	1.92	55.41	n.a.	0	3.77	
France	n.a.	n.a.	n.a.	n.a.	n.a.	
Georgia	2.56	0	0	0.33	1.66	
Germany	2.65	0	0	0.26	n.a.	
Ghana	2.15	22.69	0.09	5.9	3.62	
Greece	1.21	0.64	0.64	0.02	2.53	

(Continued)

TABLE 2. Continued

Country	Physical access		Affordability			Eligibility Number of documents to open checking account (out of 5)
	Locations to open deposit account (out of 3)	Minimum amount to open checking account (percent of GDP per capita)	Minimum amount to be maintained in checking account (percent of GDP per capita)	Annual fees checking account (percent of GDP per capita)		
Hungary	2.53	0.14	0	0.17	1.55	
India	2	8.85	5.83	0	2.69	
Indonesia	2.53	9.54	6.14	2.8	3.18	
Israel	2	0	0	0.04	1.22	
Jordan	1.93	16.55	1.73	0	2.04	
Kenya	2.78	11.71	0	12.82	3.78	
Korea, Rep.	2.11	3.32	0	0.06	1.94	
Lebanon	1.58	4.22	4.22	1.96	2.54	
Lithuania	2.71	0	0	0.01	1.59	
Madagascar	1.95	38.86	0	5.15	2.94	
Malawi	2	0	0	21.98	3.65	
Malta	2	0.22	0	0	3.17	
Mexico	2.18	1.11	0.9	0.43	2.8	
Moldova	3	0	0	0.53	2.31	
Mozambique	2	29.61	14.19	n.a.	1	
Nepal	2.34	90.66	123.77	8.28	4.11	
Nigeria	2.44	106.42	0	0.05	3.66	
Pakistan	2	1.59	0.33	0	2.64	
Peru	2	1.66	0	1.44	2.42	
Philippines	2	14.54	14.54	0	3.17	
Romania	2.3	0.03	0.02	0.4	1.28	
Sierra Leone	1.42	51.63	8.81	26.63	4.02	
Slovak Rep.	2.08	0.12	0.1	0.18	1.47	
Slovenia	1.5	0.01	0.01	0.17	1.88	
South Africa	2.27	0	0	2.13	3.45	
Spain	1.53	0	0	0.19	1	
Sri Lanka	1.8	15.76	4.77	0.73	2.62	



Sweden	1.66	0	0	0	0	1
Switzerland	2	0	0	0.08	1.14	1.23
Thailand	2.48	6.74	0.31	n.a.	1.23	4.29
Trinidad and Tobago	2	1.37	1.28	0.35		
Turkey	2.2	0	0	0.3	3.2	4
Uganda	2	51.12	1.73	24.88		
Uruguay	1.75	1.77	0	2.05	3.28	4.28
Zambia	1.8	0	0	n.a.	4.28	n.a.
Zimbabwe	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Minimum	1.21	0	0	0	0	1
5th percentile	1.53	0	0	0	0	1
Median	2	0.98	0	0.3	2.63	2.57
Average	2.14	12.27	5.02	2.49	2.57	4.28
95th percentile	2.71	60.7	16.72	15.57	4.28	4.57
Maximum	3	116.39	123.77	26.63		

n.a. means not available because the banks that responded to the survey account for less than 30 percent of the market.

*Note:* The table reports several indicators of barriers to the use of deposit services. The indicators are weighted country-level averages, with bank-level data weighted using the share of each bank in the total deposits of all banks that responded. Variables in the table are defined in table A.1. Indicators are not reported for Algeria and Swaziland because they would represent only one bank.

*Source:* Authors' analysis based on data from their 2004/2005 bank survey.

TABLE 3. Barriers to Loan Services, 2004/2005

Country	Physical access		Affordability			Eligibility
	Locations to submit loan applications (out of 5)	Minimum amount consumer loans (percent of GDP per capita)	Fees consumer loans (percent of GDP per capita)	Days to process consumer loan applications		
Albania	2.03	214.29	7.17	9.64	9.64	
Armenia	2	14.74	1.98	4.83	4.83	
Australia	5	7.31	0.52	1	1	
Bangladesh	2.12	25.7	0.23	9.44	9.44	
Belarus	n.a.	3.28	0.89	8.06	8.06	
Belgium	2.45	5.34	0	2.7	2.7	
Bolivia	2.74	109	3.45	5.36	5.36	
Bosnia and Herzegovina	2.73	18.54	1.47	5.36	5.36	
Brazil	4.85	1.96	3.44	1	1	
Bulgaria	3.42	14.24	1.45	4.88	4.88	
Cameroon	2.14	78.53	6.21	4.87	4.87	
Chile	5	8.29	0.88	3.84	3.84	
Colombia	3.47	16.4	0.97	2.51	2.51	
Croatia	3.43	3.9	1.76	2.42	2.42	
Czech Rep.	3.13	10.22	0.7	1	1	
Denmark	5	0	2	0.73	0.73	
Dominican Rep.	4.67	13.02	0.82	1.84	1.84	
Egypt	2.81	5.84	0.01	5.38	5.38	
Ethiopia	2	178.16	0	5.41	5.41	
France	4	n.a.	n.a.	4.87	4.87	
Georgia	2.46	34.53	1.4	3.31	3.31	
Germany	n.a.	n.a.	n.a.	n.a.	n.a.	
Ghana	2.63	111.94	2.04	9.5	9.5	
Greece	5	11.99	2.3	1	1	
Hungary	3.29	4.77	3.71	5.66	5.66	

India	2.44	28.79	1.19	4.17
Indonesia	3.1	31.68	n.a.	4.94
Israel	4.58	n.a.	n.a.	1
Jordan	2.05	147.67	1	2.68
Kenya	3.27	186.42	1.84	2.52
Korea, Rep.	3.78	4.19	0.37	1.88
Lebanon	4.6	32.95	1.05	1.58
Lithuania	4.25	6.31	0.71	2.41
Madagascar	2.16	24.06	2.62	8.55
Malawi	2.12	222.36	1	1.72
Malta	4.2	19.26	0.45	1.34
Mexico	4.2	7.54	1.81	5.01
Moldova	2.54	31.11	2.05	1.36
Mozambique	2.15	30.71	n.a.	8.66
Nepal	2	1,153.17	0.94	3.71
Nigeria	n.a.	n.a.	n.a.	n.a.
Pakistan	3.09	146.71	0.14	20.71
Peru	3.21	21.08	1.83	1.94
Philippines	2.36	330.55	1.46	10.13
Romania	n.a.	n.a.	n.a.	n.a.
Sierra Leone	1.77	143.55	2.07	1.73
Slovak Rep.	3.64	10.26	n.a.	1.75
Slovenia	2.13	1.13	1.22	1.13
South Africa	5	7.27	0.48	1.46
Spain	5	9.95	1.85	1
Sri Lanka	2.9	36.1	0.34	7.34
Sweden	n.a.	n.a.	n.a.	n.a.
Switzerland	3.12	0.11	0	1.44
Thailand	2	265.43	1.43	15.49
Trinidad and Tobago	4.62	7.71	1.33	1.33
Turkey	4.15	11.83	0.95	2.94

(Continued)

TABLE 3. Continued

Country	Physical access		Affordability			Eligibility
	Locations to submit loan applications (out of 5)	Minimum amount consumer loans (percent of GDP per capita)	Fees consumer loans (percent of GDP per capita)	Days to process consumer loan applications	Eligibility	
Uganda	2	205.75	2.68	1.38	1.38	
Uruguay	2.26	32.62	n.a.	8.51	8.51	
Zambia	2	n.a.	n.a.	n.a.	n.a.	
Zimbabwe	2.85	24.08	3.05	1.46	1.46	
Minimum	1.77	0	0	0.73	0.73	
5th percentile	2	1.63	0	1	1	
Median	3.09	19.26	1.33	2.7	2.7	
Average	3.2	76.84	1.58	4.29	4.29	
95th percentile	5	239.59	3.61	9.79	9.79	
Maximum	5	1153.17	7.17	20.71	20.71	

n.a. means not available because the banks that responded to the survey account for less than 30 percent of the market.

*Note:* The table reports several indicators of barriers to the use of loan services. The indicators are weighted country-level averages, with bank-level data weighted using the share of each bank in the total deposits of all banks that responded. Variables in the table are defined in table A.1. Indicators are not reported for Algeria and Swaziland because they would represent only one bank.

*Source:* Authors' analysis based on data from their 2004/2005 bank survey.

TABLE 4. Barriers to Payment Services, 2004/2005

Country	Affordability		Country	Affordability	
	Cost to transfer funds internationally (percent of \$250)	Fee for using ATM Cards (percent of \$100)		Cost to transfer funds internationally (percent of \$250)	Fee for using ATM Cards (percent of \$100)
Albania	7.70	0.00	Madagascar	4.30	0.00
Armenia	6.14	0.07	Malawi	6.42	0.08
Australia	8.05	0.00	Malta	5.59	0.03
Bangladesh	1.93	n.a.	Mexico	n.a.	0.40
Belarus	1.27	0.00	Moldova	11.19	0.00
Belgium	0.12	0.00	Mozambique	n.a.	n.a.
Bolivia	13.47	0.26	Nepal	7.10	0.00
Bosnia and Herzegovina	3.79	0.01	Nigeria	n.a.	0.50
Brazil	14.85	0.11	Pakistan	n.a.	0.60
Bulgaria	5.24	0.13	Peru	6.68	0.24
Cameroon	9.15	0.00	Philippines	n.a.	0.00
Chile	n.a.	0.00	Romania	n.a.	n.a.
Colombia	n.a.	0.19	Sierra Leone	6.86	0.00
Croatia	3.57	0.00	Slovak Rep.	4.38	0.19
Czech Rep.	3.99	0.19	Slovenia	2.88	0.00
Denmark	4.09	0.00	South Africa	9.53	0.34
Dominican Rep.	20.00	n.a.	Spain	6.39	0.00
Egypt	0.76	0.00	Sri Lanka	n.a.	n.a.
Ethiopia	1.87	0.00	Sweden	8.16	0.00
France	n.a.	n.a.	Switzerland	3.17	0.00
Georgia	7.03	0.13	Thailand	n.a.	n.a.
Germany	n.a.	n.a.	Trinidad and Tobago	3.74	0.05
Ghana	14.70	0.19	Turkey	6.34	0.00

(Continued)

TABLE 4. Continued

Country	Affordability		Affordability	
	Cost to transfer funds internationally (percent of \$250)	Fee for using ATM Cards (percent of \$100)	Country	Cost to transfer funds internationally (percent of \$250)
Greece	7.42	0.00	Uganda	0.55
Hungary	3.60	n.a.	Uruguay	7.18
India	6.49	0.00	Zambia	3.24
Indonesia	2.83	0.00	Zimbabwe	n.a.
Israel	n.a.	0.23		
Jordan	5.37	0.00	Minimum	0.12
Kenya	8.43	0.15	5th percentile	0.89
Korea, Rep.	7.05	0.22	Median	6.37
Lebanon	9.76	0.00	Average	6.33
Lithuania	8.72	n.a.	95th percentile	14.39
			Maximum	20.00
			Maximum	0.12
				Fee for using ATM Cards (percent of \$100)
				0.19
				0.14
				0.13
				n.a.
				0.00
				0.00
				0.00
				0.10
				0.38
				0.60
				0.00

n.a. means not available because the banks that responded to the survey account for less than 30 percent of the market.

*Note:* The table reports several indicators of barriers to the use of payment services. The indicators are weighted country-level averages, with bank-level data weighted using the share of each bank in the total deposits of all banks that responded. Variables in the table are defined in table A.1. Indicators are not reported for Algeria and Swaziland because they would represent only one bank.

*Source:* Authors' analysis based on data from their 2004/2005 bank survey.

TABLE 5. Correlations between Barriers and Measures of Financial and Economic Development and Outreach

Barrier	Business constraint							
	GDP per capita	Private credit to GDP	Number of branches per 100,000 people	Number of loans per 1,000 people	Number of deposits per 1,000 people	Penetration (percent of adults with access to a financial institution)	Access to finance	Cost of finance
Number of places to open deposit account (out of 3)	-0.11	-0.02	-0.18	-0.38*	-0.22	-0.27**	-0.05	-0.05
Minimum balance to open checking account (percent of GDP per capita)	-0.29**	-0.32**	-0.29**	-0.34	-0.46***	-0.37***	0.33**	0.32**
Checking account annual fee (percent of GDP per capita)	-0.26*	-0.30**	-0.23	-0.20	-0.32*	-0.34**	0.37**	0.51***
Number of documents needed to open checking account (out of 5)	-0.42***	-0.35**	-0.40***	-0.19	-0.42**	-0.46***	0.46***	0.37**
Number of places to submit loan	0.47***	0.54***	0.45***	0.63***	0.43**	0.48***	-0.36**	-0.37**
Application (out of 5)								
Minimum amount consumer loan (percent of GDP per capita)	-0.24*	-0.24*	-0.21	-0.27	-0.37**	-0.28**	0.12	0.16
Fee consumer loan (percent of GDP per capita)	-0.21	-0.29*	-0.08	-0.13	-0.36**	-0.20	0.08	0.16

(Continued)

TABLE 5. Continued

Barrier	Business constraint							
	GDP per capita	Private credit to GDP	Number of branches per 100,000 people	Number of loans per 1,000 people	Number of deposits per 1,000 people	Penetration (percent of adults with access to a financial institution)	Access to finance	Cost of finance
Days to process consumer loan applications	-0.35***	-0.27*	-0.30**	-0.34	-0.33*	-0.33**	0.13	0.10
Cost to transfer funds internationally (percent of 250)	-0.16	-0.09	-0.11	-0.09	-0.28	-0.16	-0.04	0.06
Fee for using ATM card	-0.21	-0.16	-0.29*	-0.23	-0.38*	-0.26*	0.20	0.18

\* Significant at the 10 percent level; \*\* significant at the 5 percent level; \*\*\* significant at the 1 percent level.

Note: Pairwise correlation coefficients between barriers indicators, measures of financial and economic development and financial outreach. Variables in the table are defined in table A.1.

Source: Authors' analysis based on data from their 2004/2005 bank survey.



descriptive statistics, for barriers to access to and use of deposits, loans, and payments. Averages are reported for each country, calculated by weighting each bank's responses by its share of deposits in the total deposits of all sampled banks for indicators for deposit and payment barriers, and by the share of loans for indicators of loan barriers. Also, wherever possible, results are distinguished by three service dimensions: physical access, affordability, and eligibility.

### *Deposit Services*

The main deposit product considered is the checking (or transactions) account.<sup>5</sup> Weighted country-level averages are presented in table 2.

**PHYSICAL ACCESS.** Physical access to banking services can often be impeded by long distances to a bank outlet (Beck, Demirgüç-Kunt, and Martínez Peria 2007).<sup>6</sup> But even if there is a wide network of bank offices, they may not all offer the same services. Physical access to deposit services is measured by locations to open a deposit account. This indicator takes a value of 1 to 3 depending on whether an account can be opened at headquarters only (1), at headquarters or a branch (2), or at headquarters, branches, or nonbranch offices (3).<sup>7</sup> While the majority of sampled banks in Greece and Sierra Leone require customers to visit the head office to open a checking account, customers in Moldova can open an account at headquarters, branches, and even branch-like offices. In the median country, customers can open accounts at headquarters or branches but not at nonbranch offices.

**AFFORDABILITY.** Affordability of deposit services is characterized by the minimum balance required to open checking accounts plus the fees to maintain the accounts. There is substantial variation across countries in the ratio of the minimum balance needed to open a checking account to GDP per capita. In Cameroon and Nigeria, the minimum balance to open a checking account exceeds 100 percent of per capita income, and in Ethiopia, Nepal, Sierra Leone, and Uganda, it is more than 50 percent, but in 18 countries, less than half of them developed, there is no minimum balance. The median value for this indicator is 0.98 percent, and the average is 12.27 percent.<sup>8</sup>

Fees associated with maintaining a checking account also vary substantially. While in Malawi, Sierra Leone, and Uganda checking account fees are more

5. Since savings accounts are the dominant transaction account in some countries, table S.A.1 in the supplemental appendix also shows barriers related to savings accounts.

6. Lack of connectivity might also be a concern.

7. Only the most local office is considered. Banks that allow customers to open an account at a branch or a nonbranch office receive the same rating (3) as banks that allow customers to open an account at headquarters, a branch, or a nonbranch office.

8. While some of the variation in this indicator might be explained by the denominator—GDP per capita—the correlation between the amount needed to open an account and GDP per capita is far from perfect ( $-0.29$ ), and even in dollar terms, there is significant variation in minimum balances.

than 20 percent of GDP per capita, in Bangladesh, Belarus, Ethiopia, India, Jordan, Malta, Pakistan, Philippines, and Sweden checking accounts are free. The median value for these fees is 0.3 percent and the average is 2.5 percent.

**ELIGIBILITY.** Around the world, banks demand proof of identification to open an account for a new client. However, in many countries banks demand a variety of other documents besides identification cards, including recommendation letters, wage slips, and proof of domicile. While banks in Albania, Czech Republic, Mozambique, Spain, and Sweden demand on average only one document to open a checking account, banks in Bangladesh, Cameroon, Chile, Nepal, Sierra Leone, Trinidad and Tobago, Uganda, and Zambia require at least four documents.

### *Credit Services*

Indicators of physical access, affordability, and eligibility were collected for four loan types—consumer, small and medium-size enterprise, business, and mortgage. Because the interest here is products available to individuals, the focus is on consumer loans (table 3). (Indicators for the other loan types are reported in tables S.A.2 and S.A.3 in the supplemental appendix.) Indicators of physical access, affordability, and eligibility barriers are highly correlated with each other across loan types.

**PHYSICAL ACCESS.** Physical access to loans is measured using locations where loan applications can be submitted. Customers in Armenia, Ethiopia, Nepal, Sierra Leone, Thailand, and Uganda can apply for loans only at a bank's headquarters and branches. Customers in Australia, Chile, Denmark, Greece, South Africa, and Spain can apply not only at branch and nonbranch outlets, but also over the phone and the Internet. In the median and average country, bank customers can submit loan application at headquarters, branch, and branch-like offices.

**AFFORDABILITY.** Loan affordability is measured by the minimum amount for a consumer loan and the fees for these loans. The minimum amount for consumer loans ranges from less than 1 percent of GDP per capita in Denmark and Switzerland to 1,152 percent in Nepal. The median minimum amount for consumer loans is 19.3 percent as of GDP per capita, and the average is 76.9 percent. Fees on consumer loans expressed as a percent of GDP per capita range from zero in Belgium, Ethiopia, and Switzerland to more than 6 percent in Albania and Cameroon. The median fee on consumer loans is 1.3 percent of GDP per capita, and the average is 1.6 percent.

**ELIGIBILITY.** A crucial function of financial intermediaries is to screen borrowers. The number of days to process a loan application is a de facto eligibility barrier, since some borrowers might be discouraged from applying for bank loans and seek financing elsewhere to avoid long waiting periods. For

consumer loans, this indicator ranges from almost 1 day in Australia, Brazil, Czech Republic, Denmark, Greece, Israel, and Spain to more than 20 days in Pakistan. The average number of days to process a consumer loan application is 4, and the median is closer to 3.

### *Payment Services*

The indicators on payment services measure primarily affordability: the costs of transferring a small amount of funds internationally and the fees for using ATM cards (table 4).<sup>9</sup>

The cost of transferring funds internationally varies from 0.12 percent in Belgium to 20 percent in the Dominican Republic.<sup>10</sup> For comparability, a standardized transfer of \$250 is used. On average, the cost of transferring funds internationally is 6.3 percent of \$250, or \$15.82.

The fees associated with ATM transactions are expressed as a percent of \$100 dollars. ATM fees are more than 40 cents in Nigeria and Pakistan, and zero in half the countries in the sample. On average, the fees associated with an ATM transaction are 10 cents.

## III. BARRIERS TO BANKING AND OUTREACH

This section explores the association between the barrier indicators and measures of economic development, financial depth, and aggregate indicators of banking sector outreach (table 5). Examining these correlations provides a consistency check on the indicators and shows which barriers are actually constraining, in the sense that they are correlated with less banking sector outreach.

As expected, most of the barrier indicators are correlated with economic development, as measured by GDP per capita, and with the ratio of private credit to GDP, a standard indicator of financial depth. In general, higher barriers are correlated with less economic and financial development. The cost to transfer funds internationally or to use an ATM card and the locations to open deposit accounts are not significantly correlated with economic or financial development. This may be because countries at low levels of economic and financial development are leapfrogging, using the same alternative delivery channels and cheaper technology to provide deposit and ATM services as more developed countries.

Recently compiled data on branch penetration, number of loan and deposit accounts per capita (Beck, Demirgüç-Kunt, and Martínez Peria 2007), and a synthetic indicator of the proportion of the adult population with access to a financial account (estimated using existing household surveys and information on accounts from banks, cooperatives, and microfinance institutions; Honohan

9. Though ATM cards can be used for transactions such as transferring funds across accounts, the ATM cards are considered here primarily as facilitating payments by allowing fund withdrawals.

10. While we also considered the speed of transfers in terms of days, we found little variation across banks and countries.

2007) were used to gauge the relation between barriers and aggregate measures of financial sector outreach.<sup>11</sup> The correlations suggest that lower barriers are indeed associated with greater outreach (see table 5). Specifically, the numbers of loans, deposits, and branches per capita are higher in countries where customers face fewer barriers to the use of banking services in the form of high minimum balances, fees, or required documents.

Finally, the association between barriers and financing obstacles as reported by firms is documented through firm-level responses to two survey questions: “Is access to financing (collateral) a problem to the operation and growth of your enterprise?” and “Is cost of financing (interest rates) a problem to the operation and growth of your enterprise?” from the Investment Climate Assessment surveys conducted by the World Bank in 38 (access) and 39 (cost) countries. Responses to these questions are coded from zero (no obstacle) to four (very severe obstacle), with higher values indicating more severe financing constraints.<sup>12</sup> On average, firms report higher financing obstacles in countries where banks impose higher barriers to the use of their services. Firms’ financing obstacles are more significantly correlated with barriers related to deposit services than with barriers related to payment or loan services. This suggests that firms rely not only on credit services, but on a whole array of financial services from financial institutions.

But correlations do not imply causality. They suggest that barriers to banking go hand in hand with less physical access to banking offices and lower use of deposit and credit services by households and firms. However, they also show that some of the indicators capture barriers more effectively than others. Minimum account balances and account fees, minimum loan amounts, document requirements, reduced number of delivery channels for loan products, and long loan processing times seem to be significant barriers to accessing banking services, as evident in lower financial sector penetration rates. Loan fees, fees for international wire transfers and the use of ATM cards, and geographic access barriers to opening deposit accounts are either not significant barriers because they can be circumvented through technological advances and other means or they are not properly measured by the current methodology, as they do not seem correlated with lower financial sector penetration rates.

#### IV. WHAT EXPLAINS BANKING BARRIERS ACROSS BANKS AND COUNTRIES?

Theory suggests that barriers to banking arise from banks’ rational business decisions based on their business model; their market position; the

11. Though following Beck, Demirgüç-Kunt, and Martinez Peria (2007) in referring to branches per capita as a measure of outreach, lack of access to a branch could also be thought of as a barrier to banking.

12. There is a growing literature that shows the importance of financing obstacles for firm growth and financing patterns (Beck, Demirgüç-Kunt, and Maksimovic 2005; Ayyagari, Demirgüç-Kunt, and Maksimovic 2008).

macroeconomic, contractual, and regulatory environment in which they operate; and the competitive pressures they face (Berger and Udell 2006; Beck and de la Torre 2007). Barriers can thus be an optimal solution in a second-best world. This section explores the empirical association between the barrier indicators and an array of bank- and country-level variables. Bank-level data are from BankScope, and country-level variables are drawn from various databases.<sup>13</sup>

The following regression model is used to assess the association between barriers and bank- and country-level characteristics:

$$F_{i,k} = \alpha_0 + \alpha_1 B_i + \alpha_2 C_k + \varepsilon_{i,k} \quad (1)$$

where  $F$  is one of the barrier indicators for bank  $i$  in country  $k$ ,  $B$  is a matrix of bank-level variables (the log of total assets in U.S. dollars, dummy variables for government and foreign ownership, and the loan to asset ratio),  $C$  is a country-level variable, and  $\varepsilon$  is the error term. Clustered standard errors are reported at the country-level (allowing for correlation between error terms of banks within countries). While all bank variables are included in the regressions, only one country-level variable is included at a time because of the limited number of countries in the sample and the high correlation between the variables. Critically, the regression does not control for GDP per capita, because primary interest lies in knowing which components of economic development can explain cross-country variations in barriers, as captured by individual country characteristics. Finally, GDP per capita is excluded because many of the explanatory country-level variables are highly correlated with economic development (See table S.A.6 in the supplemental appendix.) Instead, to verify whether the results are sensitive to including different income groups, developed countries are dropped from the sample, leaving the focus on developing countries only. These results, available in table S.A.7 in the supplemental appendix, largely confirm the findings discussed below and shown in table 6.

Estimation techniques vary according to the nature of the dependent variable. Specifically, ordinary least squares (OLS) regressions of the log of one plus the variable are used for all affordability indicators—constructed as minimum amounts and fees relative to GDP per capita—to account for the skewed distribution of these variables. OLS regressions on the level of the indicators are used for days to process loans and number of documents required to open an account. Ordered probit estimations are used for the location variables (for loans and deposits) capturing physical access, to take account of the polychotomous nature of these variables with natural order. In all cases, the top 1 percent

13. Bank ownership data are from Micco, Panizza, and Yañez (2007), based on BankScope data. Appendix table A.1 provides definitions and sources for the explanatory variables included in the analysis. Tables S.A.5 and S.A.6 in the supplemental appendix present descriptive statistics and correlations for all explanatory variables.

TABLE 6. What Explains Barriers? Bank-Level Regression Results

Variable	Minimum balance to open checking account (percent of GDP per capita)	Annual checking account fees (percent of GDP per capita)	Number of documents needed to open checking account (out of 5)	Locations to submit loan application (out of 5)	Minimum amount consumer loan (percent of GDP per capita)	Fees consumer loans (percent of minimum loan amount)	Days to process consumer loan applications	Cost to transfer funds internationally (percent of \$250)	Fee for using ATM card (percent of \$100)
Bank-level government-owned bank dummy variable	-0.049 (0.254)	-0.102 (0.093)	0.051 (0.059)	-0.313 (0.242)	0.032 (0.310)	-0.157 (0.143)	0.135 (0.133)	-0.037 (0.145)	0.028 (0.044)
Bank-level foreign-owned bank dummy variable	-0.237 (0.234)	0.793*** (0.217)	0.081 (0.082)	-0.044 (0.229)	0.361 (0.303)	0.056 (0.104)	-0.155 (0.110)	0.183 (0.168)	0.025 (0.029)
Bank-level loans to assets	0.005 (0.608)	-0.127 (0.393)	0.286 (0.228)	1.232** (0.544)	0.063 (0.866)	-0.564* (0.304)	0.607* (0.312)	-0.005 (0.413)	0.029 (0.091)
Bank-level log(assets)	0.024 (0.050)	-0.109*** (0.029)	-0.038*** (0.013)	0.250*** (0.045)	-0.286*** (0.065)	-0.033 (0.025)	-0.072*** (0.026)	0.033 (0.032)	-0.003 (0.005)
Electric power transmission and distribution losses (percent of output)	0.022* (0.013)	0.012 (0.008)	0.009 (0.006)	0.005 (0.013)	0.051** (0.022)	0.013** (0.006)	0.012 (0.011)	0.028*** (0.007)	0.003 (0.003)
Cost of enforcing contracts (percent of debt)	0.000 (0.004)	0.011** (0.005)	0.003** (0.001)	-0.001 (0.005)	0.013 (0.008)	-0.001 (0.002)	0.002 (0.003)	0.000 (0.002)	0.000 (0.001)
Legal rights index	0.075* (0.043)	-0.012 (0.042)	-0.034* (0.019)	-0.060 (0.049)	-0.004 (0.087)	0.020 (0.027)	-0.024 (0.031)	-0.041 (0.044)	0.006 (0.009)
Credit information index	0.100 (0.085)	-0.024 (0.070)	-0.033 (0.024)	0.129** (0.054)	-0.125 (0.097)	-0.003 (0.032)	-0.037 (0.031)	0.098** (0.046)	0.004 (0.012)
Bank concentration	-1.382** (0.562)	0.422 (0.490)	-0.214 (0.196)	0.004 (0.734)	-1.501 (1.046)	-0.421 (0.340)	-0.868** (0.384)	-0.239 (0.443)	-0.142 (0.097)

Government bank share	-0.003 (0.005)	-0.003 (0.008)	-0.002 (0.003)	-0.014*** (0.005)	0.011 (0.010)	-0.001 (0.003)	0.008*** (0.003)	0.006 (0.004)	-0.001 (0.001)
Foreign bank share	0.011** (0.005)	-0.008 (0.006)	-0.006** (0.003)	0.000 (0.005)	-0.01 (0.008)	0.002 (0.002)	0.003 (0.003)	-0.003 (0.003)	0.001 (0.001)
Fraction of entry applications denied	-0.005 (0.004)	0.009* (0.005)	0.006 (0.004)	-0.004 (0.004)	0.015** (0.007)	-0.003 (0.002)	0.005 (0.003)	0.000 (0.003)	0.001 (0.001)
Index of banking restrictions	-0.176 (0.134)	0.393** (0.183)	0.205* (0.108)	-0.365*** (0.118)	0.344* (0.175)	0.040 (0.061)	0.127** (0.058)	-0.003 (0.079)	0.025 (0.029)
Index of banking disclosure practices	0.019* (0.011)	-0.011 (0.017)	-0.021*** (0.008)	0.013* (0.008)	0.008 (0.017)	-0.008* (0.004)	-0.011** (0.005)	0.002 (0.007)	-0.004* (0.002)
Fraction of media owned by government	-0.910*** [0.310]	1.494*** [0.531]	0.384 [0.414]	-0.997*** [0.339]	0.499 [0.626]	-0.126 [0.185]	0.439*** [0.124]	-0.419 [0.318]	-0.060 [0.051]

\* Significant at the 10 percent level; \*\* significant at the 5 percent level; \*\*\* significant at the 1 percent level.

Note: Table shows the results from regressing each barrier indicator against the four bank-level variables (*Government-owned bank dummy*, *Foreign-owned bank dummy*, *Loan to assets ratio*, and *Log of total assets*) along with one country level variable at a time. The first four rows report the results of a regression on just the bank-level variables, while all subsequent rows report the results of adding the country-level variables one at a time. Regressions are estimated with OLS in all cases except that ordered Probit models are estimated for the *Number of places to open a deposit account* and the *Number of places to submit a loan application*. Numbers in parentheses are clustered standard errors at the country level. Variables in the table are defined in table A.1.

Source: Authors' analysis based on data from their 2004/05 bank survey.

of the distribution of the dependent variables is dropped to control for outliers. The first four rows of table 6 report the results of a regression on just the bank-level variables (that is, excluding country characteristics). The remaining rows report the results of adding the country-level variables one at a time, while still controlling for the bank characteristics. Thus, starting from row 5, each cell presents the result of one regression, controlling for the bank-level variables.

### *Bank Characteristics*

Theory provides opposing views on the impact of bank size and ownership types on barriers. On the one hand, large banks might be better at exploiting scale and scope economies, thus more easily overcoming the problem facing financial systems in large parts of the developing world that have clients with demands for small and few transactions and have few customers over which fixed transaction costs can be spread (Beck and de la Torre 2007). On the other hand, small banks, because of their size, might be closer to “smaller” and riskier clients and thus better able to serve them (Berger, Hasan, and Klapper 2004).

While public interest theory (Gerschenkron 1962) justifies the creation of government-owned banks to serve the small and riskier clients ignored by private financial institutions, a large theoretical and empirical literature suggests mission drift by these banks (La Porta, Lopez-de-Silanes, and Shleifer 2002), with opposing implications for the barriers imposed by government-owned banks. Similarly, while foreign-owned banks are assumed to be more interested in large corporations and private clients with demand for large transactions due to their limited access to soft local information (Mian 2006), they might have more efficient technologies, which allows them to lower cost and thus barriers (Berger and Udell 2006). And even if foreign banks do not serve the smaller clients themselves, the competitive pressures they create might provide incentives for the domestic banks to do so, hence lowering barriers (Rajan 2006).

The size of banks is measured as the log of total assets in millions of U.S. dollars, with ownership type controlled for by separate dummy variables for majority government- and foreign-owned banks. Finally, the loan-asset ratio is used as a proxy for the degree to which banks serve retail clients to explore the association of barriers with banks’ business orientation (Laeven and Levine 2007).<sup>14</sup> The conjecture is that banks with a retail orientation will impose lower barriers to attract a larger number of smaller clients, while wholesale or corporate banks might place higher barriers to signal their lack of interest in such clients.<sup>15</sup>

14. There could be reverse causation from higher barriers affecting banks’ balance sheets and so causality is not implied.

15. As suggested by an anonymous referee, the impact on barriers of other bank characteristics, such as net interest margins, overhead costs, and profitability, was also examined (see table S.A.8 in the supplemental appendix). These variables are not significantly associated with barriers and are also likely to be endogenous.



The results suggest that larger banks impose lower barriers to accessing deposit and lending services, perhaps because these banks are better positioned to take advantage of scale and scope economies. With respect to ownership types, the results show that with the exception of higher account fees, foreign ownership is not associated with significantly higher barriers than those of private domestic banks. At the same time, customers of government-owned banks do not face significantly lower barriers. In fact, government ownership has no statistically significant association with any of the barriers. Finally, the correlation between business orientation and barriers is mixed. While retail, loan-intensive banks—those with a higher ratio of loans to assets—are more likely to accept loan applications through nontraditional channels and seem to charge lower fees on consumer loans, they take longer to process loan applications. Overall, these results suggest that size is the dominant (most consistently significant) bank characteristic associated with variations in barriers and that scale economies and scope play a potentially important role.

### *Contractual and Informational Framework*

Banks arise to overcome information asymmetries between lenders and borrowers (Diamond 1984, 1991; Ramakrishnan and Thakor 1984; Boyd and Prescott 1986), which can lead to adverse selection and moral hazard problems. However, how well they are able to overcome these asymmetries depends on the contractual and informational framework in which they operate. An extensive empirical literature has shown the importance of effective contractual and informational frameworks for financial sector depth (for example, Beck and Levine 2005). There is empirical evidence that this relationship also holds for financial sector penetration and access to finance (Beck, Demirgüç-Kunt, and Levine 2005; Haselmann, Pistor, and Vig 2005; Visaria 2006; Beck, Demirgüç-Kunt, and Martínez Peria 2007). To explore whether contractual, legal rights, and informational frameworks are associated with bank barriers, three indicators are used from the Doing Business database (World Bank 2006a) that measure the efficiency of credit information systems, the legal rights of creditors in corporate reorganization and bankruptcy, and the cost of contract enforcement relative to GDP per capita.

The results not only uncover a weak association between barriers and the informational and contractual environment, but also, surprisingly, show that the link is mainly with deposit and not credit services.<sup>16</sup> Banks in countries with more efficient systems of credit information sharing impose lower barriers only in the number of places where applicants can request loans.<sup>17</sup> Banks in

16. The more significant correlation of these variables with deposit rather than credit barriers could indicate that there is less international competition on the deposit side. On the other hand, the credit barriers refer to consumer loans, traditionally a locally provided product. More research is needed to explore this.

17. On the other hand, surprisingly, banks in countries with better informational environments seem to charge higher fees on international wire transfers.

countries that more effectively protect creditors are more likely to allow customers to open bank accounts in nonbranch locations and to require lower minimum balances and fewer documents to open a checking account. Banks in countries with poor systems of contract enforcement charge higher fees on deposit accounts and require more documents to open accounts.

### *Market Structure*

Theory suggests an ambiguous relation between market structure and barriers to banking. Banks in more concentrated banking systems might either exploit their market power, imposing higher barriers, or face higher incentives to lend to smaller, more opaque borrowers such as small and medium-size enterprises from which they can recover their investment in the relationship in future periods (Petersen and Rajan 1995). Further, the variation of barriers across countries might be affected by the dominance of government-owned or foreign-owned banks in a banking system, with banks imposing higher or lower barriers in banking systems dominated by government-owned or foreign-owned banks independent of the individual bank's ownership type. Specifically, competitive pressures from a predominantly government-owned or foreign-owned banking system—or its absence—can push individual banks toward higher or lower banking barriers.

Data from Barth, Caprio, and Levine (2004) are used to assess the association between bank ownership and market structure and barriers to banking. Lower barriers to deposit services are found in banking systems with greater foreign bank presence. In systems that are predominantly government-owned, however, bank customers face greater restrictions on where to apply for loans and how long it takes to process applications. Finally, banks in countries with more concentrated banking systems are less likely to allow customers to open deposit accounts outside headquarters, but are faster at processing loan applications. Hence, overall there is no consistent relationship between market structure and barriers.

### *Regulatory Restrictions on Bank Activities and Entry*

Bank regulations might have both a direct and indirect effect on the barriers that banks impose. Some barriers, such as document requirements, might result directly from regulatory requirements. In other cases, banks may pass regulatory costs on to customers. Two indicators are used to gauge the association of bank barriers with regulatory policies. One is the index of banking restrictions from the Heritage Foundation, a composite index of whether foreign banks are able to operate freely, the difficulty of opening domestic banks, the degree of regulation of financial market activities, the presence of state-owned banks, whether the government influences credit allocation, and whether banks are free to provide customers with insurance products and invest in securities. The other is the fraction of bank applications denied, a direct measure of restrictions on bank entry collected by Barth, Caprio, and Levine (2004).

Banks in economies with more restrictions on banking activities are found to impose higher barriers to accessing deposit and lending services. Similarly, in less contestable systems, as proxied by a higher share of new bank license applications rejected, banks require higher minimum account balances and demand more documents to open accounts and higher minimum consumer loan balances.<sup>18</sup> The findings on the association between barriers and restrictive regulatory policies match those of other studies that find that such policies limit financial development and efficiency (Barth, Caprio, and Levine 2004; Beck, Demirgüç-Kunt, and Levine 2006; La Porta, Lopez-de-Silanes, and Shleifer 2006).

### *Transparency*

More transparent banking systems and societies might promote lower barriers to banking, since banks in economies where greater disclosure is mandated or observed or where clients have more access to information might have less leeway to impose high barriers to banking. More transparency might also imply more competition, since customers can more easily compare products across banks. Two indicators are used to assess the relationship between transparency and bank barriers. One is an index of banking disclosure practices developed by the World Bank (2006b), which seeks to quantitatively measure the disclosure practices of commercial banks around the world in relation to their assets, liabilities, equities, incomes, and risk profiles. The other is an indicator of lack of media freedom, which measures the share of press outlets owned by the government. This indicator comes from Djankov and others (2003), who show a negative association between this and other measures of media freedom and economic and political freedom.

In countries where banks tend to disclose more information about their operations, banks have more locations where individuals can open deposits or apply for loans, and annual checking deposit and consumer loan fees are lower. In countries with less media freedom (where a greater share of press outlets are controlled by the government), banks restrict the locations where accounts can be opened, impose higher minimum balances to open accounts, require more documents to open checking, take longer to process loan applications, and are less likely to accept loan applications through nontraditional channels.

### *Physical Infrastructure*

While the literature has paid surprisingly little attention to the relations among infrastructure, input costs, and financial depth and breadth, the results suggest

18. H statistics were also used as indicator of competitiveness, following the approach of Claessens and Laeven (2004). No significant relationship was found for this indicator and barriers. Regulatory indicators of formal bank entry requirements were also tried and again no consistent correlations with bank barriers were found.

that the quality of physical infrastructure (such as electricity networks), which is associated with the costs of doing business for banks, can help explain the cross-country variation in many barriers to banking. Electric power transmission and distribution losses as percentage of output (Estache and Goicoechea 2005) are used to assess the association of physical infrastructure with banking barriers. Banks in countries with more power outages impose higher minimum loan amounts and charge higher fees on consumer loans and on international wire transfers.

## V. CONCLUSIONS

This article is, to the authors' knowledge, the first comprehensive effort to systematically document the extent of barriers to banking services across countries, show their correlation with measures of outreach, and explore their association with a number of bank and country characteristics that are expected to drive barriers. Though more research is needed (especially to better establish causality), the findings have a number of policy implications. In particular, policies directed toward easing restrictions on banking activities and entry, increasing banking disclosure and transparency, and improving physical infrastructure should lower barriers. Less government ownership and more foreign bank participation is expected to enhance competition and also help bring down barriers.

As a first attempt at capturing quantitative measures of cross-country differences in barriers to banking along the dimensions of physical access, affordability, and eligibility, this article complements other efforts to collect data on access to financial services at the aggregate, firm and household levels. Research on financial access is still in its inception, and richer data sources and in-depth analysis are needed to improve the measurement and understanding of access and its impact on economic outcomes.

## APPENDIX

TABLE A.1. Variable Definitions and Sources

Variable	Definition	Source
Locations to open deposit account	The indicator takes a value of 1 if account can be opened at headquarters only, 2 if at headquarters or a branch, and 3 if at headquarters, branches or a nonbranch outlet. The indicator varies from 1 to 3 depending on the number of locations available.	Authors' calculation based on survey information
Minimum amount to open checking account	Minimum balance required to open a checking account expressed as percent of GDP per capita.	Authors' calculation based on survey information
Minimum amount to be maintained in checking account	Minimum balance required to maintain a checking account expressed as percent of GDP per capita.	Authors' calculation based on survey information
Annual fees checking account	Fees associated with maintaining a checking account expressed as percent of GDP per capita.	Authors' calculation based on survey information
Number of documents to open checking account	Documents needed to open a checking account include identification, payment slip, letter of reference, proof of domicile, and any 'other' document a bank requires. The indicator varies from 1 to 5 depending on the number of documents required.	Authors' calculation based on survey information
Locations to submit loan applications	The indicator takes a value of 1 if application can be submitted at headquarters only, 2 if at headquarters or a branch, 3 if at headquarters, branches or a non-branch outlet, 4 if at headquarters, branches, nonbranch outlets or electronically; and 5 if at headquarters, branches, nonbranch outlets, electronically, or over the phone. The indicator varies from 1 to 5 depending on the number of locations available.	Authors' calculation based on survey information
Minimum amount consumer loans	Lowest amount of consumer loan banks make expressed as a percent of GDP per capita.	Authors' calculation based on survey information

*(Continued)*

TABLE A.1. Continued

Variable	Definition	Source
Fees consumer loans	Fees banks charge on consumer loans expressed as percent of GDP per capita.	Authors' calculation based on survey information
Days to process consumer loan applications	Number of days banks take to process a typical consumer loan application.	Authors' calculation based on survey information
Cost to transfer funds internationally	Amount of fee banks charge to transfer funds internationally expressed as percent of US\$250.	Authors' calculation based on survey information
Amount of fee for using ATM Cards	Amount of fee banks charge consumers for using an ATM card expressed as percent of US\$100.	Authors' calculation based on survey information
GDP per capita	GDP at US dollars at market exchange rate/Total population.	World Development Indicators
Private credit to GDP	Private credit by deposit money banks and other financial institutions as share of GDP.	World Bank Financial Structure and Economic Development Database
Number of branches per 100,000 people	Number of branches per 100,000 people.	Beck, Demirgüç-Kunt, Martinez Peria (2007)
Number of loans per 1,000 people	Number of loans per 1000 people.	Beck, Demirgüç-Kunt, Martinez Peria (2007)
Number of deposits per 1,000 people	Number of deposits per 1000 people.	Beck, Demirgüç-Kunt, Martinez Peria (2007)
Penetration	Share of households with bank accounts (percent).	Honohan (2007)
Business constraint: access to finance	Access to finance as a constraint to business operation and growth reposted on a scale of 0 through 4, where 0 = no obstacle and 4 = very severe obstacle.	Enterprise Surveys (World Bank/International Finance Corporation)
Business constraint: cost of finance	Cost of finance as a constraint to business operation and growth reposted on a scale of 0 through 4, where 0 = no obstacle and 4 = very severe obstacle.	Enterprise Surveys (World Bank/International Finance Corporation)
Bank-level government-owned bank dummy variable	Dummy variable equal to 1 if bank is state owned.	Micco, Panizza, Yanez (2007)
Bank-level foreign-owned bank dummy variable	Dummy variable equal to 1 if bank is foreign owned.	Micco, Panizza, Yanez (2007)
Bank-level loans to assets	Ratio of bank's total loans to assets.	BankScope Database (August 2006). Fitch Ratings/Bureau van Dijk

Bank-level log(assets)	Natural log of bank's total assets.	BankScope Database (August 2006). Fitch Ratings/ Bureau van Dijk
Electric power transmission and distribution losses (percent of output)	Technical and nontechnical losses. Includes electricity losses due to operation of the system and the delivery of electricity as well as those caused by unmetered supply. This comprises all losses due to transport and distribution of electrical energy and heat. It also includes losses in transmission between sources of supply and points of distribution and in the distribution to consumers, including pilferage.	Estache and Goicoechea (2005)
Credit information index	Scored on a 0–6 scale, with scores increasing with the availability of credit information. Index measures rules affecting the scope, access, and quality of credit information.	World Bank (2006a)
Costs of enforcing contracts	Total enforcement cost, including legal fees, assessment, and court fees expressed as a percentage of total debt.	World Bank (2006a)
Legal rights index	Scored on a 0–10 scale, with scores increasing with legal rights. Index measures the degree to which collateral and bankruptcy laws facilitate lending.	World Bank (2006a)
Bank concentration	Share of deposits in the five largest banks.	Barth, Caprio, and Levine (2004)
Government bank share	The extent to which the banking systems assets are government owned (50 percent or more).	Barth, Caprio, and Levine (2004)
Foreign bank share	The extent to which the banking systems assets are foreign owned (50 percent or more).	Barth, Caprio, and Levine (2004)
Fraction of entry applications denied	The degree to which applications to enter banking are denied.	Barth, Caprio, and Levine (2004)
Index of banking restrictions	Index captures government's control, regulations, and involvement in financial sector. Higher values indicate more banking restrictions.	Index of Economic Freedom 2006. The Heritage Foundation/The Wall Street Journal

(Continued)

TABLE A.1. Continued

Variable	Definition	Source
Index of banking disclosure practices	Index seeks to quantitatively measure the actual disclosure practices of commercial banks around the world, in relation to their assets, liabilities, equities, incomes, and risk profiles.	World Bank (2006b). See <a href="http://www.ifc.org/iftext/corporategovernance.nsf/AttachmentsByTitle/Global_Assessment_Bank_Disclosure_Practices+\$FILE/Bank+Disclosure+Index.pdf">http://www.ifc.org/iftext/corporategovernance.nsf/AttachmentsByTitle/Global_Assessment_Bank_Disclosure_Practices+\$FILE/Bank+Disclosure+Index.pdf</a>
Share of media outlets owned by the government	The market share of state-owned newspapers in the aggregate market share of the five largest daily newspapers (by circulation).	Djankov and others (2003)



## REFERENCES

- Ayyagari, Meghana, Asli Demirgüç-Kunt, and Vojislav Maksimovic. 2008. "How Important Are Financing Constraints? The Role of Finance in the Business Environment." *World Bank Economic Review* doi:10.1093/wber/lhn018.
- Banerjee, Abhijit, and Andrew F. Newman. 1993. "Occupational Choice and the Process of Development." *Journal of Political Economy* 101(2):274–98.
- Barth, James, Gerard Caprio, and Ross Levine. 2004. "Bank Regulation and Supervision: What Works Best?" *Journal of Financial Intermediation* 13(2):205–48.
- Beck, Thorsten, and Augusto de la Torre. 2007. "The Basic Analytics of Access to Financial Services." *Financial Markets, Institutions, and Instruments* 16(2):79–117.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2005. "Law and Firms' Access to Finance." *American Law and Economics Review* 7(1):211–52.
- . 2006. "Bank Supervision and Corruption in Lending." *Journal of Monetary Economics* 53(8):2131–63.
- . 2007. "Finance, Inequality and Poverty: Cross-Country Evidence." *Journal of Economic Growth* 12(1):27–49.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Maria Soledad Martínez Peria. 2007. "Reaching Out: Access to and Use of Banking Services across Countries." *Journal of Financial Economics* 85(2):234–66.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Vojislav Maksimovic. 2005. "Financial and Legal Constraints to Firm Growth: Does Size Matter?" *Journal of Finance* 60(1):137–77.
- Beck, Thorsten, and Ross Levine. 2005. "Legal Institutions and Financial Development." In Claude Menard and Mary Shirley, eds., *Handbook of New Institutional Economics*. The Netherlands: Kluwer Dordrecht.
- Beck, Thorsten, Ross Levine, and Norman Loayza. 2000. "Finance and the Sources of Growth." *Journal of Financial Economics* 58(1–2):261–300.
- Berger, Allen, Iftekhar Hassan, and Leora Klapper. 2004. "Further Evidence on the Link between Finance and Growth: An International Analysis of Community Banks and Economic Performance." *Journal of Financial Services Research* 25(2):169–202.
- Berger, Allen, and Gregory Udell. 2006. "A More Complete Conceptual Framework for SME Finance." *Journal of Banking and Finance* 30(11):2945–66.
- Boyd, John, and Edward C. Prescott. 1986. "Financial Intermediary-coalitions." *Journal of Economic Theory* 38(2):211–32.
- Claessens, Stijn. 2006. "Access to Financial Services: A Review of the Issues and Public Policy Objectives." *World Bank Research Observer* 21(2):207–40.
- Claessens, Stijn, and Asli Demirgüç-Kunt. 2006. "Measuring Access to Financial Services through Household Level Surveys." World Bank, Development Research Group, Washington, D.C.
- Claessens, Stijn, and Luc Laeven. 2004. "What Drives Bank Competition? Some International Evidence." *Journal of Money, Credit, and Banking* 36(3):563–82.
- Demirgüç-Kunt, Asli, and Vojislav Maksimovic. 1998. "Law, Finance, and Firm Growth." *Journal of Finance* 53(6):2107–37.
- Diamond, Douglas W. 1984. "Financial Intermediation and Delegated Monitoring." *Review of Economics Studies* 51(3):393–414.
- . 1991. "Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt." *Journal of Political Economy* 99(4):689–21.
- Djankov, Simeon, Caralee McLiesh, Tatiana Nenova, and Andrei Shleifer. 2003. "Who Owns the Media?" *Journal of Law and Economics* 46(2):341–82.
- Estache, Antonio, and Ana Goicoechea. 2005. "A 'Research' Database on Infrastructure Economic Performance." Policy Research Working Paper 3643. World Bank, Development Research Group, Washington, D.C.

- Galor, Oded, and Joseph Zeira. 1993. "Income Distribution and Macroeconomics." *Review of Economic Studies* 60(1):35–52.
- Genesis. 2005. *An Inter-Country Survey of the Relative Costs of Bank Accounts*. Johannesburg, South Africa.
- Gerschenkron, Alexander. 1962. *Economic Backwardness in Historic Perspective: A Book of Essays*. Cambridge, Mass.: Harvard University Press.
- Haselmann, Rainer, Katharina Pistor, and Vikrant Vig. 2005. "How Law Affects Lending." Columbia Law and Economics Working Paper 285. Columbia University School of Law, New York.
- Honohan, Patrick. 2007. "Cross-Country Variation in Household Access to Financial Services." World Bank, Development Research Group, Washington, D.C.
- King, Robert G., and Ross Levine. 1993. "Finance, Entrepreneurship and Growth: Theory and Evidence." *Journal of Monetary Economics* 32(3):513–42.
- Klapper, Leora, Luc Laeven, and Raghuram Rajan. 2006. "Entry Regulation as a Barrier to Entrepreneurship." *Journal of Financial Economics* 82(3):591–629.
- Laeven, Luc, and Ross Levine. 2007. "Is there a Diversification Discount in Financial Conglomerates?" *Journal of Financial Economics* 85(2):331–67.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2002. "Government Ownership of Commercial Banks." *Journal of Finance* 57(1):265–301.
- . 2006. "What Works in Securities Laws?" *Journal of Finance* 61(1):1–32.
- Mian, Atif. 2006. "Distance Constraints: The Limits of Foreign Lending in Poor Economies." *Journal of Finance* 61(3):1465–505.
- Micco, Alejandro, Ugo Panizza, and Monica Yañez. 2007. "Bank Ownership and Performance: Does Politics Matter?" *Journal of Banking and Finance* 31(1):219–41.
- Petersen, Mitchell A., and Raghuram G. Rajan. 1995. "The Effect of Credit Market Competition on Lending Relationships." *Quarterly Journal of Economics* 110(2):407–43.
- Rajan, Raghuram G., and Luigi Zingales. 1998. "Financial Dependence and Growth." *American Economic Review* 88(3):559–87.
- Rajan, Raghuram G. 2006. "Separate and Unequal." *Finance and Development* 43(1):56–57.
- Ramakrishnan, Ram T.S., and Anjan V. Thakor. 1984. "Information Reliability and a Theory of Financial Intermediation." *Review of Economic Studies* 51(3):415–32.
- Visaria, Sujata. 2006. "The Microeconomic Impact of Debt Recovery Tribunals in India." Boston University, Department of Economics.
- World Bank. 2006a. *Doing Business*. Washington, D.C.: World Bank.
- . 2006b. *Global Assessment of Bank Disclosure Practices*. Washington, D.C.: World Bank.