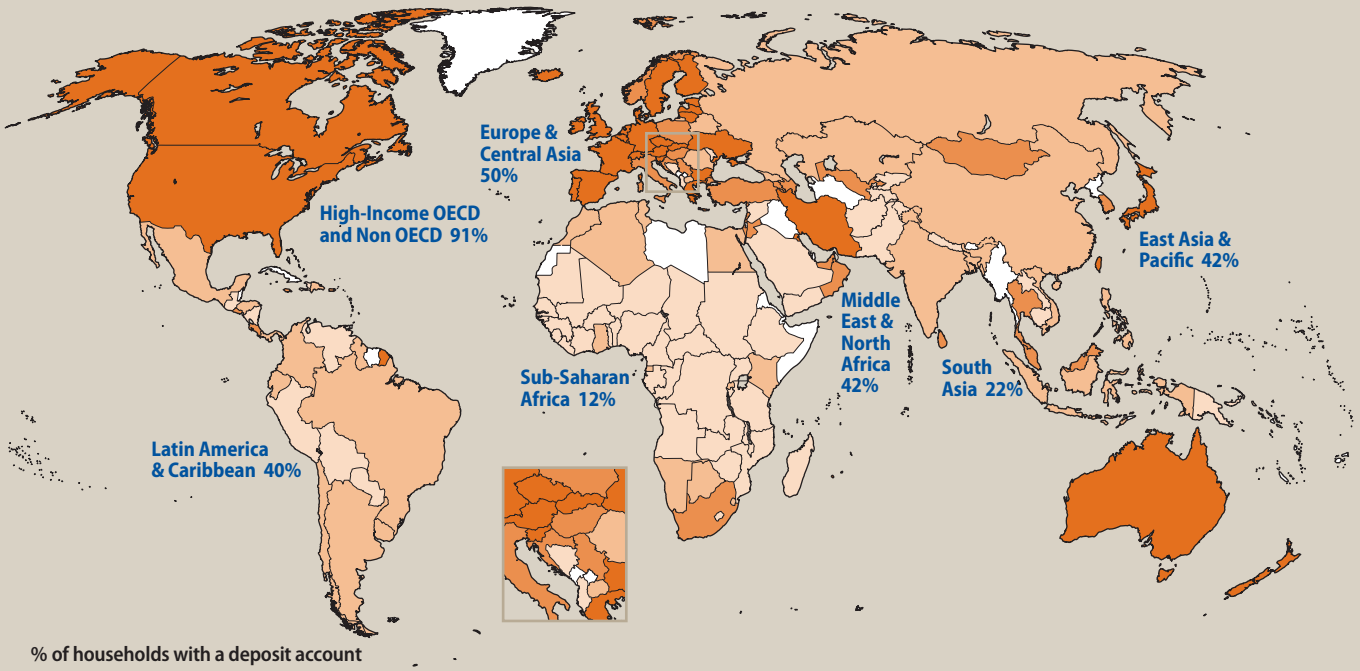
MAP 1.1

Percentage of banked households, 2009



% of households with a deposit account in a formal financial institution

- 0–25
- 25–50
- 50–75
- 75–100
- NO DATA

Note: OECD = Organisation for Economic Co-operation and Development

The map uses data from household surveys including Living Standard Measurement Surveys where available, as well as regional sources: for the EU, the European Commission's Eurobarometer, Special Barometer 260 (2007); for Africa, FinMark Trust's FinScope; for Latin America, Tejerina and Westley (2007) and the MECOVI database and Barr et al. (2007); and Nenova et al. (2009). For countries for which these data are unavailable, predictions based on an econometric model with number of deposit accounts per 1,000 adults and number of branches per km^2 from the *Financial Access* database are used. See the section on Methodology for more details. Data for Taiwan (China), Hong Kong SAR (China), and Puerto Rico (US) have been broken out from the national dataset.

CHANGES IN ACCESS TO FINANCIAL SERVICES

DEPOSIT SERVICES

Access to deposit services varies greatly across different parts of the world. *Financial Access 2010* estimates that about half of the households in the world have no access to a bank account. The immediate—and obvious—consequence of this situation is that the poor have to rely on informal financial services that may be more costly and less reliable. This inequality robs people, especially the poor and most vulnerable, of important options to manage their irregular cash flows and smooth consumption.[1] At the more macro level, low levels of financial inclusion represent an obstacle to economic development.[2] Consequently, financial inclusion has become an important topic in the development agenda.

How many people use deposit services offered by commercial banks?

Map 1.1 gives a broad view of access to deposit services around the world. The map plots the percentage of households that have a deposit account in a formal financial institution using information from various household surveys and estimates based on the data from the *Financial Access 2010* survey.[3] To identify gaps in access, one would ideally evaluate information on the number of individuals using various types of financial services, preferably disaggregated into socioeconomic groups. Though household surveys sometimes provide this information, it is not available for a large enough number of economies to enable us to assess the global picture.[4] Nonetheless, data collected through the *Financial Access 2010* survey combined with the information from existing household surveys allow us to estimate that 49 percent of households—or about half of the world—have deposit accounts in formal financial institutions.

Almost all economies in Sub-Saharan Africa are below this world average, whereas high-income countries are above it. Sub-Saharan Africa and South Asia are the regions with the lowest share of banked households. The percentage of households having deposit accounts in a formal financial institution varies greatly across countries, from below 1 percent in the Democratic Republic of Congo and Afghanistan to close to 100 percent in Japan.

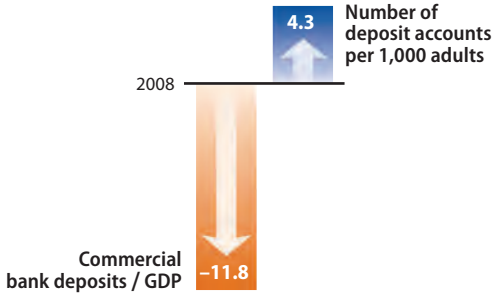
The number of deposit accounts continued to expand despite the crisis, though deposit volume declined significantly

In 2009 as the global financial crisis unfolded, about 60 percent of economies experienced a decline in real per capita GDP, and for those that went through expansions, median growth was only 2.1 percent.[5] Deteriorating macroeconomic conditions affected the deposit volume around the globe as individuals and firms had to tap into their savings. Seventy-seven percent of economies in the *Financial Access 2010* database experienced a decline in deposit-to-GDP ratio, with an average decline of 11.8 percent. The overall world deposit-to-GDP ratio decreased from 72 percent at the end of 2008 to 66 percent at the end of 2009.[6]

FIGURE 1.1

More accounts, less money in commercial banks

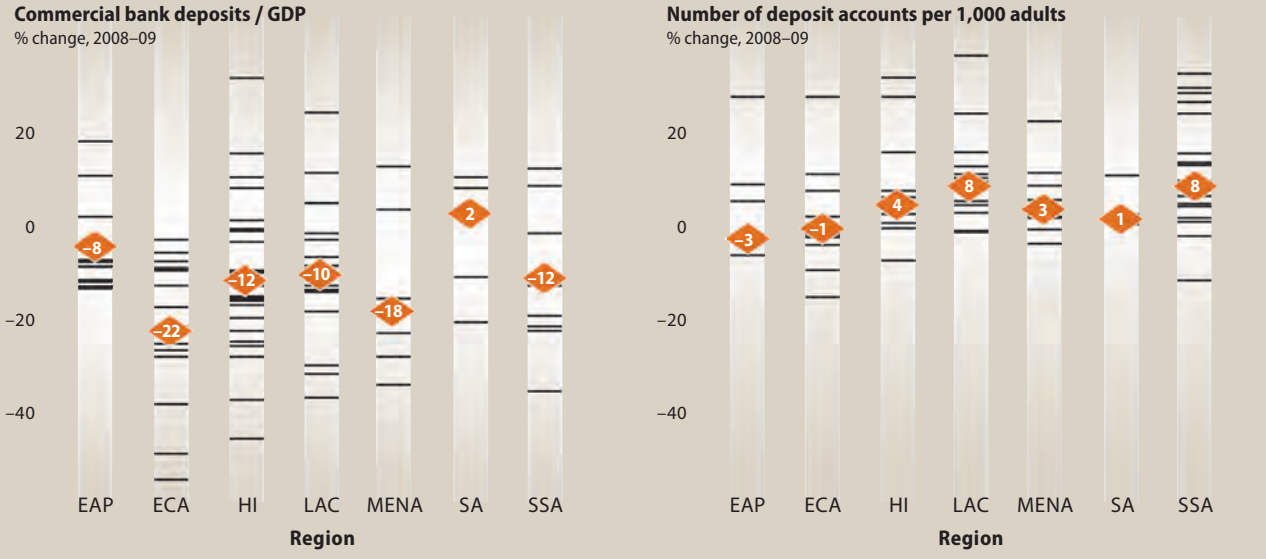
% change, 2008–09



Source: Financial Access database.

FIGURE 1.2

Lower deposit values, more deposit accounts in most regions



Source: Financial Access database.

Note: EAP=East Asia and the Pacific region, ECA=Europe and Central Asia region, HI=High-Income OECD, LAC=Latin America and the Caribbean region, MENA=Middle East and North Africa region, SA=South Asia region, and SSA=Sub-Saharan Africa region

Yet even in the midst of the crisis, the use of financial services continued to expand. The number of deposit accounts per 1,000 adults increased in 69 percent of the economies reporting data. The world as a whole added 65 accounts per 1,000 adults in 2009, which is roughly a 10 percent increase in the median number of accounts per 1,000 adults. Growth has been uneven across countries, however, and the median change was only 4.3 percent (figure 1.1).[7]

Changes in volume of deposits and number of deposit accounts differ substantially across regions (figure 1.2). Economies in Eastern Europe and Central Asia, where the financial system was severely affected by the crisis, show the largest median drop in deposit-to-GDP ratio at 22 percent. At the same time, South Asia experienced a marginal increase in the median deposit-to-GDP ratio. Sub-Saharan Africa, the region with the lowest level of deposit account penetration, experienced the second largest median increase in the number of deposit accounts per 1,000 adults, surpassed only by Latin America and the Caribbean. The number of accounts per 1,000 adults on average increased in all regions except for East Asia and the Pacific and Europe and Central Asia. Note that these regional averages should be interpreted with caution because of differences in intraregional variation, as figure 1.2 displays.

The variation in changes in the number of deposit accounts and the volume of deposits exhibit similar patterns across income groups. Middle-income and high-income countries on average experienced a larger decline in volume of deposits as a percentage of GDP than did the low end of the world income distribution, mostly because of the effect of the financial crisis. Though the largest median increase in deposit account penetration is observed in the poorest 20 percent of countries, the richest 20 percent have seen only a slight expansion.

Expansion of Access to Deposit Services

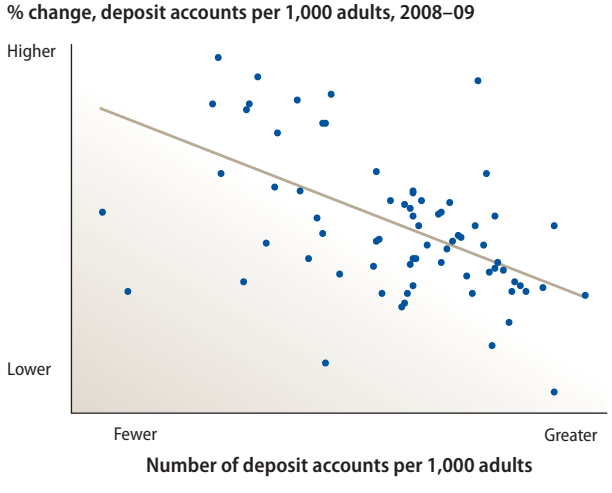
Because of endogeneity issues involved with the cross-country regression framework and data limitations (especially in terms of time dimension), uncovering statistically significant causal effects in the current

context is not possible. Hence, rather than drawing conclusions about causal relationships, *Financial Access 2010* focuses on investigating correlations and partial associations between country-level variables.

The analysis of the changes in the number of deposit accounts per 1,000 adults between 2008 and 2009 highlights the importance of macroeconomic stability and growth for improving financial access. The change in the number of accounts per 1,000 adults is strongly positively correlated with macroeconomic outlook, measured by short-run forecasts of real per capita GDP growth.[8] In addition, lower deposit penetration at the end of 2008 is positively associated with a greater change in the number of deposit accounts per 1,000 adults. Figure 1.3 plots this negative association between deposit penetration at the end of 2008 and the change in the number of accounts in 2009 after controlling for expected real per capita GDP growth. The results indicate that access to basic deposit services continues to improve, but macroeconomic stability and growth are essential for sustainable improvement in financial access.

FIGURE 1.3

Financial inclusion: Change in deposit penetration is larger for economies with fewer initial deposit accounts



Source: Financial Access database.
Note: Correlation controls for expected real GDP growth in 2009–10. The relationship is significant at the 5 percent level.

Macroeconomic factors, physical infrastructure, and the structure of financial markets play an important role in deposit penetration

Consistent with previous research, cross-country analysis using *Financial Access 2010* data indicates that a number of macroeconomic factors are correlated with the level of deposit account penetration.[9] Income per capita is strongly correlated with the number of deposit accounts. A 1 percent change in GDP per capita is associated with a change of around 0.3 to 0.6 percent in the number of deposit accounts per 1,000 adults. Branch penetration and the existence of explicit deposit insurance are also positively related to deposit account penetration.

Physical infrastructure indicators, including electricity consumption, phone lines, and the number of landline and cell phone users, are all positively related to the number of branches and to deposit penetration, indicating that a better developed infrastructure and a higher degree of deposit penetration go hand in hand. The legal environment, measured by the index of the strength of legal rights for borrowers and lenders, is also closely related to deposit penetration. A favorable legal environment for lending may enable banks to operate more profitably through lending and to grow, eventually leading to expansion of deposit services.[10]

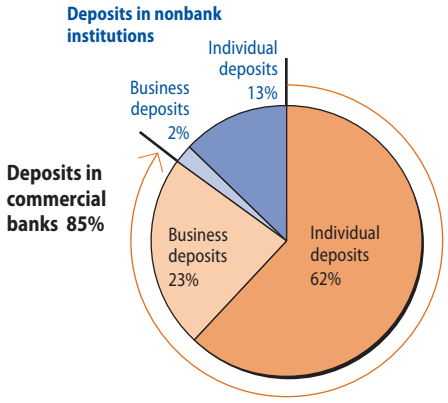
A greater degree of competition, proxied by the concentration ratio in the banking sector, is associated with greater deposit penetration. This is in line with earlier studies arguing that competition in the banking sector would increase efficiency and, in turn, would lead to a larger variety of products and services offered to a larger depositor base.[11] The analysis of the correlation between interest rate spread (lending rate minus deposit rate) and deposit account penetration lends support to this argument. Economies with lower interest rate spreads also show a higher number of deposit accounts per 1,000 adults.

Analysis of the volume of deposits normalized by GDP offers further insight into the factors affecting financial access. Although inflation, as a proxy of macroeconomic stability, is not significantly correlated with the number of deposit accounts, it is negatively related to deposit volume. In other words, macroeconomic stability seems to matter for the decision of how much money to put in the bank account, but not for having an account at all. This result is consistent with the evidence of a simultaneous decrease in deposit volume and increase in number of accounts despite the financial crisis. It also supports the view that a deposit account is a basic service, and having one is inelastic with respect to macroeconomic disturbances.

FIGURE 1.4

Commercial banks hold most deposits by volume

% of total volume by type of institution and depositor



Source: Financial Access database.

Banks versus nonbanks and access to deposit services

Not surprisingly, central banks and financial regulators have the most complete information on commercial banks as they are often the institutional type most directly, and for the longest time, under the purview of the regulators. However, many nonbank institutions also provide financial services and some even have specific financial inclusion mandates. These include cooperatives, specialized state financial institutions, and microfinance institutions. Robust analysis of the changes in the number and volume of deposits between banks and nonbanks is challenging because of data limitations for nonbanks. The challenge is threefold. First, in a number of economies information on nonbanks is not available. Second, financial institutions in a number of economies changed their status or new institution types were introduced contributing to breaks in a time series. Third, only partial data on each nonbank group may be available, distorting comparison of banks and nonbanks within the system. Once economies with data inconsistencies are excluded, the resulting subset of economies with comparable data for each institutional category is small. For example, for cooperatives only 20 economies have comparable data for a change in the number of deposit accounts; for specialized state financial institutions it is 22; and for microfinance institutions only 8 economies have comparable data. Statistical analysis shows that among nonbanks, the change in the number of accounts is different from zero only for state specialized financial institutions. Moreover, the changes in the number of accounts in commercial banks and in state specialized financial institutions are not different from one another.

The majority of the deposits by number and volume are held in commercial banks: 85 percent of total deposit volume and 96 percent of all deposit accounts (figure 1.4). Often a country's legal framework does not allow any other institutions to take deposits. But in a number of economies nonbanks play an important role in providing basic deposit services. For example, in Burundi, Chile, Spain, and France, cooperatives or specialized state financial institutions hold more deposit accounts than do commercial banks. And in a number of West African countries—Benin, Burkina Faso, Côte d'Ivoire, and Niger—deposit-taking microfinance institutions have more depositors than do commercial banks, which suggests that nonbanks can be an important player in providing basic deposit services.

Individual deposits account for 75 percent of the total volume and 96 percent of the number of accounts. Individual deposits represent a greater share of deposit volume than do firm deposits in banks (73 percent) and in nonbank financial institutions combined (86 percent).

ACCESS TO CREDIT SERVICES

Number of loan accounts broadly stayed unchanged, but lending volumes declined significantly

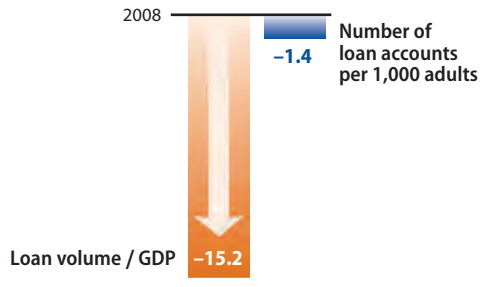
Credit services fared much worse than deposits in 2009. Indeed, the global financial crisis took its toll on access to credit services, with the value of loans as a percentage of world GDP declining from 74 percent to 65 percent.[12] In about 85 percent of economies, loan volume as a share of GDP declined in 2009. At the same time throughout the year, the number of outstanding loans per 1,000 adults remained more or less unchanged. Figure 1.5 plots changes in loan volume and number of outstanding loans in commercial banks.

These averages conceal a substantial degree of variation across economies and regions (figure 1.6). The number of outstanding loans per 1,000 adults decreased in 57 percent of the economies. While the changes are positive on average in the Middle East and North Africa, declines are observed, on average, in Europe and Central Asia and South Asia. All economies in the Middle East and North Africa, except for Israel, have undergone expansions in the number of outstanding loans. Conversely, all economies in Europe and Central Asia, except for Albania and Turkey, have had contractions in the number of outstanding loans.

FIGURE 1.5

Loan volume of commercial banks fell by 15% in 2009

% change, 2008–09



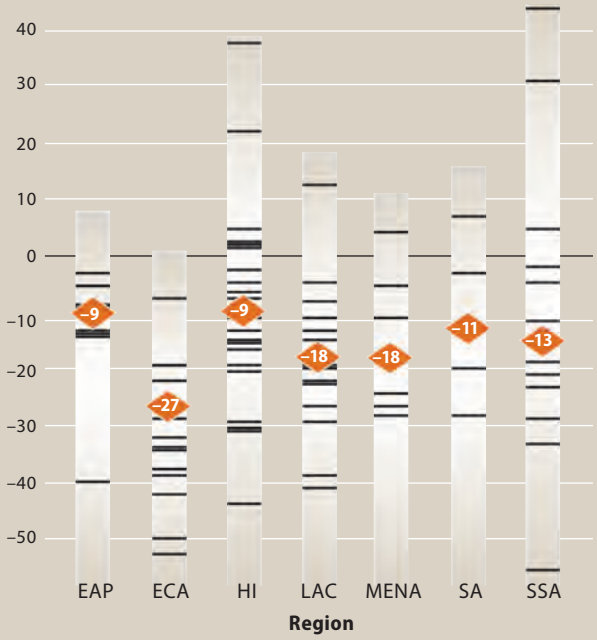
Source: Financial Access database.

FIGURE 1.6

Changes in volume and number of loans vary widely across regions

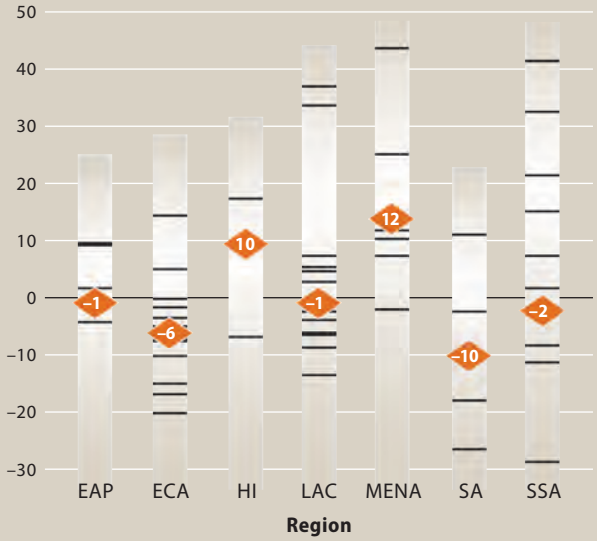
Commercial bank loans / GDP

% change, 2008–09



Number of loan accounts per 1,000 adults

% change, 2008–09

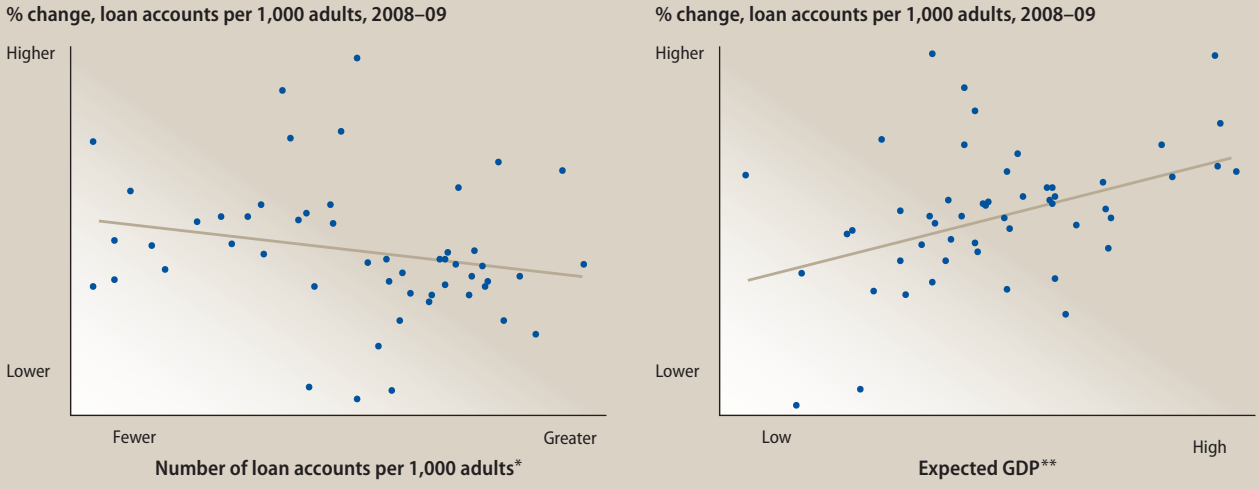


Source: Financial Access database.

Note: EAP=East Asia and the Pacific region, ECA=Europe and Central Asia region, HI=High-Income OECD, LAC=Latin America and the Caribbean region, MENA=Middle East and North Africa region, SA=South Asia region, and SSA=Sub-Saharan Africa region

FIGURE 1.7

Higher growth in loan accounts is associated with fewer accounts and with expectations of economic growth



Source: Financial Access database.

* Correlation controls for expected GDP in 2009. The relationship is statistically significant at the 5 percent level.

** Correlation controls for number of outstanding loans per 1,000 adults in commercial banks. The relationship is statistically significant at the 5 percent level.

The differences in median changes in commercial bank loan volume (as a percentage of GDP) show less variation across economies than median changes in the number of loans. Loan volume as a percentage of GDP dropped in all regions. Europe and Central Asia, heavily affected by the financial crisis, suffered a sharp decline in loan volume, with all the economies in the region for which data are available experiencing drops in loans-to-GDP ratios ranging between 19 percent and 52 percent. The hardest hit country in the region is Tajikistan, where loans declined from 18 percent of GDP to less than 9 percent. Even in Belarus, where the decline seems more modest, the loans-to-GDP ratio fell from 47 percent to 38 percent.

Macroeconomic stability and economic growth are critical for the expansion of credit

What factors are associated with changes in credit services in 2009? Economies with higher expected GDP levels are more likely to experience an increase in the number of loans per 1,000 adults.[13] This also means that economies where macroeconomic expectations are negative are more likely to experience decreases in loan numbers as demand shrinks and banks tighten supply as credit quality deteriorates. Increase in loan penetration is larger for economies with a smaller number of outstanding loans to start with, indicating that even after controlling for expected GDP—a proxy for macroeconomic stability—access to credit continues to expand. The implications of these results are twofold. First, similar to deposit services, there is evidence that access to financial services is improving. Second, macroeconomic stability is fundamental for access to credit services (figure 1.7).

Macroeconomic factors, physical infrastructure, and the structure of financial markets are correlated with loan penetration level

Cross-country analysis using the data on the level of credit indicators in *Financial Access 2010* is broadly consistent with earlier research.[14] Loan penetration, measured by the number of loan accounts per 1,000 adults, is positively associated with GDP per capita; population density; branch penetration; physical infrastructure indicators, such as phone lines per capita; and financial infrastructure, such as credit information and creditor rights.

The link between loan penetration and banking sector concentration is negative, indicating that more competitive banking markets have higher levels of credit access. Better creditor rights and comprehensive credit information systems are associated with greater access to financial services. There is also a positive link between the existence of explicit deposit insurance and loan penetration. Similar to the effect of credit rights on deposits, this indicates that to improve access to financial services, a favorable business climate that supports both deposit and loan services is essential. Sustainable improvement in access to credit is possible only if sustainable financial institutions are able to effectively manage both the asset and liability sides of their balance sheets.

Banks versus nonbanks in access to credit services

Credit services are typically less regulated than deposit services, with unregulated credit grantors providing a substantial but often unaccounted-for portion of the credit volume in many economies. As a result, it is more difficult to estimate overall number of credit users than the number of depositors.

Comparison of the data provided by regulators on loans granted by banks and nonbanks is difficult for the same reasons highlighted earlier with regard to deposit services. The subset of economies with comparable data on the number of loans includes only 19 economies.[15] The numbers are even smaller for specialized state financial institutions and microfinance institutions: 15 and 7 economies, respectively. In all cases, average percentage change in the number of loans is not statistically significantly different from zero, similar to commercial banks.

PHYSICAL OUTREACH

Physical outreach of the financial system expanded in 2009

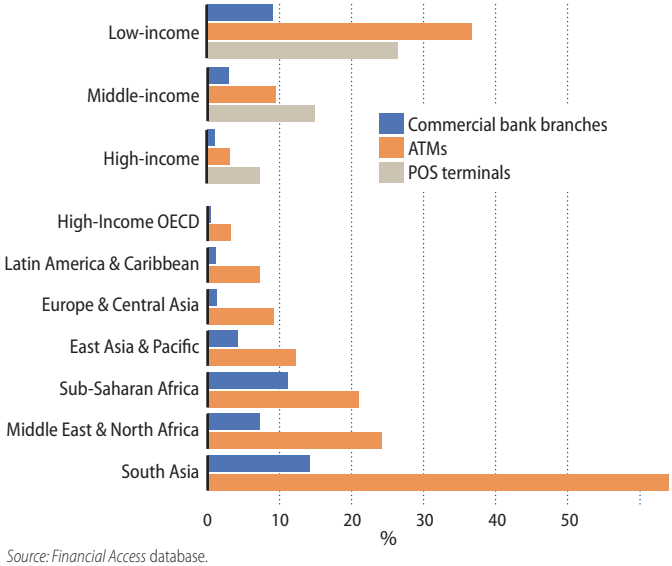
Global retail networks, consisting of financial institution branches, ATMs, and POS terminals, expanded last year. In 2009 the world on average added about one bank branch, five ATMs, and 167 POS terminals per 100,000 adults.[16] This growth was not universal, however. The number of bank branches decreased in 43 percent of economies, about half of which are high-income and Eastern European economies. The number of ATMs decreased in 16 out of 104 economies, and the number of POS terminals decreased in 13 out of 77.

Growth in the retail network varied across regions and income groups. Low-income countries show the highest rates of growth in the number of bank branches, ATMs, and POS terminals, which is another sign of improved access to financial services. Africa, South Asia, and the Middle East, the regions with the lowest levels of retail network outreach, show higher rates of growth in the number of bank branches and ATMs (figure 1.8).[17]

FIGURE 1.8

Retail networks grew fastest in low-income countries and in regions with limited retail network coverage

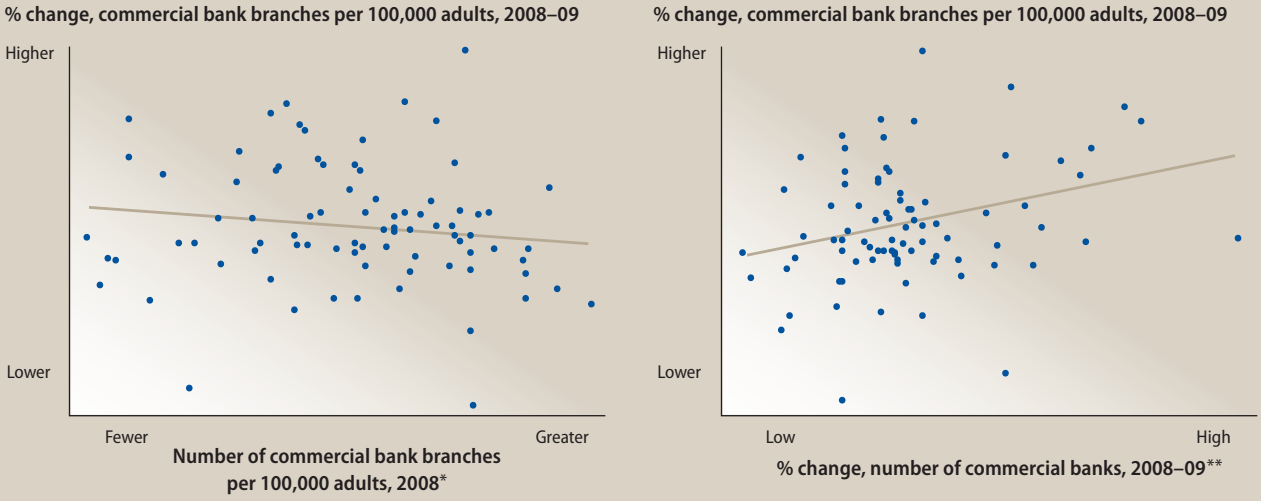
% change in the number of commercial bank branches, ATMs, and POS terminals, 2008–09



Source: Financial Access database.

FIGURE 1.9

Bank branches increased most in less developed networks and where new banks entered the market



Source: Financial Access database.

* Correlation controls for number of commercial banks in 2008. The relationship is statistically significant at the 5 percent level.

** Correlation controls for number of commercial bank branches per 100,000 adults in 2008. The relationship is statistically significant at the 5 percent level.

The growth in low-income countries starts from a low base, especially for ATM and POS numbers, and the increase in coverage is less pronounced. For example, a 27 percent increase in the number of ATMs in Malaysia translates into an increase in coverage by more than 10 ATMs per 100,000 adults, but an equivalent percentage change in Kenya adds only 1.6 ATMs per 100,000 adults. At the extreme, Burundi doubled the number of ATMs but still has only about 0.08 ATMs per 100,000 adults—a total of four ATMs in the entire country. Less dramatic examples are Syria (with 366 ATMs) and Malawi (with 203 ATMs)—both doubled the number of ATMs, resulting in coverage of 2.6 ATMs per 100,000 adults. Overall, patterns of retail network outreach are broadly unchanged.[18]

More banks and higher expected economic growth are associated with more retail locations

Overall, the growth rate in the number of bank branches, ATMs, and POS terminals in 2009 was negatively correlated with income levels. Poorer economies added branches, ATMs, and POS terminals at a faster rate. For the most part, this meant that the economies with less developed retail networks were able to improve outreach (figure 1.9). This relationship is particularly strong in cases of POS terminal growth.

The expected rate of economic growth and the change in the number of banks are strongly correlated with the change in the number of bank branches and ATMs. This indicates that the entry of new institutions may significantly improve geographical outreach of the system. Of course this also means that when banks close, branches close, too. Economies experiencing a decrease in economic growth as a result of the financial crisis are also the ones showing large decreases in the number of bank branches. The number of bank branches decreased by 218, or 0.54 per 100,000 adults, in Ukraine; 292, or 0.24 per 100,000 adults, in the Russian Federation; and 41, or 3.5 per 100,000 adults, in Estonia.

New technologies enable expansion in outreach through nonbranch retail locations

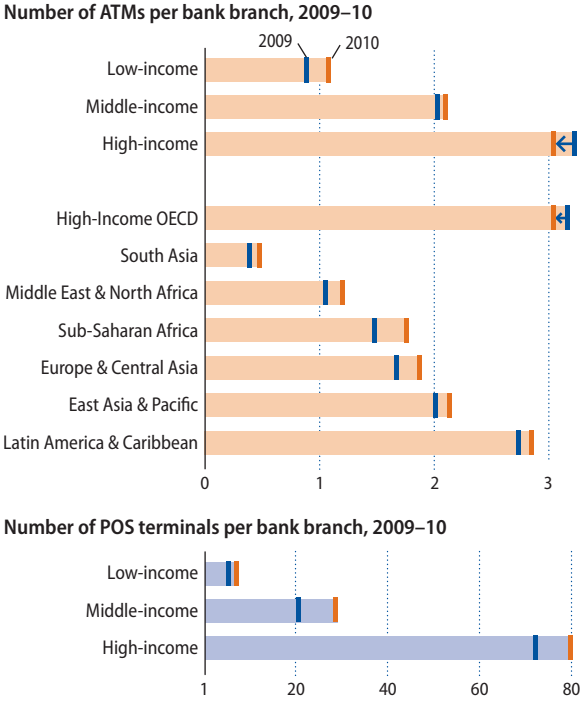
Despite the fast growth, the numbers of ATM and POS networks remain small relative to branch networks in low- and middle-income countries (figure 1.10). In 2009 the average number of ATMs exceeded the number of bank branches in low-income countries for the first time, but just barely. There are two ATMs per

bank branch in middle-income countries and three per bank branch in high-income countries. In South Asia the ratio is the lowest—on average there is one ATM for two bank branches. It is important to note that a greater number of ATMs does not automatically translate into better access. Lack of interoperability in the system, for example, requiring each bank to build its own ATM network, raises overall cost.[19]

As new technologies evolve, the trends in the use of ATMs and POS terminals are changing. Data from the *Financial Access 2010* survey show that the number of ATMs relative to the number of branches slightly declined in high-income countries. At the same time, the number of POS terminals increased, reflecting a growing reliance on noncash payments. A greater use of electronic transactions through Internet and cell phones may also reduce the need for ATMs going forward. For now, though, as cash remains the main medium of exchange for retail transactions in most economies, cash-in-cash-out points, whether in the form of branches, ATMs, or POS terminals allowing cash-back, are essential elements of financial access.

FIGURE 1.10

Low- and middle-income countries have fewer ATMs and smaller POS networks in relation to the number of branches



Source: Financial Access database.

Banks versus nonbanks

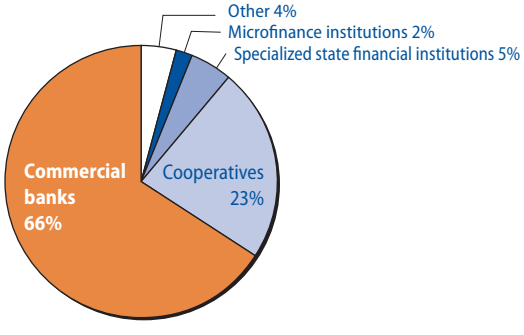
Worldwide, commercial banks have the largest branch network, representing more than two-thirds of all branches. Cooperatives are the second largest with 23 percent of branches worldwide (figure 1.11). In 60 percent of economies with available data (54 out of 90), nonbanks had less than half the number of branches of commercial banks. According to the *Financial Access 2010* data, the number of cooperative branches exceeds the number of bank branches in only a few countries, namely Austria, Burundi, Germany, Hungary, Korea, and Spain. Figure 1.11 likely underestimates the size of the nonbank branch network because of data limitations for nonbanks, though this year's survey indicates improvements in a number of economies on data availability.

Commercial banks mainly target urban areas. Most bank branches are located in urban areas, representing 88 percent of all financial institutions in urban areas. On average, only 26 percent of all bank branches are in rural areas, compared with 45 percent for cooperatives, 38 percent for specialized state financial insti-

FIGURE 1.11

Commercial banks operate two-thirds of all bank branches

% of total branches by type of institution



Source: Financial Access database.

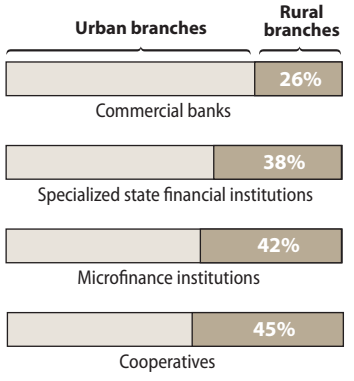
tutions, and 42 percent for microfinance institutions (figure 1.12). Even though a smaller share of commercial bank branches is located in rural areas, they still provide the bulk of rural coverage.

Data limitations discussed earlier do not allow for a robust analysis of changes in bank versus nonbank branch networks. For a small subset of economies with comparable data for banks and nonbanks (61 economies), there is no statistically significant difference in the growth rate of bank and nonbank branches.

FIGURE 1.12

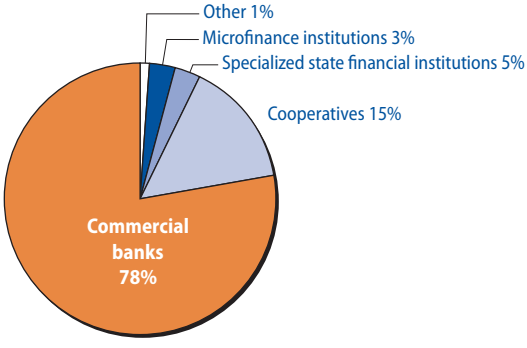
Nonbanks are more focused on rural areas…

% of branches in urban and rural areas



…but commercial banks are still the most prevalent financial institution in rural areas

% of rural branches by type of institution



Source: Financial Access database.

NOTES

1. Collins et al. (2009).
2. For example, Beck, Demirgüç-Kunt, and Levine (2007), using cross-country data, find a positive relationship between financial depth and the change in the income share of the poorest. They also report evidence for finance reducing inequality. An ideal experiment in analyzing the impact of reducing the inequalities in household access to finance on poverty would require household-level panel data collected over a period, which is yet unavailable.
3. For details of the methodology, see the Methodology section and Beck, Demirgüç-Kunt, and Martinez Peria (2007). See Ardic, Heimann, and Mylenko (forthcoming) for estimation results. Also see Honohan (2008) for the difficulties involved. Household survey data on access to financial services comes from recent Living Standard Measurement Surveys (various years) where available, as well as regional sources: for the European Union, the European Commission's Eurobarometer, Special Barometer 260 (2007); for Africa, FinMark Trust's FinScope; for Latin America, Tejerina and Westley (2007) and the MECOVI database and Barr et al. (2007); and Nenova et al. (2009). These data are referenced and expanded upon in Claessens (2006), Honohan (2008), Gasparini et al. (2005), and Beck, Demirgüç-Kunt, and Martinez Peria (2007). Note that predictions may not perform well in the high end and low end of the distribution.
4. See *Financial Access 2009* for a discussion and literature review on various approaches to measurement of financial access.
5. Expected growth in real per capita GDP. Source: IMF (2010).
6. The calculations are done for 97 economies for which data are available in both the *Financial Access 2009* and *2010* databases. For example, China is not among these economies because Chinese data are not available in the *Financial Access 2009* database.
7. Access to deposit and credit services in this report is measured by the number of deposit accounts per 1,000 adults and the number of outstanding loans per 1,000 adults, respectively. The report defines an expansion in financial access as more individuals and firms using more financial services and products. An increase in the number of accounts could be due to more individuals/firms opening accounts or to the same or even a smaller number of account holders opening more accounts. The data do not allow one to distinguish between these two dimensions because of lack of information on the number of unique deposit account holders. See Kendall, Mylenko, and Ponce (2010) for further details. Reported statistics are calculated for a subset of economies with comparable data in 2009 and 2010, excluding economies with data inconsistencies resulting from institutional reclassifications or improved data availability.

8. Source of forecasts: IMF (2010). Expected real growth is an indicator variable for positive real per capita GDP growth in 2010. A number of other macro and policy environment variables were tested and showed weak correlations after controlling for income per capita. See Ardic, Heimann, and Mylenko (forthcoming) for estimation results and further details.
9. For a comprehensive account of the literature, see Demirgüç-Kunt, Beck, and Honohan (2008); for recent analysis see Kendall, Mylenko, and Ponce (2010).
10. The strength of legal rights for borrowers may also proxy for more general legal protections in the system, including those of depositors' rights.
11. See, for example, Demirgüç-Kunt and Huizinga (1999). Note also that a higher degree of competition and lower concentration are not necessarily the same; concentration is only one dimension of competition and hence used as a proxy for competition.
12. Source: *Financial Access* database. Figures are calculated for those economies for which data are available for the two consecutive years in the database. For example, China, Japan, and the United States were excluded in calculations because of a lack of data on the number of outstanding loans.
13. Source of expected GDP: IMF (2010). See Ardic, Heimann, and Mylenko (forthcoming) for estimation results and further details.
14. See *Financial Access 2009* or Kendall, Mylenko, and Ponce (2010).
15. The subset excludes economies with structural data breaks because of substantial institutional reclassifications or additional data provided in 2010 that was not available in *Financial Access 2009*.
16. Estimates exclude China because of lack of data on the number of branches, ATMs, and POS terminals. The POS estimate is based on a smaller number of economies.
17. A smaller number of observations is available for POS terminals, making regional comparison difficult.
18. This analysis does not tell whether the new branches, ATMs, and POS terminals are in locations where they did not exist earlier. Ideally, to measure the outreach of the financial system, one would use data on the geographic location of these new branches, ATMs, and POS terminals.
19. See, for example, Saloner and Shepard (1995) and Prager (1999).