Assessing Financial Access in Brazil

Anjali Kumar
Thorsten Beck
Cristine Campos
Soumya Chattopadhyay

THE WORLD BANK

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Manufactured in the United States of America

First Printing: April 2005

printed on recycled paper

1 2 3 4 5 07 06 05

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ISBN-10: 0-8213-6131-7 ISBN-13: 978-0-8213-6131-3

eISBN: 0-8213-6132-5

ISSN: 1726-5878

DOI: 10.1596/978-0-8213-6131-3

Anjali Kumar is Lead Financial Economist in the Finance cluster of the Latin American and Caribbean Region of the World Bank. Thorsten Beck is Senior Financial Economist in the Development Research Group at the World Bank. Cristine Campos is Consultant from the Instituto Pesquisa Economica Aplicada and the University of California, Berkeley. Soumya Chattopadhyay is Consultant to the World Bank.

Library of Congress Cataloging-in-Publication Data has been requested.

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Preface

Access to financial services in Brazil has been relatively stable over the past ten years, despite the banking sector contraction of the latter 1990s. Wide geographic variations in the supply of banking services by region and municipality are partly explained by differentials in income and population density. On a cross-country basis Brazil does not appear to be under banked. Looking at the use of financial services by different groups of consumers in Brazil, differences in financial access across regions is confirmed. However, differences among richer or poorer neighborhoods can be as important as differences between regions. Public financial institutions in Brazil, deemed to be socially responsible, appear to have served disadvantaged groups more than private banks on some measures and for some services. However their role varies by the type of service. In the case of some services, public banks may have served the better-off. At the level of individuals, the most important determinants of access to financial services are socio-economic characteristics such as income, wealth and education. This may signify that in the presence of asymmetric information, access to such services depends critically on client information, and such characteristics provide a proxy for creditworthiness.

The Central Bank of Brazil provided data on financial institutions and Rosane Mendoça of IPEA coordinated the organization of the survey of users of financial services in urban Brazil and the analysis of its data. We are grateful for research assistance provided by Adam Parsons and Ricardo Gonçalves. Findings, interpretations, and conclusions of this paper are entirely those of the authors and do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

Introduction

It is increasingly accepted that greater financial system depth and soundness contribute to economic growth and poverty reduction by enabling better selection and monitoring of projects, diversifying risks, and encouraging the optimization of scale, time frame and technology.¹ Strong financial systems also help absorb shocks and prevent financial crises which entail huge fiscal costs that crowd out social spending.

Beyond the association of financial depth and stability with growth and crisis prevention, the financial system may also be able to accelerate the reduction of poverty through broadened distribution of financial services. The improvement of access to financial services should help both consumers and producers raise their welfare and productivity. Individuals can insure themselves against periods of low income or unexpected fluctuations in income, and maintain their consumption standards through the accumulation of financial savings.² Savings also provide a vehicle for future lumpy expenditure needs, whether expected (for example for special family occasions, or for the purchase of significant assets such as a home) or unexpected. Access to savings and borrowings could also have longer term welfare implications, permitting people to borrow when young, for example for education or for other physical or human capital, and then repay and save for retirement when they are older.³

1. Discussions of the association between growth and poverty reduction may be found in Dollar and Kraay (2001). The discussion of the association between growth and the financial system can be traced through King and Levine (1993); Rajan and Zingales (1998), Levine, Loayza and Beck, (2000), and World Bank (2001). See also IMF working paper by Holden and Prokopenko (2001), for a well-documented survey of the literature.

2. The role of savings and borrowing in protecting consumption against unexpected shocks, first discussed by Friedman (1957) in the 'permanent income hypothesis' has since been extensively tested empirically, as discussed in Bond and Townsend (1996).

3. The 'life cycle' hypothesis as an explanation for savings and borrowing behavior, discussed in Ando, Modigliani and Brumberg in a series of articles in the 1950s and 1960s. Mayer (1972), and Romer, (1996) have reviews.

For a producer, access to credit for fixed or working capital enables an increase in production possibilities which can have far-reaching implications not only for the producer but for patterns of employment, occupational choice and even economy-wide productivity and growth. Financing constraints have been shown to feature prominently among the constraints of small and medium-size enterprises in some investigations.⁴ A study of Latin American firms found the difficulty of access to financial markets to be the major obstacle to the expansion of business activities, ahead of factors such as macro instability, taxes, and street crime.⁵ Another study of 15 Latin American countries demonstrated that access to financial services for microenterprises directly impacts poverty, due to the disproportionately large number of persons they employ (56 percent of all earners and 70 percent of the region's poor earners). In Brazil, an estimated 98 percent of registered firms are enterprises with less than 100 workers and account for about 45 percent of registered workers.⁶ These issues provide the motivation for the present paper, which investigates current patterns of access to financial services in Brazil, based on a series of alternative measurements, and examines the factors which explain differences in financial access across geographic areas and individuals. On one side, the Brazilian financial system is the largest in the region and offers a broad variety of services to its clients. On the other side, according to estimates, only around a third of the total population, or 58 million Brazilians have bank accounts, while some 80 million, or only half of the total population is considered "bankable."⁷ Central Bank statistics show that nearly 30 percent of all municipalities (about 1,680 municipalities, out of a total of some 5,600) have no bank branch. There are seven states (out of 27), mostly in the North and Northeast, where more than 70 percent of municipalities have no bank branches. Around 57 percent of all municipalities and nearly 20 percent of the population in these states have no access to a bank branch.⁸ The 1,400 or so credit cooperatives offer basic financial services only to about 1.5 million Brazilians, mostly in urban areas.

Chapter 2 investigates the extent to which the supply of banking services has increased or diminished over time, and also analyzes factors underlying the spatial distribution of banking services, and the relative roles of public and private banks. Chapters 3 and 4 look at the use of financial services by urban individuals and analyze factors accounting for differentials in access—in particular the importance of regional and local differentials in access, the role of public versus private financial institutions, and the role of individual characteristics that could serve as proxies for information on creditworthiness. The final chapter summarizes the findings of this paper.

4. Hallberg (2001).

5. Galindo (2001).

6. SEBRAE (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas) website (January 2004).

7. In December 2002, there were 58.3 million savings accounts and 45.6 million current accounts in Brazil's banks, according to data maintained by the deposit insurance fund, FGC. FEBRABAN, the association of Brazil's banks, points out that estimates for current account numbers could be higher, since FGC excludes accounts in deficit. Assuming that some persons have only a current account while some others have only a savings account, the figure of 58.3 is thus a *lower bound* on the total number of bank account holders.

8. Not including correspondents.

The Supply of Bank Services: Branches and Service Points

How has the supply of bank services changed over the last decade? Based on data provided by the Central Bank of Brazil, it appears true that there was a substantial contraction in the number of banks over the decade of the 1990s, in Brazil from 267 in 1993 to 194 a decade later in 2002 (Appendix Table B.1). Also, this was accompanied by some decline in the number of bank branches, from 17,400 in 1994 to 16,000 five years later in 1998 (Appendix Table B.2). These figures largely reflect the rationalization in the banking industry following inflation stabilization and consequent contraction in banks' float income, together with stricter prudential regulations on entry and operation, and later, the privatization of state banks. During this period, reliance on the banking system for service provision continued, with 92 percent of assets in the banking system in 1993, and 93 percent in 2001. A limited role was played by non-banks and this role did not show any trend increase. Cooperatives increased in absolute numbers from around 500 in 1994 to over 1400 in 2002, though this was too small to affect bank dominance (Figure 1 and Appendix Table B.2). At a first glance these factors appear to suggest a reduction in availability of banking services.

A first qualification to this conclusion is that the apparent decline in bank services is reduced if banking portfolios of multiple banks are counted. Banking portfolios declined only from 334 to 296 between 1998 and 2001. Second, overall numbers of bank branches resumed growth after 1998, to reach 17,050 by 2002, so that over the period of a decade, branch numbers have been relatively stable. Recovery of the numbers of branches may reflect specific conditions governing bank mergers and buyouts especially for state-owned banks, and increased attention to income from credit operations.⁹ Third, the decline in

9. Bank mergers or purchases, especially with regard to the privatization of state banks under the PROES scheme, were frequently conditional on the maintenance of branch service provision.

Figure 1. Brazil: Growth of Financial Institutions (1993–2002)

Source: Central Bank of Brazil.

bank branch numbers was accompanied by an expansion of new types of service points, especially towards automated teller machines. ATMs increased from 3,500 to 22,500 between 1994 and 2002 principally through the expansion of individual networks (from some 2,800 to over 20,000) and some smaller expansion of group-operated networks (from around 570 to 2,100 over the same period; see Figure 2). Municipalities with no branches but with PAAs doubled between 1998 and 2002 from 334 to 654 (Appendix Table B.2). More recently there was a striking increase in the numbers of ‘correspondent’ bank

Bank Branch and Service Outposts in Brazil

Brazilian branch regulation distinguishes between different types of branches and branch-like bank offices. At the top of the “hierarchy” is the agency, a bank branch that offers all services, but is also subject to relatively strict security requirements, branch hours, labor laws etc. The *Posto Avançado Bancário* (PAB) and *Posto Avançado do Atendimento* (PAA) are branch-like offices. PABs are similar to agencies, but provide services only to employees of the private enterprise or public institution, in which the PAB are physically located, and can determine their branch hours flexibly. PAAs (established by Resolution 2396/1997) are branch-like offices that can only be established in municipalities where the respective bank does not have an *agência*. The bank can determine branch hours, services offered and physical location. As of December 2002, there were 7,108 PABs and 654 PAAs in Brazil. However, more than 95 percent of all PABs were located in municipalities already served by bank branches. Finally, the ATMs (*Posto de Atendimento Bancário Eletrônico*, PAE), which have grown rapidly to 22,428 by end 2002, of which nearly 90 percent were on individual rather than associate networks, i.e., they allow access only to accounts with the owner bank.

In 1999, the Central Bank introduced the institution of banking correspondents (Resolutions 2640/1999 and 2707/2000). It allows banks to offer limited banking services via non-financial companies. Specifically, banks can offer payment and deposit services, and limited credit services. The financial responsibility, however, stays with the financial institution. By December 2002, there were over 16,000 correspondents sponsored by several federal and private banks, notably the lottery shop network of the publicly owned Caixa Econômica Federal and the postal office network concession won by Banco Bradesco, the largest private bank, in 2001.

Figure 2. Brazil—Evolution of Financial Service Outlets (1994–2002)

Source: Central Bank of Brazil.

arrangements from some 10,000 in the year 2,000, when correspondent arrangements were first enumerated, to some 16,500 by 2002; almost as numerous as bank branches. Apart from credit cooperatives, there has also been a growth in microfinance corporations (SCMs). From the six that were established in 1999, there were around 26 in operation at end of 2002 and an estimated 36 were close to formal start-ups.¹⁰

Further, looking at the municipality level, the numbers of municipalities with no bank branch services increased significantly from 1,137 to 1,749 between 1994 and 1997, (Appendix Table B.2). However this could be partly due to an increase in the numbers of municipalities, from 5,011 in 1994 to 5,597 by 1998 and further to 5,658 by 2002. After 1997, there was no further decline in municipalities without bank branches, and indeed there was some reduction in this number to 1,665 by end-2002.

In all, the data suggest that although there has been no marked decline in access to financial services over the past decade. The overall picture is relatively stagnant, barring some qualitatively significant new institutional segments (cooperatives and microcredit firms) and quantitatively more important development of new delivery channels. These positive signs accelerated after 1999.

In parallel, there were significant changes in the ownership composition of bank branches and other service points, with a huge decline in the proportion of public bank branches, which largely account for the faltering overall numbers of branch services (Figure 3). Branches of public banks fell from some 9,000 in 1995 to around 6,700 in 2001. However, branches of private and foreign banks almost doubled from some 5,400 to over 10,000 over the same period.¹¹ Public banks rely to a greater extent on branches for delivery; ATMs accounted for only 31 percent of their outlets at the end of 2001, in contrast to almost 50 percent for private domestic banks (including banks with minority

10. Statistics for microfinance entities do not include those outside the formal financial system.

11. Although note that balance sheet data suggest that private domestic banks have less assets, loans and deposits *per branch* than federal banks (Appendix Table B.4).

Figure 3. Brazil—Ownership of Bank Service Points

Note: Private domestic banks include those with foreign participation. Numbers correspond to December 2001 data unless stated otherwise.

Source: Central Bank of Brazil.

foreign ownership). These indicate that private banks made great strides in client outreach using delivery systems which are lower in cost and use newer technology. However wholly foreign owned banks had the lowest proportion of ATMs and the highest branch reliance, reflecting possibly their concentration in the high net worth segment.¹²

Regional Distribution of Financial Services

There are significant variations in service provision across different regions of the country (Table 1 and Appendix Table B.5). The population per bank branch was over thrice as high in the North as in the South of Brazil in 2000. Between 1996 and 2000, branch numbers declined in the North and Northeast, while they grew in the Southeast. However, branch numbers in all regions improved by 2002. And considering regional GDP differentials, the variation is substantially eroded. Indeed GDP per bank branch in the North is only 58 percent higher than in South although GDP per capita is nearly twice as high. The smaller number of branches in the North and Northeast therefore partly reflect lower income levels and hence less potential business. Bank presence exceeds what may be expected based on income differentials alone.

Using volumes of credit and deposits provided as an alternative measure of the supply of financial institutions, and adjusting these for income differentials, results still indicate

12. These changes in composition are also associated with changes in the delivery of different types of financial services. Public banks although with a low share in banking system net worth (a third in 1996), accounted for almost 60 percent of credit operations and over 60 percent of deposits in that year. By December 2001, the public banks' share of system net worth had declined to 16 percent and its share in credits to 25 percent, but it still accounted for 43 percent of all deposits (Appendix Table B.4). Foreign banks' shares in credit and net worth grew from around 10 percent to some 31 percent over the same period.

Table 1. Branch Density across Brazilian Regions

	GDP/cap 2000 (R\$)	GDP/ branch (R\$m) 2000	GDP per branch (R\$m) 1996	Popn/ branch 1996	Popn/ branch 2000	Branches 1996	Branches 2000	Branches 2002	Area/ branch 2000 (km ²)
North	3,907	90.5	87.6	17,501	23,161	645	557	580	6,644
Northeast	3,014	61.8	60.3	17,459	20,516	2,546	2,327	2,396	649
Southeast	8,774	71.1	68.4	8,090	8,098	8,281	8,942	9,361	99
South	7,692	57.2	56.0	6,835	7,437	3,440	3,376	3,450	167
Central West	6,558	63.9	60.8	8,071	9,746	1,301	1,194	1,262	1,273

Source: Branch data: Central Bank of Brazil. GDP data: IPEA, population and area data: IBGE.

substantial regional differences, especially between the North and Northeast compared to the Southeast (Table 2 and Appendix Table B.6). The variance in per capita credits and deposits is much larger than in credits/deposits relative to GDP; which may partly reflect differentials in regional inequality.

Such income differentials are more apparent looking at smaller geographic units, and thus not surprisingly, variations in the provision of bank services across municipalities is higher still (Table 3). Credits and deposits as a share of municipal GDP range from zero to over 1,000 percent. Similarly, credits and deposits per capita range from zero to R\$85,000 (for credits) and R\$45,000 for deposits. The large number of municipalities without any bank services explains why the average for the whole sample is so much lower than the aggregate for Brazil.

Is there any difference in the regional presence of public and private banks? The provision of bank services across regions clearly varies between private and public banks (Table 4). Public banks have dominated in the North and Northeast while private banks dominated in the Southeast. This could reflect the profit orientation of private and the “social” orientation of public banks. However data at the municipal level suggests some complementarity in the

Table 2. Provision of Bank Services across Regions

	GDP per capita (2000)	Credit/GDP	Deposits/GDP	Credit per capita	Deposits per capita
North	3,907	21.39	6.19	820	238
Northeast	3,014	19.69	24.14	500	613
Southeast	8,774	31.10	23.25	2,541	1,899
South	7,692	23.65	16.17	1,461	999
Central West	6,559	33.77	6.18	1588	291

Note: Brasilia is excluded from the Central West region.

Source: Banco Central, IPEA and IBGE.

Table 3. Provision of Bank Services across Municipalities (1996)

	Credit/GDP %	Deposits/GDP %	Credits per capita R\$	Deposits per capita R\$
Average	7.83	4.72	292	179
Median	2.12	2.82	36.71	45.11
Standard deviation	27.78	19.25	1,497	748
Maximum	1,458.24	1,260.09	85,335	44,631
Minimum	0	0	0	0
Observations	4,986	4,986	5,507	5,507
Total Brazil	30.49	22.32	1,774	1,298

Source: Estimated from data from the Banco Central.

branch structure of public and private banks. In 1996, 1,603 municipalities had just one branch either private or public, while 428 had two, three, or four branches entirely private or entirely public. In 2000, 1,393 municipalities had just one branch either private or public, while 397 had two, three, or four branches entirely private or entirely public. This suggests that there has been a pattern of segmented delivery of private and public banks, with limited competition between these segments in the more thinly served areas.

International Comparisons of Bank Services

Compared to developed economies, Brazilian bank branches serve a higher number of inhabitants per branch. While an average bank branch in Germany serves a population of 1,479 people and an American branch serves an area with 3,568 people on average, Brazilian branches served an average population of 9,331 people in 1996 and 10,356 in 2000 (Figure 4).

Table 4. Public and Private Provision of Bank Services across Regions

	GDP per capita (2000)	Credit by public banks/GDP	Credit by private banks/GDP	Deposits in public banks /GDP	Deposits in private banks /GDP
North	3,907	19.26	2.09	4.64	1.51
Northeast	3,014	14.73	4.89	19.14	4.97
Southeast	8,774	9.07	21.97	8.55	14.58
South	7,692	14.19	9.45	10.55	5.61
Central West	6,559	26.78	6.97	3.83	2.33

Note: Brasilia is excluded from the Central West region.

Source: Banco Central, IPEA and IBGE.

Figure 4. Brazil and Other Countries—Population Served per Bank Branch

Source: World Bank staff estimates.

Yet, comparisons with other developing countries suggest that Brazil is not obviously under-branched (Table 5). First, Brazil has more bank branches relative to population than other Latin American countries and compared to two large developing countries: India and Indonesia. Second, measured relative to GDP, its bank branch intensity is lower than Colombia, India, and Indonesia, which are all poorer than Brazil, but the two latter are much more densely populated. Moreover, Branch intensity relative to GDP in Brazil is higher than in Mexico or Chile, although both are richer than Brazil.

Table 5. Brazil—Bank Branch Density: International Comparisons

	GDP per capita	Population per branch	GDP per branch (Current USD millions)	Area per branch (sq km)	Residual branch intensity
Brazil	3,152	9,331	29.4	470	0.82
Colombia	2,085	10,931	22.8	273	−0.53
Mexico	4,969	11,924	59.3	236	−0.42
Chile	4,505	10,727	48.3	535	−0.79
India	448	14,888	6.7	44	−0.00
Indonesia	683	12,547	8.6	110	−0.07
U.S.	33,087	3,568	118.0	117	−0.17
Japan	34,344	1,959	67.3	6	0.22
Germany	25,724	1,479	38.1	6	0.86
France	24,434	2,331	57.0	22	0.14

Note: Residual branch intensity is the deviation of actual from predicted number of branches, derived from a regression of the number of branches on GDP, land area, and population for 28 countries. Positive numbers indicate that actual branch number exceed predicted values.

Sources: World Bank staff estimates, based on Hawkins and Mihaljek (2001) and World Development Indicator data.

Third, measured according to average geographic area covered per branch, Brazil appears at first to be underbanked relative to all other comparator developing countries except for Chile. However, this is easily explained by the low population density of Brazil and the vast areas that are not populated. An econometric estimation of predicted branch intensity compared to actual intensity for Brazil and other countries, correcting for differences in branch intensity explained by differences in GDP, total population, and geographic size, finds that Brazil is the only developing economy that is not underbanked by this standard, because its actual branch intensity is higher than predicted.

Econometric Analyses of Factors Associated with Bank Service Supply

What explains banks' decisions to locate their services in some municipalities rather than others? Attempts were undertaken to associate three different supply side measures of access to banking services (first, the presence or absence of a bank branch; second, branches per million inhabitants; and third, credits or deposits as a ratio of GDP) with economic characteristics (income per capita and regional GDP) as well as locational characteristics: population density, shares of rural and agricultural population, and the share of small firms to GDP (Table 6).¹³

For all measures of access used here, except the existence of a bank branch, per capita income was positively associated with access. That is, banks try to locate in regions where people are better off.¹⁴ Municipalities with higher overall GDP also tend to have better

Table 6. Brazil—What Explains Bank Branch Services across Municipalities? (All Banks)

Dependent variable	1. Existence of branch	2. Branch density	3. Credit/GDP	4. Deposits/GDP
Econometric model	Probit	Tobit	Tobit	Tobit
Income/capita (R\$'000)	−0.05 (0.00)	12.16 (0.00)	0.18 (0.23)	0.16 (0.13)
GDP(R\$ million)	0.04 (0.00)	−0.00 (0.24)	0.00 (0.03)	0.00 (0.13)
Population density	−0.00 (0.00)	−0.02 (0.00)	−0.00 (0.78)	0.00 (0.00)
Rural population	−0.01 (0.00)	−2.06 (0.00)	−0.42 (0.00)	−0.27 (0.00)
Agricultural share	0.00 (0.93)	0.15 (0.52)	0.08 (0.16)	−0.03 (0.46)
Small firm share	0.02 (0.00)	1.38 (0.00)	−0.01 (0.93)	−0.01 (0.91)
No. of observations	4,958	4,958	4,958	4,958

Note: Existence of a branch is a dummy variable equal to one if a municipality has a branch and zero otherwise. Branch density is the number of branches per million persons. *P*-values in parentheses indicate significance; .01>*p*>0 indicates significance at the 1% level.

Sources: IBGE, IPEA, Central Bank of Brazil.

13. Drawing upon data from Appendix Table B.7 and Appendix Table B.8.

14. This may be partly because of policy driven pressures in bank mergers and sales to maintain at least one service outpost in each municipality.

bank access.¹⁵ There is also a clear result, across all measures, that areas with lower rural populations are more likely to have a bank branch. These results, indicating urban bias in the provision of bank services, are very significant. However, high population density is negatively associated with branch existence and branch density, suggesting that some more densely populated areas, such as those which are urban and poor are not likely to attract bank services. In contrast with the negative association for rural indicators, the share of work force in agriculture does not show any significant relation with the level of bank services, which may reflect the series of policy incentive schemes offered for agricultural lending. Thus results suggest that while rural areas are indeed underserved, agriculture is not a neglected sector.

Is there any differential in the factors affecting the provision of financial services by private and public banks? (See Table 7.) Using measures of branch density and volumes of services, private banks have a significant positive association with per capita income. However, for branch density, public banks also indicate a significant positive relation with per capita income. Second, in terms of associations with GDP the behavior of public and private banks is similar in many respects; both reflect a generally positive association with GDP. Third, the negative association with population density is similar for the first two measures (Appendix Table B.9 and Appendix Table B.10).

The urban bias of both groups also is similar on all measures. However, on the share of the population in agriculture, for all measures public banks are, surprisingly, negatively associated with the agricultural share, while private banks services are positively associated with this. Measures are significant for branch density and for the share of credit. As discussed for aggregate data, this may reflect directed credit policies in agriculture. Results on small firm shares are positive for private banks, unlike public banks, for the first two measures of access, though not significant for measures related to credits and deposits. There are thus indications that municipalities with a larger share of agriculture and small firms are better served by private banks.

The likelihood that a municipality has a public bank branch is negatively correlated with the existence of a private bank branch, and also the converse. This suggests some substitutability, and is driven by the fact that nearly half of all municipalities with a bank branch have only public or only private bank branches. Public and private banks may compete for services as they operate broadly as substitutes in many areas.

An additional measure to better capture differences between private and public banks is constructed by defining two categories of municipalities, which are served with only private and municipalities with only public bank branches. Results reveal that municipalities with only public bank branches are significantly poorer, in per capita income terms, with average per capita income of R\$2,771, compared to R\$4,060 for those with only private branches. However, they also have a significantly lower share of agricultural work force—3.8 percent compared to 5.1 percent for those with only private branches. They also had fewer small firms.¹⁶

15. Access measured by branch density is an exception; but here overall association is weak.

16. Significant at the 1% level using chi-squared tests of differences.

Table 7. Brazil—What Explains Public versus Private Bank Branch Services across Municipalities?

Dependent variable	Existence of bank branch	Bank branch density	Credit/GDP	Deposits/GDP	Share of public bank branches in total branches
Econometric model	Probit	Tobit	Tobit	Tobit	Tobit
Public Banks					
Income/cap. (R\$ 000)	−0.10 (0.00)	6.81 (0.00)	−0.08 (0.64)	−0.04 (0.72)	−0.03 (0.00)
GDP(R\$ m)	0.02 (0.00)	−0.00 (0.31)	0.00 (0.98)	0.00 (0.33)	0.00 (0.98)
Population density	−0.00 (0.00)	−0.01 (0.00)	−0.00 (0.07)	0.00 (0.65)	0.00 (0.69)
Rural population	−0.01 (0.00)	−1.28 (0.00)	−0.45 (0.00)	−0.28 (0.00)	0.01 (0.00)
Agricultural share	−0.00 (0.30)	−0.43 (0.04)	−0.03 (0.64)	−0.10 (0.04)	−0.01 (0.00)
Small firm share	0.00 (0.46)	−0.60 (0.02)	−0.32 (0.00)	−0.23 (0.00)	−0.00 (0.00)
Existence of public bank branch	−0.40 (0.00)				
Public branch density		−0.35 (0.00)			
Credit by public banks/GDP			0.57 (0.00)		
Deposits by public banks/GDP				0.00 (0.97)	
Private Banks					
Income/cap. (R\$ 000)	0.00 (0.32)	11.11 (0.00)	0.16 (0.00)	0.16 (0.00)	
GDP(R\$ m)	0.02 (0.00)	−0.00 (0.57)	0.00 (0.00)	0.00 (0.05)	
Population density	−0.00 (0.00)	−0.02 (0.00)	0.00 (0.00)	0.00 (0.00)	
Rural population	−0.02 (0.00)	−3.24 (0.00)	−0.14 (0.00)	−0.13 (0.00)	
Agricultural share	0.00 (0.05)	0.72 (0.01)	0.03 (0.01)	0.00 (0.33)	
Small firm share	0.01 (0.00)	1.45 (0.00)	−0.01 (0.66)	−0.01 (0.97)	
Existence of private bank branch	−0.48 (0.00)				
Private branch density		−0.36 (0.00)			
Credit by private banks/GDP			0.02 (0.00)		
Deposits by private banks/GDP				0.01 (0.13)	
Observations	4,958	4,958	4,958	4,958	3,508

Note: Existence of a branch is a dummy variable that takes on the value one if a municipality has a branch and zero otherwise. Branch density is the number of branches per million persons. Brasilia is excluded from the regressions. However, the results do not change when including it. P-values are reported in parentheses.

Sources: Central Bank of Brazil, IPEA and IBGE.

Summary of Evidence from Supply Data on Banks and Financial Institutions

Overall, the results of this chapter reveal first that despite contractions in bank numbers, aggregate delivery of financial services overall has not declined over the last decade, but has remained largely static. Moreover, there have been some expansions of new service delivery points, and growth of some institutions, including cooperatives and microfinance entities. In terms of international comparisons, Brazil may be underbanked compared to developed countries in terms of bank branches but it has performed at least as well or better than its peers among developing or middle income countries. Spatial inequalities in the delivery of financial services are significant among Brazil's regions and have been persistent over time. But much of this difference arises from regional income differentials.

By some measures public banks may provide more services to the poor, but private banks appear to offer more services to agriculture and to small enterprises. In many respects the behavior of the two is broadly similar; both tend to have a positive association with richer economic areas and both have some urban bias. Especially in thinly served areas, they tend to be substitutable, with either private or public services dominating.

Users of Financial Services— A Survey of Urban Individuals

Aggregate measures of the supply of financial services do not provide an answer to the question of who has access. Even if a financial institution exists in a given location, it is not clear without more disaggregated data whom the clients of such an institution are, and what their socio-economic characteristics may be. A survey was therefore launched which aimed at: (i) describing individual's present patterns of access to financial services and potential demand; (ii) exploring perceptions of constraints to access; (iii) examining factors which explain access, and (iv) assessing the role of policy directions adopted over this period in the expansion of access, especially policies which emphasized the importance of public banks and bank branch location. Because an estimated 80 percent of Brazil's population lives in urban areas, the survey focused on 2,000 urban residents in 9 metropolitan areas and 2 cities across 11 states. Interviewees were individuals of 18 or above.¹⁷ Around 55 percent of the surveyed population was in the two largest cities of São Paulo and Rio de Janeiro; the remainder was distributed across small and medium cities in all geographical regions. The largest share was in the southeast—61 percent (São Paulo, Rio de Janeiro and Belo Horizonte)—with another 17 percent

17. The individual rather than the household was chosen due to a combination of reasons; financial characteristics are not common to all household members, there are variations across the age spectrum in terms of financial access as well as financial needs. Some questions especially those relating to credit depend on individual characteristics. See Kinnon Scott (Grosh, M. & Glewwe, P., 2000, chapter 21) on the reasons for selecting the individual as the point of data collection.

in the Northeast. Other regions (Center-West, North, and South) together account for 21 percent.¹⁸

Access was “unbundled” in the following broad categories: (i) general access to a formal financial institution, (ii) access to savings and deposit services, (iii) access to credit, and, (iv) access to payments services.¹⁹ Under each category, access is defined in terms of alternative parameters. For example, access to a financial institution can refer to whether or not a person has an account with such an institution or has made use of it. It also can be described in terms of physical access—that is, the distance or time taken to reach the financial institution used. The socio-economic characteristics of the surveyed population are summarized in the box below. The analysis of findings is discussed in three stages. First, a review of frequencies of responses; second, a correlation of these responses with socio-economic characteristics of respondents and third, an econometric analysis of factors explaining access and their relative importance.

Survey Results—Access to Financial Institutions

Among the interesting results to emerge from the survey of frequencies were the following. First of all, 43 percent of individuals interviewed had a bank account,²⁰ which itself appears high, but a much larger number of persons made use of formal financial institutions (Table 8). This is because of payment outlets, where it is not necessary to be an account holder to use certain services. Such services have been dominated by the *Casa Lotérica* or lottery shop chain of the publicly owned giant, Caixa Econômica Federal, although other banks are now beginning to enter into correspondent banking. For almost half the respondents (47 percent), these correspondent outlets are deemed to be the most important financial institution. Aside from the *lotéricas*, the majority of respondents (58 percent) for whom banks were the primary financial institution use private banks. The use of non-bank financial institutions such as cooperatives/credit unions or microfinance was very limited (4 percent of responses).

Is physical distance a barrier to access? Results suggest that branch density is not an important issue. More than a third of respondents (37 percent) took less than 10 minutes to arrive at their financial institution and almost three-quarters (73.5 percent) took less than 20 minutes. The relative unimportance of distance may however be a reflection of the urban nature of the survey.

18. The cities are: Goiânia, Brasília, Porto Alegre, Curitiba, São Paulo, Rio de Janeiro, Belo Horizonte, Salvador, Recife, Fortaleza and Belém. The selection is based on the periodic consumer expenditure surveys (POF) of IBGE, Brazil’s statistical institute, which uses the Census 2000 results for the distribution of population by city. The advantage was that a ready made existing sampling frame was available and known to be representative. The sample was constructed on a probabilistic basis for census sectors and for domiciles within the sector.

19. Other forms of ‘unbundling’ could be used. For example, the typology used in a recent study, conducted by the National Community Investment Fund (NCIF) in the USA (2002; “Innovative Products and Services for Low-Income and Unbanked Customers”) distinguishes between ‘first-order’ or prior needs to help financial access (adequate income and minimal financial literacy); *immediate* financial needs, including liquidity, money orders and bill payments, remittances (wire transfers), *short-term* credit during emergencies; and *long-term* financial needs, including savings, access to borrowing, home ownership, insurance and investment.

20. This statistic is surprisingly close to estimates made by Unibanco, one of Brazil’s prominent banks, which estimated the ‘banked’ at 42.8 percent (Unibanco February 2003). The figure is also plausible in view of aggregate statistics on bank accounts in Brazil which amount to at least a third of the population.

Brazil Financial Access Urban Survey—Socio-economic Characteristics of Respondents

Despite the exclusion of persons below 18, respondents were relatively young; 60 percent of individuals were below 30 years of age. Education levels were low, with 41 percent below secondary school and only 7 percent with higher education. More than half the individuals began to work by age 15. Forty three percent left home by age 20 and around half were married by age 25. Forty three percent were married and 34 percent were single.

Income was not high. The mean income of R\$ 696.63 and median income of R\$ 358.50 are only 3.5 times and 1.8 times greater, respectively, than the minimum wage. Only 51 percent of the respondents had a job in the last month. Almost two-thirds of these had a full time job. Around two-thirds of the respondents have wages as their primary source of income, 15.4 percent have pensions or social security as their primary source of income. Most of the respondents queried about their role at the work place were employees (597 persons or 60 percent of respondents), and a third were self-employed and 4 percent were employers. Around 400 persons claimed to have a work certificate compared to around 600 who did not. Eleven percent of the sample had never worked.

Household size was not large. More than one third of respondents belonged to a household of less than three persons, 41 percent belonged to households consisting of three to five persons and only 21 percent belonged to households of five or more persons. Around 40 percent of persons interviewed were heads of households and another 43 percent were spouses or children. Over 40 percent of individuals interviewed had no dependents and 25 percent had more than three dependents.

Housing is relatively ample. Only a fifth (19 percent) admitted to living in illegal areas; 83 percent lived in a house or apartment. The majority of the respondents lived in a house with more than one room per person. More than two-thirds of the individuals (or their households) owned their dwelling (70 percent), and less than 20 percent lived in rented homes. Yet, more than half (56 percent) claimed to have dwellings valued at R\$30,000 or less. More than one fifth (21.5 percent) have dwellings valued at R\$10,000 or less. Less than 5 percent of individuals had dwellings valued at more than R\$100,000. Around one third of the individuals lived less than 5 km from basic services such as a bus stop, a post office, or a public/community telephone. Most persons had a TV (96 percent). Few owned an automobile (33.4 percent) and fewer still owned a computer (14 percent).

Table 8. Indicator of Access: Access to Financial Institutions

	Frequency	Frequency (%)
Respondents who:		
Have a bank account	854	43
Use banks as their primary financial institution ¹	887	46
Use mainly private banks	515	58
Use mainly public banks	372	42
Use CEF lottery shops as their primary financial institution	909	47
Use mainly non-bank financial institutions ²	67	4
Are able to reach the financial institution they use on foot	1014	53

Notes: ¹This could include family members of account holders who do not hold accounts themselves.

²Includes Credit cooperatives, micro finance institutions, and others.

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Around two thirds (64 percent) of those who did not have an account indicated an interest in having one. However, this does not indicate effective demand for bank services, as in many cases, persons may be ineligible for an account, due to risk characteristics or otherwise unlikely to get an account due to bureaucratic requirements, bias or other factors. Possible reasons for *not* having an account were investigated in two broad categories, voluntary factors (referred to as ‘difficulties due to banks’) and involuntary factors (‘difficulties due to respondent characteristics’). Among the voluntary factors, high fees dominate—bank services are expensive for many persons. In parallel, individuals cited that their lack of funds led to a lack of interest. Factors such as lack of documentation, references and difficulties in opening an account suggest that bureaucratic requirements are also important.

A surprisingly large number of persons had had an account and then closed it (629 cases). These suggest difficulties related to the costs of banking services, especially for small accounts. The main reason cited for cancellation was the difficulty of maintaining a minimum balance (218 cases) combined with cancellation by the bank (also due largely to problems in maintaining the minimum balance) and high fees. These three factors combined amounted to 54 percent of responses.²¹

Survey Results—Deposits and Savings Behavior

Less than 2 percent of respondents put money in term deposits/certificates of deposit, and less than 1 percent bought or sold shares. Less than 4 percent used rotating savings schemes (consortia). Around 10 percent made ‘other’ investments. (ii) Over half of respondents (54 percent) had their largest deposits in private institutions; 41 percent used public institutions. (iii) Other financial institutions, including cooperatives, accounted for less than 2 percent of responses (Figure 5).

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

21. Discussed in greater detail in Part 3 of this study. Around 40 percent of respondents cited ‘other’ reasons for not having accounts.

The most important reason for making deposits was overwhelmingly ‘security’, for current accounts (215 out of 305 valid cases); special savings accounts (259 out of 354 valid responses), and also, surprisingly, for term deposits. Other reasons were access to other financial services (30 out of 305 cases). Rates of return appeared only third in order of importance, suggesting a weak association between deposit services and interest rates. Moreover, withdrawals were not typically associated with diminishing returns or increased risk but for liquidity needs (92 percent). (v) Accounts often have limited services; only 61 percent of account holders had checking facilities. (vi) Other forms of savings and investments, in non-bank assets, were low. Only 147 persons made voluntary contributions to pension funds (7.5 percent of respondents), and most were public (71 percent).

Survey Results—Loans and Credit Services

Only 15 percent of respondents had applied for credit in the past 12 months, and only two-thirds of applications were accepted. The use of guarantees or collateral in successful applications was surprisingly low; only 12 percent (24 persons out of 194 successful loan applicants). These largely took the form of personal guarantees, followed by business inventories, bank accounts and institutional guarantees. A third of respondents used private institutions as their primary source of credit, while a quarter (26 percent) used public institutions and a similar proportion (24 percent) used family and friends. Finance companies accounted for nearly 10 percent, while credit unions and shops only provided for loans to for 1.5 percent of creditors respectively. The reported incidence of pawnbrokers was surprisingly low; only 1 percent of accepted loans.

In terms of *uses* of credit, the majority of the respondents applied for a loan for personal purposes (160 persons or 83 percent of respondents). Only 14 borrowers (7.3 percent of respondents) cited business reasons. The largest single use of loans (69 cases or 44 percent of respondents) was for family emergencies. Another 15 percent of respondents used the loan to purchase or renovate their homes, and a slightly smaller proportion, 13 percent used the loan for buying household goods.²² Unexpectedly, loans for automobile purchase were very low (only 3 percent, perhaps because of the practice of leasing), and loans for education are also low, suggesting limited borrowing on a ‘life cycle’ basis. However borrowing to smooth unexpected consumption needs appears to be common. Among business financing needs, working capital predominated in the small number of responses (6 cases out of 12) although payments to creditors (2 cases), routine maintenance and unforeseen business needs were also cited (1 case each). When not using formal credit, almost half of the respondents (49 percent) took loans from family and friends (35 percent from families and 14 percent from friends). And 15 percent of respondents had made a loan to their families in the last 12 months.

Average loan amounts were low; 50 percent of respondents applied for R\$500 or less; 74 percent applied for loan amounts of R\$1,000 or less. Amounts approved very closely follow amounts requested, suggesting that in cases of doubtful applicants, credit is rationed

22. At a different point in the questionnaire, it was asked how real estate had been financed. The response was that only 37 percent of respondents used a financial institution to obtain a loan for real estate purchase and renovation.

by screening out the applicant, rather than by reducing the volume of credit extended. On the status of loans received in the last 12 months, a quarter were paid off, suggesting short maturities.²³ Over 62 percent claimed to be up to date on loan servicing, while around 12 percent of respondents admitted to some late payments or to a renegotiation of the loan. Loan processing is surprisingly rapid—more than half claimed to receive a response regarding their loan application on the same day (58 percent), another 26 percent between 1–5 days.

Additionally, around a quarter of persons had access to a debit card and a fifth had a credit card. (Table 9). Of these, more than half of respondents (58 percent) had credit card limits of R\$600 or less (this is around twice the mean monthly income). Forty four percent of respondents had credit card debts of R\$200 or less outstanding; another 42 percent had credit card debts between R\$200–R\$600.

Does the low proportion of applicants for credit (only 15 percent) point towards low probabilities of obtaining credit or low credit needs? Most respondents who did not reply for a loan (70 percent) claimed that they did not need the money. However, 17 percent responded that they assumed the response would be negative. The balance did not know how to apply (4 percent), or had other reasons (13 percent).

Table 9. Access to Loans and Credits

	Frequency	Frequency(%)
Respondents who:		
Applied for a loan and received it	205	10
Applied for a loan but did not receive it	95	5
Did not apply for loans	1679	85
Received credit primarily from:		
Private institutions	68	33
Public	52	25
Family/Friends	49	24
Finance companies	20	10
Credit cooperatives or credit unions	3	2
Commercial shops	3	2
Others	9	4
Received a business loan	14	8
Received a personal loan	160	92
Did not require collateral to obtain the loan	170	88
Used a financial institution to obtain a loan for real estate	96	37
Had a debit card	503	26
Had a credit card	392	20

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

23. Information on loan maturity suggests that 78 percent of loans were for a period of 12 months or less and 20 percent were for less than one month. Interest rates on a monthly basis averaged 85 percent.

Table 10. Access to Loans and Credits—Reasons for Loan Refusals

	Primary Reason		Secondary Reason		Tertiary Reason	
	Frequency	(%)	Frequency	(%)	Frequency	(%)
Didn't have a steady income	2	22.2	3	60	—	—
Didn't have any guarantees	2	22.2	1	20	3	42.9
Didn't have enough earnings	2	22.2	1	20	1	14.3
Didn't have a job	1	11.1	—	—	1	14.3
Returns less than expenses	1	11.1	—	—	1	14.3
Others	1	11.1	—	—	1	14.3
Valid cases	(9)		(5)		(7)	

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Second, what reasons were offered to those who had applied for credit but had been refused? Respondents with loan application rejected cited not having a steady income, not having any guarantees and not having enough earnings as the primary reasons (Table 10). However, the responses to this question were limited in number and these results can only be considered suggestive.

Survey Results—Payments and Money Transmission Services

Cash was overwhelmingly the standard *medium of payment* for all types of transactions and respondents; 77 percent used cash for all transactions. Even for categories such as education, health and house rent or mortgage payments; the proportion of cash is very high, at 87 percent, 85 percent, and 88 percent respectively. More, surprisingly, 92 percent of utility bills are paid in cash. The only expenditure categories where cash use is lower is consumer durables: 77 percent for electro-domestic goods and 80 percent for furniture. This could reflect credit offered by consumer finance companies, especially, post-dated checks—in these two payment categories, payment amounted to 12 percent and 13 percent respectively. Additionally credit cards are also used in these two categories, by 9 percent and 6 percent of respondents, respectively. Credit cards or debit cards are used for daily purchases by only 7 percent of the persons surveyed, though debit cards are also used for utility payments by around 5 percent of persons.

In terms of *points of payment*, a surprisingly high proportion (over 90 percent) make payments in person at bank branches (54 percent) or other points (38 percent); only 2.5 percent use the mail (44 persons) and just over 1 percent use the internet or telephone. These numbers suggest that retail payments systems are still unsophisticated for the majority of persons. Are the present retail payments systems burdensome? Surprisingly, despite the high proportion of cash payments, between 30 and 40 percent of respondents claimed that payments for utilities, education and health could be made in less than ten minutes, and for 50–60 percent of respondents, less than 20 minutes. Yet, for 15–22 percent of the persons, these payments take from half an hour to an hour.

Payments services were also investigated in terms of *income receipt*. More than two-thirds of respondents (68 percent) received their primary income in cash, while 24 percent had direct deposits in their bank accounts. Only 4 percent receive checks. Cash preference is high; the proportion of persons who would like to receive cash payments (72 percent) is even higher than those who actually receive cash. Checks appear to have the greatest disutility as the proportion who would like to be paid by check (91.5 percent) is lower than the actual proportion.²⁴ The great majority (72 percent) would like to receive their incomes in cash, followed by deposits in bank accounts (24 percent). *Check cashing* is usually at a public institution (50 percent); only 26 percent is at private institutions. Eleven percent of respondents use family or friends and nine percent use a commercial shop. It is interesting that although there is a preference for private institutions for overall banking services and also for deposit services, preferences are reversed for check cashing. This may indicate that private banks' services for check cashing are more onerous or more expensive. Finally, *remittances* are rare—only 68 persons or 3.5 percent of respondents had sent or received remittances in the last year. Around two fifths of these were by interbank transfer and another ten percent through the postal system. Another two fifths were in cash or through personal transmission.

24. Direct deposit proportions are unchanged.

Analysis of Survey Results— What Explains Access?

Next we analyzed the association between different measures of access and selected economic parameters through the construction of cross-frequencies, and then through regression analysis, to examine policy or behavioral explanations for observed differentials in access.²⁵ Measures of financial access used followed the same four broad categories described above; use of a formal financial institution, access to deposit and savings facilities, access to loans and credits, and finally, access to payments services.

Particular attention was paid to three specific issues. The first was *location* and the association between the location of the respondents and the availability of financial services. Locational measures of access have been the primary means through which the government has tried to track and to address shortcomings in access. A central feature of government policies for the expansion of access has been the attempt to put some financial institution or point of service in each municipality. However, location can be interpreted at two levels; first the region of the country; and second, the microeconomic characteristics of the neighborhood and dwelling of the respondent. It is proposed here that there may be significant micro differences in “location” within a region, state or even municipality, which could have pockets of poverty within broadly prosperous areas—and conversely, could have well-to-do persons even in municipalities which are less affluent. We explore the association between access and both definitions of location.

25. Differences in the distributions of variables between the parameters examined (different regions, different institutions, different socioeconomic categories, etc.) are tested for significance using chi-squared tests of independence. Significant statistics reported here, unless noted, are significant at a 1 percent level. Detailed results are available in background papers. Results presented here are summaries only; more detailed background papers are available.

Second, we looked at the role of different types of financial institutions in the provision of financial services. Many governments assume that due to market failures in financial markets, there is a need for a public role in the provision of financial services, and hence that public banks have a special role to play. As shown in Chapter 2, public banks and private banks often behave in similar ways and are broadly substitutable in services to some segments of the population. We tried to further investigate the role of public financial institutions, to see if they better served the poorer segments of society.

Third, we paid special attention to the role of information in the provision of financial services. It has been pointed out that one of the key reasons for the limited access to financial services to the poor is the huge difficulty in gathering information on such persons—the asymmetric information problem. We therefore investigated the extent to which proxies for information on creditworthiness, such as income, wealth or the possession of collateral, could influence decisions regarding the provision of financial services. If there were significant asymmetries in the availability of information, these would be illustrated by the importance of such proxy variables for creditworthiness. The policy implication would be to improve overall information on creditworthiness and also to address the specific biases noted.

The Impact of Location on Financial Access—Regions of the Country

There is a clear variation in a series of indicators of financial access across regions, which broadly indicate that the poorer North, and sometimes the Northeast of the country are more limited in access than the more affluent central or southern regions (Figure 6 and Appendix Table B.11).²⁶ Almost three-fourths of respondents in the North (75 percent) and in the Northeast (71 percent) did not have a bank account; in contrast around half of the persons in the South (55 percent) and Southeast (45 percent) did. Only 6 percent of the respondents who lived in the North had deposits in contrast to more than one-third of individuals who lived in South (37.5 percent). Further, 97 percent of persons in the North did not apply for loans, compared to 83 percent in the Southeast. Regarding payments, only 18 percent of persons in the Northeast and 16 percent of persons in the North had a debit card, in contrast to 40 percent in the South and 44 percent in the center.²⁷ Only 2 percent of respondents that lived in the North used transfers or direct deposits to made payments in contrast to 15 percent of individuals in the Southeast.

Location in Terms of Micro Regions—Neighborhoods and Areas within a City

Differences in access can be strong within a region, at the level of individual neighborhoods (Appendix Table B.12). Distinguishing between persons living in legalized areas and those in illegal areas, we found that 45 percent of the former were bank account holders in contrast

26. Differences cited in this chapter are all based on the results of chi-squared tests of independence of distributions (see Appendix 1.2: Technical Note on Estimation) and are significant at the 1 percent or 5 percent levels. Results with the corresponding test statistics are detailed in Appendix Table B.16 to Appendix Table B.15).

27. For credit cards, there are also differences in proportions, which are significant but weaker.

Figure 6. Role of Location in Financial Access

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002. GDP data provided by IBGE.

to only 37 percent of persons in the latter. Similarly with regard to type of building, only 34 percent of people who lived in informally constructed shacks or in rooms had a bank account, in contrast to almost half (45 percent) the persons who lived in regularized houses or apartments. Further, only 13 percent of individuals with houses of less than 0.5 rooms per person had accounts, compared to more than half the individuals who lived in houses of more than 2 rooms per person. More than half the respondents (59 percent) who lived in shacks or rooms used mainly correspondent banks, 47 percent of persons who lived in house or apartment used mainly bank institutions. Similar patterns emerged in terms of numbers of rooms per person in a home. Almost two-thirds (56 percent) of individuals who lived in houses with more than two rooms per person used banks, while more than two-thirds of respondents who lived in houses with less than 0.5 rooms per person (64 percent) used correspondents.

Results were similar when we analyzed access to deposit facilities: 30 percent of individuals who lived in a unique permanent house had deposit balances compared to only 19 percent

of individuals who lived in collective dwellings.²⁸ Forty-one percent of the individuals who lived in a house with more than two rooms per person had deposit balances, in contrast to only 7 percent of persons who lived in a house with less than 0.5 rooms per person. Looking at credits, 83 percent of respondents living in homes with more than two rooms per person did not apply for loans, compared to 94 percent of people who lived in houses with less than 0.5 rooms per person. Thirty-four percent of persons who lived in a house with more than two rooms per person had a debit card, while only 5 percent of persons who lived in homes with less than 0.5 rooms per person had a debit card. Differences in proportions for credit cards were also significant. Finally, persons who used cash for payments were higher in illegal areas (84 percent) than in legalized areas (75 percent). Observations were similar when we compared respondents who lived in houses and apartments with respondents who lived in shacks or rooms.

This suggests that although there are indeed differences between the availability of financial services between regions of the country, placing financial institutions in each region or municipality in itself is not a sufficient condition for broadening access. There may well be important differences also within neighborhoods and districts of a municipality, region or state. Even if there is a financial institution present in a given location, its clients may be biased towards the better off persons. Conversely, areas benefiting from dense networks of financial institutions may still have pockets of the underserved.

The Role of Public and Private Institutions and Financial Access

Brazil's public banks have been considered important vehicles of outreach to underserved communities, and this role has been premised upon market failures or imperfections which make it too costly or too risky for private banks to lend to some communities. Investigating the differences in outcomes for public and private banks in terms of the provision of various forms of financial services, and between groups of persons with different socio-economic characteristics, our overall finding was that there are some significant associations where relatively disadvantaged groups make greater use of public bank facilities (those in poorer regions versus those in more affluent regions; those in poorer neighborhoods or homes compared to those in more affluent neighborhoods or better homes and those with higher income or education compared to those with lower income or education). However, there are many instances where there are no clear associations of the less well off with public banks, or even the reverse. Disaggregating by type of service, individuals' use of public and private banks depends considerably on the type of financial service sought, and on how public banks are defined. The importance of the correspondent network of one large public bank, the Caixa Economica Federal, is critical. If we include the use of its correspondent outlets (which does not require the holding of an account), the role of public banks increases considerably.

28. Defined in this question as money in either a special savings account, a current account or a term deposit account. A generic definition of deposits yielded similar results; 52 percent of persons living in a house with more than 2 rooms per person had no deposits; in contrast, 90 percent of people in homes with less than 0.5 rooms per person had no deposits.

Looking at poorer versus wealthier regions, including correspondents, 84 percent of individuals in the North used mainly public banks, compared to around two-thirds of individuals in the Southeast. Without Caixa correspondents (the lottery shops), the difference diminishes but remains significant—half the persons in the North continue to use public banks, but in the southeast users of public banks falls to around 38 percent (Appendix Table B.13). Similarly, looking at “micro regions” and including correspondents, 81 percent of persons in homes of less than 0.5 rooms per person used mainly public banks compared to 61 percent of individuals in houses of over 2 rooms per person. With a narrower definition, excluding the use of correspondent outlets, 48 percent of those with less than 0.5 rooms per person used public banks, compared to 36 percent of those with more than two rooms per person. However, both differences are significant (Appendix Table B.14). Thus public banks have helped to serve those in less-well-off regions as well as in less-well-to-do neighborhoods.

In terms of income, 36 percent of persons with income in the highest quintile used public banks as opposed to 49 percent of individuals in the lowest quintile. With the wider definition, use in both groups goes up, to almost half in the top quintile (51 percent) and 78 percent in the lowest quintile. Looking at wealth, half the persons without collateral used public banks compared to only 40 percent of those with collateral. On including banking correspondents, the majority of individuals with or without collateral used public banks. Similar results are obtained when we look at education, persons with or without jobs, and men versus women.

With regard to payments services, public bank outlets and the lottery shops are grouped together. Payment services, as may be expected, are dominated by the public sector (defined to include the lottery shops), and this preference is true across social groups. Again, there is a suggestion that public banks may be more oriented towards the underserved; (thus, 62 percent of persons in homes with less than 0.5 rooms per person preferred public banks for payments compared to 55 percent of those with more than two rooms per person; similarly 68 percent of persons in the North used public payment outlets, compared to 34 percent and 58 percent for the Center and Southeast, and perhaps most clearly, 58 percent of persons with less than primary education used public payment outlets while 11 percent used private banks; compared to 41 percent with more than secondary education for public payment outlets and 38 percent for private).

Do the more disadvantaged persons make proportionally greater use of public facilities for deposits? This hypothesis returns mixed results. Persons in the lowest income quintile had marginally more deposits in public banks (7 percent public compared to 6 percent private, while persons in the top quintile had 25 percent of their deposits in the public sector compared to 42 percent in the private sector) and persons in the northeast had proportionally more deposits in public banks (10 versus 7 percent, compared to 11 percent public and 22 percent private for the southeast), but by contrast, persons living in illegal areas, or persons living in shacks or rooms instead of regular houses or apartments had proportionally more deposits in private banks. Similarly, those in the lower educational levels and those without collateral also made greater use of private compared to public facilities. These results—all of which are statistically significant differences—are at first surprising in view of the special savings accounts dominated by the Caixa, but can be explained by the high proportion of current accountholders who are offered services at

private banks.²⁹ In terms of credit facilities, the case for public banks is blurred (Appendix Table B.14), and differences in proportions are usually not significant. They suggest that the less privileged have weaker access to both public and private financial services, and there is no general tendency for the disadvantaged to make proportionally greater use of public banks.

The final variable looked at was the use of credit from public versus private banks for home purchase (Appendix Table B.15). With regard to home purchase, the vast majority of the persons in all geographic regions used savings to finance home purchase, however to the extent that bank credit was used, this was used more by the better off states of the south and southeast. Thus, in the North, 70 percent of respondents used savings, 10 percent used credit from public banks and another 10 percent used credit from private banks, while in the Southeast 56 percent used saving, 22 percent used credit from public banks, and 11 percent used credit from private banks. Similarly, looking at micro definitions of location, 13 percent of persons with homes of over two rooms per person used public bank credit, while none of the respondents in homes of less than 0.5 rooms per person did so. Looking at income, almost one half of respondents with low income (49 percent) financed home purchase by savings, 5 percent used credit from public banks and 7 percent used private banks. Again the proportional use of public banks is higher among the high income groups—39 percent of respondents financed home purchase by savings and 18 percent used credit from public institutions. While 12 percent of respondents with a low level of education used credit from public banks to purchase a home, 16 percent of respondents with high levels of education used such institutions. All these results, which are statistically significant, seem to perversely indicate easier access to public bank credit by the more well to do social groups, which may partly reflect superior economic capacity to repay.

To summarize, results from the survey do not indicate that public banks have had a clearly superior role in supporting access. By some measures (looking at overall access to and use of a financial institution), there has been some support for those in poorer regions, and those with lower levels of income and wealth. On disaggregating services, however, it appears that public banks have made the biggest contribution in terms of payment services through the correspondent chains. Their roles in taking deposits and providing credit are less clearly distinguished from private banks, and finally, their role in the provision of housing credit appears perversely to have supported the better off.

The Role of Respondent Characteristics and Financial Access

As discussed earlier, access can depend on the degree of client information available, because of the impact on risks and hence costs. Obtaining such information can assume special importance in environments where the capacity to enforce repayment may be difficult due to, first, the limited resources of the client, and second, due to the nature of prevailing laws and practice with regard to debt recovery or bankruptcy. In the absence of full information, especially on poorer persons with limited credit histories, institutions tend to look for proxies to information on creditworthiness. Such proxy variables could

29. This is corroborated by an analysis of public and private banks' accounts by size, undertaken in the study 'Brazil—Access to Financial Services' World Bank, February 2004. Part 3.

Individual Characteristics, Asymmetric Information and Access to Financial Services

For most measures of financial access, virtually all the socio-economic characteristics included in the analysis turn out to be highly significant discriminators in determining access to financial services. Foremost among these were characteristics referring to income, wealth (possession of collateral) and education. Many variables related to employment characteristics were also highly significant. Finally, for some measures, gender and the position in the household also mattered (see Appendix Table B.16 and Appendix Table B.17).

Income: In terms of *access to bank accounts*, only 15 percent of persons with income in the lowest quintile had a bank account, in contrast to 64 percent of respondents in the highest quintile. Looking at *deposits*, only 9 percent of the persons that had income in the lowest quintile had money in either a *special savings account*, a *current account* or a *term deposit account*, in contrast to 47 percent of persons in the top quintile. Using another measure of deposits, 84 percent of persons in the bottom quintile didn't have *deposits*, in contrast to only 32 percent in the top quintile. Income is also important in determining access to credit and loans. Ninety-two percent of respondents in the bottom quintile didn't apply for *credit*, compared to 74 percent in the top quintile. Differences in sources of credit however are not very significant among the quintiles of income distribution. Only 5 percent of the persons with a low income *had a debit card*, in contrast to 40 percent of persons with a high income. Similarly only 7 percent of the persons with a low income *had a credit card*, compared to 34 percent of persons with a high income.

Education is also a very important determinant in the *access to financial institution*. Among the significant differences, only 28 percent of persons with *education less than primary level* had a bank account, while 84 percent of the respondents that had *more than secondary school* had a bank account. When we compare the *access to public and private banks*, the majority of respondents with low education used mainly *public banks* (including the correspondents), while 59 percent of person with high education used mainly *private banks* (including the correspondents). Only 19 percent of persons with low education had money in a *special savings account*, a *current account*, or a *term deposit account* compared to 64 percent of those with higher education. Only 25 percent of respondents with higher education didn't have *deposits*, in contrast to 78 percent of those with low education. Ten percent of persons with a low education *applied for and received loans* compared to 23 percent of respondents with a high education. Only 9 percent of persons with a low education *had a credit card*, while almost one half of respondents with a high education (48 percent) had a credit card.

Wealth (collateral): Almost one half of respondents that had *collateral* (45 percent) *had a bank account*, while only 35 percent of the persons without collateral had a bank account. Collateral is also important for the pattern of *deposits and savings*, but not as important as income or education. However, possessing collateral is the only characteristic which makes a significant difference to *credit sources*.

Employment—Having a Job: More than half the people who *had a job* in the last month (55 percent) *had a bank account*, in contrast only 30 percent that people who *didn't have a job* in the last month *had a bank account*. 38 percent of individuals who had a job in the last month had money in either a *special savings account*, a *current account* or a *term deposit account*, in contrast only 19 percent of persons who didn't. Thirteen percent of respondents that *had a job* in the last month *applied for and received credit*, while only 8 percent of persons who *didn't have a job* were in the same situation. Thirty-four percent of respondents that had a job in the last month *had a debit card*, in contrast only one half (17 percent) of persons who didn't have a job in the last month *had a debit card*. The difference is very significant. The same pattern occurs with the possessing of a credit card.

Employment—Having a Work Certificate: 68 percent of *employees with a work certificate* *had a bank account*, in contrast to only 44 percent of *employees without a work certificate*. Forty-seven percent of *employees with a work certificate* had money in either a *special savings account*, a *current account* or a *term deposit account*, while only 26 percent of *employees without a work certificate* had money in one of these accounts.

Gender and Position in Household: Half the *men* *had a bank account* compared to a third of the *women*. Half the *heads of household* *had a bank account* while only 37 percent of *dependents* *had a bank account*. One half of men used *banks* as the primary financial institution, while 53 percent of the women used *correspondents banks*. Thirty-four percent of the men had money in either a *special savings account*, a *current account* or a *term deposit account* compared to 23 percent of the women. But gender is not a good determinant for credit and loan behavior. There are also significant differences between *women* and *men* in the possession of credit cards and debit cards.

include information on cash flows (income) which could service loans, or assets (wealth), which could aid loan recovery. It appears that banks also desire such information for opening an account, due to the need to service accounts, or even to accept a deposit. Other characteristics of this form could include position in household (heads versus dependents), gender (males versus females) or employment characteristics.

How important are these factors in obtaining financial services in Brazil? The results cited in the box indicate that information on such characteristics is very important in determining access to financial services. Most important among these characteristics is the income of the respondent, which has a strong positive relation with access to a variety of financial services (Figure 7), including having a bank account, deposit and credit services.³⁰ Indeed, in terms of credit, as income levels increase, the proportion of refusals of credit applications diminishes. Simple trend lines fitted to income and credit applications and acceptances tend to converge as incomes rise. Income levels appear to be particularly positively associated with the use of private banks, for deposit and payment services, where their use increases more than proportionately with increases of income, while the use of public banks diminishes.

Figure 7. The Role of Income in Different Measures of Financial Access

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

30. See Appendix Table B.16 and Appendix Table B.17.

Determinants of Access—An Econometric Investigation

In the preceding paragraphs, we examined the extent to which differences in measures of access of different financial services were significant across different socio-economic variables. The final chapter of our analysis was an evaluation of the relative importance of different factors affecting access, based on regression analysis.³¹ The analysis used a series of different measures of access and a range of different explanatory variables related to location as well as individual characteristics, the most significant result to emerge was the importance of income and education as determinants of access (Figure 7). Geographical measures in terms of regions of the country are also significant, especially for determining the institutions used for holding deposits, and similarly, ‘neighborhood’ characteristics or locality are also important.

Thus for example, using the probability of having a bank account as our measure of access, geographic region of the country, type of building and number of rooms per person (which are measures of the population density of the neighborhood, and hence, indirectly, neighborhood wealth or poverty), income and education level are all significant. If we use a slightly different measure and instead examine the probability of using banks as the primary financial institution, the socio-economic characteristics of income and education remain significant but the importance of geographic location and even dwelling characteristics disappears.

Broadly similar results are obtained when we look at access to specific services. In case of credit services, income is the only independent variable that is related in a significant way with the probability of applying for loans (Table 11). Income and education are both very important for predicting the probability of having either a debit card or credit card. Looking at savings and deposit services, probabilities are significantly linked to income level, education, and parameters of micro location (Table 12). Geographic region is not significant.

Looking at marginal effects, in terms of overall access to financial institutions (Table 11), moving up from the bottom to the second quintile of income increases the probability of having a bank account by 11 percentage points, and increases the probability of using a bank (compared to a non-bank) as a primary financial institution by 62 percent. Persons educated beyond primary level almost double their probability of having a bank account compared to those without any formal education (a 97 percentage points increase in probability), and raises the probability of using a bank (compared to a non-bank) by 41 percent. Distinguishing between public and private banks, it is interesting that additional income lowers the probability of using public banks by 6 percentage points as compared to private banks; additional education lowers the probability of using public banks by 5 percentage points.

Marginal effects for regional differentials show that individuals in the North have a 29 percent higher probability of using a bank compared to those than those living in the Northeast region. However there is evidence of substitution as those in the Northeast have almost twice the likelihood of banking with other institutions as those in the North.³²

31. The estimation approach used is detailed in Appendix A.

32. This may reflect successful microcredit programs in the Northeast such as the large scale Credi-Amigo program.

Table 11. Econometric Results: Determinants of Access to Financial Services, Select Results

Dependent variable	Institutional Access				Loans and Credits		
	Having a Bank account	Primary Financial Institution			Applying for loans	Having a debit card	Having a credit card
		Banks	Correspondents	public banks			
Econometric model	Probit	Multinomial logit	Probit		Probit		
Geographic region	0.04 (0.03)	1.29 (0.18)	1.18 (0.39)	−0.02 (0.14)	0.01 (0.20)	0.02 (0.25)	−0.02 (0.15)
Sex	−0.05 (0.19)	0.76 (0.52)	0.99 (0.97)	0.05 (0.13)		−0.05 (0.09)	
Age	0.02 (0.35)				0.02 (0.08)	0.02 (0.35)	0.02 (0.17)
Position in the household	−0.07 (0.10)				0.02 (0.40)	0.01 (0.72)	
Illegal vs. legalized area	−0.03 (0.57)						
Type of house ¹					−0.01 (0.67)		
Type of building ²	−0.11 (0.04)	1.12 (0.86)	1.22 (0.74)	0.07 (0.09)			0.00 (0.93)
No. of rooms per person ³	−0.05 (0.00)	1.04 (0.85)	1.16 (0.45)	0.02 (0.11)	−0.01 (0.44)	−0.02 (0.06)	0.00 (0.80)
Having a job	−0.04 (0.80)	0.33 (0.56)	0.42 (0.66)	0.12 (0.34)	−0.06 (0.20)	0.06 (0.54)	
Role in Workplace	−0.01 (0.62)	1.54 (0.18)	1.42 (0.27)	−0.02 (0.46)		0.02 (0.38)	−0.05 (0.39)
Part time or full time empt.	0.01 (0.79)	0.35 (0.07)	0.29 (0.03)	−0.04 (0.32)			0.01 (0.64)
Sector of activity	−0.01 (0.62)	1.36 (0.31)	1.37 (0.30)	−0.01 (0.56)	0.01 (0.14)	−0.03 (0.01)	
Income	0.11 (0.00)	1.62 (0.00)	1.19 (0.27)	−0.06 (0.00)	0.04 (0.00)	0.09 (0.00)	0.08 (0.00)
Education	0.97 (0.00)	1.41 (0.02)	1.01 (0.94)	−0.05 (0.00)		0.05 (0.00)	0.06 (0.00)
Possession of collateral	−0.03 (0.50)	0.89 (0.82)	1.05 (0.92)	0.01 (0.71)	0.01 (0.61)	−0.04 (0.21)	−0.08 (0.01)
Observations	1069	1067	1037		1200	1085	1251

Note: Type of building correspondent to live in house or apartment or live in a cottage or room and type of house refers to live in unique permanent house, unique improvised house and in collective house. Values in parentheses are *p*-values; and are significant if 0.05 or below.

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table 12. Determinants of Access to Savings and Deposits Facilities

Dependent variable	Had money in a saving or in a current deposit account		Had deposits in public sector		Had deposits in private sector		Had deposits in other sectors	
	Probit				Multinomial logit			
Geographic region	0.02	(0.11)	0.3	(0.00)	0.2	(0.08)	−0.6	(0.00)
Sex	−0.08	(0.01)	−0.6	(0.01)	−0.4	(0.03)	−1.3	(0.02)
Age	0.01	(0.46)						
Position in the household	0.03	(0.36)	0.3	(0.21)	0.00	(0.99)	1.8	(0.01)
Illegal area vs legalized	−0.11	(0.38)	0.1	(0.75)	0.0	(0.94)	0.7	(0.49)
Type of house	−0.09	(0.01)						
Type of building	−0.04	(0.06)	−0.1	(0.84)	−0.20	(0.48)	−35.5	(0.0)
Number of rooms per person	0.18	(0.01)	−0.1	(0.13)	−0.2	(0.00)	−0.5	(0.01)
Having a job	0.18	(0.18)	2.1	(0.02)	0.00	(0.99)	−0.5	(0.72)
Role in Workplace	−0.04	(0.05)	−0.3	(0.04)	−0.1	(0.32)	−0.1	(0.71)
Part time or full time employed	−0.01	(0.72)	−0.3	(0.25)	0.00	(0.93)	−0.2	(0.69)
Sector of activity	−0.02	(0.29)	−0.2	(0.10)	0.0	(0.94)	0.2	(0.27)
Income	0.08	(0.00)	0.4	(0.00)	0.5	(0.00)	−0.1	(0.44)
Education	0.08	(0.00)	0.4	(0.00)	0.4	(0.00)	0.00	(0.86)
Possessing of collateral	0.01	(0.82)	0.1	(0.59)	0.0	(0.87)	−0.2	(0.76)
Observations	1077				942			

Note: Type of building correspondent to live in house or apartment or live in a cottage or room and type of house refers to live in unique permanent house, unique improvised house and in collective house. Values in parentheses are *p*-values; and are significant if 0.05 or below.

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

It is also interesting that gender effects are strong for deposit services. Women have around half the chance (0.4 to 0.6) of having bank deposits in public or private banks or other institutions, compared to men, after controlling for other factors.

Results for deposit services reveal marginal effects of around 8 percentage points for each of the variables income and higher education. Micro measures of location appear similarly important; those living in improvised or collective houses have 9 percentage points lower likelihood of having deposit balances, and people living in houses with less than two rooms per person have an 18 percent lower probability of having bank deposits. For credit services, additional income and education beyond primary levels are the only significant

Table 13. Econometric Results: Determinants of Volume of Credit Requested and Approved

Dependent variable	Amount requested for loans	Amount approved for loans
Econometric model	Linear model	Linear model
Age	–57.43 (0.53)	–21.83 (0.80)
Double Age	16.87 (0.35)	5.70 (0.74)
Number of dependents	17.41 (0.73)	63.36 (0.18)
Role in Workplace	–4.26 (0.90)	–21.06 (0.51)
Income	45.73 (0.03)	39.50 (0.04)
Education	4.28 (0.88)	24.47 (0.37)
Possessing of collateral	–81.41 (0.23)	–42.14 (0.51)
Observations	822	822

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002. Parentheses denote *P*-values and are significant if 0.05 or below.

determinants of credit (loan applications, debit or credit cards). However marginal effects appear low; fulfilling these two criteria increases the probability of getting loans or credit but by less than 10 percentage points.

Volumes of credit requested and approved depend significantly only on income (Figure 7 and Table 13). Variables that are related to the hypothesis that individuals try to smooth consumption along their lives (like age, education and the number of dependents) are not significant. There is thus no confirmation of the permanent income hypothesis in these results which also emphasize the importance of income in explaining demand for and receipt of credit.

Determinants of Institutional Choice—Public versus Private Banks

The econometric analysis also suggests that income level and education are significant explicators of the probability of using public banks as the primary financial institution, relative to private banks. A high level of income decreases the probability of using mainly public banks as the primary financial institution. These results are true whether a wider or narrower definition of public banks is used (including or excluding correspondent services). Deposit behavior suggests a markedly higher probability (31 percent) of using public banks in the North, compared to private banks or other financial institutions. In terms of credit services, similar to income, possessing collateral appears to lower the probability of using public banks (Table 14).

Table 14. Econometric Results: The Probability of Using Public Banks for Access, Deposits and Credit

Dependent variable	Financial Institution		Deposits			Credit	
	Public banks	Private banks ¹	Public banks	Private banks	Other	Public banks	Private banks
Econometric model	Probit		Multinomial logit				
Geographic region	−0.03 (0.33)	−0.02 (0.14)	1.31 (0.00)	1.17 (0.08)	0.53 (0.00)	0.77 (0.26)	1.03 (0.90)
Sex	0.05 (0.29)	0.05 (0.13)	0.56 (0.01)	0.64 (0.03)	0.27 (0.02)		
Type of building ²	0.08 (0.23)		0.94 (0.84)	0.80 (0.48)	0.00 (0.00)	0.36 (0.24)	1.29 (0.10)
Number of rooms per person	0.02 (0.39)		0.88 (0.13)	0.78 (0.00)	0.59 (0.01)		
Having a job	0.06 (0.75)		8.42 (0.02)	1.01 (0.99)	0.59 (0.72)		
Role in Workplace	−0.03 (0.35)		0.73 (0.04)	0.87 (0.32)	0.87 (0.71)		
Part time or full time employed	0.00 (0.97)	0.07 (0.09)	0.72 (0.25)	0.98 (0.93)	0.79 (0.69)		
Sector of activity	−0.01 (0.73)	0.02 (0.11)	0.86 (0.10)	1.01 (0.94)	1.25 (0.27)		
Income	−0.05 (0.00)	0.12 (0.34)	1.50 (0.00)	1.67 (0.00)	0.86 (0.44)		
Education	−0.01 (0.70)	−0.02 (0.46)	1.45 (0.00)	1.46 (0.00)	1.05 (0.86)		
Possessing of collateral	0.01 (0.93)	−0.04 (0.32)	1.15 (0.59)	0.96 (0.87)	0.83 (0.76)	0.28 (0.05)	2.07 (0.11)
Age		−0.01 (0.56)				1.71 (0.01)	0.45 (0.09)
Position in the household		−0.06 (0.00)	1.33 (0.21)	1.00 (0.99)	6.04 (0.01)		
Illegal area vs legalized		−0.05 (0.00)	1.10 (0.75)	1.02 (0.94)	2.01 (0.49)		
Type of house ³		0.01 (0.71)					
Observations	450	1037		942		203	

Note: ¹ The definition of public banks included lottery shops with banking services and the definition of private banks included post office with banking services.

²Type of building refers to (i) house or apartment or (ii) shack or room. Type of house refers to unique, improvised or collective house. ³Probit model presents the marginal effects and multinomial logit presents the relative risk ratios, *i.e.*, exponential of coefficients.

Parentheses denote *P*-values and are significant if 0.05 or below.

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table 15. Econometric Results: The Probability of Using Public Banks for Real Estate Purchase

Dependent variable	Credit for Real Estate		
	Public banks	Private banks	Government finance
Econometric Model	Multinomial logit		
Geographic region	0.0 (0.94)	0.3 (0.58)	0.00 (0.97)
Position in the household	0.1 (0.83)	1.2 (0.27)	−0.99 (0.30)
Sector of activity	0.28 (0.03)	0.43 (0.04)	0.42 (0.02)
Income	0.84 (0.01)	0.07 (0.76)	0.98 (0.00)
Observations	130		

Source: World Bank, Survey of Access to Financial Services in Urban Areas of Brazil, 2002. Parentheses denote *P*-values and are significant if 0.05 or below.

Finally, income is the only variable to have a significant relationship with probability of receiving credit from public banks for real estate purchase. Individuals in the second quintile of income, as compared to the lowest quintile, have a 17 percent lower probability of seeking credit from public banks, (Table 15). Taken together, these results indicate that persons in higher income groups seek public bank services less; and thus could imply some pro-poor orientation of the public banks.

Summary of Findings and Policy Implications

The preceding chapters have analyzed first, the factors associated with the supply of financial services, particularly in the form of institutional outlets for such services, and next, patterns of use of financial services at the level of individuals in Brazil's urban areas. Combining and synthesizing the results, some key findings to emerge are that the provision of banking services in Brazil has remained broadly unchanged over the last decade. Brazil is not obviously underbanked in terms of international comparisons. Within the country, wide regional differentials in the provision of services are considerably reduced in significance when we correct for differentials in regional GDP and for geographical size. Important new trends are emerging in the form of financial outlets, such as correspondents and ATMs. As shown by the user survey, these have remarkably influenced and increased overall use of financial services, both among the better off and less well to do sections of society. The effective use of banking services is considerably greater than the number of bank accounts alone would suggest.

The survey of individual financial behavior corroborates the importance of location in determining access, but demonstrates that location in terms of the micro characteristics of an area or neighborhood can be as important a discriminator for access, as location in terms of regions or municipalities. More important than region or location, at the user level, are a range of socio-economic characteristics, especially income but also education and (for credit services) wealth, in determining financial access.

Regarding the roles of public and private financial institutions, both the aggregated supply side analysis and the survey of users indicated that there is some association between the less-well-off (lower income groups, less educated persons, and dwellers in less affluent regions) and public banks. However the user survey also showed that the use of public banks varies by type of service. Thus, public banks are popular for payment services (due to the

outlets of the Caixa Econômica Federal), for all socio-economic groups, and also dominate the provision of housing credit, but in the latter case, largely for the better off groups. For deposit taking and for credit, both the privileged and less privileged socio-economic groups, broadly measured, have some preference for private banks, and with increases in income both increase their proportional use of private banks. Thus in many areas, the user survey corroborates the findings of the supply analysis, that in many respects, public and private banks are broadly substitutable.

Implications for Policy

The preceding analysis suggests a number of thematic directions which could help to guide policy choices. Given the importance of factors such as income, education and wealth, in determining access, which may be due to asymmetries in information, factors which reduce such asymmetries in information can be important for the expansion of financial access. This may also illustrate the importance of such factors in a situation where contract enforcement is difficult. Finally, it also suggests that economic growth which is sensitive to income distribution will help to expand financial access, thereby establishing a virtuous circle.

Another corollary may be that targeted policies, which particularly address lower income groups, may help to address access. Designing efficient and incentive compatible targeted policies can however be a challenge. For example, basic accounts, minimum packages of financial services, simplified documentation requirements or special financial products, such as payroll loans, designed for low income persons, could be important for raising access. The importance of socio-economic characteristics such as education, in determining access suggest that programs of financial education, financial mentoring, training and twinning and awareness building may also be important for raising financial access.

Equally important are the implications of the analysis which diminish the importance of location in explaining access differentials, after considering different levels of economic activity and population density. Thus, policies which rely largely on the provision of service outlets in all geographical areas may be hard to justify in areas too poor or sparse to justify services. Moreover, such policies cannot ensure that users of financial services in such locations are indeed the poorer segments, better off persons even in these neighborhoods are likely to have been more successful in achieving access. This is a significant comment in the context of Brazil where major efforts to expand access have focused on ensuring that there is at least one financial point of service (branch, service post or correspondent), in each municipality. Combined with this is the finding that regions of the country or even municipalities, are perhaps not the best points of focus for the expansion of access. Rather, location defined at a micro level in terms of neighborhoods, with service expansion targeted at areas or parts of a city with specific microeconomic characteristics (for example, high concentrations of low income housing), may be more appropriate and the provision of financial services in poor urban pockets may be an equal challenge to exclusion in remote regions.

Finally, in terms of choices between public and private financial institutions, given that there are some specialized services where either public or private banks seem to dominate (for example, public banks for payments or housing), greater competition in these services would be desirable, inviting in private services in housing or in payments (perhaps through an alteration in the present domination of housing finance by one large public institution, or through more competition in the allocation of correspondent franchises). Although the analysis did suggest that persons with lower levels of income tended to use public banks proportionately more, it also showed that along a broad spectrum of deposit and credit services, the roles of these institutions could be largely substitutable. Maintaining a differential role for public banks on the grounds of access may therefore have limited justification. Indeed, as persons become better off, they tend to prefer private services for a broad spectrum of financial transactions.

APPENDIXES

Note on Estimation: Urban Financial Survey

This technical note describes the statistical tests used to choose the independent variables of the models and then describes the formulation of the functional forms of models that were subsequently used in the analysis. The econometric models used to determine the measures of access are also described below.

Chi-square Tests of Independence

The chi-square “goodness-of-fit” test evaluates the hypothesis that the rows and columns in a two-way table are mutually statistically independent. With dichotomous variables, the chi-square test is similar to the z-test that tests the equality of proportions (or the frequency of incidence) between two variables using large-sample statistics. However, unlike the z-test, the chi-square test is not restricted to comparisons of only two sample proportions. For variables with multiple categories the chi-square test is the most common technique to evaluate the degree of dependence between rows and columns of the categorized data.

Under the null hypothesis that the distribution of observations in the rows and columns is mutually independent (follow a specified distribution), the chi-square statistic computed indicates the degree to which the distribution variables between the rows and columns differ significantly from the specified norm.

The chi-square statistic for data with $(I - 1)(J - 1)$ degrees of freedom is computed as:

$$\chi^2 = \sum_i \sum_j \frac{(n_{ij} - m_{ij})^2}{m_{ij}}$$

where

n_{ij} = number of observations in i -th row and j -th column. In our case, n_{ij} is just a count of frequency such that

$$n_{i\cdot} = \sum_{j=1}^J n_{ij} \text{ and } n_{\cdot j} = \sum_{i=1}^I n_{ij}, \quad i = 1, \dots, I \text{ and } j = 1, \dots, J$$

$$n = \sum_i \sum_j n_{ij} \text{ (overall sum)}$$

$$m_{ij} = \frac{n_{i\cdot} \cdot n_{\cdot j}}{n}$$

Prior to the regression analysis, chi-square tests were conducted to confirm that the distribution pattern of the dependent variable was different from those that were to be used as the explanatory variables. For example, we checked whether the probability of a woman having a bank account was equal to the probability of a man having a bank account. Only in the cases where the null hypothesis could be rejected were the associated independent variables deemed to be good control or explanatory factors for inclusion in the regression analysis.

Econometric Models

Qualitative response models were estimated using models for binary response and for multinomial choices. Models of binary responses were designed to take the value 0 for persons who did not fulfill the given criterion (such as having access to financial institutions) and a value of 1 for persons who did satisfy the specified criterion. Such variables were associated with additional information that captured personal characteristics, employment information and location information. Models of multinomial responses associated multivariate variables that followed a logical sequence of progression—such as don't save money, have money in a saving account, have money in a time deposit—account for some independent variables. The second sets of models were thus an expansion of the first set.

In the binary model, we attempted to estimate $E[I/X]$ where X is the vector of independent variables that have some relation with I , and E is the expectation operator. Assuming that vector “ I ” follows a Bernoulli distribution, we used the result:

$$E[I | X] = \Pr(I = 1 | X) = F(X;\beta)$$

where $F(\cdot)$ denotes the cumulative distribution function of “ I ” conditional on the values of X , and β is an array of parameters which determines this function. In this analysis, we assumed that X comprised of independent and identically distributed variables and that $F(\cdot)$ was linear in its arguments, resulting in the model:

$$F(X;\beta) = X'\beta + \varepsilon$$

We also assumed that ξ was independent of X . This allowed us to use a logit model for regression where the $F(\cdot)$ represented a cumulative distribution function of a logistic nature such that:

$$P(I=1|X) = F(X'\beta) \frac{e^{x'\beta}}{1+e^{x'\beta}} \quad (1)$$

Equation (1) could be transformed into

$$\text{Log}[P(I=1|X)/(1-P(I=1|X))] = X'\beta$$

or simply

$$h(I) = X'\beta \quad (2)$$

Equation (2) could then be estimated by Maximum Likelihood Estimation techniques. Unlike conventional linear regression models, the coefficients of the regressions cannot be interpreted as the partial derivatives of the dependent variable with respect to the respective explanatory. The partial effects were computed by:

- (a) Estimating the probability of access to financial services of an individual with value J for a characteristic k , which is

$$P(I=1|X) = F(X'\beta) \frac{e^{x'\beta}}{1+e^{x'\beta}}$$

- (b) Estimating the average probability for every J . The difference between the averages calculated for J and $J+1$ represented the marginal effect of increasing the value of the explanatory variable k of J to $J+1$.

Given the limitations of the statistical software used for the analysis which does not calculate the marginal effects of logit regressions automatically, the marginal effects from probit estimation was used as an approximation of the same results. The probit model is similar to logit model, with $F(x\beta) = \phi(x\beta)$, where ϕ is the standard cumulative normal distribution.

For analysis of multinomial models, multinomial logit estimation is the most widely used technique. In a choice set $B = \{1, \dots, m\}$, where $x_B = (x_1, \dots, x_m)$ denotes the array of observed attributes of the available alternatives, vector $y_B = (y_1, \dots, y_m)$ has a multivariate probability distribution:

$$f^i(x_B, \theta) = \frac{e^{x\beta^i}}{\sum_{j \in B} e^{x\beta^j}}$$

with mean $\beta'x_B$ like in the binomial case.

Using Maximum Likelihood Estimation techniques, the sequential series of outcomes in y could be estimated in terms of the explanatory variables X . These results

could then be used to estimate the coefficients corresponding to each outcome category such as:

$$\Pr(y=1) = \frac{e^{x\beta^1}}{e^{x\beta^1} + e^{x\beta^2} + e^{x\beta^3}}$$

$$\Pr(y=2) = \frac{e^{x\beta^2}}{e^{x\beta^1} + e^{x\beta^2} + e^{x\beta^3}}$$

$$\Pr(y=3) = \frac{e^{x\beta^3}}{e^{x\beta^1} + e^{x\beta^2} + e^{x\beta^3}}$$

The limitation of this technique is that the estimated solutions for coefficients ($\beta^1, \beta^2, \beta^3$) need not be unique. Hence by arbitrarily setting one of the β 's at the benchmark value of 0, the other coefficients can then be interpreted to measure the change relative to the control group.

In this study both types of models and estimation: binomial respondents models, logit and probit and multinomial response models, logit multinomial were used. Also used were linear models to predict the volume of credit requested by individuals and the volume of credit approved in each request. The logarithm of the amount of money request (or approved) for loans was regressed on identifiable personal characteristics such as age, education level, income, etc. The relation estimated was of the type:

$$E[\ln(Y) | X] = g(X),$$

where

$$g(X) = \beta_0 + X_1\beta_1 + \dots + X_k\beta_k + \varepsilon$$

and Y represented the volume of credit requested (approved) and X the characteristics variables.

Statistical Tables

Table B.1. Brazil—Number of Institutions in Operation and Assets (Year end 1993–2002)

1. Number of Institutions	1993	1994	1995	1996	1997	1998	1998¹	1999	1999¹	2000	2000¹	2001	2001¹	2002
Multiple and Commercial Banks ²	241	244	240	229	215	201	185	193	175	191	173	181	160	166
Development Banks	7	6	6	6	6	6	21	5	18	5	17	4	15	4
Investment Banks	17	17	17	23	22	22	128	21	126	19	123	20	121	23
Savings Banks (inclu. CEF)	2	2	2	2	2	2		1		1		1		1
Finance Companies	41	41	42	47	48	42	187	41	182	42	176	39	169	46
Leasing Companies	67	72	78	74	78	80	100	79	103	77	109	71	105	65
Real Estate/Savings and Loan	27	27	23	22	22	21	86	19	77	18	73	18	74	18
Total these items	402	409	408	403	393	374	707	359	681	353	671	334	644	323
Credit Cooperatives	877	946	980	956	1,015	1088		1,183		1,235		1,333		1,374
Micro Credit Companies (SCMs)								3		6		14		26
Construction Consortia	485	490	462	446	433	422		406		404		397		375
Investment Funds ³	839	1,279	2,195	2,765	3,500	3617		4,034		4,656		5,195		5,833
Others ⁴	745	734	692	621	564	528		524		497		487		475
Total all items	3,348	3,858	4,737	5,191	5,905	6,029		6,509		7,151		7,760		8,406
2. % Shares of Different Types of Institutions in Total Number of Institutions														
Multiple and Commercial Banks ²	7.20	6.32	5.07	4.41	3.64	3.33		2.97		2.67		2.33		1.97
Development Banks	0.21	0.16	0.13	0.12	0.10	0.10		0.08		0.07		0.05		0.05
Investment Banks	0.51	0.44	0.36	0.44	0.37	0.36		0.32		0.27		0.26		0.27
Savings Banks (inclu. CEF)	0.06	0.05	0.04	0.04	0.03	0.03		0.02		0.01		0.01		0.01
Finance Companies	1.22	1.06	0.89	0.91	0.81	0.70		0.63		0.59		0.50		0.55
Leasing Companies	2.00	1.87	1.65	1.43	1.32	1.33		1.21		1.08		0.91		0.77
Real Estate/Savings and Loan	0.81	0.70	0.49	0.42	0.37	0.35		0.29		0.25		0.23		0.21
Credit Cooperatives	26.19	24.52	20.69	18.42	17.19	18.05		18.17		17.27		17.18		16.35

Micro Credit Companies (SCMs)	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.18	0.31
Construction Consortia	14.49	12.70	9.75	8.59	7.33	7.00	6.24	5.65	5.12	4.46
Investment Funds ³	25.06	33.15	46.34	53.27	59.27	59.99	61.98	65.11	66.95	69.39
Others ⁴	22.25	19.03	14.61	11.96	9.55	8.76	8.05	6.95	6.28	5.65
Total Shares	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3. Assets of Institutions (% total financial system)										
Multiple and Commercial Banks ²	68.84	67.45	68.58	67.86	68.37	65.74	66.63	69.04	72.84	
Development Banks	8.14	8.44	7.81	7.08	7.69	10.02	10.11	10.50	10.52	
Investment Banks	3.08	3.10	1.24	1.67	1.53	0.90	1.02	0.91	1.21	
Savings Banks (inclu. CEF)	11.92	12.16	13.77	13.64	13.83	14.01	13.82	12.63	9.07	
Finance Companies	0.33	0.56	0.29	0.59	0.52	0.41	0.53	0.85	0.49	
Leasing Companies	2.43	2.90	3.33	3.36	4.17	5.24	5.42	3.87	3.29	
Real Estate/Savings and Loan	1.23	1.23	1.18	1.11	1.09	1.10	0.45	0.37	0.33	
Credit Cooperatives	0.10	0.15	0.20	0.25	0.31	0.41	0.54	0.62	0.75	
Construction Consortia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Investment Funds ³	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Micro Credit Companies (SCMs)	—	—	—	—	—	—	—	0.00	0.00	
Others ⁵	3.93	4.01	3.60	4.44	2.49	2.17	1.48	1.21	1.50	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

Notes: ¹Considers Single Institutions and Portfolios of the same type. ²Includes Branches of Foreign Banks. ³Includes investment funds authorized and in operation.

⁴Mortgage, Security Brokerage, Exchange Brokerage, Security Distribution companies and Development Agencies (including institutions authorized to operate by Central Bank of Brazil, including group buyer consortia). ⁵Same as No. 4 less Exchange Brokerage companies.

Source: Central Bank of Brazil.

Table B.2. Brazil—Bank Services: Aggregates, Branches, ATMs (Number of facilities in operation, year end 1994–2002)

Type of service outlet	1994	1995	1996	1997	1998	1999	2000	2001	2002
Branches	17,400	17,181	16,583	16,255	16,002	16,189	16,396	16,841	17,049
Bank Service Outposts (a) internal (PABs)	10,125	9,075	8,268	7,787	7,211	6,614	6,562	7,318	7,108
in municip. with banking branches	9,776	8,780	7,987	7,513	6,987	6,425	6,407	7,183	6,988
in municip. with no banking branches	349	295	281	274	224	189	155	135	120
Bank Service Outposts (b) external (PAAs)	—	—	—	52	334	503	582	619	654
ATMs—Individual Network (PAE)	2,874	3,922	4,841	6,015	6,709	10,808	12,681	14,923	20,347
ATMs—Associate Network (PAE)	572	674	696	744	1,010	1,369	1,772	1,825	2,081
Coop. Services (PAC)	48	305	361	445	600	849	1,129	1,344	1,485
Rural Credit Outposts (PACRE)	10	9	8	7	7	5	5	5	2
Payment Posts (PAP)	1,786	1,643	1,340	1,164	942	719	697	402	325
Other (PCO & UAD)	672	689	610	508	505	506	520	553	566
Total these items	33,487	33,498	32,707	32,977	33,320	37,562	40,344	43,830	49,617
Bank correspondents o/w Lottery shops							10,589 6,253	12,311 7,823	16,453 8,961
Others								4	2,083
Total all items	33,487	33,498	32,707	32,977	33,320	37,562	50,933	56,141	66,070
Municipality-level services	1994	1995	1996	1997	1998	1999	2000	2001	2002
Municipalities	5,011	5,076	5,300	5,546	5,597	5,626	5,636	5,654	5,658
Municip. with no services ¹	1,137	1,223	1,474	1,749	1,739	1,679	1,659	1,681	1,665
Municip. with one outpost	1,402	1,488	1,597	1,659	1,773	1,906	1,972	2,013	2,060
Mun. with 1 Branch	1,402	1,488	1,597	1,607	1,439	1,403	1,390	1,394	1,406
With PAA	—	—	—	52	334	503	582	619	654

Note: ¹These numbers do not consider the number of Banking Service Outlets.

Source: Central Bank of Brazil.

Table B.3. Brazil—Number of Branches across Different Ownership Groups and over Time (1995–2001)

	March 1995	1997	1998	1999	2000	2001
Branches						
Federal banks	7,232	6,552	5,260	5,615	5,472	5,611
State banks	1,863	1,332	2,267	1,842	1,084	1,084
o/w Caixa Econômica Federal					1,693	1,689
Múltiple and Comercial Banks					4,863	5,006
Private domestic banks	4,507	6,252	6,085	5,587	6,147	6,347
o/w Banks with Foreign Participation					758	930
Foreign banks	915	2,254	2,390	3,145	3,693	3,799
Total Branches	14,517	16,390	16,002	16,189	16,396	16,841
Other Services						
Bank Service Ouposts (a) internal (PABs)					6,636	7,323
ATMs (PAE)					12,675	14,986
Bank Service Ouposts (b) external (PAAs)					582	619
Total all items					36,289	39,769

Source: Central Bank of Brazil.

Table B.4. Brazil—Percentage Participation of Banking Institutions by Ownership and Institutional Type (1996–2001)

[illegible]

Credit Operations						
Banks under Foreign Control	8.64	11.71	14.88	19.75	25.16	31.51
Private Banks	32.74	35.35	30.97	31.66	34.53	42.13
Public Banks (+ State Savings Bank)	23.47	10.30	8.86	8.13	5.12	3.09
CEF	24.00	30.93	32.31	28.74	23.00	7.13
BB	10.62	10.97	12.05	10.58	10.95	14.53
Credit Cooperatives	0.53	0.74	0.93	1.14	1.24	1.61
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Central Bank of Brazil.

Table B.5. Brazil—Number of Financial Institutions in Operation by Region and Type (1999–2002)

	Mult. banks and comm banks	Dev. banks	Inv. banks	Sav. banks	Fin. comp.	Leas. comp.	Real est/ sav. & loan	Micro cred. comp.	coop.	Constr. consort.	Others	TOTAL
2002												
Northeast	12	0	0	0	2	2	6	3	154	26	36	241
North	3	0	0	0	0	0	1	1	82	4	8	99
Central-West	4	0	2	1	1	1	2	1	129	37	3	181
Southeast	131	3	21	0	31	56	5	25	760	186	284	1502
South	16	1	0	0	12	6	4	7	305	123	39	513
Total 2002	166	4	23	1	46	65	18	37	1,430	376	370	2,536
2001												
Northeast	13	0	0	0	2	2	6	2	146	28	36	235
North	3	0	0	0	0	0	1	0	78	4	7	93
Central-West	4	0	2	1	1	1	2	1	125	40	5	182
Southeast	143	3	18	0	31	61	5	18	759	200	303	1541
South	18	1	0	0	8	8	4	2	271	127	44	483
Total 2001	181	4	20	1	42	72	18	23	1,379	399	395	2,534
2000												
Northeast	13	1	0	0	2	2	6	0	124	27	35	210
North	3	0	0	0	0	0	1	0	72	3	7	86
Central-West	4	0	2	1	2	1	2	1	112	39	5	169
Southeast	152	3	17	0	32	67	5	9	753	209	324	1571
South	20	1	0	0	7	8	4	1	250	129	49	469
Total 2000	192	5	19	1	43	78	18	11	1,311	407	420	2,505

Dec 1999												
Northeast	14	1	0	0	2	3	7	0	110	24	36	197
North	3	0	0	0	0	0	1	0	64	3	7	78
Central-West	4	0	2	1	2	1	2	0	104	39	4	159
Southeast	153	3	19	0	31	69	5	4	740	214	336	1574
South	20	1	0	0	7	8	4	0	235	126	50	451
Total Dec 1999	194	5	21	1	42	81	19	4	1,253	406	433	2,459
Jan 1999												
Northeast	15	1	0	0	2	2	7	0	105	25	36	193
North	5	0	0	0	0	0	1	0	58	3	4	71
Central-West	4	0	2	1	2	1	2	0	96	42	3	153
Southeast	160	3	19	0	34	73	6	0	721	220	346	1582
South	20	2	1	0	6	7	4	0	224	131	54	449
Total Jan 1999	204	6	22	1	44	83	20	0	1,204	421	443	2,448

Source: Central Bank of Brazil.

Table B.6. Brazil—Bank Services by Region and Municipality: Branches, PABs, and PAAs (1998–2002)

Region	No. of municipalities	Total of branches	Total of PAA	Total of PAB	Municip. w/1 branch	Municip. w/PAB and no branch	Municip. w/no services (1)	Nos. of branches/ municip.	Nos. of PAAs/ municip.	Nos. of PABs/ municip.
2002										
Northeast	1840	2396	242	841	409	57	818	1.30	0.13	0.46
North	470	580	60	356	54	6	260	1.23	0.13	0.76
Central-West	482	1262	72	509	122	2	119	2.62	0.15	1.06
Southeast	1670	9361	102	3952	533	38	261	5.61	0.06	2.37
South	1196	3450	178	1450	288	17	207	2.88	0.15	1.21
Total 2002	5,658	17,049	654	7,108	1,406	120	1,665	3.01	0.12	1.26
2001										
Northeast	1838	2369	242	829	409	54	817	1.29	0.13	0.45
North	470	562	59	337	50	7	265	1.20	0.13	0.72
Central-West	480	1233	48	532	118	24	121	2.57	0.10	1.11
Southeast	1670	9254	99	4191	537	40	263	5.54	0.06	2.51
South	1196	3423	171	1429	280	10	215	2.86	0.14	1.19
Total 2001	5,654	16,841	619	7,318	1,394	135	1,681	2.98	0.11	1.29
2000										
Northeast	1837	2327	221	822	405	69	822	1.27	0.12	0.45
North	470	557	54	304	50	7	269	1.19	0.11	0.65
Central-West	464	1194	47	454	116	25	107	2.57	0.10	0.98
Southeast	1669	8942	100	3657	539	37	259	5.36	0.06	2.19
South	1196	3376	160	1325	280	17	202	2.82	0.13	1.11
Total 2000	5,636	16,396	582	6,562	1,390	155	1,659	2.91	0.10	1.16

1999										
Northeast	1846	2331	n.a.	853	413	83	841	1.26	n.a.	0.46
North	471	552	n.a.	294	50	8	284	1.17	n.a.	0.62
Central-West	464	1185	n.a.	457	115	25	105	2.55	n.a.	0.98
Southeast	1669	8763	n.a.	3699	542	54	263	5.25	n.a.	2.22
South	1176	3358	n.a.	1311	283	19	186	2.86	n.a.	1.11
Total 1999	5,626	16,189	n.a.	6,614	1,403	189	1,679	2.88	n.a.	1.18
1998										
Northeast	1826	2360	n.a.	852	444	86	860	1.29	n.a.	0.47
North	470	552	n.a.	285	53	9	315	1.17	n.a.	0.61
Central-West	456	1200	n.a.	545	114	44	93	2.63	n.a.	1.20
Southeast	1669	8527	n.a.	4072	542	60	292	5.11	n.a.	2.44
South	1176	3363	n.a.	1457	286	25	179	2.86	n.a.	1.24
Total 1998	5,597	16,002	n.a.	7,211	1,439	224	1,739	2.86	n.a.	1.29

Source: Central Bank of Brazil.

Table B.7. Brazil—Regional Indicators (2000)

State/Region	GDP R\$ million	GDP per capita R\$ million	Branches	Area (‘000 Km ²)	Branches/ ‘000 km ²	Population (millions)	Branches/ 100,000	Municipalities w/no services
North	50,650	3,907	557	3,853.3	0.14	12.90	4.32	269
Rondônia	5,625	4,065	24	237.6	0.10	1.38	1.74	25
Acre	1,703	3,037	13	152.6	0.09	0.56	2.33	14
Amazonas	18,873	6,668	120	1,570.7	0.08	2.81	4.27	40
Roraima	1,117	3,417	247	224.3	1.10	0.32	76.14	11
Pará	18,914	3,041	74	1,247.7	0.06	6.19	1.20	63
Amapá	1,968	4,098	13	142.8	0.09	0.48	2.73	11
Tocantins	2,450	2,110	66	277.6	0.24	1.16	5.70	105
Northeast	144,135	3,014	2,327	1,554.3	1.50	47.74	4.87	822
Maranhão	9,207	1,627	106	332.0	0.32	5.65	1.88	91
Piauí	5,330	1,872	727	251.5	2.89	2.84	25.57	187
Ceará	20,800	2,794	322	148.8	2.16	7.43	4.33	60
Rio Grande do Norte	9,293	3,343	241	52.8	4.56	2.78	8.68	122
Paraíba	9,238	2,681	147	56.4	2.60	3.44	4.27	175
Pernambuco	29,127	3,673	415	98.3	4.22	7.92	5.24	42
Alagoas	7,023	2,485	101	27.8	3.64	2.82	3.58	44
Sergipe	5,921	3,310	124	21.9	5.66	1.78	6.95	18
Bahia	48,197	3,680	144	564.7	0.26	13.07	1.10	83
Southeast	636,394	8,774	8,942	924.5	9.67	72.41	12.35	261
Minas Gerais	106,169	5,925	283	586.5	0.48	17.89	1.58	225
Espírito Santo	21,530	6,931	1,774	46.1	38.50	3.10	57.28	2
Rio de Janeiro	137,877	9,571	1,565	43.7	35.82	14.39	10.87	2
São Paulo	370,819	9,995	5,320	248.2	21.43	37.03	14.37	32

South	193,534	7,692	3,376	576.4	5.86	25.11	13.45	202
Paraná	65,969	6,882	1,250	199.3	6.27	9.56	13.07	63
Santa Catarina	42,428	7,902	1,344	95.3	14.10	5.36	25.09	44
Rio Grande do Sul	85,138	8,341	782	281.7	2.78	10.19	7.68	95
Center-West	76,542	6,559	1,194	1,606.4	0.74	11.64	10.26	107
Mato Grosso do Sul	11,861	5,697	261	357.1	0.73	2.08	12.56	13
Mato Grosso	13,428	5,342	510	903.4	0.56	2.50	20.36	47
Goiás	21,665	4,316	208	340.1	0.61	5.00	4.16	39
Distrito Federal	29,587	14,405	215	5.8	37.06	2.05	10.48	8
Brazil	1,101,255	6,473	16,396	8,514.9	1.93	169.80	9.66	1,661

Source: IBGE.

Table B.8. Analysis of Supply—Economic and Financial Indicators across Brazilian States

State	Total population (million)	Area (‘000 km ²)	Branches 1995	Branches 2000	Share of small firms	Share of work force in agriculture	Share of rural population	Population density	Income per capita	Credits/GDP	Deposits/GDP	Credits per capita	Deposits per capita	Residual branch intensity
Rondonia	1.23	237.6	94	73	80.1	0.59	38.0	5.2	5,095	19.6	3.3	1,061	179	−0.30
Acre	0.48	152.5	37	24	80.7	1.95	34.8	3.2	4,168	7.0	5.3	292	222	−0.36
Amazonas	2.39	1,571.0	131	120	76.5	0.21	26.1	1.5	4,838	8.4	6.8	407	329	−0.22
Roraima	0.25	224.1	21	13	85.8	0.81	29.5	1.1	4,581	20.8	4.6	1,126	248	−0.36
Para	5.51	1,247.7	284	246	72.8	1.67	46.5	4.4	3,504	31.8	6.8	1,153	248	−0.34
Amapa	0.38	142.8	16	13	79.2	1.54	12.9	2.7	3,900	4.9	4.8	194	189	−0.68
Tocantins	1.05	277.3	103	66	84.9	5.30	29.3	3.8	1,470	31.2	9.1	472	138	0.37
Maranhao	5.22	331.9	280	151	81.5	2.36	48.1	15.7	1,670	12.5	7.1	245	140	−0.21
Piaui	2.67	251.3	114	83	83.5	1.24	41.8	10.6	1,662	18.0	8.7	334	162	−0.41
Ceara	6.81	145.7	374	291	82.9	1.47	30.8	46.7	2,312	23.1	20.8	534	480	−0.26
Rio Grande do Norte	2.56	53.1	126	106	79.0	2.39	28.0	48.2	2,787	11.5	7.8	327	222	−0.41
Paraiba	3.31	56.3	178	127	77.8	1.20	31.6	58.7	2,103	9.5	8.3	214	186	−0.30
Pernambuco	7.40	98.5	486	390	73.7	1.58	26.0	75.1	2,860	23.0	19.5	667	564	−0.18
Alagoas	2.63	27.8	152	97	78.5	0.76	36.9	94.7	2,738	51.3	9.1	1,408	249	−0.31
Sergipe	1.62	22.0	167	128	73.5	0.82	29.8	73.9	3,038	12.7	12.4	386	378	0.06
Bahia	12.54	564.3	835	680	78.1	2.12	37.6	22.2	2,978	16.5	44.5	492	1,326	−0.02
Minais Gerias	16.67	586.5	1,842	1,749	80.1	2.02	21.6	28.4	5,355	12.4	12.3	684	678	0.12
Espirito Santo	2.80	46.0	313	280	77.6	1.46	22.4	60.9	5,057	14.3	16.1	742	837	0.04
Rio de Janeiro	13.41	43.8	1,385	1,509	67.7	0.34	4.5	306.1	7,471	15.1	21.2	1,143	1,608	−0.16
Sao Paulo	34.12	248.2	4,884	5,218	76.7	1.42	6.9	137.5	10,076	41.3	27.0	4,168	2,722	−0.01
Parana	9.00	199.3	1,351	1,243	79.8	1.34	22.1	45.2	5,934	27.4	16.9	1,658	1,024	0.33

Santa Catarina	4.88	95.3	814	776	79.9	1.55	26.9	51.2	5,764	16.8	12.6	986	739	0.54
Rio Grande do Sul	9.63	268.8	1,462	1,331	83.7	1.17	21.3	35.8	6,608	23.5	17.1	1,574	1,148	0.30
Mato Grosso do Sul	1.93	357.1	297	214	79.6	3.81	16.8	5.4	6,516	24.2	4.5	1,574	295	0.29
Mato Grosso	2.24	903.4	284	208	81.8	3.37	24.2	2.5	4,398	36.3	5.6	1,643	254	0.42
Goiás	4.51	340.1	589	504	80.5	1.70	14.2	13.3	4,082	38.8	7.6	1,665	327	0.42
Brasília, DF	1.82	5.8	228	205	74.1	0.33	7.1	314.0	12,854	122.3	87.9	15,716	11,295	−0.32

Notes: Unless otherwise indicated, all numbers are for 1996. The residual branch intensity is the deviation of the actual from the predicted number of branches—relative to the number predicted from a regression of the number of branches on GDP, land area, and population for 28 countries. Positive numbers indicate that the actual number of branches is higher than the predicted number.

Sources: World Bank staff estimates; data provided by Central Bank of Brazil, IPEA and IBGE.

Table B.9. Analysis of Supply—Branch Intensity a Cross Different Ownership Groups and over Time

	Date	Federal banks	State banks	Private banks	Foreign banks
Assets per branch	1995	32,730	17,108	26,920	27,661
Loans per branch	1995	17,907	6,900	11,929	15,761
Deposits per branch	1995	13,984	7,494	11,544	10,007
Employees per branch	1995	43.5	36.4	37.5	48.4
Assets per branch	1997	43,442	31,094	27,613	36,416
Loans per branch	1997	21,340	8,583	11,031	14,489
Deposits per branch	1997	16,674	14,869	9,722	10,350
Employees per branch	1997	38.1	27.3	29.3	28.2
Assets per branch	2000	45,156	19,115	29,852	54,129
Loans per branch	2000	23,040	4,937	13,451	23,149
Deposits per branch	2000	15,542	12,212	10,312	12,812
Employees per branch	2000	39.4	27.8	26.6	24.0

Notes: The financial data are in R\$, deflated by the CPI (base year = 1995). All ratios are calculated for the aggregates and are for March 1995, December 1997 and September 2000. One bank is excluded because of data problems. Note that the numbers for 2000 in tables 5.1 and A2 are not the same because of the deflating. The base period is 1995.

Source: World Bank staff estimates; data provided by Central Bank of Brazil.

Table B.10. Analysis of Supply—Structure of the Loan Portfolio across Brazilian Banks over Time

	Period	Federal banks	State banks	Private banks	Foreign banks
Private Borrowers	1995	72.8	69.1	97.2	98.0
Agriculture	1995	16.8	4.8	3.1	1.9
Residential Mortgage	1995	34.6	30.1	15.8	5.1
Individuals	1995	3.1	10.3	12.6	12.8
Federal Government	1995	7.3	0.3	0.2	0.2
State Government	1995	19.0	27.4	2.1	0.7
Private Borrowers	1997	78.4	94.0	98.0	99.2
Agriculture	1997	16.3	7.4	5.9	6.7
Residential Mortgage	1997	44.4	32.8	9.7	4.8
Individuals	1997	4.0	16.5	15.5	20.8
Federal Government	1997	5.1	0.1	0.3	0.0
State Government	1997	14.9	2.0	1.1	0.2
Private Borrowers	2000	76.6	98.9	98.9	99.4
Agriculture	2000	13.6	9.8	5.0	4.0
Residential Mortgage	2000	42.2	26.0	6.5	4.8
Individuals	2000	7.6	24.5	17.8	23.1
Federal Government	2000	19.3	0.0	1.0	0.4
State Government	2000	3.0	0.3	0.1	0.1

Note: Ratios are for aggregates and are for March 1995, December 1997 and September 2000.

Source: World Bank staff estimates; data provided by Central Bank of Brazil.

Table B.11. Analysis of Demand—Urban Survey of Access and Geographic Location

	Northeast	North	Center-west	Southeast	South
Had a Bank Account	29 (0.00)	25 (0.00)	53 (0.00)	45 (0.00)	55 (0.00)
Used banks as their primary financial institution	38	30	48	50	42
Used correspondents banks as the primary financial institution	53	70	52	48	53
Used mainly Non-Bank Institutions	9 (0.00)	— (0.00)	1 (0.00)	2 (0.00)	5 (0.00)
Used mainly Private Banks	27	16	28	34	26
Used mainly Public Banks	73 (0.00)	84 (0.00)	72 (0.00)	66 (0.00)	74 (0.00)
Reached the Financial Institution on foot	55 (0.00)	24 (0.00)	59 (0.00)	57 (0.00)	38 (0.00)
Had a Saving or a Current or a Term Deposit Account	19 (0.00)	6 (0.00)	50 (0.00)	28 (0.00)	38 (0.00)
Had deposits in Public Sector	3	10	21	11	33
Had deposits in Private Sector	6	7	30	22	16
Had deposits in Other Sectors	—	4	10	1	0
Didn't have deposits	90 (0.00)	79 (0.00)	39 (0.00)	66 (0.00)	50 (0.00)
Applied for loans and receive it	9	3	4	12	10
Applied for loans and don't receive it	4	0	8	5	3
Didn't apply for loans	88 (0.00)	97 (0.00)	88 (0.00)	83 (0.00)	87 (0.00)
Received credit from other sources	—	47	40	46	43
Received credit from public banks	50	40	0	17	39
Received credit from private banks	50 (0.02)	13 (0.02)	60 (0.02)	37 (0.02)	17 (0.02)
Had a debit card	18 (0.00)	16 (0.00)	44 (0.00)	24 (0.00)	40 (0.00)
Had a credit card	19 (0.04)	10 (0.04)	16 (0.04)	22 (0.04)	16 (0.04)
Used cash for all payments	89	81	74	79	79
Used credit card or debit card for all payments	10	12	11	2	7
Used transfer or direct deposits	2 (0.00)	7 (0.00)	15 (0.00)	20 (0.00)	14 (0.00)
Made the major part of payments at other points services	68	57	34	58	71
Made the major part of payments at private banks	11	11	9	22	10

Table B.11. Analysis of Demand—Urban Survey of Access and Geographic Location
(Continued)

	Northeast	North	Center-west	Southeast	South
Made the major part of payments at public banks and lottery shops	21 (0.00)	32 (0.00)	58 (0.00)	20 (0.00)	19 (0.00)
Made the major part of payments at bank in person	23	50	61	23	53
Made the major part of payments by other methods	77 (0.00)	50 (0.00)	39 (0.00)	77 (0.00)	48 (0.00)

Note: Numbers indicate percentage frequencies in each category. *P*-values of chi-square tests of independence are cited below the frequencies in parentheses. *P*-values below 0.05 are statistically significant.

Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table B.12. Analysis of Demand—Urban Survey of Access and Location

	1. Area		2. House		3. Construction		4. Rooms	
	Illegal	Legal	Unique	Collective	Regular home/ apartment	Shack/ room	>2 rooms per person	<0.5 rooms per person
Had a Bank Account	37 (0.01)	45 (0.01)	43 (0.81)	38 (0.81)	45 (0.00)	34 (0.00)	55 (0.00)	13 (0.00)
Used banks as their primary financial institution	45	47	46	53	47	40	56	32
Used correspondents banks as the primary financial institution	53	50	50	44	49	59	40	64
Used mainly Non-Bank Institutions	3 (0.51)	4 (0.51)	4 (0.5)	3 (0.51)	4 (0.01)	1 (0.01)	4 (0.00)	4 (0.00)
Used mainly Private Banks	30	31	31	27	33	23	39	19
Used mainly Public Banks	70 (0.53)	69 (0.53)	69 (0.37)	73 (0.37)	67 (0.00)	77 (0.00)	61 (0.00)	81 (0.00)
Reached the Financial Institution on foot	59 (0.02)	52 (0.02)	54 (0.01)	74 (0.01)	52 (0.17)	58 (0.17)	52 (0.06)	62 (0.06)
Had a Saving or a Current or a Term Deposit Account	23 (0.01)	30 (0.01)	29 (0.03)	19 (0.03)	30 (0.00)	20 (0.00)	41 (0.00)	7 (0.00)
Had deposits in Public Sector	9	15	14	7	15	11	18	3
Had deposits in Private Sector	17	19	19	24	20	14	28	6
Had deposits in Other Sectors	1	2	2	3	2	—	3	1
Didn't have deposits	73 (0.00)	64 (0.00)	65 (0.28)	66 (0.28)	64 (0.00)	75 (0.00)	51 (0.00)	90 (0.00)
Received credit from other sources	48	44	43	67	45	45	42	100
Received credit from public banks	10	25	23	17	26	6	30	—
Received credit from private banks	41 (0.18)	30 (0.18)	34 (0.17)	17 (0.17)	29 (0.02)	48 (0.02)	28 (0.25)	— (0.25)

Applied for a loan and received it	8	11	10	15	11	9	13	1
Applied for a loan and didn't receive it	6	5	5	20	4	6	4	5
Didn't apply for a loan	86	84	85	65	85	85	83	94
	(0.16)	(0.16)	(0.00)	(0.00)	(0.19)	(0.19)	(0.02)	(0.02)
Had a debit card	24	26	26	10	26	22	34	5
	(0.59)	(0.59)	(0.37)	(0.37)	(0.17)	(0.17)	(0.00)	(0.00)
Had a credit card	17	21	20	14	21	16	25	6
	(0.16)	(0.16)	(0.47)	(0.47)	(0.00)	(0.00)	(0.00)	(0.00)
Used cash for all payments	84	75	76	79	75	85	69	91
Used credit card or debit card for all payments	8	10	10	11	10	9	11	7
Used transfer or direct deposits	8	15	14	11	15	6	20	1
	(0.00)	(0.00)	(0.28)	(0.28)	(0.00)	(0.00)	(0.02)	(0.02)
Made majority of payments at other points services	24	25	25	12	26	—	23	33
Made majority of payments at private banks	16	18	17	24	17	67	23	5
Made majority of payments at public banks and lottery shops	60	58	58	65	56	33	55	62
	(0.01)	(0.01)	(0.21)	(0.21)	(0.00)	(0.00)	(0.01)	(0.01)
Made majority of payments at bank in person	47	56	54	63	55	50	55	44
Made majority of payments by other methods	53	44	46	37	45	50	45	56
	(0.00)	(0.00)	(0.06)	(0.06)	(0.33)	(0.33)	(0.29)	(0.29)

Note: Numbers indicate percentage frequencies in each category. *P*-values of chi-square tests of independence are cited below the frequencies in parentheses. *P*-values below 0.05 are statistically significant.

Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table B.13. Analysis of Demand—Urban Survey of Access to Financial Institutions

	Banks—Narrow Definition			Banks—Including Correspondents		
	Private ¹	Public ¹	Test ³	Private ²	Public ²	Test ³
Geographic Region						
North	50	50	0.01	16	84	0.00
Northeast	48	52	0.01	27	73	0.00
Center	58	42	0.01	28	72	0.00
Southeast	62	38	0.01	34	66	0.00
South	48	52	0.01	26	74	0.00
Area						
Illegal areas 3	58	42	0.46	30	70	0.53
Legalized area 3	58	42	0.46	31	69	0.53
Type of Dwelling						
Unique permanent house	59	41	0.61	31	69	0.37
Collective house	50	50	0.61	27	73	0.37
Type of Building						
House or apartment	59	41	0.02	33	67	0.00
Cottage or rooms	52	48	0.02	23	77	0.00
Number of Room per Person						
More than 2 rooms for person	63	37	0.00	39	61	0.00
Less than 0.5 rooms for person	52	48	0.00	19	81	0.00
Gender						
Man	60	40	0.00	34	66	0.00
Woman	56	44	0.00	28	72	0.00
Role in Household						
Head of household	60	40	0.10	32	68	0.43
Dependent	56	44	0.10	30	70	0.43
Income						
Lowest quintile	51	49	0.00	22	78	0.00
Highest quintile	64	36	0.00	49	51	0.00
Wealth/Collateral						
Possessing house or car	60	40	0.02	36	67	0.00
Without collateral	50	50	0.02	25	75	0.00
Education Level						
Less than primary	57	43	0.00	26	74	0.00
More than Secondary	69	31	0.00	59	41	0.00
Having a Job						
Having a job in the last month	59	41	0.00	33	67	0.04
Not having a job in the last month	57	43	0.00	29	71	0.04

Table B.13. Analysis of Demand—Urban Survey of Access to Financial Institutions
(Continued)

	Banks—Narrow Definition			Banks—Including Correspondents		
	Private ¹	Public ¹	Test ³	Private ²	Public ²	Test ³
Role in Workplace						
Employer	44	56	0.00	22	78	0.04
Self-employment	60	40	0.00	35	65	0.04
Employee-with work certificate	59	41	0.00	36	64	0.04
Employee-without work certificate	58	42	0.00	28	72	0.04
Full or Part Time						
Employed full time	60	40	0.20	32	68	0.06
Part-time or Irregular	58	42	0.20	35	65	0.06

Note: Numbers indicate percentage frequencies in each category. ¹Private or Public banks only.

²Private includes post office with banking services. Public includes lottery shops with banking services.

³*P*-values of chi-square tests of independence are cited below the frequencies in parentheses.

P-values below 0.05 are statistically significant.

Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table B.14. Analysis of Demand—Urban Survey of Access to Deposit, Payment, and Credit Facilities

	Deposits					Payments				Credit			
	Public	Private	Other	None	Test ¹	Public banks or lottery shops	Private banks	Other	Test ¹	Informal source	Public banks	Private banks	Test ¹
Geographic Region													
North	3	6	—	90	0.00	68	11	21	0.00	—	50	50	0.02
Northeast	10	7	4	79	0.00	57	11	32	0.00	47	40	13	0.02
Center	21	30	10	39	0.00	34	9	58	0.00	40	—	60	0.02
Southeast	11	22	1	66	0.00	58	22	20	0.00	46	17	37	0.02
South	33	16	0	50	0.00	71	10	19	0.00	43	39	17	0.02
Area													
Illegal areas 3	9	17	1	73	0.00	60	16	24	0.81	48	10	41	0.18
Legalized area 3	15	19	2	64	0.00	58	18	25	0.81	44	25	30	0.18
Type of Dwelling													
Unique permanent house	14	19	2	65	0.28	58	17	25	0.21	43	23	34	0.17
Collective house	7	24	3	66	0.28	65	24	12	0.21	67	17	17	0.17
Type of Building													
House or apartment	15	20	2	64	0.00	56	17	26	0.00	45	26	29	0.02
Cottage or rooms	11	14	—	75	0.00	67	17	17	0.00	45	6	48	0.02
Number of Room per Person													
More than 2 rooms for person	18	28	3	51	0.00	55	23	23	0.01	42	30	28	0.25
Less than 0.5 rooms for person	3	6	1	90	0.00	62	5	33	0.01	100	—	—	0.25
Gender													
Man	17	22	2	59	0.00	59	19	22	0.00	43	20	37	0.17
Woman	11	15	2	72	0.00	57	15	28	0.00	47	27	26	0.17
Role in Household													
Head of household	15	22	1	62	0.02	59	19	22	0.08	41	22	37	0.36
Dependent	14	16	2	68	0.02	57	16	27	0.08	48	24	28	0.36

Income													
Lowest quintile	7	6	3	84	0.00	59	10	30	0.00	33	42	25	0.48
Highest quintile	25	42	1	32	0.00	56	31	13	0.00	42	24	34	0.48
Wealth/Collateral													
Possessing house or car	14	20	2	64	0.01	58	18	24	0.08	41	26	33	0.02
Without collateral	12	13	1	73	0.01	60	13	27	0.08	64	8	28	0.02
Education level													
Less than primary	9	10	3	78	0.00	58	11	31	0.00	52	17	30	0.11
More than Secondary	29	45	2	25	0.00	41	38	21	0.00	52	10	38	0.11
Having a job													
Having a job in the last month	18	26	2	54	0.00	58	20	22	0.00	49	21	30	0.41
Not having a job in the last month	9	11	2	78	0.00	58	13	29	0.00	39	26	35	0.41
Role in Workplace													
Employer	34	22	3	41	0.00	53	21	26	0.00	71	14	14	0.64
Self-employment	14	29	3	54	0.00	57	19	24	0.00	54	17	29	0.64
Employee-with work certificate	23	31	1	45	0.00	58	25	18	0.00	42	18	40	0.64
Employee-without work certificate	14	15	3	68	0.00	61	17	23	0.00	52	24	24	0.64
Full or Part Time													
Employed full time	18	26	2	54	0.00	58	21	21	0.00	47	22	31	0.76
Part-time or Irregular	18	26	2	53	0.00	59	18	23	0.00	51	19	30	0.76

Note: Numbers indicate percentage frequencies in each category. ¹P-values of chi-square tests of independence are cited below the frequencies in parentheses. P-values below 0.05 are statistically significant.

Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table B.15. Analysis of Demand—Urban Survey of Access to Pension Deposits and Housing Finance

	Pension Contributions				Home Purchase					
	Didn't contribute	Public fund	Private fund	Test ¹	Savings	Credit (CEF)	Private bank	Constr. co, consortium, coop	Family/friends	Test ¹
Geographic Region										
North	89	11	—	0.00	70	10	10	—	10	0.02
Northeast	94	3	2	0.00	53	6	—	—	22	0.02
Center	87	8	5	0.00	49	9	3	5	5	0.02
Southeast	96	2	2	0.00	56	22	11	—	—	0.02
South	76	21	3	0.00	69	7	6	4	—	0.02
Area										
Legalized area	92	8	—	0.00	53	9	4	4	5	0.35
Illegal areas	93	5	3	0.00	61	5	—	2	11	0.35
Type of Dwelling										
Unique house	93	6	2	0.82	57	8	4	3	5	0.01
Collective house	97	3	—	0.82	25	50	—	—	25	0.01
Type of Building										
House or apartment	93	5	2	0.00	55	9	3	4	6	0.01
Cottage or rooms	92	7	1	0.00	54	6	6	2	8	0.01
Number of Room per Person										
More than 2 rooms for person	90	6	5	0.01	58	13	—	4	3	0.09
Less than 0.5 rooms for person	94	6	—	0.01	75	—	—	—	25	0.09
Gender										
Man	92	6	2	0.74	56	9	2	3	6	0.65
Woman	93	5	2	0.74	53	8	5	5	7	0.65
Role in Household										
Head of household	91	6	3	0.07	47	8	—	2	9	0.02
Dependent	94	4	2	0.07	57	9	5	5	5	0.02

Income										
Lowest quintile	96	3	1	0.00	49	5	7	5	19	0.05
Highest quintile	82	11	7	0.00	39	18	—	7	7	0.05
Wealth/Collateral										
Possessing house or car	92	6	2	0.01	54	9	4	4	6	0.15
Without collateral	96	3	1	0.01	62	4	—	4	15	0.15
Education Level										
Less than primary	95	3	1	0.00	40	12	—	4	4	0.02
More than Secondary	79	11	10	0.00	66	16	—	13	—	0.02
Having a Job										
Having a job in the last month	90	8	3	0.00	57	10	3	1	7	0.14
Not having a job in the last month	96	2	1	0.00	50	7	5	8	7	0.14
Role in Workplace										
Employer	68	22	11	0.00	29	—	14	—	29	0.05
Self-employment	89	8	3	0.00	50	13	2	2	2	0.05
Employee-with work certificate	89	8	3	0.00	51	11	2	6	9	0.05
Employee-without work certificate	95	3	2	0.00	70	8	3	3	11	0.05
Full or Part Time										
Employed full time	90	8	2	0.00	61	8	3	7	4	0.23
Part-time or Irregular	88	8	4	0.00	44	16	2	4	7	0.23

Note: Numbers indicate percentage frequencies in each category. ¹*P*-values of chi-square tests of independence are cited below the frequencies in parentheses. *P*-values below 0.05 are statistically significant.

Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Table B.16. Analysis of Demand—Urban Survey on Use of a Financial Institution, Physical Access, and Deposit Facilities

	Bank Account		Access to Financial Institution						
	Had a bank account	Test ¹	Banks	Correspondent banks	Non-bank institutions	Test ¹	Private banks	Public banks	Test ¹
Gender									
Male	50	0.00	50	47	3	0.00	34	66	0.00
Female	37	0.00	42	54	4	0.00	28	72	0.00
Role in Household									
Head of Household	50	0.00	48	50	3	0.08	32	68	0.43
Dependent	37	0.00	44	52	4	0.08	30	70	0.43
Income									
Lowest quintile	15	0.00	34	61	5	0.00	22	78	0.00
Highest Quintile	64	0.00	69	30	1	0.00	49	51	0.00
Wealth/Collateral									
Possessing house or car	45	0.00	48	49	3	0.02	33	67	0.00
Without collateral	35	0.00	40	57	4	0.02	25	75	0.00
Education									
Less than Primary	28	0.00	38	58	4	0.00	26	74	0.00
More than Secondary	84	0.00	83	16	1	0.00	59	41	0.00
Having a Job									
Having a job in the last month	55	0.00	50	47	2	0.00	33	67	0.04
Not having a job in the last month	30	0.00	42	53	5	0.00	29	71	0.04
Role in Workplace									
Employer	63	0.00	47	50	3	0.00	22	78	0.04
Self-employed	51	0.00	47	49	4	0.00	35	65	0.04
Employee—with work certificate	68	0.00	58	41	1	0.00	36	64	0.04
Employee—no work certificate	44	0.00	42	56	2	0.00	28	72	0.04
Full or Part Time									
Employed full time	56	0.00	49	50	1	0.00	32	68	0.06
Part-time or Irregular	55	0.00	53	42	4	0.00	35	65	0.06

Note: Numbers indicate percentage frequencies in each category. ¹*P*-values of chi-square tests of independence are cited below the frequencies in parentheses. *P*-values below 0.05 are statistically significant.

Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Physical Access		Accounts		Deposits				
Reached fin. institution on foot	Test ¹	Savings, current or term deposit	Test ¹	Public	Private	Other	No deposits	Test ¹
52	0.22	34	0.00	17	22	2	59	0.00
55	0.22	23	0.00	11	15	2	72	0.00
51	0.04	32	0.01	15	22	1	62	0.02
55	0.04	26	0.01	14	16	2	68	0.02
54	0.22	9	0.00	7	6	3	84	0.00
47	0.22	47	0.00	25	42	1	32	0.00
52	0.01	30	0.00	14	20	2	64	0.01
59	0.01	22	0.00	12	13	1	73	0.01
55	0.09	19	0.00	9	10	3	78	0.00
43	0.09	67	0.00	29	45	2	25	0.00
51	0.06	38	0.00	18	26	2	54	0.00
56	0.06	19	0.00	9	11	2	78	0.00
45	0.1	51	0.00	14	29	3	54	0.00
54	0.1	37	0.00	34	22	3	41	0.00
47	0.1	47	0.00	23	31	1	45	0.00
56	0.1	25	0.00	14	15	3	68	0.00
50	0.06	38	0.00	18	26	2	54	0.00
55	0.06	40	0.00	18	26	2	53	0.00

Table B.17. Analysis of Demand—Urban Survey of Loans and Credit and Payment Services

	Loan Application				Receiving Credit				Debit and Credit Cards			
	Received it	Didn't receive it	Didn't apply	Test ¹	Other sources	Public banks	Private banks	Test ¹	Had a debit card	Test	Had a credit card	Test ¹
Gender												
Male	11	5	84	0.52	43	20	37	0.17	30	0.00	23	0.00
Female	10	5	85	0.52	47	27	26	0.17	21	0.00	17	0.00
Role in Household												
Head of Household	13	5	83	0.01	41	22	37	0.36	30	0.00	23	0.07
Dependent	8	5	87	0.01	48	24	28	0.36	21	0.00	17	0.07
Income												
Lowest quintile	3	5	92	0.00	33	42	25	0.48	5	0.00	7	0.00
Highest quintile	24	2	74	0.00	42	24	34	0.48	40	0.00	34	0.00
Wealth/Collateral												
Possessing house or car	11	4	85	0.02	41	26	33	0.02	27	0.00	22	0.00
Without collateral	9	7	84	0.02	64	8	28	0.02	19	0.00	12	0.00
Education												
Less than Primary	10	5	85	0.00	52	17	30	0.11	15	0.00	9	0.00
More than Secondary	23	1	76	0.00	52	10	38	0.11	54	0.00	48	0.00
Having a Job												
Having a job in the last month	13	4	83	0.00	49	21	30	0.41	34	0.00	26	0.00
Not having a job in the last month	8	5	87	0.00	39	26	35	0.41	17	0.00	14	0.00
Role in Workplace												
Employer	18	5	77	0.02	71	14	14	0.64	39	0.00	45	0.00
Self-employed	11	5	85	0.02	54	17	29	0.64	27	0.00	21	0.00
Employee—with work certificate	15	3	82	0.02	42	18	40	0.64	44	0.00	32	0.00
Employee—no work certificate	10	5	85	0.02	52	24	24	0.64	26	0.00	20	0.00
Full or Part Time												
Employed full time	12	4	84	0.01	47	22	31	0.76	34	0.98	26	0.93
Part-time or Irregular	14	4	82	0.01	51	19	30	0.76	34	0.98	26	0.93

Note: Numbers indicate percentage frequencies in each category. ¹*P*-values of chi-square tests of independence are cited below the frequencies in parentheses. *P*-values below 0.05 are statistically significant.
Source: World Bank staff estimates; Survey of Access to Financial Services in Urban Areas of Brazil, 2002.

Cash	Payment Method			Payments—Institution Type				Payment Location		
	Credit card or debit card	Transfer or direct deposits	Test ¹	Other service points	Private banks	Public banks and lottery shops	Test ¹	At a bank in person	Other methods	Test ¹
76	10	14	0.77	59	19	22	0.00	56	44	0.15
77	9	13	0.77	57	15	28	0.00	52	48	0.15
76	9	15	0.37	59	19	22	0.08	56	44	0.05
77	10	12	0.37	57	16	27	0.08	52	48	0.05
82	9	8	0.00	59	10	30	0.00	45	55	0.00
62	12	26	0.00	56	31	13	0.00	57	43	0.00
74	11	15	0.00	58	18	24	0.08	55	45	0.01
87	5	8	0.00	60	13	27	0.08	48	52	0.01
90	6	4	0.00	58	11	31	0.00	45	55	0.00
38	15	47	0.00	41	38	21	0.00	62	38	0.00
72	11	17	0.00	58	20	22	0.00	57	43	0.01
82	8	10	0.00	58	13	29	0.00	51	49	0.01
51	14	34	0.00	53	21	26	0.00	74	26	0.13
77	11	13	0.00	57	19	24	0.00	76	24	0.13
64	13	23	0.00	58	25	18	0.00	82	18	0.13
83	8	9	0.00	61	17	23	0.00	77	23	0.13

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Looking at the use of financial services by different groups of consumers in Brazil, differences in financial access across regions is confirmed, but differences among richer and poorer neighborhoods can be as important. Public financial institutions in Brazil, deemed to be socially responsible, appear to have served disadvantaged groups more than private banks on some measures and for some services. However, their role varies by type of service, and in the case of some services, public banks in fact may have better served the better-off groups. At the level of individuals, the most important determinants of access to financial services are socio-economic characteristics such as income, wealth, and education. This may signify that in the presence of asymmetric information, access to such services depends critically on client information, and such characteristics provide a proxy for creditworthiness.

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Internet: www.worldbank.org
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ISBN 0-8213-6131-7