

Characteristics of the unbanked and banked in the popular financial sector in Mexico: An analysis of the BANSEFI household panel survey

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Documento en el que se analizan las diferencias entre los hogares usuarios y no usuarios del sistema financiero. Se identifican las posibles correlaciones entre la existencia de cuentas bancarias en el hogar e indicadores de bienestar como ingreso y educación, aunque se pone en relieve cómo ciertos factores que distinguen a un conjunto de otros pueden ser exógenos al uso de los servicios financieros. El análisis considera como variables de categorización el tipo de localidad (rural/urbana); el tamaño de las instituciones y la calidad las mismas.

Introduction:

In March, 2004, the Banco del Ahorro Nacional y Servicios Financiero de Mexico (BANSEFI) and the Ministry of Agriculture (SAGARPA) began a survey of 5,767 households in 25 of Mexico's 32 federal entities. The survey is part of a broader effort to measure the impact of the Ley de Ahorro y Credito Popular (LACP), approved by the Mexican legislature in 2001. The LACP provided for a framework to regulate and stimulate the non-bank financial institutions in Mexico.

The first wave of the survey was conducted between March 5 and July 2, 2004. Two additional waves were conducted in the spring of 2005 and the spring of 2006. Fourth and fifth waves are planned for the spring of 2007 and 2008. This report provides a summary analysis of the data from the first two waves of the survey. The third wave was not available at the time the analysis and writing was done, but will be incorporated in the analysis at a future date.

The survey sample was designed to be representative of three regions within Mexico: the north, the center and the south, and to result in an equal number of clients and non-clients

of non-bank financial institutions. Within each of the three regions, institutions in the sector de ahorro y credito popular (SACP)¹ were selected randomly with a probability proportional to their number of clients. That is, larger SACP institutions had a greater likelihood of being included in the sample. For each of the 100 selected SACP branches, between 20 and 30 clients were selected randomly from the directory of clients.² Then, using a short screening survey, an equal number of households was selected from the same community from among those households in which no member had used a financial account for at least five years prior to the interview.

While comprehensive data on the use of financial services by households in Mexico are not available, the existing data suggest that penetration rates of formal financial institutions are low. The formal financial sector can be divided into commercial banks and SACP institutions. In 2002, BANSEFI conducted a census of SACP institutions. The census served as the universe from which the sample for the panel survey was selected. The census concluded that the SACP institutions collectively had just over 3.86 million accounts. The Mexican 2000 population census indicates that there are just over 22.6 million households in Mexico, suggesting a maximum penetration rate among the SACP institutions of 17 percent. Because some households have multiple accounts, the actual penetration rate is likely to be significantly lower than this amount.³ Including commercial banks would increase the overall formal financial penetration rate. But the overall penetration rate is almost certainly below 25 percent in Mexico. Indeed, Caskey, Ruiz Duran and Solo (2004) report that only 23.6 percent of households in Mexico City are banked. Their data on accounts include commercial banks as well as SACP. Because Mexico City is the center of Mexico's financial services sector, these numbers likely represent an upper limit on the penetration rate of formal financial institutions in Mexico.

¹ In this report, we use the term SACP to refer to institutions in the popular financial sector, including branches of BANSEFI and SAGARPA's Proyecto Regional de Asistencia Técnica al Microfinanciamiento Rural (PATMIR). We use the term EACP (entidades de ahorro y credito popular) to refer to the cajas and cooperatives apart from BANSEFI and PATMIR branches.

² Eight of the branches originally selected to be part of the sample declined to participate in the survey. These were replaced with branches of similar size in the same geographic region.

³ The baseline survey data indicate that 27 percent of households with accounts have two accounts and 5.4 percent of households have more than two accounts. Extrapolating from the baseline survey to the total census, with its 3.86 million accounts, these data suggest that approximately 1.8 million households have one or more accounts in SACP institutions, representing a penetration of 12.4 percent.

The LACP is expected to result in the expansion of the popular credit sector, and an increase in the availability of credit to households. Using only the first two waves of the survey, we are able to present only very tentative evidence of the impact of the law in this regard. Rather, this report lays the groundwork for future analysis by examining the characteristics of households with and without accounts. We focus on several measured characteristics, among them: household income, expenditures and assets, the age and education of the heads of the household, and the structure of the household, including the number of children and the presence of both the household head and his/her spouse. In general, we focus the discussion on correlations rather than directions of causation.

The report is organized as follows. Section 2 describes the survey, sample and data. Section 3 compares households with and without accounts, comparing differences in mean and median characteristics for the full sample, for the urban and rural sample separately, and for the sample divided by quality and size of institution. Section 4 develops a simple framework, and Section 5 uses regression analysis to examine the characteristics of the banked and unbanked. Section 6 examines the use of loans. Section 7 focuses on the group of Oportunidades/Procampo households in which accounts were opened shortly before the baseline survey. Section 8 offers some concluding remarks and reflections on a future research agenda.

Section 2: The Data

The data come from the first two waves of the household panel survey conducted by BANSEFI in 2005 and 2006. The sample includes 5,768 households in the first wave, of which 4,473 were re-surveyed in the second wave. Because 159 households were added to the sample in the second wave, wave two surveyed 4,632 households in total. The attrition rate was thus 22 percent between the first and second rounds of the survey.

Households were asked the same survey questions in each of the waves. The survey consists of 12 sections, compiling a household roster (Section 1), gathering data on

expenditures (Section 2), use of credit (Section 3), formal and informal financial sector assets (Sections 4 and 5), remittances and other sources of income (Sections 6 and 7), agricultural and non-agricultural enterprises (Section 8 and 9), wage income and household assets (Section 10), economic shocks faced by the households (Section 11), and recent renovations to the household (Section 12).

The sample:

The sample was designed to have an equal number of households with and without accounts in SACP institutions. Account lists were taken from 100 different branches of financial institutions. Fifty-nine of the institutions were entidades de ahorro y credito popular, 14 were branches of BANSEFI (including two institutions providing credito a la palabra), and 27 were branches supported or founded by with SAGARPA's PATMIR program. A group of 20 to roughly 35 households with accounts in each of the branches was drawn randomly from the client list for inclusion in the sample.⁴ Then, from the same community, a group of non-client households was selected. These households were administered a screening survey. Those indicating that some member of the household had an account in a financial institution at any time after April 1999 were excluded from the sample. Thus, the matched sample consists solely of households who have not used formal financial institutions in the five years leading up to the survey.

In the baseline survey, 2,627 households report having had a savings account in the five years leading up to the survey date, and 3,141 households that have not had an account in the previous five years. The two groups are not evenly matched because 348 households selected for what the survey report calls the "treatment" group do not have accounts.

The panel survey project was undertaken jointly by BANSEFI and SAGARPA. Just over one-quarter of the sample (1,481 households) was drawn to reflect rural institutions operated by or supported by SAGARPA's PATMIR program. The remaining 4,286 households were drawn from urban and semi-urban areas and were intended to represent

⁴ Some branches declined to provide a list of clients. In these cases, the survey firm sampled individuals arriving at the branch to conduct business, and/or used snowball sampling to locate clients of the branch.

clients or potential clients of SACP institutions aside from PATMIR. Of the 4,286 firms that make up the non-PATMIR sample, 1,190 (28 percent) are in localities classified as rural. The remainder are located in urban areas.

Issues with the sample:

From the perspective of providing information on the popular credit sector, the sampling design has both advantages and disadvantages. The design allows for a good analysis of differences in characteristics of members and non-members. Determining the impact of either the LACP or use of financial institutions is more challenging. While some characteristics associated with use of financial institutions (e.g., the level of education of the household head) are clearly determined before accounts are opened, others (e.g., household income levels) are not. In the former case, we can infer causation from the characteristic to membership. In the latter case, we cannot be sure of the direction of causation—whether higher income causes households to open accounts, or accounts cause households to have higher income, for example. But for most any characteristic, such as household income or assets which may change after an account is opened, it is likely that part of the causation goes from that characteristics to the opening of accounts. This makes inference about the impact of the use of financial institutions more challenging.

The panel data may provide a chance to distinguish cause from effect. Between waves of the panel, some households will cease to use financial institutions and others will open accounts. Of course, much of this churn will be the result of changes in the circumstances of the household. For example, households which begin to receive remittances from the United State or Canada may be more likely to open an account between waves. Separating the effect of the remittances from the effect of use of financial institutions will be difficult. But some households may begin or cease to use financial institutions for reasons that are independent of changes in the household's circumstances. For example, some may begin to participate in the program of electronic transfers of Oportunidades

and Procampo. These households will have an account opened for them. Others may cease to use financial institutions because the branch they are using closes. If sufficient in number, these changes will generate variation in the data which will allow us to identify the causal impact of use of financial institutions on household outcomes.

Of course, the identification of the causal impact of financial institutions on household well being will be easier to identify after additional waves of the panel survey become available. The third wave of the panel survey, conducted in the spring of 2006, will be available in early 2007. A fourth wave is planned for the spring of 2007. Also, in the fall of 2006, BANSEFI carried out a survey of the institutions whose clients are included in the household sample. These data may provide variation in the operating procedures of the SACP institutions which will help identify the impacts of financial institutions on household outcomes.⁵

Variables of interest and data issues:

The survey gathers data on household expenditures in several categories. We aggregate several of these categories to produce monthly expenditures on food, household goods, and household services. First, households are asked how often they purchase food, and how much they spend on average each time they make purchases. They are asked the same two questions regarding other household items. We aggregate these responses to estimate monthly expenditures on household items. Next, households are asked how much they spend weekly on transportation. The responses to this question are multiplied by 4.2 to obtain an estimate of monthly expenditures. Finally, households are asked about 12 categories of monthly expenses, including water, gas, electricity, telephones, and other household services. There are a relatively large number of non-responses for monthly expenditures on cellular services, so we exclude this category. The remaining categories of expenditures on household services are added to the expenditures on food, household goods, and transportation to derive a measure of monthly household expenditures.

⁵ Townsend and Kobaski (2005) use variation in the rules by which financial institutions take deposits and grant loans to identify the impacts of financial institutions on households in Thailand.

The survey also asks households about quarterly purchases on clothing, toys and entertainment, and about annual expenditures on such items as appliances, vehicles, and vacations. We don't use these data in estimating monthly expenditures because non-response rates are relatively high.

There are also several issues related to the calculation of household income that merit discussion. For households without self-employed workers in agriculture, we use three separate measures of income. The first is total household labor income. This includes income earned from wage work and from self employment. Second, we calculate the maximum labor income earned by any single member of the household. This variable has the advantage of being available for a greater number of households, since the total labor income is missing whenever income is missing for any single member of the household. Finally, we calculate a broader measure of household income which includes payments from government programs such as Oportunidades and Procampo. Calculation of similar income data for households with agricultural enterprises is not possible for reasons we discuss further below. For this reason, we rely more heavily on expenditure data than income data.

We use several indicators of household assets. First, households are asked if they own the home they live in, and whether they own any land used for agriculture. Just over three-quarters (75.5 percent) own their home, and 20 percent of households own land. We also use three measures of the quality of the home: the number of rooms aside from hallways and bathrooms (3.2 on average), whether there is piped water inside the household (44 percent), and whether the house is connected to a piped sewage system (63 percent).

Finally, we estimate the value of household durable goods assets. The survey asks households whether they have a washing machine, refrigerator, stove, sewing machine, television, radio, VCR, bicycle, motorcycle and automobile. Where the household has one of these items, the survey asks the market value of the item. Many households say they don't know the market value of the item. We create one measure of household assets by summing the value of these items, with missing values where a household fails to

report the value of any item. This measure is available for 465 of the households. We also create a household asset series in which the missing market values are replaced by the median value of the same item among those households who report the value. This allows us to recover the household asset measure for most households. While the variances in the estimated market value of the assets are large, there is also likely to be substantial noise in the reported values. Using the median variable misses the actual variance in values of the assets across households, but smoothes out the reporting noise.

For households with agricultural enterprises, we are not able to calculate standard income measures because the survey questions on agricultural enterprises do not lend themselves to calculation of income generated from agricultural activities. We can derive various measures of the scale of operation, and calculate the value of farm assets. We calculate measures of the amount of land owned by the farmer, whether the households sells any of its output, whether it purchases fertilizer, seeds, or other inputs, and the value of farm assets. As with household assets, the market value of many farm assets is unreported. In these cases, we use the median value of the asset among those farm households reporting some asset.

Section 3: Comparison of Households with and without Accounts

Table 1 shows some summary statistics for the households with accounts and the households without accounts. Several differences stand out. First, the average education level of the household head and spouse is 6.9 years among members, and 5.0 years among non-members. The difference is significant at the .01 level. In a significant minority of households, either the male or female head is absent. Both the male and female head are more likely to be present in households with accounts (80 percent vs. 75 percent, significant at the .01 level). There is no significant difference in the size of the households (4.5 members for households with accounts and 4.4 for households without accounts). The age distribution of children in the two groups of households is also similar: 56 percent (66 percent) of households with accounts have no children aged 6-12 (13-16) vs. 53 percent (68 percent) of households without accounts. (Data not shown on Table 1.) Somewhat surprisingly, households in which at least one household head speaks

an indigenous language are more likely to have an account (25.6 percent of those with an account vs. 21.4 percent of those without). This difference is significant at the .01 level.

Table 1
Full Sample Summary Statistics

		Account	No Account
Number of observations		2,627	3,141
Average family size		4.5 (1.9)	4.4 (2.0)
Percentage both heads present	***	80.2	75.3
Female head average education	***	6.6 (4.7)	4.7 (3.7)
Male head average education	***	7.2 (5.0)	5.3 (3.9)
Median total work income	***	3,940	2,605
Median total income	***	4,017	2,782
Median household expenditures	***	3,165	2,273
Land ownership	**	22.0	19.8
House ownership	***	81.6	70.5
Number of rooms in house	***	3.7 (1.7)	2.8 (1.5)
Piped water	***	53.4	35.4
Connected to sewer	***	67.5	59.8
Median total assets (modified)	***	6,000	2,700
Agricultural enterprise		28.1	26.5
Non-agricultural enterprise	***	38.7	26.8
Remittances from abroad	***	14.0	10.8

Notes: Standard Errors in parentheses. Asterisks represent significance of difference in means or medians: * - .10 level; ** - .05 level ; *** .01 level

Income, expenditures and household assets are also all higher markedly higher among households with accounts than among households without accounts. Though causation

likely runs in both directions, we expect that the predominant direction is that higher income causes a greater demand for banking services. We discuss the demand for savings services in the next section.

Median household labor income is 3,940 pesos per month among households with savings accounts and 2,605 among households without accounts. The calculation of median labor income requires that labor income be non-missing for each member of the household who is employed. This variable is available for 5108 of the 5768 households. We also calculate the maximum labor income among those members with non-missing data. This variable, while somewhat less informative, requires that only one member of the household have non-missing labor income. The maximum income earned by any single member in the household is also larger among households with accounts (2,400 vs. 1,400, not shown on table). Median and Mann-Whitney tests confirm that the differences in medians are significant at well beyond the .01 level. Recall that these variables are calculated only for households without agricultural enterprises. Monthly expenditures are comparably higher among all households with accounts: 3,165 vs. 2,273 for households without accounts.

Households with savings accounts are more likely to own the home they live in (81.6 percent vs. 70.5 percent, $p < .01$) and more likely to own agricultural land (22.0 percent vs. 19.8 percent, $p = .05$). The houses of those with accounts are larger (3.7 vs. 2.8 rooms, $p < .01$), more likely to have piped water (53.4 percent vs. 35.4 percent, $p < .01$), and more likely to be connected to a sewer system (67.5 percent vs. 59.8 percent, $p < .01$). The median value of durable goods owned by the household is also larger (6,000 pesos vs. 2,700 pesos, $p < .01$).

Households with and without savings accounts differ in other ways as well. Those with accounts are slightly (though statistically insignificantly) more likely to have agricultural enterprises (28.1 percent vs. 26.5 percent) and much more likely to have non-agricultural enterprises (38.7 percent vs. 26.8 percent). And they are more likely to receive

remittances from family members working outside Mexico (14.0 percent vs. 10.8 percent). The latter two differences are highly statistically significant ($p < .01$).

Table 1 includes the full sample of households. There are likely to be large differences in the characteristics of households in urban and rural areas. In particular, we should expect that urban households will have higher income and education levels, and be less likely to receive remittances. Tables 2 and 3 split the sample into urban and rural households, respectively. In fact, the differences between households with and without accounts is similar in urban and rural areas. The differences in both income and household assets are slightly larger in urban areas, but significant in both locations. There is no statistically significant difference in the rate at which urban households with and without accounts receive remittances, while there is a statistically significant difference in this regard in rural areas. But otherwise, the comparison of banked and unbanked households in urban and rural areas is similar.

In Tables 2 and 3, we also divide the sample of households with accounts into those with savings-only accounts at a BANSEFI branch and those with accounts at savings and credit institutions. The differences between BANSEFI clients and clients of EACPs is substantial. By most measures, the BANSEFI clients fall between the EACP clients and those without accounts. In education levels, for example, urban BANSEFI clients average 7.4 years while EACP clients average 7.9 years and non-account holders 5.4 years. Rural BANSEFI clients have median monthly household expenditures of 1,962 pesos, compared with 2,380 for clients of EACPs and 1,887 for the unbanked. Overall, in terms of income and assets, the BANSEFI clients in both the urban and rural BANSEFI clients are closer to non-account holders than account holders, especially in rural areas. Median durable goods asset levels are comparable (3,470 for BANSEFI clients vs. 3,400 for non-account holders in urban areas, 1,900 for BANSEFI clients vs. 2,000 for the unbanked in rural areas). BANSEFI clients are also less likely to have piped water (49.4 percent vs. 52.2 percent urban and 11.1 percent vs. 17.3 percent rural) and sewer connections (76.3 percent vs. 79.4 percent urban and 17.6 percent vs. 38.8 percent rural). Home ownership

rates are slightly higher, as is the size of the house. These data suggest that BANSEFI is reaching a very different clientele in urban areas than are the EACPs.

Table 2
Urban Sample Characteristics

	No Account	Savings Only Account (BANSEFI)	Savings/Lending Account
Number of observations	1,628	160	1,309
Average Family Size	4.3 (2.0)	4.6 (1.5)	4.2 (1.7)
Percentage both heads present	72.5	70.0	80.0
Female head average education	5.1 (3.8)	6.9 (3.9)	7.7 (4.8)
Male head average education	5.7 (4.0)	7.9 (4.4)	8.1 (5.1)
Median total work income	3,200	3,780	5,040
Median total income	3,360	4,238	5,173
Median household expenditures	2,716	3,249	4,036
Land Ownership	9.0	0.6	12.7
House Ownership	61.9	70.0	79.5
Number of Rooms	3.0 (1.6)	3.3 (1.6)	4.2 (1.7)
Piped water	52.2	49.4	74.1
Connected to Sewer	79.4	76.3	86.9
Median total assets	3,400	3,650	11,800
Agricultural Enterprise	12.1	1.9	15.6
Non-agricultural Enterprise	26.8	33.3	39.7
Remittances from abroad	11.2	6.9	12.1

Table 3
Rural Sample Characteristics

	No Account	Savings Only Account (BANSEFI)	Savings/Lending Account
Number of observations	1,513	108	1,050
Average Family Size	4.4 (2.0)	5.3 (2.6)	4.7 (2.0)
Percentage both heads present	78.2	78.7	82.3
Female head average education	4.3 (3.6)	3.9 (3.1)	5.5 (4.5)
Male head average education	4.7 (3.8)	3.3 (3.0)	6.3 (4.9)
Median total work income			
Median total income			
Median household expenditures	1,887	1,962	2,380
Land Ownership	31.1	48.2	34.3
House Ownership	79.8	85.2	85.6
Number of Rooms	2.6 (1.2)	2.8 (1.1)	3.3 (1.7)
Piped water	17.3	11.1	32.6
Connected to Sewer	38.8	17.6	47.1
Median total assets	2,000	1,900	4,100
Agricultural Enterprise	41.9	53.7	45.1
Non-agricultural Enterprise	26.9	9.3	41.3
Remittances from abroad	10.3	26.9	16.1

Characteristics by size and quality of institution:

The baseline sample was stratified on the size of the institution. The institutions were grouped into four size categories: very small (up to 1,500 clients), small (1,501-10,000 clients), medium (10,001-100,000 clients) and large (more than 100,000 clients). The size category was determined by the total number of clients in the institution rather than the branch in which the client has an account. Thus, all of the BANSEFI clients are included in the largest size category, regardless of the size of a particular branch. Table 4 shows the distribution of the sample by size of institution.

Table 4
Sample by size of institution

Sample by Size of SACP	Location		
	Urban	Rural	Total
Less than 1500 members	1,003	1,410	2,413
1500-10,000 members	925	679	1,604
10,000-100,000 members	444	238	682
More than 100,000 members	725	344	1,069
Total	3,097	2,671	5,768

Table 5
Sample by size and quality of institution

Size of SACP	Quality rating of SACP branch					Total
	A	B	C	D	ND	
Less than 1500 members	515	135	239	180	252	1,321
1500-10,000 members	294	371	227	138	90	1,120
10,000-100,000 members	326	47	60	106	124	663
More than 100,000 members	4	273	123	206	300	906
Total	1,139	826	649	630	766	4,010

As a part of the LACP, BANSEFI made an assessment of the sector, rating the quality of each of the institutions covered by the law. Institutions were rated from A (highest) to D (lowest) according to measures of financial coverage, non-performing loans, expenses as a percentage of assets, and other financial ratios. The ratings are available for only part of the sample. We do not have rating for BANSEFI branches included in the sample, nor for the branches of PATMIR. Therefore, the quality ratings are not available for all of the households in the survey. Table 5 shows the distribution of households by the quality of the institution and size. There is a good distribution of households across institutions of various quality levels. For Table 5, and for the regressions below, we assign households without an account to the institution which is located closest to their house.

Table 6 shows the characteristics of households with accounts in institutions of various quality ratings. We use only urban data for this table, and those households without an account are excluded from the table. There is some suggestion in the data that the households served by the lowest quality institutions are poorer by several measures. In particular, they have significantly lower levels of household durable assets (13,750 vs. 22,100 for clients of the highest quality institutions, significant at the .05 level) and lower median level of savings account deposits (4,000 vs. 6,000). By other measures, however, they appear to be poorer, but not significantly so. For example, monthly expenditure levels in the two groups are insignificantly different from one another (4,346 vs. 4,555), as is median labor income (5,635 vs. 5,900).

Table 6
Characteristics of clients by quality of institution

		A/B	C/D
Number of observations		567	340
Average Family Size		4.2 (1.7)	4.4 (1.5)
Female Head in Labor Force		39.3	36.5
Percentage both heads present		81.7	80.0
Female head average education		8.4 (4.4)	8.0 (4.5)
Male head average education	*	8.8 (4.7)	8.2 (4.9)
Median total work income		5,900	5,635
Median total income		5,940	5,635
Median household expenditures		4,554	4,346
Land Ownership	**	6.0	9.7
House Ownership	*	77.4	82.1
Number of Rooms		4.4 (1.6)	4.4 (1.6)
Piped water		85.0	81.2
Connected to Sewer	*	92.4	95.3
Median total assets	**	22,100	13,750
Median savings account balances	**	6,000	4,000
Non-agricultural Enterprise		39.0	34.8
Agricultural Enterprise	*	8.5	12.1
Remittances from abroad		14.3	14.7

Asterisks indicate significance of differences between A/B and C/D

Table 7 divides the sample by the size of the institution, again using the urban part of the sample. In order to isolate the differences to the size of the institutions, the table is limited to households in urban areas which have accounts in SACP institutions or banks. Here there is no monotonic pattern moving from very small (less than 1,500 clients) to very large (more than 100,000 clients). However, clients of small (1,501 clients to 10,000 clients) appear to have markedly different characteristics than clients of institutions of other sizes. In particular, they have lower levels of schooling (6.5 years vs. about 8.1 years or more for clients of institutions in each of the other three size categories). They also have lower median income (3,600 pesos vs. 6,000 or a bit less in the other size categories), and markedly lower levels of household durable goods assets (6,225 pesos vs. at least 12,000 in the other groups).

Table 7
Characteristics of clients by size of institution

		Size			
		Very Small	Small	Medium	Large
Number of observations		423	464	220	199
Average Family Size		4.3 (1.8)	4.1 (1.8)	4.2 (1.7)	4.2 (1.5)
Female Head in Labor Force	**	42.6	30.4	40.9	34.2
Percentage both heads present		80.6	79.7	77.3	81.9
Female head average education		8.3 (4.8)	6.5 (5.0)	8.7 (4.3)	8.1 (4.2)
Male head average education		9.0 (5.1)	6.7 (5.1)	8.7 (4.6)	9.1 (4.8)
Median total work income		6,000	3,600	6,300	5,600
Median total income		6,000	3,916	6,300	5,628
Median household expenditures		4,079	4,079	3,563	4,888
Land Ownership	***	12.8	23.1	1.4	1.0
House Ownership		76.8	81.7	81.8	77.4
Number of Rooms		4.2 (1.9)	3.8 (1.7)	4.6 (1.5)	4.4 (1.6)
Piped water	***	70.2	61.9	94.1	88.4
Connected to Sewer		94.6	71.6	95.5	96.5
Median total assets		12,000	6,225	24,250	13,350
Median savings account balances		2,000	2,000	5,000	2,500
Non-agricultural Enterprise	***	54.4	32.3	35.5	29.3
Agricultural Enterprise	***	16.6	26.8	2.7	2.0
Remittances from abroad		9.5	14.7	10.9	13.1
Institution offers credit	***	88.7	83.3	93.2	100.0

Asterisks indicates significance of difference between very small and large.

The anomaly of the 1,501-10,000 size group appears to be largely the result of the fact that the SACP Oportunidades clients included in the sample are placed in this category. Excluding these clients results in large changes to the sample means and medians. For example, excluding the Oportunidades clients, the mean education level of household heads in the 1,501-10,000 size category jumps to 8.2 years, compared with 8.5-8.7 years in the other categories. Median household expenditures and median household durable goods levels are actually slightly higher than for clients of the largest institutions, though somewhat smaller than clients of the other two institutions. Once these Oportunidades clients are removed, there are no clear patterns by size of institution in the simple means and medians. We leave it to the regressions to identify more subtle differences across institutions of various sizes.

The data on Tables 1, 2 and 3 suggest that education, self employment, and receipt of remittances are all associated with greater use of financial services. Of course, these factors could influence the use of financial institutions through their effect on household income. That is, households whose heads have higher education levels are also likely to have higher incomes. This might increase the demand for savings, and hence the use of financial institutions. Alternatively (or in addition), education may affect use of financial institutions directly, perhaps because those with higher education levels are better able to understand the rules of the institution and to protect themselves from unethical institutions. In Section 5, we examine these factors in a multiple regression framework. Section 4 develops a simple framework for the demand for financial services to help motivate the interpretation of the regression results discussed in Section 5.

Section 4: A simple model of household demand for banking services

To fix ideas, we develop a simple model of demand for banking services. We focus on the demand for savings services because we will separate the sample into households with and without a savings account.⁶ In fact, households may choose to open a savings account because doing so is a requirement for obtaining credit. We will take this motivation into account in the discussion later in this section.

⁶ See Seater (2001) for a more complete model of demand for financial services.

Denote the interest rate earned by individuals with bank deposits S_i as r_d . The average account balance of an account-holding household depends on the level of income, the timing of income and expenditures, and the difference between annual income and expenditures, which we assume accumulates as long-run savings.

For simplicity, we assume expenditures occur at a regular and constant rate, and income Y comes in P equal payments evenly spaced throughout the year.⁷ That is, at one extreme, all of the income is realized at a single point in time (e.g., at harvest), and at the other extreme, equal payments are made each day. Ignoring for a moment long-term savings, average savings will be simply $\frac{Y}{2P}$. Allowing for long-term savings, and denoting expenditures as E , average savings will be:

$$(1) \quad \overline{S_{it}} = \frac{E}{2P} + \frac{1}{2}(Y - E) + S_{t-1}$$

S_{t-1} is the beginning-of-year balance of long-term savings.

Savings can be held as cash or in deposits at a bank:

$$(2) \quad S_{it} = B_{it} + M_{it}$$

Money balances earn no interest. Moreover, holding deposits is safer than holding cash balances. We assume the benefits of this added security are proportional to the average balance held at the bank, and denote this r_s .

⁷ The survey asks for data on both regular expenditures on food and household goods and services, and on irregular expenditures on larger items such as clothing and household appliances. There are many more non-responses in the latter categories, so we focus on the more regular expenditures for most of our data analysis. However, the ratio of regular to irregular expenditures may provide another dimension along which the demand for savings services varies.

There are two costs associated with holding deposit balances. The first is the monthly account fee, which applies to anyone holding non-zero deposit balances. The second is a transaction cost for each bank withdrawal or deposit. The latter includes the time cost of transactions, including travel time, and the cost of transportation. The transactions costs imply that not all of the savings balances will be held as deposits even when a household has a bank account. Individuals will find it profitable to open an account when

$$(3) \quad (r_d + r_s) \overline{B}_{it} - f_a - c_t T > 0$$

Where \overline{B}_{it} is the average balance of individual i in year t . For individuals without bank accounts, all savings is held as cash. For those with accounts, the proportion held as cash depends on the cost of making a bank transaction and the return to holding account balances, $r_d + r_s$. The cost of making a transaction depends on the distance from the household to the bank.

It can be shown that the average balance \overline{B}_{it} will be

$$(4) \quad \frac{E}{2P} - \frac{E}{2PT} + \frac{1}{2}(Y - E) + S_{t-1}$$

Where P is the number of payments, T the number of transactions, and E the annual expenditures. The last two terms are the long-term savings and the first two terms are the transactions balances. The average balance is increasing the number of transactions.

What is the marginal benefit of an additional transaction? It is simply the derivative of (4)

with respect to T multiplied by the value of deposits, $(r_d + r_s)$. That is: $(r_d + r_s) \frac{E}{2PT^2}$.

Equating this with the marginal cost of an additional transaction, c_t , and solving for T yields:

$$(5) \quad T = \left[\left(\frac{E}{2Pc_t} \right) (r_d + r_s) \right]^{\frac{1}{2}}$$

Plugging (5) into (4) and simplifying a bit yields:

$$(6) \quad \frac{E}{2P} - \frac{E}{\left[\left(\frac{2PE}{c_t} \right) (r_d + r_s) \right]^{\frac{1}{2}}} + \frac{1}{2}(Y - E) + S_{t-1}$$

Thus, average balances are increasing in E and in long-term savings, which is the cumulative excess of income over expenditure, decreasing in the frequency with which income is paid, P, increasing in the return to savings ($r_d + r_s$), and decreasing in the cost of bank transactions c_t . From (3), the probability of opening an account is related in the same way to all of these variables. Households involved in agriculture receive income at much longer intervals, increasing the demand for savings services. Likewise, income earned from non-agricultural self employment is likely to come in a lumpier form, and hence to generate demand for saving services.

An additional motivation for opening a savings account is to qualify for a loan. We would expect the demand for loans to be higher among households in which income fluctuates more widely, and among households with productive uses for loans. For both these reasons, we expect households with agricultural and non-agricultural enterprises have more demand for savings accounts.

Section 5: Which Households have Accounts?

The simple framework developed in the previous section results in several predictions of characteristics of households which should be associated with higher demand for financial services. For many of these characteristics, the causation may also run in the opposite direction. Thus, households with access to financial services may be more likely to start an enterprise. Access to financial services may also increase income. In this section, we report the results of regressions controlling for many of the factors simultaneously. We don't claim to be saying anything about the direction of causation.

But in spite of the statistical issues involved, we believe the regressions help highlight some important correlations in the data.

We define the dependent variable as 1 if the household has an account and zero if it does not, and estimate a probit regression. Table 8 reports these results. We begin with a set of variables which might reasonably be considered exogenous: variables measuring the average age and maximum education level of the household head and spouse, and a variable indicating the household head speaks an indigenous language. For education, we use four dummy variables, indicating 6 years, 7-9 years, 10-12 years and 13 or more years of schooling. Less than six years is the base group. Where either the male or female head are not present in the household, the variable takes the value of the head who is present.

The results indicate that age, educational attainment, and indigenous status are all strongly associated with the likelihood the household is banked. The coefficients shown on Table 8 are the marginal effects of a change in the independent variable. For the 0/1 variables, the coefficient can be interpreted as the change in probability of having an account when the variable switches from 0 to 1. Hence, households in which the highest level of schooling of the heads is six years are 12.4 percent more likely to have an account than are households in which neither head has completed primary school. Where one head has completed 7-9 years of schooling, they are 18 percent more likely to have an account. The effect of education is particularly large for higher levels of schooling. Where one head has 10-12 years (more than 12 years), households are 34 percent (49 percent) more likely to have an account than are the base groups. Indeed, 82 percent of households with one head having 13 or more years of schooling have an account, compared with only 42 percent of households where neither head has more than six years of schooling. These coefficients suggest, then, that education is very highly correlated with being banked.

Table 8
Probability of having an account

	All	All	All	All
Maximum schooling=6	0.124 (6.52)**	0.124 (6.42)**	0.083 (4.16)**	0.064 (3.09)**
Maximum schooling 7-9	0.183 (8.63)**	0.185 (8.52)**	0.131 (5.75)**	0.112 (4.68)**
Maximum schooling 10-12	0.341 (14.00)**	0.334 (13.28)**	0.257 (9.31)**	0.225 (7.62)**
Maximum schooling 13+	0.485 (19.25)**	0.479 (18.36)**	0.407 (13.51)**	0.37 (11.05)**
Average age of HH heads	0.033 (12.13)**	0.029 (10.32)**	0.019 (6.59)**	0.017 (5.31)**
Average age squared	-0.00028 (10.09)**	-0.00024 (8.29)**	-0.00016 (5.71)**	-0.00013 (4.34)**
Indigenous language	0.109 (6.60)**	0.113 (6.57)**	0.141 (7.86)**	0.175 (9.15)**
Receive remittances		0.13 (6.07)**	0.106 (4.89)**	0.088 (3.84)**
Agricultural enterprise		0.038 (2.29)*	-0.006 (0.19)	0.012 (0.38)
Non-agricultural enterprise		0.079 (5.15)**	0.067 (4.31)**	0.049 (2.96)**
Female head in labor force		0.081 (4.74)**	0.086 (4.92)**	0.092 (4.94)**
Both heads present		0.065 (3.56)**	0.047 (2.55)*	0.025 -1.26
Own house			0.081 (4.52)**	0.076 (4.02)**
Own other land			0.063 (1.98)*	0.056 (1.70)
Access to sewer			-0.023 (1.35)	-0.041 (2.27)*
Piped water			0.082 (4.66)**	0.056 (3.02)**
Number of rooms			0.047 (7.09)**	0.034 (5.04)**
Log household durable Assets				0.02 (4.43)**
Log monthly expenditures				0.059 (4.47)**
Observations	5756	5741	5723	5161
R-Square	0.08	0.10	0.12	0.12

The age of the household heads also has a strong association with having an account, with the probability of having an account increasing with age. We include both the average age of the heads and its square. The squared term is negative, suggesting the

probability of having an account increases at a decreasing rate. The coefficients in column 1 indicate that the probability of having an account increases by 2.6 percentage points at age 25 and by 1.9 percentage points at age 50.⁸ Finally, the first regression indicates that households in which the head speaks an indigenous language are 11 percent more likely to have an account.

Of course, education may affect the demand for banking services for many reasons. Individuals with more education may feel that they understand the rules of the financial institution and are better positioned to protect themselves from fraud. Alternatively, the association in Column 1 may result from education working through income, since education is correlated with income. In the full sample, controlling for these other effects raises issues of endogeneity. While higher incomes lead to an increase in the demand for financial services, access to financial services may also increase incomes. We see no way to fully address this issue in the full data set—though in Section 7 we will use a subset of the data to try to measure the impact of access to financial services on household outcomes. With this concern in mind, we proceed to add a series of other controls into the regression just discussed.

We divide the additional controls into three sets. First, we add a set of variables reflecting characteristics of the members of the household—variables indicating at least one member of the household is self employed in agriculture or in non-agricultural activities, a variable indicating the female head works (set to zero if she is not present), a variable indicating that both heads are present and a variable indicating the household receives remittances from abroad. The results with these variables included are shown in Column 2. Next, in Column 3, we add a set of variables measuring characteristics of the house itself—access to a sewer system, presence of piped water in the house, the number of rooms and whether the house and additional land are owned by the household. Finally, in Column 4, we add the log of monthly expenditures and the log of household durable goods assets.

⁸ The coefficients in Column 1 indicate that the probability of having an account increases in age until age 118—that is, for the entire sample. The same is true of age in all of the regressions on Table 8.

Labor market decisions are significantly associated with the use of financial services (Column 2). Households in which the female head works are 8 percentage points more likely to have an account, while those with a nonagricultural or agricultural enterprise are 7.9 and 3.8 percentage points, respectively, more likely to be banked. Households in which both heads are present are 6.5 percentage points more likely to have an account. Though having both heads present is negatively correlated with receiving remittances from abroad, households receiving remittances are 13 percentage points more likely to have an account than those not receiving remittances.

In Column 3, we add measures of the quality of the housing stock. We view most of these as proxies for income or wealth. Households who own their home (76 percent of the sample) are 8 percentage points more likely to have an account. Those who own land in addition to the house have accounts 6 percentage points more often. Having piped drinking water in the household is positively associated with having an account (with a coefficient of 8.2, indicating a 8 percentage point greater probability of having an account), but access to a sewer system is not. Household living in larger houses are also more likely to be banked: each additional room is associated with a 4.7 percentage point increase in the use of banking services.

Finally, Column 4 of Table 8 adds log expenditures and the log value of durable goods assets. We use log values of expenditures and the value of durable goods because these variables have very long right-hand tails. For example, while the majority of households have durable goods assets worth 4000 pesos or less, the top 1 percent of the distribution has assets of more than 120,000 pesos. There is no similarly long left-hand tail in the distribution simply because no one has assets worth less than zero. The long right-hand tail causes both a statistical and a practical problem. Statistically, the explanatory variables should be distributed with something close to a normal distribution. The long tail to the right means that these variables are not normally distributed. Second, the squaring of distances from the regression line in ordinary least squares results in the large values of the variable assuming very heavy weights in the regressions. Using logs rather

than levels is a standard way of addressing these concerns. Taking logs reduces the size of the right-hand tail. Indeed, for both assets and expenditures, Shapiro-Wilks tests for normality indicate that the normality of the original series can be rejected at well beyond the .01 level, while the normality of the log distribution cannot be rejected. In terms of the data, the median log value of household assets is 8.2. The 10th and 90th percentile are almost exactly equal-distance from this median value, with values of 6.0 and 10.5, respectively.

Not surprisingly, both expenditures and assets are strongly associated with use of financial services. Since these variables take on continuous values, the interpretation of the coefficient is not quite a straightforward. A common technique is to look at the impact of a one-standard deviation change in the independent variable. For either log durable assets or log expenditures, a one standard deviation increase in is associated with roughly a 5 percentage point increase in the likelihood the household has an account. Notice that once we control more directly for wealth and expenditures, the magnitude of many of the other coefficients is diminished. For example, the effect of education is reduced by between one-quarter and one-half. The impact of remittances and non-agricultural self employment, the number of rooms in the house and receipt of remittances are reduced by one-third, and agricultural self employment becomes insignificant. The measured effect of speaking an indigenous language increases markedly – from 10.9 log points in the first specification to 17.5 log points when household assets and expenditures are controlled for—and the effect of female labor force participation increases slightly. The coefficients in the fourth column tell us the impact of the variables conditional expenditure and assets levels. For example, the first column tells us that households with indigenous speaking heads are more likely to have accounts. But both household assets and expenditures are lower in households in which one of the heads speaks an indigenous language.⁹ The fourth column tells us that, holding expenditure and asset levels constant, indigenous-speaking households are even more likely to be banked.

⁹ The median level of household durable assets is 1,700 among households with an indigenous-speaking head, and 4,450 in other households. The median monthly expenditure level is similarly lower in households with indigenous speakers—1,950 vs. 2,850 pesos.

Table 9 divides the sample into sub samples along several dimensions. The first two columns consider the urban and rural sample; columns 3 and 4 divide the sample into high quality (grade A or B) or low quality (grades C/D) institutions; and columns 5 and 6 into large (less than 1500 members and more than 1500 members).

With respect to the urban and rural sub samples, the associations between the independent and dependent variables all move in the same direction. The levels of significance are generally lower with the smaller sample size, and often drop below the 5 percent level. Several differences in the magnitude of effects are worth noting. First, education has a modestly stronger association in urban areas than in rural areas, especially for those with 7-12 years of schooling. In urban areas, those with 7-9 years (10-12 years) of schooling are 16.5 (27.2) percentage points more likely to have accounts than those with less than 6 years of schooling. Both of these effects are significant at the .01 level. In rural areas, those with 7-9 years of schooling are no more likely to have accounts, and those with 10-12 years are only 13.5 percentage points more likely to have accounts than those with less than 6 years. The age gradient is also steeper in urban areas. Remittances and piped water are significantly associated with use of financial services only in rural areas, while home ownership is significant only in urban areas.

High quality institutions demonstrate stronger selection on very high levels of education and on wealth measured either by the stock of durable assets or by the number of rooms in the house. A one-room increase in the size of the house is associated with a 4.1 percentage point increase in the likelihood of having an account in communities served by high quality institutions and a 2.6 percentage point increase in the likelihood in communities served by low quality institutions. Similarly, a one-standard deviation increase in the level of households assets is associated with a 18 percentage point increase in the likelihood of having an account in areas served by high quality institutions, and only a 4.5 percentage point increase in areas served by low quality institutions. Whether this is because high quality institutions select wealthier clients, or because their loans are used to purchase durable assets is not possible to say. Low quality

institutions are more likely to serve households whose head speaks an indigenous language.

Columns 5 and 6 of Table 9 split the sample into institutions which have fewer than 1500 clients and those with more than 1500 clients. The smallest institutions are most represented in the sample. Here, the biggest differences are with regard to receipt of remittances, where the smallest institutions are much more likely to select the households which receive remittances (19.4 percentage points vs. 3.6 percentage points). Both large and small institutions appear to select on household wealth. In the case of small institutions, the number of rooms and the level of household durable assets are significant. In the case of larger institutions, month expenditures and the number of rooms are significantly associated with a household having an account.

Table 9
Probability of having an account by sub sample

	Urban	Rural	Hi quality	Low Quality	Small	Large
Maximum schooling=6	0.059 (1.89)	0.064 (2.25)*	0.11 (2.78)**	0.051 (1.16)	0.049 (1.51)	0.079 (2.91)**
Maximum schooling 7-9	0.165 (4.92)**	0.043 (1.25)	0.145 (3.19)**	0.115 (2.28)*	0.134 (3.57)**	0.109 (3.46)**
Maximum schooling 10-12	0.272 (7.11)**	0.135 (2.76)**	0.285 (5.36)**	0.283 (4.60)**	0.223 (4.83)**	0.249 (6.41)**
Maximum schooling 13+	0.377 (8.59)**	0.343 (6.31)**	0.474 (8.13)**	0.35 (4.46)**	0.42 (8.36)**	0.356 (7.91)**
Average age of HH heads	0.02 (4.62)**	0.012 (2.61)**	0.016 (2.78)**	0.016 (2.37)*	0.022 (4.17)**	0.015 (3.66)**
Average age squared	-0.0002 (3.54)**	-0.0001 (2.34)*	-0.0001 (1.88)	-0.0001 (1.90)	-0.0002 (3.30)**	-0.0001 (3.03)**
Indigenous language	0.239 (7.57)**	0.14 (5.83)**	0.137 (3.31)**	0.268 (5.15)**	0.147 (5.25)**	0.216 (8.02)**
Receive remittances	0.018 (0.56)	0.15 (4.67)**	0.129 (2.99)**	0.113 (2.48)*	0.194 (4.73)**	0.036 (1.26)
Agricultural enterprise		0.003 (0.08)	0.125 (1.61)	0.154 (2.22)*	0.097 (2.22)*	-0.041 (0.91)
Non-agricultural enterprise	0.032 (1.34)	0.056 (2.31)*	0.023 (0.73)	0.063 (1.76)	0.126 (4.95)**	0.01 (0.44)
Female head in labor force	0.092 (3.67)**	0.097 (3.44)**	0.109 (3.23)**	0.046 (1.17)	0.107 (3.76)**	0.083 (3.37)**
Both heads present	0.0003 (0.01)	0.039 (1.33)	0.049 (1.36)	-0.003 (0.06)	0.037 (1.22)	0.017 (0.65)
Own house	0.078 (3.12)**	0.044 (1.48)	0.027 (0.83)	0.199 (5.28)**	0.01 (0.34)	0.119 (4.81)**
Own other land	0.102 (1.54)	0.044 (1.16)	0.142 (1.62)	-0.106 (1.50)	0.071 (1.52)	0.039 (0.81)
Access to sewer	-0.033 (1.04)	-0.029 (1.27)	-0.075 (2.02)*	0.017 (0.46)	-0.067 (2.41)*	-0.022 (0.87)
Piped water	0.028 (1.09)	0.086 (3.10)**	0.037 (1.11)	0.041 (1.11)	0.01 (0.34)	0.073 (2.88)**
Number of rooms	0.025 (2.93)**	0.043 (4.74)**	0.041 (3.56)**	0.029 (1.86)	0.021 (2.45)*	0.043 (3.98)**
Log household durable Assets	0.049 (5.31)**	0.009 (1.70)	0.08 (6.32)**	0.022 (1.98)*	0.038 (5.39)**	0.006 (0.98)
Log monthly expenditures	0.092 (4.45)**	0.035 (1.93)	0.041 (1.48)	0.057 (1.95)	0.032 (1.59)	0.075 (4.10)**
Observations	2710	2451	1710	1144	2167	2994
R-Square	0.17	0.09	0.24	0.16	0.15	0.13

Section 6: Loans:

Households are asked about as many as three loans received in the five years prior to the survey date. Information is gathered on loans from SACP institutions, commercial banks, and other formal lenders, but also from family members, friends, and other informal sources. Here, we focus on two questions: What are the characteristics of households taking loans, and what do borrowing households use the loans for?

We begin with an analysis of the characteristics of household who take loans. Table 10 shows the results of regressions with the dependent variable defined as 1 when the household has taken at least one loan in the past five years, and zero otherwise. The sample is limited to households with accounts, so the coefficients should be interpreted as the marginal effect on the probability of taking a loan conditional on being banked.

For the full sample (column 1), we find that the likelihood of taking a loan increases in the education of the household heads. Households where at least one head has 10-12 years of schooling are 15.5 percentage points more likely to take a loan than households where neither head has more than five years of schooling. Where at least one head has 13 or more years of schooling, the likelihood of taking a loan is 18.8 percentage points higher than in the low-education households. Recall that education also had a large impact on the probability of having an account, and that the sample in the regressions reported on Table 10 is limited to those with accounts. So the effect of education on the unconditional probability of taking a loan (that is, the probability among all households, whether they have an account or not), is very large and significant.

Table 10
Probability of account-holders having a loan

	All	Urban	Rural	High Quality	Low Quality	Small	Large
Maximum schooling=6	0.085 (2.63)**	0.105 (2.10)*	0.072 (1.62)	0.021 (0.40)	0.076 (1.13)	0.015 (0.28)	0.137 (3.14)**
Maximum schooling 7-9	0.058 (1.57)	0.053 (1.00)	0.076 (1.38)	0.039 (0.66)	0.06 (0.81)	-0.035 (0.61)	0.121 (2.43)*
Maximum schooling 10-12	0.155 (3.60)**	0.088 (1.52)	0.329 (4.86)**	0.037 (0.58)	0.127 (1.47)	0.112 (1.65)	0.183 (3.17)**
Maximum schooling 13+	0.188 (4.27)**	0.119 (1.96)	0.258 (3.78)**	0.098 (1.56)	0.116 (1.22)	0.175 (2.67)**	0.188 (3.03)**
Average age of HH heads	0.009 (1.72)	0.003 (0.52)	0.02 (2.57)*	0.01 (1.42)	0.028 (2.74)**	-0.004 (0.49)	0.012 (1.76)
Average age squared	-0.0001 (1.81)	0.00003 (0.48)	-0.0002 (2.53)*	-0.0001 (2.01)*	-0.0003 (2.63)**	0.00002 (0.27)	-0.0001 (1.61)
Indigenous language	-0.032 (1.16)	-0.044 (0.97)	-0.048 (1.32)	-0.019 (0.38)	0.071 (1.10)	0.005 (0.13)	-0.061 (1.60)
Receive remittances	0.116 (3.62)**	0.148 (3.12)**	0.08 (1.77)	0.045 (0.97)	0.07 (1.20)	0.219 (4.22)**	0.043 (1.04)
Agricultural enterprise	0.065 (1.39)	-0.012 (0.13)	0.052 (0.92)	0.068 (0.82)	0.012 (0.13)	-0.01 (0.16)	0.163 (2.21)*
Non-agricultural enterprise	0.112 (4.79)**	0.019 (0.61)	0.200 (5.57)**	0.097 (2.74)**	0.084 (1.71)	0.094 (2.61)**	0.134 (4.19)**
Female head in labor force	0.002 (0.07)	0.046 (1.38)	-0.078 (1.91)	-0.053 (1.36)	-0.066 (1.22)	-0.019 (0.49)	-0.001 (0.01)
Both heads present	0.018 (0.63)	0.099 (2.58)*	-0.107 (2.32)*	0.011 (0.24)	-0.053 (0.89)	0.011 (0.25)	0.006 (0.15)
Own house	0.02 (0.67)	-0.022 (0.57)	0.046 (0.93)	0.067 (1.53)	0.042 (0.63)	0.025 (0.53)	0.02 (0.52)
Own other land	0.011 (0.22)	0.078 (0.78)	-0.016 (0.27)	0.068 (0.73)	0.021 (0.22)	0.116 (1.82)	-0.115 (1.50)
Access to sewer	0.028 (1.03)	0.052 (1.04)	0.077 (2.20)*	0.023 (0.51)	-0.095 (1.69)	-0.025 (0.59)	0.06 (1.64)
Piped water	0.066 (2.36)*	0.083 (2.03)*	0.086 (2.07)*	-0.007 (0.16)	0.061 (1.08)	-0.012 (0.29)	0.125 (3.21)**
Number of rooms	-0.004 (0.52)	-0.016 (1.34)	0.002 (0.15)	-0.01 (0.86)	-0.035 (2.22)*	0.01 (0.79)	-0.023 (2.12)*
Log household durable Assets	0.032 (4.51)**	0.06 (4.36)**	0.018 (2.29)*	-0.013 (1.09)	0.047 (3.17)**	0.014 (1.44)	0.051 (4.89)**
Log monthly expenditures	0.003 (0.16)	0.068 (1.97)*	-0.001 (0.02)	0.02 (0.65)	-0.007 (0.16)	0.015 (0.50)	0.019 (0.60)
Observations	2320	1265	1055	788	498	939	1381
R-Square	0.07	0.09	0.11	0.05	0.05	0.05	0.13

In the full sample, the two other factors having the strongest association with taking a loan are receipt of remittances and the presence of a non-agricultural household

enterprise. Households receiving remittances from abroad are 11.6 percentage points more likely to have taken a loan recently; those with a household enterprise are 11.6 percentage points more likely to have done so. Among the variable measuring the wealth and well-being of the household, only the log value of durable assets has a strong effect. Moreover, while the effect of assets is statistically significant, the magnitude is rather modest. A one standard deviation increase in the log value of durable goods assets is associated with roughly a 7 percentage point increase in the probability the household has taken a loan. It is easy to imagine the causation running in either direction with regard to assets. A higher level of household durable assets may reassure the lender and make the granting of a loan more likely. Or, households may use loans to purchase household durables, and hence have more and more valuable durable goods assets.

As with account, we also divide the sample for the loans regressions into households in urban and rural areas, households served (or potentially served) by high quality and low quality institutions, and those served by small and large institutions. Here there are several interesting results. First, schooling is associated with loans in rural but not urban communities. Apparently all of the selection in urban areas comes through the effect of education on the likelihood of having an account. Second, households receiving remittances are more likely to have loans only in urban areas, while households with non-agricultural enterprises are more likely to take loans only in rural areas. When the sample is split by quality of institution, the high quality institutions are the only ones that lend disproportionately to households with non-agricultural enterprises. The loans of low quality institutions are more closely associated with the level of household durable assets, though negatively associated with the number of rooms in the house. Finally, the smallest institutions are more likely to lend to households receiving remittances, while the largest are not. The survey does not indicate who within the household takes the loan. It would be interesting to know if in these cases, the loans are being taken by females whose husbands are working outside of Mexico. Finally, the lending behavior of the smallest institutions is not associated with expenditure or asset levels, but larger institutions are more likely to lend to clients with higher asset and expenditure levels.

Table 11
Use of loans from formal financial institutions

			Freq.	Percent
Emergencies:				
shocks	health related	consulta medica	219	11.0
	family problems	problemas familiares	24	1.2
	Needed	necesitaba el dinero	19	1.0
	Funeral	para un funeral	8	0.4
	unforeseen events	imprevistos	9	0.5
	Needed	para una necesidad	6	0.3
				14.3
Investments:				
house	Construction	construir casa	189	9.5
	repair/remodeling	reparacion o remodelacion	90	4.5
Agriculture	to invest	para invertir	156	7.9
	to sow	para sembrar	83	4.2
	animal stock	para comprar un animal	18	0.9
	animal stock	Animales	1	0.1
	car	Car	comprar un vehiculo	91
land	to buy	liquidar un terreno/	59	3.0
		comprar		
school production	School	Estudios	94	4.7
	Inputs	insumos o materias primas	94	4.7
	tools and equipment	Maquinas y/o herramientas	20	1.0
				45.1
Household:				
personal travel and entertainment	household expenditures	gastos del hogar	444	22.3
	personal	gastos personales	112	5.6
toys	Party	para una fiesta	47	2.4
	vacation	vacacionar	31	1.6
gift	Toys	comprar juguetes	1	0.1
	Gift	para un regalo	6	0.3
				32.2
Other:				
loans	to repay loans	deudas	101	5.1
migration	to migrate	para emigrar	8	0.4
other	other	reparacion	33	1.7
dn	don't know	no sabe	17	0.9
ns	not specified	no especifica	8	0.4
				8.4
Total	.		1,988	100

Table 11 shows the most common uses of loans taken from SACP institutions. The three most common uses of loans are household expenditures (22 percent of all loans from SACP institutions), medical emergencies (11 percent), and housing construction (9.5 percent). We categorize the loans into three broad categories: emergencies, investment, and miscellaneous household expenditures. Almost half (45 percent) of loans from SACP institutions are used for investments of one sort or another. Within this category, we include loans related to housing construction and repair (13.5 percent), the purchase of automobiles (4.6 percent), land (3.0 percent), or equipment for agricultural (13.1 percent) or non-agricultural (5.7 percent) production. Just under 5 percent of the loans are used for education-related expenses.

Terms of the loans

While the majority of loans from SACP institutions are given for period of one year or less, almost a quarter (22 percent) have durations of two years or more. The most common length of a loan is one year. Almost a third (31 percent) have durations of this length. One quarter of the loans have durations of six months or less. The mean reported interest rate on SACP loans is almost 4 percent per month, but this is driven higher by a few extremely high reported rates. The median rate is much lower, around 2.5 percent per month. Just over half of the borrowers (55percent) were required to post some sort of guarantee. Larger and higher quality institutions are more likely to require a guarantee. By size, those borrowing from the smallest SACP institutions report that a guarantee is required 25percent of the time, while those borrowing from the largest report guarantees are required 38percent of the time. Similarly, those borrowing from institutions with quality rating E/E- are required to post a guarantee only 18percent of the time, while those borrowing from

Section 7: Oportunidades sub sample:

In the full sample, 2,015 households report receiving regular payments from either the *Oportunidades* or *Procampo* programs. Most participants in these programs receive payments from the government in cash. In 2003, BANSEFI began a program in which payments are made through electronic transfers to bank accounts in SACP institutions. Accounts were opened for those participants who did not previously have them. By the time the 2004 BANSEFI household survey was carried out, only a part of the *Oportunidades* / *Procampo* program participants (“program participants”) were receiving electronic transfers. Most program participants continued to receive payments in cash.

The sub sample of program participants is potentially interesting because the households without an account are arguably an excellent comparison group for the households participating in the BANSEFI electronic transfer program. The ability to compare these two groups depends critically on how those households participating in the electronic transfer program were selected. For example, the households with an account would not be a valid comparison group if BANSEFI implemented the electronic transfer program in those households determined to be more financially savvy. However, the main criterion for participating in the BANSEFI electronic transfer program appears to be that the household is located near an SACP branch which is part of the *Red de la Gente*. Since the decision to join the *Red de la Gente* is made by the SACP branch manager and not the household, we expect the decision to participate in the electronic transfer program is exogenous to the household. Hence *Oportunidades* / *Procampo* program participants without an account are a valid comparison group for households receiving payments electronically through the BANSEFI program. Arguably, the groups differ only in that those receiving electronic transfers have experienced a sudden and significant decrease in the cost of having an account in an SACP.

Among the 2,015 households receiving program payments, 1,113 had no account in a financial institution in the 2004 baseline survey. We divide the 902 program participants that did have an account into two groups according the time the account was first opened. About 40 percent of those with an account (353 households) report that the account had

been opened for two years or more at the time of the 2004 survey. That is, the account would have pre-dated the BANSEFI electronic transfer program. These households are likely to differ in both measurable and unmeasurable ways from those households without an account. The remaining households (549) reported having an account that was opened after the summer of 2002. We expect that a large share of these accounts was opened by BANSEFI for the purpose of making electronic transfers, though of course, some may have been opened by the households not participating in the electronic transfer program.

Table 12 reports the characteristics of three groups of households receiving Oportunidades / Procampo payments. Column 1 reports characteristics of households which do not have an account. Column 2 reports characteristics of households with an account which was opened more than two years before the baseline survey. Column 3 reports characteristics of households with an account opened after 2002. We should expect differences in characteristics between the households in columns 1 and 2, and the tables show this to be the case. But if those without an account offer a valid comparison group for those who have recently had an account opened for them, then those in columns 1 and 3 should exhibit similar characteristics.

Table 12
Oportunidades / Procampo Sub sample

		No account	Account > 2 years	Account < 2 years
		(1)	(2)	(3)
Number of observations		1113	353	549
Average Family Size		4.9 (2.1)	4.9 (2.0)	4.9 (2.1)
Percentage male head present		83.2	85.6	86.2
Female head average education		3.6 (3.1)	4.3 (3.7)	3.7 (3.1)
Male head average education		3.9 (3.3)	4.9 (4.2)	4.0 (3.3)
Median total work income	*	1,890	2,277	2,100
Median total income	*	2,225	2,572	2,477
Median household expenditures		1,950	2,236	2,063
Land Ownership		42.7	47.9	43.4
House Ownership		82.9	83.3	84.5
Number of Rooms		2.7 (1.2)	3.1 (1.6)	2.7 (1.2)
Piped water		14.1	32.6	13.8
Connected to Sewer	*	37.5	46.3	32.7
Median total assets	***	2,000	3,000	1,700
Median savings account balances	***	0	1,400	140
Remittances from abroad		12.0	19.3	12.2

There is clearly reason for some concern. While the average education of household heads and spouses with no account is only slightly lower than those with a recently opened account (3.6 years vs. 3.7 years for females, 3.9 years vs. 4.0 years for males, differences not significant), median household labor income is somewhat lower among households without an account (1890 vs. 2100 pesos, significant at the .10 level). Given the difficulty in calculating income for agricultural households, these differences should be interpreted with some caution. Monthly household expenditures are also somewhat lower for households without an account (1950 vs. 2063), though in this case the difference is not significant even at the .10 level. However, households with a recently opened account appear to be poorer when measured by household assets and access to services. For example, 13.8 percent of households with recently opened accounts have piped water, compared with 14.1 percent of households without accounts. The potential endogeneity of households with accounts opened prior to the electronic transfer program is indicated by the fact that a much larger share (32.6 percent) of these households have piped water. A similar pattern across the three groups is evident for access to the sewage system. With respect to the value of durable goods assets, the median value is higher for households without an account (2,000 pesos) than for those with a recently opened account (1,700 pesos), a difference significant at the .01 level.

We next divide this sample into urban (Table 13) and rural (Table 14) households. Once the sample is split in this manner, the data are much more reassuring. There are few significant differences between expenditure and asset levels among households without an account and those with a recently opened account. In urban areas, households with accounts opened for less than two years have income measures which are above those of households with accounts opened longer than two years and households without accounts, though the differences are insignificant.¹⁰ We also find no significant differences in monthly expenditure levels for either urban (2,363 for households with recent accounts and 2,212 for those without accounts) or rural (1,848 with recent accounts vs. 1,871 without accounts) areas. In both urban and rural areas, the household

¹⁰ As we have noted, income in rural areas is more difficult to calculate because of issues with income from agricultural enterprises. We focus on expenditure data in rural areas instead.

asset data show mostly insignificant differences between these two groups. Where the differences are significant, they generally indicate that those with recently opened accounts are less well off than those without accounts. Households with recently opened accounts are significantly less likely to be connected to the sewer in either urban or rural areas, while those in urban areas have significantly lower levels of household durable assets. The one exception to this is that rural houses average 2.8 rooms among those with recently opened accounts compared with 2.6 rooms among those without accounts, a difference significant at the .05 level. Still, these data, combined with knowledge of the process by which households were selected to participate in the electronic transfer program, provide some confirmation that those without accounts are a valid comparison group for those with a recently opened account.

Table 13
Oportunidades / Procampo Sub sample, Urban Areas

		No account (1)	Account > 2 years (2)	Account < 2 years (3)
Number of observations		339	111	202
Average Family Size	***	5.0 (2.1)	4.6 (1.6)	4.4 (1.9)
Percentage male head present		82.0	80.2	84.2
Female head average education		3.8 (3.1)	5.1 (3.9)	3.7 (3.4)
Male head average education	.	4.1 (3.4)	5.5 (4.4)	4.2 (3.6)
Median total work income		2,200	3,182	2,400
Median total income		2,513	3,465	2,693
Median household expenditures		2,212	2,845	2,363
Land Ownership		31.9	36.0	34.2
House Ownership		74.3	79.3	77.7
Number of Rooms		2.7 (1.2)	3.2 (1.5)	2.6 (1.1)
Piped water		21.5	46.0	21.3
Connected to Sewer	**	58.4	62.2	48.3
Median total assets	***	2,600	3,500	1,600
Median savings account balances		0	1,385	20
Remittances from abroad	***	12.7	11.7	4.0

Table 14
Oportunidades / Procampo Sub sample, Rural Areas

		No account	Account >	Account < 2
		(1)	2 years	years
			(2)	(3)
Number of observations		774	242	347
Average Family Size	**	4.9	5.0	5.2
	.	(2.2)	(2.2)	(2.2)
Percentage male head present		83.8	88.0	87.3
Female head average education		3.6	4.0	3.6
		(3.1)	(3.6)	(2.9)
Male head average education	.	3.8	4.7	3.9
		(3.3)	(4.1)	(3.2)
Median household expenditures		1,871	1,981	1,848
Land Ownership		47.4	53.3	48.7
House Ownership		86.7	85.1	88.5
Number of Rooms	**	2.6	3.1	2.8
		(1.2)	(1.6)	(1.2)
Piped water		10.9	26.5	9.5
Connected to Sewer	*	28.3	39.0	23.6
Median total assets		1,700	2,725	1,700
Median savings account balances		0	1,450	300
Remittances from abroad	**	11.6	22.7	17.0

Given the data on Tables 13 and 14, we can estimate the short-run impact of access to a financial account by measuring changes in household assets and well-being between the first and second wave of the panel survey. Of course, we should expect that the impact on households will take some time to be realized. A finding that there are no significant differences between the households after one year does not imply that financial market access has no impact on households. The data from waves three through five of the panel surveys will provide a much longer period over which to observe changes.

Means and medians of the data show no clear differences between households with accounts opened in the two years prior to the baseline survey, households with accounts opened for longer periods of time, and households without accounts. For example, those with recently opened accounts report median household durable goods assets which are 500 pesos higher in round two than in the baseline survey. Those without accounts show median gains of 550 pesos, an insignificantly different amount. Households with accounts opened longer than two years report median savings account balances of 700 pesos in the baseline survey and 500 pesos in round two. The comparable numbers for households with accounts opened less than two years are 100 pesos and 5 pesos. As with several of the more sensitive variables, there are non-trivial numbers of missing values in both surveys. Further, the means and medians may mask changes elsewhere in the distribution. Figures 1A and 1B show the distribution of savings account balances for households reporting positive balances in both surveys who have had accounts for less than two years (Figure 1A) and more than two years (Figure 1B). The distribution among households with recently opened accounts is shifted to the right to a much greater degree, suggesting that at least some of those households are building assets in savings accounts.

With only two waves of the survey, we are not able to identify large impacts of the electronic transfer program. However, through the full five waves of the survey, this sub sample may provide interesting information on the impact of being banked.

Figure 1A
Distribution of Savings Account Balances

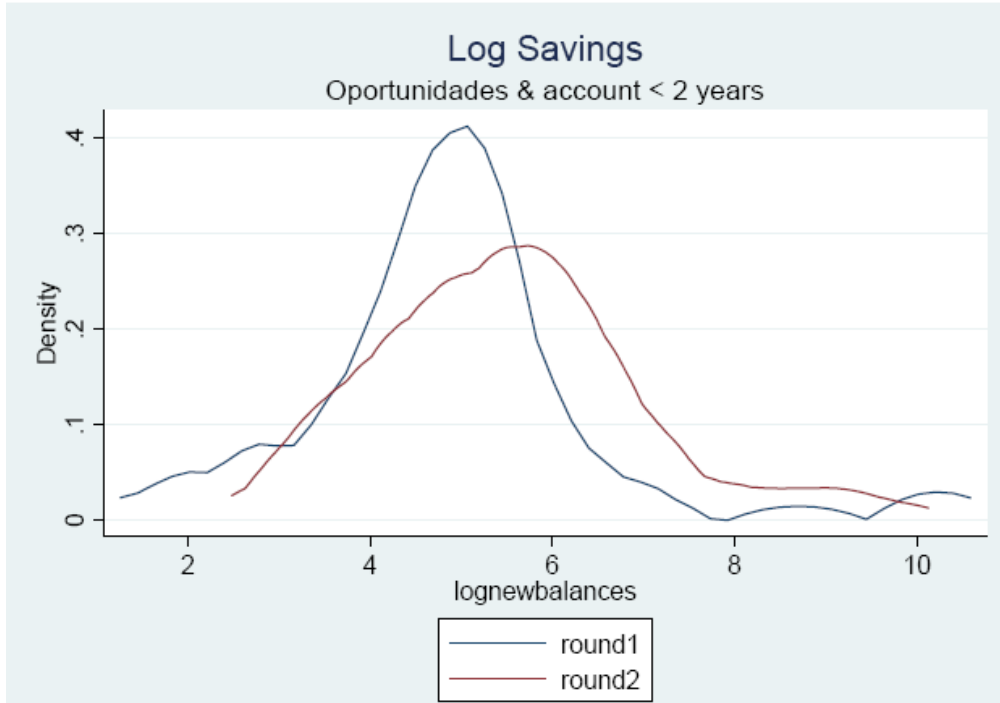
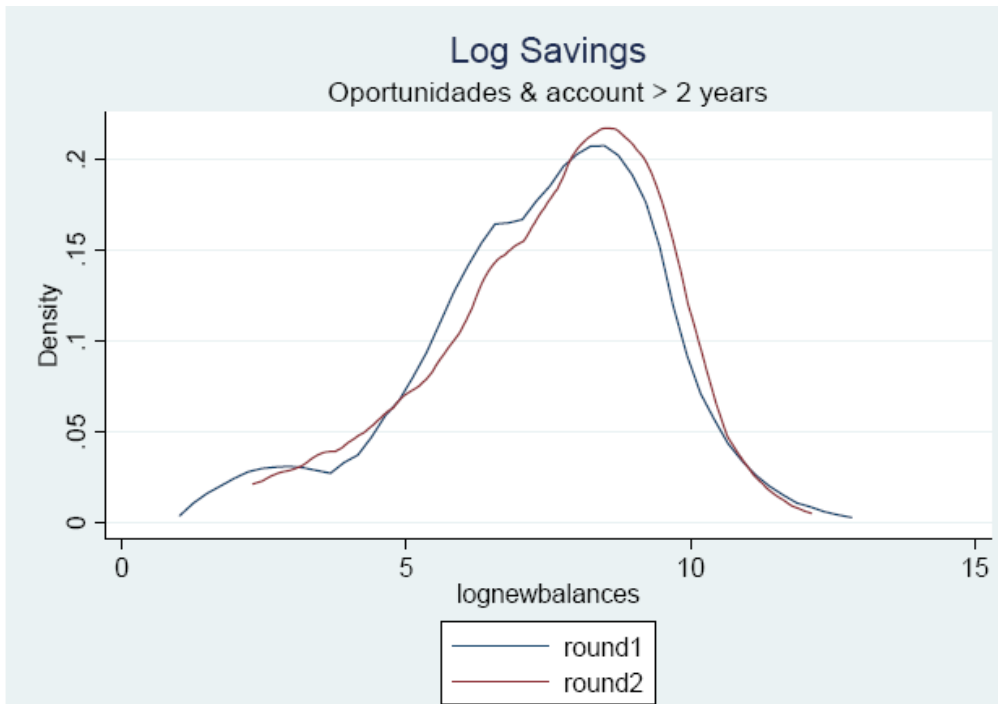


Figure 1B
Distribution of Savings Account Balances



Section 8: Conclusions

This report focuses on the characteristics of households with and without accounts at popular sector savings institutions. Among those with accounts at savings and lending institutions, we also examine the characteristics of those who take loans. The sample is well designed for this analysis, though for many of the variables we cannot be certain of the direction of causation. There are several interesting and somewhat surprising patterns in the data.

First, the clients of SACP institutions are wealthier than those of either BANSEFI or PATMIR.¹¹ The BANSEFI clients and those involved in the electronic transfer programs associated with Oportunidades and Procampo have the lowest levels of income and assets. Second, households receiving remittances are more likely to have savings accounts *and* more likely to take loans. The first is not so surprising, but the second is more so. Also surprisingly, households where one of the heads speaks an indigenous language are more likely to be banked. Conditional on having an account, they are no more or less likely to take loans. Finally, there is some indication that clients of low quality institutions are poorer than clients of higher quality institutions. If the low quality institutions do not survive, this could have implications for the impact of the law and the ability of SACP institutions to reach low income households.

For the most part, separating cause and effect in the data is difficult. Do wealthier households have accounts more often because they have a higher demand for banking services, or because access to financial markets opens opportunities for them? Surely the first direction of causation is important, but perhaps the second is as well. The best chance to untangle these effects is in the sub sample of households which have had accounts opened for them through the electronic transfer program of Oportunidades / Procampo. But with only the first two waves of the survey data, detecting clear patterns is not possible. Looking forward to the additional waves of the panel survey, the Oportunidades/Procampo sub sample will be interesting to follow .

¹¹ The PATMIR sample will be analyzed more carefully in a separate report.

Appendix Table 1: Design of the client portion of the baseline survey sample.

REGIÓN	ESTRATO DE TAMAÑO	UNIVERSO		MUESTRA		
		SACP U_{rh}	SOCIOS N_{rh}	SACP u_{rh}	ENTREVISTAS PROMEDIO POR SACP n_{rh}	ENTREVISTAS $u_{rh} \cdot n_{rh}$
NORTE	MUY PÉQUEÑA	169	105,799	9	26	262
	PEQUEÑA	129	395,050	6	30	181
	MEDIANA	20	44,000	1	27	27
	GRANDE	89	124,233	2	30	60
		407	669,082	18	29	530
CENTRO	MUY PÉQUEÑA	370	945,070	10	29	292
	PEQUEÑA	310	241,736	11	30	334
	MEDIANA	144	388,446	7	30	209
	GRANDE	286	728,175	5	30	150
		1,110	2,303,427	33	30	985
SUR	MUY PÉQUEÑA	239	155,186	29	28	816
	PEQUEÑA	266	400,259	13	33	432
	MEDIANA	48	215,302	5	30	150
	GRANDE	87	120,462	2	31	62
		640	891,209	49	30	1,460
Total		2,157	3,863,718	100	30	2,975

TIPO DE SUCURSAL		MUESTRA ESPERADA		ENTREVISTAS EFECTIVAS	
		TRATAMIENTO	TESTIGO	TRATAMIENTO	TESTIGO
MUESTRA "BANSEFI"	SACP	1,590	1,460	1,598	1,499
	BANSEFI	180	180	182	170
	BANSEFI (OPORTUNIDADES- PROCAMPO)	180	180	180	173
	COOPERA (SACP OPORT-PROCPO)	180	180	210	154
	CRÉDITO A LA PALABRA (SACP)	30	30	30	29
	CRÉDITO A LA PALABRA (BANSEFI)	30	30	30	31
	SUBTOTAL	2,190	2,060	2,230	2,056
MUESTRA "SAGARPA"	CAJAS NUEVAS SAGARPA	432	432	429	423
	CAJAS APOYADAS SAGARPA	315	315	316	313
	SUBTOTAL	747	747	745	736

TOTAL POR GRUPO	2,937	2,807	2,975	2,792
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GRAN TOTAL

5,744	5,767
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