THE TRANSACTION COSTS OF LENDERS AND BORROWERS IN A BRAZILIAN MICROCREDIT ORGANIZATION[1]

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Abstract

One of the main obstacles for the expansion of microcredit availability is the high transaction costs of credit operations for both lenders and borrowers. In order to decrease transaction costs, institutions adopt the solidarity groups lending system in order to transfer transaction costs to the group, making it assume a large amount of the risk.

However, in Brazil, there are several microcredit institutions, such as Banco do Povo-Crédito Solidário, Vivacred, and others, which still adopt the individual credit lending system, instead of the solidarity system, and there are hardly any studies about the transaction costs to either the institutions or the borrowers. The objective of this work is to investigate the transaction costs of short-term operations in Banco do Povo-Crédito Solidário in the city of Santo André and its outskirts.

[1] The contents of this article were first presented in the poster session of the "Boulder-Bergamo Forum on Access to Financial Services: Expanding the Rural Frontier", organised in Bergamo-Italy by the Boulder Institute of Microfinance and the University of Bergamo on September 18-20, 2008.

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Banco do Povo adopts the solidarity lending system in only 5% of its loans – a very low percentage, which makes the transference of transaction costs impossible. Information shows that individual credit operations are effectively very costly for the bank and they do not affect costumers' loan significantly.
We verified that individual loans are more interesting in urban areas with lower social capital, whereas in rural areas, the solidarity system is more attractive.

JEL classification: G21, O16, N26

Key words: Microfinance, transactions costs, economic index.

1. INTRODUCTION

The granting of credit for the low-income population may trigger the establishment of a small business by the achievement of production goods and working capital and has been seen as a potential aid to obtain income. One of the main obstacles for the expansion of microcredit availability is the high transaction costs of credit operations to both lenders and borrowers.

From the lenders' perspective, the resistance in granting credit to this public is due to the lack of a dilution scale of fixed costs, lack of real guarantees by the low-income population, and the customer's information collection and processing costs to make an agreement as well as plan and monitor transactions (Rhyne, 1998).

Therefore, in order to decrease transaction costs, microcredit institutions adopt the solidarity groups lending system. Their justification is that solidarity lending transfers the transaction costs to the group, making it assume a large amount of the risk. However, the transaction may be prevented if this cost is too high to the borrower considering the loan size.

Also from the borrower and institution's perspective, the cost to make a loan may hinder the transaction depending on the loan size. The smaller the loan size, the higher the cost.

In Brazil, there are several microcredit institutions such as Banco do Povo-Crédito Solidário, Vivacred, and others, which still adopt the individual credit lending system instead of the solidarity system; there are also hardly any studies on transaction costs to either the institutions or the borrowers. Such costs are important to verify the viability and also the level of credit rationing of providing credit to low-income clients regarding the transaction costs.

The objective of this work is to investigate the transaction costs of credit operations in Banco do Povo-Crédito Solidário in the city of Santo André and its outskirts and aims to contribute with knowledge about short-term transaction costs to both the institution and borrowers.

2. TRANSACTION COSTS

Figure 1 suggests that the transaction costs to lenders in solidarity groups operations are lower in the first loans than the transaction costs of individual lending operations. This is because collecting information about borrowers is costly (Bhatt & Tang, 1998 and Fachini, 2005). In individual loans, the lender is fully accountable for the operation costs and, therefore, transaction costs in individual credit are higher to lenders than to borrowers. In solidarity credit, agents transfer the transaction costs to the groups, making them assume a large share of the risks in the transaction.

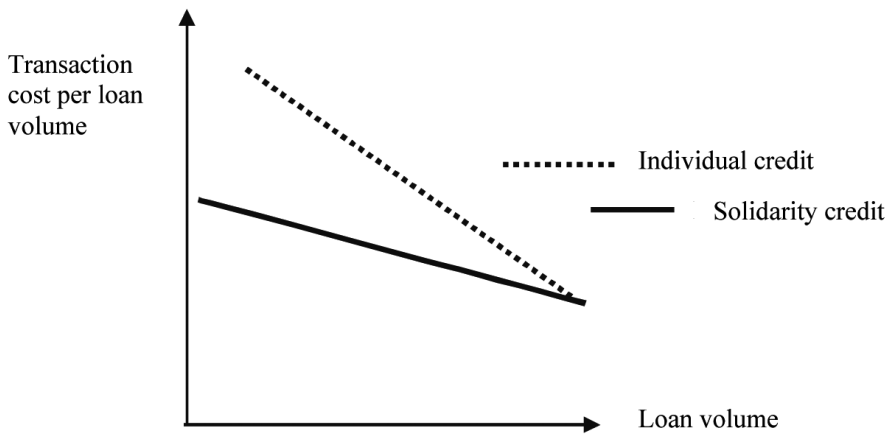


Figure 1. Transaction costs to lenders in solidarity groups and individual lending

Due to this initial difference, if the institution operates with subsidies, their value has to be higher if individual lending is adopted.

As loans are renewed and loan volumes increase, these costs are reduced in individual loans, whereas the transaction costs to solidarity groups lending remain the same. Costs are reduced in individual loans, because the information obtained at the moment the agreement is entered is reused and its cost is diluted in the process. As to the overall transaction costs, that is, lenders plus borrowers, the costs to individual lending transactions may be higher than the costs to solidarity group lending.

To reduce individual credit costs, the credit team must be efficient, since they are in charge of acquiring information about the client and assessing risk.

Transaction costs to the borrower have been little investigated and, thus, are not as explicit as the costs to the lender, preventing the development of strategies and forms of operating more efficiently in the financial system. Thus, borrowers are regularly charged explicit rates: interest rates plus service charges (Araújo et al, 1991).

3 TRANSACTION COSTS TO LENDERS

Lenders' costs are basically formed by gathering, collecting and processing the necessary information to assess potential borrowers, processing loans and collaterals, monitoring loans, and the expenses generated by the payment of loans and collaterals. A significant part of these costs is the loan administration regarding the risk involved in credit provision (Adams, 1993).

The MicroBanking Bulletin (The MIX) publishes financial and portfolio data provided by several microcredit/microfinance institutions (MFIs) worldwide. Table 1 shows a selection based on institutions which provide both individual and solidarity group lending, presenting the cost per borrower within both these contexts. In the table, the average cost value per borrower is higher in institutions providing individual credit than in those providing solidarity group loans.

Table 1. The MIX: Mean of costs per borrower from several MFIs worldwide in dollars in 2002

	Cost per borrower (US$) (Operating expenses + donations in cash)/ Average number of active borrowers	**Standard deviation**
Individual (1 borrower)	155	173
Solidarity groups (groups of 3 to 9 borrowers)	93	84

Source: The MIX (2002).

To obtain more explicit results, Barros et al. (1990) showed transaction costs in percentages of the total values of loans granted within a given period of time:

$$\text{Transaction cost (\%)} = \text{Transaction cost} / \text{total value of loans} \quad (1)$$

Gibbons & Meehan (2001) used an index called "Administrative efficiency" to show how much the institution spends to have US$ 1 lent to its clients. The calculation is made as follows:

Administrative efficiency (%) = operating costs / active portfolio (2)

The authors affirm that, for Christen (1997)[5], the ideal value for a well managed FMI must range from 15 to 25%, that is, a cost of US$ 0.15 to 0.25 per monetary unit to be paid (active portfolio). The results of the microcredit institutions surveyed by these authors do not reach these targets, ranging from 76.3% for the *Foundation of International Community Assistance* - FINCA in Uganda to 30.6% for the *Center for Agriculture and Rural Development* - CARD in the Philippines.

4. TRANSACTION COSTS TO BORROWERS

In Brazil, few studies have tried to estimate loan transaction costs (non-interest cost) to the borrower, especially in the case of rural producers. Interests and commissions are only part of the overall cost of the loan. Other expenses must be considered in the estimate of the total cost and viability of the loan. Some of these expenses are (Araujo et al, 1991):

- Travel, food and accommodations expenses
- Documents
- Tipping
- Opportunity cost of time to the borrower
- Elaboration of the project loan will be invested in and
- Bank reciprocity

Araujo et al (1990) found that in Brazilian agriculture, transaction costs to small farmers can be higher than the sum of interest rates and commissions, which are present in formal loans, and the farmer's costs of time are shown with a larger relative share, especially in areas where agriculture is more dynamic. In areas where the mean value of the main capital is lower, transaction costs to the borrower are higher. In case of informal loans, travel expenses (transportation, food and accommodations) have a higher relative significance.

[5] CHRISTEN, R.P. **Banking services for the poor**: managing for financial success: an expanded and revised guidebook for microfinance institutions. Washington: Accion Internacional, 1997. 314 p.

Studies on microcredit transaction costs are even more recent in the literature because this credit segment is fairly new.

As regards transaction costs to borrowers, in a solidarity group situation, some disadvantages are considered: limited records of the groups and lack of individual contracts, covaried risks when individuals are from different business sectors, general payment default; group frailty; increase of transaction costs to the group (time for meetings and voluntary management).

Nitsch et al (2001) make the same analysis about Grameen Bank, where monetary costs to bank clients go beyond explicit costs, once the bank also adopts the group lending system. Thus, clients are charged hidden monetary costs, which may range from compulsorily saving a certain amount that is returned only when all the group has paid off, compulsory participation in weekly courses and meetings (calculated according to the opportunity cost of the hours used in these activities).

In measurements by Heidhues (2002) in Cameroon, borrowers spent US$ 3.00 and three hours to be granted a loan in an institution called Cameroonian Cooperative Credit Union League (Cam CCUL), which is formed of 268 credit unions, which have as their main purpose collecting savings from their members and replacing them with individual investments. Besides, this institution promotes technical assistance for credit union members.

The items included in the transaction costs to group borrowers are:

- Bureaucracy and paperwork costs;
- Transportation;
- Food and accommodations; and
- Reception costs, consisting of borrowers group organization expenses.

5. METHODOLOGY

Our source for this research is Banco do Povo-Crédito Solidário. Banco do Povo agencies spread around Brazil are only one among several forms of microcredit operations available. These banks cannot collect savings from their clients, but have been considered a credit lending alternative for many small and medium-sized businesses.

The work is based on two types of information:

- Primary data, extracted from questionnaires[6], for the estimate of transaction costs to borrowers.

[6] Based on Ramirez (2005).

- Balance sheets of Banco do Povo-Credito Solidario[7] for the estimate of transaction costs to lenders.

Credits provided by the institution are:

- Working capital: to be used in the purchase of goods, raw materials and input.
- Fixed capital: to be used in the purchase of tools, machinery, equipment, vehicles, machines recovery or assistance, with the compulsory presentation of budgets for credit approval.
- Mixed capital: working and fixed capital.
- Employee bonus credit: credit for the payment of employee bonus and others.

The bank provides individual, solidarity and cooperative credit. Individual credit is the one granted to an individual or corporation. Solidarity credit is granted to a solidarity group with independent economic activities with all members being responsible for the loan. Cooperative credit is granted to production cooperatives or a group of organized associated individuals from a production unit or community work.

However, according to information from the bank management, about 95% of the loans are individual and not solidarity loans. One of the reasons for this is the fact that Santo Andre and Sao Bernardo do Campo are typically metallurgical cities, with deficient association structure and no entrepreneurial culture, hindering the creation of social capital.

Although only 5% of the bank portfolio is used in solidarity loans, individual loans are more adequate to the environment in which they are provided due to the essentially urban characteristic of its surroundings.

In urban areas, where trust relationships are more difficult and social capital is low, individual credit is a possible alternative. In rural areas, where peer groups have a stronger relationship, the solidarity groups system is more viable.

In rural areas, the transportation cost is too high for individual borrowers (Araujo et al, 1990), reinforcing the existence of solidarity groups, once the credit agent visits the group to collect payments and hold meetings.

However, this arrangement for rural zones is costly (the agent visits businesses periodically), and Ramirez (2005) shows that it is not expensive for borrowers to go to the bank to make payments.

[7] Based on Fachini (2005).

Credit risk costs exist for both solidarity groups (Heidhues et al, 2002)[8] and individual credit (Fachini, 2005). However, the risk can be higher for individual loans, once the transaction costs to lenders in solidarity groups is lower in the first loans than the transaction costs of individual credit operations. This is because collecting information about borrowers is expensive.

In individual loans, the operating expenses[9] are entirely paid by the lender and, therefore, in individual credit, transaction costs are higher to lenders than to borrowers. In solidarity credit, agents transfer the transaction costs to the group, making them assume most of the transaction risk. As loans are renewed, and the loan amount increases, these costs decrease in the case of individual loans, whereas the transaction costs of solidarity groups loans remain the same. Costs decrease in individual loans, because all the information collected at the beginning of the contract is reused and such costs are diluted in the process.

Thus, in urban areas, individual credit can be an interesting tool if the formation of solidarity groups is difficult. As to transaction costs to borrowers, in a low-social-capital solidarity group situation, there are some disadvantages: limited records of groups and lack of individual contracts, covaried risks when group members are from different business areas, general payment defaults, group frailty, increase of transaction costs to the group (time for meetings and voluntary management).

On the other hand, to reduce individual credit costs, credit agents must be efficient, since they are in charge of acquiring information about the customer and assessing risk.

Borrowers must provide some guarantees (solidarity or individual) among which a cosigner or acceptable collateral, that is, equipment or machines purchased with the bank loan. When the operation does not have a cosigner, moral guarantees must be given, with adequate justifications by the program technicians and with amounts restricted to US$ 407,00 for working capital and US$ 1.220,00 for fixed capital.

[8] Heidhues et al (2002) analyzed transaction costs from three distinct microcredit organizations (two operating with solidarity credit and one, with individual credit) in Cameroons, Africa. Some differences among transaction costs for individual and group loans were found. They observed that transaction costs are lower to lenders than to borrowers in all the organizations. According to the authors, solidarity groups are also subject to asymmetric information problems and moral risks.

[9] Operating expenses are the total of personnel expense (salaries, withholdings, fringe benefits and personnel taxes paid on all those who work for the institution) and administrative expense (total of rent and utilities, transportation, office supplies, depreciation and other administrative expenses).

Interest rates applied by the bank are no higher than 3.9% a month, and monthly payments are calculated by the French amortization method, depending on the borrower's conditions and area.

In the first loan operation between the bank and the borrower, an application fee of 3.9% of the total loan amount is charged. When loans that are repaid with no delays are renewed, this fee is no longer charged, and, for loans with delayed repayments, it may range from 2% to 3.9%, according to the period of delay. Interests of 1% a month and a 2% fine are charged in case of delay.

The procedure adopted by Banco do Povo to provide credit consists of different phases, starting with the credit application, when the applicant fills out a form with personal and financial data. The application is analyzed and, if approved, the credit agent visits the premises of the enterprise to check the conditions and data provided by the applicant, as well as his reliability.

Then, the credit agent analyzes the loan viability and presents the Credit Committee information about the credit to be borrowed. After the credit has been approved, the administration area prepares all documents and delivers the credit checks and the loan payment coupon book.

Banco do Povo-Credito Solidario in the city of Santo Andre has specific regulations about the conditions they impose in certain areas they work with. The bank provides not only loans, but also support and training to micro-entrepreneurs, which is a positive aspect considering the low cost to the borrower.

6. TRANSACTIONS COSTS TO THE LENDER

The transaction cost to the lender is defined in this work as the sum of Operating Costs and the Provision to Risky Borrowers. The indices used in this study are showed in Table 2, as follows:

Table 2. Indices used in the study

Active portfolio efficiency	(Transaction costs/ Active portfolio) x 100
Portfolio profitability	(Operating revenues – Financial investments revenues) / Active portfolio x 100
Cost per Borrower	Transaction costs/amount of active clients
Team productivity (units)	Total of active clients / amount of employees (credit agents and administration team)

The portfolio profitability measures how much the MFI was effectively received with interest and fine payments per loan unit in a given time. It is calculated by subtracting the amount of Financial Investments Revenues, because this is obviously not a source of revenue directly resulting from the Active Portfolio[10].

The "Cost per Borrower" shows the average cost to provide a loan to each client of the MFI and can be analyzed along with the Administration Efficiency, which reveals what it costs for the institution to have a monetary unit of credit in possession of its clients.

To this index, we can add the "productivity of credit agents", which is used to evaluate the efficiency of credit agents both in the administration of their loan portfolios and in attracting new clients to the organization.

Gibbons & Meehan (2001) believe that the credit agents' efficiency is very important in the institution's development evaluation process, since they represent 50 to 70% of the total cost of Administration Costs and 60 to 70% of the total personnel costs of the MFI. Therefore, they are a key element in loan operations, because they are in charge of the choice of good clients, monitoring, and support to investments generating a low cost to the program.

In order to investigate the subsidy value in the institution, which is either implicit in the Transaction Cost to the lender or considered in accounting, we use the Subsidy Dependence Index (*SDI*), based on Yaron (1992) and Rosenberg (2002), calculated by the formula for the period of one year:

$$SDI = \frac{S}{LP} \tag{3}$$

where:

$$S = A\,(m - c) + (B^{*}m) + (E - P)\,^{*}\pi + K - P \tag{4}$$

Where:

S = Annual subsidy received by organization, in current reals;
LP = Annual outstanding loan portfolio; in current reals;

[10] A major problem in classifying Operating Revenues is that the institution may seem to be financially sustainable due to the Financial Investments Revenue and not due to the credit portfolio. If this is the case, the company is efficient in investments, but not in the administration of its credit portfolio.

A = Annual outstanding BNDES[11] concessionally-borrowed funds, in current reals;

m = interest rate the organization would be assumed to pay for BNDES borrowed funds if access to concessional funds were eliminated (Selic[12]);

c = annual concessional rate of interest actually paid by MFI on its average annual outstanding concessional borrowed fund from BNDES (long-term interest rate).

B = Annual active porfolio with organization's own funds, in current reals;

E = Annual equity of MFI, in current reals;

P = Annual profit, in current reals.

π = Annual inflation;

K = Sum of all the other types of annual subsidies received by the organization.

The first term of S (expression 4), $A(m - c)$, is the subsidy amount over the active portfolio operating with BNDES funds. The second term is the opportunity cost of the rest of the active portfolio operated with self-owned funds. The third term of S, $[(E– P) \times \pi]$, is the cost the MFI pays to maintain a constant equity and, therefore is the multiplication of the total equity by the inflation rate of the period to be analyzed.

K is the sum of all other types of subsidies received by the organization. As in the case study all of the Fixed Assets were donated, K was calculated as the variation of this item from one year to the next, within the period analyzed, plus the rent amount paid by the City Hall of the Santo Andre.

Market rate (m) is the average annual Selic[13] (Special System for Settlement and Custody) rate and interest rate (c), which is actually paid by MFI on its average annual outstanding concessional borrowed funds from BNDES is the long-term interest rate (LTIR[14]). The inflation rate was based on the Consumer Prices Index (CPI[15]).

[11] Brazilian Development Bank.

[12] The Daily Average Financing Rate for Federal Bonds established at SELIC (Special System for Settlement and Custody). The SELIC rate is defined and calculated by the Central Bank of Brazil (BACEN).

[13] Interest rate - Over/ Selic (% a.a.). (IPEA, 2004).

[14] Interest rate - Long-term interest rate (% a.a.). (IPEA, 2004).

[15] Inflation - CPI - FIPE (Economic Research Institute) (% a.a.). (IPEA, 2004).

7. TRANSACTION COSTS TO BORROWERS

With the cooperation of Banco do Povo-Credito Solidario of Santo Andre, a survey among microcredit borrowers was carried out between July and August, 2004, in a total of 40 interviews. The interviewees were all active clients of Banco do Povo-Credito Solidario in Santo Andre-SP and, at the time of the interview, they were being visited by credit agents who supervise the loans granted to these borrowers. The information obtained to evaluate the transaction cost composition to borrowers is based on Ramirez (2005) and are detailed in Annex II and III. In short, the transaction cost to the borrower is formed of: opportunity cost of time, copies and notary public fees, taxes, travel expenses and fuel, parking, and phone calls.

The transaction costs (TC) to the borrower were also measured in accordance with the impact they cause in the total loan amount (V_0), that is, the percentile representation in the total loan value and in monetary values to microcredit borrowers:

$$\frac{TC}{V_0} = z\% \tag{5}$$

The analysis also attempted to evaluate the impact of transaction costs on the loan interest rate, which was calculated with the French amortization method:

$$P = V_0 \times \frac{\frac{J}{12}}{1 - (1 + \frac{j}{12})^n} \tag{6}$$

The values of estimated transaction costs (TC) were subtracted from the monetary value (V_0) of each interviewee's loan.

Thus,

$$V_0 - TC = V_0' \tag{7}$$

The value found for V_0' is lower than the initial value of V_0. Thus, formula (6) is mathematically rearranged, so that by keeping the initial monthly repayment values (P), V_0' will correspond to a new interest rate (J) that is higher than initial interest rate j.

This rate was calculated with the following formula, where values V_0' and P are known, and rate J is the variable of the equation:

$$V_0' = P \times \frac{1 - (1 + \frac{J}{12})^n}{\frac{J}{12}} \quad (8)$$

Finally, the value of the total financial cost to the borrower will be showed, i.e., the total interest rate charged for loan.

8. RESULTS

Table 3 shows some information from Banco do Povo-Credito Solidário. The number of clients of the sampling is the amount of borrowers who answered the questionnaire for the Borrowers' Transaction Cost survey

Table 3. Information about Banco do Povo - Crédito Solidário in 2003

Information	Dec/2003
Active Portfolio	R$ 1,942,316.34
No. of active clients	1091.00,
No. of clients of the sampling	40.00
Sampling representativeness	3.67%

Table 4 shows that the transaction costs to the lender compared to the revenues incomes are still too high, making the organization unsustainable. In 2000, having R$ 1.00 in possession of its clients cost the bank R$ 1.05. Although this value decreased until 2003, it cost the bank R$ 0.50 for each R$ 1.00 loaned which remained in possession of the clients. Such value is considered too high, if compared, for example, to the portfolio profitability, which generated a yield of R$ 0.33 for each R$ 1.00 loaned which remained in possession of the client.

Table 4. Banco do Povo - Crédito Solidário
Financial indices between 2000 and 2003

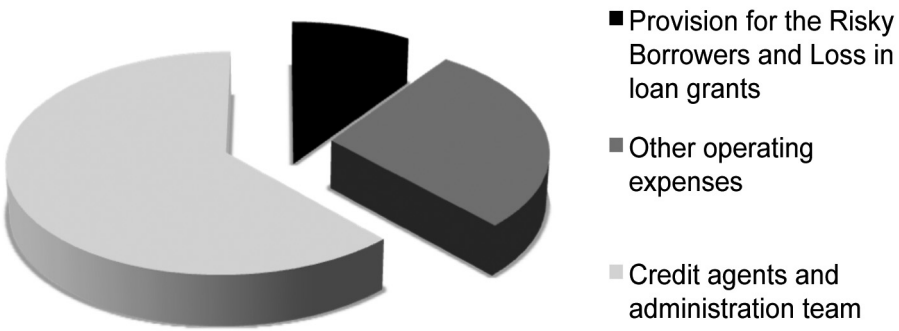
Indices	Formula	2000	2001	2002	2003
Portfolio Profitability	(Operating revenue – Financial Investments Revenues) / Active Portfolio) x 100	50,01	34,30	35,40	32,58
Active Portfolio Efficiency	(Transaction cost) / Active Portfolio x 100	100,54	63,92	56,19	46,69
Cost to borrower	Transaction costs / amount of active clients	1.909,74	1.590,78	1.009,89	831,18
Team productivity (units)	Total active clients/ Number of employees (credit agents and administration team)	17,79	17,74	32,24	57,42

Source: Based on Fachini (2005).

The credit team productivity shows an increase in the Bank efficiency reflected on the cost per borrower, which fell considerably during the years analyzed. In 2003, each loan cost the lender an average of R$ 831.18 (table 3).

Figure 2 presents the composition of Transaction Costs to the lender and shows that personnel expenses are the main component of this cost.

Figure 2. Banco do Povo Crédito Solidário transaction costs compositio in Dec 2003



Source: Fachini (2005).

9. TRANSACTION COSTS TO BORROWERS

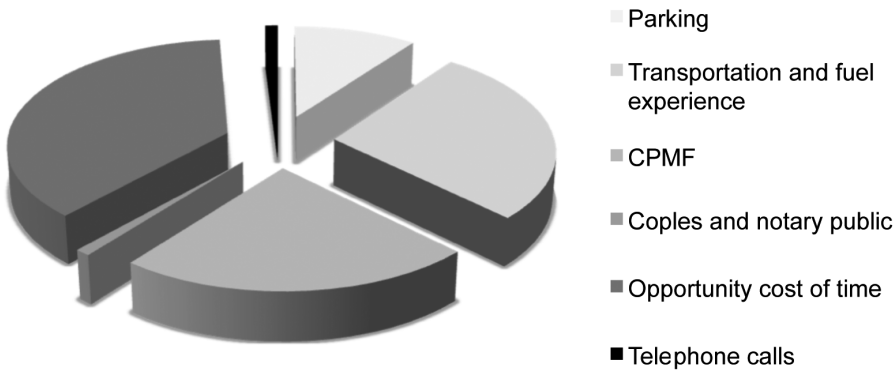
Banco do Povo-Credito Solidario requires some documents, such as ID, taxpayer's identification number, proof of address, and applicant's and cosigner's proof of income as procedures for loan analysis and grant. The cosigner's documents can be photocopies. Thus, most of the interviewees – 85% - made 5 copies, spending about R$ 0.50 (copies cost R$ 0.10 in businesses near Banco do Povo – Credito Solidario)[16].

The only tax microcredit borrowers are directly charged is the Provisional Contribution on Financial Transactions (CPMF), corresponding to 0.38% of the total loan amount.

The monetary value of the borrower's time – based on his/her declared monthly income[17] – was subtracted from the Opportunity Cost of time. This means that, although the declared income may be a family income rather than an individual one, the questionnaire did not consider this issue and simply asked the interviewee's monthly income[18].

The average time spent by the borrowers surveyed was 63.75 minutes, that is, Banco do Povo clients spend over one hour completing the loan negotiation.

Figure 3: Expenses involved in transaction costs to microcredit borrowers



Source: Ramirez, 2005

16 Annexes II and III show the results obtained for the transaction costs to borrowers.

17 The declared income was based on the answers of the surveys applied to borrowers based on Ramirez (2005).

18 It is noteworthy that this research did not investigate whether during the time spent by the borrower in the loan operation, some reliable person (family, friend, etc) or employee was in charge of his/her enterprise or it remained closed during his/her absence.

The opportunity cost of time is the most significant part in the transaction costs, right before transportation expenses and CPMF. Bureaucracy costs (documents), parking and telephone calls were relatively low (figure 3).

Transaction costs correspond on average to 2.22% of the loan amount, with a standard deviation of 0.018.

Borrowers of lower amounts are more burdened by these costs. For example, the transaction cost to the borrower of a R$ 300.00 loan corresponds to 7.70%, whereas, to the borrower of R$ 8,000.00, the cost is equivalent to 0.16%.

10. COSTS TO LENDERS AND BORROWERS

Table 5 shows the transaction and financial (loan interest rates) costs to the borrower. The second column shows the average unit value of the transaction cost to the borrower – R$ 35.63 per loan – which is lower than the financial costs to the borrower, corresponding to the interest rates on the loan. The third column shows the mean total values calculated from the unit mean of the sampling and multiplied by the total number of active clients in Dec., 2003.

Table 5. Cost to borrowers in 2003

Costs	Unit	Total
Financial costs to borrower	563.70 (652.99)	614,999.22
Transaction costs to borrower	35.63 (45.11)	38,872.33
Total cost per unit	599.33	653,871.55

Source: Based on Ramirez (2005) and Fachini (2005).

*Standard deviation in parenthesis

In percentages, transaction costs have a much larger share in the total costs to the lender. This is the opposite for the borrower, whose financial cost is higher than the transaction cost (figure 4).

11. INTEREST RATES

Before this fact, the impact of the transaction cost to the borrower on the interest rate is noteworthy. Data are presented in Table 5. The new interest rate calculated for the loans is 4.11% a month, with a standard deviation of 0.0085. In other words, the new rate calculated represents the rate applied by the Bank plus expenses from the loan operation.

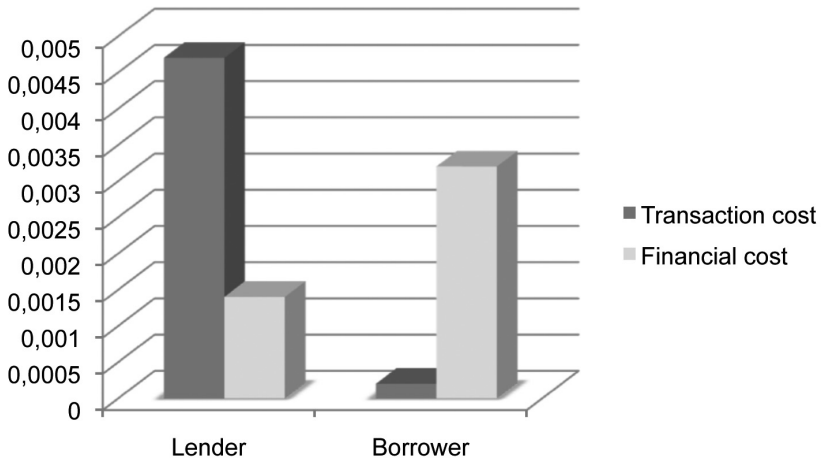


Figure 4. Share of the costs regarding the Active Portfolio to Lenders and Borrowers in Dec. 2003

Table 6. Effective interest rates to Lender and Borrower at Banco do Povo - Crédito Solidário in 2003/2004

Interest rates	%
Impact of transaction costs on loan interest rates (2004)	4.109
Interest rates Banco do Povo – Crédito Solidário would be assumed to charge if access to concessional funds were eliminated (2003)	6.17

Again, this rate is higher for lower loans, as, for example, the rate of 6.68%[19] (the highest in the sampling) for a R$ 300.00 loan.

Other factors besides the loan scale affect the percentage of transaction costs of the loan, such as the borrower's business experience. This and other reasons could explain, for example, the difference found in the new interest rates calculated for similar loan sizes.

For loans of R$ 1,000.00, rates of 3.33%, 4.88% and 6.34% a month were found. The rates for R$ 300.00 and R$ 800.00 loans (lowest values borrowed) ranged from 3.44% to 6.68% a month.

Despite these measurements, we cannot positively infer that the transaction costs to microcredit borrowers make the loan unviable. It would be nec-

[19] The detailed calculation of this interest rate is in ANNEX IV.

essary to study if the amount loaned to interviewees was enough to meet the needs it was destined to. The measurements show that the interest rates effectively paid by borrowers has been higher than the rate applied by Banco do Povo – an average of 5% in comparison to the 3.9% rate.

As to the lender, Table 6 shows the interest rate Banco do Povo should actually apply if the institution was not subsidized[20].

We observed that the borrower pays a relatively high effective interest rate, which is still not high enough to cover the lender's subsidies. On the other hand, they are unable to decrease the interest rates, burdening the borrower.

12. FINAL CONSIDERATIONS

Financial institutions have to face choices as to the risk level and transaction costs they assume. In Solidarity Group system loans, which are dominant in rural areas, the lender's risk in a first loan is lower, when compared to the risk of individual loans, which are dominant in urban areas. However, the transaction costs to individual borrowers are lower than to solidarity groups in rural areas.

Banco do Povo adopts the solidarity system in a very low percentage of the operations, making the transfer of transaction costs impossible. This is reflected on the negotiation fastness and clients' monitoring. According to Banco do Povo, a credit agent periodically visits their clients to verify the use of the loan in small businesses. This procedure takes up a considerable amount of agents' time, which could be better employed in attracting new clients. On the other hand, monitoring the loans reflects a low rate of loan default cases.

An alternative would be to reduce the credit agents' work in retention of new clients for the following reason: the transaction costs estimated to microcredit borrowers are not high enough to make loans unviable to borrowers. This conclusion is based on the fact that even lower loans – which are more burdened with transaction costs – were not made unviable by their costs.

This means that the job of retaining new clients, which would save borrowers the opportunity cost of time and transportation to the bank, could be minimized since it causes no significant impact in their transaction costs.

The bank could be gradually promoted among borrowers and the com-

[20] Ceteris paribus conditions.

munity with discounts and facilities for older clients who introduced new borrowers to the bank. This and other actions would require less work by credit agents to attract new clients, considering the expenses generated by agents to the bank.

Besides, most borrowers build strict relationship networks, which are at least partly responsible for promoting microcredit and Banco do Povo in their communities.

Banco do Povo data show that individual credit operations are effectively too costly to the bank, whereas clients are not significantly affected in terms of their loans. In a socio-cultural environment in which social capital is inexistent, solidarity credit operations are rare. This reinforces the idea that individual credit loans are more adequate in urban areas with lower social capital, unlike rural areas, where solidarity groups are more convenient. Furthermore, we observed that credit agents can interact differently to favor the bank, decreasing its costs.

However, if on the one hand, organizations in general face the challenge of sustainability, microcredit borrowers at Banco do Povo-Credito Solidario have benefited from the bank work methodology. From the first credit agents' visits to the loan follow-up, clients enjoy a friendly and welcoming atmosphere at the bank.

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ANNEX I. Transaction costs to borrowers

- Contract data:
  - Interest rates applied along the loan;
  - Loan amount;
  - Repayment deadline;
  - Profitability rate required from the project in which loan will be invested;
  - Number of operations between borrower and bank.
- Documents:
  - Costs with documents – measured in accordance with the number of document photocopies and expenses with notary public fees by borrowers.
- Bank reciprocity: verification of the incidence of deposit requirements, purchase of insurance, retirement plans, and others by the bank.
  - Average balance at banking account;
  - Purchase of insurance or other bank products;

- Taxes: loan taxes
  - Loan taxes;
- Project elaboration:
  - Time spent in project elaboration;
  - Elaboration by borrower.
- Explicit expenses
  - Time spent in agency – hours spent from the first visit to the bank to the the moment loan check was delivered;
  - Mean of transportation used – bus, car, motorcycle, subway, train, etc;
  - Tickets/fuel – value in R$ in July and August, 2004 spent in bus, subway, or train tickets, fuel, taxi rides, etc;
  - Tolls – value in R$ in July and August, 2004 spent in tolls during trips to Banco do Povo;
  - Parking – value in R$ in July and August, 2004 spent in parking during trips to the bank;
  - Phone calls – value of local calls made by borrowers. The values for the calls refer to local calls during business hours charged by Telefonica[21] (telephone company) in July and August, 2004;
  - Number of visits to agency – number of times borrower returned to agency to obtain the loan, estimated in minutes spent traveling to and back from the bank, multiplied by the amount of times client returned to agency;
  - Food: values in R$ in July and August, 2004 spent with feeding during the loan operation, and
  - Accommodations: values in R$ in July and August, 2004 spent with accommodations in hostels or hotels during the loan operation.
- Opportunity cost of time (R$/h):
  - Value of day's work – value estimated by interviewee for his working day or salary divided by working days;
  - Average monthly income/business hours: value of personal monthly income in R$ in July and August, 2004.
- Tipping:
  - Unrequired tipping: tips randomly offered by borrower to credit organization or credit agent.

[21] Available at: www.telefonica.com.br. Telephone calls in the area of Greater São Paulo (São Bernardo do Campo, São Caetano do Sul, Santo André, Diadema, Ribeirão Pires, Mauá, etc) have been charged as local calls since 09/04/2004, at a cost of R$0.13 per pulse. This cost was used in the data analysis.

ANNEX II. Measured loan obtention costs to borrower[22]

Interviewees	Opportunity cost time	Copies and notary public services	CPMF	Transportation and fuel expenses	Parking	Total phone bill	Total
1	R$ 12.00	R$ 0.50	R$ 7.60	R$ 3.00			R$ 23.10
2	R$ 10.00	R$ 0.50	R$ 1.90	R$ 3.50			R$ 15.90
3	R$ 14.97	R$ 0.50	R$ 1.14	R$ 3.50			R$ 20.11
4	R$ 5.21	R$ 0.50	R$ 9.50	R$ 5.00		R$ 0.33	R$ 20.53
5	R$ 6.77	R$ 0.50	R$ 3.80	R$ 14.00		R$ 0.33	R$ 25.40
6	R$ 0.52	R$ 0.50	R$ 3.80	R$ 5.00			R$ 9.82
7	R$ 14.38	R$ 0.50	R$ 19.00	R$ 3.50			R$ 37.38
8	R$ 6.39	R$ 0.50	R$ 3.80	R$ 3.50			R$ 14.19
9	R$ 1.22	R$ 0.60	R$ 9.50	R$ 14.00		R$ 0.33	R$ 25.65
10	R$ 20.83	R$ 0.50	R$ 3.80	R$ 5.00	R$ 2.00	R$ 0.33	R$ 32.46
11	R$ 4.58	R$ 0.50	R$ 5.32	R$ 14.00		R$ 0.33	R$ 24.73
12	R$ 5.47	R$ 0.50	R$ 19.00		R$ 1.00		R$ 25.97
13	R$ 18.23	R$ 4.30	R$ 30.40		R$ 2.00	R$ 0.33	R$ 55.25
14	R$ 15.63	R$ 0.50	R$ 26.60	R$ 3.50			R$ 46.23
15	R$ 11.25	R$ 0.50	R$ 13.30	R$ 8.36	R$ 10.00		R$ 43.41
16	R$ 4.17	R$ 0.50	R$ 15.20	R$ 4.18	R$ 6.00	R$ 0.33	R$ 30.37
17	R$ 4.38	R$ 0.50	R$ 5.70	R$ 45.00	R$ 3.00		R$ 58.58
18	R$ 12.50	R$ 0.20	R$ 3.80	R$ 48.27	R$ 6.00		R$ 70.77
19	R$ 4.69	R$ 0.10	R$ 19.00	R$ 2.09	R$ 2.00		R$ 27.88
20	R$ 2.92	R$ 0.10	R$ 11.40	R$ 30.00	R$ 6.00	R$ 0.33	R$ 50.74
21	R$ 10.42	R$ 2.00	R$ 17.10	R$ 14.00			R$ 43.52
22	R$ 8.13	R$ 0.50	R$ 3.04	R$ 14.00			R$ 25.67
23	R$ 10.83	R$ 0.50	R$ 6.84	R$ 3.50		R$ 0.65	R$ 22.32
24	R$ 0.70	R$ 0.50	R$ 2.28	R$ 7.00			R$ 10.48
25	R$ 0.82	R$ 0.40	R$ 2.28	R$ 3.50			R$ 7.00
26	R$ 3.75	R$ 0.50	R$ 4.94				R$ 9.19
27	R$ 1.69	R$ 0.50	R$ 7.60	R$ 3.50			R$ 13.29
28	R$ 2.19	R$ 0.50	R$ 3.80	R$ 3.50			R$ 9.99

[22] The exchange tax in 05/06/2005 was R$2.45860/US$.

29	R$ 50.00	R$ 0.50	R$ 7.60	R$ 14.00			R$ 72.10
30	R$ 0.00	R$ 0.50	R$ 7.60	R$ 20.00	R$ 6.00		R$ 34.10
31	R$ 3.13	R$ 0.50	R$ 12.92	R$ 20.00	R$ 6.00		R$ 42.55
32	R$ 1.22	R$ 0.50	R$ 6.46	R$ 5.00	R$ 2.00		R$ 15.18
33	R$ 2.50	R$ 0.50	R$ 7.60	R$ 20.00	R$ 4.00		R$ 34.60
34	R$ 7.29	R$ 0.50	R$ 11.40		R$ 3.00		R$ 22.19
35	R$ 281.25	R$ 0.50	R$ 3.80	R$ 2.50	R$ 3.00		R$ 291.05
36	R$ 2.29	R$ 0.50	R$ 13.30	R$ 2.50	R$ 3.00		R$ 21.59
37	R$ 1.82	R$ 0.50	R$ 6.08	R$ 2.50	R$ 3.00		R$ 13.90
38	R$ 18.23	R$ 0.50	R$ 3.80	R$ 7.00		R$ 0.33	R$ 29.85
39	R$ 0.87	R$ 0.50	R$ 3.80	R$ 7.00		R$ 0.33	R$ 12.49
Mean	R$ 14.95	R$ 0.61	R$ 8.87	R$ 10.43	R$ 4.00	R$ 0.36	R$ 35.63
Standard deviation	44.67	0.66	6.86	11.25	2.32	0.10	45.11

Source: Ramirez (2005)

ANNEX III. Impact of transaction costs in loan interest rates[23]

Interviewees	Loan amount	Number of monthly payments	Transaction costs	Monthly payment	Loan amount - Transaction costs	New interest rates
1	R$ 300.00	4	R$ 20.11	R$ 82.04	R$ 279.89	6.684%
2	R$ 500.00	10	R$ 15.90	R$ 60.81	R$ 484.10	4.378%
3	R$ 600.00	8	R$ 10.48	R$ 85.96	R$ 589.52	3.556%
4	R$ 600.00	7	R$ 7.00	R$ 96.78	R$ 593.00	3.443%
5	R$ 800.00	11	R$ 25.67	R$ 87.12	R$ 774.34	3.734%
6	R$ 1,000.00	8	R$ 25.40	R$ 146.86	R$ 974.60	4.350%
7	R$ 1,000.00	8	R$ 9.82	R$ 146.86	R$ 990.18	3.965%
8	R$ 1,000.00	4	R$ 14.19	R$ 273.47	R$ 985.81	4.295%
9	R$ 1,000.00	5	R$ 32.46	R$ 222.78	R$ 967.54	4.887%
10	R$ 1,000.00	8	R$ 70.77	R$ 151.72	R$ 929.23	6.349%
11	R$ 1,000.00	10	R$ 9.99	R$ 118.06	R$ 990.01	3.336%
12	R$ 1,000.00	10	R$ 10.09	R$ 118.06	R$ 989.91	3.338%
13	R$ 1,000.00	10	R$ 11.62	R$ 118.06	R$ 988.38	3.369%
14	R$ 1,000.00	12	R$ 12.49	R$ 109.73	R$ 987.51	4.731%
15	R$ 1,300.00	12	R$ 9.19	R$ 131.67	R$ 1,290.81	3.257%
16	R$ 1,400.00	8	R$ 24.73	R$ 212.40	R$ 1,375.27	4.955%
17	R$ 1,500.00	7	R$ 58.58	R$ 254.69	R$ 1,441.43	5.615%
18	R$ 1,600.00	10	R$ 15.73	R$ 188.89	R$ 1,584.27	3.333%
19	R$ 1,700.00	8	R$ 15.18	R$ 243.55	R$ 1,684.82	3.348%
20	R$ 1,800.00	12	R$ 22.32	R$ 182.32	R$ 1,777.68	3.348%
21	R$ 2,000.00	12	R$ 23.10	R$ 209.73	R$ 1,976.90	3.925%
22	R$ 2,000.00	10	R$ 13.29	R$ 236.12	R$ 1,986.71	3.269%
23	R$ 2,000.00	9	R$ 72.10	R$ 258.51	R$ 1,927.90	3.934%
24	R$ 2,000.00	9	R$ 34.10	R$ 258.51	R$ 1,965.90	3.509%
25	R$ 2,000.00	10	R$ 34.60	R$ 236.12	R$ 1,965.40	3.483%
26	R$ 2,500.00	8	R$ 20.53	R$ 367.14	R$ 2,479.47	3.926%
27	R$ 2,500.00	10	R$ 25.65	R$ 304.07	R$ 2,474.35	3.935%
28	R$ 3,000.00	8	R$ 50.74	R$ 455.15	R$ 2,949.26	4.937%

[23] The exchange tax in 05/06/2005 was R$2.45860/US$.

29	R$ 3,000.00	12	R$ 22.19	R$ 303.86	R$ 2,977.81	3.262%
30	R$ 3,400.00	11	R$ 42.55	R$ 370.28	R$ 3,357.46	3.367%
31	R$ 3,500.00	9	R$ 43.41	R$ 481.88	R$ 3,456.59	4.795%
32	R$ 3,500.00	10	R$ 37.53	R$ 413.21	R$ 3,462.47	3.351%
33	R$ 4,000.00	11	R$ 30.37	R$ 469.34	R$ 3,969.63	4.657%
34	R$ 4,500.00	11	R$ 43.52	R$ 490.08	R$ 4,456.48	3.315%
35	R$ 5,000.00	14	R$ 37.38	R$ 464.65	R$ 4,962.63	3.833%
36	R$ 5,000.00	12	R$ 25.97	R$ 548.67	R$ 4,974.03	4.602%
37	R$ 5,000.00	9	R$ 27.88	R$ 688.40	R$ 4,972.12	4.642%
38	R$ 7,000.00	18	R$ 46.23	R$ 575.07	R$ 6,953.78	4.570%
39	R$ 8,000.00	10	R$ 55.25	R$ 1,011.82	R$ 7,944.75	4.657%
Mean	R$ 2,333.33	9.62	R$ 28.41	R$ 286.52	R$ 2,304.92	4.109%
Standard deviation	1804.72	2.58	16.98	198.33	1796.94	0.0085

Source: Ramirez (2005)

ANNEX IV. Subsidy and interest rates Banco do Povo - Crédito Solidário would be assumed to charge if access to concessional funds were eliminated, 2001-2003[24]

Year	2001	2002	2003
Monthly interest in %	6.09	7.85	6.17
SDI	0.60	1.10	0.65
Operating revenues	484,681.86	567,540.26	1,020,950.13
i = Weighted average of interest rates charged by organization for loan grants	0.46	0.45	0.45
S = Annual subsidy received by organization	289,301.96	625,780.12	666,727.60
A = outstanding BNDES concessionally-borrowed funds	214,351.56	766,843.22	1,433,163.38
m' = interest rate the organization would be assumed to pay if access to concessional funds were eliminated (Selic)	0.16	0.18	0.21
c = concessional rate of interest paid by MFI on its average annual outstanding concessional borrowed fund (LTIR)	0.09	0.09	0.11
B = Active Portfolio – self-owned funds	754,440.94	809,071.46	759,844.05
E = Equity	354,328.90	931,199.53	1,060,501.00
P = Profit	,132,103.55	,361,061.35	,252,694.09
π = Inflation (CPI)	0.07	0.10	0.08
K = Sum of all the other types of annual subsidies received by MFI (Variation of Fixed Assets and Rent)	5,096.12	2,299.00	40,422.02

Source: Elaborated by authors, based on Fachini (2005).

[24] The exchange tax in 05/06/2005 was R$2.45860/US$.

Résumé

Les coûts élevés de transaction représentent pour les prêteurs et les emprunteurs un des plus grands obstacles à l'expansion du microcrédit. Pour réduire ces coûts, les institutions adoptent l'approche du groupe solidaire qui transfère le risque au groupe même.
Toutefois, au Brésil, il y a plusieurs institutions de microcrédit, comme le Banco do Povo-Crédito Solidário, Vivacred et autres qui adoptent encore l'approche individuelle et il y a peu d'études qui analysent les coûts de transaction pour l'institution ou l'emprunteur. L'objectif de cette étude est d'investiguer les coûts de transaction pour les opérations de court terme du Banco do Povo-Crédito Solidário de Santo André et sa périphérie. Cette institution n'adopte le système du groupe solidaire que sur 5% de son portefeuille, ce qui rend le transfert de coût de transaction impossible. Les informations obtenues montrent que les opérations de crédit individuel sont effectivement très coûteuses pour la banque mais elles n'affectent pas le prêt significativement. Les crédits individuels sont plus intéressants dans les zones urbaines avec un capital social plus bas que dans les zones rurales, où le système solidaire est plus attrayant.