BORROWER TRANSACTION COST AND CREDIT RATIONING IN RURAL FINANCIAL MARKETS: THE PHILIPPINE CASE

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This study looks at borrower transaction costs in rural financial markets and its role in the rationing of credit in the Philippines. The objectives are: a) to quantify borrower transaction costs in rural financial markets; b) to determine the factors that affect and are affected by the level of transaction costs; and c) to determine the role of borrower transaction costs as a credit rationing mechanism in the regulated and deregulated periods.

The data set used is cross-section data from a household survey conducted in 1987 in six provinces in the Philippines. Regression analysis of the data using a simultaneous equations model was carried out, with two-stage least squares (TSLS) as the method of estimation.

Three major conclusions can be drawn from the results of this study. Firstly, transaction costs play an important role in the demand for credit and in the rationing of credit among borrower classes. Second, the lifting of interest rate restrictions decreased the absolute level of transaction costs in the deregulated period compared to the regulated period - but the change was not statistically significant, indicating that some barriers may be preventing its full effect. And third, transaction costs have a regressive impact on borrowers, which instead of improving after deregulation, has proven to be of greater magnitude.

A cross-country comparison was made for the Philippines and five other underdeveloped countries. All six countries, including the Philippines, show a regressive transaction cost structure in relation to various loan sizes. Transaction costs as a percentage of loan amount received and as a proportion of nominal interest rate were greater for small loans and smaller for medium and large loans. For the Philippines, this regressive structure became more pronounced in the deregulated compared to the regulated period.

1. Introduction

Past studies have shown the importance of transaction costs in credit allocation and its role in the rationing of credit[1]. Transaction costs

[1]Cuevas (1984), Cuevas and Graham (1984), Ahmed (1982), Inter-American Development Bank (1983), Ladman (1984), among others.

are a measure of the "friction" in the functioning of financial markets (Cuevas, 1984). The higher the transaction costs, the higher the cost of intermediation and as a result, the less efficient the performance of the financial sector.

Transaction costs are defined as the non-interest expenses incurred by lenders in evaluating, disbursing and collecting loans and by borrowers in applying, getting approval for, and repaying their loans. These costs are largely associated with the information-gathering procedures banks need to carry out to determine borrower creditworthiness or to comply with various Central Bank regulations.

Borrower transaction costs are made up of the actual cash outlay and the opportunity cost of time spent in applying for a loan. The longer the time taken to evaluate and process a loan, the greater the transaction costs for the borrower — as seen in the longer hours spent in the bank premises, more frequent trips to the bank, greater outlay for transportation and food and higher fees. It is this lengthening of processing time which is a common tool of credit rationing (Ahmed, 1982).

The objectives of this study are: 1) to quantify borrower transaction costs in rural financial markets; 2) to determine the factors that affect and are affected by the level of transaction costs; and 3) to determine the role of borrower transaction costs as a credit rationing mechanism before and after the deregulation of interest rates in the country.

A brief background of the study is presented in Section 2 followed by the theoretical framework and methodology. The major findings are presented in Section 3 and the conclusions in Section 4.

2. Background and Methodology

In 1981, Philippine government policy started to shift away from the stance of strong intervention which prevailed in the '70s and gradually moved toward its present policy of interest rate liberalization. Savings and time deposit rates were deregulated in 1981, lending rates in 1983, and rediscounted short-term agricultural loans in 1984. However, it was only when the policy of cheap rediscounting was discontinued in November, 1985 that deregulation of lending interest rates can be said to have truly taken effect (Lamberte, 1987; Llanto, 1986). On this basis, this study uses November 1985 as the cut-off date for the regulated (1972 to 1985) and deregulated (1986 to 1987) periods.

The data set used is cross-section data from a household survey conducted in 1987 by the Agricultural Credit Policy Council (ACPC) in six areas in the country. A two-stage simple random sampling scheme was used with rural barangays as the primary sampling unit, and households as the secondary sampling unit.

The sample for this study consists of 176 bank-borrowing households, all from predominantly rural, agricultural areas in the provinces of Batangas, Camarines Sur, Pangasinan, Iloilo, Negros Oriental and Misamis Oriental. Most of the respondents are farmers engaged in crop production.

The Model

In the study of borrower transaction costs it has been shown (Cuevas and Graham, 1985) that a simultaneous equations approach is more appropriate than the single equation approach used in earlier studies. This is so since transaction costs affect both borrower and lender behavior. A simultaneous equations model with a loan demand equation and a transaction cost equation is tested empirically on the data using the two-stage least squares (TSLS) method.

The demand for credit is hypothesized to be determined by six factors namely: 1) the cost of borrowing, made up of interest expense (i) and borrower transaction cost (TC); 2) the size of land owned by the borrower, used as a measure for wealth and resource endowment, as well as his liquidity requirements for production (LRP); 3) the borrower's liquidity requirements for consumption (LRC), determined by the size of his household, the number of dependents and the level of education of the household head ; 4) the type of bank borrowed from; 5) the policy period in which the loan was acquired (before or after deregulation); and 6) the availability and availment of credit from informal sources.

The loan demand equation is specified as follows:

$$\ln L = c_0 + c_1 \ln TC + c_2 \ln (i) + d_1 \ln A + e_1 \, HHSIZE + e_2 \, DEP + e_3 \, EDUC + f_1 \, YEAR + f_2 \, BANK + f_3 \, INFORMAL$$

where:

L = the loan amount applied for
TC = borrower transaction costs as a percentage of loan amount received
i = the real interest rate charged on the loan
A = the area of land owned

HHSIZE	=	number of members in household
DEP	=	number of dependents in household
EDUC	=	years of schooling of household head
YEAR	=	is a dummy variable to distinguish if amount was borrowed before or after deregulation of loan interest rates
YEAR	=	1 if after deregulation (1986 to 1987)
YEAR	=	0 if before deregulation (1972 to 1985)
BANK	=	is a dummy variable for type of bank
BANK	=	1 if rural bank
BANK	=	0 if not rural bank
INFORMAL	=	dummy variable for availment by borrower of credit from informal sources
INF	=	1 if bank borrower has also borrowed from informal lenders
INF	=	0 if otherwise.

Transaction costs are hypothesized to be determined by the following factors: 1) size of loan applied for by the borrower; 2) the interest rate; 3) the borrower's degree of risk as indicated by a) the area of land owned by the borrower, b) his previous loan delinquency and c) the type of collateral; 4) the type of bank; 5) the period of the loan (before or after deregulation); and 6) the distance of borrower's residence to the bank.

The transaction cost equation is specified as follows:

$$\ln TC = a_0 + a_1 \ln L + a_2 \ln(i) + a_3 \ln A + b_1 COL + b_2 DEL + b_4 BANK + b_5 YEAR + b_6 DIST$$

where:

TC	=	borrower transaction costs as a percentage of loan amount received
L	=	the loan amount applied for
i	=	the real interest rate charged on the loan
A	=	the area of the land owned
COL	=	dummy variable for the type of collateral
COL	=	1 if collateral is real estate
COL	=	0 if otherwise
DEL	=	dummy variable for the previous repayment performance of the borrower
DEL	=	1 if delinquent at any time in the past
DEL	=	0 if otherwise
BANK	=	is a dummy variable for type of bank
BANK	=	1 if RB

$BANK$ = 0 if not RB
$YEAR$ = is a dummy variable to distinguish if amount was borrowed before or after deregulation of loan interest rates
$YEAR$ = 1 if after deregulation (1986 to 1987)
$YEAR$ = 0 if before deregulation (1972 to 1985)
$DIST$ = distance to bank (measured by traveling time).

3. Results of the Study

Borrower transaction costs (in pesos of 1972) were computed for the sample and totalled P22.21 (see Table 1). This consists of the cash outlay of ₱18.02 and the opportunity cost of time of ₱4.19. The three largest expenses incurred by a borrower in the process of applying and receiving his loan were fees (43%), transportation (29%) and food (22%). Of the opportunity cost of time, about two thirds was due to time spent in the bank premises; the rest was due to time traveling to and from the bank. Rural bank borrowers had lower peso transaction costs than borrowers of non-rural banks, but relative to the loan amount received, TC (%) is greater for rural bank borrowers.

The simultaneous equations model specified above was estimated with the survey data using two-stage least squares (TSLS). The results are summarized in Table 2; parameter estimates and t-statistics are shown in Table 3. The coefficient of determination (R^2) in the loan demand equation[2] is low (.29), but this is not unusual for studies using cross-sectional data.

Transaction costs[3] were found to be an important determinant of loan demand, confirming the expected inverse relationship between the two variables. Other determinants of loan demand[4] found to be statistically significant are: a) the year of the loan (regulated or deregulated period); b) area of land owned; and c) level of education, all significant at .10 or higher. Transaction Costs and Year of the loan transaction are both inversely related to Loan Demand, while Land and Education are positively related.

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[2]The coefficient of determination in the TC equation is negative (this is possible under TSLS), and therefore a meaningless value.

[3]This and all other references to transaction costs refer to TC as a proportion of loan amount received. The only exception is TC in (and with reference) to Table 2, which indicates the peso value of TC.

[4]Loan demand is measured by the loan amount applied for by the borrower referred to in the study as *loan amount*. In contrast, the term *loan amount received* refers to the actual size of loan granted by the bank.

Table 1 - Borrower Transaction Costs in Pesos of 1972 by Type of Bank and Regulatory Period

Sample Average:	Cash Outlay (1)		Opportunity Cost of Time (2)		Borrower Transaction Cost (1 + 2)	
Regulation Period:		%		%		%
Rural Bank	P21.99	83.9	P4.22	16.1	P26.21	100.0
Non-Rural Bank**	23.75	84.2	4.44	15.8	28.19	100.0
Total	22.44	84.0	4.27	16.0	26.71	100.0
Deregulation Period:		%		%		%
Rural Bank	P8.31	72.7	P3.12	27.3	P11.43	100.0
Non-Rural Bank	13.67	74.7	4.63	25.3	18.30	100.0
Total	13.46	78.3	3.73	21.7	17.19	100.0
Total Sample:		%		%		%
Rural Bank	P17.10	81.7	P3.82	18.3	P20.92	100.0
Non-Rural Bank	19.77	80.3	4.86	19.7	24.63	100.0
Total	18.02	81.1	4.19	18.9	22.21	100.0

*Opportunity Cost of Time = Total Hours X Average Real Cost of Time Per Hour.

Average Real Cost of Time Per Hour: Based on Minimum Wages and Allowances Legislated in the Philippines, Institute of Labor and Manpower Studies, Ministry of Labor and Employment.

For Nonagricultural Occupations: Real Wage Rate, Outside Metro Manila for Agricultural Occupations: Real Non-Plantation Wages Rates Base Year = 1972; Seasonality in agricultural work not covered.

**Includes commercial banks, private development banks, PNB, DBP, cooperative rural banks, and Land Bank Cooperatives.

Source: Abiad, 1988.

For the borrower, transaction costs are an added outlay and as our findings indicate, would make him borrow less as his out-of-pocket expenses and cost of time spent on the loan application increase. The results indicate further that transaction costs, as one component of the cost of borrowing, may be a more important determinant of loan demand than the explicit interest rate, at least in a rural-based community. The latter came in insignificantly into the equation and with the wrong sign.

Table 2 - Factors Affecting Loan Demand and Transaction Costs

Factors Affecting:	Expected Sign	Actual Sign	Remarks
Demand			
Transaction Costs	-	-	Significant
Interest Rate	-	+	
Area of Land Owned	+	+	Significant
Household Size	+	+	
Dependents	+	-	
Education	+	+	Significant
Year[a]	+	-	Significant
Bank[b]	+	-	
Informal Credit	+	+	
Transaction Costs			
Loan Amount	+	+	
Interest Rate	-	-	
Area of Land Owned	-	-	
Year[a]	+	-	
Bank[b]	-	+	Significant
Collateral[c]	-	-	
Delinquency[d]	+	-	
Distance	+	+	Significant

[a]Dummy Variable YEAR: 0= Regulated Period (1972-1985)
                            1 = Deregulated Period (1986-1987)
[b]Dummy Variable Bank: 0 = Non-Rural Bank
                        1 = Rural Bank
[c]Dummy Variable COLLATERAL: 0 = Non-real estate
                                         1 = Real estate
[d]Dummy Variable DELINQUENCY: 0 = No previous loan delinquency
                                       1 = With previous loan

The negative sign for the variable Year shows that loan demand was greater in the regulated than in the deregulated period. This may indicate that the decline in transaction costs that came with deregulation (see Table 1) was probably much smaller in magnitude compared to the rise in interest costs that came with liberalization. As a result, the total cost of borrowing $(i + TC)$ was higher in the deregulated period and loan demand declined. The higher level of demand in the regulated period may also be attributed to the generally more robust levels of economic activity in that period compared to the liberalized period.

Table 3 - Estimated Parameters: Transaction Cost Equation and Loan Demand Equation

| Right-Hand Side Variables | Jointly Dependent Variables | | | |
| | Transaction Costs ($\ln TC$) | | Loan Demand ($\ln L$) | |
	Estimate	T-Statistic	Estimate	T-Statistic
Loan Amount ($\ln L$)	0.4865	0.8031		
Transaction Cost ($\ln TC$)			-0.2910	-1.8315*
Interest Rate [$\ln(i)$]	-0.2959	-0.2051	1.0803	1.3480
Area of Land Owned ($\ln A$)	-0.1885	-1.0510	0.1714	1.9798*
Household Size (*HHSIZE*)			0.1672	1.6373
Dependents (*DEP*)			-0.1375	-1.2911
Education (*EDUC*)			0.0683	2.5806*
Year (*YEAR*)	-0.0005	-0.0009	-0.7200	-2.5362*
Bank (*BANK*)	0.9153	1.7690*	-0.0290	-0.1173
Collateral (*COL*)	-1.2689	-1.4189		
Delinquency (*DEL*)	-0.4096	-0.5973		
Distance (*DIST*)	0.2301	2.7868		
Informal	0.0339	0.1224		
Intercept	-3.3713	-0.8895	6.0941	13.5559
R^2	-0.1936		0.2917	

n=133
*Significant at .10 or higher

Source: Abiad, 1988.

Two of the seven variables in the transaction costs equation were found to be significant factors in determining the level of transaction costs: the type of bank and the distance to the bank. The Bank dummy variable is positively related to transaction costs which shows that transaction costs are higher for rural banks than for non-rural banks. This could be due to the large amount of supervised loans handled by the rural banks, which carried with them highly time-consuming screening and procedural requirements. In addition, the clientele of rural banks, compared to commercial banks, private development banks and government banks, is predominantly made up of small farmer borrowers, widely distributed in far-off barrios, and therefore incurring much higher transaction costs relative to the small loan amounts they borrow. The Distance variable, measured by traveling time to and from the bank, has a positive coefficient. This shows that borrowers who live farther from the bank will have higher TC levels. This is logical, since part of TC is made up of transportation expenses and the peso value of travel time to and from the bank.

The six remaining variables in the equation — loan amount, interest rate, area of land owned, type of collateral, loan delinquency and year of loan — were not statistically significant. This result is surprising, particularly for the three risk-related factors: land, collateral and previous loan delinquency. Their lack of relationship to transaction costs could raise some doubts as to the effectiveness of loan and portfolio management in these banks, particularly rural banks, which make up two thirds of the sample. It may indicate that rural banks in general are deficient in these areas of loan management. It may also show that land collateral is more "credible" as a foreclosure device and rationing mechanism in commercial banks and private development banks than in rural banks, where management may not follow through as aggressively. Unfortunately, the number of each of these other banks is not sufficiently large to give more conclusive answers to these questions.

A dummy variable test was carried out to determine the role of the use of informal credit on the demand for credit in the formal market. The informal market as an independent variable was found not to be significant in relation to loan demand.

The Regulated and Deregulated Periods: A Comparison

As the Philippine economy shifted to a liberalized financial environment, some structural changes took place in the financial market. In this section, we look into some of these changes, with respect to their effects on transaction costs.

It must be kept in mind however that only the first two years of the deregulation period are covered by the study in contrast with the 13-year coverage of the regulated period. What we have caught therefore is only the result of first-phase adjustments, and it may take more time before the markets would have completed their adjustment to the liberalized environment.

Transaction costs, an implicit cost to the borrower over and above the explicit interest rate, was found to be regressive in impact in both periods. This is so whether we view transaction costs as a proportion of the loan amount received or as a proportion of the nominal interest rate charged. Small borrowers are therefore penalized by an additional "tax" on borrowing over and above the interest rate, at rates proportionally greater than those paid by medium and large borrowers.

Table 4 shows transaction costs as a percentage of loan amount received by loan size for the two periods. It shows that in the regulated period, TC is more than 2 1/2 times larger for small borrowers than for medium borrowers and about 1.7 times greater than for large borrowers. In the deregulation period, average TC declines for all loan sizes, as expected, but the regressive pattern of the previous period is still seen, and even magnified for small relative to large loans.[5] The difference between the TC of small and medium loans declined by about 55 percent in the post-deregulation period, but it is still high at 230 percent. The general pattern supports the hypothesis that TC as a percentage of loan received tends to be regressive, but it is surprising that this regressive pattern was not significantly reduced after deregulation, as would be expected. It is possible that given more time, the necessary structural adjustments will still take place.

Table 5 presents transaction costs as a percentage of the nominal interest rate. Since TC is an added cost to borrowing, over and above the explicit interest rate, it acts as a kind of "tax" on borrowers. This tax is what we are attempting to measure in the data presented in this table. The data confirms once more the regressive nature of transaction costs. In both the regulated and deregulated periods, TC as a percentage of nominal interest rate is seen to be higher for small loans than for large loans. The tax on small loans is large in the regulated period — 175 percent greater than for medium and 69 percent more than for large loans. This regressive trend remains high in the deregulation period, with the tax on small loans greater than that on medium and large loans by 164 percent and 2,412 percent, respectively. On the other hand, the expected regressive nature of TC is confirmed by loan size. On the other hand, one would have expected this regressive incidence to be reduced during the period of deregulation. But this did not occur. Again, this is contrary to the expected results.

Cross-Country Comparison

Five different studies made between 1981 and 1983 covered agricultural credit programs in the following underdeveloped countries: Bangladesh (Ahmed, 1982), Ecuador, Panama and Peru (Inter-American Development Bank, 1983), and Honduras (Cuevas, 1984). These studies

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[5]The number of large borrowers is too small to make any substantive conclusions, but probably gives some indication that could be substantiated by further research.

Table 4 - Transaction Costs as a Percentage of Loan Amount Received By Loan Size and Regulatory Period

Sample Average:	Borrowers		TC (%)[a]
	No.	%	
Regulated Period			
Small[b]	53	50.96%	4.86
Medium	34	32.69%	1.74
Large	17	16.35%	2.78
Total	104	100.00%	3.50
Deregulated Period			
Small	45	65.22%	3.47
Medium	22	31.88%	1.55
Large	2	2.90%	0.17
Total	69	100.00%	2.64
Total Sample			
Small	98	56.65%	4.23
Medium	56	32.37%	1.51
Large	19	10.98%	2.51
Total	173[c]	100.00%	3.10

[a] $$TC (\%) = \frac{TC}{\text{Loan Amount Received}}$$

[b] (All in pesos of 1972):
  Small: P2,000 or less
  Medium: P2,0001 to P10,000
  Large: P10,001 to P500,000

[c] Total is less than 176 due to missing data in one or more of the following variables: date of loan, transaction costs, and loan amount received.

Source: Abiad, 1988.

involved field surveys at the farm level and documented the explicit and implicit non-interest costs which were incurred by borrowers in the process of securing and repaying their agricultural loans. The results of these studies in relation to borrower transaction costs were reviewed by Cuevas and Graham (1984) and it was concluded that "the intended effect of credit policies involving a low and relatively uniform interest rate is not attained." They pointed out that instead, a skewed, regressive structure of total credit costs (interest rate *plus* transaction costs) is obtained. This is reflected by the data for the five countries in Table

Table 5 - Transaction Costs as a Percentage of Interest Rate by Loan Size and Regulatory Period

| Sample Average: | Borrowers | | TC (%) |
	No.	%	Nominal Interest Rate
Regulated Period			
Small[a]	53	50.96%	29.4%
Medium	34	32.69%	10.7%
Large	17	16.35%	17.4%
Total	104	100.00%	21.4%
Deregulated Period			
Small	45	65.22%	20.1%
Medium	22	31.88%	7.6%
Large	2	2.90%	0.8%
Total	69	100.00%	14.3%
Total Sample			
Small	98	56.65%	25.0%
Medium	56	32.37%	8.4%
Large	19	10.98%	15.2%
Total	173[b]	100.00%	25.4%

[a](All in pesos of 1972):
  Small: P2,000 or less
  Medium: P2,001 to P10,000
  Large: P10,001 to P500,000
[b]Total is less than 176 due to missing data in one or more of the following variables: date of loan, source of loan and interest rate.

Source: Abiad, 1988.

6. Transaction costs as a percentage of loan amount is shown in Panel A, while transaction costs as a proportion of the interest rate charged is shown in Panel B. In both cases, the sample average, as well as the averages for three loan size categories, is reported in the table.

The results for the Philippines, based on the findings of this study, are shown in the last three columns of the table. Before a cross-country comparison is made, it is important to point out two major differences between the Philippine study and those of the five countries in the table. First, the Philippine study is not limited to farmers as respondents nor to agricultural loans, while the 5 other countries focus on farmers and agricultural credit. Secondly, while all (including the

Philippine study) are cross-section studies, the loans in the Philippine study, representing "the most recent loan" of the respondent, were acquired in different years over a 16-year period, while loans in each of the 5 studies were acquired in a narrower range of years. In spite of these differences, it is believed that the data for the six countries are still comparable.

Table 6 - Cross-Country Comparison of Borrower
Transaction Costs by Loan Size
for Selected Countries in the 1980s

Transaction Costs By Loan Size	Bangladesh	Ecuador	Honduras	Panama	Peru	Philippines REG	DEREG	TOTAL
A. Transaction Costs as Percent of Loan Amount								
Sample Average	21.7%	2.8%	3.0%	5.2%	1.2%	3.5%	2.6%	3.1%
Small Loans	29.4	5.3	5.9	5.7	3.9	4.9	3.5	4.2
Medium Loans	17.5	2.0	1.6	3.0	1.3	1.7	1.5	1.5
Large Loans	7.0	0.6	0.2	2.0	1.0	2.8	0.2	2.5
B. Transaction Costs as Percent of Explicit-Interest Charges								
Sample Average	180.8%	22.9%	23.1%	46.4%	4.0%	21.4%	14.3%	25.4%
Small Loans	245.0	47.7	45.4	50.9	13.0	29.4	20.1	25.0
Medium Loans	145.8	17.3	12.3	26.8	4.3	10.7	7.6	8.4
Large Loans	58.1	4.1	1.5	17.9	3.3	17.4	0.8	15.2

Source: Cuevas and Graham, (1984); Philippine data from Abiad, 1988.

Notes: 1) Sources of data for 5 countries: Bangladesh, Ahmed (1982); Honduras, Cuevas (1984); Ecuador, Panama and Peru, Inter-American Development Bank (1983).
2) Panel B Data: based on the levels of explicit interest rate reported in the different sources, e.g., for Bangladesh the average transaction costs in Panel A is 21.7% and the explicit rate reported by Ahmed is 12%, therefore (21.7/12) x 100 = 180.8%.

If Bangladesh is excluded because of its extreme values, the Philippines and the five Latin American countries exhibit TC (as a percent of loan amount) which ranges from a low of 1.2 percent for Peru to 5.2 percent for Panama. The Philippine figure is midway within this range, at 3.1 percent for the entire sample, but higher for the regulated period (3.5%) than for the deregulated period (2.6%). The magnitude for Bangladesh is 21.7 percent, more than four time greater than that of Panama. The unusual values of TC (both as a proportion of loan amount (Panel A) and of interest rate (Panel B) are attributed to the unusually small loan size characteristic of the Bangladesh survey, in

comparison to those recorded in the Latin American studies. It is reasonable to conclude from the data that Philippine loan size distribution is closer to the latter than to those seen in Bangladesh.

All six countries show a regressive TC structure, as seen in the comparison of the TC levels of small loans to those of medium and large loans. In the Honduras case, TC for small loans is 30 times as high as those for large loans: 8.8 percent in Ecuador, 2.9 percent in Panama. Compared to these, the Philippine ratios are lower: 2.8 percent for small loans compared to medium, and only 1.7 for small loans compared to large. However, as pointed out earlier, the regressive pattern for the Philippines, when compared to the two periods in the study, is more pronounced before deregulation than after.

The figures in Panel B indicate the additional "tax" imposed on borrowers over and above the explicit interest they pay on the loan. This ranges, on the average, from 4.0 percent for Peru to 180.8 percent for Bangladesh. The TC tax level in the Philippines is not far from the levels seen in Ecuador and Honduras, and in all six countries, places a heavier burden on small than large loans. In the Philippines, these differences are magnified as the country moved to a deregulated environment.

The larger the tax imposed by transaction costs on the borrower, the greater the disincentive to borrow, as the cost of credit becomes more expensive. Table 6 shows that implicit costs (TC) are large relative to the nominal interest rate for all countries except Peru, and are considerably greater for the small borrower than for the medium or large borrowers. This suggests that transaction costs, as an implicit price mechanism, bring about allocative effects in the credit market, favoring large borrowers and penalizing small borrowers. This is true even if interest rates are held down by fiat, as the larger transaction costs of small borrowers may more than offset the "cheapness" of interest rates.

At least two other studies have looked into the determinants of borrowers transaction costs: the Ahmed study for Bangladesh, and the Cuevas study for Honduras. Using a single-equation model, Ahmed concludes that transaction costs as a percent of loan amount: 1) decreases with increases in loan size, 2) decreases with increases in the explicit interest rate and, 3) declines the greater the social and political status of the borrower is in the community. In the Honduras study, Cuevas confirmed the findings (1 and 2 above) of Ahmed regarding the relation between TC, loan size and explicit interest rates. In addition,

he concluded that TC is greater for small than for large loans, and higher for private than for development banks, given the loan size and interest rate.

4. Conclusions and Policy Implications

Three major conclusions can be drawn from the results of this study. First, transaction costs play an important role in the demand for credit and in the rationing of credit among borrower classes. Second, the lifting of interest rate restrictions decreased the absolute level of transaction costs in the deregulation period compared to the regulated period, but the change was not statistically significant, indicating that some barriers still may be preventing its full effect. And third, transaction costs in the Philippines, as elsewhere, have a regressive impact on borrowers. This regressivity worsens instead of improving after deregulation. Each of these conclusions is discussed in greater detail below.

The significance of transaction costs as a determinant of loan demand points out that borrowers respond to transaction costs in the same manner and for the same reasons that they respond to the interest rates. To borrowers, transaction costs are an important real cost of borrowing over and above the interest rate charged, and to the extent that this increase is greater in proportion to the size of the loan or to the amount paid in interest, the greater will be the dampening of the demand for credit. A rational borrower will borrow less the higher the level of transaction costs and vice versa. This is confirmed by the results of the study.

The following were found to be important factors in determining a borrower's decision to apply for a loan, and the amount applied for: 1) the total transaction costs of borrowing; 2) the year of loan application; 3) area of owned land; and 4) the education level of the borrower.

The level of transaction costs, on the other hand, is determined by two factors: distance to the bank and type of bank. The farther the bank from the borrower's residence, the higher the transaction costs. Borrowers of rural banks also have higher transaction costs than borrowers from non-rural banks.

The negative sign for the variable Year of Application is as expected, indicating that transaction costs declined as the country moved into the deregulated period. However, the fact that this variable is not statistically significant may be an indication that some barriers

still exist, e.g. an oligopolistic structure of the financial market, preventing the full effects of deregulation in reducing transaction costs.

Transaction costs are also seen to have a regressive impact on borrowers, taxing small borrowers by as much as 270 percent more than medium and large borrowers. Deregulation, instead of minimizing this regressive effect, has instead brought about an increase in its magnitude.

It is suggested that policy be aimed at minimizing borrower transaction costs through such measures as a) the streamlining of the documentation process, particularly those done in compliance with Central Bank regulations; b) the use of informal groupings such as self-help groups (SHGs), cooperatives and non-government organizations (NGOs) as channels for bank funds to reach small rural borrowers; and c) government provision of more roads, bridges and other improvements in rural transportation.

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