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

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I. INTRODUCTION

PAST studies have shown the importance of transaction costs in credit allocation and its role in the rationing of credit (see, for example, [3] [4] [2] [6] [7] [8] [9]). Transaction costs are a measure of the "friction" in the functioning of financial markets [3]. 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 [2].

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 II followed by the theoretical framework and methodology. The major findings are presented in Section III and the conclusions in Section IV.

II. BACKGROUND AND METHODOLOGY

In 1981, Philippine government policy started to shift away from the stance of strong intervention which prevailed in the 1970s, and gradually moved toward its

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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 [10] [11]. On this basis, this study uses November 1985 as the cutoff date for the regulated (1972–85) and deregulated (1986–87) 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 were farmers engaged in crop production.

In the study of borrower transaction costs it has been shown that a simultaneous equations approach is more appropriate than the single equation approach used in earlier studies [5]. This is so since transaction costs affect both borrower and lender behavior. A simultaneous equation model with (1) a loan demand equation and (2) 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: (1) the cost of borrowing, made up of interest expense and borrower transaction costs; (2) the size of land owned by the borrower, used as a measure of his wealth and resource endowment, as well as his liquidity requirements for production; (3) the borrower's liquidity requirements for consumption, 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 extent 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,
$YEAR$ = a dummy variable to distinguish if amount was borrowed before or after deregulation of loan interest rates: 1 if after deregulation (1986–87), 0 if before deregulation (1972–85),

$BANK$ = a dummy variable for type of bank: 1 if rural bank, 0 if not rural bank, and

$INFORMAL$ = a dummy variable for credit from informal lenders: 1 if bank borrower has also borrowed from informal lenders, 0 if otherwise.

Transaction costs are hypothesized to be determined by the following factors: (1) the 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:

$$\ln TC = a_0 + a_1 \ln L + a_2 \ln(i) + a_3 \ln A + b_1 COL + b_2 DEL + b_3 BANK + b_4 YEAR + b_5 DIST,$$

where

COL = a dummy variable for the type of collateral: 1 if collateral is real estate, 0 if otherwise,

DEL = a dummy variable for the previous repayment performance of the borrower: 1 if delinquent at any time in the past, 0 if otherwise, and

$DIST$ = distance to a bank (measured by traveling time).

III. RESULTS OF THE STUDY

Borrower transaction costs (in pesos of 1972) was computed for the sample and totaled P22.21 (see Table I). This consists of the cash outlay of P18.02 and the opportunity cost of time of P4.19. The three largest expenses incurred by a borrower in the process of applying and receiving his loan were fees (43 per cent), transportation (29 per cent), and food (22 per cent). 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, the percentage of transaction costs 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 II; parameter estimates and t-statistics are shown in Table III. The coefficient of determination (R^2) in the loan demand equation is low (0.29),[1] but this is not unusual for studies using cross-sectional data. Transaction costs[2] were found to be an important determinant of loan demand, confirming the expected

[1] The coefficient of determination in the TC equation is negative and therefore a meaningless value.

[2] 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 I, which indicates the peso value of TC.

TABLE I

BORROWER TRANSACTION COSTS IN PESOS OF 1972 BY TYPE OF BANK AND REGULATORY PERIOD

(Sample average)

	Cash Outlay (1)		Opportunity Cost of Time[a] (2)		Borrower Transaction Costs (1+2)	
	Pesos	%	Pesos	%	Pesos	%
Regulation period:						
Rural bank	21.99	83.9	4.22	16.1	26.21	100.0
Non-rural bank[b]	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	8.31	72.7	3.12	27.3	11.43	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	17.10	81.7	3.82	18.3	20.92	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

Source: [1].

Note: Average real cost of time per hour is based on minimum wages and allowances legislated in the Philippines. For nonagricultural occupations, real wage rate outside Metro Manila; for agricultural occupations, real non-plantation wage rates (base year=1972; seasonality in agricultural work not covered).

[a] Opportunity cost of time=total hours × average real cost of time per hour.

[b] Includes commercial banks, private development banks, PNB (Philippine National Bank), DBP (Development Bank of the Philippines), cooperative rural banks, and land bank cooperatives.

inverse relationship between the two variables. Other determinants of loan demand[3] 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 0.10 or higher. Transaction costs and year of the loan transaction are both inversely related to loan demand, while land and education are positively related.

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 increases. 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 negative sign for the variable *YEAR* shows that loan demand was greater

[3] 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 II

FACTORS AFFECTING LOAN DEMAND AND TRANSACTION COSTS

	Expected Sign	Actual Sign	Remark
Demand:			
Transaction costs	−	−	Significant
Interest rate	−	+	
Area of land owned	+	+	Significant
Household size	+	+	
Dependents	+	−	
Education	+	+	Significant
Year	+	−	Significant
Bank	+	−	
Informal credit	+	+	
Transaction costs:			
Loan amount	+	+	
Interest rate	−	−	
Area of land owned	−	−	
Year	+	−	
Bank	−	+	Significant
Collateral	−	−	
Delinquency	+	−	
Distance	+	+	Significant

in the regulated than in the deregulated period. This may indicate that the decline in transaction costs that came with deregulation (see Table I) 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.

Two of the eight variables in the transaction cost 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-

TABLE III

ESTIMATED PARAMETERS TRANSACTION COST EQUATION AND LOAN DEMAND EQUATION

	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 costs ($\ln TC$)	—	—	−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 credit (*INFORMAL*)	—	—	0.0339	0.1224
Intercept	−3.3713	−0.8895	6.0941	13.5559
R^2	−0.1936		0.2917	
F-value	—		6.3855	

Source: [1].
Note: n=133.
* Significant at 0.10 or higher.

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. However, the positive sign of the coefficient indicates that informal credit is a complement rather than a substitute for bank credit. That is, those who borrow from the bank also borrow from the informal market.

A. *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.

TABLE IV

TRANSACTION COSTS AS A PERCENTAGE OF LOAN AMOUNT RECEIVED BY LOAN SIZE AND REGULATORY PERIOD

(Sample average)

		Borrowers		TC (%)
		Number	%	
Regulated period:	Small	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[a]	173	100.00	3.10

Source: [1].

Note: Small=2,000 or less, medium=2,001–10,000, and large=10,001–500,000 (all in pesos of 1972).

[a] 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.

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 thirteen-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 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 IV 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 2.8 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.[4]

[4] 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 V

TRANSACTION COSTS AS A PERCENTAGE OF INTEREST RATE BY LOAN SIZE AND REGULATORY PERIOD

(Sample average)

		Borrowers		TC/IR[a] (%)
		Number	%	
Regulated period:	Small	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[b]	173	100.00	25.4

Source: [1].

Note: The same as in Table IV.

[a] TC/nominal interest rate × 100.

[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.

The difference between the *TC* of small and medium loans declined by about 55 per cent in the post-deregulation period, but is still high at 224 per cent. The general pattern supports the hypothesis that *TC* as a percentage of loan amount 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 V 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 per cent greater than for medium and 69 per cent 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 per cent and 2,412 per cent respectively. On the one 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.

TABLE VI

CROSS-COUNTRY COMPARISON OF BORROWER TRANSACTION COSTS BY LOAN SIZE FOR SELECTED COUNTRIES IN THE 1980s

	Bangladesh	Ecuador	Honduras	Panama	Peru	Philippines		
						Reg.	Dereg.	Total
A. Transaction costs as a percentage 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 (A) as a percentage of explicit interest rate:								
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

Sources: For the Philippines, Abiad [1]; for the other countries, Cuevas and Graham [4].

Notes: 1. Original sources of data for five countries: for Bangladesh, Ahmed [2]; for Honduras, Cuevas [3]; for Ecuador, Panama, and Peru, Inter-American Development Bank [6] [7] [8].

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 was 21.7 per cent and the explicit interest rate reported by Ahmed is 12 per cent, therefore $(21.7 \div 12) \times 100 = 180.8$ per cent.

B. *Cross Country Comparison*

Five different studies made between 1981 and 1983 covered agricultural credit programs in the following underdeveloped countries: Bangladesh [2], Ecuador [6], Panama [7], Peru [8], and Honduras [3]. These studies 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 and it was concluded that "the intended effect of credit policies involving a low and relatively uniform interest rate is not attained" [4]. 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 VI. Transaction costs as a percentage of loan amount is shown in panel A, while transaction costs as a percentage 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 are 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 five other studies focus on farmers and agricultural credit. Second, 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 sixteen-year period, while loans in each of the five studies were acquired in a narrower range of years. In spite of these differences, it is believed that the data for the six countries is still comparable.

If Bangladesh is excluded because of its extreme values, the Philippines and the five Latin American countries exhibit *TC* (as a percentage of loan amount) which ranges from a low of 1.2 per cent for Peru to 5.2 per cent for Panama. The Philippine figure is midway within this range, at 3.1 per cent for the entire sample, but higher for the regulated period (3.5 per cent) than for the deregulated (2.6 per cent). The magnitude for Bangladesh is 21.7 per cent, more than four times greater than that of Panama. The unusual values of *TC* (both as a percentage of loan amount and of interest rate) are attributed to the unusually smal 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 times in Ecuador; and 2.9 times in Panama. Compared to these, the Philippine ratios are lower: 2.8 times higher for small loans compared to medium, and only 1.7 times 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 per cent for Peru to 180.8 per cent 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 were 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 VI 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 borrower transaction costs: the Ahmed's study for Bangladesh [2], and the Cuevas's study for Honduras [3]. Using a single equation model, Ahmed concludes that transaction costs as a percentage of loan amount (1) decrease with increases in loan size, (2) decrease with increases in the explicit interest rate, and (3) decline the greater the social and political status of the borrower in the community. In the Honduras study Cuevas confirms the findings (1 and 2 above) of Ahmed regarding the relation between *TC*, loan size, and explicit interest rates. In addition, he concludes 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.

IV. 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 are 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 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 barrower's decision to apply for a loan, and the amount applied for: (1) the total cost of borrowing (transaction costs plus the explicit interest rate charged); (2) the year of loan application; (3) area of owned land; and (4) the liquidity requirements for consumption of the household. The latter is measured by three variables: level of education, household size, and the number of dependents.

The level of transaction costs, on the other hand, are 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 deregulation 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 per cent 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, cooperatives and nongovernment organizations 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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