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

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Table of Contents

List of Figures and Tables

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

by

Virginia G. Abiad, Carlos E. Cuevas
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I. INTRODUCTION

The importance of transaction costs in credit allocation and its role in the rationing of credit has been clearly shown in past studies.[1/] Transaction costs are the non-interest expenses incurred by borrowers as well as lenders. They result from the information gathering procedures of banks to determine borrower creditworthiness and/or to comply with Central Bank regulations.

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The views expressed in this study are those of the authors and do not necessarily reflect those of the Institute.

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

Transaction costs are a measure of the "friction" existing in the functioning of financial markets (Cuevas 1984). They are likely to increase the costs of intermediation beyond the level imposed by the explicit interest rate. As a result, the efficiency of the financial sector in the performance of its resource allocation function may decline.

Borrower transaction costs, which is the main concern of this study, is made up of the actual cash outlay and the opportunity cost of time spent in applying for, securing and repaying 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 expenses for transportation and food and possibly, higher fees. This lengthening of processing time is a common tool of credit rationing (Ahmed 1982).

This study looks at borrower transaction costs in rural financial markets (RFMs) and its role in the rationing of credit in the Philippines. More specifically, its objectives are: 1) to quantify borrower transaction costs; 2) to identify the factors that determine and are determined by the level of transaction costs;[2/] and 3) to determine the role of transaction costs as a credit rationing mechanism in RFMs, both during the

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2/ Unless otherwise indicated, all succeeding references to transaction costs (TC) refer to borrower transaction costs.

period of interest rate regulation and after the deregulation of interest rates. The following questions which operationalize the above objectives are addressed:

1. What is the magnitude of borrower transaction costs?

2. How do borrower transaction costs affect borrower demand for and access to credit?

3. What are the determinants of these transaction costs?

4. Is credit rationing through transaction costs relatively more widespread and important when interest rates are restricted than when they are deregulated?

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 and policy implications in Section IV.

II. BACKGROUND AND METHODOLOGY

A. Background of the Study

Provision of agricultural credit was a government priority even in the 1950s and 1960s. However, it was only in the mid-70s that the Philippines received unprecedentedly large amounts of financial aid from international donors for on-lending to the agricultural sector. The government then launched various credit programs to make small-farm credit attractive and viable for financial institutions. The largest of these credit programs, both in amount and number of farmer borrowers, was Masagana 99, a

credit program for rice farmers launched in 1973. By 1980, the government had 25 different supervised credit programs. The Central Bank's rediscounting window was the most significant source of subsidized funds for agricultural credit from 1970 to 1985.

Various forms of intervention eased the flow of credit to the rural sector as part of monetary policy. Noteworthy among these were a) the Credit Quota scheme which required all banks to set aside at least 25 percent of net loanable funds for agricultural credit; b) the Deposit Retention Scheme which required all branches and extension offices of commercial banks and thrift banks to allot 75 percent of total deposits in a region to loans and investments in that same region; and c) the imposition of ceilings on savings and time deposit rates as well as on lending rates.

The results of most of these credit programs were very disappointing. Studies show that contrary to the intentions of the program, a very small portion of the funds (10%) reached the small farmers, and loan arrearages--particularly for supervised, non-collateralized and small agricultural loans--were high. (Sacay et al. 1986). The rural financial institutions involved mainly rural banks were set back as a result of high levels of unpaid loans. Distortions to incentives were evident in their financial intermediation function, resulting from their easy access to discounted funds with preferential interest rates and from the lack of local deposit mobilization.

In 1981, government policy started to shift away from the stance of strong intervention in financial markets that 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 and Lim 1987, Llanto 1986). On this basis, November 1985 is used as the cut-off date for the Regulated (1972 to 1985) and Deregulated (1986 to 1987) periods in this study.[3/]

B. Theoretical Framework and Methodology

In an environment of interest rate regulation, interest rate ceilings imposed by monetary authorities prevent interest rates from moving to the market equilibrium rate. This results in an excess demand for credit ($Q_d - Q_s$) at the ceiling rate of i_r. The lower the imposed ceiling on i_r relative to the market rate, the greater will be the unsatisfied demand for credit.

Since in effect a shortage of credit would exist at the regulated rate, lenders would have to apportion this short supply among all those who are applying for a loan. A more complicated credit delivery system will result as various kinds of

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3/ In considering these two periods, it is important to recognize that loan risks rose in the mid-1980s (compared to the late 1970s and early 1980s) due to the onset of the world recession which affected the country.

selection/screening procedures are used by lenders to determine who of the prospective borrowers will get a loan and who will be rejected (Ladman 1983). These procedures will also determine the amount that will be rationed out to each of the "acceptable" borrowers.

These information gathering procedures, designed to assess each borrower-applicant's credit worthiness, result in "transaction" costs to lenders as well as to borrowers. Lenders incur costs associated with evaluating, disbursing and collecting loans. Lender transaction costs increase the marginal costs (MC) of financial institutions and shifts the supply curve to the left, S' in Figure 1. At the regulated rate therefore, lenders are willing to lend out Q_s', an amount smaller than Q_s. At Q_s', while lenders are constrained to charge the interest rate i_r, borrowers are willing to pay a much higher rate for credit, i'. Borrowers will therefore continue to seek credit equivalent to Q_s' as long as their transaction costs are less than or equal to the margin $i'i_r$. The lower the restricted interest rate, the greater the transaction costs that borrowers will be willing to absorb and vice versa.

The Simultaneous Equations Model

Transaction costs are been as affecting both lender and borrower behavior. Under the assumption that transaction costs are considered by borrowers as part of the total loan price, then the correct model is a system of simultaneous equations in which

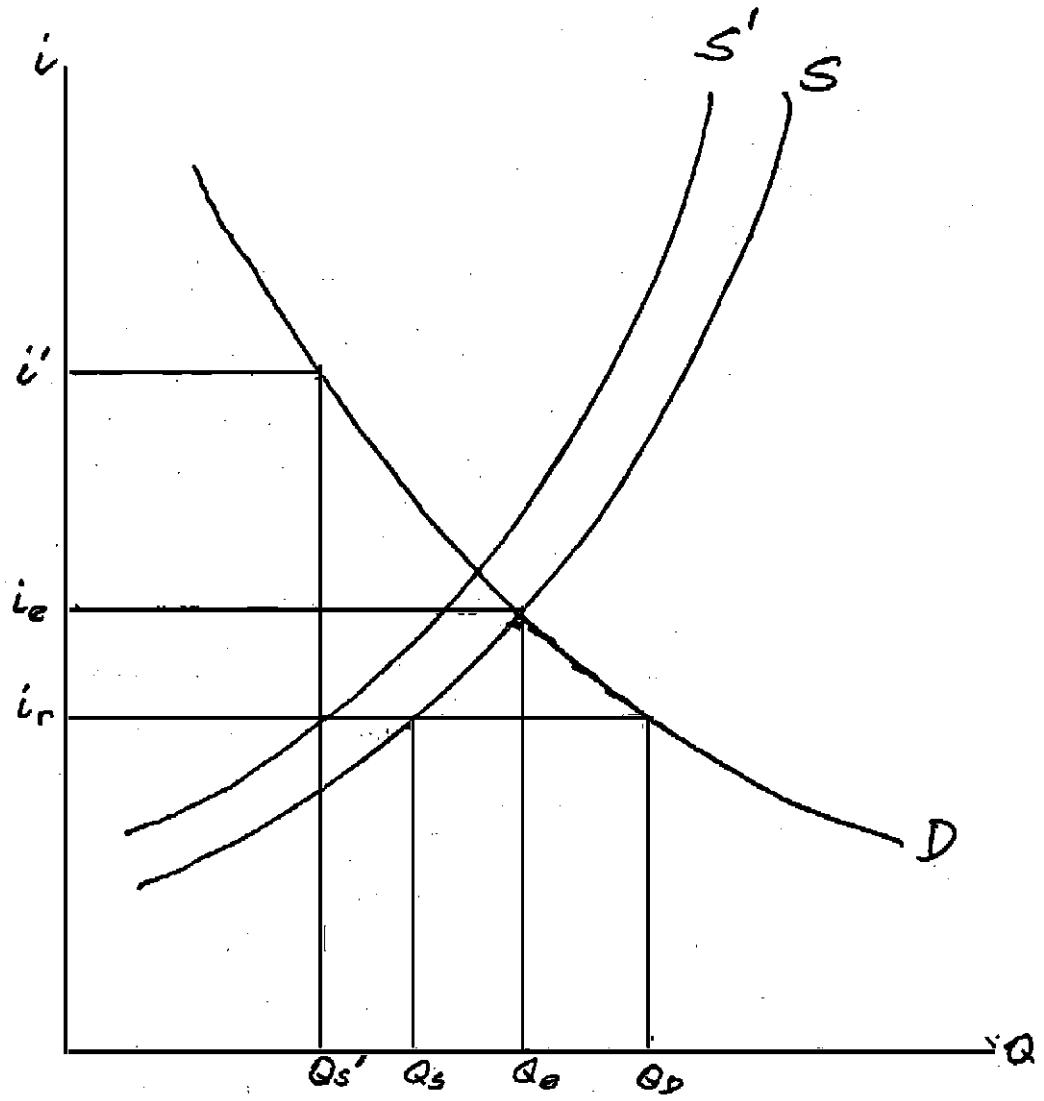

Figure 1. Borrower Transaction Costs

transaction costs and loan amount are endogenous variables (Cuevas and Graham 1985).

The Simultaneous Equations Model specified by Cuevas and Graham is tested empirically on the survey data using the two-stage least squares (TSLS) method. The model consists of two equations: a) A Loan Demand Equation and b) A Transaction Cost Equation.

Loan Demand Equation:

The demand for credit is hypothesized to be determined by six factors: 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 of his wealth and resource endowment, as well as an indicator of his liquidity requirements for production (LRP); c) 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:

$$\ln L = c_o + c_1 \ln Tc + C_2 \ln(i) + d_1 \ln A + e_1 (HHSIZE) + e_2 DEP + e_3 EDUC + f_1 YEAR + f_2 BANK + f_3 INFORMAL$$

where 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 land owned

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)

HHSIZE = number of members in household

DEP = number of dependents in household

EDUC = years of schooling of household head

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 Cost Equation:

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 area of land owned by

borrower, his previous loan delinquency and the type of collateral, all indicators of the borrower's degree of risk; 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:

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

where TC = borrowers' 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 land owned

COL = dummy variable for the type of collateral

COL = 1 if collateral is real estate

COL = Ø if otherwise

DEL = dummy variable for the previous repayment performance of the borrower.

DEL = 1 if delinquent at any time in the past

DEL = Ø if otherwise

BANK = is a dummy variable for type of bank

BANK = 1 if RB

BANK = Ø 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)

The data used in the study is cross-section data from a household survey conducted 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. Questions for the study were incorporated into the household questionnaire of the ACPC survey, carried out in the last quarter of 1987.

The sample 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. Two thirds of the respondents were farmers, engaged mainly in crop production.

Since loans[4/] in the sample were made in different years within a 16-year period (1972 to 1987), these amounts have been converted into real terms, using a national GDP deflator with 1972 as the base year.

4/ This refers to the most recent loan of borrower.

III. RESULTS OF THE STUDY

Borrower transaction costs (in pesos of 1972) was computed for the sample and totalled ₱22.21 (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[5/] is low (.29), but this is not unusual for studies using cross sectional data. An examination of the correlation matrix showed a low correlation among all variables, except for Household Size and Dependents, which had a correlation coefficient of .89.

5/ The coefficient of determination in the TC equation is negative (this is possible under TSLS); and therefore a meaningless value.

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	P 8.31	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 Non-Agricultural 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.

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: Ø = Regulated Period (1972-1985)
1 = Deregulated Period (1986-1987)

[b/] Dummy Variable BANK: Ø = Non-Rural Bank
1 = Rural Bank

[c/] Dummy Variable COLLATERAL: Ø = Non-real estate
1 = Real estate

[d/] Dummy Variable DELINQUENCY: Ø = No previous loan Delinquency
1 = With previous loan

Table 3

ESTIMATED PARAMETERS,
TRANSACTION COST EQUATION AND LOAN DEMAND EQUATION

	Jointly Dependent Variables			
	Transaction Costs (lnTC)		Loan Demand (lnL)	
Right-Hand Side Variables	Estimate	T-Statistic	Estimate	T-Statistic
Loan Amount (lnL)	0.4865	0.8031	------	------
Transaction Cost (lnTC)	------	------	-0.2910	-1.8315*
Interest Rate [ln(i)]	-0.2959	-0.2051	1.0803	1.3480
Area of Land Owned (lnA)	-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	
F-value	------		6.3855	

n=133

* Significant at .10 or higher.

Source : Abiad, 1988.

Transaction costs[6] were found to be an important determinant of loan demand, confirming the expected inverse relationship between the two variables. Other determinants of loan demand[7] 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 signficant 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.

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 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

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[6] 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.

[7] 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.

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 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. 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.

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 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.

Tables 4 and 5 show Transactions Cost as a percentage of loan amount received, by loan size and by bank 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

Table 4

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

Sample Average:	Borrowers		
	No.	%	TC (%) [a/]
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: P2,001 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.

Table 5

TRANSACTION COST AS A PERCENTAGE OF LOAN AMOUNT RECEIVED BY TYPE OF BANK AND REGULATORY PERIOD

Sample Average:	No. of Borrowers		TC (%) [a/]
	No.	%	
Regulated Period			
Rural Bank [b/]	73	73.0	4.17
Non-Rural Bank	27	27.0	2.08
Total	100	100.0	3.60
Deregulated Period			
Rural Bank	41	60.3	2.41
Non-Rural Bank	27	39.7	3.05
Total	68	100.0	2.66
Total Sample			
Rural Bank	114	67.8	3.54
Non-Rural Bank	54	32.2	2.56
Total	168 [c/]	100.0	3.22

a/

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

b/ Includes commercial banks, private development banks, PNB, DBP, SLAs, cooperative rural banks and Land Bank cooperatives.

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.

d/ Totals differ from Table 4 due to a different number of valid observations.

Source : Abiad, 1988.

loans.[8/] The difference between the TC of small and medium loans declined by about 55 percent in the Post-Deregulation period, but 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.

While RBs borrowers exhibit TC levels which are more than double that of non-RB borrowers (Table 5), their TC decreased drastically in the Deregulation period, while the TC of non-RB borrowers increased. The latter could be attributed to the decrease in the average real loan size of non-RB borrowers (see Table 7) in the Deregulated period.

Tables 10 and 11 present 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 seem 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

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[8/] 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 6

AVERAGE LOAN AMOUNT RECEIVED, NOMINAL AND REAL
BY LOAN SIZE AND REGULATORY PERIOD

Sample Average:	Borrowers		Loan Size	
	No.	%	Nominal	Real [a]
Regulated Period				
Small [b]	53	50.96%	P 2,178	P 1,044
Medium	34	32.69%	6,571	1,990
Large	17	16.35%	23,724	9,697
Total	104	100.00%	7,136	2,767
Deregulated Period				
Small	45	65.22%	P 2,515	P 387
Medium	22	31.88%	11,258	1,637
Large	2	2.90%	26,400	3,827
Total	69	100.00%	5,996	885
Total Sample				
Small	98	56.65%	P 2,333	P 742
Medium	56	32.37%	8,412	1,851
Large	19	10.98%	24,005	9,079
Total [c]	173	100.00%	6,681	2,017

[a] Base Year = 1972

[b] (All in pesos of 1972):
Small: P2,000 or less
Medium: P2,001 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 variable: date of loan, transaction costs, and loan amount received.

Source : Abiad, 1988.

Table 7

AVERAGE LOAN AMOUNT RECEIVED, NOMINAL AND REAL BY TYPE OF BANK AND REGULATORY PERIOD

Sample Average	Borrowers		Loan Size	
	No.	%	Nominal	Real [a/]
Regulated Period				
Rural Bank [b/]	73	73.0	P6,599	₱2,210
Non-Rural Bank	27	27.0	P7,718	₱4,160
Total	100	100.0	P6,901	₱2,737
Deregulated Period				
Rural Bank	41	60.3	P6,053	₱ 905
Non-Rural Bank	27	39.7	P6,017	₱ 872
Total	68	100.0	P6,039	₱ 892
Total Sample				
Rural Bank	114	67.9	P6,402	₱1,740
Non-Rural Bank	54	32.1	P6,868	₱2,516
Total	168 [c/]	100.0	P6,552	₱1,990

a/ Base Year = 1972

b/ Includes commercial banks, private development banks, PNB, DBP, SLAs, cooperative rural banks and Land Bank cooperatives.

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.

d/ Totals differ from Table 6 due to a different number of valid observations.

Source : Abiad, 1988.

Table 8

AVERAGE INTEREST RATES, NOMINAL AND REAL
BY LOAN SIZE AND REGULATORY PERIOD

Sample Average:	Borrowers		Interest Rate	
	No.	%	Nominal	Real [a]
Regulated Period				
Small [b]	53	50.96%	16.55	-3.18
Medium	34	32.69%	16.32	-3.69
Large	17	16.35%	16.02	-2.20
Total	104	100.00%	16.38	-2.43
Deregulated Period				
Small	45	65.22%	17.29	16.33
Medium	22	31.88%	20.48	19.53
Large	2	2.90%	21.00	19.83
Total	69	100.00%	18.42	17.45
Total Sample				
Small	98	56.65%	16.89	6.26
Medium	56	32.37%	17.95	5.43
Large	19	10.98%	16.55	4.06
Total	173 [d]	100.00%	12.20	5.73

[a] Base Year = 1972

[b] (All in pesos of 1972):
Small: 2,000 or less
Medium: 2,001 to 10,000
Large: 10,001 to 500,000

[c] Range of interest rates:

Regulated Period:				
Nominal rates	Minimum:	5.00%	Maximum:	30.00%
Real rates	Minimum:	-44.34%	Maximum:	18.01%
Deregulated Period:				
Nominal rates	Minimum:	5.00%	Maximum:	30.00%
Real rates	Minimum:	4.23%	Maximum:	29.23%

[d] 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.

Table 9

AVERAGE INTEREST RATE, NOMINAL AND REAL
BY TYPE OF BANK AND REGULATORY PERIOD

Sample Average	Borrowers		Interest Rate	
	No.	%	Nominal	Real [a]
Regulated Period				
Rural Bank [b]	73	73.0	16.349	-0.023
Non-Rural Bank	27	27.0	16.481	-0.002
Total	100	100.0	16.385	-0.018
Deregulated Period				
Rural Bank	41	60.3	18.927	0.178
Non-Rural Bank	27	39.7	17.878	0.178
Total	68	100.0	18.510	0.178
Total Sample				
Rural Bank	114	67.8	17.276	.049
Non-Rural Bank	54	32.2	17.180	.088
Total	168 [c]	100.0	17.245	.062

[a] Base Year = 1972

[b] Includes commercial banks, private development banks, PNB, DBP, SLAs, cooperative rural banks and Land Bank cooperatives.

[c] 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.

[d] Totals differ from Table 4 due to a different number of valid observations.

Source : Abiad, 1988.

Table 10

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

Sample Average:	Borrowers No.	Borrowers %	TC (%) 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: 2,000 or less
Medium: 2,001 to 10,000
Large: 10,001 to 500,000

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.

Table 11

TRANSACTION COSTS AS A PERCENTAGE OF INTEREST RATE
BY TYPE OF BANK AND REGULATORY PERIOD

Sample Average:	Borrowers No.	Borrowers %	TC (%) Nominal Interest Rate
Regulated Period			
Rural Bank [a]	73	73.0%	.29%
Non-Rural Bank	27	27.0%	.16%
Total	100	100.0%	.26%
Deregulated Period			
Rural Bank	41	59.4%	.14
Non-Rural Bank	28	40.6%	.27
Total	69	100.0%	.19
Total Sample			
Rural Bank	114	67.8%	.24
Non-Rural Bank	54	32.2%	.22
Total	168 [b]	100.0%	.23

[a] Includes commercial banks, private development banks, PNB, DBP, SLAs, cooperative rural banks and Land Bank cooperatives.

[b] 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. Variables: date of loan, source of loan and interest rate.

Source : Abiad, 1988.

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 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.

The shift from Regulation to Deregulation also saw the following changes:

a) a decline in the volume and in the real value of loans, across all loan sizes and across all banktypes probably reflecting tighter credit market conditions during the more recent recessionary of years;

b) an increase in interest rates, both nominal and real, but with the increase in nominal rates for small loans 80 percent smaller than that for medium and large loans; and

c) a decline in the number of borrowers of RBs while the number of borrowers of non-RBs increased.

I.D. 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 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 12. 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 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 5 other studies 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

Table 12

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	Philippines DEREG	Philippines 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.

Note: 1) Source 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 was 21.7% and the explicit rate reported by Ahmed is 12%, therefore (21.7/12)*100 = 180.8%.

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 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 (2.6%). The magnitude for Bangladesh is 21.7 percent, more than four times 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) is 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 12 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.

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 borrower'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 (LRC) of the household. The latter is measured by three variables: level of education, household size and the number of dependents. Taken individually, only education was found to be significant, but taken jointly, the three variables were found to be a significant determinant of loan demand. The lower the cost of borrowing, the larger the area of land owned and the greater the household's liquidity requirements for consumption, the larger will be the demand for credit.

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 percent more than medium and large borrowers. Deregulation, instead of minimizing this regressive effect has instead brought about an increase in its magnitude.

Recommendations

In order to increase the efficiency of financial intermediation, steps are required to minimize transaction costs for borrowers and lenders. As mentioned in this study, transaction costs are a measure of the friction that exists in the functioning of financial markets. The higher the transaction costs, the higher will be the costs of intermediation and the more inefficient will be the performance of the financial intermediaries involved in the delivery of credit.

Forty three percent of the cash outlay incurred in the process of applying and receiving a loan are attributable to "fees paid" and two thirds of the hours spent in the process is "time spent in bank premises". Both of these costs would decline if the information gathering procedures, particularly those done in compliance with Central Bank requirements, can be

significantly decreased. One recent study (Corales and Cuevas 1987) shows that the number of documents required by the Central Bank and the time and manpower required to complete this documentation on a periodic basis is substantial. While some of these documents and processes may be necessary for the careful selection of borrowers and allocation of funds, a careful study of the documents and procedures could result in a streamlining of the process and a minimization of time and manpower for the lender, as well as a decrease in the cash outlay and time spent by the borrower. This burden of streamlining the documentation process should fall on the government, specifically the Supervision and Examination sections of the Central Bank.

As pointed out by Ladman (1984), borrowers face an out-of-pocket expense threshold beyond which they will not apply for a loan. The borrower who does not have the funds to cover this threshold will pre-select himself out of the credit market, and not apply for a loan. Transaction costs should therefore be low enough so they do not discourage potential borrowers, especially small farmers, from applying for a loan.

Two factors found to be significant determinants of the level of transaction costs were a) distance and b) type of bank. Government can diminish the distance problem through the provision of more roads, bridges and other improvements in rural transportation. Also, the financial institution has to be brought closer to the borrower to diminish his transportation cost and increase the lenders' accessibility. If the number of financial institutions that can be put within "borrowing

distance" (i.e., branches) of farmers and rural households is limited, the other alternative is to use the informal lenders that are already closely located to the borrowers. In Bangladesh the transaction costs for small loans from the formal lender and from the informal lender were 30 percent and 2.5 percent, respectively, with the difference attributed to the simple processing and shortness of distance of informal lenders to borrowers (Ahmed 1982). This alternative, (i.e., financial institutions lending to informal lenders, who in turn lend to the small, distant borrowers), should be seriously studied to determine the costs and benefits of carrying out such a scheme. This can be tried on an experimental basis to evaluate its merits.

One encouraging step in this direction is the recent efforts of a non-government umbrella organization[9/] to improve access of the informal sector to banking services (Llanto 1987). This move has found support from the government sector. A solution to the problem of the low accessibility of banks and the low bankability of farmers, is the promotion of linkages between banking institutions and self-help groups (SHGs) to reduce the transactions cost of rural finance to marginal clientele. SHGs are informal, grassroots organizations formed to address group-

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9/ Promotion of linkages is spearheaded by the Philippine Council for Rural Savings and Finance (PCRSF), an umbrella non-government organization organized in October 1986. This organization aims to promote savings-based financial system via self-help groups in RFMs; technical and consultative services are provided by the Agricultural Credit Policy Council (ACPC).

specific problems in the rural areas. These SHGs which include many small farmers among their members, are engaged in productive economic activities, and most importantly, perform regular lending and saving functions for their members. Unlike rural banks which have been highly dependent on cheap rediscount funds from the Central Bank, these informal organizations generate funds for lending from the savings of their members and from other internally generated sources.

The innovative attempts in this direction should be seriously studied and pursued. It could be one answer to the perenially elusive problem of small farmer access to bank credit. Two possible linkage models are suggested by Llanto, both of which see the use of the pooled savings mobilized by SHGs as a guarantee fund against which they can borrow as a group from banks. The savings generated by SHGs then can serve as the collateral or credit guarantee needed by banks. This solves one other problem of credit access for the small farmer: lack of acceptable collateral, particularly land. The SHG solution makes the previously non-bankable farmer bankable through his membership with the SHG. The transaction costs for the borrower and the lending and information costs for the lenders, under such an arrangement, would be significantly lower, and the probability that the small borrower will be rationed in favor of the big borrower is minimized.

Much resistance is expected when pushing for the utilization of informal lenders in government-led credit delivery schemes, particularly because of the long-time bias against them. Thought

of as charging usurious rates and suspected of earning monopoly profits at the expense of the small borrowers, they are a sector that has been disliked yet tolerated ever since biblical times. However, some myths are slowly crumbling as new knowledge is unearthed about these informal lenders. Studies such as those by Floro (1986) and Esguerra (1987) have thrown new light on the operations of this sector.

More support for the mobilization of the informal sector in the delivery of formal credit has been seen in recent years. Meyer (1987) points out that using the informal sector may be the only way financial services can be provided to the poor, distant rural households. The high cost of servicing such customers would ordinarily ration them out in the credit allocation decisions of formal institutions. Similarly, Lamberte and Lim (1987) argue for the interlinking of markets through farmers cooperatives which they claim could increase farmer access to institutional capital, and to financial and trading markets. Some experimental group-lending projects have been tried with great success in Bangladesh (Yunus 1981). These have been found to reduce the borrowers' transaction costs and decrease the probability of default due to social and peer pressure within the group.

If the rural population of this country is the main concern of the government, as it must be since they comprise 70 percent of the country's population, innovative programs must be tried to reduce transactions costs and increase access for financial

services. Only then can agricultural credit and savings facilities reach the small rural clientele.

The higher transaction costs of rural bank borrowers compared to those of other banks, should be of concern to the government. Rural banks were created to facilitate credit delivery to the countryside, and to put credit within the reach of the small, rural borrowers. However, due to the large number of supervised and special credit programs channeled through the rural banks, the amount of processing and documentation that goes into the loan process of these banks is quite substantial. It is likely therefore that at least part of this additional cost is passed on to the borrowers, accounting for the higher TC associated with loans from rural banks. As suggested earlier, a streamlining of the documentation process required by the Central Bank for the different lending programs may lead to a lowering of TC of borrowing. One other reason for the higher TC of rural bank borrowers is that rural banks cater mostly to small borrowers, while commercial and government banks have a loan portfolio largely concentrated on large, commercial loans (Lamberte and Lim 1987). The many small borrowers of rural banks are more distantly located and incur more expenses (particularly the cost of transportation and the opportunity cost of time) in the course of applying for a loan. The recommendations given earlier regarding improvement of transportation instructure and the interlinking of formal markets with informal lenders or SHGs would help to minimize these transactions costs.

Suggestions for Further Research

First, it is important to document the transaction costs of the informal market and compare this with the formal market. A differentiation should be made between loans from farmer lenders, trader lenders, friends and relatives, and informal associations like self-help groups and cooperatives. The differential effects on borrower behavior, borrower costs and borrower access to loans will be important information to guide credit policy.

Second, additional factors important in determining transaction costs need to be investigated. For example, the role of political and social influence, which Ahmed found to be significant in Bangladesh, and the effect of personalism. While the former refers to the influence of the borrower in the community, the latter refers to personal influence because of friendship, blood relationship (a cousin of the teller, etc.) or previous interactions (the mechanic of the manager) with bank personnel. These are expected to affect the level of transaction costs in a very personalistic society like the Philippines, and would differ with the source of the loan, particularly when comparing formal and informal sources. Studies should also look into changes in the non-price contract terms of loans as a credit rationing mechanism of lenders. Gonzales-Vega has shown that in addition to changes in loan size and the interest rate and transaction costs imposed upon the borrower, another credit rationing tool involves changes in the terms of the loan contract. Specifically what aspects of the loan are affected,

and their degree of importance in affecting the borrower's credit decisions would be useful information.

Third, a study of the documentation process of all types of banks is called for to determine which of these are absolutely necessary for determining borrower credit worthiness and which can be eliminated in order to attain a higher level of effectiveness and efficiency, and in order to lower lender and borrower transaction costs.

Finally, the impending land reform program could add considerably to borrower transaction costs for land reform beneficiaries. Financial intermediaries will become "credit shy" in the face of the seven hectare retention limit and the possible inability of the reform beneficiaries to use their newly granted land as bank collateral. More severe credit rationing will occur within this scenario with increased transaction costs for borrowers, especially land reform beneficiaries. Research needs to be undertaken to document and interpret the impact of land reform legislation on bank behavior, credit rationing and borrower transaction costs. This will likely turn out to be the single most important factor conditioning borrower transactions costs in the future in the Philippines.

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