

COST OF AGRICULTURAL CREDIT IN THE PHILIPPINES:
THE SHORT-RUN EFFECTS OF INTEREST RATE DEREGULATION

by

Irma C. Corales*
and
Carlos E. Cuevas**

May, 1987

* Formerly Deputy Executive Director, Technical Board of Agricultural Credit of the Philippines, and at present Programme Officer of the United Nations Development Programme, Manila, Philippines.

** Assistant Professor, Department of Agricultural Economics and Rural Sociology, The Ohio State University

The authors thank Professor Richard Meyer, Ohio State University, for helpful comments and suggestions. Our gratitude also to Cristy de Jesús, Philippine Institute for Development Studies, and Sandy Buckley, Ohio State University, for careful word processing of the manuscript.

This publication is prepared under a collaborative research project concerning rural finance in the Philippines. The principal collaborating institutions are the Philippine Institute for Development Studies (PIDS), the Agricultural Credit Policy Council (ACPC), and the International Rice Research Institute (IRRI). OSU participation is funded by the USAID Mission in the Philippines and the Bureau of Science and Technology, AID, Washington. The views expressed in these publications are those of the authors and may not be shared by any of the collaborating or sponsoring institutions.

- 1 -

Costs of Agricultural Credit in the Philippines:
The Short-run Effects of Interest-Rate Deregulation

by Irma C. Corales and Carlos E. Cuevas

1. INTRODUCTION

This paper analyzes the agricultural credit scenario prevailing in the Philippines at the time of the major deregulation of interest rates undertaken in 1984. The study focuses on the institutional costs of lending to agriculture and on the immediate effects deregulation had on these costs. Costs of lending to non-agricultural sectors and similar studies in other selected countries are used as frames of reference in the analysis.

A gradual interest-rate reform initiated in 1981 as part of a program of economic liberalization culminated in March 1984, when the Central Bank increased drastically all rediscount rates. For the first time, floating rates were adopted for supervised and non-supervised agricultural credit, and other special programs that had traditionally been subsidized under fixed interest rates. This paper looks into the factors that influenced the short-run effects of this deregulation of interest rates on banks' costs and returns.

We show here that deregulation had a differential impact on specialized government banks vis à vis private commercial banks and unit rural banks. Likewise, costs and returns associated with different types of loans (agricultural versus non-agricul-

tural) were affected in different magnitudes by the interest-rate liberalization. The composition of banks' liability portfolios, and the cost structure associated with different types of loans before deregulation were the major factors underlying these differential impacts of the interest-rate reform.

A cross-country comparison of selected case studies included in this paper is intended to put the results observed in the Philippines in perspective. This exercise highlights the importance of considering repayment performance when comparing banks costs, and underscores the measurement problems involved in this type of analysis.

The agricultural credit scenario of the early 80's, and the lending costs situation for a sample of Philippine banks are described in sections 2 and 3^{1/}. Section 4 focuses on the short-run effects of deregulation on lending costs, and on banks' returns from lending activities. Cross-country comparisons of lending costs are presented and analyzed in Section 5. Some concluding remarks follow.

2. AGRICULTURAL CREDIT SCENARIO

2.1 Agricultural Credit, Institutional Structure and Performance

The rural financial market in the Philippines consists of formal credit institutions and informal credit channels. Formal credit for agriculture is offered through a multi-agency network

^{1/} These sections draw partially upon a recent study by the Technical Board of Agricultural Credit (TBAC, "Agricultural Credit Study", August 1985), of which the senior author of this paper was the project leader.

consisting of: a) banking institutions such as Rural Banks (RBs)^{2/}, the Philippine National Bank (PNB), the Development Bank of the Philippines (DBP), the Land Bank of the Philippines (LBP), private commercial banks (PKBs), private development banks (PDBs), savings and loan associations (SLAs), and savings and mortgage banks (SMBs); and b) non-bank institutions such as government and private insurance companies, credit unions, pawnshops, investment houses and government agencies which engage in farm lending activities. Informal credit, on the other hand, refers to loans from private moneylenders, friends, relatives, neighbors, traders, other farmers, input dealers, millers, and other sources of credit outside of the banking system.

The financial system is basically urban-oriented. Only 58 percent of the more than 5,600 banking outlets, credit unions, and pawnshops in 1982 were located in the rural areas (defined to exclude Metro Manila and regional capital centers). As a consequence, average bank population density in the rural areas (one bank outlet for every 12.7 thousand population) is less than one-third that of urban areas (one bank office for 3.8 thousand population). Overall bank density in the Philippines (about one bank office per 11 thousand inhabitants) is comparable to that of other developing countries of similar level of per-capita income, e.g., Honduras, with one bank office per 15 thousand inhabitants,

^{2/} Rural Banks are a specific bank type chartered under Philippine statutes.

and the Dominican Republic, with one office per 7 thousand inhabitants.

Metro Manila has the largest share of institutional presence (30 percent of bank offices), while 12 percent are in the regional centers. This geographic distribution of financial institution has been influenced by several factors, including the presence of economic opportunities in the area, infrastructure and communication facilities, peace and order conditions. Policies affecting branching and establishment of small rural unit banks, and regulations affecting other non-bank institutions, such as credit unions and pawnshops, have also contributed to shape the current distribution of financial institutions in the country.

The agricultural sector contributes a significant share to Gross Domestic Product (GDP), employs a major proportion of the country's labor force, and accounts for a considerable part of total export earnings. However, institutional credit to the sector has not been commensurate with agriculture's contribution to the economy. In the period 1966-1984, the agriculture sector contributed an average of 30 percent to GDP, while its share of total bank credit declined from about 18 percent in the period 1966-67 to only 7 percent in 1975, for an average of 8 percent in this 19-year period (Table 1). The ratio of agricultural loans to gross value added (GVA) in the sector fluctuated between 14 percent in 1966 to a maximum of 33 percent in 1982, and then declined in the last two years of the series. The average ratio

TABLE 1

Comparative Agricultural and Non-Agricultural
Credit Indicators
1966-1984

Year	Agricultural Loans			Non-Agricultural Loans		
	Volume of Loans Granted (PM)	Share to Total Loans (%)	Loan to GVA Ratio (%)	Volume of Loans Granted (PM)	Share to Total Loans (%)	Loan to GVA Ratio (%)
1966	1,504.3	18.0	13.9 ^{a/}	7,324.0	82.0	45.2 ^{a/}
1970	2,851.1	12.4	19.8	20,040.3	87.6	51.5
1975	7,942.5	6.6	18.0	112,525.5	93.4	97.5
1980	20,946.4	9.2	29.0	206,969.6	90.8	87.3
1981	25,376.6	9.1	30.2	253,814.3	90.9	87.7
1982	27,232.7	8.2	33.1	307,030.8	91.8	96.2
1983	28,281.1	8.0	32.2	323,939.7	92.0	102.3
1984	27,070.1	8.1	19.3	309,058.9	91.9	75.0
Ave. 1966-84		8.1	23.3		91.9	88.7
Ave. Growth Rate of Agricultural Loans (%):						
Current pesos	16.43			21.77		
Constant pesos (1972)	3.3			8.4		

^{a/} For 1967.

Source: THAC 1985

during this period was 0.23 pesos of credit per peso value of agricultural output. Over this same period (1966-1984) agricultural credit showed a modest average growth of 3.3 percent per year in real terms. In contrast, the non-agricultural sector's loan to GVA ratio had been consistently higher than that of agriculture, averaging 80 percent in the period, and reaching over 100 percent in 1976-78 and 1983. Its share of total loans averaged 92 percent, and the non-agricultural loan volume grew at an average annual rate of 8 percent in real terms, almost three times that of the agricultural sector.

2.2 Major Issues in Agricultural Credit

Two major problems in agricultural credit may be identified:

- a) limitations on the supply of formal credit to agriculture; and
- b) weaknesses in the institutional financial infrastructure for agricultural credit.

A brief review of the nature and magnitude of these problems is presented here.

2.2.1 Credit Supply Problems

The shortage of supply of formal credit to the agriculture sector is manifested by the declining share of agriculture in total bank credit, the inadequacy of credit support to production output in the agricultural sector relative to the non-agricultural sector, and the slowdown in the growth of agricultural credit over nearly three decades. In addition, the impact of the recent economic and financial difficulties in the early 1980s was reflected in a further reduction of agricultural loans. Moreover, allocative

problems and biases exist in terms of the continued preference for financing export-oriented crops (particularly sugar) over domestic oriented food commodities; the limited access of the small farmer clientele; the geographical imbalance in the distribution of loans; and the lack of term credit to the agriculture sector.

Agriculture financing has developed a marked dependence on the rediscount window of the Central Bank (CB) to a much larger extent than the non-agricultural sector. Rediscounts funded about 33 percent of total agricultural loans in the early 80's; Rural Banks obtained rediscounts for up to 65 percent of their loans granted to agriculture, the PNB up to 16 percent and private commercial banks, 30 percent. The tightening of the rediscount window in 1984 in response to economic and financial difficulties seriously constrained agricultural credit.

A minor proportion of loans had been supplied purely from budgetary (0.9 percent) and foreign sources (0.5 percent). The flow of credit from these special credit programs, numbering about 36 as of the end of 1984, had fallen substantially as the lending scope continuously retracted due to high levels of default, disqualification of many borrowers and rural banks from program participation, termination of major foreign-backed on-lending projects, and rediscounting restraints. Some form of consolidation or

unification in the use of these funds was desirable as an immediate measure to fully utilize available amounts.

The agricultural credit quota policy (PD 717), intended to increase the supply of credit and the active involvement of banks in agriculture and small farm financing through the mandatory 25 percent allocation of banks' loanable funds to the sector, failed to produce the expected results. The share of agriculture credit in banks' portfolio hardly changed; compliance with agricultural credit was substantially met through investments in government securities as the lack of rural outlets and expertise and interest rates ceilings made such lending unattractive. Compliance by banks was also constrained by lack of readily identifiable projects for financing and absence of mechanisms to facilitate serious implementation.

2.2.2 Institutional Weaknesses

No single institution is designated to play a lead role in agriculture and channel financial support on a large scale. Agriculture credit comprises only a minor component of the lending portfolio of public and private institutions. This "neglect" is explained, however, by the social infrastructure and policy environment for agriculture development which did not favor investments in the sector.

Private banks (PKBs, RBs, PDBs and other non-government financial institutions) supply about four-fifths of total agricultural credit. This volume, however, represents only

a small segment of their total loan portfolio, and is mostly directed to short-term collateralized loans for large-scale growers. Many of these banks are inhibited from expanding lending to agriculture due to the difficult access to rediscount funds, a limited network of rural branches, and the lack of expertise to handle agriculture beyond their traditional lines.

The small exposure to agriculture of government banks, a subsystem supposed to take some lead in agriculture financing, translates into only a 15 percent share in total agricultural credit. Government involvement in agriculture credit is fragmented and scattered among the PNB, the LBP and the DBP. Each devote a somewhat marginal portion of their total lending to the sector in support of national goals. Although public banks have played a role largely complementary to private banks, some duplication and competition has occurred in certain regions and certain types of financial services.

Despite the urban orientation of the financial system, the infrastructure for agriculture credit delivery and rural savings mobilization is in place, but almost totally immobilized. A large segment of this network consisting of Rural Banks is crippled or in a sad state of disrepair. Rural Banks ranked second to private commercial banks in the share in total agricultural credit (15 percent) and first in the number of small farmers served. More than 80 percent of

their portfolio is in agriculture. They had been a major channel of government-supported credit programs especially during the last decade which, unfortunately, created an extensive dependence on CB and special funds to carry on their lending operations. Their operations have been basically small scale, relatively weak and heavily influenced by government credit programs and policies. Their condition took a turn for the worst immediately after deregulation as they were affected by reforms, the financial crisis, high interest rates, rising past due loans, and the abrupt withdrawal of all their tax exemption privileges, all of which they were ill-prepared to cope with.

The issue of developing the full capabilities of rural-based institutions to mobilize savings as a long term approach to building up resources for rural investment is a pressing one in the light of three major factors: first, the current external debt problem which more than ever underscores the need for optimal domestic resource mobilization; second, the need to tap alternative sources of loanable funds in view of the restrictions imposed on Central Bank rediscounting; and third, the goal of enhancing rural financial market development.

2.3 The Deregulation of Interest Rates

Until early 1984, a fixed and low interest rate policy was maintained for agriculture. Under government-sponsored supervised credit programs, nominal lending rates to borrowers were as low

as 12 percent prior to March 1984. At the same time, lending institutions enjoyed preferential treatment at the CB rediscount window to encourage their involvement in agricultural credit programs and to support the prescribed rates on such loans. Through the rediscounting facility, the Central Bank provided funds to credit institutions for as low as 1 percent per annum prior to the 1980 banking reforms, at a time when savings and time deposit rates were at a maximum of 9.5 percent and 14.5 percent per annum, respectively.

In July 1981, a floating interest rate policy was adopted by the Philippines as part of an overall package of economic liberalization reforms. While the removal of ceilings on all types of deposits and loans with maturities of over 2 years were immediately effected, ceilings on short-term loans remained in place until January 1983. The year 1983 saw a move towards market-related lending rates with the removal of ceilings on one year loans. In March 1984, the Central Bank aligned its lending rate to banks and end-users under its rediscount window to the Manila Reference Rate (MRR system). Thus, for the first time, floating rates were adopted for supervised and non-supervised agricultural credit, as well as for non-traditional exports, cottage industry loans, and other special programs.

Lending interest rates spiralled from about 17 percent in March 1984 to 40 percent in late 1985. The adoption of the MRR-based pricing on rediscounts also brought about unstable and soaring rates in the CB window. In a span of 9 months, MRR-based

rediscount rates increased 6 times from 5 percent in March 1984 to 28 percent by the end of December 1984, and lending rates to end-users from 15 percent to 34 percent in the same period. The sharp rise in rates made CB rediscounting a more expensive source of funds than deposit funds.

The volatility of lending rates following the adoption of the floating system was a cause of concern for banks unprepared to deal with this changing financial environment. These were banks heavily dependent on CB rediscount funds, without strong deposit mobilization capabilities, and with an undiversified and costly loan portfolio concentrated in agriculture. The following section describes the procedures and costs involved in agricultural lending, and discusses the changes in the cost structure of these loans under the new interest-rate regime.

3. INSTITUTIONAL COSTS OF AGRICULTURAL LENDING

3.1 Summary of Procedures and Practices

The costs of agricultural credit normally reflect: (a), the amount of resources spent in screening numerous documents required from borrowers and the cumbersome steps involved in loan approval; (b), small loan amounts and numerous loan applications; and (c), the additional costs involved in fulfilling documentation requirements and following rediscount procedures at the CB. Documents and processes presently required by the CB and the banks are allegedly necessary for the proper allocation of funds and for judicious selection of borrowers. However, simplifica-

tion of these requirements may be beneficial to both borrowers and banks in terms of reducing borrowing and lending costs.

In applying for rediscount funds from the CB at least ten documents are required from banks. All but three documents must be submitted every time banks apply for rediscount funds. Once completed, banks wait from six days to about two months before rediscount funds are released. Undue delays in the release of funds are usually caused by incomplete documentation, errors in computation, pre-audit examinations, lack of coordination among CB departments involved in checking qualification status of banks, and delays in transmittal of rediscount proceeds by depository banks.^{3/}

Issuance of Special Time Deposits (STD) by the Central Bank requires 12 types of documents from applicant banks, eight of which are submitted everytime an application is made, which is about 12 times a year in the case of a rural bank in good credit standing. Processing time involves from six days to three months. Delays in STD releases could be due to insufficient documentation submitted by banks, absence of a bank liaison officer to follow-up STD papers at the CB, and delays in the release of STD proceeds by depository banks.

For the selected banks studied here, loan administration is concentrated in the pre-loan evaluation up to the stage of releasing the funds. This is primarily due to substantial

3/ A detailed description of CB rediscount and STD procedures is included in the TBAC study cited above.

resources spent in screening the numerous documents required from borrowers and the lengthy steps involved in loan approval^{4/}.

Some of the documents required for each loan may be waived if the borrower is a regular client of the bank. For the bank branches with limited loan approval authority, an expansion of these limits may shorten the processing time as the decision to approve loans can be made at the branch level. The institution of an effective credit information and exchange system at the community level may likewise facilitate credit investigation of banks and reduce processing time of loans.

The paperwork and procedures for obtaining a loan are cumbersome and complex. By catering to mostly large borrowers, however, formal channels, especially the private commercial banks and the development banks, are able to reduce the costs of lending per peso lent. Moreover, some institutions also try various schemes such as group lending, credit-line financing, and area-based credit programs, to simplify lending procedures, thereby reducing costs to both lender and borrower.

3.2 Components of Institutional Lending Costs

Computations of lending costs reported in this paper were based on financial statements of selected banks in 1983 and, therefore, considered their cost structure as of that date. The existing loan portfolio distribution of banks was also considered and the analysis was conducted separately for each of the two

^{4/} The TBAC study documents in detail the loan procedures followed by the banks analyzed in this paper.

loan types (i.e., agricultural and non-agricultural). Cost calculations after interest rate deregulation (1984) were made using the new prevailing costs of funds, while the other cost components and portfolio levels of 1983 were maintained. In effect, the deregulation effects discussed in this paper focus only on the "pure" change in interest rate levels. Changes that may have occurred in non-interest costs were not considered due to the unavailability of 1984 cost data. Lending costs were expressed in terms of per peso value of loans granted, and were computed following a financial accounting approach.

The components of lending costs include: a) cost of funds; b) administrative expenses; and c) risk expenses. The economic cost of carrying loan arrears was also computed, but is presented separately from actual financial costs.

3.2.1 Cost of funds.

These costs comprise (i) the pure cost of funds which are actual interest payments on deposits and borrowings weighted by their respective shares in total loanable funds; and (ii) the transaction costs of mobilizing these funds, which are wages and other direct expenses associated with deposit-taking and borrowing activities. The allocation of cost of funds by type of loan is based on the shares of each loan type in the total amount of loans granted. Ideally, the cost of equity funds should also form part of the pure cost of funds, but this component is not considered due to the unavailability of data on actual dividend payouts. In

effect, the exclusion of this component amounts to assuming a zero cost for equity funds.

3.2.2 Cost of administration.

These costs include the variable and fixed (overhead) expenses of banks associated with the processing, disbursement, and monitoring of loans. Computations consider total bank administrative expenses net of those apportioned to the transaction costs of mobilizing funds and to risk expenses. Allocation per type of loan is also based on the proportion of agricultural and non-agricultural loans to total loans granted. Ideally, this allocation should recognize differences in time and resources spent on different types of loans, but this information was not available for this study.

3.2.3 Risk expenses.

These consist of (i), loan guarantee fees and insurance premium payments pertaining to specific loan types, largely for agricultural loans; and (ii), bad debt expenses which include the annual provision for bad debts based on a proportion of loans past due and litigation expenses, normally identifiable by loan type. It should be noted that there are non-quantifiable costs associated with cost of defaults such as the cost of loss of access to rediscounts and borrowings, and the cost of loss of confidence by bank clientele.

3.2.4 Imputed cost of carrying loan arrears.

The economic cost of carrying loan arrears is computed separately to reflect the opportunity cost of funds locked in loans past due and in litigation. This is calculated considering the market cost of funds applied to the cumulative volume of loans in arrears carried in the banks' books. Total lending costs are calculated with and without this cost component to preserve the consistency of financial cost computations and at the same time, to disclose the important effect of arrears in the lending cost structure.

3.3 Costs of Agricultural and Non-Agricultural loans.

The agricultural loan portfolio of the banks included in the TBAC study accounts for 41 percent of their total loan portfolio, with Rural Banks showing the highest concentration in agricultural loans (85 percent) and the sample commercial bank (PKB) the lowest at 6 percent. As shown in Table 2, the cost of agricultural lending is higher than that of non-agricultural lending across various types of institutions. Prior to the full adoption of market-oriented interest rates, lending costs excluding imputed cost of carrying arrears were the lowest for the PNB (11 percent per peso granted in agricultural loans and 14 percent for non-agricultural loans), and the highest for the DBP (34 percent for agricultural loans and 25 percent for non-agricultural loans). After deregulation, lending costs for agricultural and non-agricultural loans of almost all institutions practically

TABLE 2

Total Estimated Cost of Lending
(in percent of the loan amount)

Financial Institution	Agricultural Loans				Non-Agricultural Loans			
	Pre-Deregulation ^{a/}		Post-Deregulation ^{b/}		Pre-Deregulation ^{a/}		Post-Deregulation ^{b/}	
	Without Imputed Cost	With Imputed Cost ^{c/}	Without Imputed Cost	With Imputed Cost	Without Imputed Cost	With Imputed Cost	Without Imputed Cost	With Imputed Cost
<u>Specialized Government Banks</u>								
PNB	11.83	12.14	34.20	35.38	13.78	15.42	32.26	36.48
DBP	34.20	43.56	61.64	115.00	25.42	31.71	47.53	66.28
LBP	24.04	26.40	42.75	49.81	16.34	18.47	32.21	37.10
<u>Private Banks</u>								
PKB	14.19	14.19	27.84	27.84	17.74	17.96	29.98	30.40
RBs	16.02	20.25	37.09	51.93	17.37	20.17	34.93	41.85

^{a/} Cost estimates were derived using actual financial data as of December 1983.

^{b/} Cost estimates were adjusted using MRR based rediscount rates and deposit rates as of December 1984.

^{c/} Includes opportunity cost of funds locked in arrears.

Source: Annex Tables 1 to 4.

doubled. The greatest increases in costs were reported by the PNB and the Rural Banks (Table 2).

The share of the cost of funds in total agricultural lending costs (excluding imputed cost of arrears) ranged between 31 percent and 89 percent during the pre-deregulation period, and between 62 percent and 94 percent during the postderegulation period. During the pre-deregulation period, the PNB, the DBP, and the Rural Banks incurred relatively lower cost of funds ranging from 8 to 12 percent per peso loan granted, since they obtained special credit lines from the CB and, in the case of the DBP, externally-sourced funds as well. With the adoption of the floating system for both rediscounted and unrediscounted loans, however, the cost of funds increased across all types of institutions, accounting for most of the doubling in total lending costs (Table 3).

Administration costs of agricultural loans ranged from 1 percent per peso loan granted (private commercial bank) to 20 percent (DBP), with the rural banking system incurring a 5 percent cost in loan administration for every peso granted. Considering guarantee/insurance expenses and actual loan losses, risk expenses ranged from 0.02 percent (PNB) to 4 percent (DBP).

Costs of loan administration were in general lower for non-agricultural loans, ranging from 1.63 percent (PNB) to 9.97 percent (DBP). Risk expenses in non-agricultural loans (0.01 to 1.85 percent) were also lower than in agricultural loans. The same is in general true for imputed costs of carrying arrears,

TABLE 3

Cost Component in Agricultural Lending
(in percent per peso loan granted)

Financial Institution	Pre-Deregulation (c. 1983)					Post-Deregulation (c. 1984)				
	Cost of Fund	Admin-istrative Cost	Risk Expenses	Total cost		Cost of Fund	Admin-istrative Cost	Risk Expenses	Total cost	
Without Imputed Cost				With Imputed Cost ^{a/}	Without Imputed Cost				With Imputed Cost ^{a/}	
<u>Specialized Government Banks</u>										
PNB	8.62	3.19	0.02	11.83	12.14	30.99	3.19	0.02	34.20	35.38
DBP	10.67	19.86	3.67	34.20	43.56	38.11	19.86	3.67	61.64	115.00
LBP	12.38	9.80	1.86	24.04	26.40	31.09	9.80	1.86	42.75	49.81
<u>Private Banks</u>										
PKB	12.64	1.07	0.48	14.19	14.19	26.29	1.07	0.48	27.84	27.84
RBs	10.62	5.04	0.36	16.02	20.25	31.69	5.04	0.36	37.09	51.93

^{a/} Includes opportunity cost of funds locked in arrears.

Sources: Annex Tables 11 and 12.

which ranged between 0.22 to 6.29 percent for non-agricultural loans, and from 0 percent (PKB) to 9.4 percent for agricultural loans (see Annex Tables 1 and 3).

The following section extends this cost comparison between loan types, and looks more closely into the differential effects of deregulation on lending costs and banks' returns.

4. SHORT-RUN EFFECTS OF INTEREST RATE DEREGULATION

This section is concerned with the short-run effects that interest-rate deregulation had on lending costs and net returns of Philippine banks, after the March 1984 lifting of lending rate ceilings and realignment of rediscount rates by the Central Bank. As will be indicated below, lagged adjustments of key (non-interest) components of lending costs that are likely to follow an interest rate reform cannot be analyzed with the information currently available. Indeed, these medium-to-long term effects of deregulation remain an important research topic in the Philippines.

4.1 Effects on Lending Costs

We analyze here the direct and indirect effects of the increases in interest rates on the banks' lending costs, relying upon the results of the TBAC study referred to above. The method used in this study to compute lending costs can be summarized as follows (see section 3 above):

$$C = F + A + R + D$$

(1)

where,

C is total lending costs,

F is the cost of funds for the bank,

A is the cost of loan administration,

R is the risk expense (guarantee/insurance fees and bad debt/litigation expenses), and

D is the imputed cost of carrying arrears.

In turn, D has been calculated as

$$D = B (M) \quad (2)$$

where,

B is the ratio of past due balances to total loans granted, and

M is the market cost of funds^{5/}

Disregarding interactions for simplicity of the presentation and denoting as X' the percentage change in variable X, the percentage change in lending costs can be written as:

$$C' = (F/C)F' + (A/C)A' + (R/C)R' + (D/C)D' \quad (3)$$

Recognizing the definition given for D in (2), then:

$$D' = B' + M', \quad (4)$$

and (3) becomes:

$$C' = (F/C)F' + (A/C)A' + (R/C)R' + (D/C)(B' + M'). \quad (5)$$

^{5/} The market cost of funds is assumed equal to the cost of marginal bank funds, i.e., the highest rate at which banks can capture funds from the public. Thus, M is normally several points higher than F, the average cost of funds for the bank.

In words, the change in lending costs is equal to a weighted sum of the changes in the components of lending costs. The weights are given by the shares of each component in total lending costs.

Now, the deregulation of interest rates affects the specific cost of funds for the bank ($F' > 0$) and the market cost of funds used in the computation of the imputed cost of arrears ($M' > 0$). In the short-run it can be assumed that administration costs, explicit risk expenses, and default rates are not altered by the interest rate reform, therefore $A' = R' = B' = 0$. With this assumption, equation (5) can be reduced to:

$$C = (F/C)F' + (D/C)M' \quad (6)$$

Furthermore, if the bank was operating (before deregulation) using funds with cost equal to the market cost of funds, equation (6) could be further simplified as

$$C = [(F/C)+(D/C)]M' \quad (7)$$

This was not the case, however, for most Philippine banks; therefore equation (6) is the most appropriate to show the major factors involved in the immediate effect of interest rate deregulation. In addition to the actual magnitude of the change in interest rates (F' and M'), the other important elements are the share of cost of funds in total lending costs (F/C), and the share of the imputed cost of carrying arrears in total lending costs (D/C). Finally, since the increase in the market rate of interest M' is the same for all banks (opportunity cost concept), the factors that explain the differential impact of deregulation

across banks reduce to three: the specific change in cost of funds for the bank in question, F' , and the shares of cost of funds and imputed cost of arrears in total costs.

The effects of interest-rate deregulation on the lending costs of the banks included in the study are summarized in Table 4. Table 5 reports the specific increases in cost of funds due to the 1984 deregulation for each bank and each loan type, and Table 6 indicates the shares of the different components of lending costs in total lending costs pre-deregulation. Thus the figures reported in Tables 5 and 6 help explain the cost effects shown in Table 4.

Lending costs of agricultural loans were the most affected by deregulation in all banks with the exception of LBP (Table 4). The main factor explaining this differential effect is the increase in cost of funds. As shown in Table 5, costs of funds increased substantially more for agricultural loans than for non-agricultural loans. Even though the share of costs of funds in total lending costs pre-deregulation was smaller for agricultural loans than for non-agricultural loans in all banks (Table 6), this factor was able to offset the differential increase in cost of funds only in the case of the LBP.

These results, and the discussion of preceding sections, suggest that the realignment of rediscount rates affected relatively more agricultural lending than non-agricultural loans. Banks tended to rely more upon cheap rediscount funds in their lending to agriculture than they did for operations with other

TABLE 4

Effect of Interest-Rate Deregulation on the Costs of Lending.
Agricultural Loans and Non-Agricultural Loans.

	Total Costs of Lending Agricultural Loans			Total Costs of Lending Non-Agricultural Loans		
	Pre-deregulation % per peso	Post-deregulation % per peso	Increase %	Pre-deregulation % per peso	Post-deregulation % per peso	Increase %
Specialized Gov't. Banks						
PNB	12.14	35.38	191.4	15.42	36.48	136.6
DBP	43.56	115.00	164.0	31.71	66.28	109.0
LBP	26.40	49.81	88.7	18.47	37.10	101.9
Private Banks						
PKB	14.19	27.84	96.2	17.96	30.40	69.3
RBs	20.25	51.93	156.4	20.17	41.85	107.5

Source: Table 2

151

TABLE 5

Increase in Cost of Funds for Agricultural Loans
and Non-Agricultural Loans due to the 1984 Deregulation

Institution	Agricultural Loans % increase	Non-Agricultural Loans % increase
Specialized Government Banks		
PNB	263.7	152.2
DBP	257.2	162.6
LBP	151.1	121.6
Private Banks		
PKB	108.0	81.2
RBs	198.4	130.1

Source: Computed based on figures reported in Annex Tables 1 to 4.

TABLE 6

Shares of Components of Lending Costs in Total Lending
Costs in the Sample of Banks. Agricultural and Non-Agricultural
Loans, 1983 (Pre-deregulation)

Type of Loan/Cost Component	Specialized Government Banks			Private Banks	
	PNB %	DBP %	LBP %	PKB %	RBs %
<u>Agricultural Loans</u>					
Cost of funds	71.0	24.5	46.9	89.1	52.4
Cost of administration	26.3	45.6	37.1	7.5	24.9
Risk expenses	0.2	8.4	7.1	3.4	1.8
Imputed Cost of arrears	2.6	21.5	8.9	0.0 ^{b/}	20.9
Total ^{a/}	100.0	100.0	100.0	100.0	100.0
<u>Non-agricultural Loans</u>					
Cost of funds	78.7	42.9	70.7	83.5	66.9
Cost of administration	10.6	31.4	14.9	10.5	17.9
Risk Expenses	0.1	5.8	2.9	4.7	1.3
Imputed Cost of arrears	10.6	19.8	11.5	1.2	13.9
Total ^{a/}	100.0	100.0	100.0	100.0	100.0

^{a/} Some totals do not add exactly to 100 due to rounding.

^{b/} Negligible.

Source: Calculations based on figures reported in Annex Tables 1 and 3.

sectors. Thus, the cost of funds had less incidence in the costs of agricultural loans than non-agricultural loans in the period pre-deregulation. On the other hand, the 6 to 7-fold increase in rediscount rates implemented in 1984 generated specific increases in costs of funds much larger for agricultural loans than for loans to other sectors due to their heavier reliance upon rediscount funds. As a result, overall lending costs to agriculture increased more than the cost of lending to other sectors.

The figures reported in Table 4 indicate that the bank most affected by deregulation was the PNB. Heavy reliance on rediscount funds pre-deregulation determined that the specific increase in cost of funds for this bank was the highest of all banks in the sample (Table 5). At the same time, a large portfolio concentrated on large loans made administration costs very low in the PNB and consequently the share of cost of funds in the bank was relatively high for all kinds of loans (Table 6). Both factors contributed to very large increases in overall lending costs for the PNB.

4.2 Effects on Comparative Net Returns in Lending

Net returns for both agricultural and non-agricultural loans appear to have improved with the adoption of the floating rate system for all types of loans. Prior to the deregulation of interest rates, all banks were incurring losses in their lending operations ranging from 2 to 33 percent per peso granted in agricultural loans and from 1 to 15 percent per peso granted in non-agricultural loans (see Table 7). During the postderegula-

TABLE 7

Lending Costs and Returns, Agricultural vs. Non-Agricultural Loans
(in percent of the loan amount)

	Pre-Deregulation (1983)			Post-Deregulation (1984)		
	Cost ^{a/}	Returns	Net Return (Loss)	Cost ^{a/}	Returns	Net Return (Loss)
Agricultural Loans						
PNB	12.14	8.31	(3.83)	35.38	45.49	10.11
DBP	43.56	10.57	(32.99)	115.00	45.49	(69.51)
LBP	26.40	17.23	(9.17)	49.81	45.49	(4.32)
PKB	14.19	12.29	(1.90)	27.84	45.49	17.65
RBs	20.25	14.25	(6.00)	51.93	45.49	(6.44)
Non-Agricultural Loans						
PNB	15.42	8.30	(7.12)	36.48	45.49	9.01
DBP	31.71	10.57	(21.14)	66.36	45.49	(20.79)
LBP	18.47	17.26	(1.21)	37.10	45.49	8.39
PKB	17.96	12.16	(5.80)	30.40	45.49	15.09
RBs	20.17	14.25	(5.92)	41.85	45.49	3.64
Total Loans						
PNB	15.19	8.30	(6.89)	36.37	45.49	9.12
DBP	32.81	10.57	(22.84)	69.42	45.49	(23.93)
LBP	24.01	17.26	(6.75)	43.36	45.49	2.73
PKB	17.59	12.16	(5.43)	30.08	45.49	15.41
RBs	22.45	14.25	(8.20)	49.47	45.49	(3.98)

a/ Includes opportunity cost of funds locked in arrears.

Source: Annex Tables 1 to 4.

tion period, however, positive returns were experienced by all types of institutions except the DBP, in at least one type of loan activity. Overall, considering the entire loan portfolio of banks, all of them except the DBP and the RBs were in a position to realize positive gains with the lifting of ceilings on interest rates for all types of loans.

The foregoing analysis of agricultural lending spreads proceeds on the assumption that banks are able to obtain funds from (a), special time deposits (STDs); (b), blended STD and rediscounting funds; (c), blended rediscounting and marginal bank funds; or (d), purely marginal bank funds (see Table 8). Considering the varying cost of funds from these sources prevailing immediately after deregulation, the estimates show higher gross spreads (3-15 percent) to banks when STD and/or rediscounting funds are used in spite of the low prescribed lending rates to end-borrowers. For banks which use marginal funds for lending in agricultural programs, gross spreads are lower at 4-10 percent when market rates are charged to borrowers.

Gross spreads are reduced and, in some cases, disappear when administrative and risk expenses are added to the cost of funds. Considering these added costs (except for imputed cost of carrying arrears), rural banks obtained net spreads of 1-10 percent when funds were obtained from STDs and/or rediscounting. Other banks using rediscount and/or marginal bank funds may have gained net spreads of 4-6 percent. If the cost of carrying loan arrears is considered as part of lending costs, then net spreads

TABLE 8

Net Spreads to Banks Participating in Agricultural
Credit Programs Under the Interest-Rate Structure
as of December 1984 (In Percent)

	Cost of Funds	Interest to Borrowers	Gross Spread	Adminis- trative and Risk Expense		Net Spread	
				W/o Imputed Cost	With Imputed Cost	W/o Imputed Cost	With Imputed Cost
A. <u>STD-Funded (100%)</u>	3	12	9	5.27	20.11	3.73	(11.11)
	3	15	12	5.27	20.11	6.73	(8.11)
	4	9	5	5.27	20.11	(0.27)	(15.11)
	5	8	3	5.27	20.11	(2.27)	(17.11)
	6	12	6	5.27	20.11	0.73	(14.11)
	6	15	9	5.27	20.11	3.73	(11.11)
B. <u>Blended Funds (50% STD), 50% rediscounting)</u>	18.94	34.26	15.32	5.27	20.11	10.05	(4.79)
C. <u>Rediscounted Notes (90% of loan value, 10% marginal bank funds)</u>							
PNB	25.31	34.26	8.95	3.20	4.38	5.75	4.57
LBP	25.31	34.26	8.95	11.13	18.19	(2.18)	(9.24)
PKB	25.31	34.26	8.95	3.96	3.96	4.99	4.99
RBs	25.31	34.26	8.95	5.27	20.11	3.68	(11.16)
D. <u>Marginal Bank Funds</u>							
PNB	34.74	42.00	7.26	3.20	4.38	4.06	2.88
LBP	34.74	39.00	4.26	11.13	18.19	(6.87)	(13.93)
PKB	34.74	45.00	10.26	3.96	3.96	6.30	6.30
RBs	34.74	40.53	5.79	5.27	20.11	0.52	(14.32)

Source: Annex Table 5.

of all banks became negative, except for commercial banks (and the PNB) whose spreads were still positive at 3-6 percent assuming that they were able to maintain administrative and risk expenses at low levels.

The computations show that the use of STDs/rediscount funds even with prescribed low levels of lending rates was still probably the least damaging option for agricultural lending. While the use of marginal bank funds in agricultural lending allowed the most efficient banks (commercial banks, in particular) to attain positive net spreads, it can hardly be expected that such funds will be allocated to agriculture. It is likely that, in the presence of resource constraints, banks will use their own funds only to finance more profitable sectors where the risks are less and the turnover is faster, as is the case in trade and commerce. They will tend to favor big, collateralized loans where delinquency is lower and servicing cost is less expensive. Consequently, agriculture will receive low priority from banks considering the high risk and costs, and slow turnover of loans in this sector.

It must be kept in mind that the foregoing discussion of lending spreads relates to the interest-rate structure prevailing immediately after deregulation. A similar analysis with updated information having allowed time for portfolio adjustments and changes in lending procedures may give different results.

5. CROSS-COUNTRY COMPARISONS OF COST ESTIMATES

It is interesting to compare the results presented in this study with selected case studies of other countries. Since interest rates vary substantially across countries due to different monetary scenarios, the comparison focuses on the non-financial costs of loan administration. Table 9 summarizes the results discussed above for the Philippines and those obtained in other countries. The cost components considered for the Philippine banks are loan administration costs inclusive of risk expenses (guarantee/insurance fees and bad debt/litigation expenses), since these are included in the definition of non-financial costs in the other country studies.

Costs associated with default (risk premia) are not included in Table 9 for two reasons. First, there are differences across banks in the measurement and reporting of delinquency and default. Secondly, the opportunity cost of funds involved in the calculations of default costs depends on the absolute levels of interest rates prevailing in the country, thus contaminating the contrasts across banks with the effects of the countries' monetary policies. In spite of these limitations, the importance of the default factor when comparing bank performances will be discussed later in this section.

With the exception of the PNB, specialized government banks in the Philippines show the high loan-administration costs typical of government development banks in other countries. As discussed in a previous section, the low administration costs of

TABLE 9

Costs of Loan Administration Estimated in a Sample of Banks in the Philippines, and in Selected Case Studies in Other Countries. Costs in Percent of the Loan Amount, by Type of Loan

Case Studies	Agr. Loans	Non-Agr. Loans	All Loans
	%	%	%
<u>Philippines^{a/}</u>			
Specialized Gov't. Banks			
PNB	3.2	1.6	-
DBP	23.5	11.8	-
LBP	11.7	3.3	-
Weighted Average	4.2	2.7	
Private Banks			
PKB	1.6	2.7	-
RBs	5.4	3.9	-
Weighted Average	2.3	2.7	
<u>Honduras^{b/}</u>			
Gov. Dev. Bank	-	-	10.0
Priv. Comm. Bank	3.7-8.4 ^{c/}	1.0-7.5 ^{c/}	3.4
<u>Dominican Republic</u>			
Gov. Dev. Bank ^{d/}	9.3	n.a.	9.3
Gov. Dev. Bank ^{e/}	8.8	n.a.	8.8
<u>Niger^{f/}</u>			
Gov. Dev. Bank	9.5	n.a.	9.5

TABLE 9

Footnotes

- a/ TBAC, "Agricultural Credit Study", Manila, August 1985. Data base: banks' financial statements 1983. Weighted averages calculated using the shares in total loans granted in 1983.
- b/ Cuevas, Carlos E., "Intermediation Costs and Scale Economies of Banking under Financial Regulations in Honduras". Unpublished Ph.D. Dissertation, The Ohio State University, 1984. Data base: branch-level records 1970-1982.
- c/ Cuevas, Carlos E., and Douglas H. Graham, "Agricultural Lending Costs in Honduras". in Undermining Rural Development with Cheap Credit. Westview Press, 1984. Data base: branch-level records 1982, and field survey, 1983. Highest cost of agricultural loans correspond to foreign-funded supervised loans.
- d/ Cuevas, Carlos E. and Jeffrey Poyo, Costos de Operación y Economías de Escala en el Banco Agrícola de la República Dominicana. Centro de Estudios Monetarios y Bancarios, Republica Dominicana, 1986. Data base: branch-level records 1979-1983.
- e/ Cuevas, Carlos E. and Jeffrey Poyo, "Costos de Intermediación Financiera en el Banco Agrícola de la República Dominicana. Los Efectos de la Movilización de Depositos". ESO 1316, The Ohio State University, November 1986. Data base: branch-level records 1984-1985. Deposit mobilization activity started in 1984.
- f/ Cuevas, Carlos E., "Institutional Credit in Rural Niger: Low Performance and High Costs", ESO 1351. The Ohio State University, February, 1987. Data base: field surveys, household level (1985) and branch level (1986).

PNB can be partially explained by its large scale of operations based on relatively large loans to agribusiness and agricultural trading enterprises. Agricultural loans appear far more costly to administer than non-agricultural loans among these specialized banks, whereas the differences among private banks depend on the type of private bank in question. Agricultural loans are more costly to administer than non-agricultural loan in rural banks, while the opposite is true for commercial banks.

A weighted average of loan administration costs in specialized government banks is still higher than that calculated for private banks in the Philippines, but appears close to that observed in the private commercial bank of Honduras. However, if banks' weights are adjusted to exclude sugar loans in the Philippines, the weighted averages for costs of agricultural loans raises to 6.7 percent in the specialized government banks and 2.5 percent in private Philippine banks.

A comparison of (non-interest) lending costs across banks of different countries should take into account at least two important factors: first, the overall "degree of sophistication" of the banks in question, and second, the different performance in loan recovery associated with the institutions under analysis. As to the first consideration, the case of the government development bank of Niger (The "Caisse Nationale de Credit Agricole") stands out as a very simple credit delivery system. In spite of performing a mere input delivery function, without carrying out essential banking procedures of loan evaluation,

monitoring and loan recovery, this bank shows the high administration costs reported in Table 9. The case studies in the other countries considered here are assumed to be comparable in the sense that basic conventional lending practices are generally followed in all cases.

Performance in loan recovery appears strikingly different across the banks under comparison. Table 10 shows the past-due ratios reported in the different sources (column 1) and calculates the risk premia associated with them assuming a homogeneous opportunity cost of funds of 10% (column 3). Column 4 in Table 10 indicates the total lending costs resulting from this exercise, excluding the interest paid on deposits and borrowings and the transaction costs of mobilizing these funds.

The use of past-due ratios needs to be taken with caution. The usual way of computing these ratios, i.e. overdue balances over total loans outstanding, may bias the comparison across banks if the term structure of their loan portfolio is substantially different. Furthermore, the larger the share of long-term loans not yet due in the portfolio, the larger the downward bias in the measured past-due ratio.

With the foregoing caveats in mind, the last column of Table 10 provides a rough comparison across banks and countries that encompasses both transaction costs of lending and loan recovery performance. Private commercial banks (in the Philippines and in Honduras), and government banks in the Philippines including the PNB could be classified in a low-cost category. If the PNB is

TABLE 10

Cross-country Comparison of Non-Interest Agricultural Lending Costs Using a 10% Opportunity Cost of Funds to Calculate Risk Premia^{a/}

	(1) Past-due ratio %	(2) Loan Admin. Costs %	(3) Risk Premia %	(4) Total Non- Interest Costs %
<u>Philippines</u>				
Government Banks incl. PNB	7 ^{c/}	4.2	8.6	12.8
Government Banks excl. PNB	7	17.6	0.6	27.2
Private Banks				
Commercial Banks	10	1.6	12.4	14.0
Rural Banks	23	5.4	34.5	39.9
<u>Honduras</u>				
Government Dev. Bank	35	10.0	64.6	74.6
Private Comm. Bank	5	3.4	6.0	9.4
<u>Dominican Republic</u>				
Government Dev. Bank ^{d/}	28	8.8	46.2	55.0
<u>Niger</u>				
Government Dev. Bank	18	9.5	26.2	35.7

a/ See sources in Table 9.

b/ Computed using the formula

$$r = (d/(1-d))(1-a+f)$$

where, r is the risk premium

d is the default rate (assumed equal to the past-due ratio here)

a is the loan administration cost

f is the opportunity cost of funds, assumed 10% for all cases.

c/ Past-due ratio corresponds to PNB and DBP. The ratio for LBP and separate ratios for PNB and DBP are not reported in the TBAC study.

d/ Only most recent study considered for this table.

excluded from the calculations, specialized government banks of the Philippines fall to an intermediate cost category, along with Philippine Rural Banks and the government agricultural bank of Niger. Government development banks in Honduras and the Dominican Republic appear in a high-cost category.

An important implication of the foregoing discussion is the need to pay close attention to the measurement and reporting of loan recovery performance. The admittedly imperfect comparison exercise presented in Table 10 highlights the incidence of default rates in building a comprehensive performance indicator for banks' lending activities.

6. CONCLUDING REMARKS

This paper has analyzed the short-run effects of the major deregulation of interest rates undertaken in the Philippines in 1984. Deregulation caused a 2 to 3-fold increase in lending costs, with different effects across loan types and bank types. Costs of agricultural lending were the most affected by this deregulation, due to the striking increase of rediscount rates, and the relatively heavy reliance on rediscount funds for agricultural loans.

Even though lending costs increased across the board, the liberalization of lending rates allowed most banks to attain positive net returns in their lending activities. This was an improvement with respect to their situation pre-deregulation. It must be kept in mind that the analysis presented here corresponds to the period immediately after deregulation (early 1985). In

environment in which banks operate has certainly changed. The studies currently under way on rural finance in the Philippines should document the nature and magnitude of these changes, and their effects on banks' performance.

The lagged effects of deregulation, affecting the non-interest components of lending costs, remain to be investigated. More flexible interest rates should have allowed reductions in costs of loan administration and risk expenses, essentially through substitution effects. Under flexible interest rates, it is likely that costly non-interest rationing procedures prevailing under interest-rate ceiling will be replaced by straight rationing through interest rates, thus reducing loan administration costs. However, the period post-deregulation has been one of economic recession, a factor that increases risk and possibly default rates. This would tend to increase explicit risk expenses (e.g., via litigation fees), and costs of administration due to the need for more careful screening of loan applications. Therefore, the net effect of deregulation on these non-interest components of lending rates should be investigated controlling for the effects of overall economic performance.

The comparison of lending costs in the Philippines against those obtained in selected case studies in other countries highlighted the importance of considering loan recovery as part of an overall indicator of lending performance. Costs of agricultural lending in the Philippines (aside from costs of funds) appeared to be lower in general than those observed in

other developing countries. These results however, are tentative since they are based upon imperfect estimates of default rates. Further research and homogenous methods of measuring and reporting loan delinquency are needed in this area.

ANNEX TABLE 1: Estimated Lending Cost of Agricultural Loans, 1983^{a/}
(In percent of the loan amount granted)

	PNB	DBP	LBP	PKB	RBS
A. Cost of Funds	<u>8.62</u>	<u>10.67</u>	<u>12.38</u>	<u>12.64</u>	<u>10.62</u>
1. Deposits	4.99	2.07	8.64	11.20	6.42
Pure Cost ^{b/}	4.73	1.52	7.05	10.26	5.55
Transaction Costs ^{c/}	0.26	0.55	1.59	0.94	0.87
2. Borrowings	3.63	8.60	3.74	1.44	4.20
Pure Cost ^{b/}	3.15	4.32	2.31	1.15	2.86
Transaction Costs ^{c/}	0.48	4.28	1.43	0.29	1.34
B. Cost of Administration ^{d/}	<u>3.19</u>	<u>19.86</u>	<u>9.80</u>	<u>1.07</u>	<u>5.04</u>
C. Risk Expenses ^{e/}	<u>0.02</u>	<u>3.67</u>	<u>1.86</u>	<u>0.48</u>	<u>0.36</u>
D. Imputed Cost of Carrying Arrears ^{f/}	<u>0.31</u>	<u>9.36</u>	<u>2.36</u>	*	<u>4.23</u>
E. 1. Total Lending Cost without Imputed Cost	<u>11.83</u>	<u>34.20</u>	<u>24.04</u>	<u>14.19</u>	<u>16.02</u>
2. Total Lending Cost with Imputed Cost	<u>12.14</u>	<u>43.56</u>	<u>26.40</u>	<u>14.19</u>	<u>20.25</u>
F. Gross Returns ^{g/}	<u>8.31</u>	<u>10.57</u>	<u>17.23</u>	<u>12.29</u>	<u>14.25</u>
G. 1. Lending Spread without Imputed Cost	<u>(3.52)</u>	<u>(23.63)</u>	<u>(6.81)</u>	<u>(1.9)</u>	<u>(1.77)</u>
2. Lending Spread with Imputed Cost	<u>(3.83)</u>	<u>(32.99)</u>	<u>(9.17)</u>	<u>(1.9)</u>	<u>(6.00)</u>

* Negligible

^{a/} Based on actual financial data as of December 1983.

^{b/} Includes interest payments on deposits and borrowings weighted by their respective proportions to total loanable funds.

^{c/} Includes wages and direct expenses associated with deposit-taking and borrowing activities and allocated to agricultural loans.

^{d/} Total expenses net of (i) interest payments (ii) transactions cost on deposits and borrowings, and (iii) risk expenses, allocated to agricultural loans.

^{e/} Includes guarantee/insurance fees and bad debts/litigation expenses.

^{f/} Includes opportunity cost of funds locked in arrears (i.e. loans past due and items in litigation).

^{g/} Interest income/service charges allocated to agricultural loans.

Source: TBAC (1985).

ANNEX TABLE 2: Estimated Lending Cost of Agricultural Loans, 1984^{a/}
(In percent of the loan amount granted)

	PNB	DBP	LBP	PKB	RBs
A. Cost of Funds	<u>30.99</u>	<u>38.11</u>	<u>31.09</u>	<u>26.29</u>	<u>31.69</u>
1. Deposits	8.06	3.05	13.21	17.85	10.02
Pure Cost ^{b/}	7.80	2.50	11.62	16.91	9.15
Transaction Costs ^{c/}	0.26	0.55	1.59	0.94	0.87
2. Borrowings	22.93	35.06	17.88	8.44	21.67
Pure Cost ^{d/}	22.45	30.78	16.45	8.15	20.33
Transaction Costs ^{c/}	0.48	4.28	1.43	0.29	1.34
B. Cost of Administration ^{c/}	<u>3.19</u>	<u>19.86</u>	<u>9.80</u>	<u>1.07</u>	<u>5.04</u>
C. Risk Expenses ^{c/}	<u>0.02</u>	<u>3.67</u>	<u>1.86</u>	<u>0.48</u>	<u>0.36</u>
D. Imputed Cost of Carrying Arrears	<u>1.18</u>	<u>53.36</u>	<u>7.06</u>	*	<u>14.84</u>
E. 1. Total Lending Cost without Imputed Cost	<u>34.20</u>	<u>61.64</u>	<u>42.75</u>	<u>27.84</u>	<u>37.09</u>
2. Total Lending Cost with Imputed Cost	<u>35.38</u>	<u>115.00</u>	<u>49.81</u>	<u>27.84</u>	<u>51.93</u>
F. Lending Rate ^{e/}	<u>45.49</u>	<u>45.49</u>	<u>45.49</u>	<u>45.49</u>	<u>45.49</u>
G. 1. Lending Spread without Imputed Cost	<u>11.29</u>	<u>(16.15)</u>	<u>2.74</u>	<u>17.65</u>	<u>8.40</u>
2. Lending Spread with Imputed Cost	<u>10.11</u>	<u>(69.51)</u>	<u>(4.32)</u>	<u>17.65</u>	<u>(6.44)</u>

* Negligible

^{a/} 1983 financial data adjusted using updated average deposit and rediscount rates as of end 1984.

^{b/} Average interest rate on savings and time deposits weighted by proportion of deposits to total loanable funds.

^{c/} See Table 88.

^{d/} Average rediscount rate for all maturities as of December 30, 1984, weighted by proportion of deposits to total loanable funds.

^{e/} Average interest rate of 39.7 percent on secured loans (all maturities) of sample commercial banks (source: CB-DER) plus intermediation index of 5.79 percent as of May 1984 (source: Silvosa, F.Y. "The Role of the MRR as Basis for Floating Rate Loans," CB Review, June 1984).

Source: TBAC (1985)

ANNEX TABLE 3: Estimated Lending Cost of Non-Agricultural Loans, 1983*
(In percent of the loan amount granted)

	PNB	DBP	LBP	PKB	RBs
A. Cost of Funds	<u>12.14</u>	<u>13.60</u>	<u>13.05</u>	<u>15.00</u>	<u>13.50</u>
1. Deposits	4.86	1.80	7.50	11.93	6.17
Pure Cost	4.73	1.52	7.05	10.26	5.55
Transactions Cost	0.13	0.28	0.45	1.67	0.62
2. Borrowings	7.28	11.80	5.55	3.07	7.33
Pure Cost	7.04	9.65	5.15	2.56	6.37
Transactions Cost	0.24	2.15	0.40	0.51	0.96
B. Cost of Administration	<u>1.63</u>	<u>9.97</u>	<u>2.76</u>	<u>1.89</u>	<u>3.61</u>
C. Risk Expenses	<u>0.01</u>	<u>1.85</u>	<u>0.53</u>	<u>0.85</u>	<u>0.26</u>
D. Imputed Cost of Arrears	<u>1.64</u>	<u>6.29</u>	<u>2.13</u>	<u>0.22</u>	<u>2.80</u>
E. 1. Total Lending Cost without Imputed Cost	<u>13.78</u>	<u>25.42</u>	<u>16.34</u>	<u>17.74</u>	<u>17.37</u>
2. Total Lending Cost with Imputed Cost	<u>15.42</u>	<u>31.71</u>	<u>18.47</u>	<u>17.96</u>	<u>20.17</u>
F. Lending Rate	<u>8.30</u>	<u>10.57</u>	<u>17.26</u>	<u>12.16</u>	<u>14.25</u>
G. 1. Lending Spread without Imputed Cost	<u>(5.48)</u>	<u>(14.85)</u>	<u>(0.92)</u>	<u>(5.58)</u>	<u>(3.12)</u>
2. Lending Spread with Imputed Cost	<u>(7.12)</u>	<u>(21.14)</u>	<u>(1.21)</u>	<u>(5.80)</u>	<u>(5.92)</u>

* Based on actual financial data as of December 1983; see Annex Table 1 for assumptions used.

Source: TBAC (1985).

ANNEX TABLE 4: Estimated Lending Cost of Non-Agricultural Loans, 1984^{a/}
(In percent of the loan amount granted)

	PNB	DBP	LBP	PKB	RBs
A. Cost of Funds	<u>30.62</u>	<u>35.71</u>	<u>28.92</u>	<u>27.24</u>	<u>31.06</u>
1. Deposits	7.93	2.78	12.07	18.58	9.77
Pure Cost	7.80	2.50	11.62	16.91	9.15
Transaction Costs	0.13	0.28	0.45	1.67	0.62
2. Borrowings	22.69	32.93	16.85	8.66	21.29
Pure Cost	22.45	30.78	16.45	8.15	20.33
Transaction Costs	0.24	2.15	0.40	0.51	0.96
B. Cost of Administration	<u>1.63</u>	<u>9.97</u>	<u>2.76</u>	<u>1.89</u>	<u>3.61</u>
C. Risk Expenses	<u>0.01</u>	<u>1.85</u>	<u>0.53</u>	<u>0.85</u>	<u>0.26</u>
D. Imputed Cost of Carrying Arrears	<u>4.22</u>	<u>18.75</u>	<u>4.89</u>	<u>0.42</u>	<u>6.92</u>
E. 1. Total Lending Cost without Imputed Cost	<u>32.26</u>	<u>47.53</u>	<u>32.21</u>	<u>29.98</u>	<u>34.93</u>
2. Total Lending Cost with Imputed Cost	<u>36.48</u>	<u>66.28</u>	<u>37.10</u>	<u>30.40</u>	<u>41.85</u>
F. Lending Rate	<u>45.49</u>	<u>45.49</u>	<u>45.49</u>	<u>45.49</u>	<u>45.49</u>
G. 1. Lending Spread without Imputed Cost	<u>13.23</u>	<u>(2.04)</u>	<u>13.28</u>	<u>15.51</u>	<u>10.56</u>
2. Lending Spread with Imputed Cost	<u>9.01</u>	<u>(20.79)</u>	<u>8.39</u>	<u>15.09</u>	<u>3.64</u>

^{a/} 1983 financial data adjusted using applicable NRR rates as of December 1984 for costing and lending rate determination; see Annex Table 2 for assumptions used.

Source: TBAC (1985).

ANNEX TABLE 5: Computation of Net Spreads to Banks Participating in
Agricultural Credit Programs Under the
Interest Rate Structure as of Dec., 1984
(In percent of the loan amount granted)

	Cost of Funds (1)	Interest Rate to Borrowers (2)	Gross Spread (2)-(1) (3)	Other Costs ^{a/}				Net Spreads		
				Adminis- trative Expense ^{b/} (4)	Risk Expense		Total		(3)-(7) (9)	(3)-(8) (10)
					Actual ^{c/} (5)	Actual plus Imputed ^{d/} (6)	Cost 1 (4)+(5) (7)	Cost 2 (4)+(6) (8)		
A. <u>STD-Funded (100%)</u>										
	3	12	9	5.09	0.18	15.02	5.27 ^{e/}	20.11 ^{e/}	3.73	(11.11)
	3	15	12	5.09	0.18	15.02	5.27	20.11	6.73	(8.11)
	4	9	5	5.09	0.18	15.02	5.27	20.11	(0.27)	(15.11)
	5	8	3	5.09	0.18	15.02	5.27	20.11	(2.27)	(17.11)
	6	12	6	5.09	0.18	15.02	5.27	20.11	0.73	(14.11)
	6	15	9	5.09	0.18	15.02	5.27	20.11	3.73	(11.11)
B. <u>Blended Funds (50% STD; 50% rediscounting)^{f/}</u>										
	18.94	34.26	15.32	5.09	0.18	15.02	5.27 ^{e/}	20.11	10.05	(4.79)
C. <u>Rediscounted Notes (90% (90% of loan value, 10% Marginal bank funds)^{g/}</u>										
PNB	25.31	34.26	8.95	3.19	0.01	1.19	3.20	4.38	5.75	4.57
LBP	25.31	34.26	8.95	9.67	1.46	8.52	11.13	18.19	(2.18)	(9.24)
PK ^{h/}	25.31	34.26	8.95	3.80	0.16	0.16	3.96	3.96	4.99	4.99
RBs	25.31	34.26	8.95	5.09	0.18	15.02	5.27	20.11	3.68	(11.16)
D. <u>Marginal Bank Funds</u>										
PNB	34.74	42.0 ^{i/}	7.26	3.19	0.01	1.19	3.20	4.38	4.06	2.88
LBP	34.74	39.0 ^{i/}	4.26	9.67	1.46	9.52	11.13	18.19	(6.87)	(13.93)
PK ^{h/}	34.74	45.0 ^{i/}	10.26	3.80	0.16	0.16	3.96	3.96	6.30	6.30
RBs	34.74 ^{j/}	40.53 ^{k/}	5.79	5.09	0.18	15.02	5.27	20.11	0.52	(14.32)

(Continued...)

ANNEX TABLE 5

Page 2

- a/ Based on actual 1983 financial data.
- b/ Refers to costs incurred in lending operations including processing, monitoring and supervision of loans.
- c/ Includes guarantee/insurance expenses and bad debt/litigation expenses.
- d/ Includes guarantee/insurance expense, bad debt/litigation expenses, and cost of carrying arrears.
- e/ For rural banks only.
- f/ Assumes STD funds are used for 3 months in a year and loans generated therefrom are rediscounted for the rest of the year. Thus, blended cost of fund = $(\text{STD rate} \times 3/12) + (\text{rediscount rate} \times 9/12)$. MRR applicable for Dec., 1984 = 36.26 percent. Therefore, rediscount rate (MRR less 12) = 24.26 percent and lending rate = (MRR less 2) = 34.26 percent.
- g/ Assumes 90 percent of loanable funds are obtained from rediscounting, while 10 percent come from marginal bank funds. Thus, cost of funds = $(\text{rediscount rate} \times 90 \text{ percent}) + (\text{Interest cost of marginal bank funds} \times 10 \text{ percent})$. Interest rate used on marginal bank funds is 34.74 percent (MRR rates - all maturities).
- h/ Cost estimates for one sample commercial bank.
- i/ For PNB and PKB, lending rate used is the prime rate charged by banks on loans. For IEP, lending rate at maximum considering various loans.
- j/ Considers MRR rate (all maturities) applicable for December 1984 = 34.74 percent.
- k/ For RBs: interest to borrowers = 34.74 percent + 5.79 percent (Intermediation Index as of May 1984: Source: F.Y. Silvoza's article on MRR, CB Review, June 1984).

Source: TBAC (1985).