The Performance of Banks in Rural Financial Markets

Henk A.J. Moll

In the 1960s and 1970s national policymakers charged many rural banks with the provision of cheap credit to small farmers, small fishermen, or broadly speaking, rural households with small-scale enterprises. The performance of these institutions and the programs, projects and schemes they supported, however, remained below expectations. A new thinking about rural finance and its role in development, based on the concept of the Rural Financial Market (RFM), clearly demonstrated the shortcomings of the cheap credit policy. It enabled a more balanced understanding of the roles of rural banks, informal intermediaries and their (potential) clients in the supply of and demand for financial services (Adams 1983; Donald 1976; Von Pischke 1981). The new thinking also resulted in a growing recognition that governments should refrain from direct participation in banking and concentrate on policies that establish and maintain confidence in financial institutions. Such a new role of government in finance is a pre-condition for the provision of sustainable financial services by banks. Of course, this is not the only issue. Various studies have explored other factors that strongly affect the provision of rural banking services (Binswanger and Rozenzweig 1986; Schmidt and Kropp 1987; Von Pischke 1991).

This paper focuses on the costs of financial intermediation and its relation to the scale of operation. The calculation and monitoring of costs is of central importance when rural banks pursue the socially desirable objective of providing financial services to new clients. Emphasis on reaching new clients without due attention to costs, and the control of costs in particular, leads invariably to operating losses which sooner or later result in a reduction or termination of services provided. From a long-term perspective, the objective to reach new clients should thus necessarily be linked with attention to costs, or in broader terms: with the objective to operate on a financially viable basis.

Rural banks trying to achieve these two objectives simultaneously are faced with a host of questions regarding the demand for various types of financial services by their new clients, and their own organizational, operational and financial capabilities to meet this demand. Answering these questions requires analysis, followed by experiments to explore the feasibility of new organizational approaches and new methods of operation. The discussion of lending costs should therefore be part of evaluation of existing banking services and of planned experiments to widen to scope of services.

Rural Financial Markets and the Position of Banks

Rural financial markets consist of relationships between buyers and sellers of financial assets in a rural economy. Relationships develop between market parties through financial transactions, such as: lending, borrowing, saving, insuring, and the transfer of ownership participation in enterprises. Funds are exchanged in these transactions for other financial assets: debt claims or ownership claims. Participants in the rural financial markets are the rural households and intermediaries operating between buyers and sellers of financial assets to bridge preferences for quantity, time, risk and space. Intermediaries are usually divided into informal intermediaries such as traders, moneylenders, indigenous bankers, landlords and pawnbrokers, and formal intermediaries like banks, specialized credit institutions and cooperatives.

The specification of financial assets in terms of size, maturity or tenor, and additional conditions is linked to the type of financial transaction in which they are produced, and to the type of intermediary involved. It is therefore useful to speak of “financial services” and specify these services as short-term lending, insurance against risk, etc., possibly in combination with classifications of “formal” or “informal”, to identify the types of financial assets. The rural financial market can then be described in terms of demand for and supply of financial services.

The potential demand for financial services, that is, the capacity of households to engage in financial transactions, is related to rural incomes, which in turn are related to the stage of development (Von Stockhausen 1984). This demand has two dimensions, a qualitative aspect including the types of services, and a quantitative aspect covering the size or scale of individual services. The total demand for financial services in an RFM,
specified by type and size, is thus related to the total household income in a rural area. Incomes of rural households have a certain distribution, and we may assume that the richer households have a demand for a wider range of services with a larger size than households with lower incomes. The demand for financial services in an RFM by households divided into five income categories each containing 20 percent of the population is stated for a hypothetical case in Figure 1.

The households with the highest incomes, shown in column 1, have a demand for seven types of financial services, each with a certain volume. The households in the lower income categories, columns 2 to 5, require a less diversified range of services and the total volume demanded per household as well as the volume per individual service becomes smaller with lower incomes.

The services which are potentially attractive to rural clients are not necessarily all available, or available in appropriate amounts, creating an unfulfilled demand for financial services in RFMs. This situation is depicted in Figure 2. Households are grouped according to their incomes on the X-axis with the highest income households near O, and the total volume of services demanded per household on the Y-axis. The area OABC represents the total volume of financial services demanded by households in a rural area. Curve BA reflects increasing demand per household as incomes increase; the vertical line BC indicates that even the poorest households desire a certain volume of services. The potential demand in Figure 2 is only partly met by three types of institutions or relationships. The area indicated by I refers to the services provided by banks; part of the richest households is reached with part of the services they desire. Area II represents services provided by Specialized Farm Credit Institutions. These offer a single type of service, credit in fixed amounts, which is depicted by the narrow rectangular area. The SFCI reaches more households than banks do (the side along the X-axis is longer), but the SFCI, too, reaches the richer households. Area III refers to informal financial relationships: all households participate, but with least participation by the richer households and the very poor households: the rich because they have access to the formal sector, and the poor because they are limited by their small financial capacity. This picture of an RFM is hypothetical, but the relative positions of the three types of financial institutions or relationships and the indication that there is an unfulfilled demand for financial services, is realistic.

This perspective on RFMs provides a sharper focus on the position of banks, and on the central issue resulting from the two objectives stated in the introduction: how can a bank extend its services to more house-

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**Figure 1: Demand for Financial Services by Households per Income Category**

![Figure 1: Demand for Financial Services by Households per Income Category](image-url)
The Performance of Banks in Rural Financial Markets – Henk A.J. Moll

Figure 2: Demand for and Supply of Financial Services in Rural Financial Market

The cost of lending is central to a bank’s financial viability, and thus to its ability to provide services on a permanent basis. The cost of lending is composed of (1) the costs of funds which include interest paid to savers, depositors and other suppliers of funds, and the administrative costs of handling savings accounts and deposits; and (2) the cost of providing loans which consists of administrative costs for screening, monitoring and loan recovery and the cost of default. Lending costs thus determine the bank’s ability to attract funds and to allocate these to borrowers.

Various authors have discussed banks’ lending costs and developed formulas to calculate these costs (Bottomley 1975; Moll 1982; Lee and Baker 1984; Nyanin 1983; Anderson and Khambata 1985). Their
formulas are basically the same, although definitions and derivations vary somewhat. I would like to discuss formula (1) here:

Formula (1): the cost of lending \( i = \frac{(c/u) + a + d}{1 – d} \)

- \( c \) = cost of funds for the total period of the loan, as a proportion of the loan amount;
- \( u \) = utilization of funds: average proportion of the available funds for loans which is outstanding;
- \( a \) = administrative costs in proportion of loan size;
- \( d \) = default rate: the proportion of loans not repaid;
- \( i \) = lending cost as a proportion of the loan.

Formula (1) has the advantage that the cost due to a limited utilization of the funds available for lending, an important aspect in rural areas experiencing seasonality of agriculture, is explicitly stated. This formula can be used to calculate the cost of lending under various conditions, as shown by cases (i) to (iv) in Table 1. The cases in the table demonstrate the effects on the cost of lending of:

1. Loan size, administrative costs in absolute terms are fairly independent of loan size; a small loan, represented by case (i), has proportionally larger administrative costs than a larger loan, case (ii), and requires a higher interest rate.
2. Loan tenor or maturity; cases (iii) and (iv) differ only in tenor but case (iii) requires an interest of 8.7 percent per month whereas case (iv) requires 3.2 percent per month.

The large impact of loan tenor on lending cost is due to the fact that administrative costs and cost of default (expressed as proportion of loans not repaid) must be recovered in a much shorter period. The effect of small loans and loans of short tenor on lending cost is especially relevant for rural banks that want to extend their services to new customers, as their demand is initially for these types of loans.

The operational application of the formula to study the effects of present and new lending operations is, however, subject to two limitations:

1. The cost parameters available are stated in proportions that reflect the average present situation with regard to loan size and tenor; for an appraisal of new lending services -- short term and small -- the cost parameters need to be defined accordingly.
2. The volume of loans provided or expectedly to be provided is not taken into account. Volume is a vital issue for rural banks, because their fixed costs can be covered at a certain interest rate only if a sufficient volume of services can be provided.

The two limitations can be lifted simultaneously by incorporating lending operations in absolute terms in the formula. The lending operations of a bank in year \( t \) can be described by three parameters: loan volume \( (L_{vt}) \), loan amount \( (L_{at}) \), and number of loans \( (L_{nt}) \). The loan volume \( L_v \) is expressed in currency unit periods: a loan of 100 Rupiahs (Rp) provided for three years on the first of March in year \( t \), represents a loan volume for that year of 10 times 100 is 1,000 Rpmonths. Compilation of all loans in this way is rather cumbersome. Therefore, the sum of outstanding loans at the end of each month of year \( t \) can be used as a proxy for loan volume in year \( t \) expressed in Rpmonth. The loan amount \( L_{a} \) is the sum of new loans provided in year \( t \); the number of loans provided is \( L_{nt} \).

With these three parameters lending operations formula (1) can be expanded to reflect lending costs more precisely, either as the interest rate on loans required to cover all annual expenditures, or as an absolute amount of annual expenditures. The total costs of funds is proportionally related to the loan volume \( (L_{vt}) \). The direct

<table>
<thead>
<tr>
<th>Case</th>
<th>Loan tenor</th>
<th>Cost of funds (c)</th>
<th>Utiliz. funds (u)</th>
<th>Admin. cost (a)</th>
<th>Default Rate (d)</th>
<th>Cost of Lending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>month</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>% Total</td>
</tr>
<tr>
<td>(i)</td>
<td>6</td>
<td>6.0</td>
<td>85.0</td>
<td>10.0</td>
<td>10</td>
<td>30.1</td>
</tr>
<tr>
<td>(ii)</td>
<td>6</td>
<td>6.0</td>
<td>85.0</td>
<td>2.0</td>
<td>10</td>
<td>21.2</td>
</tr>
<tr>
<td>(iii)</td>
<td>3</td>
<td>3.0</td>
<td>85.0</td>
<td>10.0</td>
<td>10</td>
<td>26.1</td>
</tr>
<tr>
<td>(iv)</td>
<td>12</td>
<td>12.0</td>
<td>85.0</td>
<td>10.0</td>
<td>10</td>
<td>37.9</td>
</tr>
</tbody>
</table>
cost of default, the loss of funds, is related to the amount of loans provided \((L_a)\). It is assumed that a bank makes provisions in year \(t\) proportionally to the volume of loans provided in that year. Later, when defaults on loans issued in year \(t\) appear, they can be written off against these provisions. The effect of default on all cost components \((1/1-d)\) is related to loan volume \((L_v)\), as interest payments in year \(t\) must cover all costs in that year. Administrative costs can be divided into fixed cost \((A_f)\) and variable cost \((A_v)\), the latter related to the number of loans. Of course, in the long run all costs are variable, but the distinction is useful as banks have a tendency to operate with a considerable amount of fixed costs for staff and building. Rural banks are usually branch offices, and the cost resulting from supervision and guidance from the main office can be either stated as a separate term in the denominator \((A_o)\), or included in the fixed and variable administration costs. Formula (1) can now be rewritten as Formula (2):

Formula (2): lending costs in year \(t\) = \[\frac{(L_v \times c/u) + (L_a \times d) + (L_n \times A_v) + A_f + A_o}{L_v \times (1-d)}\]

This formula expresses lending costs as the interest rate on loans required to cover all expenditures. The interest rate is expressed per period, and this period is the same as the one defining the loan volume.

The data required in this formula are usually contained in a bank’s annual accounts. In case distinctly different lending services are provided, seasonal loans and investment loans for example, it is worthwhile to separate the costs per type of service. Below lending costs and other parameters for short-term lending by 42 saving and credit groups functioning as small rural bank branches in West Java in 1985 are presented in Table 2. The actual lending costs for 1985 were:

\[ (L_v \times c/u) + (L_a \times d) + (L_n \times A_v) + A_f + A_o = 11.7 + 38.4 + 7.1 + 17.3 + 11.3 = 85.8 \text{ Rp million} \]

These costs were to be covered by revenue from the interest rate charged on the loan volume in that year by those repaying their loans:

\[ \text{lending cost} = \frac{\text{actual costs}}{L_v \times (1-d)} = \frac{85.8 \text{ Rp million}}{(2348 \text{ Rp million/month} \times 0.902)} = 4.1 \text{ percent per month.} \]

With formula (2) the impact of changes in loan volume on lending cost can be demonstrated, as shown in Figure 3. The graph shows the lending cost for a range between plus and minus 50 percent of the actual loan volume; fixed costs and default rate are assumed to be stable for this range. The interest rates covering lending costs corresponding to the extremes are 3.6 percent and 5.4 percent per month respectively. In this situation the difference is vital as the actual interest charged was 5 percent per month, being the maximum rate permitted by the government. At that rate the volume of loans cannot drop below Rp1,400 million/month for the bank to remain profitable.

Incorporation of lending operations enables the formula to link actual and possible values for lending parameters to bank profitability. The formula can be used to estimate additional costs of new lending operations and the interest rate required to cover these costs given various assumptions about loan volume expected.

**Table 2: Lending Costs and Other Parameters of 42 Saving and Credit Groups in West-Java (1985)**

<table>
<thead>
<tr>
<th>Lending parameters</th>
<th>(L_v)</th>
<th>(L_a)</th>
<th>(L_n)</th>
<th>(A_v)</th>
<th>(A_f)</th>
<th>(A_o)</th>
<th>(c)</th>
<th>(u)</th>
</tr>
</thead>
<tbody>
<tr>
<td>loan volume</td>
<td>2348 Rp million/month</td>
<td>393 Rp million</td>
<td>4352</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>amount of loans issued per year</td>
<td>(L_v)</td>
<td>(L_a)</td>
<td>(L_n)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of loans issued per year</td>
<td>(L_v)</td>
<td>(L_a)</td>
<td>(L_n)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative costs, variable</td>
<td>1630 Rp/loan</td>
<td>17.3 Rp million</td>
<td>11.3 Rp million</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative costs, fixed</td>
<td>(d)</td>
<td>0.098</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative costs, central level</td>
<td>0.004 per month</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Moll 1989.*
The Framework for Evaluating Rural Banks

The expanded lending cost formula must be applied within a comprehensive perspective on actual and potential bank performance. A multitude of factors affects performance. Some are under control of the bank, others are not. The factors under the bank’s control can be grouped under three main headings: organizational structure, method of operation, and services offered. Decisions taken in these three fields determine the supply of financial services. Factors not under the bank’s control are those governing the demand for financial services: the number, location and financial capacity of actual and potential clients.

The relationship between a bank and its clients is expressed in the financial services provided. Therefore, the logical performance indicator for banks with the objective of providing financial services to more rural households consists of the types and volume of financial services provided over time. For analytical purposes, type, volume and time aspects can be separated into two operational performance indicators: (1) the types and volume of financial services provided in a particular year, and (2) the bank’s financial viability in that particular year as a proxy for the bank’s ability to offer these services in the future.

Financial viability has two aspects: profitability, or the balance between revenues and costs as stated in the profit and loss account; and the capital position which reflects the ability to attract capital and the ability to cover anticipated and unanticipated losses through reserves. Profitability and capital position are usually stated in the bank’s financial statements.

The main factors in the supply of and demand for financial services and the performance indicators for the harmonization of supply and demand are brought together in Figure 4. The figure depicts the rural bank as a branch office. The three main fields of the bank’s policy decisions are organization, operations and services offered. These affect the cost structure through fixed costs for building and staff, and through variable costs determined by the volume of financial services provided to and accepted by the rural population. The effects on financial viability of possible changes in a bank’s policies in these three fields can be studied by combining expected values for parameters affected by policy changes with actual values for the other parameters in the formula. Formula (2) covers lending cost only, and revenues must be calculated separately to determine the hypothetical impact on earnings. Policy changes that affect the volume of savings involve costs and revenues and the capital position of the bank.

The effect of existing policies or changes in these policies on the second performance indicator, the volume and types of services provided, can be stated in absolute or in relative terms. The first is directly available and an increase over the years shows a bank’s ability to reach a growing number of clients with appropriate services. Relative performance, in the sense of reaching a certain proportion of rural households, requires data on the number, location and financial capacity of all potential clients. This requires research and thus involves costs, but the results of this research would give direction to attempts to extend the volume of services to the types of clients to be reached and types of services to be offered.
Policies regarding the three main fields of bank decision making -- organization structure, operations and services offered -- and the two performance indicators -- qualitative and quantitative -- offer a comprehensive framework for the analysis of a bank's performance. This framework can be used by rural banks to analyze their present situation and the effects of possible policy changes. It can also be used by researchers to analyze experiments to determine the feasibility of innovative organization structures and methods of operation aimed at providing formal financial services to small rural clients, such as, group loans within a two-tier financial organization, mobile savings and credit units, mobile credit officers, and various types of specialized, more or less formal institutions operating at low costs. Comprehensive analysis with attention to all components of the framework and elaboration of the details of the innovative experiments will contribute to better insights into the possibilities and limitations of rural banks to serve the poor and to realize financial sustainability at the same time.

References


