COSTA RICA
POLICY TOOLS FOR RURAL FINANCE

INTEREST AND NON-INTEREST COSTS OF BORROWING AND FARMER INCOME
DISTRIBUTION IN COSTA RICA

by

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Interest Rate Ceilings and Income Distribution

Interest-rate ceilings on agricultural loans tend to have a regressive distributive impact on farmers. To become beneficiaries of subsidized credit, producers must first become borrowers from an institutional lender. Access to formal credit, however, is usually restricted. A large proportion of the rural producers of the developing countries are excluded from institutional portfolios and, therefore, from the subsidy. Moreover, the amount of the free transfer of claims on resources is directly proportional to the size of the loan which, in turn, is correlated with wealth and influence. Large farmers receive large loans and large subsidies, medium-size farmers get small loans and only small subsidies, and small farmers do not get formal credit at all. Similarly, when a large borrower defaults on a loan, a greater wealth transfer takes place. Moreover, given interest-rate ceilings, lenders tend to redistribute loan portfolios in favor of non-rationed borrowers, usually the largest and the safest. Small farmers, therefore, not only receive a smaller subsidy, but they are also rationed and excluded from loan portfolios more rapidly. In addition, they receive a meager return on their deposits (2).

In the case of Costa Rica, the nationalized banking system has been able to reach a comparatively large proportion of the country's farmers with loans (about one-third). Credit portfo-

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lios, however, have been concentrated. About 10 percent of the number of borrowers have received about 85 percent of the total amounts of credit disbursed and, thereby, 85 percent of the implicit subsidy. Agricultural credit has been more concentrated than land ownership or than income. Depending on the annual rate of inflation, the implicit subsidy has represented up to 25 percent of value added in agriculture (3,4).

For farmers, access to credit may be critical for investment, additional working capital, risk management, and income growth. Unfortunately, the policies that have attempted to keep the price of credit artificially low have, at the same time, reduced access to formal loans for the intended beneficiaries. Credit programs are more attractive if the funds are granted at a low total cost to the borrower, if funds are disbursed when they are needed, and if their amount is sufficient to satisfy a farmer's demand. Policies designed to make credit cheap, on the other hand, have focused on contractual interest rates only, neglecting non-interest costs of borrowing. Those policies have ignored the interdependence between interest-rate structures and non-interest costs of borrowing, as well as the interaction between the price of loans, their opportunity, and their sufficiency. This paper presents an estimation of the level and dispersion of non-interest costs of borrowing for Costa Rican farmers and illustrates the relationships between the explicit and implicit cost of credit, access to loans, and other terms and conditions of the loan contracts. It concludes that transactions costs resulting from

rate ceilings have a regressive impact on distribution, too.

Costs of Borrowing

What matters for the borrower's investment and production decisions is the total cost of the funds. The non-interest costs of the funds include explicit expenses, such as bank commissions and fees, taxes, lawyer and document costs, the borrower's transportation, lodging, and food during trips to the bank, bribes, and the forced purchase of other services, as well as implicit costs, such as the value of the time spent in completing loan transactions, going to the bank, and fulfilling requirements. Requests of a compensatory deposit increase loan costs. Lack of timeliness and insufficient loan amounts are also costly. Delays in disbursement result in lower yields, while too small loans make complementary funds from other sources indispensable, with additional transactions costs for the producer.

Any loan has four dimensions: size (amount), the explicit interest charged, the non-interest costs of borrowing, and the other terms and conditions of the loan contract. Borrowers value long terms, flexibility, limited collateral requirements, and the permanency and predictability of the services that results from an established bank-customer relationship. The borrower's demand is a function of these characteristics, while lenders adjust them for different classes of borrowers. When binding ceilings are imposed on interest rates, lenders adjust either the non-interest charges and the other terms and conditions of the loan contracts or reduce the loan amounts, depending on demand and supply elas-

ticities and regulatory constraints. Borrowers receive a less attractive combination of the four loan dimensions, while the lender's willingness to lend to marginal clientele declines. The elimination of the ceilings would be, therefore, Pareto optimum.

All mechanisms to clear the market in the presence of inter-est-rate restrictions increase the non-interest costs of borrow-ing. If loan amounts decline (quantity rationing), average bor-rowing costs increase, given their independence of loan size. If new fees and commissions, more strict requirements, or more com-plex procedures are used (implicit prices), transactions costs augment. Less attractive terms and conditions imply also greater costs per unit of credit. Given these interdependencies, at-tempts to keep interest rates below equilibrium levels do not ne-cessarily make credit cheap.

Borrowing Costs in Costa Rica

Measurement of the level and components of non-interest bor-rowing costs for Costa Rican farmers was based on a survey of 394 clients of the Banco Nacional who borrowed, during 1983, from one of ten selected branches. This bank granted 60 percent of all agricultural credit in Costa Rica, through a network of 80 rural branches. Many producers do not demand loans because the tran-sactions costs are too high. The major consequence of these costs; the exclusion of potential borrowers from market partici-pation could not be observed, therefore, by this survey of bor-rowers. Similarly, long distance and limited access, due to the absence of roads or their poor condition, prevented the comple-

tion of some interviews in the sample. These clients do incur in high transactions costs, precisely for the same reasons. As a consequence, there was an underestimation of borrowing costs. A detailed questionnaire measured commissions and fees, taxes, legal and document costs, travel expenses (weighted in the case of multipurpose trips), and obtained data to impute the opportunity cost of the time of the borrower and of those acting on his behalf (by using the minimum wage in agriculture, which also underestimates true time costs).

The average level of non-interest costs of borrowing was high. It amounted to 6.8 percent of loan size and, when loan term was considered, it was equivalent to 11.5 percent per year. Since average interest rates were 13.6 percent, the total cost of the funds was at least 25 percent per year. This high level was surprising, given the small size of the country, the extension of the network of roads and bank branches, and the nationalization of the banks (to promote service rather than profits). The borrowers were literate (87 percent) and had a long banking experience (on the average had borrowed from this bank for 9.1 years).

On the average, interest payments represented 54 percent of the total costs of the funds. In the case of smaller borrowers (less than US$ 200), interest accounted for only 25 percent of total borrowing costs, while for larger borrowers (US$ 10,000 and over) they accounted for 86 percent. The authorities had little knowledge about the magnitude of these non-interest costs of borrowing. Given their relative importance, moreover, the regula-

tory emphasis on contractual interest rates has been misplaced.

Notable was the dispersion of non-interest borrowing costs. While interest rates ranged between 8 and 30 percent per year, non-interest costs ranged between 0.2 and 117.5 percent per year. The total cost of the funds ranged between 10.8 and 129.5 percent per year (while the annual rate of inflation was 26 percent). There was a four-fold difference (22 points) among the interest rates and a 600-fold difference (117 points) among the non-interest costs of borrowing. While ignored, therefore, the impact of the non-interest components of the costs of borrowing on wealth and income distribution is the most important.

Determinants of these non-interest borrowing costs were estimated with a generalized translogarithmic borrowing-cost function, through ordinary least squares, as follows:

$$\ln C = 10.7 - 1.28 \ \ln L - 0.11 \ A1 \ \ln L + 0.05 \ i \ \ln L - 2.84 \ \ln i$$
$$+ \ 0.09 \ \ln T + 0.22 \ \ln K + 0.32 \ \ln AN - 0.30 \ A2 - 0.44 \ A3$$
$$+ \ 0.39 \ CR1 + 0.40 \ U - 0.34 \ E2 - 0.45 \ P1 - 0.667 \ P2$$

where C: non-interest borrowing costs per colón, L: loan size, i: interest rate, T: cultivated area, K: distance to the bank's branch, AN: branch age, A1: dummy for loan use in basic grains, A2: dummy for loan use in export crops, A3: dummy for loan use in livestock, CR1: dummy for collateral type, U: dummy for individual versus corporate borrowers, E2: dummy for the borrower's education level, P1 and P2: dummies for loan term.

These were the results of an estimation corrected for multicolli-

nearity and heteroskedasticity. All coefficients were signific-
ant with a two-tailed t-test at the 0.01 level and R-square was
0.62. They indicated that loan size, the interest rate charged,
and distance from the borrower's home to the bank's branch were
significant determinants of borrowing costs. Size of exploita-
tion and the age of the branch were also significant, but not
with the expected sign. This reflected a lack of correlation be-
tween land area and loan size, given different values of the ex-
ploitations per unit of land. The end use of the funds, the type
of credit program, the kind of collateral used, the loan's term,
and the borrower's level of education also explained differences
in borrowing costs.

On the average, the borrowers interviewed received US$ 2,400
loans, ranging in size between US$ 60 and 32,000. Loans between
US$ 200 and 1,000 represented 47 percent of the sample. Non-in-
terest borrowing costs per colón declined rapidly with loan size,
from 37 percent per year for loans of less than US$ 200, to 2.8
percent for loans above US$ 1,000. The elasticity of these non-
interest costs of borrowing with respect to loan size (E) was
given by:

$$E = - 1.279 - 0.011 \ A1 + 0.095 \ i$$

Thus, for a median interest rate of 12 percent, this elasticity
would be - 0.68 for basic grain loans and - 0.79 for export-crop
loans.

This marked inverse relationship between borrowing costs and
loan size highlights the regressive impact of these costs on dis-

tribution. In the case of smaller loans (below US$ 200), non-interest borrowing costs, which amounted to 37.1 percent per year, represented three-fourths of the total cost of the funds (49.3 percent per year). In the case of large loans (above US$ 1,000), non-interest borrowing costs, which amounted to 2.8 percent per year, represented only 15 percent of the total cost of the funds (18.4 percent per year). In view of this inverse relationship, a generalized increased in borrowing costs would lead to a non-uniform contraction in the demand for loans, with the smaller borrowers deciding that the new total cost of the funds is too high for them, while the impact on the larger borrowers will be hardly noticed. For example, a new procedure with an extra cost of US$ 20, will add 10 percentage points to the cost of the funds in the case of a US$ 200 borrower, but only 2 percentage points in the case of a US$ 1,000 borrower. Given the limited access to formal credit of small farmers in developing countries, their exclusion from institutional loan portfolios because of too high transactions costs has a regressive distributive impact.

The results also showed a significant inverse relationship between non-interest costs and interest rates. The elasticity of these costs with respect to the rate of interest charged (F) was:

$$F = -2.842 + 0.045 \; i \; \ln L$$

For the median loan size of US$ 860 and median interest rate of 12 percent, this elasticity is -0.811. For smaller loans, the elasticity is higher. It becomes unitary for US$ 600 loans. That is, a given proportional interest-rate reduction would be accom-

panied by an increase in non-interest costs of borrowing in the same proportion. Since interest payments are a less important part of the total cost of the funds, this implies a net increase in such costs. For US$ 200 loans, this elasticity is - 1.806. This implies that for these borrowers, a reduction of interest rates of one percentage point will be accompanied by an increase in non-interest costs of borrowing of 5.5 points and an increase in the total cost of the funds of 4.5 points.

This confirms the existence of the trade-off between the interest and non-interest costs of borrowing. Underequilibrium interest rates generate excess demands for credit that require strict rationing criteria (more complex procedures, additional steps, and waiting) and thereby increase borrowing costs. A more strict end-use targeting for the funds, supervision, or eligibility requirements also increase borrowing costs. Also, preferential interest rates make it difficult for the lenders to cover operating costs and risks of default. The tend to shift, therefore, some of these costs over to the borrowers or try to discourage marginal clients from applying for the subsidized loans. Borrowing costs were higher in the case of small, basic-grain producers than for export-oriented farmers, and when the collateral was a cosigner rather than a mortgage.

In these circumstances, raising interest rates may have a positive effect on income distribution. The interest payments component will weight more in the case of larger borrowers, discouraging them from demanding subsidized loans, given their ac-

cess to alternative sources of credit, while in the case of the smaller borrowers, the impact will be proportionately less and would probably be more than compensated for by the expected decline in non-interest borrowing costs and their increased access to formal loans. The funds released, in view of less demand from larger borrowers, would become available to satisfy the larger demand of the smaller borrowers, while the intermediary would be in a position to offer more attractive rates to depositors.

The positive elasticity of borrowing costs with respect to distance suggests the potential social gains from a further geographical expansion of the branch network and from a reduction of the required number of trips to the branch (less requirements, disbursement in one installment). The 394 borrowers interviewed made 3,675 trips to the branches, with a total duration of 14,700 working hours. This represented an average of 4.5 full working days for the client, usually at the time of planting. The average number of trips was 9.3 per borrower, and it ranged between 1 and 19 trips per loan. The inverse relationship of borrowing costs and loan term indicates the desirability of granting lines of credit to farmers, rather than individualized loans. Borrowing costs were higher with those with previous delinquency records and lower for those who were also depositors in the bank.

Conclusions

The most important indicator of the efficient performance of the financial system are the level and dispersion of the transactions costs imposed on actual and potential market participants.

High transactions costs imply that society is spending too many resources in operating the financial system and that, as a result, the costs of the funds for the borrowers are too high, the net rewards for depositors are too low, the profitability of financial intermediaries is unattractive, and the size of financial markets is too small. A large dispersion of transactions costs results in wide divergences among marginal rates of return across the economy and in unexploited opportunities for growth and improved resource allocation. Non-interest borrowing costs, in particular, have a significant impact on differential access to loans and, therefore, on income and wealth distribution.

Emphasis on contractual interest rate levels, just another component of the total costs of borrowing, ignores the importance of non-interest costs. While interest rates may be set by decree, however, non-interest transactions costs cannot always be so reduced. When they reflect excessive regulation, unnecessary bureaucratic requirements, or unwarranted donor targeting, they may be reduced if the undesirable restrictions are eliminated. When they reflect plain X-inefficiency, they may be reduced by organizational and managerial reforms. When they arise from regulatory avoidance and rationing schemes, in the presence of interest-rate and other financial restrictions, such as reserve requirements, rediscounting programs, or selective credit controls, the underlying policies can be corrected. In the end, however, they essentially reflect the high costs of information and the risks characteristic of developing countries, represented

by the human and non-human inputs required for the joint production of loans by borrowers and lenders. Ultimately, they will be reduced by innovations in financial technology, further market integration and enlargement, economies of scale and economies of scope, and greater competition. Emphasis on interest-rate restrictions, on the other hand, is misplaced. The components of the total costs of the funds are not independent. Interest-rate ceilings increase transactions costs, create delays, and reduce loan size. As a consequence, loans are not necessarily cheap, timely, and sufficient. The distributional incidence of these other factors is highly regressive.

Notes

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