BNDE/MIT JOINT DEVELOPMENT BANK TRAINING

AND RESEARCH PROJECT

THE PERFORMANCE OF BRAZILIAN DEVELOPMENT FINANCE INSTITUTIONS: AN INITIAL MEASUREMENT SCHEME

by

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GTM BNDE/MIT WP 8

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The Grupo de Trabalho Misto is the working entity carrying on the goals of the BNDE/MIT Joint Development Bank Training and Research Project. The Project was created in 1967 with the support of a Ford Foundation grant. It is providing training, technical assistance, and action research designed to increase the capability of development finance institutions serving as BNDE financial agents in Brazil. The members of the Grupo de Trabalho Misto are:

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Introduction *

Current research[1] in the area of development banking has revealed that these institutions may perform at least six basic functions: 1. promotion of projects; 2. mobilization of bank and non-bank funds; 3. financing of projects; 4. entrepreneurial control and management of projects; 5. financial institution building and 6. general advisory and educational services.[2] The joint BNDE/MIT effort to improve the operating level of agent development finance institutions focussed in its first training course (CAPIDE 1968), on improving the financing function while giving less emphasis to the other five areas. As such, the measurement scheme elaborated below gives primary emphasis to measuring the performance of project financing, but will include measures on the other five areas where practical.

In evaluating the financing function, we concentrate on three basic elements: 1. man-power (with an emphasis on technical appraisal and control staff); 2. capital; 3. project loan applications. We can evaluate the use of these elements both from the point of view of yearly regional bank operations and from the point of view of each loan application processed by the bank. In the latter case, we employ the concept of the loan cycle[3] so as to be able to divide the loan process into measurable stages. We visualize the loan cycle as having up to seven basic stages:

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* The authors wish to gratefully acknowledge the participation in research of others working in the BNDE/MIT Joint Development Bank Training and Research Project, particularly Mr. David Hoover and Mr. Miklos Vasarhelyi.

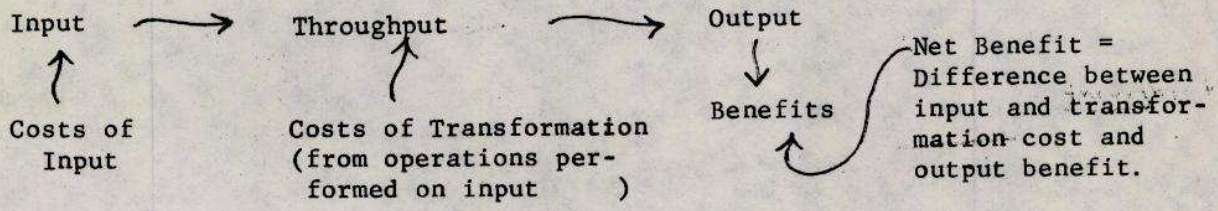
1. reception; 2. preliminary screening; 3. appraisal; 4. decision making; 5. legal implementation; 6. disbursement; 7. follow-up and amortization. In measuring the financing function, we will concentrate on two sub-areas of the loan cycle: appraisal (steps 2 and 3) and implementation (steps 6 and 7).

Conceptualization of the Measurement Scheme

In designing this model for measuring development finance institution performance, we have combined two basic approaches. The comparison of benefits with the costs of a process offers many advantages as a basis for measuring development bank performance because many of the values accruing therefrom are not measured in the traditional form of profits.[4]

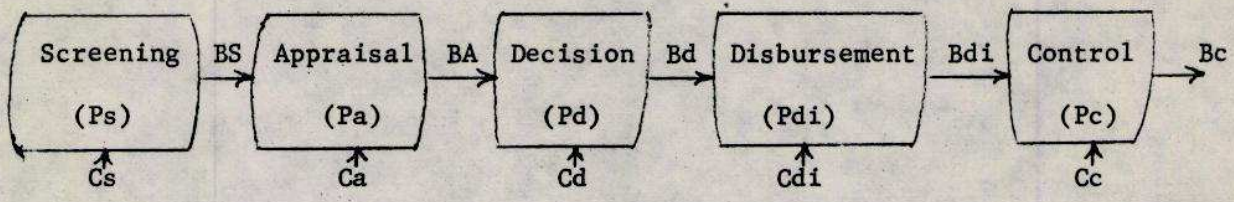
The second concept underlying the scheme is the basic open systems, or input-throughput-output, model of social science.[5] The model has three stages: 1) input, or that which is needed to begin a stage; 2) throughput, or the action which is performed on the input and 3) output, or the transformed output. Diagram 1 shows how this model can be combined with the benefits-costs concept:

DIAGRAM 1
Input - Output Model Showing Measurement of Costs and Benefits



Because it emphasizes the process as well as the costs and benefits, the model is particularly suited for use in projects which are concerned with change.

The model can be used to describe part or all of the operations of a development finance institution including the six functions listed above. A simplistic adaptation of this benefit-cost model applied to the finance function and its loan cycle can be represented as follows:



Ps, Pa, Pd, Pdi, and Pc are the processes that take place in the different phases. The corresponding C's represent the different costs while B's represent the benefits derived from each phase. Thus, each phase is a benefit/cost center.

The quality of the process largely determines the extent and nature of the benefits that will be derived, so long as they are internal. For example, the immediate benefits of a good screening accrue internally to the work done in the appraisal phase. At the end of the process, when the project is implemented, benefits largely accrue to the borrower and the economy as a whole.

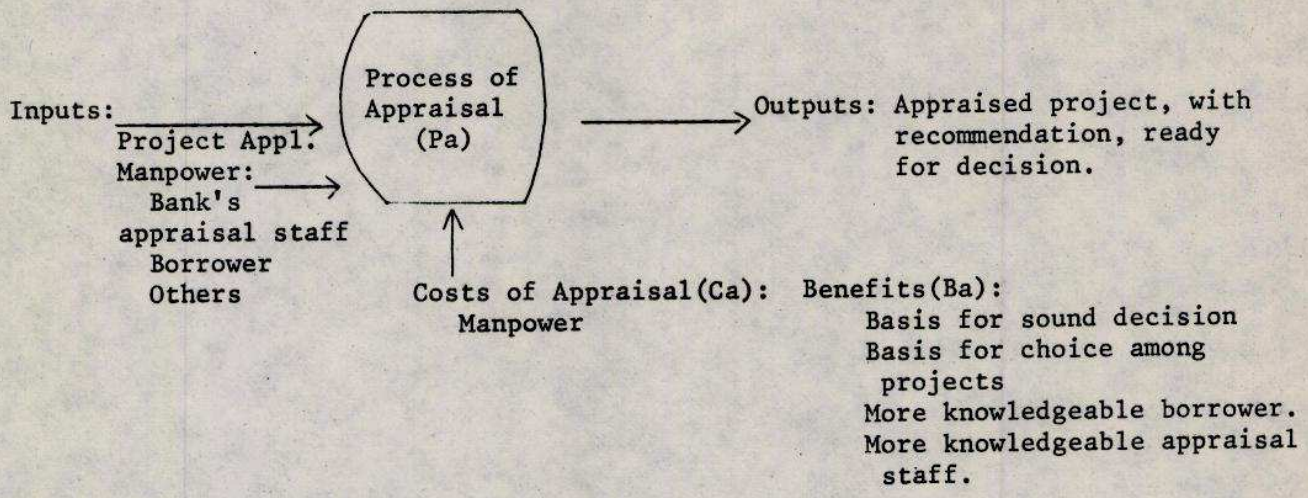
Thus, in summary, for any given cost (Cs, Ca, Cd, Cdi or Cc) the benefit (Bs, Ba, Bd, Bdi, or Bc) will be a positive function of the quality of the related process (Ps, Pa, Pd, Pdi, or Pc). In general, for any given C, B=f(P), and for the entire financing function, if (Bs - Cs) + (Ba - Ca) + (Bd - Cd) + (Bdi - Cdi) + (Bc - Cc) $\gtrless$ 0, the result will be a net benefit, neutral position or net loss, respectively.

Other functions, such as that of mobilizing the institution's funds or of promoting the elaboration of projects, can also be analysed under this

benefit-costs approach.

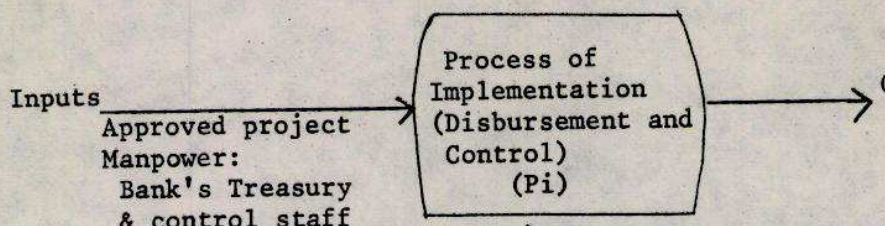
In the remainder of this paper, only three phases of the financing function's loan cycle are elaborated further: the appraisal phase, and the disbursement and control phases, here merged for simplicity and called the implementation phase.

The appraisal phase can be diagrammed as follows:



The inputs into the appraisal process are normally an application (or modelo) in some state of completion, and the time of the bank's appraisal staff coupled with the time of the borrower and, upon occasion, others such as project consultants or elaborators. The costs incurred are primarily the cost of the peoples' times. The appraised project that is contained in the project report provides the basis for a sound decision and so frequently provides a choice to the bank. In the process of appraisal, both the borrower and the bank staff acquire more experience about what they are doing, and this, too, is a benefit, a product of the time invested by both parties.

The implementation phase may be diagrammed along similar lines:



Inputs

Approved project
Manpower:
Bank's Treasury & control staff
Borrower
Other

Capital:
From Bank
From Central Devel.Bank
From Borrower
From Other Sources

↑Costs of Implementation (Ci):

Manpower:
Bank Personnel
Borrower
Other

Capital:
Usage cost, from each source
Non-usage cost from Central Devel.Bank
Capital loss for non-repayments

Output: Project initiated and operating.

Benefits (Bi):

To the economy:
Net value to the economy, i.e., net change in payment to factors of production: labor, land, capital, taxes, etc.
Filling of financial gaps
Provision of finance not otherwise available
Evening regional inequalities, through new investment and linkages

To the bank:
Revenue from interest and dividends
Education of staff

To the borrower:
Return on investment, (included in net value to economy, above)
Education of borrower

The inputs, costs and benefits are more complicated in this phase primarily because the output, the project, enters the external environment fully for the first time. Similar inputs of manpower are involved, as is a similar input built up from prior phases--the approved project. Costs involve not only the cost of the manpower, but several costs associated with the use of the capital lent to or invested in the project. Among them are the direct costs of using the capital, the interest or dividends paid to the owners of the capital; the commitment costs, i.e., the cost of setting aside the sums for use but then either not using them or using them in a less advantageous use; and finally the cost of loss of capital which must be sustained by the bank (or the equity investor) should such loss occur.

The benefits at the implementation stage are numerous, as indicated, but

are largely self-explanatory.

Relationship of transformation to benefits. The process that transforms the input into the output obviously affects the quality of the output, e.g., the benefits derived. The better the process is, the greater the benefits will be. In the case at hand, the higher the professional quality of the appraisal, the sounder the loan decision will be the greater benefits the potential project will present, the more both the borrower and the bank staff will have learned. Also, the higher the professional quality of appraisal in relation to its cost, the more favorable the benefits - cost ratio will be.

Two aspects must therefore be measured. Changes in the appraisal process must, for the process is the focal point for effecting change in the performance of the appraisal phase. And the costs and the benefits must be compared, for they provide an external measurement of the performance.[7]

Applying the benefit-cost scheme: relationship to control.

Applying the scheme seems at once complex and simple. Basically, on the cost side a large and straight-forward task is the calculation of the cost of manpower involved. Organizational unit budgets, standard times for performing standard functions, and time keeping by individual staff members can all be brought to bear on a determination of manpower costs.

Frequently, costs of capital and the revenue benefits derived from loans by the bank are also apparently easily determinable. Other costs and other benefits are not as easily calculated. Fortunately, however, much of the data required to determine them are also the type that many sound operating managements require for their own control purposes.

In the case of the appraisal phase benefit cost-center, the benefits deriving from the increase in the experience of the appraisal staff can be measured two ways. The first is in improvements in the quality of the

appraisal and the second is improvements in the time required to make the appraisal (assuming the quality stays the same or improves).

In the first case an evaluation over the quality of the analysis of the project may be made against predetermined standards. This measure evaluates the level of project analysis, by the regional FIPEME agent technical staff, in the six major areas of project appraisal (jurídica, organização e administração da emprêsa, econômica, financeira, produção, e contrato e garantias) and thereby helps BNDE both in estimating the quantiy and complexity of FIPEME funded projects which the regional bank GT's can handle and in pinpointing analytic weaknesses which BNDE can help to correct by means of field missions, training courses, etc. As this "Avaliação" outlines all of the important topics to be covered in a project analysis, it will also be useful in increasing the competence of NUFIP personnel in these areas. Improvement in the performance so measured is a reflection of the benefit derived from the appraisal process to the appraisal staff.

Similarly, a measure may be made of the time involved in the process. This measurement can be dangerous, for savings in time are not to be encouraged at the expense of quality of the appraisal process. It may be that savings in time may be more expediently made with greater safety in the screening or implementation phases. Moreover, the combined pre and post analysis is usually longer than the analysis (see Informação FIPEME/ 55/68, page 2), and can be reduced with little impact on the quality of the loan process. The cost of this time reduction can be very small if procedures are changed but no additional personnel are hired. The benefit of this reduction can be large if faster process time enables the regional bank to process more loans in the course of the year and if more borrowers are attracted to the regional bank because of its faster loan service.

Another measure of the quality of the appraisal process (and the implementation process as well) is a change in loan delinquencies over a period of time. Increased competence of the appraisal and control staffs should result in better projects and in a lower rate of loan delinquency. Thus, while the cost of training and improving staff and of maintaining an improved staff through higher salaries appears as a cost, it is offset by the benefit of lower delinquency rates and, in consequence, increased revenues.

Measurements of the costs and benefits of the implementation phase can also be found in data desired for control purposes. The costs of capital used are in part a factor of the level of commitment of development finance institutions to its development portfolio. This is also a good control measure as it shows the degree to which the assets of the development finance institution are committed to development portfolio as opposed to other uses. In addition to the costs of manpower and the direct costs of capital, the cost of non-use of capital may become important. Development finance institutions frequently establish lines of credit from central development finance institutions or other sources. The extent to which these lines of credit are not used represents a failure to employ capital that has frequently been set aside by the source institution. A measure of the level of use of a line of credit is also a measure of that part of the credit which is not being used. A cost of commitment can be derived which shows how accurate the banks are in predicting their needs for development finance and how well they are succeeding in using these funds for development projects. Lines of credit from banks which consistently overestimate their needs can be reduced to actually used levels in order to avoid the commitment of lines of development credit which remain unused. This process permits the source institution to reallocate its funds more effectively.

A measurement of another kind of capital cost is the loss rate experienced by the bank. The capital loss suffered as a result of borrower failure is a direct cost on the development bank. It is also a control measure used as an indicator of how well the regional banks are meeting their contractual obligations, and an indirect indicator of how well the regional banks' borrowers are meeting their obligations to the bank. The level of non-delinquent payment should increase over time as a result of the improved experience. This increase can be taken as a reflection of the benefit derived from the improvement of the implementation and appraisal processes.

Another benefit deriving directly from the implementation phase, but a product of the whole financial function, is the revenue derived by the bank from interest payments and dividends from its development portfolio. After taking into account the development parameters in its loan policy, a development finance institution should strive to maximize the net benefit of it manpower by increasing the number of loans appraised. This ought to lead to increased net benefit via increased total loan revenue. Another related measurement is the decrease in relative salary costs due to more efficient use of manpower. These two can be combined in a measure of revenue generated per monetary unit of salary.

Still another possibility for measuring net change to the economy is to measure financial return to the different parties involved. This measurement, applied to the bank, would involve a net return on assets employed or another traditional return measurement. The same type of measurement could be applied to the borrower. The difficulty with return measurements is that they frequently do not take into account the total benefits received or the total costs received. It is for this reason that

the approach of comparing all the costs and all the benefits rather than a traditional return measurement is suggested.

The different measurements of costs and benefits suggested here might be collected with varying ease. Taking the current operations of the NUCLEO FIPEME as an example, the special measurements elaborated here can be divided into three categories:

1. Measures gatherable in the short run:
   - Level of utilization of lines of credit
   - Level of repayment of lines of credit
   - Evaluation of the process of analysis
2. Measures that could be gathered in the medium run:
   - Revenue generated/monetary unit of salary
   - Loan delinquency
   - Financial return
3. Measures gatherable in the long run:
   - Time spent on loan process phases
   - Commitment of development finance institutions to their development portfolio

Summary. The different functions of a development finance institution may be regarded as benefit-cost centers, as can also be the different phases in the loan cycle. This paper has taken two of those phases, the appraisal process and the implementation process and identified some of the associated costs and benefits. Many of these costs and benefits are connected with the cost of manpower and the cost of capital. Many are directly calculatable as a result of better record keeping of how development bank staffs spend their time. Direct capital costs are relatively easy to calculate.

Many of the benefits are associated with the quality of the process. As the quality of the process involved improves, changes in results are effected which indeed are benefits to be derived from the improvement in the process. These improvements in the process are frequently associated with the exercise of better control over development banks staffs by their managers. Thus many of the measurements useful for calculating benefits are also those that are useful to managers in exercising control over their staffs. A full cost-benefit scheme should be fully integrated with a management information and control system for the bank. What this paper has attempted to do is to illustrate, in a limited area, the interaction between the cost-benefit concepts and control concepts.