Economic Analysis of Social Investment Fund Projects

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Acronyms

ERR Economic Rate of Return
FES Panama—Fondo de Emergencia Social
FHIS Honduras—Fondo Hondureño de Inversión Social
FIS Bolivia—Fondo de Inversión Social
FISE Nicaragua—Fondo de Inversión Social de Emergencia
HD Human Development
HNP Health, Nutrition and Population
IRR Internal Rate of Return
IDB Inter-American Development Bank
NGO Non-Governmental Organization
NPV Net Present Value
OED Operations Evaluation Department
PAD World Bank Project Appraisal Document
PTI Program of Targeted Interventions
SIF Social Investment Fund
SEF Bolivia—Social Emergency Fund (1986-1990)
SAR World Bank Staff Appraisal Report
Economic Analysis of Social Investment Fund Projects

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Economic Analysis of Social Investment Fund Projects

I. Introduction

Objectives and Scope of the Study

The main objective of the study is to advance the World Bank’s thinking on the economic analysis carried out by Social Investment Funds (SIFs) as part of their ex-ante project assessment process. Economic analysis helps determine whether a project contributes to the welfare of a country’s society. Additionally, it is a powerful resource allocation tool. Economic analysis, also called social project evaluation, is different from financial analysis because the project’s costs and benefits are evaluated taking into consideration economic prices which reflect opportunity costs and benefits to society more closely. Given that SIFs are poverty alleviation mechanisms, it is important to determine whether SIFs have the institutional capacity and the processes and methodologies required to assess each project that is submitted to the institution and whether SIF projects have an impact on poverty alleviation, as measured by increases in income (poverty line) and/or consumption and improved access to basic needs. An analysis of SIF “best practice” economic analysis mechanisms will allow the World Bank to develop a simple methodology for the economic analysis of projects that it should require from the SIFs it is financing. These requirements would be in line with World Bank project requirements developed by sectoral specialists and researchers in policy documents, research papers and operational guidelines.

In a later study, the World Bank will also evaluate SIFs as a delivery mechanism to alleviate poverty, reach under-served or marginal areas and/or address emergency and reconstruction needs. This study would justify the rationale for public sector intervention via SIFs, analyze alternative delivery mechanisms, consider fiscal implications and assess SIFs institutional capabilities.1

Methodology

The contents and conclusions of the study were obtained by means of: (i) a review of World Bank operational documents and current practices related to economic analysis of projects; (ii) interviews with World Bank and Inter-American Development Bank (IDB) task managers, sector specialists, sector leaders, operations evaluations officers and researchers; and (iii) a review of selected SIF economic evaluation methodologies. Annexes 1 and 2 show a list of World Bank and IDB documents reviewed and Annex 3 a list of persons interviewed.

Mission

The consultant spent a total of ten working days between March 30, 1998 and April 10, 1998 at the World Bank’s headquarters in Washington D.C.

II. Economic Evaluation Methodologies

The choice of economic evaluation tools to assess social and poverty alleviation projects depends on the nature of the project in question and on its stated objective. If the objective of the project is to invest in human capital or increase productivity, the project should be designed and appraised utilizing methodologies similar to those employed in capital investment projects, that is, ERR and NPV and benefit-cost ratio. In these cases, it is assumed that the correct implementation of project inputs will result in predetermined outputs that will generate measurable impacts (or outcomes) on the target population’s such as increased literacy, increased earnings, decreased morbidity and mortality, etc.\(^2\) Cost-benefit analysis provides a consistent basis for comparing alternative investments within sectors and across sectors. In addition, it strives to demonstrate that the project’s investment will generate sufficient benefits to repay the cost of the investment.

In cases where investment in social programs is justified based on the assumption that all social programs have a positive economic rate of return and outputs and outcomes cannot be measured in monetary terms, evaluation consists of calculating cost-effectiveness ratios to: (i) determine the cost of producing a predetermined output utilizing unit costs; (ii) compare costs of project outputs with sector standards or with costs of similar projects; (iii) select the most cost-effective way of attaining such an output and; (iv) compare the costs of producing different levels of outputs.\(^3\)

If the project has several outcomes, weights can be assigned to the different project outcome indicators. This procedure is called weighted cost-effectiveness or cost-utility analysis. Weights for each indicator are determined on the basis of subjective judgments (expert opinion, policy makers, community views, etc.). Each indicator is multiplied by the weights to obtain a single composite measure. This composite measure is then divided by the cost of the different alternatives to obtain cost-utility ratios.

Finally, if one of the objectives of the project is to build capacities at the individual, community and institutional level, other evaluation instruments are used, such as beneficiary and stakeholder assessment and other indicators are developed, such as


\(^3\) Idem.
increased planning and administrative capabilities, ownership, empowerment, ability to solve problems and mobilize resources, etc.\textsuperscript{4}

Economic analysis can be carried out during the different stages of a project. During project identification and appraisal, it is used to calculate costs and benefits of alternative projects. Once the project has been completed, evaluations are carried out to verify whether outputs have been attained and whether the project is still economically viable. Evaluations are also carried out when the project has been operating several years to measure impact on the beneficiary population and to assess project sustainability.

III. SIFs and Economic Evaluation

SIFs have evolved considerably during the years that have elapsed since the Bolivian Social Emergency Fund (SEF) started operating in 1986. Initially, the main objective of most SIFs was to alleviate the effects of macroeconomic stabilization programs among the poor and very poor by creating temporary employment. Projects presented to the institution for financing were approved rapidly and financing resources were disbursed with practically no prior assessment or economic analysis. At this stage, SIFs had a short-term life span because it was expected that the economy of these countries would begin to grow and that this growth would have relatively rapid effects on poverty reduction.

During the nineties, most SIFs became permanent institutions when governments, donors and multilateral banks concluded that the economies of developing countries were growing at rates that would not allow for poverty reduction in the short term and that SIFs had evolved into an appropriate instrument to alleviate poverty through the execution of small, targeted projects in the areas of: (i) social and economic infrastructure; (ii) social services; (iii) income generation; and (iv) individual, community and institutional capacity-building.

Ex-Ante Evaluation

During their early short-term stage, most SIFs applied some measure of economic analysis through instruments such as minimum-cost parameters to budget projects submitted by beneficiaries, estimations of temporary employment created by SIF projects, and cost per beneficiary, among others. As SIFs evolved from compensatory mechanisms to medium-term poverty alleviation, other criteria and mechanisms for project approval and resource allocation began to be utilized and developed. These criteria and mechanisms include:

(i) Cost-benefit analysis—financial and economic rate of return (ERR) and net present value (NPV), including cut-off ERR;
(ii) cost minimization, unit cost analysis for budgeting purposes and norms and standards;
(iii) cost per beneficiary and cost per man-month employed indicators, minimum and maximum per capita investment;
(iv) poverty maps to improve targeting based on poverty lines and/or insufficient coverage of basic needs such as education, health, water and sanitation, dwelling, etc.;
(v) technical and institutional ratings to measure financial, technical and institutional capacity of project formulators, executors and beneficiaries;
(vi) environmental impact of projects;
(vii) gender impacts indicators; and
(viii) sustainability, including recurrent costs, stakeholder analysis and community participation.

At this stage, the World Bank’s concern is that even though SIF investment portfolios are growing rapidly and, in some instances, project size is also increasing due to aggregation of small projects across communities, little effort has been made on the part of SIFs themselves and donor and multilateral agencies to find simple, straightforward methodologies to carry out economic analysis with the objective of: (i) justifying resource allocation in terms of equity, efficiency and sustainability during project preparation and appraisal; and (ii) measuring impact of projects.

A recent Bank document states that while it is often claimed that projects that are part of the Bank’s Program of Targeted Interventions (PTI)—under which SIFs should be included—have a “favorable impact on the poor, little solid proof exists to support these claims.” The document in question goes on to say that “a recent note by the PREM Poverty Sector Board to the Executive Directors noted the need to move from counting poverty-focused projects, to assessing the impact of these projects on the poor.”

Even though SIF projects most probably have positive impacts or outcomes on human capital and productivity, and consequently on poverty, in most cases only the project’s expected outputs are calculated because since most of the projects are very small, the cost of estimating, for example, increases in income due to renovation of a school, would be disproportionately high for individuals or institutions that design the project or for SIFs themselves.

Ex-Post Evaluations

Some SIFs and similar demand-driven poverty alleviation Bank projects carry out periodic impact evaluations. For example, the Bolivian FIS has an in-house monitoring and evaluation unit which started evaluating its programs by means of rapid qualitative

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evaluation techniques (interviews, community meetings and focal groups) in 1994. Evaluation results were utilized to redesign programs and make changes in evaluation procedures, contracting and project supervision. Recommendations were made with respect to ministerial policies and their relationship with stakeholders of FIS projects (municipalities, beneficiaries and Non-Governmental Organizations—NGOs).

An independent impact evaluation of the Bolivian FIS financed by the World Bank and other donors was initiated in 1993, when baseline data was collected. The data collected corresponds to: (i) individuals and communities that will benefit from FIS projects; and (ii) a control group which will not benefit from FIS projects. The follow-up survey will be completed during the last quarter of 1998. This evaluation is the first evaluation of a SIF using baseline and follow-up data of control and treatment groups.

Two other impact evaluations (Honduran FHIS and Nicaraguan FISE) assisted by the Bank are being currently prepared. The main sources of baseline data for the Honduran FHIS evaluation are the FHIS’s Management Information and Social Geographic Information Systems. Two population groups will be compared: (i) individuals and communities that benefited from FHIS projects; and (ii) projects that are currently in FHIS’s pipeline. The Nicaraguan FISE’s study will be carried out by FISE’s Planning Department in collaboration with the Bank. The evaluation will use matched comparison methodology to contrast a group of FISE projects and their potential beneficiaries with a comparison group that has not benefited from a FISE intervention.6

The Northeast Rural Poverty Alleviation Program projects carry out mid-term and ex-post socio-economic impact evaluations. These impact evaluations are included as a component of the Bank’s project. For example, in Sergipe a sample of projects was taken and additional data was obtained from field surveys of projects and beneficiaries for eight main project types. The results were very favorable. The projects were found to have a positive impact on the quality of life, employment and income of beneficiary communities and associations (high ERR and low total investment cost per additional job created).

The Senegal AGETIP—a public sector agency which finances small urban infrastructure projects—carried out an ex-post evaluation of its projects in 1992 by means of cost-benefit analysis of a sample of 11 projects. Since no adjustments were made to prices and no shadow prices were calculated, we are talking about financial and not economic discounted cash flows. All projects were found to have very favorable IRRs.

IV. World Bank Policies and Practices

The following sections analyze: (i) the Bank’s “Ten Dimensions of Economic Analysis”; (ii) the Bank’s Handbook on Economic Analysis of Investment Projects;
(iii) economic evaluation guidelines contained in the Project Appraisal Document (PAD); and (iv) other sector policies and practices.

The Bank’s “Ten Dimensions of Economic Analysis”

Bank policies (Ten Dimensions of Economic Analysis) recommend a sound and comprehensive economic evaluation which includes other aspects in addition to cost benefit and cost-effectiveness analysis. These “Ten Dimensions” differ somewhat, depending on the documents consulted. Following is a list of the dimensions found in the different Bank documents:

(i) Project coherency with respect to the Bank’s country and sector strategy and policy framework;
(ii) Quantitative analysis of alternatives guiding project design, including private/public justification;
(iii) Fiscal impact analysis, including cost recovery;
(iv) Cost-benefit, cost-effectiveness and/or cost-utility analysis;
(v) Quantitative sensitivity analysis linked to major risk factors;
(vi) Institutional capacity analysis;
(vii) Poverty analysis;
(viii) Environmental impact analysis;
(ix) Cost recovery and sustainability;
(x) Comprehensiveness and clarity of performance criteria for project monitoring and evaluation (including financial and economic indicators, input indicators, intermediate process indicators, output and outcome indicators, among others); and
(xi) Overall judgment of project justification based on a balanced assessment of the above dimensions.

The above dimensions are basically aimed at large bank projects where most project are expected to have measurable benefits. No specific recommendations for Bank credits to SIFs were found in the documents reviewed.

Handbook on Economic Analysis of Investment Projects

The Bank (Operational Core Services Network - Learning and Leadership Center) developed in 1996 a Handbook on Economic Analysis of Investment Projects which was updated in February of this year. The Handbook is a very good instrument to master aspects related to economic analysis such as economic prices and shadow prices, identification of costs and benefits, methodologies for ERR and NPV calculations and cost-effectiveness and cost-utility analysis. It also has an interesting chapter on how to study the effect of projects on non-beneficiaries. However, little emphasis is given to aspects related

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to the identification of cost recovery mechanisms and operation and maintenance costs which are crucial to SIF projects. The manual was used to train evaluators at the Ethiopian Social Investment Fund.

In the case of education projects, the Handbook recommends the use of cost-benefit analysis only if the objective of the project is to improve labor market prospects of the beneficiaries. In the case of health projects, cost-benefit analysis is recommended when it is necessary to compare investments in health to investments in other sectors. Some parts of the chapter on transport projects could be used to calculate benefits of SIF projects because benefits identified for large roads correspond to benefits of small access roads which are part of SIF project menus. Benefits include savings in vehicle operating costs, increased farmer productivity and, consequently, income, increased crop production, etc. Of special interest in this sector is the stakeholder analysis which includes farmers, truckers, middlemen, and consumers.

Project Appraisal Document

Even though this study’s scope is limited to the economic evaluation of SIF projects and not to the evaluation of SIFs as institutions and delivery mechanisms, a review of the PAD guidelines is very useful because it contains most aspects that should be included by SIFs in their own analysis of projects. The World Bank’s “Guidelines for Completing the Project Appraisal Document” (July 30, 1997) for investment operations states that the PAD “provides the rationale for the proposed investment operation, summarizes the task team’s assessment of various aspects of the operation and flags issues and areas that may be of special concern to the Bank. It serves as the basis of the Bank’s appraisal.” The PAD incorporates some of the “Dimensions” discussed above.

Section A: Project must state clearly the development objective(s) of the project, which must be ranked in order of importance. This section “also summarizes the principal outcome/impact indicators selected for measuring and monitoring progress toward the development objective.” Indicators for sectoral performance prepared by the World Bank networks should guide the selection of project indicators. In the case of PAD for SIF operations, this section applies to the overall objective of the World Bank investment operation and not to the objectives of individual SIF projects. This section should include a justification of public intervention in poverty alleviation via SIFs.

Section C: Project Description describes project components as well as component objectives, output indicators and expected outcomes. Distribution of project benefits and costs among beneficiaries and other affected groups is also discussed in this section. Section D: Project Analyses describes the different types of analysis carried out to assess the feasibility of the project and results obtained: (i) economic; (ii) fiscal impact; (iii) technical; (iv) institutional; (v) social; (vi) environmental; and (vii) participatory approach. Sustainability factors (stakeholder incentives, government co-financing and cost recovery and self-financing mechanisms) and risks, which could also have been included in the above feasibility analysis, are also examined in this section. Risks are analyzed in relation to project outcomes, component outputs and are ranked according to a percentage scale.

Practices and Policies in the Human Development (HD) Sector

Projects designed and assessed by the HD Department (Education, Health, Nutrition and Population (HNP) and Social Protection) have been informally exempted from the requirement of cost-benefit analysis for the following main reasons:

(i) Benefits are more diffuse and, hence, more difficult to estimate;
(ii) in most cases, cost recovery and recurrent costs for these investments can only be assured through taxes, which has proven to be an assumption with little validity when the time comes to disburse resources to cover these items (investment beneficiaries are different from owners of resources);
(iii) in the case of SIFs, there is no counterfactual because projects are supposed to be demand-driven; and
(iv) issues of public sector vs. private sector involvement cannot be considered in SIF projects because of market failures and poor capacity to pay.

The Operations Evaluation Department (OED) reviewed the quality of economic analysis of the Bank’s projects in 1995 and observed that “education and population, health and nutrition projects are not normally subject to cost-benefit analysis in the Bank, although there is no substantive methodological or practical reason to exclude these projects from cost-benefit analysis to assess expected economic performance”. In the case of education projects, the review states that a large portion of projects fail to compare different alternatives to reach the desired objectives and do not pay adequate attention to the implications of ordinary investment costs. With respect to this informal exemption, the other Bank documents consulted state that in spite of such informal exemption, cost-benefit analysis should be used for investments whose measurable benefits accrue directly to the population served.

Traditional investment operations and sector investment projects in the HD sector can be classified into three categories according to the type of intervention:

(i) **Systemic reforms** (basic services, emergency reconstruction, institutional capacity building and systemic reforms). In this case, the Bank needs to pay

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particular attention issues such as the underlying macro framework, major design alternatives, public/private justifications, fiscal impact, household affordability, institutional capacity and poverty considerations;

(ii) **Targeted program interventions** (for example, specific disease control programs, population and reproductive health programs, specific supply inputs, social and productive infrastructure, etc.). In this case, the Bank needs to pay particular attention to economic analysis (cost-benefit, cost-effectiveness and cost-utility), sensitivity/risk analysis and performance criteria. SIFs clearly fall into this category; and

(iii) **Mixed interventions** which combine elements of (i) and (ii).

A recent PAD (March 1998) on a proposed credit to Madagascar for a community nutrition project—composed of two main components: (i) community nutrition (nutrition-related interventions, nutrition education and community mobilization); and (ii) school nutrition (deworming, iron supplements, nutrition education and community mobilization)—determined cost/beneficiary per intervention and cost/intervention indicators. Unfortunately—according to the PAD—very little information is available to which these costs can be compared, mostly because costs are calculated in different manners. Project interventions were selected based on their cost-effectiveness as known from international literature and on their implementation feasibility. Several alternatives were furnished, but only in terms of targeting of beneficiaries.

V. **Inter-American Bank (IDB) Policies and Practices**

The importance of economic analysis of SIF projects was stressed during a meeting held with IDB staff and consultants, which included an economic evaluation specialist, SIF task managers and a specialist in institutional and community capacity building. During the nineties, the IDB financed the establishment of economic evaluation methodologies in several SIFs, including Nicaragua, El Salvador, Honduras and Panama. Special emphasis was put on the development of output indicators, minimum costing and standards and norms to allow for the calculation of cut-off lines or “líneas de corte” per beneficiary and/or units per output. However, it was acknowledged that even though economic evaluation methodologies are included in SIF evaluation manuals, in some cases, projects are not evaluated according to procedures (for example, the Guatemala SIF). In some cases, if economic evaluations are carried out at all, they are performed in a mechanic way and are only one more step in the project approval process.
VI. Social Investment Fund Policies and Practices

The following paragraphs describe SIF economic analysis policies and practices. Documents reviewed were SIF Manuals in some cases (Panama, Nicaragua, Bolivia and Argentina) and Bank documents (PADs and SARs) in others (Panama, Nicaragua, African AGETIPs, NE Brazil Poverty Alleviation Program and rural water projects). Telephone conversations were held with evaluation officers of the Nicaragua FISE and Bolivia FIS.

1. Panama

The institution has developed its own economic evaluation methodology for economic evaluation of small water, sanitation and road projects. This methodology is included in the Operations Manual. A World Bank consultant who examined the procedures found them satisfactory and stated they are applied in a consistent manner. In the case of water projects, consumer surplus is estimated on the basis of: (i) beneficiary population; (ii) water supply and demand and prospective growth in the next 20 years; and (iii) water consumption per capita. Consumer surplus is the area under the demand curve. Water consumption and unit cost of water is estimated “with project” and “without project”. Cash flows are discounted at a rate of 8%. IRR, NPV and benefit-cost ratios are estimated. Sanitation projects are evaluated in a similar way. Roads projects, on the other hand, are evaluated in a slightly different manner. The main benefit of a road project is increased agricultural production and, consequently, increased income. In this case, benefits and costs are also estimated “with project” and “without project” and ERR, NPV and benefit-cost ratios are calculated. Social infrastructure projects (schools and health posts) are approved on the basis of the income level of the prospective beneficiaries. In the case of health posts, projects are prioritized according to coverage of basic needs.

2. Nicaragua

The Nicaragua FISE has evaluation forms for different types of projects as well as computer programs to calculate cost benefit ratios for new water and sewage projects, most of which are urban and have relatively high investment costs. First, a beneficiary survey is carried out to collect the following information: (i) consumption per capita; (ii) cost of obtaining water (monetary and time); (iii) water source; (iv) water tariffs; (v) time spent transporting water; and (vi) socio-economic data. Second, a program is used to estimate demand elasticities and the tariff level that can be charged to the project beneficiaries. Third, IRR and NPV are calculated. If IRR is higher than 12% and NPV is positive, the project is feasible. The programs also calculate: (i) cost per beneficiary; (ii) operating cost per gallon; (iii) investment cost per gallon; and (iv) total cost per gallon of water (for tariff calculation). The forms include a tariff study in the case of new projects. Benefit for water projects is time savings. An IRR of at least 12% is required. For other projects (social and economic infrastructure, including materials and supplies), “lineas de corte” (cut-off lines)

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are used as well as parameters such as cost per man-month employed, unit cost per type of infrastructure project and unit cost per beneficiary.

3. Mali

AGETIPs are executing agencies that finance small urban infrastructure projects utilizing FIS-like mechanisms. The Mali AGETIP finances five major types of projects: (i) municipal maintenance; (ii) urban roads; (iii) sanitation; (iv) marketplaces and transport stations; and (v) historic cities. The Staff Appraisal Report (SAR) does not explain whether in-house economic analysis is carried out. The November 1, 1996 SAR undertook an economic evaluation of a sample of the institution’s subprojects for the project’s feasibility study. Urban projects are generally larger than the typical small rural SIF project. Evaluation criteria were based mainly on the net benefit stream for the economic analysis and on the corresponding net revenues for the financial analysis. ERR and NPV were calculated. A discount rate of 12% was utilized. Costs and revenues were net of duties and taxes but no shadow pricing was applied. ERRs did not include indirect costs such as interest, depreciation and debt service. Costs and benefits were projected in constant prices over a period of 20 years (30 years for water projects). Sensitivity analyses were carried out. The SAR does not explain whether in-house economic analysis is carried out. The following table summarizes revenues and benefits for each type of project:

Table 1: Mali AGETIP—Project Benefits

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>Measurable Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Maintenance</td>
<td>Increase in municipal income through reinforcement and improvement in management and revenue collecting capacity</td>
</tr>
<tr>
<td>Urban Roads</td>
<td>Reduction of transport time</td>
</tr>
<tr>
<td></td>
<td>Decrease in vehicle operating costs</td>
</tr>
<tr>
<td></td>
<td>Decrease in vehicle maintenance and repair costs</td>
</tr>
<tr>
<td>Marketplaces and Transport Stations</td>
<td>Increase in market and transport station revenue</td>
</tr>
<tr>
<td>Water Supply</td>
<td>Incremental revenue earned from the sale of water (a proxy for customers’ willingness to pay)</td>
</tr>
<tr>
<td>Land Development for Housing</td>
<td>Increase in rental value after project</td>
</tr>
</tbody>
</table>

4. Mauritania

The Mauritania AGETIP’s criteria for project eligibility include a simplified economic evaluation which uses computer software to calculate ERR of the following projects: (i) road enhancement or rehabilitation (where benefit identified is lower transport costs); (ii) fixing of sand dunes (where benefits are savings on sand removal and lower transport costs); (iii) storm drainage (where benefits is savings in damage to households and infrastructure); (iv) administrative buildings (where benefits is savings on rents); (v) revenue earning projects like slaughterhouses (where benefits are increased income); and (vi) municipal management (where benefit is enhanced tax collection). In the case of rehabilitation of schools (or other public buildings), discounted costs of rehabilitation are
compared with discounted costs of building a new school in the future. A sensitivity analysis is conducted with a conversion factor of 50% for wages of unskilled workers.

In several AGETIPs upfront investment and operation and maintenance cofinancing from beneficiaries is required in different percentages from municipalities and communities.

5. Senegal

An ex-post financial evaluation of 11 AGETIP projects was carried out in 1992. No adjustments were made to prices and no shadow prices were calculated. Benefits identified include: (i) decrease in city and vehicle operations and maintenance expenses for urban infrastructure rehabilitation projects; (ii) decreases in operations and maintenance costs and increase in income for hospital rehabilitation projects; (iii) decreases in operations and maintenance expenses and increase in income from parking in poor neighborhood rehabilitation projects; (iv) decrease in operations and maintenance expenses of service for garbage collection projects; and (v) increased income from sale of fresh fish for rehabilitation of municipal cold chambers.

6. Argentina

Cost benefit analysis is applied only for income generation projects. Other components (training and infrastructure) of the income generation projects are subject to an indicator analysis (cost/beneficiary; cost/output units) where project indicators are compared to “líneas de corte”. For other projects, very detailed “líneas de corte” (cut-off points) have been developed using data from FOPAR’s own projects and other similar projects. Three different methodologies are used to calculate “líneas de corte”: (i) regression analysis for FOPAR projects that have enough internal data; (ii) inferior and superior limit analysis for projects that do not have enough FOPAR data; and (iii) unit costs of inputs for infrastructure projects.

7. World Bank-UNDP small rural water projects.

World Bank and United Nations Development Programme experts are of the opinion that rural water projects are too small to be subjected to cost-benefit analysis. Studies have shown that economic demand, that is willingness to pay for water exists. Consequently, a subsidy ceiling could be established based on ability (socio-economic situation) and willingness to pay on the part of beneficiaries. The project would then be justified based on the subsidy ceiling plus community cofinancing or private demand for water. A cap on investment costs would have to set. Scarc resources could then be used to finance projects in more communities.10

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8. Bolivia

To cover operation and maintenance costs, a market tariff and a social tariff are calculated based on an analysis of operation, administrative and maintenance costs. Total cost is divided by the number of beneficiaries. The number of beneficiaries depends on the type of subproject. A unit cost figure is obtained. A 5-year time line is taken into consideration and costs are expected to increase 15% per year. The social price is calculated by assigning a maximum of 7% of a family’s income to cover operation and maintenance costs. If this social tariff is higher than the unit cost figure, the project is sustainable. Otherwise, an analysis of other available resources to cover operation and maintenance costs is carried out.

9. Brazil—Northeast Rural Poverty Alleviation Program

Rural Poverty Alleviation Programs in three northeastern states were reviewed: Maranhao, Bahia and Sergipe. The projects consists of institutions (Municipal Councils) which utilize SIF-like mechanisms to finance projects in poor areas. Municipal councils comprise representatives from rural communities, civil groups, NGOs, religious organizations, rural labor unions and publicly-elected representatives and municipal government officials. The Project Operational Manual includes standard designs which include: (i) engineering aspects; (ii) technical, financial and economic feasibility; (ii) operation and maintenance; (iii) environmental impact; and (iv) social demand. Projects are evaluated by means of standard cost indicators. Departures from standard designs have to be fully justified, as well as proposed investments that fall outside the range of standardized costs. Infrastructure (rural water, electrification, roads and bridges) and social (community centers, sanitation, etc.) are also analyzed using community participation criteria. Community participation is a proxy for best alternative.11

On the other hand, the Maranhao SAR states that because of the size and the demand-driven nature of the projects, benefits and costs cannot be identified ex-ante. Hence, it not possible to estimate an overall ERR for the project nor individually for a variety of potential sub-projects. According to the SAR, another reason that makes an overall quantitative analysis difficult is the fact that the synergy created from the interactive effects of several sub-projects within a municipality is difficult to capture and quantify.

VII. Conclusions and Recommendations

Conclusions

11 See Annex 2 for an example of ex-post evaluation carried out for the Brazil EN Poverty Alleviation Program (Sergipe).
SIFs are relatively new institutions that have evolved considerably during the last decade. Since a large number of SIFs were established to mitigate the effects of stabilization programs, financing came almost entirely from multilateral organizations and donors. This situation did not change when SIFs became permanent poverty alleviation instruments. In spite of this almost total reliance on external resources, SIFs have been allowed by their creditors to develop their own promotion, evaluation, contracting and supervision mechanisms based on experience and circumstances. In fact, the learning process has involved SIFs themselves as well as multilateral organizations and donors which have been willing to experiment with new mechanisms to improve delivery times, quality, sustainability and impact of their projects. For that reason, and in spite of the fact that most SIFs appear to have basically the same procedures, variations occur from one SIF to another. This is the case of the economic evaluation which is carried out ex-ante by SIF staff as part of the project’s general assessment.

Due to the fact that SIF projects are: (i) small; (ii) demand-driven; (iii) multi-sectoral and multi-component; (iv) designed by contractors, NGOs and communities; and (v) meant to be disbursed rapidly with minimum overhead, economic evaluation techniques for larger projects are not always applicable to this type of project. In general, education and health infrastructure projects are part of the country’s sectoral programs and strategies and as such, contribute towards the overall objectives of these programs. Consequently, the impact of building schools and health posts and centers should be measured as part of that overall impact. Nevertheless, care should be taken to build infrastructure of an acceptable quality at reasonable prices. Hence, the next step was the development of analytic tools such as norms and standards, input unit cost manuals for project budgets and minimum cost calculations. Further along the line, “líneas de corte” became a permanent tool in most SIFs. Indicators such as cost per beneficiary and cost per intervention began to be used routinely. These tools seem appropriate for the types of projects financed by SIFs if the data bases are grounded on good quality information, are regionalized and are maintained periodically.

To further ensure impact, SIFs have also begun to carry out a comprehensive analysis, similar to the “Ten Dimensions of Economic Analysis” routinely used by the Bank to assess its own projects. For example, projects should: (i) projects should be coherent with line-ministry norms, standards and strategies; (ii) cost recovery should be guaranteed by line-ministries, municipal government or communities; (iii) some type of economic analysis should be carried out; (iv) major risk factors should be assessed; (v) an institutional capacity analysis of main stakeholders should be performed; (vi) projects should be poverty targeted and; (vii) environmental impact should be assessed. Project approval should be based on an overall assessment of the above dimensions. Clearly, the message is that pure economic analysis is not sufficient to guarantee impact. This is a favorable trend which should be encouraged in all SIFs financed by the Bank.

Some SIFs that finance medium-sized water and sanitation systems evaluate their projects through cost benefit analysis. This seems appropriate because benefits can be easily measured and costs are straightforward. The same holds true for economic infrastructure such as access roads, bridges and markets. Small rural water projects, on the other hand, are more expensive than conventional medium-sized water projects because
they benefit less families so different cost/beneficiary indicators have to be developed for this type of project. Also, benefits are difficult to define because, in many cases, technical options are individual and user tariffs are not applied. In these cases, norms and standards are applied and maximum cost/beneficiary and cost/technical option are defined. It is in this type of project where community cofinancing tends to be widespread and shows willingness to pay for water and sanitation.

With respect to the Bank’s sector policies and practices, a review of some projects shows that some SIF projects could be evaluated by comparing cost-effectiveness ratios that have been calculated by sectoral projects with SIF project ratios. In addition, some Bank sectoral projects compare their own ratios with ratios estimated by other sources (international literature). Very little is known about the values of indicators and ratios developed and standardized by SIFs throughout the last decade on the basis of their own experience. A more meaningful and complete cost-effectiveness analysis could be carried out by SIFs if comparison could be made across countries with a similar socio-economic profile.

In general, SIFs seem to be applying economic evaluation methodologies which are appropriate to the types of projects which they finance. The degree of complexity of methodologies applied correspond to the limited amount of time and resources made available to SIFs for overall assessment purposes. The following paragraphs will examine how these methodologies could be applied to SIF projects in a uniform manner.

**Recommendations**

The revision of SIF ex-ante evaluation methodologies was not conducted in a thorough manner due to time limitations on the part of the consultant and the persons interviewed, lack of detailed documentation and difficulties encountered when trying to carry out telephone surveys to the Central America SIFs. Nevertheless, it is clear that some lessons can be extracted from this first approach towards applying a more rigorous economic analysis to SIF projects. The following paragraphs present a list of recommendations.

1. A revision of the current Argentina FOPAR Cost Manual reveals that FOPAR seems to be following the right path in defining a detailed list of indicators for its “líneas de corte” or cut-off points. Their previous Cost Manual had costs that were proven to be too high so a new methodology was developed and new cut-off lines were estimated. A visit to FOPAR or a telephone survey could help determine whether this methodology could be applied to other SIFs.

2. For projects where cost-benefit analysis can be carried out, a detailed analysis of the methodology utilized in the Panama FES and in the Nicaragua FISE would be extremely useful since these two SIFs have already established a track record in the routine application of these methodologies. It is important to verify whether economic analysis is actually used as part of a comprehensive assessment process and not as an item to be ticked off during overall assessment of the project. The Nicaragua FISE’s computer program should be analyzed to determine its applicability in other countries.
documents pertaining to African AGETIPs and NE Brazil Poverty Alleviation Programs should be reviewed to determine whether economic analysis methodologies utilized in ex-post evaluations of project samples could be used by SIFs in their appraisal process.

3. Very little attention is paid to project sustainability in terms of operations and maintenance costs. If a feasibility study were carried out, these costs would be included in the calculation of the ERR to determine whether the project is feasible or not. Standard measurement methodologies of such costs could be developed using the Bolivia SIF model as an example. Phone surveys to other SIFs could be undertaken to determine what is being done in other countries.

4. In house ex-post quantitative and qualitative evaluations of SIF projects should be performed to improve quality, sustainability and impact of projects. The African AGETIP (particularly Mali) and the Brazil NE Poverty Alleviation Program ex-post evaluation experiences could be studied more closely to determine their replicability at SIF levels. The Bolivian four-year experience should also be examined.

5. Better beneficiary and stakeholder assessments and the introduction of participatory evaluations as part of general assessments should be introduced to ensure that demand for the project exists and to guarantee impact in terms of quality and sustainability. No example of this type of evaluation was found in the documents reviewed.

6. Finally, an overall assessment of each project should be carried out along the lines of the Bank’s “Ten Dimensions of Economic Analysis”. The Argentina FOPAR project manuals contain detailed descriptions of steps which are taken to approve a project submitted for financing. This additional procedure could contribute greatly towards ensuring that SIF projects have the maximum impact possible.

The following table summarizes recommendations on types of economic analysis to be used by SIFs in their overall assessment of projects. It also shows examples of SIF practices that could be used as a model to be implemented across SIFs.
### Table 2: Ex-Ante Economic Evaluation of SIF Projects

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Recommended Economic Analysis</th>
<th>Example*</th>
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<tbody>
<tr>
<td><strong>Social Infrastructure</strong> (Schools and Health Posts/Centers, Training Centers) Subcomponent: Materials Subcomponent: Supplies Operation and Maintenance Costs Training of School Boards</td>
<td>Separate evaluation for each subcomponent. Norms and Standards Cost infrastructure/beneficiary Cost materials/beneficiary Cost supplies/beneficiary</td>
<td>• Argentina FOPAR Cost Manual “Líneas de corte” for all subcomponents • Bolivian FIS Operations Manual for estimations of market and social tariffs or maintenance fees</td>
</tr>
<tr>
<td><strong>Economic Infrastructure</strong>: Roads Markets Operation and Maintenance Costs Training of Maintenance Committees</td>
<td>Separate evaluation for each subcomponent. Cost-benefit analysis making adjustments for import tariffs and exchange rates and conversion factors for other prices (see p. 122 of SAR on Brazil: NE Rural Poverty Alleviation Program - Maranhao).</td>
<td>• Panama FES for Roads • African AGETIPs Project Documents for Roads and Markets • Bolivian FIS Operations Manual for estimations of market and social tariffs or maintenance fees</td>
</tr>
<tr>
<td><strong>Water and Sanitation</strong>: medium-sized Operation and Maintenance Costs</td>
<td>Cost-benefit analysis making adjustments for import tariffs and exchange rates and conversion factors for other prices (see p. 122 of SAR on Brazil: NE Rural Poverty Alleviation Program - Maranhao).</td>
<td>• Panama FES Operations Manual • Nicaragua FISE Operations Manual • Project Documents for ex-post evaluations of African AGETIPs and Brazil Northeastern Poverty Alleviation Program • Bolivian FIS Operations Manual for estimations of market and social tariffs or maintenance fees</td>
</tr>
<tr>
<td><strong>Small Rural Water and Sanitation</strong></td>
<td>Separate evaluation for each subcomponent.</td>
<td>• Bolivia—PROSABA R</td>
</tr>
<tr>
<td>Operation and Maintenance Costs</td>
<td>Norms and standards. Maximum subsidy based on capacity and willingness to pay. Maximum investment costs per technical option and per capita.</td>
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**Annex 1: Interviews**

<table>
<thead>
<tr>
<th>NAME</th>
<th>SECTOR</th>
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<tbody>
<tr>
<td><strong>Willem Struben</strong></td>
<td>Senior Operations Officer</td>
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<tr>
<td>LAC Social and Human Development</td>
<td></td>
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<tr>
<td><strong>David Warren</strong></td>
<td>Consultant</td>
</tr>
<tr>
<td>LAC Social and Human Development</td>
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<tr>
<td><strong>Hideki Mori</strong></td>
<td>Operations Officer</td>
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<tr>
<td>Task Manager Belize and Argentina</td>
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<tr>
<td><strong>Deepa Narayan</strong></td>
<td>Principal Social Development Specialist</td>
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<tr>
<td>Poverty Division</td>
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<tr>
<td><strong>Jeffrey Hammer</strong></td>
<td>Principal Economist</td>
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<tr>
<td>Development Research Group</td>
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<tr>
<td><strong>Charles Griffin</strong></td>
<td>Lead Specialist</td>
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<tr>
<td>LAC Social and Human Development</td>
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<tr>
<td><strong>Steen Jorgensen</strong></td>
<td>Sector Manager Social Protection</td>
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<tr>
<td>Social Protection Unit</td>
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<tr>
<td><strong>Constance Bernard</strong></td>
<td>Operations Advisor</td>
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<tr>
<td>Quality Assurance Group</td>
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<tr>
<td><strong>Ana Maria Arriagada</strong></td>
<td>Sector leader</td>
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<tr>
<td>Central America Country Department</td>
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<tr>
<td><strong>Jean-Jacques de Saint Antoine</strong></td>
<td>Principal Operating Officer</td>
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<tr>
<td>LAC Social and Human Development</td>
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<tr>
<td><strong>Emmanuel Jimenez</strong></td>
<td>Research Manager</td>
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<td>Development Research Group</td>
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<tr>
<td><strong>Laura Rawlings</strong></td>
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<td>Development Research Group</td>
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<td><strong>Margaret Goodman</strong></td>
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<tr>
<td>IDB Evaluations Office</td>
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<tr>
<td><strong>Antoinette Brown</strong></td>
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<td>Inter-American Foundation</td>
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<tr>
<td><strong>Maria Eugenia Zavala, Gerald Johnson, Marta Mejia, Peter Sollis</strong></td>
<td>Inter-American Development Bank</td>
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<tr>
<td><strong>Alberto Harth</strong></td>
<td>Technical Specialist</td>
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<tr>
<td>Africa Technical Families - Water, Urban and Energy</td>
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<tr>
<td><strong>Gita Gopal</strong></td>
<td>Senior Operations Officer</td>
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<td>Africa Technical Unit</td>
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<tr>
<td>Human Development - Ethiopian SIF</td>
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<tr>
<td><strong>Jennifer Sara</strong></td>
<td>Water &amp; Sanitation Specialist</td>
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<tr>
<td>Transportation, Water and Urban Department - Water and Sanitation Division</td>
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<tr>
<td><strong>Luis Coírolo</strong></td>
<td>Principal Operations Officer</td>
</tr>
<tr>
<td>Environmentally and Socially Sustainable Development</td>
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Annex 2: Example of Economic Ex-Post Evaluation

Brazil: Northeast Rural Poverty Alleviation Program – SERGIPE

A. Ex-Ante Evaluation

- Standardized technical designs including: (a) engineering aspects; (b) technical, financial and economic feasibility; (c) operation and maintenance; (d) recommendations on environmental impact; and (e) social demand

- Cost Parameters: cost per physical unit and cost per beneficiary

B. Socio-economic Impact Evaluation:

Sample plus data obtained from field surveys of projects and beneficiaries for eight main project types. Results: projects have made a positive impact on the quality of life and on employment and income of beneficiary communities and associations. Social IRR for productive projects: very high (>50%). Impressive cost-effectiveness results in terms of employment creation and social benefit cost/ratio. Prospects for financial sustainability is projects is more than satisfactory.

Economic Evaluation: Total investment cost per additional job created, social benefit-cost ratios. Social internal rates of return for productive projects. Assumptions: constant benefits over an eight-year life cycle.

Benefits Identified

1. Rural water supply: savings in time, effort and cost. Improved health through better sanitation. Gains are difficult to quantify.

2. Rural electrification: improvement in quality of life, generation of additional employment and income through increased operation of local businesses and industries.

3. Manioc mills: reduction in processing costs, savings in transport to other mills, increased production of manioc and subproducts for sale or family consumption, improved quality and higher incomes, increase in manioc crop production, employment in mills, better working conditions.

4. Tractors for communal use: increases in area under cultivation, increase in yields, increase in income.

5. Rice mills: reduced processing costs, savings in time and effort, increased crop areas, increased production, income and employment

6. Clothes making: additional income and employment.
7. **House improvement**: improvement in living conditions, especially health (Chagas)

8. **Day care centers**: increase in work capacity of mothers, additional income, increase in leisure time, educational activities and food preparation.