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## *An Overview of Economic Analysis*

Economic analysis helps design and select projects that contribute to the welfare of a country. Economic analysis is most useful when used early in the project cycle to identify poor projects and poor project components. If used at the end of the project cycle, economic analysis can only help determine whether to proceed with a project or not. When used solely to calculate a single summary measure, such as the project's net present value (NPV) or economic rate of return (ERR), economic analysis serves a limited purpose.

The tools of economic analysis can help answer various questions about the project's impact on the entity undertaking the project, on society, and on various stakeholders. They can also help identify the project's risks and assess its sustainability. In particular, these tools can help

- Determine whether the private or the public sector should undertake the project
- Estimate its fiscal impact
- Determine whether the arrangements for cost recovery are efficient and equitable
- Assess its potential environmental impact and contribution to poverty reduction.

This handbook provides a toolkit that helps answer these questions; however, it does not provide a recipe for every possible instance. The procedure set out in this handbook is an iterative process that should begin early in the project cycle and be used throughout it. This procedure works best when analysts use all the information available about the project, including the financial evaluation and the sources of divergence between financial and economic prices.

## The Economic Setting

A project cannot be divorced from the context in which it takes place. The relationship of the project to the broader development objectives for the sector and for the country is an integral part of its economic justification. Early in the assessment of a project, analysts should always ascertain that the project fits with the broader country and sector strategies. The key role of the policy and institutional framework must also be discussed. More important, because research indicates that environments with low distortions produce more successful projects than highly distorted environments (Kaufmann 1991), analysts should ensure that sectoral policies and macroeconomic preconditions, as well as the institutional framework, are conducive to good project performance. Also, to ensure project effectiveness, analysts must identify key distortions that should be removed prior to project implementation.

## Rationale for Public Sector Involvement

Worldwide, the private sector increasingly provides goods and services that a few decades ago were deemed to be properly in the domain of the public sector. Two main reasons account for this development. First, a growing, albeit inconclusive, body of evidence indicates that the public sector is less efficient than the private sector when engaged in market-oriented activities.<sup>1</sup> Second, technological changes are making it possible to have competition in markets that have traditionally been considered natural monopolies.

What, then, is the economic justification for public provision of goods and services? As discussed in appendix 1A, government intervention in the provision of goods and services is justifiable if the project addresses a market failure, or if it reduces poverty. In every case calling for government intervention, analysts must identify the market failure that prevents the private sector from producing the socially optimal quantity of the good or service, and they must show that society will be better-off as a result of government involvement. In short, analysts must show that the benefits of government involvement will

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1. However, there are no theoretical grounds for supposing that private enterprises are more efficient than public enterprises, nor can any conclusive evidence be found showing that one is more efficient than the other. Examples of efficiency and inefficiency exist in both sectors. Yet even those economists who make strong cases for government intervention side with the popular notion that public enterprises are less efficient (Stiglitz 1994).

outweigh the costs. The strength of the case for government involvement depends on institutional arrangements; legal, regulatory, and political conditions; and external circumstances, conditions that vary from country to country, and within a particular country, from year to year. In addition to economic considerations, there are also equity, political, and strategic considerations. Consequently, no hard and fast rules enable decisionmakers to come unmistakably to the conclusion that government involvement will make the country better-off, and each case must be decided on its merits.

The tools of economic analysis developed in this handbook can help analysts

- Judge whether the project would be financially viable if done by the private sector
- Assess the magnitudes of externalities associated with the project
- Estimate the impact of policy distortions and market failures on the project's economic and financial flows
- Identify the incidence of costs and benefits on various groups in society.

These important considerations help decide whether the project should be done by the public sector.

## Questions That Economic Analysis Should Answer

A large part of project analysis serves to establish a project's technical and institutional feasibility, its fit with the government's strategy for the country and the sector, and the appropriateness of the economic context for the project. Economic analysis takes for granted that the project is technically sound and that its institutional arrangements will be effective during implementation. It is, therefore, only one part of the overall analysis of the project, but a very important part, as its main objective is to ascertain that the value of project benefits will exceed project costs. Good economic analysis should leave no doubts about the project's contribution to the country's welfare. This section provides a general overview of the questions that good economic analysis should answer and can serve as a checklist and a map for finding tools that could help answer those questions.

### *What Is the Objective of the Project?*

The first step in the economic analysis of a project is to define clearly its objective(s). A clear definition is essential for reducing the number of alternatives to consider and for selecting the tools of analysis and the performance indicators.

If the project tries to achieve a narrow objective, such as improving the delivery of vaccines to a target population, then the analyst will only look at alternative ways of delivering vaccinations to a target population and will judge the success of the project in terms of the vaccination coverage obtained. If the project tries to achieve a broader objective, such as improving health status, then analysts will look not only at alternative ways of delivering vaccinations, but at alternative ways of reducing morbidity and prolonging the lives of the target population. The success of the project then will be judged in terms of its impact on health status.

The appropriate tool of analysis also depends on the breadth of the objective. For example, if the objective is to reduce the cost of vaccination, cost-benefit ratios might be adequate ways to compare and select among interventions. If the objective is to improve health status, then the interventions need to be compared in terms of their impact on health status. If the objective is even broader—say, to increase a country’s welfare—then the comparisons need to be done in terms of a common unit of measurement, usually a monetary measure.

### *What Will Happen if the Project Proceeds or Not?*

One of the most fundamental questions concerns a counterfactual: What would the world look like without the project? What would it look like with the project? What will be the impact of the project on various groups in society? In particular, what will be the impact of the project on the provision of goods and services in the private sector? Will the project add to the provision of goods and services, or will it substitute for or displace goods and services that would have been provided anyway? These differences between the situation with and without the project are the basis for assessing the incremental costs and benefits of the project. Both the financial and economic analysis of the project are predicated on the incremental net gains of the project, not on the before and after gains. Chapter 3 deals with this issue.

### *Is the Project the Best Alternative?*

Another important question concerns the examination of alternatives. Are there any plausible or mutually exclusive alternatives to the project? Alternatives could involve, for example, different technical specifications, policy or institutional reforms, location, beneficiaries, financial arrangements, or differences in the scale or timing of the project. How would the costs and

benefits of alternatives compare with those of the project? Comparison of alternatives helps planners choose the best way to accomplish their objectives. These questions are also treated in chapter 3.

### *Does the Project Have Separable Components?*

Is the project one integrated package, or does it have separable components that could be undertaken and justified by themselves? If the project contains separable components, then each and every separable component must be justified as if it were an independent project. Omitting a component that cannot be justified always increases the project's net benefits. Separable, unsatisfactory components should always be deleted from the project. Chapter 3 also addresses these issues.

### *Winners and Losers: Who Enjoys the Music and Who Pays the Piper?*

A good project contributes to the country's economic output; hence, it has the potential to make everyone better-off. Nevertheless, usually not everyone benefits from a project, and some may lose. Moreover, groups that benefit from a project are not necessarily those who incur the costs of the project. Identifying those who will gain, those who will pay, and those who will lose gives the analyst insight into the incentives that various stakeholders have to implement the project as designed, and to support it or oppose it. Identifying the benefits accruing to and the costs borne by the poor or very poor is especially important. Chapters 3–6 lay the foundation for identifying gainers and losers, and chapter 12 shows how the various tools can be used to assess whether the main stakeholders have the proper incentives to make a project a success.

### *What Is the Project's Fiscal Impact?*

Given the importance of fiscal policy for overall macroeconomic stability, the fiscal impact of the project should always be analyzed. How and to what extent will the costs of the project be recovered from its beneficiaries? What changes in public expenditures and revenues will be attributable to the project? What will be the net effect for the central government and for local governments? Will the cost recovery arrangements affect the quantities demanded of the services provided by the project? Are these effects being properly taken into account in designing the project? What will be the effect of cost recovery on the distribution of

benefits? Will the cost recovery arrangements contribute to the efficient use of the output from the project and of resources generally? Is the nonrecovered portion factored into the analysis of fiscal impact? Chapters 4 and 5 lay the foundation for answering these questions, and chapter 12 shows their application to real cases.

### *Is the Project Financially Sustainable?*

The financing of a project is often critical for its sustainability. Even projects with high benefits undergo lean periods when external funds must sustain them. The cash flow profile is often as important as the overall benefits. For these reasons, knowing how the project will be financed, and who will provide the funds and on what terms, is important. Is adequate financing available for the project? How will the financing arrangements affect the distribution of the project's benefits and costs? Is concessional foreign financing available only for the project and not otherwise? These questions are dealt with in chapter 12 and to a lesser extent in chapters 4 and 5.

### *What Is the Project's Environmental Impact?*

An important difference between society's point of view and the private point of view concerns costs or benefits attributable to the project that are not reflected in its cash flows. When these costs and benefits can be measured in monetary terms, they should be integrated into the economic analysis. In particular, the effects of the project on the environment, both negative (costs) and positive (benefits), should be taken into account and, if possible, quantified and valued in monetary terms. The impact of these external costs and benefits on specific groups within society—especially the poor—should be borne in mind. The external effects of projects are treated in chapter 6.

### *Techniques for Assessment: Is the Project Worthwhile?*

After taking into account all the costs and benefits of the project, the analyst must decide whether the project is worth undertaking. Costs and benefits should be quantified whenever reasonable estimates can be made, but given the present state of the art, quantifying all the benefits and costs is not always possible. Various proxies or intermediate output may have to suffice. The net present value is the appropriate yardstick for judging the acceptability of projects whose benefits are measured in monetary terms. To be acceptable on economic grounds, a project must meet two conditions:

- The expected net present value of the project must not be negative.
- The expected net present value of the project must be higher than or equal to the expected net present value of mutually acceptable project alternatives.

For other projects, physical indicators of achievement in relation to costs, or cost-effectiveness, are appropriate. In some other cases, a qualitative account of the expected net development impact might have to suffice. In all cases, however, the economic analysis should give a persuasive rationale for why the benefits of the project are expected to outweigh its costs, that is, economic analysis should give the reasons for expecting the net development impact of the project to be positive. When analysts carry out quantitative analysis, they should apply economic prices, not market prices. Chapters 4 through 6 provide guidance on deciding which costs to take into account, valuing the flows, and finally comparing costs and benefits that occur at different times.

### *Is This a Risky Project?*

Economic analysis of projects is necessarily based on uncertain future events and involves implicit or explicit probability judgments. The basic elements in the costs and benefits streams are seldom represented by a single value. More often they are represented by a range of values with different likelihoods of occurring. Therefore, analysts should take into consideration the range of possible variations in the values of the basic elements and reflect clearly the extent of the uncertainties attached to the outcomes.

At the very least, economic and risk analysis should identify the factors that could create the greatest risks for the project. In other words, it should identify the critical variables that determine the outcome of the project, in particular, the values of those variables that increase or decrease the likelihood that the project will have the expected positive net development impact. The analysis should also assess if such deviations are likely to exist, singly and in combination. If risk analysis is based on switching values, it should identify the range of values that critical variables and plausible combinations of critical values can take before the net present value of the project turns negative. To the extent possible, the analysis should also identify and reflect the likelihood that these variables may deviate significantly from their expected value and show the major factors affecting these deviations. Finally, analysts should be explicit about actions taken to reduce these risks. The evaluation of risk is the main theme of chapter 11.

