PROJECT AND ADVISORY ASSISTANCE PROGRAMME

SELECTING INVESTMENT PROJECTS
AND POLICY REFORMS:
THE NEED FOR AN INTEGRATED APPROACH

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FOREWORD

The Economic Development Institute of the World Bank (EDI), the Economic Commission for Latin America and the Caribbean (ECLAC) and the Latin American and Caribbean Institute for Economic and Social Planning (ILPES), sponsored a Seminar on **"Projects Data Bank and Public Sector Investment Programming"** which was held in Kingston, Jamaica, 20-22 November, 1991.

Taking into consideration the need for strengthening the exchange of experiences of methods, tools and instruments for improving the overall public investment management, the three sponsoring institutions decided to make a wide distribution of the papers submitted to the Seminar.

It is expected that the dissemination of these documents, prepared by the speakers and by the Caribbean Governments, will facilitate an integrated analytical and operational approach in improving project effectiveness and promoting institution-building.

Edgar Ortegón
Director
Projects and Advisory Assistance Programme

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SECTION ONE

Overview

From the early post-war years until the second petroleum price shock, augmenting capital accumulation was considered the central challenge for accelerating growth. Public sector investment accounted for a large share of total gross domestic investment, and hence, exercised a decisive impact on the efficient disposition of savings, domestic and foreign. Widespread market imperfections implied a need to develop shadow pricing rules to guide efficient allocation of public sector resources. Project investment constituted the cutting edge of development, and a copious literature on project evaluation emerged.

In the train of the international debt crisis, the policy focus naturally shifted from public sector investment projects to policy reforms, as heavy and prolonged external shocks obliged countries to undergo draconian adjustments --especially if they were heavily indebted and riddled with substantial price distortions. At first, these adjustments usually were left to market forces without major changes in policies; only later did policy reforms impinge on the process. In any case, the adjustment process invariably witnessed a sharp drop in investment, public as well as private. Internal and external financial constraints suggest that in the future, restoration of developing country growth to potential will hinge mainly on private investment. In this case, priority should attach to investment in policy reforms. Investment public investment in projects that complement private capital formation also is needed.

Against this background, the relationship between policy reforms and shadow prices needs to be explicitly considered. Shadow pricing rules depend on prevailing policies --and policy changes alter shadow prices. Policy reforms enhance the social profitability of investment projects, especially those which mitigate economy-wide price distortions. In turn, investment projects that complement policy reforms and raise supply elasticities curtail the adjustment costs and augment the adjustment benefits associated with policy reforms.

In the project evaluation literature, price distortions and policies usually are taken as given, according as a project's output constitutes, or is assumed to constitute, a marginal increment in domestic supply. The project officer's role generally does not include policy analysis. Altering shadow prices to take account of eventual policy reforms or the impact of large investments complicates project evaluation, an seldom is done. In short, project decision-making normally is divorced from policy decision-making, sectoral as well as macro. This dichotomy is, at best, a welfare-neutral one and all too frequently, a costly one. Witness the great number of state investment projects undertaken to compensate for the adverse impact of policy-induced price distortions (e.g., to offset the modification of adverse domestic terms of trade on the profitability of agriculture). Such public investment substituted for private investment, swelled the external debt --and perpetuated the distortions.

Taxes must be raised, or government expenditure reduced, to finance public sector investments. Virtually all taxes and most of those in use introduce some degree of distortion in one or more markets. These distortions traditionally have been overlooked in project analysis, with the result that project benefits frequently are overestimated. This phenomenon may account, in some measure, for the notorious bias in favor of public sector investment and against policy reforms that obtained until the advent of the debt crisis. In any case, this bias persists, notwithstanding the severe resource constraints and considerable policy-induced price distortions affecting most developing countries.

Investment in policy reform likely is insufficient relative to that required to minimize the costs of adjustment to secular external shocks and the legacy of policy failures. First, the cost of policy-induced price distortions are dispersed throughout society, and hence, difficult to trade, whereas the advantages of price distortions are highly concentrated. Recipients of rents created by price distortions naturally will combat measures aimed at removing those distortions. In contrast, organizing the atomized victims of price distortions is difficult.

By the same token, the benefits of policy reform also are broadly diffused, albeit they rarely accrue directly to the government. Tracing such widely disseminated benefits in a systematic fashion is problematic; taxing them to finance the cost of policy reforms neither feasible nor especially desirable. Hence, the government will be obliged to pay for policy reforms through general revenues or by reducing expenditures (World Bank, 1990). Note, however, that these complications do not imply that rates of return to policy reform cannot be calculated. Indeed, they are shared by most infrastructure projects, for which social profitability is routinely measured (Kanbur, 1990).

Third, the costs of policy reform often appear to be underestimated, with the result that under-investment in any given policy reform --i.e., a failure to provision adequately for adjustment costs-- endangers the sustainability and benefits of policy reform. This, in turn, tends to discourage adoption of reform measures. Fourth, investment projects usually augment output without changing prices, even in the short run; whereas policy reforms usually set in train short run output reductions.

Policy reform --if avoided-- usually is accompanied by an intertemporal redistribution of income. In the short run, resources are left unemployed and income is depressed in the medium to long run, output is greater than it would have been in the absence of policy reform. The income foregone, or the cost of policy reform, is analogous to the up-front capital costs of a project. In addition, policy reform normally occasions an intratemporal redistribution of income: policy reforms benefit those harmed by price distortions and harm those who benefit from them. The losers may thwart, reverse or gut a policy reform, unless they are compensated. This represents an additional up-front cost of policy reform. (The greater the price distortions and institutional imperfections, the greater the likelihood that the rate of return to policy reform would exceed the rate of return to a project).

This note considers interrelationships between shadow prices, project investment and policy reforms, to highlight issues for public choice between project investment and policy reforms. It also explores the issue of whether the development process would be better served if evaluation and selection of projects and policies were carried out in a common analytical framework. The interrelationship between shadow prices and policy reforms strongly suggests that the selection of projects and policies should be informed by a common analytical framework.

In the first section, investment and project evaluation is briefly reviewed; in the second, the link between policies and shadow prices is considered. In the next one, an analytical framework for integrating shadow prices, investments and policy reforms is explored. In the forth section, stylized applications of such a framework are considered. In the fifth, current practice in respect of shadow prices and project evaluation is discussed. In the sixth, the rationale for assessing policy reforms in the same framework as investment projects is further explored. In the final section, some of the issues involved in the application of the proposed framework are addressed.

SECTION TWO

Shadow Prices and the Policy Framework

Shadow prices provide a partial correction for the distortions natural market failure or policy failure generate. Natural market failure can be engendered by monopolistic elements, external economies and paradoxes and fallacies. Natural market failure provides the rationale for two classes of government interventions: (i) macroeconomic interventions designed to augment growth rates, stabilize prices and ensure external balance; and ii) sector and market-level interventions designed to correct for specific market failures.

Shadow prices also correct for distortions caused by policy interventions which disrupt otherwise efficiently functioning markets. In all cases involving the use of shadow prices, a more desirable alternative would be to design an optimal intervention to correct for the underlying market failure that led to the need for the use of a shadow price in the first place. Since optimal interventions frequently prove elusive, the need for the use of shadow prices remains. And shadow prices constitute the crucial link between projects and policies.

Taxation, price distortions and shadow prices are closely related. The welfare theoretic literature on taxation evolved in both the partial and general equilibrium frameworks. Partial equilibrium analysis is conducted in terms of demand and supply functions in a commodity market in which distortionary taxes drive a wedge between demand and supply prices. When the analysis of the impact of a distortion in one market is extended to other markets, a general equilibrium approach became necessary. In this context, Harberger (1971) proposed that welfare effects of policy change be measured by the sum of all induced changes multiplied by the degree of distortion (tax or subsidy) in each market.

Partial and general equilibrium analysis of taxes and tariffs usually is based on the assumption that lump-sum transfers are available to ensure fiscal balance. This assumption is convenient because lump-sum transfers do not distort prices, i.e. they do not insert a wedge between demand and supply price. However, lump-sum taxes are not feasible in practice; governments normally secure revenues through taxes which are more or less distortionary. The corresponding welfare effects need to be assessed.

If shadow prices are to be good measures of the net impact on social welfare of a unit increase in the supply of a good, general equilibrium implications will need to be incorporated in the

analysis. However, if general equilibrium considerations have to be routinely incorporated in shadow pricing rules, then shadow pricing for project evaluation will cease to be operational. A via media needs to be found between partial and general equilibrium approaches such that the more important repercussions are incorporated in the design of shadow pricing rules.

Harberger's measure of welfare change provides insights. The set of activities with significant distortions is a subset of all activities. The set of activities whose level are affected perceptibly by a project and/or policy reform is another subset of all activities. Only the intersection is germane for the analysis of the effects of a project and/or policy reform. For example, those situations in which the product of the difference between a shadow price and a market price and the size of an input or output is significant will need to be identified. The difference between a shadow price and a market price represents the extent of distortions; the input or output represents the impact of the project or policy reform. If the number of elements affected are manageable, the Harberger approach can be operationalized.

These considerations on shadow prices and the policy framework raise a number of issues. First, the partial equilibrium shadow prices, in some cases, may need to be extended to incorporate the more important general equilibrium implications. The fiscal effect of a project warrants careful consideration. Second, when lump-sum transfers are not possible, the welfare effects of using distortionary taxes to maintain fiscal balance must be incorporated in the shadow prices. In light of the above, public utility pricing policy and project evaluation are inseparable. Third, given the excessive budget deficits that affect many developing countries and the constraints on the resources available for public investment, the integration of shadow pricing with policy reforms is both necessary and highly relevant.

There is a need to derive a set of shadow pricing rules in a framework that incorporates traded and nontraded goods, primary factors, tax distortions, no lump-sum transfers and the existence of both private sector consumption and production as well as public sector production. This framework would necessarily be a general equilibrium one. While complexity is a drawback, advantages would obtain from the integration of shadow pricing rules and policy reforms.

SECTION THREE

Analytical Framework for Integrating Shadow Prices and Policies

Gauging the total effect of a project involves a comparison of the evolution of the economy with and without the project. The policy framework will condition substantially the total impact of a project. The shadow prices employed in project evaluation cannot be properly defined without specifying a policy framework. Shadow pricing rules depend on existing policies. Therefore, the choice of projects and the choice of policies should be examined in the same analytical framework. Given the need to predict the total effect of a project and the importance of assessing the resource allocation impact of policy reforms, the analytical framework would necessarily be general equilibrium in nature.

A small open economy is considered. The small country assumption implies that international prices are given. A representative consumer maximizes utility subject to a budget constraint; in this case impacts on income distribution are abstracted from. The private sector takes producer prices as given and determines supplies that will maximize profits. According as returns to scale are constant, private profits are nil at competitive equilibrium. The public sector supplies commodities and demands factors.

Public sector policies condition prices. These policies may correct or partially correct for natural market failure, with or without affecting other variables. In the former, and empirically more frequent case, policy interventions may augment or reduce welfare. Policy interventions also may introduce distortions without mitigating market failure. The other class of policies are usually subsumed under the rubric of structural adjustment policies and are designed to remove price distortions by reversing previous policy interventions. Government policy failures, or policy interventions that thwart establishment of competitive prices, drive a wedge between demand and supply prices.

Equilibrium in this small, open economy is specified by market clearing for nontradeables and primary factors through price adjustments. The market for tradeables clears by means of variations in the resource balance. This equilibrium assumes a given level of public production, taxes and subsidies. Public sector production is assumed to be exogenous. At equilibrium, welfare will be determined by the exogenous variables in the system-factor endowments, border prices for tradeables and the government's policy instruments: in this model, public output (X) and the desired budget surplus (Z). Assuming factor endowments and

border prices are fixed, welfare at equilibrium can be expressed as depending on public production (X) and the desired budget outcome (Z), which are thus the control variables. The budget target will be influenced by taxes (t) and subsidies, which are the policy parameters. In that sense, (Z) the target for the overall fiscal balance is a proxy for policy change.

Defining an "infinitesimal shock" as a slight variation in the pattern of public production and desired budget surplus, a comparative static exercise will solve for the new general equilibrium of the economy. The new quantities and prices are determined such that all markets clear and the budget constraints for both the private and public sector are met. The change in welfare would be equal to the impact of the policy change plus that of the project.

The change in tax revenue captures the production and consumption occurring in other markets as a result of the project. If lump-sum transfers exist can policy changes associated with the need to balance the government budget arising from project induced changes be disregarded. This balancing is solely related to the project's impact on the government budget. But lump-sum taxes generally are not available to finance the deficit generated by a project. Consequently, the marginal social cost of equilibrating the budget would have to be accounted for in estimating the shadow price.

Such a shadow price explicitly incorporates the general equilibrium implications of the effects of the existing policy environment on tax revenue and the effects of policy changes which are distortionary in nature and are needed to finance a project in the absence of lump sum taxes. The introduction of a project results in additional distortionary, welfare-reducing taxes; these would have to be traced to gauge the total effect of a project.

The relative shadow prices for nontradeables and factors depend on producer prices and marginal product, tax revenue changes triggered by existing distortions in all markets and the way in which the government budget is balanced. The shadow pricing rule for nontradeables and factors differ from the partial equilibrium shadow prices recommended by Little and Mirrlees in two significant ways. First, the inclusion of change in tax revenue incorporates the consumption and production losses and gains emanating from the total impact of a project. Second, an equilibrating mechanism, used by the government in the absence of lump-sum transfers, is included. Different policies correspond to different rules for shadow pricing. Given that the government budget has emerged as one of the most important constraints in many developing countries, the importance of the equilibrating mechanism in determining shadow prices cannot be overemphasized.

A welfare improvement is possible without a project inasmuch as policy changes per se can improve welfare. Also, a project which is not worthwhile on its own merits, given the policy framework, may become so if carried out in tandem with policy reforms. Welfare improvements associated with policy change hinge on resource reallocation. Under certain circumstances, this reallocation could be facilitated by projects. The higher the supply elasticities brought about by government investment projects, the greater the welfare improvements associated with policy reforms. On the other hand, a desirable policy change will lead to a decline in the distortionary cost of taxation, increasing the shadow price of the good and thereby improving the economic viability of that activity or project. At the same time, the investment project would generate value added, raise national income, and if financed from abroad, augment domestic absorption. This should further raise welfare by indirectly stimulating private investment.

SECTION FOUR

Projects, Shadow Prices and Policies: Some Applications

Consideration of a few stylized cases will indicate the applicability of the approach and provide additional insights. Analysis of an industrial project which has a large tradeable component in terms of both inputs and outputs is fairly straightforward. All production would occur in the public sector and border pricing of the main inputs and outputs apply. Interaction with the private sector will consist mainly of factor and nontradeable input purchases. In this situation, the tradeable components of a project will dominate and minor changes in the shadow prices of nontradeables due to changes in the distortionary costs of taxation will not influence appraisal. The indirect effects will not be important in determining the economic viability of such a project. The shadow prices derived from a partial equilibrium framework are likely to be adequate in determining welfare-improving industrial projects with a large tradeable component --as Little and Mirrlees (1969).

In the case of an infrastructure project like a road, a transfer from the state to the private sector takes place as long as user-charges are below price. Such transfers or subsidies could be very large both in absolute terms and relative to the net benefits from such a project. The welfare costs of generating (the potentially substantial) revenue to pay for the subsidy would have to be incorporated in the shadow pricing rules. Assume that an infrastructure project leads to an increase of private sector net output of tradeables alone. The shadow price of such a project would equal the value of induced private sector output at border

prices less the cost of paying for the subsidy. In this context, policy reforms could include an overhaul of the tax regime designed to minimize tax-related distortions would enhance the viability of infrastructure projects.

In the case of public utility projects, prices often are set below those required to clear markets. As in the case of infrastructure projects, in the first instance, the costs thus generally are borne by the public sector while most of the benefits accrue to the private sector. According as these welfare costs are ignored, the shadow price will be overestimated. This result clearly indicates that public utility pricing policy, public investment in this subsector and tax policy are inseparable. Tax and pricing reform would diminish the welfare costs of distortionary taxation. A reduction in the electricity subsidy also would increase the shadow price. Both reforms would therefore raise the economic profitability of the project.

Consider a simple example. If the subsidy attaching to the output of a project is equal to 60% of its total cost and the marginal social cost of tax financing amounts to 80% of tax revenue, additional costs equal to 48% of total project costs would be incurred. Clearly, these additional, policy-induced, costs would condition heavily the economic viability of the project. Consequently, there obtains a clear need to account for these welfare costs; in particular, the fiscal effects of projects --including the revenue required to finance the operations and maintenance expenditures that will be required if the capital created by public investment is to be productive --should be analyzed. Second, public utility pricing policy and project appraisal results are inseparable.

In the 1990s, the economic viability of projects will depend on the pursuit of a project-cum-policy approach. While the general equilibrium implications of policy reforms will need to be considered, the problems of measurement need not be insuperable. Only the most important general equilibrium effects are germane for assessing welfare change associated with a project-cum-policy reform; a full scale general equilibrium approach may not be necessary. In the case of a project, the direct and indirect effects of will be captured by the decomposition recommended by Little and Mirrlees (1969). In the case of a policy change, these will have to be captured through the use of input-output tables focusing on the more important aspects, as implied by the Harberger approach.

In terms of the practical problems of identifying, quantifying and valuing costs and benefits, the substantive issues in analyzing infrastructure projects and policy changes are identical. The methods may differ in some respects, but the approaches will need to capture the direct and indirect effects. The common characteristics shared by both infrastructure projects and policy

reforms is that while costs are borne by the public sector, the widely dispersed benefits flow to the private sector. Therefore, if rates of return can be calculated for infrastructure projects, they also can be calculated for policy reforms that reduce the wedge between demand and supply price (Kanbur, 1990).

SECTION FIVE

Shadow Prices in Practice

Simple shadow pricing rules can be derived with partial equilibrium techniques, and when analytical techniques are utilized to evaluate projects, they are partial equilibrium ones (Little and Mirrlees, 1990). With the Little-Mirrlees methodology, specific, group and standard conversion factors are used for valuing costs and benefits of nontraded goods and services in border prices or economic costs. This approach to investment analysis could have led to the use of three broad adjustments for valuing nontraded goods in border prices.

First, the impact of price distortions arising from market imperfections and government interventions could have been removed from market prices. In practice, only taxes and transfers were netted out from market prices to account for government intervention. Second, the impact of foreign trade distortions could have been removed through disaggregation. In practice, a standard conversion factor generally has been employed for all nontraded output regardless of their share in total costs and benefits. Third, shadow wage rates are rarely estimated. In short, partial rather than complete border pricing rules are used even in a partial equilibrium framework.

Disaggregated conversion factors frequently are difficult to estimate, and hence, the cost of estimating them may outstrip the benefits. In any case, beginning in the early 1980s, estimates of shadow prices and conversion factors no longer were updated in many countries --shadow prices currently in use in such countries frequently date from those years or earlier. This phenomenon probably reflects the impact of the international economic crisis, which brought about a dramatic shift in emphasis from investment projects to policy reforms, from capital outlays to current expenditure, from the formation of tangible to human capital. In these areas, decisions were generally not based on explicit cost-benefit analysis. Shadow prices and cost-benefit analysis are inseparable. With a decline in interest in cost-benefit analysis, a decline in interest in shadow prices ensued.

This result was unfortunate. Shadow prices are fundamental to assessing the need for policy changes as well as for investment projects. It could be argued that policy changes which rendered prices right make it less crucial to calculate shadow prices. However, getting the prices right presupposes knowledge of shadow prices. In that sense, estimating shadow prices and getting prices right are different sides of the same coin.

SECTION SIX

Project and Policy Selection

While some sort (e.g. least cost, most cost-effective or cost-benefit) of quantitative approach has been utilized to evaluate investment projects, adjustment programs have been subjected to a qualitative analysis, rooted in theoretical considerations about the welfare gains from the mitigation or removal of price distortions. To be sure, macroeconomic projections normally are prepared and purport to demonstrate that welfare would be greater with, than without, policy reforms, but the functional links between policies and growth performance rarely are specified and rates of return not calculated. Policy reforms generally are not assessed in terms of a comparison of costs and benefits. One argument is that their benefits are widely dispersed over time and people, and that it is not possible for the government to gauge these benefits nor is it possible to make the beneficiaries pay for the costs of policy reforms.

Policy reforms may be viewed as a means of narrowing the wedge between demand and supply price, and hence, of increasing efficiency through resource reallocation and thereby moving the economy to or along the frontier of a production possibility schedule. Project investment augments the supply of capital, and hence, displaces the frontier outward, provided it is complementary to private investment. By correcting for market failure, it also can enhance the efficiency of resource allocation.

A salient feature of project investment is the time lag between input and output streams. The time lag is an important determinant of rates of return. The process of policy reform is analogous. Policy reforms typically present major implications for the intra- and intertemporal distribution of income. Provided a policy reform augments welfare, total gains of beneficiaries will surpass total losses of losers. However, the difficulty of persuading winners to compensate losers (e.g. through taxes) makes it necessary to explicitly recognize that a policy reform may require substantial budgetary outlays to mitigate the adverse impact, or redistribution of income, that policy reform entails.

As long as winners cannot (or should not) be taxed, compensation of losers will require the expenditure of real resources. The adjustment cost is an economic cost rather than a transfer payment. In addition, it is a capital rather than a consumption cost. That cost has to be "financed", whether by a reduction in the consumption of losers, a reduction in unproductive government expenditures, or a donation or loan from abroad. Furthermore, even if the winners could be taxed, any tax levy other than a lump-sum tax would introduce distortions elsewhere in the economy and offset, if not completely neutralize, the benefits of reform. This, of course, is analogous to the analysis of distortionary taxes in project analysis.

Adjustment costs to policy reform arising from factor immobility and/or the irreversibility of investment could, in the short run, depress national income, the long run benefits of policy reform notwithstanding. (Note, however, that this would only be the case if the distorted pattern of output could be sustained through access to the international capital market, a possibility which, since the early 1980s, has been closed to most developing countries). It may be necessary to alleviate the costs of adjustment to policy reform caused by this intertemporal redistribution of income to "produce" policy reform. Private investment is strongly associated with national income, and hence, may constitute another short run "victim", or cost, of policy reform that should be accounted for and financed.

In most instances of policy reform, both intra- and intertemporal redistribution effects obtain- to the detriment of either implementing or sustaining policy reform. Although not the objective of policy reform, these redistributive effects are, at the same time, necessary to the success of policy reform. For example, in order to augment social welfare, trade reform must enlarge the returns to those factors of production which produce tradeable goods and services, and initially, at least, this will occur at the expense of factors of production engaged in the production of nontraded items.

The adjustment costs associated with the intratemporal and intertemporal redistribution of income resulting from policy reform could and probably should be treated explicitly as the up-front cost required to "produce" the benefits of policy reform. The adjustment costs of reform, including both those borne by losers and those financed through the budget or borrowing, constitute the counterpart of the investment costs of projects (Kanbur, 1990). Note, also, that the treatment of sources of financing and their repercussions would be uniform as between projects and policy reforms, albeit the costs which are financed by the reduction of the consumption of losers would fail to take account of the additional or second round costs inflicted by activities (rent-seeking or strikes) undertaken in opposition to reform. Finally, the benefits of improved resource allocation brought about

by the removal of price distortions constitute the counterpart to output from projects.

In short, an investment is required to ensure that policy reforms generate the expected benefits issuing from the removal of price distortions. Policy reforms without such an investment usually fail. This, together with the severe resource constraints with which developing countries have had to cope since the early 1980s, probably constitute the main rationale for policy-based lending and borrowing, i.e., for structural adjustment loans.

We have come full circle: too many public sector investment projects failed -at considerable cost to developing countries- because too much time was devoted to developing methods to evaluate projects at the expense of removing price distortions. Contrariwise, too many policy reforms have been derailed, gutted or been slow to produce positive results because too much time has been spent singing their praises and scarcely any on evaluating their costs and, until more recently, financing these costs. This author expects, however, that until an adequate effort is made to conduct a quantitative analysis of costs and benefits of policy reform, the costs -and financing needs- will continue to be implicitly underestimated, to the great detriment of policy reform and welfare in developing countries.

Investment programs and policy reforms should be designed according to the same criterion -enhancement of social welfare. The economic viability of a project depends on the policy framework, and reversal of distortionary policies naturally exercises an effect on the social profitability of investment projects. The impact of policy reform on social welfare depends partly on supply response; and supply response hinges on supply elasticities -elasticities which could be affected by projects. Indeed, the rationale for policy reform-cum-investment project packages, or hybrid operations, stems from these considerations.

Structural adjustment policies, i.e., policies designed to reverse past government policy failures or accommodate secular external shocks, should be evaluated in the same framework as public investment projects. Such an approach could serve as a powerful educational tool, and hence, facilitate adoption of policies that will enable economies to recover and eventually grow at their potential expansion rates of. As a first step in that direction, foreign-supported investment projects and policy reforms should be subjected to comparative quantitative analysis. The policy decision-making process and welfare would be enhanced if investment and policy decisions were coordinated by an economic policy council.

SECTION SEVEN

Applied Research Issues

Against the backdrop of severe internal and external imbalances, the pace of economic recovery will hinge on the optimal allocation of resources between projects and policy reforms. But practical approaches for implementing an analytical framework which integrates projects and policy reforms will need to be developed. In the absence of research leading to more rigorous cost-benefit analysis of both projects and policy reforms, it is more likely that most countries will continue to under-invest in policy reform as well as misallocate the resources devoted to investment.

The practical application of a common analytical framework for project and policy analysis will turn on devising simple procedures for estimating the major direct and indirect effects of projects and policy reforms and estimating the relevant shadow prices. Considerable information regarding government policies is contained in shadow prices, and an analyst may gain valuable policy insights by simply comparing particular conversion factors with each other and with unity. In consequence, a major research initiative to estimate disaggregated conversion factors is warranted, both to improve valuation methods used in the economic analysis of projects and to provide indicators of the extent of distortions. At a minimum, partial equilibrium shadow prices should be updated. Sources of distortions also need to be isolated.

Related to the estimation of shadow prices is the issue of tracking the effects of projects and policies. In terms of input use, the semi input-output decomposition method advocated by Little and Mirrlees to account for linkage effects remains valid and relevant for projects and policies. But, again empirical research is called for. On the output side, tracing the effects of distortions demands close scrutiny. In principle, good project analysis should routinely do this. Since this had not been done in most cases, adoption of this practice will go a long way in improving the empirical and analytical content of project and policy evaluation. In terms of the framework used here, tracing the effects on inputs and outputs will help determine the accompanying change in revenue used in estimating the shadow prices for nontraded goods and services.

Tracing the direct and indirect repercussions on inputs and outputs amounts to the adoption of the Harberger framework, where an element of welfare change associated with a project policy reform is represented by the sum of all induced changes multiplied by the degree of distortion in each market. This appears to be a promising via-media between partial and general equilibrium frameworks for integrating project and policy analysis.