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ISSUES IN ASSESSING THE IMPACT OF PROJECT AND SECTOR ADJUSTMENT LENDING

by

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FOREWORD

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I. INTRODUCTION

1. The paper deals with some conceptual and analytical issues in the area of international development financing. The major lending modalities of the multilateral financial institutions (MFIs) include project and adjustment lending. While project lending could be viewed as the modality for augmenting investment, the role of adjustment lending would be to facilitate adjustment of policies and institutions in developing countries. The purpose of this paper is to highlight the major conceptual issues in assessing the impact of project and adjustment lending focusing on the areas of commonality and points of departure in the two modalities. No attempt is made to infer implications for the procedures and policies of the MFIs. At the outset, a brief review of the evolution of project and adjustment lending would be instructive. Imperfections in the world capital markets led to the initial impetus for lending by the MFIs in developing countries for sound investment purposes. Lending through project loans with sufficiently high rates of return to service the loan and contribute to economic growth was advocated for two reasons. First, project loans were considered a good conduit for the transfer of technology to developing countries without adequate technical capacity to plan and execute projects. Second, capital accumulation was viewed as crucial to increasing growth rates. In the 1970s, it was recognized that some project investments would not yield their potential rates of return without policy reforms. Poor policy environments were not conducive to effective operations of projects. For example, the crucial link between public utility pricing and project profitability was recognized and addressed through policy dialogue on subsectoral issues. Suggestions for policy reforms were limited to addressing issues related to project viability.

2. The debt crisis of the 1980s made the subject of policy and institutional reforms the centerpiece of the development literature. Heavy debt servicing obligations led to sharp decreases in investible resources. With sharply reduced investible resources, the policies of the 1970s were viewed as unsupportive of satisfactory growth rates or maintenance of debt servicing for many developing countries. The importance of macro and microeconomic policies in affecting growth rates was increasingly recognized.

3. In terms of implications for the MFIs, the debt crisis of the 1980s led to the recognition of the following two factors. First, it is virtually impossible to effectively implement even good projects in a bad policy environment. Therefore, there is little point in supporting projects whose profitability is lowered by the existence of distortionary policies. Second, for countries with a poor policy and institutional environment which is adversely affecting growth, there could be significant benefits from reforms which are designed appropriately. In these circumstances, long-term lending in support of these reforms was warranted. Both these factors led to a significant increase in the use of the adjustment lending modality in place of project lending by the MFIs.
4. In the 1990s, both project investment and adjustment in policies and institutions will be required in most developing countries. The MFIs will be faced with the challenging task of choosing the optimal mix of the project and adjustment loan modalities so that the impact of their lending is maximized. The rationale for this paper stems from this concern. Issues relevant for the assessment of projects and adjustment lending are raised. While no solutions are suggested, desirable directions of change are explored. The emphasis throughout is on analytical issues with no attempt being made to draw inferences for the procedures and policies of the MFIs in their assessment of project and adjustment lending. The paper begins with a brief description of some of the major issues in adjustment. Against this background a simple analytical framework is described which indicates that project and policies should be assessed from a single viewpoint, namely their effectiveness in improving welfare. The rationale for the two modalities of lending by the MFIs is then described. This sets the stage for examining the issues relevant for assessing the impacts of project and adjustment lending. The paper ends with the recommendation that over time an analytical and integrated approach to assess projects and adjustment lending is desirable.

II. ISSUES IN ADJUSTMENT

5. Many developing countries will have to successfully meet four challenges. First, they will need to intensify their efforts in domestic resource mobilization. Second, efficiency will have to be improved on a broad front. Third, foreign exchange earnings from non-traditional exports must be generated. A precondition to successfully meeting these three challenges is the adoption of "right" macroeconomic policies, especially relating to exchange rates and inflation. Balance-of-payments problems are frequently the symptoms of commitments by governments to expenditures that cannot be financed. Thus, the fourth and greatest challenge is to find a non-inflationary government role in the adjustment process.1

6. The objective of adjustment could include responses to changes in objectives and constraints.2 In fact, the relaxing of certain constraints could become intermediate objectives. For example, the reduction of balance-of-payments and government budgetary deficits could become major objectives for some developing countries in the early 1990s. Adjustment to attain higher levels of sustainable economic growth without balance-of-payments deficits could become another objective.

7. Developing countries would need to adjust to shocks which could be external or internal and favorable or unfavorable. A deterioration in a country's terms of trade triggered by an oil shock would be an example


of an unfavorable external shock. A succession of good monsoons resulting in surplus agricultural production would constitute a favorable internal shock. Regardless of whether a shock is favorable or unfavorable, a developing country would need to respond in terms of flexible stabilization (demand management) or adjustment (supply augmentation) or both. Adjustment could also be needed as a country shifts from one development strategy to another or when it moves from a set of distorted to a set of better policies.

8. Finally, there is the issue of reforms in policies or institutions or both. In the 1980s, emphasis was placed on getting prices right through reforms to decrease barriers to domestic, import and export competition. However, getting prices right is a necessary though not a sufficient condition for ensuring growth. In other words, only if price policies are combined with non-price measures will adequate supply response be forthcoming. The non-price measures could include inputs, innovation, information, infrastructure and institutions.

9. This description of some of the major issues in adjustment implies that adjustment will be needed at the macro, sector and micro levels. A legacy of the 1980s for many developing countries at the macroeconomic level will be the policy implications of external and government budget deficits. Both aggregate demand and supply policies through fiscal, monetary, exchange rate, resource mobilization and other measures will need to be carefully tailored to control external deficits and inflation as well as to ensure growth. To ensure growth, supply augmenting policies to (i) improve efficiency and resource allocation and (ii) expand production capacity of various sectors of an economy will have to be emphasized. The micro foundations of macroeconomics in which sector issues are explicitly addressed must feature prominently in the design of policy and institutional reforms in the 1990s.

III. A FRAMEWORK OF ANALYSIS

10. A small tax distorted open economy is considered. It includes private consumption and production, public production and international trade. The small country assumption implies the country is able to import or export without affecting international prices. The private and the public sectors are the two sources of domestic supply. The private sector takes producer prices as given and determines supplies that will maximize profits. The public sector supplies commodities and demands factors and a project is defined as a change in the pattern of public production. In addition to public production, the government imposes taxes and tariffs and provides subsidies. These interventions drive a wedge between demand and supply prices and are distortionary in nature. Lump-sum taxes may also be introduced to raise revenues. By definition, these instruments do not drive such a wedge and are not distortionary.

11. Consider the situation described in the figure where AGC provides the economy's production possibility schedule with a given endowment of primary factors and no distortions. In the base case, the production possibility schedule with distortions is described by ARB and
FIGURE: IMPACT OF PROJECT-CUM-POLICY REFORM
the equilibrium production combination is at B. Clearly, the economy is operating below its potential in the base case. The objective is to find a project (dx) cum-policy reform (dz) package which is welfare improving. Assume that a movement along BE is welfare improving.

12. The question that comes up is how can the welfare improving direction BE be determined. First, a project is considered in isolation. The purpose of project evaluation is to provide a consistent procedure for choosing among alternative investment decisions. Profits measured in shadow prices are an essential signalling mechanism in this regard. A shadow price is defined as the net impact on social welfare resulting from a unit increase in the supply of that good by the public sector. Thus, a project (dx) which shows a profit at these shadow prices will make a positive contribution to social welfare. Shadow prices become the key to identifying welfare improving projects.

13. Next, a policy reform (dz) without any investment is considered. The fact that the economy is at an equilibrium position B rather than at a point like D is due to the existence of distortions. While the simultaneous elimination of all distortions will lead to a movement from ABC to ADC on the production possibility schedules, what is more likely to happen is phased or piecemeal policy reform. This will have to be designed in a manner which is welfare improving. Hence, marginal social values associated with policy changes will need to be determined. Usually, the reduction of a distortion or narrowing of a wedge between a demand and supply price in one market will have repercussions elsewhere. These will need to be incorporated in making a judgement on the marginal social value of a policy change. Supply elasticities in affected markets will have an important bearing on these marginal social values which will make it possible to assess whether a phased or piecemeal policy reform is welfare improving.

14. Frequently, policies and projects will influence each other. For example, projects could increase supply elasticities thereby enhancing the impact of a policy reform. Similarly, a policy reform could affect the shadow prices thereby altering project viability. Considering the interaction between and the common objective of projects and policy reforms which is to increase welfare, both should be assessed within the same analytical framework.²

15. A policy maker usually inherits an initial environment which is not optimum and at the same time lacking in the information on how to locate the optimum (point D). If a collection of parameters is specified, this information can be used to calculate the shadow prices and marginal social values associated with policy changes. Desirable directions of

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change associated with projects and policies can then be determined. Whenever benefits in the form of increments in social welfare outweigh costs associated with policy reform (project), the reform (project) is worth undertaking. Many examples of the estimation of marginal social values of policy reform in multi-market and single market frameworks are available.

16. The meaning of costs and benefits associated with projects and policy reforms needs to be clarified. For projects, benefits would be in the form of resource costs savings and additionality of supply resulting from the project and costs would include all resources expended to make the benefits possible. For policy reforms, benefits could take the form of consumption and production changes resulting from resource reallocation that accompanies a reduction in distortions. The costs of a policy reform could be linked to the equilibrating mechanisms that an economy will use as it adjusts from one policy environment to another. These equilibrating mechanisms are related to alleviating the socio-political costs of adjustment. For example, inherent in any process of adjustment will be winners and losers. The costs of a policy reform could result from the need to compensate the losers to make the implementation of the policy reform feasible. Given its widespread impact, a policy reform could have major implications for the intra and intertemporal distribution of income. At a point of time there could be redistribution of income from one group to another. If the policy change is welfare improving, the gains of the winners will outweigh the losses of the losers. However, the constraints on taxing the winners to compensate the losers make it necessary for explicitly recognizing that a policy reform may require substantial budgetary outlays for alleviating the problems associated with this intratemporal redistribution of income as a result of the policy reform. In this example of intratemporal redistribution of income, constraints on taxing the winners imply expending real resources to compensate the losers. Thus, the adjustment cost is an economic cost and is not a transfer payment. In terms of the intertemporal redistribution of income, adjustment costs arising out of factor immobility could, in the short run, lead to declines in national or sectoral income. These declines would be followed by increases in national or sectoral income in later years.


See R.L. Clarete, "The Economic Effects of Trade Liberalization on Philippine Agriculture", Working Paper, no. 89-1 (Research and Training Program for Agricultural Policy, Department of Agriculture, Philippines, July 1989) for an application of the analytical framework described in the Figure. A single market approach assessing the benefit cost ratios from fertilizer subsidy is given in C.P. Timmer, "Food Price Policy in Indonesia" (Harvard University, mimeo, March 1986). The single market approach is rigorously developed in J. Henderson, Benefits and Costs for Price Policies: Analysis for Developing Countries (Economic Development Institute, World Bank, 1989).
There could be a need to alleviate the costs of adjustment arising out of this intertemporal redistribution of income. There will also be cases where the problem of adjustment costs will be particularly severe because of both intra and intertemporal redistribution of income. In the cases under consideration, redistribution of income is not the objective of the policy reform but is an outcome whose effects have to be dealt with on political economy considerations.

17. Institutional reforms associated with adjustment lending could have elements of costs and benefits associated with policy reforms and projects, respectively. The issue of intra and intertemporal redistribution of income which result in adjustment costs is also relevant for institutional reforms. If inefficient public enterprises are reformed, this could directly affect the pattern of public production thereby making the benefits analogous to those of a project.

18. In terms of the analytical framework of this section, the MFIs should design their projects (dx) and policy packages (dz) with the one and same criterion - increased social welfare. The discussion in this section has indicated that the economic viability of a project depends on the policy environment and an improvement in the latter could improve the former. The impact of a policy reform on social welfare depends partly on supply response which in turn depends on supply elasticities that could be raised through project investments. This could provide the rationale for hybrid loans with both project investment and policy reform programs being included in one loan. Optimally, the allocation of total resources of the MFIs between project and adjustment loans should be based on where the marginal impact on social welfare is the greatest.

19. While the interaction of projects and policy reforms is recognized, on considerations of analytical convenience, the discussion on costs and benefits associated with projects and policy reforms has been kept distinct. Sector adjustment is associated with reforms in policies, institutions and investment programs. In terms of the framework described in this section, investment programs consisting of a set of projects will be subsumed under dx while reforms in policies and institutions will be included under dz. While section V will deal with issues pertaining to projects, section VI will consider reforms in policies and institutions. In section VII, a systems approach to assessing sector adjustment is described with reforms in policies, institutions and investment programs being considered as one package.

IV. RATIONALE FOR LENDING BY THE MULTILATERAL FINANCIAL INSTITUTIONS

20. As indicated earlier, developing countries have to successfully overcome four major macroeconomic challenges associated with domestic resource mobilization, improved efficiency, higher foreign exchange earnings and rationalization of the role of the government. The World Bank and the International Monetary Fund addressed the major macroeconomic issues associated with aggregate demand and aggregate supply through their structural adjustment loans whose main purpose was to support macroeconomic policy reforms by providing direct balance-of-payments and
budgetary support as countries undergo adjustment. In contrast, sector adjustment loans were used to institute reforms in policies, institutions and investment programs to augment supply in specific productive sectors of the economy. These sector adjustment loans signified support by the multilateral financial institutions (MFIs) for a sector reform package.

21. In this paper, the focus will be on sector adjustment issues only. Sector adjustment has three main components, namely, reforms in policies, institutions and investment programs. In terms of lending modalities of the MFIs, project lending will be associated with investment and sector adjustment lending with policy and institutional reform. Within adjustment lending, loans addressed to policy reforms only can be described as policy based adjustment loans. Policy reform will be viewed as a means of reducing distortions which are defined as a wedge between demand and supply price. The paper will focus attention on sector price policies whose effects are confined to a relatively small number of goods and services rather than to general price policies like inflation, trade, exchange rate, interest rate and wage policies which affect a large class of goods and services. These general price policies are more appropriately classified under structural adjustment lending. The distinction between policies and institutional reforms is made because the consequences of some institutional reforms like reorganizing inefficient enterprises could be to directly affect the pattern of public production, thereby making them more like a project. The distinction between project and sector adjustment lending in the way described above has been taken both for analytical convenience and also because sector adjustment loans by the MFIs have mainly dealt with reforms in sectoral policies and institutions. Towards the end of the paper, the implications of considering sector adjustment in its totality with reforms in policies, institutions and investment programs being considered simultaneously will be taken up.

22. The description given in section III indicates that policy reforms and projects should be assessed within the same analytical framework. This framework is useful in providing a rationale for lending by the MFIs. Imperfections in the world capital markets and the transfer of technology and know-how in implementation and operations provide the rationale for project loans. In the case of sector adjustment loans, the rationale is related to the conditionality linked with these loans. The conditionality associated with sector adjustment loans has led to the emergence of a double paradox. Why do the MFIs impose conditions for loans that are thought to be in the interest of the borrowing country? If these conditions are truly in the interest of the receiving country, why do they get rewarded with loans for accepting the conditions? While many reasons can be put forward to explaining this double paradox, the most plausible explanation is that extra resources are needed to ease the costs of transitions. For example, adjustment costs associated with inter and intratemporal redistribution of income may need to be met. Sectoral adjustment loans have the function not of meeting savings or foreign

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Streeten, op. cit.
exchange gaps, but of adding flexibility to an economy as it changes direction from a set of bad to a set of better policies or institutions.\footnote{Ibid.}

23. Having provided a possible rationale for sector adjustment and project lending by the MFIs, the major aspect that needs to be highlighted is the supply response associated with them. Policies, institutions and investment individually are necessary conditions for supply response; together they constitute necessary and sufficient conditions. Sector adjustment lending associated with policy and institutional reforms and project lending linked to investment are important individually, and also for interactions among them, in influencing sector supply response.

24. In this context, the need for detailed sectoral studies to establish the timing and sequencing of policy and institutional reforms and investment projects cannot be overemphasized. It is only through such studies that sectoral priorities can be established and lending modalities designed so that the impact of policy/institutional reforms and project investment would be the maximum. The identification of the sequential nature of binding constraints and the use of the appropriate modality of lending by the MFIs are opposite sides of the same coin.

25. The purpose of project evaluation is to ensure that public sector resources are allocated in a manner that will improve social welfare. There is as yet no standard technique for assessing and prioritizing sector adjustment loans. There is also the issue of allocating resources of the MFIs between project and sector adjustment lending. Hence, in deciding the optimal mix between sector adjustment and project lending, the MFIs should have a benchmark which can be used for purposes of comparison. These issues are taken up in the next three sections.

26. The allocation of resources of the MFIs between project and sector adjustment loans will depend also on the preferences of the borrowing countries. To the extent that project loans may have fewer conditionalities have to be weighed against sector adjustment loans which are fast disbursing thereby providing an added degree of flexibility. On the other hand, the political economy ramifications arising out of income redistribution associated with policy and institutional reforms may also imply that the absorptive capacity of developing countries for meaningful sector adjustment loans could be limited. This set of issues reemphasizes the need for rigorous sector studies on the basis of which sectoral strategies for project and sector adjustment loans can be mutually agreed upon by the recipient developing countries and the MFIs.

27. In their lending operations, the MFIs have largely been guided by country considerations both with respect to projects and policy cum-institutional reforms. The objective has been to increase national welfare. Though rationalization of the investment, policy and institutional environment in one country may have positive effects on the rest of the world, this paper will not deal with that set of issues. Therefore, the analytical framework described in section III would remain
relevant for the purpose of highlighting the issues associated with assessing the impact of project and sector adjustment loans.

V. ECONOMIC ANALYSIS OF PROJECTS

28. A project is defined as a change in the net supplies of commodities and services from the public sector. The purpose of project evaluation or economic analysis of projects is to ensure that public sector resources are allocated in a way that will improve social welfare. The process of economic analysis can be seen as a sequence of actions. First, it is necessary to identify the need or demand for the project. The second step is to establish whether the proposed project provides the least-cost or the most cost-effective way of attaining the objectives of the project. Having identified the project’s costs and benefits which are related to its objectives and carefully quantified them, the third step is to ascertain whether the net benefits expected from the resources allocated to the project would be in excess of, or at least equal to, the net benefits to the economy that could be expected if these resources were made available for the next best alternative project. These three steps are distinct but interrelated.

29. Numerical cost-benefit or economic analysis essentially involves three phases: (i) the identification and quantification of the economic costs and benefits of a project; (ii) the valuation of economic costs and benefits; and (iii) the application of investment criteria. The first step in the identification of benefits is the use of the "with and without" principle in identifying the net output of a project. This requires comparison of the situation that would prevail without the project and the situation with the project. The difference is the incremental net benefit arising from the project investment. An integral part of identifying benefits and costs is the projection of demand and supply with and without the project. Net output is defined as the goods and services that become available to the economy as a result of the project. If the goods and services physically produced by the project add to the supply in the economy, this additionality of supply is regarded as the net output of the project. On the other hand, if the goods and services produced by the project do not add to the supply in the economy, but instead substitute for an alternative source of supply, leaving total output constant, then the net output of the project is reflected by the resources released from the alternative source of supply. In this case, from the economy’s point of view, the net effect of the project is not the output of the project, since this output would be available in the without project situation. The net benefits of the project are the newly available resources that would be released by the discontinuation of the old, displaced activity.

30. In the identification and quantification of costs and benefits of a project in economic analysis, there are difficulties linked to project boundary, the existence of consumers surplus and the presence of externalities. In certain sectors like infrastructure, these difficulties
raise major problems in identification and quantification of both benefits and costs thereby precluding full-fledged cost-benefit analysis.\textsuperscript{9}

31. In addition to the identification and quantification of benefits, their valuation is important. Shadow prices or conversion factors which measure the net impact on social welfare of a unit increase in the supply of that good by the public sector are crucial for valuation. A project that shows a profit at these shadow prices will make a positive contribution to society's welfare. Since the policy environment prevailing in the economy would have a significant impact on the total effect of a project, the shadow prices used in project evaluation cannot be properly defined without specifying a policy framework. Shadow pricing rules depend on existing policies.

32. Shadow pricing rules can be expressed at various levels of sophistication.\textsuperscript{9} The simplest shadow pricing rules are derived in a partial equilibrium framework. Shadow prices are equated with border prices for tradeables and consumer prices for all other commodities and factors of production.\textsuperscript{10} An alternative methodology is to use costs, themselves measured at shadow prices to estimate the shadow prices for non-traded inputs.\textsuperscript{11} The semi input/output or decomposition technique was advocated to express costs of non-traded inputs in terms of traded goods and primary factors of production.

33. At the next level of sophistication, the important repercussions of a project are incorporated in the derivation of shadow pricing rules. Shadow prices for tradeables still equal their border prices. For non-tradeable goods and factors, shadow prices equal producer prices plus a term measuring direct and indirect effects on the budget. The inclusion of a change in tax and tariff revenue incorporates the consumption and production losses and gains emanating from the total impact of a project. Alternatively, this term captures the general equilibrium impact of a project.

34. The shadow pricing rules described so far are based on the assumption that budget imbalances caused by a project are corrected by lump-sum transfers which by definition are non-distortionary. When lump-sum transfers are not possible, the method of closing the budget influences the shadow pricing rules. For tradeables, the shadow prices


\textsuperscript{11} I.M.D. Little and J.A. Mirrlees, Project Appraisal and Planning For Developing Countries (London: Heinemann, 1972).
are equal to their border prices. For non-tradeables, the shadow prices are the sum of shadow prices relevant for an economy where lump-sum transfers are feasible plus the cost of adjusting the budget by some means other than lump-sum transfers. Furthermore, if distortionary taxes are needed to close the budget then the welfare costs of distortionary taxation must be included in the shadow pricing rules. Since it is necessary to conduct economic analysis from the economy's standpoint, the inclusion of the cost of distortionary taxation in shadow pricing rules constitutes a step in the right direction. This is an important result and has significant implications for infrastructure and public utility projects producing non-traded goods and services.

35. A characteristic of an infrastructural project like a road, irrigation or health facility is that costs are borne by the public sector but benefits accrue directly to the private sector. A transfer could occur from the public to the private sector through the provision of infrastructure service at a price which is zero or near zero to the beneficiaries. The subsidy element could be significant and the method of revenue generation could be important. The exclusion of the distortionary cost of raising revenue to finance the subsidies will lead to an overestimation of the shadow price of the infrastructural output produced by the project.

36. The above indicates that public utility pricing policy and project appraisal results are inseparable. The impact of policy reform on shadow prices can be seen at two levels. First, a general reform on tax and tariff policy will reduce the welfare costs of distortionary taxation, thus increasing the shadow price of the output. Second, a policy reform in terms of a reduction in subsidy will also increase its shadow price. Thus, both reforms will improve the economic profitability of the project.\textsuperscript{12}

37. Given the existence of the government budgetary deficits as one of the most important constraints on public sector development outlays, the role of the shadow pricing rules at the third and highest level of sophistication deserves serious consideration. Their adoption would mean that the choice of projects and the choice of policies may need to be decided simultaneously. If public sector investment in many developing countries shift away from direct production of tradeables to non-tradeable sectors like infrastructure and public utilities, the importance of incorporating the costs of financing subsidies in shadow pricing rules for non-traded goods and services increases significantly.

38. In project evaluation or economic analysis of projects, the identification and quantification of benefits and costs and the determination of shadow pricing rules are needed. Apart from the difficulties raised in shadow pricing when dealing with situations characterized by public sector output, private sector consumption and transfers of income from the public to the private sector, there is the

added complexity of pinpointing benefits and quantifying them. For example, in infrastructure projects, benefits could be dispersed widely and it may be difficult for the government to track them down and make the beneficiaries pay for the service being provided by the project. Identifying and quantifying benefits can then become a major challenge to the project evaluator. The framework that has been described in section III explicitly makes the distinction between private consumption and production on the one hand and public production on the other. Thus, the analytical issues in tracing the effects of a project to other parts of the economy are already incorporated. From that viewpoint, tracing the effects of a project becomes essential in determining both the shadow prices and the identification of cost and benefit streams in the with and without project situations.

VI. ECONOMIC ANALYSIS OF SECTOR ADJUSTMENT LOANS

39. Having described the major issues pertaining to the economic analysis of investment projects, it would be useful to examine some aspects that are pertinent for the assessment of sector adjustment loans. In this paper, the rationale for sector adjustment lending has been based on facilitating reforms in policies and institutions in a productive sector. Hence, for analytical convenience, it is assumed in this section that reforms in policies and institutions can be undertaken independently of sector investment. This assumption is dropped in the next section. The aim of policy reforms is to reduce distortions thereby leading to resource reallocation resulting in efficiency improvements. Policy reforms will be defined as reducing distortions in the form of decreasing the wedge between demand and supply price. The aim of institutional reforms is to increase efficiency by changing input-output relations through greater commercialization and/or change in ownership patterns. Institutional reforms could take various forms like changes in credit and marketing institutions as well as reforming inefficient public enterprises.

40. The starting point for the economic analysis of a sector adjustment loan is to establish the need for such a loan. Sector studies which identify the policy and institutional distortions which influence sector performance will play a crucial role in establishing the need for reform. Having identified the major distortions and their extent, the next important aspect is to diagnose the reason for the distortions. The matching of policy and institutional instruments with targets depends crucially on the above. It is only when the extent of sectoral policy distortions and their causes have been determined can policy cum-institutional reform programs be designed. Economic analysis can be potentially important in designing the reforms programs.

41. Economic analysis will consist of the identification, quantification and valuation of costs and benefits in the with and without reform situations. The identification of benefits of a sector adjustment loan depends on its need or objectives. All costs that will be incurred to obtain the benefits should be used to identify costs. Therefore, the definition of objectives or need and the identification of costs and
benefits are closely interrelated. A clear enunciation of objectives or need for reform in a sector or sub-sector is essential for assessing a sector adjustment loan.

42. The ultimate objective of adjustment in a sector is the rationalization of the composition of output and increase in supply. Therefore, benefits associated with an adjustment loan should be identified in terms of supply response. Whenever possible, the identification of benefits should be made in terms of comparing the volume and composition of output in the with and without reform situations.

43. All costs needed to make supply response possible will be used to identify costs. In section IV, one possible reason for an adjustment loan was given in terms of alleviating the cost of adjustment arising from the intra and intertemporal redistribution of income triggered by the reform. In addition, the change in the composition and volume of sectoral output may lead to changes in input requirements whose supply may be inelastic in the short run. Proceeds from the adjustment loan could help facilitate the procurement of these inputs. These additional inputs would constitute an integral part of the cost of adjustment. In fact, there could be cases where policy and institutional reforms do not have any income redistribution impact at all, but a sector adjustment loan could still be justified to meet the additional input cost requirement associated with the supply response.

44. While the identification of benefits and costs associated with sector adjustment loans should be mandatory, their quantification could pose problems. If the sector adjustment loan consists of policy reforms to reduce distortions in the form of reducing the wedge between demand and supply price, the direct and indirect effects of the policy reform should be traced using the analytical framework described in section III. Projections of the with and without policy reform scenarios would need to be undertaken to quantify benefits. This approach is similar to what should be routinely done for projects by projecting demand and supply situations with and without the project. In practice, there could be problems in quantifying benefits of sector adjustment loans. One feature associated with adjustment loans is that while costs are borne by the public sector, benefits accrue directly to the private sector. Furthermore, these benefits are widely dispersed and it is neither possible for the government to track them down nor is it possible to make the beneficiaries pay for the cost of the loan. Thus, in many cases there will be difficulties in quantifying benefits. This feature of adjustment loans is similar to infrastructural and public utility projects.

45. While the approach used in this paper has been static and efficiency gains from resource reallocation have been emphasized, it can be argued that the major benefits of sector adjustment loans would be dynamic in nature associated with outward movement of the production possibility schedule. By ignoring these benefits, the approach described could neglect the major share of expected gains. The same argument could be made for some projects as well. Nothing in the analytical framework precludes incorporation of the dynamic benefits. While it may be difficult to quantify such benefits, as a first step, every effort should be made to identify these dynamic benefits. However, a cautious approach in
justifying a sector adjustment loan in terms of perceived dynamic benefits is warranted. The pitfalls associated with the infant industry argument linked to the supposed dynamic benefits of protection are only too well known to warrant detailed discussion.

46. Turning to quantifying costs, their identification will be the starting point. If the benefits in terms of supply response have been quantified, the additional input requirements could be estimated from production relations. The difficulty in quantifying costs will arise because of the complexities involved in estimating the intra and intertemporal redistribution of income triggered by the reforms and the compensation required by the losers to push ahead with them. If there are factor market rigidities within a sector, price policy reforms which will lead to an improvement in sectoral income in the long run may result in a decline in the short run. This dip in sectoral income in the short run could be used as a proxy for intertemporal redistribution of income. In addition, adjustment or restructuring will be associated with sunset and sunrise activities. The losers from the sunset activities are associated with the problem of intratemporal redistribution of income. Good sectoral studies which should underpin an adjustment loan should provide estimates of these two types of redistribution costs. What these studies cannot provide are some of the political economy costs associated with policy and institutional reforms like the fear of public riots, the perceived need to maintain good relations with certain interest groups and similar intangible factors. These political economy costs could well determine the feasibility of implementing reforms. While the problems of estimating some elements of adjustment costs are complex but tractable, other elements of costs could pose insuperable problems in quantification.

47. In terms of the analogy with a project loan, a sector adjustment loan is not different in principle in the identification of costs and benefits. Regarding the quantification of benefits, the issues between infrastructural and public utility projects and sector adjustment loans are similar. It is in the quantification of costs that there is a potentially major difference between the two modalities of lending. While there could be difficulties in quantifying the indirect economic costs associated with a project, quantification of direct costs is generally straightforward. In the case of sector adjustment loans, the complexities involved in quantifying direct costs could be significant and substantial efforts may be needed in quantification. Furthermore, quantification of some of the political economy costs described earlier may not be possible at all.

48. The difficulties in quantification of costs associated with sector adjustment loans are not unexpected because of their nature and thrust. Given the sector-wide ramifications of policy and institutional reforms, a multiproduct and factor market analysis should be undertaken within the sector for the with and without reform situations. The costs of adjustment in the product and factor markets within the sector could provide the rationale for the use of the sector adjustment loan modality.

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13/ Ali, op. cit.
and hence these costs should be identified and to the extent possible, quantified.

49. A brief digression from the general topic of the economic analysis of sector adjustment loan follows. Associated with the issue of the identification and quantification of costs is the question of loan size and use of loan proceeds. Loan size could be related to adjustment costs. An adjustment loan may signify support by the multilateral financial institutions (MFIs) for a sector reform package whose implementation is impeded by adjustment costs associated with the reforms. The loan provides added flexibility to a sector as it changes direction from a set of bad to a set of better policies or institutions. That flexibility is enabled through the loan meeting a part of the adjustment costs. In that sense the identification and quantification of adjustment costs and the determination of loan size are closely related. However, when costs cannot be identified and quantified, the determination of loan size becomes completely subjective. Turning to the question of the use of loan proceeds, that would depend on the impact of the reforms. If the reforms led to added demand for inputs caused by changes in the composition and volume of sector supply, loan proceeds could be used to import those inputs. On the other hand, if costs of adjustments associated with redistribution of income were a major impediment to implementing reforms, loan proceeds could be used for budgetary support to compensate the losers. The foreign exchange from the sector adjustment loan would indirectly provide balance-of-payments support as counterpart funds are generated.

50. Returning to the main theme of this section on the economic analysis of sector adjustment loans, the next issue that comes up is that if benefits and costs can be identified and quantified, how should they be valued? They should be valued by the same shadow prices used in the economic analysis of projects. The cautionary note that has to be emphasized is that the sensitivity of the shadow price to the reform being proposed would need to be explicitly considered. Shadow prices at the third level of sophistication described in section V would be highly relevant.

51. Undertaking economic analysis of a sector adjustment loan would be useful because it will enable the MFIs to make a judgement on (i) providing a sector adjustment loan; (ii) distinguishing between the desirability of one sector adjustment loan from another in a country; and (iii) allocating resources between adjustment and project loans within a sector. The determination of a benchmark on the basis of which these decisions can be made warrants consideration. Project analysis provides some clues. The issues raised in this section indicate some of the complexities involved in extending the analogy of the economic analysis of projects to sector adjustment loans.

52. In the comparison of costs and benefits, three aspects are important, namely, the identification, quantification and valuation of costs and benefits in the with and without project (reform) situations. In project analysis, when benefits can be identified but not quantified, the analysis will stop with the determination of the least-cost solution. When benefits can be identified and quantified, the analysis will go a
step further with determination of the cost-effective solution. Only when the identification, quantification and valuation of benefits are possible can a full cost-benefit analysis be done. The classification of various stages of economic analysis under differing conditions of identification, quantification and valuation will be relevant for assessing the impact of a sector adjustment loan through economic analysis.

53. A crucial assumption in project analysis is that costs can be identified and quantified. A characteristic of sector adjustment loans is that quantification of costs could pose major problems. When costs cannot be quantified, no form of economic analysis will be possible. A major implication of this is that it then becomes extremely difficult to determine loan size if the rationale of the sector adjustment loan is based on the alleviation of adjustment costs.

54. Assuming that some quantification of costs is possible, what is the meaning of least-cost analysis in sector adjustment? The existence of policy and institutional distortions in a sector provide the rationale for reform to elicit a certain supply response. If this response can be obtained through different combinations of reforms, then least-cost analysis will be helpful in identifying the most efficient reform mix to attain the objectives of the sector adjustment loan. The feasibility of the alternatives considered is an important aspect. While political realities must be recognized, they should not allow all promising alternatives to be rejected on purely political grounds.

55. It is only when identification, quantification and valuation of costs and benefits associated with sector adjustment loans are feasible will rate of return calculations be possible. It has been argued that one possible rationale for a sector adjustment loan is the alleviation of costs associated with the intra and intertemporal redistribution of income resulting from reforms. These costs constitute the upfront sector adjustment costs which are analogous to capital costs of a project. It is the existence of these capital costs that make rate of return calculations meaningful.

56. Turning to the issue of deciding between alternative adjustment loans and between project and adjustment loans, the analytical framework described in this paper indicates that in principle the marginal allocation of resources between alternative lending modalities by the MFIs should be made on the basis of where the welfare improvement will be the greatest. On practical considerations, however, there could be problems of implementing such a framework. In many cases involving both project and sector adjustment lending, economic analysis may stop at least-cost or cost-effective analysis. When costs cannot be quantified in the case of adjustment loans, no form of economic analysis will be possible. However, this does not mean that efforts at economic analysis of both

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14/ Henderson, op. cit.

project and sector adjustment loan should be abandoned as there are significant advantages in doing so in terms of sharpening the focus, and assessing the contributions and limitations of both project and sector adjustment loans. Only when rate of return calculations are possible can comparisons among sector adjustment loans and with project loans be made.

57. To conclude this section, the framework for economic analysis of projects has been used to identify the prospects and problems of using it to undertake the economic analysis of sector adjustment loans. While the complexities associated with identifying and quantifying costs and benefits of these loans may make it difficult to adopt a uniform approach for analyzing costs and benefits of project and adjustment loans, its attainment in the future is a desirable objective. In the economic analysis of projects, it is the assumptions which underpin the estimation of the rates of return that are crucial in assessing them. Similarly, the assumptions used in the assessment of sector adjustment loans will be critical in judging their viability. The discussion in this section identifies the areas in which the assumptions will need to be made and justified. An explicit statement of assumptions used in identifying costs and benefits will constitute the first step in improving the transparency of sector adjustment loans.

58. The thrust of this section has been to indicate that despite the difficulties and complexities involved in conducting economic analysis of sector adjustment loans, there is a need to successively sharpen the rationale of sector adjustment loans and undertake steps to identify, quantify and value costs and benefits. Economic analysis could stop at least-cost, cost-effective or cost-benefit analysis as circumstances warrant. The basis for informed adjustment or desirability of sector adjustment loans should be strengthened. In the process, the assessment of policy and institutional reforms could be conducted in terms of determining their benefits, their costs, alternatives considered and recommendations for reform.

VII. ECONOMIC ANALYSIS OF SECTOR ADJUSTMENT: A SYSTEM'S APPROACH

59. Policy and institutional reforms imply major resource reallocation, and this leads to the following questions: (i) What will be the impact of reallocation of domestic consumption and production during the process of adjustment?; (ii) What will be the impact on the standard of living of the poor during the process?; and (iii) Is there an optimal sequence of policies which can be used to maximize the efficiency impact and minimize the equity costs in the process of transition? In the context of the above, the multilateral financial institutions (MFIs) need to recognize the following four issues: (i) determining a set of feasible policies; (ii) extending the degrees of freedom for policy choice; (iii) determining what investments are needed to break the binding constraints on policy choice; and (iv) devising policies that deal with the short-run consequences of efficient sector development.

60. It would be instructive to relate the above to the discussion in section III. In terms of the analytical framework of this paper,
developing countries should design their projects and policy packages with the one and same criterion - increased social welfare. The paper has shown that the economic viability of a project depends on the policy environment and an improvement in the latter could improve the former. The impact of policy reform on social welfare depends partly on supply response which in turn depends on supply elasticities that could be raised through project investments. This could provide the rationale for hybrid approaches with both project investment and policy reform programs being considered in one project cum-policy reform package.

61. Thus, in terms of the issues and the analytical framework described in this paper, sector adjustment should be concerned with reforms in policies, institutions and investment programs as there is an interactive relationship between them. This provides the rationale for the need to take a systems approach to sector adjustment lending. It is only in the context of a systems approach that the MFIs can allocate resources between supporting investment projects and policy reforms optimally so that the marginal impact on sector welfare is the greatest.

62. If a systems approach is taken, a sector adjustment loan signifies support by the MFIs for sector development in its totality in terms of reforms in policies, institutions and investment programs. Thus, support should be based on the overall viability of the sector development program. Benefits will consist of supply response arising from changes in input-output relations caused by policy and institutional reforms as well as additional capacity created by new investment. Costs will include elements of additional input requirements, alleviation of problems caused by income redistribution and investment. In this context, a time-slice analysis for a medium term sector development program could be undertaken to demonstrate overall economic viability.

63. A sector adjustment loan in the systems context could be justified in terms of overall viability of the sector development plan. If the sector adjustment loan finances relatively independent components of the overall sector plan, then the issues raised in sections V and VI will be pertinent in assessing them. If not, all that would be possible would be to demonstrate that the interdependent components that are financed constitute a least-cost solution. This assumes that costs can be quantified. The key to the systems approach is that justification for the sector adjustment loan would be based on overall sector development viability and that the components financed constitute an integral part of the adjustment process.

64. One aspect of the systems approach that deserves to be highlighted is that when investment is included, the need for adjustment costs associated with intra and intertemporal redistribution of income is alleviated. This happens because investment would normally create additional employment opportunities. Consequently, the problems of quantification of adjustment costs that were so crucial in section VI are lessened as these costs are now internalized in the process of sector adjustment.

65. It is likely that the quantification of costs in a systems context will be easier. When costs are identified and quantified, the
issue of the size of a sector adjustment loan comes up. Once the total costs of sector development are determined, the MFIs, on country considerations and sectoral priorities within it, will determine loan size for the sectoral adjustment loan. The usage of loan proceeds will depend on what approaches the MFIs take in demonstrating support for sector adjustment. One approach will be for the MFIs to leave the utilization of loan proceeds to the discretion of the country on the consideration that funds are fungible and all that matters is that the sector development program is effectively implemented. Alternatively, the MFIs can select some components of the sector development program and specify that its funds be earmarked for them.

66. While a systems approach to sector adjustment lending has many advantages and also provides greater flexibility in terms of determining loan size, a precondition to using it is the availability of a rigorous sector study. The sequencing and timing of reforms in policies, institutions and investment programs must emerge from an intensive study of sectoral issues. Only then can a sector adjustment loan in a systems context be an effective instrument for sector development.

VIII. SUMMARY AND CONCLUSION

67. Sector adjustment has three major components, namely, reforms in policies, institutions and investment programs. For analytical convenience, issues pertaining to the economic analysis of sector adjustment were discussed at three distinct levels, namely, investment, reforms in policies and institutions and a systems approach where all three components were discussed under one umbrella. Project loans were linked with investment while sector adjustment loans were aimed at policy and institutional reforms. A comprehensive (hybrid) sector adjustment loan was linked to sector adjustment in its totality which required a systems approach.

68. The objective of both project and sector adjustment loans is to improve economic welfare. The link between projects and reforms in policies and institutions is provided by shadow prices. A change in policy will change shadow prices. The impact of a policy reform can be increased through investment which in turn affects supply elasticities. Projects, policy and institutional reforms and their interactions together will affect sector performance. In light of the above, there is a need to consider project and sector adjustment lending within the same analytical framework using a systems approach.

69. The timing and sequencing of project and sector adjustment lending should be designed in the context of a sector strategy which is underpinned by rigorous sector analysis. Sector analysis bridges the gap between the macroeconomics of national investment management and the microeconomics of individual projects. Sector analysis (i) provides a better understanding of development policies and issues; (ii) enables the determination of investment priorities; and (iii) assesses the capacity of principal institutions to implement desired policies, programs and projects. Thus, sector analysis will indicate the basic areas of action
for policy improvement, institutional strengthening and better analysis of investment projects. An integrated approach to project and sector adjustment lending presupposes rigorous sector analysis which enables the design of a medium term sectoral strategy.

70. The purpose of this paper was to examine the issues involved in the allocation of resources by the multilateral financial institutions (MFIs) among their main modalities of lending. In this context, the areas of commonality and points of departure in assessing project and adjustment lending in a sectoral context are relevant. They will differ significantly in the definition of project (sector adjustment) loan boundaries. When costs can be quantified, for both project and sector adjustment loans, economic analysis will stop at least-cost analysis where only identification of benefits is feasible, will end with cost-effective analysis when both identification and quantification of benefits are possible and cost-benefit analysis will become an attainable objective when identification, quantification and valuation of benefits are possible. Infrastructural projects and some sector adjustment loans share the characteristic that while costs are undertaken by the public sector, benefits are widely diffused across the private sector making quantification of benefits difficult. An added feature of sector adjustment loans that needs careful consideration is the difficulty of quantifying costs associated with the reforms being proposed. Non-quantification of costs will preclude any form of economic analysis.

71. One feature of the paper is that in the discussion on both project and sector adjustment loans, the analysis has been confined to examining efficiency aspects only. In other words, no weighing scheme is used to draw a distinction between income categories who bear the costs and reap the benefits of projects and reforms. While these costs of inter- and intra-temporal redistribution of income are recognized, only the costs of adjustment in making the efficiency gains possible are considered in the paper.

72. The approach taken by the MFIs to facilitate sector adjustment will determine the kind of economic analysis that will be needed to justify their involvement. If an investment approach only is taken, conventional economic analysis of projects will suffice. On the other hand, efforts to reform policies and institutions will require a sector adjustment loan for which no accepted framework of economic analysis exists. The paper has highlighted the difficulties involved in quantifying both benefits and costs associated with policy and institutional reforms but has indicated that in some cases these problems need not be insuperable. Finally, if the purpose of a sector adjustment loan is to indicate broad support by the MFIs, then the paper indicates that a systems approach using a time-slice analysis can be used to demonstrate sector development viability which provides the basic rationale for the loan.

73. While the difficulties of extending the analogy between the economic analysis of project and sector adjustment loans are recognized, the need for further research in quantifying the costs and benefits of sector adjustment loans is justified both in terms of sharpening the focus of these loans and in determining loan size and loan utilization. In
addition, such efforts will be crucial to enable the MFIs to maximize the impact of their lending through the choice of the optimal mix of project and sector adjustment loans. The adoption of a uniform framework for analyzing costs and benefits of project and adjustment lending is a desirable though perhaps distant goal. However, a gradual adoption of some of the major elements of project evaluation like the identification, and when possible, the quantification of costs and benefits in assessing adjustment loans will contribute significantly to improving their transparency. Establishing the need for a sector adjustment loan and designing the set of instruments to meet those needs will indicate the additionality of reforms in policies and institutions that will result. Given the importance of the subject of sector adjustment and the significant share of the resources of the MFIs being allocated to facilitate adjustment, developing an operational methodology for the assessment of sector adjustment loans and implementing it warrant urgent consideration.