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# On Project Appraisal and Appraisers: Editorial<sup>1</sup>

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This issue of the *IDS Bulletin* has been produced by the Project Planning Centre for Developing Countries of the University of Bradford, England, whose main work since 1970 has been to run courses in project appraisal for nationals from the Third World. The contents reflect the Centre's concern not only with the techniques of project appraisal but also with the social and political issues raised by using them.

Planning techniques such as project appraisal or mathematical programming are means to assist decision-making in conditions of incomplete information: there is no way of controlling the weather so that agricultural yields can be predicted with certainty, of estimating the likely success of trade unions in raising the real wages of their members, or of predicting technological changes in the electronics industry in the coming 10 years.

Project appraisal can be defined as any planning technique where investment decisions are taken one by one: it is decentralised in space and time. Consequently project appraisers operate with a special form of uncertainty: they do not know what other projects will be accepted in the future. By contrast, mathematical programmers attempt to plan all the investments that will be made in a defined time period simultaneously: this means that they require accurate technical and price information for every possible alternative investment or combination of investments, so that their plans very quickly become out of date. The macro-economic plans produced for the past 30 years in the mixed economies of both the developed and the underdeveloped worlds were neither of these: for often the planners had little control over those who took the actual decisions to invest, so that the so-called plans were little more than lists of half-prepared suggestions prevented as bait to persuade aid donors or the private sector that it was worth investing.

As with any decentralised planning system, project planning has two stages: establishing the rules

to be followed by the decentralised agents, and using those rules to appraise actual projects. The theory of marginal cost pricing worked out by Pigou and others in the 1920s showed that an optimal use of resources would not necessarily be achieved by charging to cover costs: overall welfare could often be improved by subsidising a railway or a bridge out of taxation. Moreover much of the benefit might accrue to individuals who were unwilling or unable to pay for it, such as those relieved from congestion on other parts of a transport network. These two insights continue to form the substance of cost-benefit analysis in advanced capitalist economies: in making investment decisions, costs should be long-run marginal costs, while benefits or costs accruing to individuals as a result of a project but not actually paid for should be included in the calculations.

Although the methodology was devised to deal with these problems of public sector investment in infrastructure and transport in developed capitalist economies, it was recognised that some of the problems facing planners in the underdeveloped world were similar. In particular, if the alternative to wage employment was either unemployment, or employment in an activity that contributed very little to national output, there was a case for valuing labour below the market wage-rate. Despite warnings about the danger of doing this in an advanced economy (Prest and Turvey in their influential 1965 survey pointed out that it might make a very large number of projects 'profitable') economists evaluating projects for foreign aid donors started using a shadow price of labour equal to the marginal product in peasant agriculture. They also recognised that most governments valued a dollar of foreign exchange more highly than they valued its equivalent in local currency at the official exchange rate, and so they revalued foreign exchange earnings or savings using a shadow exchange rate. The resulting *ad hoc* system of project appraisal, while never very well documented in the academic literature, was widely used in actual project appraisals in the 1960s, and remains in frequent use to this day.

The premium imposed on foreign exchange was fairly arbitrary: it was customary to argue that it could be calculated by estimating the devaluation that would be required to equate the demand and supply of foreign exchange without

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<sup>1</sup> In this issue where the author-date system is used, full details of references are given in the Select Bibliography on Project Planning on page 36. For a few references of less general interest details have been footnoted.

any need for controls. This procedure was, for example, recommended by Roemer and Stern whose book was published as recently as 1975. The difficulty with it is that 'balance' in the foreign exchange markets cannot be defined unless government policy, the size of the investment budget, and the desire to move capital in or out of that country are all known.

The concept of a foreign exchange premium was eventually given precision by development in the theory of trade. Economists who were convinced that many import substitution projects were being implemented in the misconceived belief that they would save foreign exchange, devised the concept of effective protection to reveal the cost of industrialising behind protective tariffs. In 1968 and 1972 this concept was extended in two systems of project appraisal, usually referred to as 'Little and Mirrlees' and 'UNIDO', in which production of goods that could be externally traded was only justified if they could be produced more cheaply than their inputs. Output and traded inputs were valued at world prices, i.e., excluding tariffs. Non-traded goods were valued according to their opportunity costs. Both of these systems therefore required a ratio, equivalent to a shadow price of foreign exchange, in order to compare the world prices of traded goods with the opportunity cost prices, based on local prices, of non-traded goods (although the Little and Mirrlees system went out of its way to recommend that, as far as possible, this ratio should be calculated separately for each non-traded good). Both systems also allowed for the fact that a very low shadow price of labour might lead to the choice of labour intensive projects which would not be the projects generating the greatest profits for their owners, so that their implementation would lower the capacity of the economy to reinvest out of profits; so in countries where growth was emphasized as well as the need to raise consumption and employment immediately, a somewhat higher shadow wage was recommended.

The similarity between the Little-Mirrlees and UNIDO methods was recognised at once (Dasgupta 1972). In 1975 John Weiss demonstrated precisely the assumptions required to make the two systems give the same answers. In his contribution in this issue he shows how the demands of an empirical study in Pakistan made it virtually impossible to calculate the shadow price of each non-traded good separately, so that he was left with little alternative but to use an approximation mathematically equivalent to the UNIDO procedure.

In 1975, as part of a new policy of emphasizing 'basic needs', the World Bank published a monograph by Lyn Squire and Herman van der Tak which recommended giving greater weight to income streams accruing to those whose incomes were below a critical level. The procedure had been suggested 15 years earlier (Eckstein 1961; see also Layard 1972: 57-9); some of the problems had also been pointed out (Freeman 1967). The attraction was the mathematical convenience, which depended on only two value judgements to measure the extent to which income going to the poor should be revalued (Potts 1977). The issues are discussed in the essays in this collection by Mike Veitch and David Potts, and in several articles in the symposium on 'Cost-Benefit Analysis and Income Distribution in Developing Countries', edited by John MacArthur and Galal Amin, recently published as a special issue of *World Development* (Vol. 6, no. 2, February 1978).

Theoretically there is no limit to the number of objectives that can be taken into account in a system of shadow prices. The project appraiser merely asks his sponsor to list his objectives in a form that can be measured numerically, together with the relative weights to be given to each objective. If a government is unwilling to commit itself to an objective function in this way, then the appraiser will attempt to impute it, by studying that government's actual behaviour; for example, the treatment it gives to different classes of income receivers in its taxation policies, or the amount of sacrifice of profit it is prepared to make to enable a labour intensive solution to have priority over a capital intensive one.

The practical difficulties of operating such a system should not be exaggerated. In at least 10 countries, mostly in Asia and Africa, researchers have calculated systems of shadow prices. In none of these countries are they, as yet, used routinely for all project evaluations. But in principle once the shadow prices have been calculated, planning offices can keep up-dating the lists, in which case the application is little more than arithmetic.

Conceding that the practical problems can be overcome, would this be a good use of government time? Hugh Latimer has no doubt on the matter: his essay in this issue suggests that project planning is the only methodology with the flexibility to take account of changing circumstances and emphases in government policy, and so predicts that it will take over much of the ground at present occupied by medium-term macro-economic planning: indeed, he presents evidence that this is happening already.

But many difficulties remain, as even he admits, and as John Weiss in his two book reviews and Michael Veitch and David Potts in their articles point out. These difficulties divide into three groups.

There are, first, difficulties with projects themselves. This is a problem whether or not shadow prices are used. For example, Alec Baird in his article reflects on a very fundamental issue that faced an integrated rural development project in Sierra Leone: should it emphasize credit and confine its activities to a minority of wealthier farmers who could be expected to repay what was lent to them? or should it emphasize extension, in which case it would run its credit activities at a loss? or should it combine both objectives? The potential contradiction was not seen in advance. Frank Wilson describes the problems of building an evaluation framework into a dairy development project in Nigeria when achievement of one objective might make it more difficult to achieve another. Andrew Coulson's paper on a grain storage project in Tanzania is a study of what John White calls 'the aid relationship'. It shows how during a lengthy negotiation period the limitations of a project were appreciated by junior economists in both the recipient's and the donor's civil services, but how their seniors on both sides were unwilling to disturb the negotiations by suggesting anything that might cause yet more delay, with the result that a very bad project was approved and implemented.

This failure of projects to produce what they promise is a very general problem. Michael Lipton refers to it in his recent book *Why Poor People Stay Poor* (Lipton 1976). In chapter 8 he claims repeatedly, on the basis of very limited information (notably Szczepanik 1969), that investment in agriculture produces greater returns than investment elsewhere. Yet at the end of his book he gets near to undermining his argument when he explains that 'despite theoretical and empirical evidence that productive outlays in labour-intensive small farming show high returns, the World Bank in particular has found difficulty in identifying good projects within that sector, or when evaluating past projects there, in demonstrating satisfactory yields' (p. 349). Although he gives reasons why rural projects might fail more often than urban ones, his argument is far from convincing. 'Why projects fail' is evidently an area calling for a great deal more research, of an interdisciplinary nature.

The second general type of problem with project appraisal relates to the difficulty of tracing all the effects of a project through the economy. This is

connected with the problem of putting a boundary around a project: if one is to apply the methodology one has to put a limit on the types of impact that will be considered. A discussion of this question of externalities has been provided by Stewart (1977), who points out that they will be more important for big projects in small countries, and more important if a whole group of projects, or a whole category of expenditure, is being compared, than if one small project is involved. Thus social cost-benefit analysis is most useful for evaluating relatively small projects in a country where strategy is clearly defined. It is potentially misleading if it is used to evaluate a proposed change in policy, or to compare one strategy with another. In industries with large numbers of interlinkages it will fail to pick up all the relevant price changes; for example a new power station may make electricity cheaper and this would affect the prices of a wide range of non-traded goods. A similar problem arises if a rise in the price of food will raise the shadow wage and so affect the shadow price of every non-traded good (Mirrlees 1978: 135). In theory these problems, and others like them, should be handled by solving a general equilibrium system in which the government would maximise a suitable objective function subject to given technical conditions, and constraints on the availability of resources, so that for every good there would be a resulting shadow price. The set of projects that maximised 'profit' with these shadow prices would be the ones chosen for implementation. Although in the literature this is frequently mentioned as the desirable procedure, cost-benefit planners are far from making it operational.

The third type of difficulty, and arguably the most fundamental of all, concerns the relation of project appraisal techniques to the interests of those who use them. Recent innovations in project appraisal procedure have reflected policy interests that were topical at the time. Thus the Little-Mirrlees and UNIDO systems were elaborations of the idea of effective protection designed to demonstrate the irrationality of much import substitution. The use of a shadow price of labour was devised to show the advantage of labour intensive technology in a dualistic economy. Income distribution weighting was taken off the shelf where it lay for 15 years in response to a sudden realisation by the World Bank and other Western interests that they had to do something to improve the conditions of life of the poorest 20 per cent of the world's population.

On the other hand, no-one appears to have followed up Marglin's suggestion (1967:85) that

self-sufficiency should be incorporated as an objective. Yet there must be at least as many statements by Third World governments in favour of self-reliance, in the sense of minimising dependence on imports, as there are about income distribution. This omission may be connected with an over-reaction against faulty import substitution, which has left many economists with an instinctive distrust of the idea that the medium-sized countries of Africa and Asia should industrialise. If, however, a country chooses to make industrialisation a major part of its economic strategy, it may require, for a generation or so, considerable protection, and in particular a general limitation on the imports of consumer goods and many intermediate goods too. There would still be trade, notably the export of primary products and, where possible, manufactured goods; but the foreign exchange so generated would be used to purchase capital goods to establish the industries producing a small number of key intermediate items, around which the production of the consumer goods that would meet the needs of the masses would be based. Much of the initial risk would be taken by the State. This is, in essence, the strategy recommended by the Caribbean economist, Clive Y. Thomas, whose book, reviewed in this issue by David Phillips, came out in 1974 but has not received the attention it deserves. This strategy is not easily compatible with comparative advantage, at least in the short run. If India had not started building relatively inefficient steelworks 20 years ago, she would not now be in a position to export them to Africa. One wonders if either steelworks or railway locomotives would have been selected for investment if comparative advantage had been the main criterion.

Clive Thomas argues that in this situation, during a period of socialist industrial and agricultural transformation, the important planning decisions concern the timing and sequencing of investments, so that the output of one project can provide the input to another at the right time and place. Shadow prices would be highly unstable over time, since if a good was in temporary surplus its shadow price would be very low, while if it was in shortage, pending the completion of a new capacity, its shadow price would be very high. In such conditions, or in a war economy, many more variables would be under the control of the planners, and there would be a strong case for the use of mathematical programming methods in place of project appraisal based on shadow pricing.

But what of the majority whose governments have little wish to carry out this sort of strategy,

or even much more limited programmes of land reform or income redistribution? David Potts, elaborating an argument hinted at by Amartya Sen in his important 1972 *Economic Journal* article asserts that project appraisal is a technique devised and favoured by planners and donors who would like the governments of the Third World to change their policies but who fear that they will not do so. In Potts' words:

Through the internal logic of economic theory (or just from an idea of human justice) it is apparent that, in many countries, there is insufficient overall saving and insufficient consumption by the poorest people. One reason is that the rich (and the army) consume and waste too much and invest too little in productive activity. Social analysis can therefore be seen as an attempt by economists (and the aid agencies that finance their work) to impose this logic on countries that would otherwise do very little. . . . while government statements are sometimes used to back the judgements up, they really constitute an attempt to impose the priorities of economic planners and aid agencies on recalcitrant governments, for a variety of different motives—such as humanitarianism and the desire to promote political stability—or prevent revolution.

His defence of the technique then amounts to the suggestion that more good is likely to come out of its use than harm. Alternatively, its use might simply legitimise a regime in which power was held by a local ruling class in alliance with Western interests, with the welfare of the masses very low on its list of objectives.

The reader of the articles in this issue will perceive that, just as many technical issues are unresolved, different views prevail about the role and value of important elements of project planning, such as social cost benefit analysis. Thus, several of the book reviews make the point that the use of any planning technique cannot be separated from the interests of those who use it. John Weiss, in his review of a book on private investment overseas, affirms that 'there is sufficient evidence . . . for the view that the interests of host countries and globally oriented multinationals can often diverge'; David Philips, reviewing Clive Thomas' book on industrial transformation, shows how the use of project appraisal methods cannot be separated from the choice of strategy; while Ken Westgate's review of a book on famine suggests that the pursuit of profit has led to agricultural systems which do not ensure that people get fed. The final review

is of a novel, *Petals of Blood*, by the Kenyan writer Ngugi wa Thiong'o. African writers, such as Sembene Ousmane, Chinua Achebe, and Ngugi have used the novel to raise questions about the nature of their post-colonial states that they could not raise in any other way. Placed in this

collection, the review serves to remind us that economics cannot be separated from politics, that the political context in which decisions are made does more to affect the quality of life of the masses than the use of any particular planning technique, whether at the macro or micro level.