THE INCOME DISTRIBUTIONAL PARAMETER
IN
PROJECT APPRAISAL

by

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Recent concern with the distribution of incomes in developing countries has led to recommendations in project evaluation manuals prepared for international institutions to introduce income distributional considerations in the appraisal of investment projects undertaken by these countries. The Manual of Industrial Project Analysis in Developing Countries, prepared for the OEEC Development Center by J.H.D. Little and J.A. Mirrlees, called for "attaching different weights to the consumption of different income groups" (1969, p.42). In the revised volume, Project Appraisal and Planning for Developing Countries, it has been proposed that "these weights give expression to the objectives of the government" (1974, p. 234). Little indication is given, however, as to how these weights are to be determined on the grounds that "In a book primarily concerned with practical applications, it would not be right to develop a theory of welfare weights in great detail" (ibid).

The UNIDO Guidelines for Project Evaluation, prepared by Partha Dasgupta, Stephen Harglin and Amartya Sen, put forward a rationale for the introduction of income distributional considerations in project appraisal in the following terms: "given the concern with mitigating inequalities professed by most of the developing countries, disregard of the distribution of benefits and costs from a project can be justified only if it is assumed that the desired distribution of consumption is to be achieved independently of the mix of public investment" (1972, p. 76). It is claimed that such is not the case in developing countries as "Political, institutional, and administrative obstacles prevent

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taxation of the rich to the point necessary to reduce consumption inequalities substantially. And, the other side of the coin is the widespread objection to increasing the consumption of the poor through direct subsidies" (ibid).

It is further suggested that income distributional considerations be introduced in project appraisal by weighting the consumption increments accruing to people in various income groups that result from the project's implementation (p. 77). These weights are to "directly reflect political value judgments" (p. 139). They are to be derived on the basis of choices made by policy makers in regard to particular projects and their possible variants. According to the authors of the UNIDO Guidelines, "Eventually, a consistent pattern of weighting would, it is hoped: emerge from a large number of choices" (p. 144).

The proposed World Bank Guidelines on Economic Analysis of Projects, written by H. G. van der Tak and L. Squire, also express the view that "if the government is unable to secure a desired redistribution of income through taxation, it can use the allocation of investment resources as an alternative method of redistributing income" (1975, p. 17). The use of distributional weights is recommended for this purpose when "Value judgments by the government determine the weights to be given ... to benefits for different classes of income recipients.." (p. 26).

Distributional weights are to be derived from a utility function where the marginal utility of consumption \( U_C \) is taken to depend on the initial level of consumption \( c \) and the parameter of the utility function \( n \).

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1/ The UNIDO Guidelines also consider introducing regional distribution weights (pp. 77, 78 - 82) and government pricing policy (pp. 82-84) but these will not be discussed in what follows.
In the formulation chosen (1), this parameter is the (social) elasticity of the marginal utility of consumption, while the utility function itself is supposed to express the government's preferences. Thus, "the higher \( n \) the more egalitarian the government's objectives, since the higher \( n \) the higher the rate of diminishing marginal utility" (p. 63).

It is added that "For most governments \( n \) would probably center around 1. Values close to zero or two, although possible, may be considered extreme" (ibid). Within this range, it is recommended that the project analyst consider values between 0.5 and 1.5 for \( n \) (p. 103). Little justification is given, however, for the choice of the proposed range of values.

While the UNIDO Guidelines call for deriving income distributional weights on the basis of government preferences as revealed by choices of projects and project variants, according to the Bank Guidelines "if an international agency such as the World Bank conducts the analysis, it must try to arrive at an understanding with the government about its socioeconomic goals/ before the analysis is undertaken" (p. 27). It is further added that "if views diverge -- with respect to the desired distribution of the gains from development, for example -- the agency should analyze the proposed project relative to both its objectives and those of the government and satisfy itself that the project meets the objectives of both" (Ibid).

\[ U_c = C^{-n} \]

1/ Setting the elasticity of the marginal utility of consumption equal to 1 would mean that a weight twice (one-half) of the average was assigned to a marginal increment of consumption accruing to an individual who had one-half (twice) the average consumption level. The assigned weight would be four times (one-fourth) the average if \( n \) was set at 2 while equating \( n \) to zero would mean that increments in consumption were valued equally regardless of the recipient's existing level of consumption.
Thus, all three project evaluation manuals call for the use of income 
distributonal weights in project appraisal, to be derived from a social 
welfare function expressing governmental preferences and/or the preferences 
of international institutions. In so doing, they disregard private preferences 
that are reflected in the individual valuation of the utility of consumption.

A different approach is followed in this paper. We will take the 
private valuation of the utility of consumption as the basis for deriving the 
social elasticity of the marginal utility of consumption. The relationship 
between the social and the private elasticity of the marginal utility of 

consumption is derived below.

Assume that each individual has the same isoelastic utility function 
u(i) and that the social welfare function is expressed in the form of equation (2),

\[ W = W \left( \frac{u(c_1)}{u(c_2)}, \ldots, \frac{u(c_n)}{u(c_1)} \right) \]

with \( W_i > 0 \) for all \( i \). The social elasticity of the marginal utility of consumption \( \eta \) can now be written as in (3).

\[ \frac{\partial \log u'}{\partial \log c_i} - \frac{\partial \log W_i u'}{\partial \log c_i} = \frac{\partial \log W_i}{\partial \log c_i} \]

\[ = \frac{\partial \log u'}{\partial \log c_i} - \frac{c_i W_i u'}{W_i} \]

1/ The formula was originally derived by Sudhir Anand (1973); the simplified derivation used here has been suggested to be by Graham Pyatt.
The first term on the right-hand side of equation (3) will be the private elasticity of the marginal utility of consumption \( w \), while the second term will provide an adjustment factor for deriving the social elasticity of the marginal utility of consumption from the private elasticity. As Anand shows (1973), this term can be rewritten as the product of the elasticity of the marginal social welfare function with respect to individual i's utility and the income elasticity of individual i's utility function.

Having defined the social welfare function used in the paper, questions relating to the empirical measurement of the private elasticity of the marginal utility of consumption and the choice of adjustment factors for deriving the social elasticity will need to be considered. Section II of the paper provides an introduction to the measurement of the private elasticity of the marginal utility of consumption, taking as a point of departure a paper by William Fellner. In Section III, empirical results derived in a within-country and an inter-country context will be presented. This will be followed by a discussion of the limitations of the results (Section IV). In turn, in Section V, comments will be offered on the choice of adjustment factors for deriving the social elasticity of the marginal utility of consumption. Finally, Section VI will examine the issue of introducing income distributional considerations in project appraisal in general terms.

As Fellner reports (1967, pp. 42-43), Irving Fisher first put forward the proposition that the cardinal measurability of marginal utility depends on the independence (noncomplementarity) of wants (Fisher, 1852). The theoretical
analysis underlying this proposition was further developed by Fisher himself (1927) and by Ragnar Frisch (1959), who utilized the concept of the elasticity of the marginal utility of consumption or, in his terminology, the "money flexibility", in deriving a scheme for computing direct and cross demand elasticities.

The first numerical estimates of the elasticity of the marginal utility of income were also made by Frisch (1932). The work of Fisher and Frisch was subsequently extended to the von Neumann-Morgenstern framework by William Fellner who also estimated the elasticity of the marginal utility of income from consumption data of U.S. cities (1967).

In the Fisher-Frisch tradition, Fellner has established the measurability of the elasticity of the marginal utility of consumption (income) on the assumption that the individual utility function is separable into at least two additive terms, representing groups of commodities \((x)\), as in (4). This permits interpreting "observable marginal rates of substitution \(r_s\) ratios of marginal utilities, on the assumption that if the quantity of one good is held constant and that of another is varied, then the marginal utility of the first of these goods remains unchanged" (Fellner, 1967, p. 46).

Expressing the first order condition of utility maximization as in (5),

\[
\frac{\partial u}{\partial x_1} = \lambda \frac{P_1}{x_1}
\]

we can determine the increase in income necessary to induce the consumer to

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1/ The assumption of want independence was earlier made by Pigou (1910) in suggesting a method to derive price elasticities from income elasticities.
buy the same quantity of $x_i$ at a higher price.\(^1\) With $\partial u/\partial x_i$ being the same for the identical level of consumption of $x_i$ in the low price - low income as well as in the high price - high income situation, Fellner suggests that, for the small income range in which we observe $x$ to be constant, the ratio of the $i$'th commodity's income elasticity ($E_i$) to its compensated own price elasticity ($\varepsilon_i$) will provide an estimate of the elasticity of the marginal utility of income.

Fellner's formula provides an approximation to the true elasticity of the marginal utility of income, which has been derived from a general model of utility maximization by Frisch (1958, p. 187).\(^2\) It is shown in equation (6) below.

$$ w = \frac{E_i(1-\alpha_i E_i)}{\varepsilon_i(1-\alpha_i \varepsilon_i)} = \frac{E_i(1-\alpha_i E_i)}{\varepsilon_i} $$

The difference between the results obtained with the two formulas tends to be small. Thus, Nicholas Stern has shown that Fellner's estimates of the elasticity of the marginal utility of income for the United States exceeds the true elasticity by 15 percent (1973). The difference between the results will be the smaller, the smaller is the budget share of commodity $i$.

\(^1\) In the equations, $p$ refers to prices and $\lambda$ is the marginal utility of income.

\(^2\) In equation (6) $\alpha_i$ refer to the budget share of the $i$'th commodity and $\varepsilon_i$ is its uncompensated own price elasticity. To express the elasticity of the marginal utility of income with a positive sign as in (3) we here followed Fellner in multiplying the compensated own price elasticity (the denominator of Frisch's original expression) by $-1$. 
Fellner's estimate of the elasticity of the marginal utility of income was based on data on incomes and on the consumption and relative price of food in a cross-section of American cities. In turn, several authors made estimates in the framework of a linear expenditure system (LES) and other models with additive specifications.\(^1\) In the course of research undertaken at the World Bank Development Research Center, the LES system was extended by Constantine 'Lluch (1973) to allow for the consumption-saving decision, and the elasticity of the marginal utility of income and consumption was estimated by Constantine Lluch and Ross Williams (1975a and b) in the framework of the extended LES system.

Equation (7) shows the relationship between the elasticity of the marginal utility of income \((\gamma)\) and that of consumption \((w)\) in the framework of the extended LES, where \(w\) is the marginal propensity to consume \((Lluch-Williams, 1975a, p. 9).\)

\[
\gamma = \frac{1}{1 + w} - 1
\]

In the following, we will briefly review available estimates of the elasticity of the marginal utility of consumption, which is the relevant concept for project appraisal.

III

Frisch conjectured that the elasticity of the marginal utility of consumption (money flexibility) is negatively related to per capita incomes.\(^2\)

In his view, "we may perhaps assume that in most cases the money flexibility has values of the order of magnitude given below,

- \(w = 10\) for an extremely poor and apathetic part of the population.
- \(w = 4\) for the slightly better off but still poor part of the population with a fairly pronounced desire to become better off.
- \(w = 2\) for the middle income bracket, 'the median part' of the population.

\(^1\) For references, see Brown and Deaton, 1972.

\(^2\) Recall that we express the elasticity of the marginal utility of consumption with a positive sign while Frisch and econometric studies used a negative sign.
\( w = 0.7 \) for the better off part of the population.

\( w = 0.1 \) for the rich part of the population with ambitions toward 'conspicuous consumption' (1958, p. 189).

Frisch further added that "It would be a very promising research project to determine \( w \) for different countries and for different types of population. A universal 'atlas' of the values of \( w \) should be constructed. It would serve an extremely useful purpose in demand analysis" (ibid).

Estimates based on US data have led Fellner to conclude that the elasticity of the marginal utility of income is constant over a wide range of incomes in the United States at a level of about 1.5 (1967, p. 73). Other authors utilizing various forms of additive utility functions have obtained estimates clustering around 2 (Brown-Denton, 1972, p. 1206), and results reached by the so-called "Australian" (Hoa, 1968) and "Rotterdam" (Theil-Brooks, 1970) models have not provided evidence of a definite relationship between the elasticity of the marginal utility of income (consumption) and per capita incomes in a within-country context.

In turn, the application of the Extended Linear Expenditure System (ELES) to Korean data has given ambiguous results. Dividing Korean urban consumers into two groups, with incomes below and above 4000 won a year in 1970, Lluch and Williams estimated the elasticity of the marginal utility of consumption at 3.1 in the first case and 1.9 in the second (1975b, Table 4). However, the estimated elasticity is higher for urban than for rural households in Korea (6.8 and 5.3 respectively), although average incomes are two-fifths higher for the former than for the latter.

Estimates for particular countries thus do not validate Frisch's conjecture about a negative relationship between the elasticity of the marginal utility
of consumption and per capita incomes in a within-country context. Brohn and Denton extend this conclusion to inter-country relationships, suggesting the universal constancy of the elasticity of the marginal utility of consumption (1972, p. 1206). This generalization is, however, contradicted by results of Lluch and Williams and Janvry, Bieri, and Kuney.

Lluch and Williams estimated the elasticity of the marginal utility of consumption for fourteen countries chosen on the basis of data availability (1975a), utilizing the extended LES system. Estimation was done by the use of equation (8) where \( v \) denotes total consumption expenditures per head and

\[
(8) \quad w = v(v - \varepsilon p_i T_i)
\]

\( T_i \) is the "subsistence quantity" of the \( i \)th commodity (i.e., the amount of the \( i \)th commodity consumed at the subsistence level).

Because of uncertainty as regards the level of commodity aggregation at which the additivity assumption is appropriate, for each country estimates were made at four levels of commodity aggregation (8, 4, 2, and 1 commodities). The statistical significance of the results tends to be the highest at the 8-commodity level and declines as the level of commodity aggregation increases—(Lluch-Williams, 1975a, Table 2).

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1/ United States, Sweden, West Germany, Australia, United Kingdom, Israel, Italy, Ireland, Crece, South Africa, Jamaica, Taiwan, Thailand, and South Korea.

2/ In the following discussion, the 1-commodity aggregation scheme has been disregarded as this corresponds to the simple Keynesian consumption function.

3/ Out of fourteen countries, the results are significant at the 5 percent level in twelve cases under the 8-commodity aggregation scheme and eleven cases each under the 4-commodity and the 2-commodity aggregation schemes. The number of significant results increases to fourteen in the 8-commodity aggregation scheme if a 10 percent level of significance is utilized (Lluch-Williams, 1975a, Table 2).
Lluch and Williams further utilized the mean estimates for the fourteen countries under study to test Frisch's hypothesis that the elasticity of the marginal utility of consumption is negatively related to per capita incomes in an inter-country framework. According to the results at the three levels of commodity aggregation, this elasticity tends to decline by about one-third of one percentage point as per capita incomes increase by one percent. Selecting for each country the estimate with the highest level of statistical significance Lluch and Williams obtain, in a weighted regression, the results shown in (9). For an "average" country with incomes per head of $3000 in 1970 prices, the elasticity of the marginal utility of consumption is shown to be 2.1 while the corresponding elasticities for countries with per capita incomes of $1000, $500, $300, and $100 are estimated at 3.1, 4.0, 4.8 and 7.0.

A greater degree of progression was found by Janvry, Bieri, and Nunez (1972), who regressed LES estimates of the elasticity of the marginal utility of consumption for the United States, Norway, Argentina, Peru and Israel on per capita incomes.

The regression equations estimated by combining country results obtained at the 8, 4 and 2 commodity aggregation, respectively, are:

1/ The regression equations estimated by combining country results obtained at the 8, 4 and 2 commodity aggregation, respectively, are:

\[
\begin{align*}
\text{8 commodity} & : \quad \log w = 1.338 - 0.302 \log x \quad R^2 = 0.276 \\
& \quad (3.18) \quad (2.14) \\
\text{4 commodity} & : \quad \log w = 1.645 - 0.409 \log x \quad R^2 = 0.518 \\
& \quad (4.84) \quad (2.90) \\
\text{2 commodity} & : \quad \log w = 1.284 - 0.304 \log x \quad R^2 = 0.300 \\
& \quad (3.22) \quad (2.27)
\end{align*}
\]

In the equations \(x\) refers to per capita incomes measured in US dollars at the official exchange rate; \(t\) values are shown in parenthesis.

The variables have been weighted by the standard error of the dependent variable.

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capita incomes. For countries with per capita incomes of $3000, $1000, $500, $300, and $100, the estimates derived from equation (9a) are 1.0, 1.7, 2.4, 3.1, and 5.5.

The Lluch-Williams results can be judged superior to the estimates by Janvry, Bieri and Nunez. This is because Lluch and Williams have used data for a substantial number of countries that also exhibited large income disparities; they have applied the same model to the data of all the countries; and they have employed statistical tests to choose among results pertaining to different degrees of commodity aggregation. In turn, the Janvry-Bieri-Nunez study combines results for a smaller group of countries that exhibit lesser variations in income, and the estimates were made employing a variety of methods which did not permit making a choice on the basis of degrees of statistical significance.

IV

The Lluch-Williams, as well as the Janvry-Bieri-Nunez, results provide empirical support for Frisch's conjecture, according to which the elasticity of the marginal utility of consumption is negatively correlated with incomes in an inter-country context. The results are, however, subject to qualifications as regards the methodology employed and the applicability of the estimates to developing countries.

The measurement of the elasticity of the marginal utility of consumption necessitates an essentially arbitrary, normalization of the utility function. In the cited studies, normalization has been accomplished by assuming additivity in utilities arrived from particular product groups. Fellner suggests that the
error committed thereby may not be substantial; thus, in a two-commodity group model, "we would be making excessive allowance for complementarities if we reduc-
ed our estimate of \( \frac{1}{2} \) by 30% (1967, pp. 65–66). However, as Squirl has noted (1975), in the framework of the linear expenditure system the elasticity of the marginal utility of consumption cannot be estimated if the additivity as-
sumptions underlying the Stone–G Carey formulation of individual utility functions are not made.

It should further be recalled that, in the ELES formulation, the elasticity of the marginal utility of consumption equals consumption per head divided by the difference between actual and subsistence consumption. Since, by definition, subsistence consumption cannot exceed actual consumption, the values of the elasticity will have a lower bound of 1. The elasticity values are thus constrained within certain limits by construction, excluding values hypothesized by Frisch for high income groups. At the same time, this formulation implies a declining elasticity of the marginal utility of consumption at higher income levels, since the share of subsistence consumption in the total tends to fall as income rises.

Further questions arise as regards the application of the inter-country results to developing countries. To begin with, while the inclusion of countries with wide differences in income levels ensured a relatively low standard error in the Lluch-Williams regressions, the large deviations between observed and estimated values for the middle-income countries reduce the applicability of the results to any particular country.

Also, differences in the economic structure and in the distribution of incomes in the mixed group of developed and developing countries for which estimates were made may conflict with the assumption of homogeneity in the pattern of con-
sumption. The heterogeneity of the developing country group in regard to resource endowment, climatic conditions, customs and habits, and political as well as
sociological factors, too, limits the applicability of the results to individual developing countries.

Furthermore, the group of countries included in the Lluch-Williams study does not comprise developing countries with a per capita income below $140 in 1970 prices. This excludes some of the largest developing countries, such as India, Indonesia, and Pakistan, which account for three-fifths of the population of the developing world. At the same time, extrapolation outside the range of observations involves a forecasting error which increases more than proportionately as we move away from this range.

Finally, the use of exchange rates to convert national income data expressed in terms of domestic currencies into US dollars imparts a systematic bias to the inter-country relationship between the elasticity of the marginal utility of consumption and per capita incomes. This will be apparent if we consider that productivity tends to increase less rapidly in the production of nontraded goods (services) than in the production of traded goods (agricultural and manufactured products), leading to a rise in the relative price of services at higher income levels. Now, as purchasing power parities express average differences in the prices of traded and nontraded goods while only traded goods enter into the determination of exchange rates, the ratio of purchasing power parities to exchange rates will be positively correlated with differences in income levels.

Correspondingly, the conversion of data at exchange rates will systematically understate per capita incomes in low-income countries, and the degree of understatement will be negatively correlated with incomes per head. Taking the United States as the benchmark of comparisons, in 1960 the degree of understatement was 10 percent for Canada and Sweden, 20 to 30 percent for the United Kingdom, Norway, Belgium, Germany, and Denmark, 40 to 50 percent for France,
Italy, and the Netherlands, and 65 percent for Japan (Balassa, 1964, p. 588). The extent of understatement increases further in the developing countries, but the lack of sufficient number of observations and the error possibilities involved in extrapolating the relationships obtained for developed countries do not permit us to estimate this quantitatively at low income levels (Balassa, 1973).

Given the systematic bias in per capita income figures, their range will be substantially smaller than estimated through conversion at exchange rates. Consequently, appropriately adjusted income data will increase the slope of the regression line between the elasticity of the marginal utility of consumption and per capita incomes.

The preceding sections focused on the estimation of the private elasticity of the marginal utility of consumption that expresses valuation by individual consumers. The next question concerns the relationship between this elasticity and the social elasticity of the marginal utility of consumption. It will be discussed below by making use of equations (2) and (3).

The social welfare function shown in (2) will be strictly concave \( W_1 < 0 \) or a straight line \( W_1 = 0 \), depending on whether it is utilitarian or egalitarian. In the first case, social welfare is taken to be independent of the distribution of individual utilities; in the second case, the social welfare function expresses an aversion to inequality in utility levels, with diminishing marginal rate of substitution of one person's utility for another's.

The social elasticity of the marginal utility of consumption \( \rightleftharpoons \) equal the private elasticity \( \omega \), if a utilitarian social welfare function is adopted which involves setting \( W_1 \), and hence the second term of equation (3),
to zero. In turn, the social elasticity of the marginal utility of consumption will exceed the private elasticity, if we employ an egalitarian social welfare function as negative values for \( W_{ij} \) will make the second term of equation (3) positive.

Reformulating equation (2) in an additive form under the assumption that the social welfare function is separable in individual utilities, Anand (1973) has derived the relationship between \( n \) and \( w \) under alternative assumptions as to the values taken by \( w \). Equation (10) shows the relationship for

\[
(10) \quad n = w + m (w-1)
\]

the case when \( w \) exceeds 1. In the equation, \( m \) reflects the degree of social aversion to inequalities in individual utilities.

The same relationship was derived independently by Stern who has obtained a value of 4 for the social marginal utility of consumption by assuming that both \( w \) and \( m \) equal 2. The value chosen for \( m \) is said to reflect an a priori judgment as to the range of social elasticity of the marginal utility of income, as well as the view that "we should add something for the egalitarian position" to estimates of \( w \) (1973). The choice of \( m \) thus requires a value judgment and we are led back to the question of how a social welfare function could be derived.

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1/ It should be emphasized that these results depend on the assumed form of the social welfare function. As Squire shows (1975), if the welfare function is written as \( W = W [F(u(c_1)), F(u(c_2)), \ldots, F(u(c_n))] \), utilitarianism does not necessarily imply that \( n \) equals \( w \); nor does an aversion to inequality necessarily imply that \( n \) exceeds \( w \).
Kenneth Arrow has shown the impossibility of deriving a social welfare function from individual preferences (1963). The project evaluation manuals implicitly or explicitly substitute the government's preferences for the social welfare function. In this they appear to follow those who regard the government as the depository of the "will of the people".

Such a view has been put forward in regard to a system of representative government, which is not the case in many developing countries where one-party systems and military governments continue in power without the benefit of popular elections. It further endows the government, irrespective of how it came into power, with attributes of rationality. In particular, it is implicitly assumed that, in overruling private preferences, a government's actions will conform to what may be regarded as the well-considered interests of the community.

The proponents of introducing government preferences in project evaluation also assume that governments are monolithic and that a welfare function can be derived either from government actions with regard to projects (UNIW Guidelines) or from government pronouncements (Bank Guidelines). Yet not even totalitarian governments are monolithic; they represent instead a conglomeration of interest groups, with continuing shifts in their power position. Also, there is rarely a single project-evaluating agency; rather, decisions on projects are taken by different ministries depending on the sector concerned and often by regional or local authorities.

If we consider the decentralization of decision-making on projects and changes in relative power positions over time, it will appear to be a rather futile exercise to derive welfare weights from historical decisions taken in
regard to *investment* projects. At the same time, deriving a social *welfare* function from public pronouncements has the failing that such *pronouncements* are frequently different from the actions taken. Thus, we *often* find *publicly*-expressed concern with income distribution accompanied by actions that benefit special groups which are close to the government in power. This fact may reflect differences as between intentions and realization as well, as the misstating of intentions for political purposes.

Furthermore, the distinction made in project evaluation manuals between intrinsically political objectives — reducing income inequalities — and political *constraints* — supposedly impeding the realization of these objectives — involves an ambiguity. The problem is put *essentially* in *black-and-white* terms, with the objectives being regarded as desirable and the constraints undesirable. This may reflect a rather naive view of the decision-making process or give expression to value judgments on the part of outsiders.

The proposed use of project appraisal as a substitute for tax-expenditure policies also involves an ambiguity. Should political constraints not permit the choice of *appropriate* tax and expenditure measures, the question arises if these constraints would be inoperative in project appraisal. Were this assumed to be the case on the grounds that the complexity of project appraisal permits concealing the use of income distributional measures that would be directly *apparent* if they were incorporated in the *government budget*, one might not sufficiently appreciate the perspicacity of those affected. Alternatively, the use of income distributional weights in project evaluation may provide a convenient excuse for not proceeding with fiscal policies.
In this connection, note that in a mixed economy only some of the investment projects are evaluated by an international or governmental authority, often covering but a very small part of economic activity. This fact will limit the practical importance of introducing income distributional considerations in project appraisal. In the partial equilibrium framework used by project evaluation manuals, it also gives rise to the familiar problems of the second-best.

Second-best considerations will apply even if we limit our attention to public projects. Thus, the introduction of income distributional considerations may lead to the choice of a project with a lower increment of output, expressed in terms of income distributional weights, by reason of its effects on relative prices. In the case when producers are the "rich" and consumers the "poor" and supply is completely inelastic, a project whose output faces less elastic demand may then be favored over the one facing more elastic demand because the increment in intramarginal transfer inherent in the fall of prices on existing consumption exceeds the loss in output. 1/

In view of the possibility of a loss in output, valued by using income distributional weights, one would need to consider alternative ways of improving the distribution of income, which may be less costly to the national economy. Such alternatives are, however, excluded by assumption, since project evaluation manuals generally take fiscal policies as given.

1/ I am indebted to Marcelo Sclowsky on this point.
In judging the appropriateness of using income *distributional* weights in project appraisal, one would further need to consider possible effects on entrepreneurial risk-taking and on savings. The former is disregarded in project appraisal manuals while savings effects are considered by assuming fixed marginal propensities for individual income recipients and excluding possible changes in saving propensities that may *result* from the introduction of income distributional considerations in project evaluation.

More generally, the question needs to be raised if *actions* taken to reduce income inequalities necessarily improve the lot of the poor in the *long* run. The validity of this proposition cannot be taken for granted. Thus, we find that countries, such as Argentina and Uruguay in Latin America and Sri Lanka and India in Asia, which adopted egalitarian policies have experienced low rates of economic growth and very slow *improvements*, if any, in the living *standards* of the poor.

The experience of these countries may be contrasted with that of Hong Kong and Singapore, and *sequently* Korea and Taiwan, whose policies oriented towards *rapid* economic *growth* have brought *substantial* increases in the income levels of the poor. In Korea, for example, it has been shown that during the *1964-1970 period* the per capita incomes of the poor, whether defined as the lowest *decile* or the lowest four *deciles* of the population, increased by 58 percent, i.e. at the same *rate as* average incomes (Adelman-Robinson).

Thus, there are situations when policies aimed at *improving income distribution* may be *damaging* for the group they are supposed to *serve*. This is not to say, however, that one should accept the existing *distribution* of incomes as given. Rather, one would need to *search* for methods that can *improve* income distribution at *least cost* in *terms* of a loss in output. The taxation of
luxury goods, with the proceeds used to benefit the poor, may be more appropriate for this purpose than the introduction of income distributional weights in project appraisal.\footnote{1}{On the merits of luxury taxes for reducing income inequalities, see Fellner (1960).}

To begin with, luxury taxes do not have adverse effects on entrepreneurial risk-taking and savings. Also, they reduce conspicuous consumption with its unfavorable effects in the form of consumer externalities and limit the flow of domestic resources into the production of luxuries. At the same time, in the event that reliance is based on luxury taxes, one would not need to apply a complicated system of taxes and subsidies which is unavoidable in the event that income distributional considerations are introduced in project appraisal since shadow prices will diverge from market prices as a result.

It follows that the introduction of distributional considerations in project appraisal must be preceded by a study of alternative policy instruments, with attention given to their effects on efficiency, savings, and risk-taking.\footnote{2}{In emphasizing need, these considerations are neglected in Sen’s On Economic Equality where the utilitarian position is criticized on essentially moral grounds.} This suggests the need to place the project appraisal process in the general framework of public decision-making rather than in isolation as the project evaluation manuals tend to do.

Finally, questions arise concerning the choice of income distributional weights in project appraisal and in policy making in general. Given the arbitrariness of deriving a social welfare function, it is suggested here that reliance be placed on the private evaluation of the elasticity of the marginal utility of consumption. This, in turn calls for further research to improve available estimates of this elasticity.
REFERENCES


———, "Dualism in Demand and Savings Patterns: The Case of Korea", Economic Record March 1975 (Cited as 1975b).


