INTERDEPARTMENTAL PROJECT
ON STRUCTURAL ADJUSTMENT

Occasional Paper 8

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Fiscal policies, adjustment and balanced development

International Labour Office Geneva

Interdepartmental Project on Structural Adjustment

The aim of the Interdepartmental Project on Structural Adjustment is to strengthen ILO policy advice in relation to structural adjustment policies in order to make those policies more consistent with ILO principles and objectives.

The project investigates various options to give a different focus to adjustment policies, emphasising major objectives as equitable growth, improved human resource development and social acceptability and it tries to establish how various ILO policies and policy instruments can contribute to such a different focus of adjustment policies.

The range of policy instruments encompasses labour market regulation, social security, wages policies, training policies, industrial relations as well as the employment and income effects of monetary, fiscal and price policies. Greater involvement of the ILO in the area of structural adjustment needs therefore to reflect the inter-disciplinary nature of the adjustment problem by combining activities from different departments in the ILO.

During the 1992-93 biennium, the project concentrates on developing policies for the following five main areas:

- the role of the public and private institutions in structural adjustment;
- the role of fiscal policy in generating employment and favouring equitable growth in a process of adjustment;
- the role and function of compensatory programmes and social safety nets during adjustment;
- public sector adjustment, including issues pertaining to privatization;
- the role and function of the social partners in the adjustment process.

Further information can be obtained from the Project Manager (Rolph van der Hoeven) or the Project Officer (Andrés Marinakis).

Fiscal policies, adjustment and balanced development

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1. Introduction[1]

1.1 The need for a reassessment

The right to tax is fundamental for all forms of government and carries with it extensive responsibilities for the management of an economy and social programmes. The case for a reassessment of fiscal policy at this time can be argued both as a cause and a consequence of the need to reassess the role of government itself.

Throughout much of the 1960's and 1970's government was promoted in many different parts of the world as a leading sector in the pursuit of economic and social developments not only as an engine for growth but also as a means of distributing the benefits of growth across regions, ethnic groups or other traditional divisions. As a result, governments grew in size, and one of the more alarming consequences of this growth has been the extent to which employment in the public sector was allowed to become the norm in many countries for university graduates and, for those who were not so well educated, a sinecure in the gift of successful politicians. Not surprisingly, this unhealthy growth of the public sector and the expectations it created proved unsustainable so that, today, on grounds both of efficiency and governance, such a prominent, pro active role for government in providing employment directly is widely discredited. Moreover, the environment in which third world governments are called upon to operate has changed significantly in at least three important respects. First, there have been significant shifts in the terms of trade which have impacted badly on a number of countries and have put government budgets under considerable pressure. Secondly, there has been a growing sense of aid fatigue among donor countries, where the characterization of aid as a transfer from the poor in rich countries to the rich in poor countries has been gaining acceptance, at least in some circles. And, thirdly, and perhaps most importantly, there has been a shift via the monetary policies of the developed world to positive real interest rates. The erosion of foreign debt via inflation in donor countries can therefore no longer be relied on. For all these reasons, then, the net international transfer of resources from richer to poorer countries has dried up in many cases and, in some instances, where debt servicing obligations remain significant, has actually gone into reverse. Hence, at a time when governments have been criticised increasingly for inefficiency and poor governance, their role as the main point of entry for resource transfers from international donors has become less and less relevant. It is therefore not surprising that the need for a reassessment of the role of government has been identified as a necessary part of the package of structural adjustments which many of the developing countries are now having to undertake in order to come to terms with their changed circumstances and credibility. Fiscal reform has accordingly become crucial, with two common themes running through the programmes of specific reforms that are now being promoted in particular countries. One is the need to liberalize the economy and to reduce the direct involvement of the public sector in production. This leads to the privatization of state enterprise and a greater reliance on the price system to allocate resources by doing away with regulations and restrictions. The second is a general concern to reestablish internal and external balance, which requires the budget to be balanced through a combination of expenditure cuts and the raising of additional

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[1] This paper has been prepared as a basis for discussions in the Employment and Development Department, International Labour Office, Geneva. I am indebted to Rolph van der Hoeven and Peter Richards for their comments on an earlier draft.

revenue; and for balance of payments equilibrium to be restored by adjusting the exchange rate, liberalizing trade policies and reducing effective demand.

The evidence to-date is mixed on the extent to which stabilization policies can be successful in the absence of debt forgiveness. In Africa especially, supply response to new price incentives for producers has been disappointing in many cases and, meanwhile, there is a growing concern over the impact on the more vulnerable members of society of the cutbacks in public expenditure and other measures which have been widely adopted in order to bring the macroeconomic balances back under control. It becomes increasingly evident, therefore, that adjustment is proving to be a long term process and needs to be addressed in a corresponding time frame. Not least, there is a need to reconsider adjustment policies in relation to longer term development goals. It is in this context that the "rediscovery" of poverty in recent years by the World Bank is to be welcomed, as is the renewed commitment of the United Nations to give prominence to such concerns through its Human Development Initiative. A reassessment of fiscal policy has an important role to play within the broader framework of these considerations.

In attempting to take a new look at fiscal policy in the light of the evolving circumstances of developing countries, it would be unfortunate to leave out of account some issues which have come to the fore over recent years with a growing awareness of their importance. Specifically, gender issues and the environment need to be taken into account not only because of their interrelationships with the more traditional concerns for poverty and employment, but also because they raise issues which are important in their own right.[2] Accordingly, they represent yet another line of argument in favour of the proposition that a reassessment of fiscal policy may be appropriate at this time.

1.2 The approach in this essay

The various observations and more formal results which are to be developed in this essay take off from the proposition that fiscal policy has two prime objectives:

efficiency: to provide an incentive framework for production and accumulation and to compensate for market failure; and

equity: to provide a degree of social security; equal opportunities for all and protection for the poor.

There are several important aspects to each of these considerations.

With respect to efficiency, there are various ways in which government can contribute, all of which are potentially relevant and therefore need to be discussed in this paper:

(i) by protecting property rights through the maintenance of law and order and defence;
(ii) by promoting competition through the control of monopolies, and removing discrimination and barriers to entry;
(iii) by supplying public goods and otherwise compensating for the problems of missing or incomplete markets; and

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[2] Beckerman (1975) remains a useful exposition of the fiscal implications of a concern for the environment and raises many of the issues to be discussed in this paper.

(iv) by supporting institutions which mobilize human or other resources and encouraging the creation of new ones.

In relation to equity, the emphasis here will be on the promotion of a minimum standard of living for all through transfers in cash or kind and by providing access to public facilities. The case for a greater equality of living standards will not be promoted as such: given the case for support of minimum standards, the focus will be on a greater equality of opportunities and not on equality *per se*.

In striving to achieve these various objectives, governments have three basic strategies which they can adopt in different combinations to suit particular circumstances. They can work through the price system, using taxes and subsidies to create incentives; they can use direct regulation; or they can take upon themselves the task of organising particular production activities. The discussion here concentrates on the first of these by assuming, for the most part, that the government will want to exercise its responsibilities primarily through a system of taxes and subsidies imposed on markets which are otherwise free. The aggregate effect of this system should be such that the budget is kept in reasonable balance. Moreover, it can be suggested that the system should be buoyant, so that revenues are likely to expand as the economy grows; and fair in the sense that the relative standards of living of different groups should not be reversed as a consequence of the fiscal measures adopted. It will be argued that the alternative approach of using direct regulation is generally less efficient than a market-based solution when both options are available: in this regard it is generally better for governments to be on tap but not on top. And the third possibility, that government should organize production directly through state enterprises, does not obviate the need to monitor such enterprises in relation to well-defined performance criteria. The emphasis here will be on the performance criteria themselves in the spirit that, given performance, the ownership of such natural monopolies as power, water and telecommunications is a secondary consideration. This is not to deny that privatization can result in a once and for all reduction in the public sector borrowing requirement. However, what matters more from the longer term point of view is how well each enterprise performs by various criteria, and not who owns them. There are connections between ownership and performance, but they operate through incentives. It is the incentives, therefore, not the ownership, which matters most for present purposes.

This general approach, with its emphasis on the supply side of the economy, takes on a special character in this paper because of the way in which supply is to be formulated. In standard fashion, output will be assumed to depend on the deployment of factor services which are of three generic types. These can be thought of as land, labour and capital. The unconventional feature is to interpret each of these factor services as being a flow of services generated by, or derived from, a stock of assets, with "land" being supplied by natural resources, 'labour' being supplied by human capital, and "capital" being the services of physical capital, such as plant and machinery, infrastructure and vehicles. With this symmetrical interpretation, it follows that development strategy should be balanced in relation to the three types of assets and the factor services they supply. Accordingly, the approach facilitates a discussion of human development strategies, for example, in relation to the accumulation of physical capital, recognizing the need to maintain both human and physical capital, and for investments in either category to be compared not only with each other but also, at least in principle, with the alternatives presented by a proper concern for environmental protection. In promoting such a balanced development strategy, the arguments in this paper support a concern for production efficiency, with complementary policies to

promote sustainability and accumulation i.e. the maintenance and accumulation of the three types of assets in a balanced relationship.

The need for such a balanced approach came to the fore in earlier work on the design of a human development strategy for Pakistan.[3] It arises most obviously from the need to reconcile the competing claims of human development, environmental protection and economic growth, which requires in the first instance that each of these concerns should be approached in terms of a common calculus in order that they can be compared and choices made among the policy options. This, then, is the immediate argument for a balanced development approach. A second consideration of some importance is that this change in the formulation of what is meant by production leads directly to a new perspective on the nature of product and the implications of production efficiency. In particular, the reformulation allows a case to be made for a range of human development strategies from a supply side perspective and hence without the necessity of appealing to more subjective arguments.

This focus on the supply side and the concentration on production efficiency distinguishes the present approach from the more conventional formulation which is adopted in the literature on optimum tax theory as set out, for example, in Newbery and Stern [1986]. In that literature, the motive force for the design of fiscal policy is social welfare, so that the policy implications of the theory represent a compromise between production efficiency on the one hand and the equity objectives which are implicit in the social welfare function on the other.

In avoiding the need to formulate a social welfare function it is necessary to defend the present approach against the potential charge that equity considerations are being ignored.

The first line of defence that can be offered against such a charge is to argue that issues of social security and equality of opportunity remain on the agenda via the concern to maintain human capital in a framework of balanced development. It is therefore only the equality aspect of equity which is to be set aside. And this may be no great loss if it is held that equality as such is not a proper concern of governments, if only because there is a very real danger of destroying incentives if equality is pursued beyond the stage at which some basic equality of opportunities is achieved.

By ignoring as such the *ex-post* inequality in a society, the prescriptions to emerge from the present analysis have the potential advantage of being less controversial: their status is that of being necessary if production efficiency is to be achieved in a competitive environment. Some commentators will undoubtedly want to go beyond these prescriptions and, perhaps, to suggest alternative remedies for some of the problems to be identified in the course of the argument. However, it is unlikely that the problems to be identified here might be considered insignificant or that a radical departure from production efficiency could be a feature of alternative solutions that might prove to be more generally acceptable. In developing fiscal policy, an important consideration is to strive for a consensus.

This argument leads to the second line of defence, which rests on the proposition that economic considerations are only a subset of the relevant desiderata for decision making.

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[3] See UNDP (1992) which reports in summary form the conclusions of a study which is one of four country studies under the aegis of the UNDP Human Development Initiative and undertaken as a complement to its work on the Human Development Report (1990-).

It then follows that, from the point of view of fiscal policy, some particular policies must be taken as given, even though they may have important resource costs and fiscal implications. This does not imply that such policies are beyond reproach but only that they may ultimately be driven by non-economic considerations. In the approach to be developed here there is ample scope to recognize the implied limitations on the proper domain of economic calculus, which is defined by the need to achieve production efficiency against a background of prior political commitments on matters such as defence expenditure and public health, in relation to which the domain of economics is limited to the computation of the resource costs inherent in political decisions and the efficiency with which the political objectives are met. It follows that, to the extent that questions of equity are a political concern, they contribute to the context in which economic policies must be designed to operate.

In recognizing the primacy of politics over economics, the prospect remains open of interpreting the proper concern of fiscal policy as being the allocation of resources in general and therefore not limited by the actual or potential existence of markets. In general the allocation of resources depends on decisions which are based on information and expressed through institutions. The institution of the market is the most important case in point, with prices being the vehicle through which information is conveyed. But this is not the only possibility, and to a great extent in all societies, resources are allocated through other (political) institutions. In such circumstances, the role of the economic arguments is to inform the political process. Hence there is both a narrow and a broader role for fiscal policy. The narrow role is a concern for the allocation of resources through markets and prices. The broader role is to encourage relevant non-price information to be provided through appropriate institutions, i.e. the articulation of demands and capabilities in their fullest sense.

By avoiding the need to formulate individual and/or social welfare functions which attempt to express the values of people and society as a whole on the alternative uses of resources, the formulation to be developed here leads to economic policies which are more transparent in some respects than those suggested by the optimal tax literature and generally simpler. On both counts, therefore, they are likely to be easier to administer.

Another important respect in which the present formulation goes beyond some more familiar treatments is in introducing dynamic considerations. The optimal tax literature, for the most part, relates to a static environment so that questions of maintenance and investment lie beyond its scope. This is an important limitation which has to be addressed here because maintenance and investment are fundamental to the notion of balanced development. By recognizing their importance, the way is opened for some discussion of the policy priorities which an economy might adopt in an effort to adjust in the short term. And, from the longer term perspective, questions concerning the sustainability of current practices can be brought on to the fiscal policy agenda.

2. A formal model of production efficiency

2.1 Statement of the objective

Most fiscal systems are rather complicated in practice, involving a range of direct and indirect taxes and subsidies, and institutional arrangements such as marketing boards and licensing systems, the primary purpose of which is often fiscal. The supporting administrative apparatus will often have its own complexities, all of which can serve to obscure what is actually happening and why. Behind this veil, there is often scope and ample opportunity to corrupt the efficiency of administration. It is therefore useful to open the present discussion with a formal examination of what might be involved in an ideal tax system from some specific point of view. For present purposes, production efficiency is taken to be the overriding objective of policy, and the following notation is adopted to explore some of its implications:

I = the set of all commodities

r_i = intermediate use of commodity i, $i \in I$

x_i = net exports of commodity i, $i \in T$

π_i = the border price of commodity i in units of international currency for all i, $i \in T$

T = the set of all tradeable commodities

c_i = final domestic use of commodity i, $i \in I$

q_j = output of domestic activity j, $j \in J$

J = set of domestic production activities

$\sigma(i)$ = set of domestic production activities which produce commodity i, $\sigma(i) \in J$

k_{ij} = use of commodity i to provide factor services to activity j, $i \in K$, $j \in J$

K = the set of commodities i which provide factor services to activities

k_i = stock of capital of type i, $i \in K$

l_i = depletion of the stock of type i capital, $i \in K$

In interpreting this notation it can be noted that it allows for the possibility that some goods are not tradeable and that some goods (specifically all services) cannot be held as stocks of capital. There is to be no labour in the model as such since labour services are to be treated here as the services provided by the stock of human capital.

Table 1. First order conditions for production efficiency

Variable	Complementary equations	
$\alpha_i : i \in I$	$\sum_{j \in \sigma(i)} q_i = r_i(q) + c_i + x_i + \dot{k}_i + l_i \ (k_{ij} / j \in J)$	(1)
$\beta_j : j \in J$	$q_j = q_j \ (q \ , \ k_{ij} \ / \ i \in K)$	(2)
$\gamma_i : i \in K$	$k_i = \sum_{j \in J} k_{ij}$	(3)
$\delta_i : i \in K$	$0 \leq K_j + \dot{k}_j$	(4)
ϵ	$0 \leq \phi + \sum_{i \in T} \pi_i \ x_i$	(5)
c_1	$\alpha_1 = 1$	(12)
$q_j : j \in J, \ \sigma(i)$	$\alpha_i = \beta_j + \sum_{h \in I} \alpha_h \frac{\delta r_h(q)}{\delta q_j} - \sum_{g \in J} \beta_g \frac{\delta q_g}{\delta q_j}$	(13)
$x_i : i \in T$	$\alpha_i = \epsilon \ (\pi_i + x_i \ d\pi_i \ / \ dx_i)$	(14)
$k_{ij} : i \in K, j \in J$	$\gamma_i = \beta_j \frac{\delta q_j}{\delta k_{ij}} - \alpha_i \frac{\delta l_i \ (k_{ij} \ / \ j \in J)}{\delta k_{ij}}$	(15)
$k_i : j \in K$	$\gamma_i = \mu \ (\alpha_i - \delta_i) - (\dot{\alpha}_i - \dot{\delta}_i)$	(16)

The upper part of Table 1 brings together a set of five equations and inequalities, equations (1) to (5), which define the structure of the model to be used in the present analysis. The first of these is simply a commodity balance equation

$$\sum_{j \in \sigma(i)} q_i = r_i(q) + c_i + x_i + \dot{k}_i + l_i\ (k_{ij}/j \in J) \qquad (1)$$

which requires the total supply of commodity i, which is Σq_j, i.e. the total output of all activities which produce commodity i, to be equal to intermediate demand, which is r_i, plus final demand, which is consumption, c_i, plus exports x_i, plus gross investment, which is net investment, $\dot{k}_i$, plus depletions of type i capital, which is l_i. The formulation allows intermediate demand, r_i, to depend on the level of output of every commodity. Hence, if q is a vector with elements q_j for all $j \in J$, then

$$r_i = r_i\ (q) \qquad (6)$$

Imports are allowed for in the system by admitting the possibility that x_i can be negative. However, all other variables must be non-negative so that

$$q_j,\ r_i,\ c_i,\ k_{ij},\ l_i \geq 0 \qquad (7)$$

The formulation also allows the depletion of type i capital to depend on how it is used i.e. the activities j in which it is employed, as well as on how much of it there is, i.e.

$$l_i = l_i\ (k_{ij}/j \in J) \qquad (8)$$

This would reduce to

$$l_i = \upsilon k_i \qquad (9)$$

if depletion took place at a constant rate and depended only on the size of the stock.

A particular feature of the formulation is to allow that there may be more than one way of producing each commodity in the domestic economy plus, of course, the possibility of importing traded goods. This allows various possibilities to be considered within the model framework. The one which is of most interest here is the possibility of maintaining existing capital as a complementary activity to producing new capital.

Equation (2) in Table 1 defines a production function for each domestic activity:

$$q_j = q_j(q, k_{ij}/i \in K) \qquad (2)$$

Two features of this formulation should be highlighted, the first of which is that it is in this equation that the notion of having output depend on flows of capital services is captured. The generality of the formulation allows that there can be many different types of 'land' (natural resources) and 'labour' (human capital) as well as different types of physical capital.

The second feature of equation (2) to be noted here is that output of activity j can depend on q and, therefore, on the level of output of other activities. Such interdependencies are known as externalities. They can be positive or negative depending on whether the expansion of one activity discourages or encourages another. An activity which causes

pollution is generating negative externalities or costs. An activity which provides benefits for those around it, such as a transport system, is a source of positive externalities or benefits.

Equation (3) in Table 1 is quite straightforward: it states that the use of the different types of capital in producing the various commodities cannot exceed (must be equal to) the available supplies.

The inequalities (4) put constraints on net investment for each type of capital. It is convenient to include this feature in the specification to allow some particular possibilities. One interesting possibility is that there is a limit to the rate at which some types of capital can be run down, so that the formulation allows this aspect of the irreversible nature of some investment decisions to be captured. A second possibility is to require net investment to be non-negative for each type of capital as a particular formulation of sustainability. And a third possibility, which is the one which will be used here in the first instance, is to restrict the model to the special case of a steady state in which stocks of each type of capital remain constant over time.

Finally, the inequality (5) puts a limit, ϕ, on the trade deficit that the economy can sustain. Recalling that imports are represented by negative values of x, the inequality states that the foreign exchange cost of exports, plus ϕ, must be greater than or equal to the corresponding cost of imports.

Given these technical specifications which constrain the model, its formulation is completed by specifying an objective function. This is to be written as:

$$\int_0^{\infty} c_1 \, e^{-\int_0^{\Theta} \mu d\tau} dt \qquad (11)$$

where c_1 is final consumption of the first commodity and μ is a rate of discount which is not necessarily constant over time. The present is taken to be time zero and the function (11) postulates that the objective is to maximise the present value of the flow of commodity 1 into final consumption when the future is discounted at some variable rate μ.

Two points to be noted about this approach are, firstly, that the selection of some commodity as commodity 1 is arbitrary. And, secondly, that in seeking to maximise (11) it is recognized not only that the economy is constrained by the relationships (1) to (5) but also by given time paths for the final consumption of all commodities other than commodity one. By implication, therefore, production efficiency is to be interpreted here as characterizing an economy which is constrained by the relationships (1) to (5) and unable, within those constraints, to increase the supply of any one commodity to final consumption without decreasing the corresponding supply of another.

Finally, since (11) is to be maximised for given time paths of c_i for all i other than the first commodity, it follows that there is ample scope within the specification to allow the timepaths for final consumption of some commodities to be set by political, as distinct from economic considerations. The economic analysis simply responds to these prior claims on resources by accepting them as datum and computing, implicitly, their opportunity cost. It may well be that, once this cost is known, the political process may want to review its

previous decisions. But such political decisions go beyond the scope of the present analysis which is concerned with the implications of a quest for production efficiency as defined.

2.2 Necessary conditions

The necessary conditions for achieving production efficiency are set out as equations (12) to (16) in Table 1. These are obtained by first rewriting the objective function (11) as

$$\int_0^{\infty} \Omega e^{-\int_0^{\Theta} \mu d\tau} dt \tag{17}$$

where

$$\Omega = c_1 + \sum_{i \in I} \alpha_i \left\{ \sum_{j \in \sigma(i)} q_j - r_i - c_i - x_i - \dot{k}_i - l_i \right\}$$

$$+ \sum_{j \in J} \beta_j \{ q_j (q, k_{ij} / i \in K) - q_j \}$$

$$+ \sum_{i \in K} \left[\gamma_j \left\{ k_i - \sum_{j \in J} k_{ij} \right\} + \delta_i \left\{ K_i + \dot{k}_{ij} \right\} \right]$$

$$+ \epsilon \left\{ \phi + \sum_{i \in T} \pi_i x_i \right\} \tag{18}$$

Hence the variables α_i, β_i, γ_i, δ_i and ϵ are Lagrangian multipliers or shadow prices which introduce the constraints on the system specified by the relationships (1) to (5). The equations (12) to (16) are then obtained as the Euler conditions for the expression (17) to be stationary.

Much of the remainder of this essay is taken up with the interpretation of the results (12) to (16). These are to be developed in two stages. In the first stage, which provides the subject matter for the next chapter, Chapter 3, the model is simplified by assuming away all the details which relate to the depletion, maintenance and accumulation of capital. Accordingly, the results in Table I describe a steady state or static situation in this context, which is defined by introducing restrictions on the model such that $\dot{k}_i$ and l_i are both zero for all i and the possibility of having more than one way of producing each commodity is ignored. The restrictions imply that equation (16) can be ignored in this part of the discussion, and that equation (13) simplifies to the form:

$$\alpha_i = \beta_i + \sum_{h \in I} \left\{ \alpha_h \frac{\delta r_n(q)}{\delta q_i} - \beta_h \frac{\delta q_h}{\delta q_i} \right\} \tag{19}$$

for every commodity/activity i. Similarly, the second term on the right-hand side of equation (15) also drops out in this restricted formulation in which stocks of capital are simply datum: they cannot be enhanced and require no maintenance. This is, of course, an unrealistic scenario. However, it serves to identify those results which depend on the introduction of a more realistic treatment of capital. These are to be presented in Chapter 4.

In both Chapter 3 and Chapter 4 it is useful to begin by interpreting the results in Table 1 in relation to an idealised economy in which markets exist for every commodity and are working smoothly. This is achieved by postulating a correspondence between actual prices in this idealised situation (the first-best case) and the shadow prices of the model as follows:

α_i is the domestic price of commodity i;
β_i is the marginal factor cost of producing commodity i;
δ_i is the supply price of type i factor services, i.e. of the services provided by type i capital; and
ϵ is the domestic price of a unit of foreign exchange (the exchange rate).

With these interpretations, there are six general conclusions to be drawn from the necessary conditions for production efficiency as stated in Table 1 in the simplified case in which capital stocks are fixed exogenously. These are:

(i) quantity and price restrictions are incompatible with production efficiency;
(ii) all domestic prices should be independent of the identity of the buyer or seller;
(iii) the domestic price of a traded good should be equal to its border price;
(iv) the factor costs of production should be minimised;
(v) the domestic price of each good should be equal to its marginal social cost; and
(vi) production efficiency depends only on relative prices and not on their absolute level.

Each of these conclusions is discussed in turn in Chapter 3, leaving to Chapter 4 the discussion of those results which relate to capital.

In Chapter 3, departures from the first-best case are discussed under two main headings. Market distortions are discussed under the first heading, with the subject matter being sub-divided in a way which corresponds to each of the six inferences to be drawn from the results (12) to (16) as noted above. Then, under the second heading, the concerns which arise when markets are not simply distorted but missing entirely or, at least, seriously incomplete are discussed. The role for fiscal policy in these cases may be to create new markets in some instances as, for example, when government contracts out activities which it previously undertook itself. In other cases it will be undesirable or impossible to go down this route. Some other, (political) process is then needed to determine resource allocations. The position adopted here in relation to these circumstances is that fiscal policy must strive for the more limited objectives of supplying information and encouraging whatever development may be needed by way of institution building or in other respects to articulate the individual and collective views of people and to encourage decision making through informed democratic processes.

3. Static efficiency

3.1 Correcting for distortions

(i) Price and quantity controls

Price controls take a variety of forms, including government restrictions on the prices charged by public utilities, a fixed exchange rate, or special marketing board arrangements such as guaranteed agricultural prices. Similarly, quantity controls may restrict imports via a system of licensing or quotas, or put limits on the amount of arable land that a farmer can devote to particular crops or the amount of effluent that a factory can spill into a river. Whatever the form may be, the implication has to be that price and quantity restrictions represent constraints on the working of an economy which are additional to the constraints already recognized in the relationships (1) to (5). It then follows that the only logical possibilities are either that such price and quantity constraints are redundant or that they reduce the maximum value of c_1 which can be obtained for given values of c_i for all i other than 1 i.e. they detract unnecessarily from production efficiency. An elaboration of this conclusion is that a system of indirect taxes and subsidies is generally preferable to the imposition of quantity restrictions; and that the case for indirect taxes and subsidies is limited to the special circumstances to be elaborated below. Subject to these caveats, therefore, governments should not compromise a regime of free international trade and unregulated domestic markets with quotas, price controls and rationing all of which are likely to detract from production efficiency except in special circumstances that need to be justified as such. And when such circumstances exist, it is generally preferable to intervene via a tax, i.e. through the price mechanism, rather than to impose any quantitative restrictions.

(ii) Discrimination

A second conclusion which is implicit in Table 1 is that price discrimination in domestic markets reduces production efficiency. Factor prices, γ_i are independent of the activity which employs them, and commodity prices, α_i, are the same irrespective of the use of commodities or the identity of the buyer or seller. It follows that production efficiency is potentially dependent on a market economy in which commodities are allocated anonymously by unrestricted market prices. Similarly, there is only one exchange rate, so that systems of multiple exchange rates cannot be a part of a first-best solution.

In elaboration on these general principles it can be noted that production efficiency precludes any subsidies or taxes which discriminate between the factors of production (However, a uniform tax on all factors - a value added tax - is consistent with production efficiency, and will be discussed subsequently.) This means that fiscal interventions which encourage either capital- or labour-intensive methods of production are not appropriate. Moreover, there should be no discrimination in labour markets if the same factor service is being provided by different types of human capital, and activities which are organized by women should have the same access to land and credit, for example, as those organized by men.

(iii) Border prices

The specific result which is expressed as equation (14) in Table 1 relates the domestic price, α_i, of a good which is traded to its international price, π_i, via the uniform exchange rate, ϵ. If π_i is independent of the amount traded with our particular economy (a condition which is referred to as the small country assumption) then the domestic price α_i, should be equal to the border price, which is $\epsilon\pi_i$. This rule is modified if the volume of trade with our country has a discernable influence on the international price, as it may have in relation to the imports of particular commodities by a large economy, such as the U.S., or the exports of a dominant producer, such as Saudi Arabia in relation to oil or Japan in the field of electronics. In these instances, the international price should be replaced by marginal cost in the case of imports and marginal revenue in the case of exports. This means that, when the small country assumption breaks down, it is appropriate to insert a wedge between the domestic price, α_i, and the border price, π_i. It implies, for example, an export tax such that, from the producer's point of view, marginal revenue in the domestic market is the same as that in the international market.

(iv) Minimising factor costs

When there is no depletion to take into account result (15) in Table 1 relates the shadow prices, β_i and γ_j, through the marginal products $\delta q_i/\delta f_{ij}$ of different factors employed in different activities. The precise result is that if γ_j is the supply price of an extra unit of factor j then β_i is the marginal factor cost of producing an extra unit of i. And, since this is to be the same for all j, the result implies that factor inputs, k_{ij}, are to be combined so as to minimise the total factor costs of producing the outputs q_1, q_2 .... etc. Hence production efficiency calls for the minimization of factor cost in achieving given outputs i.e. for producing as efficiently as possible.

(v) Marginal social cost pricing

Equation (13), and its simplified form (14), relate domestic commodity prices α_i to the marginal factor costs of production, β_i. Specifically, α_i is equal to β_i, subject to two modifications. The first modification is to add the marginal cost of necessary raw materials to the marginal factor cost β_i, when these materials are valued at their shadow prices, α_j. This implies that the sum of the first two terms in the determination of α_i is equal to the unavoidable increase in total costs as a result of an increase in the production of commodity i, and given the output levels of all other production activities. This magnitude can be referred to as the shadow cost of production for commodity i. Hence, when the final terms in equation (19) can be ignored, the inference is that the domestic price, α_i, of each commodity should be equal to its shadow cost of production. It is central to the argument for *laissez faire* that this necessary condition for production efficiency will tend to be fulfilled as a result of profit maximising behaviour by firms operating in a competitive environment. Hence perfect competition is the ideal vehicle to deliver production efficiency.

In the absence of perfect competition, individual firms may have a degree of control over prices, with the result that profit maximization leads to a price being set above the level that would otherwise maintain, viz. a price P such that marginal revenue equals marginal cost as illustrated in Figure 1. The excess of price over marginal cost results in a monopoly profit being earned by the firm which is equal to the shaded area in the diagram.

Figure 1

The equilibrium of a firm maximising profits in the short-run

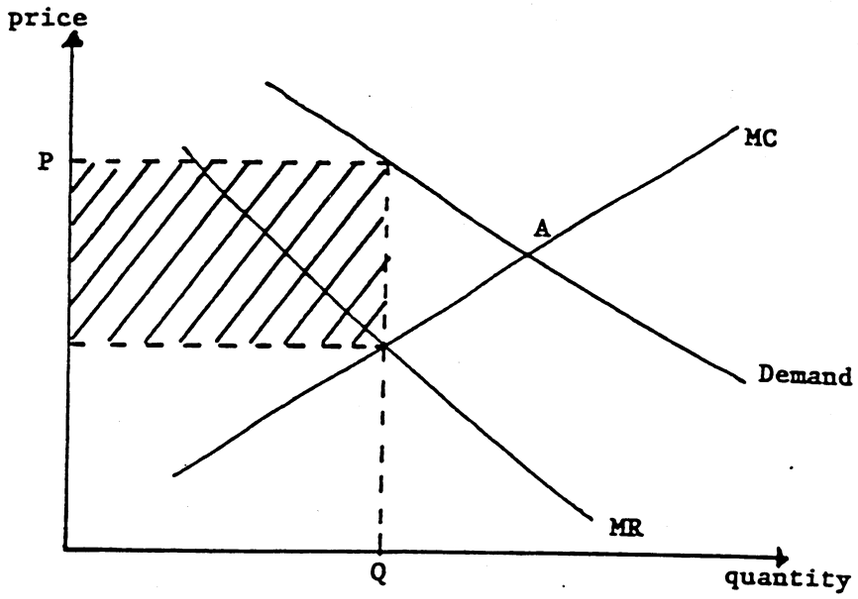
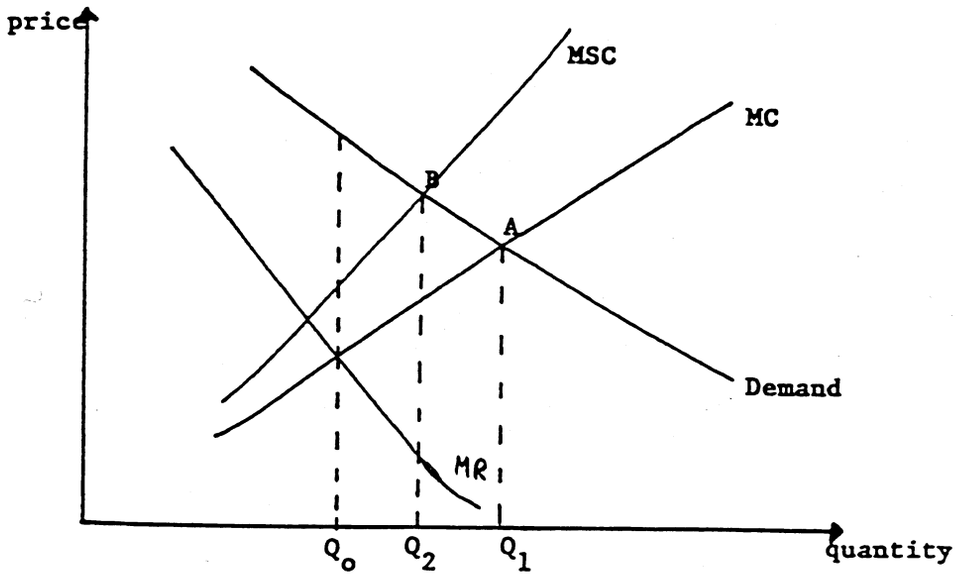


Figure 2

The effects of congestion costs on the social optimum



One way of encouraging a monopolist to lower price and increase output, if it could be implemented, would be to tax away the monopoly profit by imposing a tax or levy which changed with price and output according to the formula (P-MC)Q. The after-tax profit of the firm would then be (MC.Q - TC) where TC is total cost, and the firm would have an incentive to increase output for as long as marginal cost was an increasing function of the level of output.[4] Hence the firm illustrated in Figure 1 would have an incentive to lower price and increase output until point A was reached, at which point any further expansion of output would be constrained by demand. And, at point A, price is equal to marginal cost, as it would be if supply of the commodity in question was perfectly elastic. Moreover, the hypothetical tax yields zero revenue at this point. Accordingly, its role is not to raise revenue but to discourage the exploitation of monopoly power.

Whether in practice it is feasible and worthwhile to attempt to correct all the distortions created by monopoly is debatable. A failure to do so must necessarily result in some loss of production efficiency. But the incentive remains to minimise the costs of production. The further gains to be made by correcting price distortions may be offset in practice by the difficulties of achieving them. In particular, it should be noted that there are a number of activities, such as water supply and telecommunications, which are subject to important economies of scale in the long run. For such activities, which are known as natural monopolies, regulation poses problems which are returned to at a later stage in the argument, not least the problem of ensuring that the economies of scale are realised.

The modification of the rule that prices should be set equal to marginal production costs which is implied by the final term in equation (19) depends on externalities i.e. on the possibility that the output of some good i may be influenced by the production of some other good j. Specifically, the formulation allows that an increase in q_i raises q_j for all j by $\delta q_j/\delta q_i$ and therefore results in a saving of factor costs for the economy as a whole of $\Sigma\beta_j \, \delta q_j/\delta q_i$. These savings can be deducted from β_i to yield the net marginal factor cost to society of an increment of q_i. Hence α_i is the marginal social cost of commodity i which is computed by costing all inputs at their shadow prices and by making due allowance for any externalities.

Externalities can be either positive or negative and may arise in a variety of circumstances. Positive externalities arise when the expansion of one activity helps another. For example, an expansion of policing reduces the loss of output through crime; a better transport system reduces commuting time. From the perspective of fiscal policy, the appropriate recognition of a positive externality is to subsidise the source: if the banks can save on staff costs when customers use cash points, then the use of cash points should be subsidised (or provided free) by the Banks in this case, since it is the Banks which benefit from the publics' use of cash points through their cost savings.

Negative externalities arise when the pursuit of one activity increases the costs of another, as is generally the case in relation to pollution and congestion. The principle of making the polluter pay implies that an indirect tax should be imposed on the activity which causes the

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[4] Note that the marginal rate of tax implied by this approach is (MR-MC) - Q.MC'. This is negative at output levels beyond that at which profits are a maximum (MR=MC) provided that marginal cost is an increasing function of output. Hence the hypothetical tax operates as an incentive system to encourage the monopoly to produce more than it would if profits were to be maximised in the absence of such a tax. This incentive is large enough to more than affect the loss in profit given by MC-MR provided, again, that MC increases as output increases.

problem.[5] Telephone use in peak periods creates congestion and therefore increases the resource costs which others must incur in making calls. Hence, prices should be raised at peak times to match this externality. The generation of toxic waste damages the environment if the waste it is not neutralised. The cost of making good such damage should therefore be levied as a tax on the source of the pollution. Similarly, smoking and drinking tend to impair health and to raise social costs. They should be taxed accordingly. And, in all these cases, it should be noted, the appropriate rate of tax is given by the marginal cost of the externality, not the average. This tends to imply that the level of tax should increase more rapidly than the level of pollution, so that taxes on externalities are potentially a buoyant source of revenues, the importance of which should increase as we learn more about the externalities being imposed on one activity by another.

Pollution is one major source of externalities. The case of telecommunications illustrates a second, which can be referred to as congestion, that arises as a result of such widely different activities as electricity transmission, water supply and use of the public highways. There are two common elements in all these cases, the first of which is that each of them is a natural monopoly. The second feature they have in common is that the use of the services they supply imposes costs on the user and that these costs rise, the greater the volume of usage: water pressure or voltage drops, and there may be a suspension of supply; roads become more congested, as does the telephone network, thus causing delays.

User costs should be a particular concern of fiscal policy because they reflect a very important use of resources for which there is often, at best, an imperfect market. it therefore follows that in considering the regulation of natural monopolies, governments should give just as much attention to user costs as to the activity itself.

A particular case can illustrate the general point. In making a telephone call, user costs are involved for the initiator of the call in establishing the connection. These costs increase as the system becomes more congested.

Therefore the increase in user costs as a result of an increase in usage - the marginal user cost - is greater than the cost which is actually being experienced by users, viz. the average user cost. The difference between the two can be referred to as a congestion cost. And the implication of taking user costs into account is that the prices charged by a monopoly should be equal to marginal social cost, which is the marginal cost of the producer, plus the congestion cost of an increase in output.

This result is important for several reasons, the first of which is that it weakens the case for regulating natural monopolies. This can be seen from Figure 2, where Q_1 is the desired level of output when no account is taken of congestion costs, and Q_2 is the optimal level when user costs are taken into account. Actual output for a profit maximising monopoly is Q_o, and it is evident from the diagram that Q_2 is going to be less than Q_1 and probably closer to Q_o.

The second important implication is that if a natural monopoly is to be regulated in some way, then this should be approached with reference to both user and producer costs. Telephone calls should cost more at times of peak usage, and parking charges should also

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[5] Early enunciation of this principle is to be found in Lerner (1971) and Baumol (1972).

be greatest when congestion is greatest. The general rule for taxing away monopoly profit should be modified to allow for this. The tax, as a function of output, should be given by (P-MSC)Q i.e. by the difference between price and marginal social cost, multiplied by the level of activity.

In summary, then, when the incidence of externalities is taken into account, the result (19) implies that commodity prices should be set equal to the marginal social cost of production. There are therefore two potential sources of departure from the system of prices which is likely to emerge in a market economy where, other things equal, firms will seek to maximise profits and therefore to set prices at levels which equate marginal revenue and marginal cost. One of these is the possibility of externalities which results in marginal cost and marginal social cost being different. The first-best solution to counter this possibility is to introduce indirect taxes and subsidies to match specific externalities. The other possibility is that demand may be less than perfectly elastic, implying that producers have some potential monopoly power, in which event marginal revenue and price may be different. Some regulation of the monopoly is needed in order to achieve the first-best scenario in this event. It may take on a variety of forms, involving price controls and/or service performance criteria. But, whatever method may or may not be attempted, it can usefully be noted here that privatization of publicly owned monopolies can increase the efficiency with which activities are run because of the incentive to do so which is provided by the profit motive. But private ownership does not otherwise guarantee that a monopoly will be managed in the public interest, with price and output being set so that P = MSC.

(vi) Raising general revenue

The remaining inference to be drawn from the results in Table 1 is that production efficiency depends only on relative prices and that the absolute level of prices is not significant. A level of prices is fixed by equation (12) which states that the price of commodity 1 is to be taken as numeraire for the system. However, any commodity can be commodity 1 and the quantity units in which commodity 1 is measured are not defined by the specification. The implication of (12) is therefore that the scale on which prices are measured makes no difference: it is relative prices which matter. And it is against this background that the merits of a value added tax for raising general revenue can be argued.

From equations (13) to (15) it is evident that if all factor prices, γj, are increased by a given percentage, and the domestic currency is devalued to the same extent, so that ϵ rises, then marginal factor costs, β_i, and domestic commodity prices, α_i, will all increase to the same extent. As a result all relative prices in the system will remain unchanged and the production efficiency of the economy will remain unaltered: both factor inputs and outputs will not change, and the commodity balance of trade will also be unaffected. This scenario is consistent with the increase in the price of factor services being assumed by the government as a tax and therefore as a source of general revenue. It corresponds to the imposition of a value added tax, but with the important distinction that a VAT system incorporates a surrogate for the devaluation of the currency so as to avoid a devaluation as such. In effect, therefore) a VAT system is a system of fixed relative prices in which the absolute level of prices is higher by a certain percentage for buyers than it is for sellers in every commodity and factor market. The VAT revenue is then equal to this difference in final markets, since the system allows for the premiums paid in intermediate markets to be rebated.

The surrogate for devaluation is affected in two parts. With respect to imports, the procedure is simply to levy a tax at the same rate as the tax on factor services. And, for exports, a subsidy paid in local currency compensates for the loss of local currency that is implicit in maintaining the exchange rate at its original level. In practice, the way in which VAT is invariably administered implies that the export subsidy need not be paid as such. The administrative procedure is to levy VAT as a tax on imports plus the net difference between domestic sales and all domestic inputs other than factor services. Aggregating this difference over all enterprises implies that the tax base is equal to value added plus the trade deficit, with the latter being zero when imports and exports are equal. Alternatively, the VAT base is equal to domestic final demand, i.e. to consumption plus investment.

With these arrangements a VAT system does not disturb the conditions for production efficiency. Moreover, since it is effectively a uniform tax on all factors of production, its incidence does not depend on the distribution of factor ownership between people and institutions. What it does do, however, is to transfer income from the private sector to government which is, of course, what it is intended to do.

3.2 Incomplete and missing markets

When markets exist, they can fail in the sense of being imperfect. This possibility has been discussed in the previous section with particular emphasis on failures which are due to externalities or to the existence of monopoly power. More serious are the situations discussed in this section, when markets may be more fundamentally flawed because they are incomplete or, in some cases, nonexistent. The response by government to such circumstances is an important part of fiscal policy which should be recognized as such and with an awareness that the problems posed are often the most difficult to resolve. Unfortunately theory can give only a limited guide as to how such problems should be resolved. They raise questions of information access and point to the limitations of existing institutional structures. It follows that new institutions, more open access to the facts, and the monetization of transactions are among the ingredients which need to be combined in seeking particular solutions to particular problems.

The markets for public goods are seriously flawed because of the difficulties of identifying demand. The most important case in point is that of defence, which explains why the right to tax and the responsibility for organising defence are sometimes regarded as the twin pillars of government. Moreover, theory has relatively little to say about the level of defence expenditure which is appropriate because, in the absence of a market, an assessment of the risks involved and the intrinsic value of security lie beyond the calculus of economics. At best, therefore, the level of security must be determined by a democratic process, leaving fiscal policy to focus on the more specific questions of efficiency, pay and value for money. Meanwhile there is a *prima facia* case that a country is spending too much on defence if it is spending more than international norms would suggest and, at the same time, is less democratic than countries which are otherwise comparable.

Some of these same arguments apply in the case of broadcasting, although the costs involved are, of course, very different. Yet the issue of how to regulate and finance broadcasting is controversial and, in many respects, raise issues which go beyond the conventional domain of economics. It may suffice, therefore, to note that the practice of financing the British Broadcasting Corporation through a system of licence fees which are set at regular intervals, following a debate in Parliament, is regarded by some observers as

being basic to the independence and quality of that particular institution. This, then, is an example of earmarked financing being potentially preferable to the centralization of all revenues in a single exchequer fund.

The general proposition that most public administration constitutes a public good has increasingly come under attack in recent years. Prisons, tax collection and policing are all examples of activities which have been contracted out to a varying extent in different countries, and the experience so far suggests that the advantages can be considerable in terms of efficiency gains and quality of services, especially in those instances in which the *status quo ante* has been characterized by corruption or discrimination. Inviting tenders is one way of proceeding in those instances in which the scale of activity or the nature of the function mitigates against a market structure which generates continuing competition among multiple suppliers.

One of the very considerable advantages of contracting out is the effect it can have in rationalising the allocation of resources by decentralizing the process of decision making. In developing countries it is not uncommon to find that there is no adequate system of programming and budgeting, with the result that resources are used inefficiently. In both health and education, which are normally the most important expenditure heads, after defences it is all too common for the recurrent budget to be starved of resources while capital programmes continue to be funded; for an unjustifiable bias towards the provision of services in urban areas to maintain; and for the tertiary levels of service to be provided far more lavishly than the primary base. All this represents a misallocation of resources by central authorities which can maintain in the absence of market signals. One way of proceeding in the face of such distortions is to sub-divide responsibility by contracting out a part of it, Such as the provision of basic pharmaceuticals to primary health care units. In this way, the cost of a given level of service can be better assessed, and the necessary budgetary provisions identified and protected through contractual obligations.

Another facet of this same kind of problem is that people are often unaware, at the grass-roots level, of their rights and capabilities. There is a need accordingly to see the mobilization of local groups as providing information, in the first instance, which can serve to improve the efficiency of public administration by providing feedback on its performance. And, beyond that, the case for encouraging local pro-active initiatives is a strong one. These can assume as many forms as there are non-governmental organizations and local groups to promote some shared initiative. The energies of such organizations and the people they help can make a major contribution to progress on a wide front, not least because of the positive externalities to be won by collective effort.

A particular case in point to illustrate this argument arises from a gendre of environmental problem usually referred to as "the tragedy of the commons". The essential feature of the archetype case is that common grazing rights can lead, all too easily, to overgrazing and hence to the destruction of pasture because it is in no-one's individual interest to reduce their use (exploitation) of a free resource. There is, accordingly, a missing market to ration or allocate grazing rights and this results in exploitation taking place. Such exploitation would be unlikely to occur if some one person, or group, had property rights in the pasture since these, being worth something, would be worth protecting. There is therefore a case for creating user groups to be responsible for the husbandry of common pasture, water courses, sources of firewood, etc. The scope for constructive initiatives in such areas is often considerable. It may well involve the imposition of user charges as a means of regulation.

And this may be possible only if the revenue is to remain with the group. Accordingly such instances define a further category of situations in which it is inappropriate to centrally pool all revenues: creating or allowing local pools of finance is an important option for encouraging the growth of new institutions as a response to the problem of missing markets. It applies whenever there are externalities to be exploited and not just in relation to environmental concerns. Schools, health facilities and local industries can all be encouraged through the catalytic efforts of NGO's working with local communities. And, through such means, there is every chance that people will gain in self-confidence and come to a better understanding of their rights and capabilities. Empowerment is important in its own right. It can also do wonders for productive potential.

It is not a simple matter, of course, to stimulate development at the local grass roots level, and it is all too often the case that development projects are too cumbersome to reach down that far, the information required being too expensive for international agencies to collect, while the lower echelons of administration are too easily distracted for the determination of details to be left to their discretion. In pursuing the long term need to develop local government there is a parallel need for a new gender of institutions which can provide an alternative channel for development funds to address highly specific and local needs. These might be called Human Development Trusts. They could draw for local knowledge and expertise on people of goodwill throughout society, as well as donor nominees; and they might receive their funds from a wide consortium of donors. They should have considerable discretion as to how they use their resources, in the spirit that those trusts which can give a good overall account of themselves are more likely to attract renewed funding in future. Development badly needs alternative institutions which can decide whether the greater need is a bicycle for a school teacher or books for the school, and then back their decision with the necessary funding.

4. Dynamic efficiency

4.1 Maintenance and investment criteria

By imposing various restrictions on the model formulation set out in section 2 above the discussion in the previous chapter could proceed without reference to the particular issues which need to be addressed in this chapter concerning the maintenance and accumulation of capital goods. Removing these restrictions changes somewhat the interpretation of results (13) and (15), and otherwise has the effect of bringing the result (16) into play.

In relation to result (13) the change is, in the first instance, simply to allow that there can be more than one way of producing each domestic good. Result (13) then states that the price of the good should be equal to the marginal social cost of producing it by each alternative method. Hence, alternative sources of supply should compete in the same market and production efficiency requires that the total resource costs of aggregated supplies should be minimised. When the alternative sources of supply are different firms, this result reinforces the case for competition. Here, attention can focus on the case in which the alternatives are defined by the production of new capital goods versus the maintenance of existing stocks. And in this context the results imply, first, that the value to be put on maintenance services is defined by the value of the assets that would otherwise be lost, and that maintenance activities should, like any other activity, minimise the total resource cost of their contribution. Beyond this and, again, in common with other activities, the conclusion is that maintenance activities should operate so as to maximise profits in the absence of externalities and imperfections. This simply means that the optimal maintenance of an asset is achieved when the extra benefits, measured as depletion which is avoided, are equal to the marginal resource costs of avoidance.

The reinterpretation of result (15) which becomes necessary when depletion is allowed for is, again, quite straightforward. The second term on the right hand side of equation (15) is the depletion cost of using an extra unit of type i capital in activity j. If this is added to γi then the result is:

$$\gamma_i^* = \gamma_i + \alpha_i \frac{\delta l_i}{\delta k_{ij}} (k_{ij} / j \epsilon J) = \beta_j \frac{\delta q_i}{\delta k_{ij}} \qquad (20)$$

which implies that in determining the proportions in which to combine inputs so as to minimise costs, the opportunity cost of an increment of type i capital should be measured by γ_i^* rather than γ_i i.e. the opportunity cost of a factor input should be calculated so as to include depletion costs.

The above are minor modifications and extensions of the previous results. The main innovation from a formal point of view is provided by the result (16) which is a differential equation, the solution of which is given by

$$\alpha_i = \delta_i + \int_0^{\infty} \gamma_i \, e^{-\int_0^{\Theta} \mu d\tau} dt \qquad (21)$$

This states that the present value of the rental price of a capital asset, net of depletion costs, should be equal to its asset price, α_i, in the case where δ_i is zero and, otherwise, to the difference between α_i and δ_i.

The result (21) is an equilibrium condition for an asset market in the case that δ_i is zero since it is the condition under which the shadow cost of the asset, α_i, is equal to the present value of the services it can provide when these services are valued at their opportunity cost.

In the remaining sections of this chapter, the implications of these results for fiscal policy are considered in relation to each of the three categories of capital which were recognized at the outset viz. natural resources, human and physical capital. The last of these, being the most familiar, is considered first. In each case, it is assumed in the first instance that the constraints (4) are not binding so that the result (16) can be simplified by setting δ_i equal to zero. It is then apparent that there is a case for investment subsidies when any of the constraints (4) are not satisfied.

4.2 Physical capital

(i) Physical capital in the private sector

The making of intelligent investment decisions and the subsequent maintenance of real assets defines a large part of the comparative advantage of the private sector over the public. It is to be expected, therefore, that the results in Table 1 will be consistent with an essentially *laissez-faire* attitude towards the maintenance and investment decisions of the private sector given an appropriate degree of regulation of monopolies and the correction of price signals for externalities.

With respect to maintenance the relevant result states that maintenance activity should be at a level which maximises the profit from it, when all commodities and factor services are valued at shadow prices. Hence, provided that the price system approximates the first best case, it follows that profit maximization will indeed lead to optimal levels of maintenance.

With respect to investment, the result (21) can be contrasted with the basic private investment criterion

$$\int_0^{\infty} (\textit{net rental}) \, e^{-\int_0^{\Theta} \xi d\tau} \, dt \geq \textit{price} \qquad (22)$$

There are various possible differences between (21) and(22) but it will be helpful to focus the discussion on those that remain when γ_i is indeed equal to the net rental, and α_i is indeed the price of a unit of type i capital. There remain, then, two possibilities to focus on. First, the private sector may discount the future in a way which is different from that implied by the result (21). In particular, the private sector may discount the future more heavily, so that the left-hand side of (22) is depressed relative to the corresponding term in (21) with the result that investment is discouraged. A second possibility is that the necessary condition for private sector investment is satisfied, but that the resulting investment is insufficient to prevent the stock of capital from declining. In either case, if the consequence is that the

constraint (4) is violated then the result (21) implies that the government should intervene to subsidise investment. In general, therefore, if the private sector cannot be relied on to sustain stocks of particular types of physical capital, then the government should intervene with a subsidy if it judges that it is important to do so.

(ii) Public sector investment policy

The first question to ask in relation to public sector investment policy is whether the public sector should be investing at all. The general tendency in favour of the privatization of public assets and the contracting out of particular activities suggest that, in the past, governments have been attempting too much by way of production activities. For example, there seems to be no reason why governments should not rent most of the office space they require. More generally, there are probably very few instances in which there is a case for direct government supply when markets exist, except perhaps in the case of natural monopolies which imply that market forces are unlikely to yield a price which is reasonably close to marginal social cost.

When government is indeed directly responsible for supply, there is a two-fold role for prices to play. In the short run, prices should serve to ensure that existing capacity and the resources of consumers are used to the best possible effect. This will typically require that prices should be equal to marginal social costs. And, if they are, then the level of prices in different markets or parts of a network will be a valid indicator of investment priorities for expanding capacity. Figure 2 can be referred to in elaborating this point. When price is equal to marginal social cost, equilibrium is at point B and an increase in demand will move point B upwards to the right, along the marginal social cost curve. Hence output, shown at Q_2 in the diagram, must increase. But this is possible only with an increase in the input of factor services, all of which are derived from capital stocks. Hence the public utility must hire more capital of the appropriate types. And it will be profitable to do so in these circumstances because the increase in demand will simultaneously cause an increase in marginal revenue.

An important implication of this general proposition is that public enterprises should have no more difficulty than the private sector in financing their investments by raising loans on commercial terms or through the ploughing back of their own profits. Partial cost recovery on investment loans for irrigation projects, telecommunications, etc. can be seen as being potentially extravagant. The problem, all too often, is that prices for the use of such facilities are too low in the sense that the market does not clear, and it is argued that new investment is necessary to meet excess demand. Moreover, it is also argued that this new investment has to be subsidised because the market cannot afford full cost. Such an argument must at best be inadequate. There should be no excess demand to start with, because price should be set to clear the market and at a level which is equal to marginal social cost in the short run. Revenue will then be sufficient to finance an expansion of capacity if that is justified, and hence a new short run equilibrium will be established. This approach will undoubtedly mean less investment in the utility with the result that capacity will be lower. But this is not a disadvantage. It simply means that there will be no hidden subsidies to investment in the public sector and no crowding out of other types of investment elsewhere in the economy. Any crowding out which does take place can usually be traced back to a failure to use prices in the short run to clear the market.

4.3 Natural resources

Maintenance and investment policies in relation to natural resources raise many of the same considerations as those which relate to physical assets. In exploring some of them it is useful to draw a distinction between deterioration in the quality of the environment through pollution and the conservation of natural resources.

First, then, in relation to pollution, the starting point is pricing policy: prices should be set equal to marginal social cost in the short-run so that polluters should pay for the pollution they create. Indeed, since pollution taxes should be based on marginal effects, which tend to be greater than the average effects, polluters should pay more than the total cost of the externality they generate. With such a pricing policy in place, it will then be profitable potentially to allocate resources to environmental protection and maintenance activities. Hence the environment will not be maintained in a pristine state - there will be some pollution. But it will be a controlled level of pollution: since the activity of pollution control will be carried out at a level determined by its profitability, which is a maximum when marginal costs and benefits are equal, not when there are no more benefits to be had.

A somewhat similar result is also evident in relation to the depletion of natural resources. Since natural resource can be thought of as a capital good, the marginal product of which is zero, it follows from (15) that γ_i is zero for a natural resource and, from (16), that:

$$\alpha_i = \delta_i + \alpha_i^0 e^{\int_0^t \mu d\tau} \qquad (23)$$

The interpretation of this result is as follows. If stocks of the natural resource are rising at a sufficient rate for the constraint (4) to be satisfied, then δ_i is zero and α_i is growing in direct proportion to the rate of time preference which is represented by μ. And if the constraint is not satisfied then δ_i is positive and a subsidy must be introduced to encourage new exploration or the development of substitutes at a rate which is sufficient to maintain known stocks.

From these arguments it follows that sustainability, both in relation to the control of pollution and the maintenance of stocks of natural resources should be approached as pricing problems in the spirit that nature is finite and does not provide free lunches. Rivers should not be regarded as free sewers and farmers should be charged, probably through the chemicals they use, for the costs of restoring potability to any water that is to be drawn off downstream. Similarly, the incentives for exploration and recycling should be as big as it takes to achieve the sustainability of present stocks. In both cases, the key to the maintenance or investment problem is to set the correct price signals in order to create appropriate incentives.

4.4 Human capital

(i) The concept of human capital

While the general idea of human capital is familiar as a concept, it is useful here to assume some specific characteriztics which support the general approach and lead on to the concept of balanced development.

The starting point for present purposes is to recognize two forms of investment in human capital. The first can be referred to as procreation, which entails the resource costs of a mother's time and energies, including the costs of morbidity or mortality which can be attributed to having a child, plus the resource costs of pre-and postnatal support. This investment creates a human being, for whom there will be a life-cycle of expected labour income, which must eventually vanish as the chances of survival diminish. This expected income should be defined to include an imputed value, based on opportunity cost, for every hour of the day that is not spent in remunerated employment, as well as those hours which are.

This same individual will also have a life-cycle of expected expenditures (actual and imputed) which are incurred on their behalf. Expenditures on behalf of children are to be thought of as a part of this second life-cycle for the child, not the parent. Conventionally, all such expenditures are classified as final consumption. But here it is necessary to divide the conventional consumption aggregate into three parts, and to restrict the definition of final consumption to one of them.

The first division is made by identifying those expenditures which support the survival of the individual and their labour income life-cycle in the sense of being necessary to their achievement, and then restricting the definition of final consumption to the remainder which, being unnecessary to survival and the generation of labour income, are motivated solely by pleasure. The second division is to split the necessary expenditures between maintenance and investment. Maintenance expenditures are those necessary expenditures which, if reduced, would imply an immediate reduction in the current survival rate and/or labour income. Investment expenditures are, correspondingly, those expenditures which, if reduced, would result in a loss of labour income in future time periods and/or a reduction in future survival rates and, therefore, in life expectation.

The notion of efficiency wages depends on the concept of maintenance expenditures or intermediate consumption as defined here. Similarly, the notion of investing in human capital, as it is normally understood, refers to investment in the present sense of enhancements to labour income over the life cycle.

One implication of this approach which is important here is that the definition of value added is changed as a result, as well as that of final consumption. These changes can be seen as resulting from a three step process. First, the definition of value added is increased to include an imputed value of all time which is not remunerated directly. Secondly, procreation and enhancement expenditures are defined as investments, not consumption. And, finally, maintenance expenditures must be deducted because they are intermediate and therefore not final.

(ii) Poverty

The conceptual framework outlined above can be related quite straightforwardly to the notion of poverty and associated concerns over basic needs. Specifically, a poverty line can be defined by some social or other convention as to what constitutes a desirable level of necessary expenditure. This would correspond, presumably, to the level of expenditure that is necessary in order to finance basic needs. It then follows that a person is poor if their basic needs are not being satisfied, and that explanations as to why individuals may be poor can be divided into two categories.

Firstly, people may be poor because the income of the household in which they live is inadequate relative to the basic needs of the household members. Income, for this purpose, should include all types of factor income as well as transfers from other households, government, etc. And the adequacy of this aggregate income will depend on the size and composition of the household it has to support. The main cause of poverty is therefore that income per capita (or, better, per equivalent adult) is too low.

The second set of explanations for poverty have to do with the use that is made of income. Too much may be spent on purely hedonistic ends; there may be discrimination within the household (at the expense of girls and women); there may be inefficiency, if only because the decision makers within the household lack the necessary knowledge and life skills to make wiser choices: or their rate of time preference or risk aversion may mitigate against enhancements. For any, or a combination of these reasons, members of a household may be poor because the household is inefficient as a unit, not because its income is insufficient.

(iii) Policy

Following on from this characterization of human capital and poverty, the various policies for encouraging optimal maintenance and investment policies in relation to human capital can be grouped under three main headings, viz.

— raising efficiency within the household;
— increasing per capita income; and
— transfers

The first of these policy approaches is likely to depend more on education than anything else. Which is to say that the efficiency with which a household uses its resources, not only in getting value for money but also in protecting the health and well-being of its members is likely to depend to a considerable extent on the education of the parents and, especially, the life skills of the mother. The education of fathers is similarly at a premium in trying to reduce the discrimination against girls and women which is a handicap in too many different societies. Basic education in life skills should be seen as complementary to agricultural extension in having the potential to yield impressive returns for relatively little outlay. The role for NGO's in this area is extremely important.

Given the efficiency with which households operate, the second set of issues for policy to address focus on the capacity of the household to earn income, relative to its resource base. Again, education and training are potentially most important, but so too are the availability of complementary assets, such as tools, land, and credit. Discrimination in any of these factor markets is an obvious source of inefficiency and efforts should be made to eliminate it.

If, over the life-cycle of an individual, the cumulative sum of labour income minus the necessary costs of maintenance and investment is zero, then the rate of return on that individual is zero from a human capital point of view. Such a situation will be typical of a subsistence economy. And in this case it is evident that a household is likely to earn a higher rate of return if it is engaged less in procreation and more in other types of investment. Hence, there is a strong case to be made for birth control within the framework of human capital theory as set out here.

If improvements in the efficiency with which markets and households operate are inadequate, then there remains the possibility of increasing production efficiency through transfers which can be targeted at specific objectives. These may be specific people, such as children of school age, or they may be institutions, such as the schools themselves. Such targeted transfers by government are appropriate whenever necessary expenditures by the household are below the optimal level. This will be the case whenever maintenance expenditures are inadequate to maintain survival rates, when income support would be more than compensated by an increase in income, or when enhancements can be made to human capital which would yield an attractive return on a standard, cost-benefit basis. The emphasis, therefore, is on maintenance of health standards, a labour force fit for work, and investments in health, population control, education and training, all of which show a competitive rate of return.

It is evident that maintaining access to basic public services is fundamental to this approach. There is therefore a potential conflict here with the earlier arguments for an aggressive public utility pricing policy. It can be resolved by allowing subsidies (including the possibility of free access) to encourage maintenance at optimal levels. This will be facilitated in cases such as water and electricity by the possibilities for multi-part tariffs, whereby use up to a certain level can be subsidised, with marginal social cost being charged only on consumption above the level set. It would then be necessary, of course, to compensate the utility for the cost of the subsidy.

4.5 Balanced development

The essence of a balanced development strategy is to bring together the above specific considerations in a coherent package of policies. There are two main concerns, namely to make the best use of existing resources, and to optimise investment in every type of asset. For present purposes, each of these can be sub-divided:

— making the best use of existing resources:

(i) production at minimum cost; and
(ii) optimal maintenance; and

— optimal investment:

(i) the best choice of projects;
(ii) sustainability; and
(iii) macro-balances and the overall level of investment.

This, then, is essentially a supply-side approach to policy which recognizes, none-the-less, that the problems created by missing markets can require the creation of new institutions and the empowerment of individuals as a critical contribution to their resolution. Similarly, while there is no explicit recognition of the demand side, the way in which production is formulated leads to a particular concern for individual welfare through the creation and maintenance of human capital, and for the environment, through a concern for sustainability.

These particular concerns carry through to the questions of investment policy, since it is only via investment that the production potential of the economy can be enhanced, given that technical change is not allowed for. Among other things, this means that the treatment of

sustainability is conservative. And the essential proposition in relation to these concerns is that the price system should be used to provide investment incentives. On the supply side, this has to mean that subsidies are introduced in order to make the production of investment goods profitable. On the demand side, the services provided by particular assets should be cheap enough to encourage producers to use them. Thus rentals for capital services have to be set at levels which will clear the market, and investment incentives have to be introduced if the rate of investment would not otherwise be sufficient to sustain stocks of fixed assets and natural resources.

Subject to the need for such interventions, and central to the concept of balanced development, is the implication that all types of investment should be judged according to the criterion provided by equation (21) with all δ_i set equal to zero. In other words every investment, be it an investment in human capital, physical capital or the protection of the environment, should be subject to the same cost/benefit evaluation, and such evaluation should provide the sole criterion, from the point of view of fiscal policy, for determining investment priorities. It then follows that the case for any intervention must depend on a significant departure in actual allocations from what they would be, given this norm.

As a working hypothesis it can be suggested that, in many developing countries, there is excessive investment in procreation and some public infrastructure, and too little in education, especially of girls, in the preservation of the environment and stocks of natural resources, and in small projects as opposed to large ones. The evidence is far from complete on these questions but, such as it is, the evidence suggests that these are some of the most important cases in which there appears to be a distortion of priorities.[6]

With respect to procreation, the argument that investment is excessive must inevitably discount the intrinsic merits of having more children and focus on the economic aspects. And, from this narrower perspective, it follows directly from the formulation developed in this paper that the net present value of procreation is zero in a subsistence economy. There is a case accordingly for family planning so that resources can be redirected to other, more rewarding investment opportunities which are available to the household, including among these the enhancement of existing children and the reduction of maternal morbidity.

The second main area in which it seems likely that investment may be excessive is in large public sector infrastructure projects, which are sometimes justified as prestige projects and invariably characterized by a failure to recover costs in full from the beneficiaries. Which is not to say that there is never a case for subsidising a large public investment project: every country needs a parliament and some highway projects, for example, can be extremely valuable as catalysts for regional development. But it is rare for the optimal design of any such project to exclude user charges, albeit in some indirect form, such as a fuel tax to finance the construction of highways. Similarly, it has been argued that the case for subsidised investment in public utilities is much weaker than is apparently recognized in practice, and that a reform of pricing policy is the appropriate initial step towards getting this right.

If investment in large public utility and prestige projects is excessive, as seems likely, then the corollary would seem to be that the potential of many small projects is relatively

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[6] Behrman (1990) has expressed some timely doubts about the validity of some of the high rates of return on human development expenditures which have been reported in the literature.

neglected, mainly because their identification through existing institutional mechanisms is too expensive. The need, then, is for new institutions and mechanisms, which can and should include an appreciation of the role that NG0s can play in articulating local concerns and mobilizing human resources in response to them. An additional proposal which has been suggested in the text is to establish a new type of institution, referred to as a Human Development Trust, at the interface of the formal and informal sectors.

The other areas in which it can be suggested that investment has been relatively neglected concern the development of individual human potential, on the one hand, and the preservation of the environment, on the other.

With reference to the environment there are two types of issue to contend with: pollution needs to be abated and sustainability must be ensured. Neither is easy. With respect to pollution, the key is a willingness to recognize externalities and penalise those who create them through taxes. Such an approach accords with natural justice in the spirit that "the polluter should pay". And it carries with it direct incentives to reduce pollution through the price system and the profit motif. However, the initial step is not trivial since it potentially requires a willingness to override existing and acquired rights, custom and practice. Without a willingness to retrench in this sense, there is little prospect of controlling pollution. With it, a new dimension is opened up for fiscal policy which could provide a major source of revenue, based on sound economic principles, and backed by a strong popular consensus.

Sustainability is more difficult for three reasons. First, it is not clear what it is that should be sustained; consumption patterns, welfare levels, and stocks of non-reproducible resources have all been suggested as a suitable focus for the concept. And, secondly, it is impossible to develop a view on the implications of any of these alternative formulations without also taking a position on the future evolution of technology. Indeed, for the technology optimists, there is no problem of sustainability. For the pessimists, in contrast, there is no way that all mankind can live in future at the level enjoyed by the most affluent today, so that a lowering of living standards for some, or a significant decrease in population are already inevitable in the foreseeable future. Clearly, there is a wide gap between these two perspectives, and the results in this paper are a very modest contribution towards filling it. They suggest that if the preservation of known reserves of a natural resource is important, then governments may need to intervene through taxes to discourage consumption and to encourage exploration.

Finally, it can be suggested that, relative to the norms of balanced development, investment in the enhancement of human capabilities is potentially deficient. Poverty, lack of credit and discrimination within the family all play a part in contributing to this problem. The question of what to do about it is one of the central challenges for fiscal policy. And a complete answer must lie beyond the scope of the present paper. However, it can be suggested that the structure of the argument presented so far and the implications which have been identified indicate that the promotion of human development via a balanced development strategy suggests that there are three main themes to emphasise.

The first is to control the rate of population growth, and this for several reasons. To begin with it is important for the emancipation of women, which is basic to an improvement in their welfare and for the welfare of families as a whole. Social development is integrally linked to the evolution of gender differences. Improvements in birth control are fundamental in order for such a process to develop, both from the point of view of the welfare of women

and also for that of their children. From an economic standpoint, most childbearing is a bad investment of resources and this is reflected in its very low - potentially zero - rate of return. A balanced development path requires the endowment of all types of capital to move forward together. This is difficult to achieve when the growth of one type of capital is not under control.

Given birth control, the second theme to emphasise is the need for people to have access to health and education facilities, so as to maintain and enhance their potential in terms of human capital. This again is a familiar argument but its strength may be reinforced by some of the considerations which have emerged from the present analysis, not least the broadening of the case for efficiency wages which is implied by a concern for optimal maintenance of human capital. In general terms, the case amounts to a recognition of the importance of creating human potential through minimum, if not equal, opportunities especially for the young, since it is hard to make up for lost ground, once the maintenance of potential has been allowed to slip.

The third element of a general strategy must now be to create effective demand for all the factors of production so that they can work together in realising their output potential, not for its own sake but for their contribution today to living standards today, and in the future. And in this connection it should be emphasized that the dynamic effects are probably more important than the static. Thus training is important for inculcating skills, but learning by doing is probably much more important because it can be a root for continuing growth in the future. It is therefore important to recognize that the cooperative response of managers and employees to the growth of effective demand is a crucial concern from this longer term point of view. It would seem to require a degree of job security and common purpose which cannot be taken for granted in every context. And such evidence as there is suggests that a certain amount of education is desirable if not necessary, in order that learning by doing might take place. There is a need accordingly for a much better understanding of the dynamics of production efficiency in order that a preferred strategy can be identified. The caveats noted by Behrman (1990) notwithstanding, a balanced development strategy which recognizes accordingly the human capital component of growth may be the safest one to propose.

5. Macroeconomic balance

5.1 Some general concerns

The various policies and interventions in the economy which have been elaborated so far in this essay will imply some level of overall fiscal deficit that is likely to emerge in the absence of any additional and general revenue raising activity. Among the alternative forms which such activity might take, non-neutral expansion of the money supply is often the least desirable option, while a case for borrowing at home or abroad to finance current, as opposed to capital, expenditures is hard to sustain.[7] The realistic alternative to a reduction in expenditures affecting defence, health and education - is often, therefore, to impose some form of general taxation, such as VAT, or a tax on income or wealth.

Few governments can avoid the need for some general form of taxation. Indeed, it is usual to find general taxes of various forms in any one country, including import duties, export and corporation taxes, for all of which there seems to be very little justification beyond the relative ease with which these taxes can be collected. That, of course, is not a trivial consideration but, to remain true to the spirit of this essay, the discussion here will focus on VAT and the alternatives to it provided by income and wealth taxes, since there is a theoretical case to be made for these taxes within the framework of production efficiency.

To set the scene for this discussion it is useful to consider the nature of the tax base given the particular formulation of production technology which is adopted here. A theorem which is helpful in this regard states that, when labour is interpreted as being a flow of services provided by a reproducible stock of human capital, then the wealth of the nation, W, is given by:

$$W_t = \int_t^{\infty} C_{\Theta}\, e^{-\int_t^{\Theta} \lambda d\tau}\, d\Theta \qquad (24)$$

where C_t is consumption expenditure and $\int_t^{\Theta} \lambda d\tau$ is a discount function such that, on average, the net present value of investments at time Θ is zero for all future Θ.[8] With this interpretation, the result (24) implies that the wealth of the nation at a particular point in time is equal to the present value of its future consumption, provided only that the future is discounted appropriately.

A corollary of this result is particularly useful for present purposes. It states that if income is defined as:

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[7] In making this point it should be recognised that it depends on the line between current and capital being drawn in the right place. The revised definition of current final expenditure which is a consequence of the interpretation here of human capital implies that most education and public health activities should be seen as being maintenance or investment activities, not as final consumption.

[8] A proof of this result is given in Pyatt (1992).

$$Y = C + \dot{W} \qquad (25)$$

so that income is defined to include capital gains and net of depletion then, from (24) it follows that:

$$Y = \lambda W \qquad (26)$$

i.e. that income, Y, will be equal to a return at rate λ on wealth, W. A proportionate tax on income is therefore equivalent to a proportionate tax on wealth provided that the alternatives make no difference to the rate of return λ.

5.2 Pros and cons of VAT

Various arguments in favour of VAT have been presented by its proponents and four in particular can be noted here. The first of these concerns the breadth of the tax and, in particular, the fact that, with a VAT, the service sector can be included in the tax base. A VAT can, in principle, cover all domestic production activity, and do so in a non-distortionary way. The fact that VAT is consistent with production efficiency is the second of the main advantages which can be claimed. A third advantage is buoyancy. Earlier results have shown that, subject to exceptions, VAT is based on the aggregate of domestic final demand, that is, consumption plus investment. So, if there are no exemptions, revenue from VAT rises automatically with the aggregate C + I. Finally, it is claimed that VAT is relatively easy to administer.

With all these advantages, it is not surprising that VAT is encouraged by the IMF and is being adopted in a growing number of countries.

VAT is not beyond reproach, however, and criticism can be levelled on several counts which qualify the advantages. The first of these is that VAT is indeed a tax on domestic final demand, C + I and not a tax on something else. This is not a serious criticism to the extent that it is relatively easy to exempt particular commodities from VAT and, not least, all investment goods can be exempted so that VAT then becomes a tax on consumption expenditure. However, an alternative form of this criticism is that VAT is not the same as a tax on income, $C + \dot{W}$, because $\dot{W}$ and I are not the same thing. The difference, if investment goods are in fact excluded, is that VAT does not tax savings (which are equal to $\dot{W}$) until they are spent, while an income tax does.[9] And, since $\dot{W}$ is equal to I *plus* capital gains and *minus* depletions, if investment goods are not exempted, then VAT does not tax capital gains, while the exemption of depletions from VAT can detract significantly from administrative simplicity.

A second form of criticism is that VAT is not a progressive tax. To meet this criticism it is not uncommon for some necessities, such as food and medicines, to be exempted. This is obviously helpful, and the case for such exemptions is strengthened by the present formulation which proposes that the maintenance of an individual is an intermediate expense and

[9] The relative incidence of taxation on savings and final consumption is, in practice, a complicated matter and the causes of much controversy. For a recent discussion of some of the issues, see Chappell et. al. (1990).

therefore not a part of final expenditure. It is not, therefore, a part of value added and should be exempted from VAT for that reason.

To be precise, this argument is not a justification for exempting particular commodities from VAT but rather for exempting basic quantities of some goods - which can be thought of as rations. An example which fits neatly into this category would be the exemption from VAT of minimum levels of service from public utilities. The case for exempting medicines is similarly unambiguous.

The third qualification of VAT's attractions is that its administrative simplicity is dependent on the exemption from VAT of a substantial fraction of economic activity. In broad terms, VAT is a system of taxation which operates in the formal sector of the economy, but does not reach into the small scale, informal sector. This has three consequences. One is to create incentives for businesses to stay outside VAT. A second is to create a relative bias against employment in the formal sector. And the third is to weaken the linkages between the formal and informal sectors.

These three consequences can be elaborated with the help of Table 3 which shows rudimentary production accounts for one firm which is subject to VAT and another which is not. It is assumed that the firms make identical products and buyers are indifferent as to which supplier they buy from. And the first point to note is that net revenue for the firm which does not pay VAT is higher to the extent of the VAT charge on the net output. Secondly, the ratio of net revenue to material costs is higher for the firm which does pay VAT because it will receive reimbursement of any VAT on materials. Hence the firm which pays VAT has a greater incentive to economise on non-material inputs) including labour. Finally, the firm that pays VAT will prefer to buy from another that also pays VAT if the purchase price is the same, since the VAT component of material costs can then be reimbursed. If the purchase price is not the same, however, but differs to the full extent of VAT, then the firm which pays VAT will be indifferent who it buys from. This situation is reversed for the firm which does not pay VAT on its product; it will either be indifferent who it buys from or have a preference to buy from others that are not paying VAT. One way or another, therefore, the linkages between those who pay VAT and those who do not are weakened.

All but the first of these conclusions maintains when the initial assumption is changed. If the firm which does not pay VAT must charge less in proportion, then there is an advantage of being within the VAT system. But materials remain relatively cheap for the firm that pays VAT, so labour is relatively expensive, and one firm or the other will have a preference to buy from its own kind.

Table 3. The determination of the net revenue of a firm under alternative scenarios

Firm pays VAT on sales		Firm does not pay VAT on sales	
Receipts	Expenditures	Receipts	Expenditures
Purchaser price is independent of whether supplier pays VAT			
Purchasers' expenditure VAT on materials	Intermediate costs including VAT VAT on final sales Net revenue	Purchasers' expenditure	Intermediate costs including VAT Net revenue
Purchaser price depends on whether supplier pays VAT			
Producers' revenue VAT on product VAT on materials	Intermediate costs including VAT VAT on product Net revenue	Producers' revenue	Intermediate costs including VAT Net revenue

5.3 Alternatives to VAT

The taxation of income and wealth provide alternatives to VAT which can be combined in various ways since:

$$\sum y_i = Y = \lambda W = \lambda \sum W_i \qquad (27)$$

i.e. income can be disaggregated by source, and wealth can be disaggregated by type. It is therefore possible to tax some forms of wealth and some sources of income. There is the potential disadvantage of such a mixture, however, that it may be distortionary, although probably less so than current alternative practices.

The taxation of income or wealth has the considerable advantage over VAT that it can in principle include capital gains within the tax base, either immediately, in the case of an income tax, or over time, via a wealth tax. The taxation of wealth has the great advantage over VAT and income tax that it impinges on the assets an individual actually has, rather than on their success or otherwise in putting their assets to good use. VAT depends on product being generated via factor services, and income depends on assets being put to profitable use. Both are encouraged by taxing wealth, as opposed to income or product, since to do so will tend to ensure that assets are not left idle, but rather that there is a continuing quest for their efficient application.

The ultimate argument for a wealth tax is, of course, that not only is it progressive, but that it is possibly the fairest form of taxation.

These general considerations are important because, in encouraging a country to move away from general import duties, export taxes, etc. there is an evident need to identify preferred ways of raising general revenue. And on this the suggestion from theory seems

to be that the taxation of individual and corporate income is not so attractive as the taxation of wealth. Moreover, the taxation of wealth is, in many ways, equivalent to the imposition of a VAT, with the main difference being, from the point of view of production efficiency, that a wealth tax implies stronger incentives for the efficient use of assets.

The political and administrative implications of the choice are considerable because the taxation of individual and corporate income is commonly found to be extremely difficult in developing countries and open to abuse. Indeed, it is often the case that effective income taxation is largely confined to government employees, for whom the simple expedient of lowering wages and abolishing the tax is always an option. Which does not mean that the taxation of wealth is necessarily any easier: from a political perspective it is likely to be more difficult, since political power can tend to be concentrated among the wealthy. This is a serious consideration. But it has another, more positive side to it. Real wealth is visible and it is not, therefore, an impossible task to identify the land and buildings which an individual owns, and to place a value on them. Indeed, the need for such assessment explains the origins of the jury system in pre-Norman Britain. There is, accordingly, a potential inherent in the introduction of wealth taxes for the development of local institutions which usefully challenge the *status quo*. In this broad sense, a tax on land holdings is a genuine alternative to land reform, and may have advantages.

How far it may be possible to go in embracing particular types of assets within the compass of a wealth tax is an open question. It would seem, however, that the inclusion of human capital might be especially difficult. A tax on wages, net of household maintenance costs, is an obvious alternative and this would correspond closely to some existing systems of earned income taxation which provide for family allowance deductions. A useful refinement might then be to introduce some incentive for savings, such as tax rebates. At which point it can be suggested that it might be altogether simpler not to tax wages at all, but rather to tax consumption, with a system of income support for the poor. And if that is in turn too complicated, then a tax on the consumption of luxuries may be the simplest and fairest way to complement a tax on all forms of wealth, other than human capital.

6. Adjustment and fiscal policy

It is perhaps inevitable that much of the discussion in this essay has been general in nature and lacking a specific policy context. To make some amends for this deficiency, and by way of conclusion, some implications of the analysis in the specific context of a country which is attempting structural adjustment are brought together in this final chapter. They can be grouped under three heads, viz.

— external equilibrium;
— raising revenue; and
— cutting expenditure.

6.1 External equilibrium

As far as the external equilibrium of an economy is concerned, the present analysis is firmly in line with standard IMF stabilization policies. However, in translating these policies into practice, it would seem important to recognized some aspects of reality with which the formal analysis does not come to terms. The institutional framework is one of these. The inertia in the economy, and the irreversible nature of investment is another.

With respect to the institutional framework, it is relevant to note that problems in collecting import duties, theft in ports, and smuggling are all common problems which may be eased by unifying tariffs, eliminating quotas and allowing a realistic exchange rate to emerge in a relatively unrestricted market. It may, nevertheless, remain important to contract out the collection of customs duties and the management of port facilities. It will almost certainly be desirable, and especially in a semi-industrialised country, to keep in place some effective protection of local industries for what might prove to be an extended transition period, so as to avoid the widespread disruption of domestic activity. The articulation and financing of this transition is, of course, the central concern of stabilization policy. It will be severely handicapped by any overhang of foreign debt, which is typically the dominant factor in making adjustment necessary in the first place. The critical trade-off, therefore, which articulates around the speed and extent of trade liberalization, is the trade-off between the disruption of domestic production and employment and the restoration of balance of payments equilibrium. It depends, *inter alia* on the supply response of domestic producers of traded goods and, otherwise, on the amount of balance of payments support which a country can attract. There can be serious doubts about the wisdom of liberalizing trade too rapidly in an economy which has previously functioned behind a protective wall. A programme of progressive and purposeful liberalization, which recognizes the role of leading sectors in the economy, is to be preferred.

In defence of this position it can be noted that the "big-bang" approach, in its very nature, tends to destroy the existing transactional relationships between institutions and to replace them with a fractured market economy in which actual prices contain very little information about shadow prices or comparative advantage. As a result, useful capacity is abandoned prematurely and institutional reforms are held hostage to speculation and disruption. Common sense, advised by economic theory, should be able to do better than this, not least,

by liberalizing exports first and retaining a degree of protection against imports, thereby allowing domestic producers some time to absorb the new information contained in border prices and to respond to it. Whilst substantial devaluation may be a necessary part of most adjustment efforts, it is evident from experience that this can go much too far from the perspective of long term comparative advantage. And, when it does, avoidable dislocation is caused.

In this connection, there is a particular feature of devaluation which has received less attention than it deserves. Devaluation reduces the incentives for smuggling which, in turn, is likely to generate an illusion of improvement in export performance and domestic production, depending on how the relevant official statistics are compiled. This is just one of the problems which hinders an objective evaluation of the successes and failures of stabilization policies around the world, and hence the extent to which any one country can learn from the experience of others.

A further consideration to keep in mind is the tendency to exaggerate the impact of devaluation on inflation and the poor. In countries in which the exchange rate is grossly over-valued - Ghana through the early 1980's is a classic case - the economy will adjust to the resulting scarcities through parallel markets, both for goods and foreign exchange. Hence the true scarcity value of traded goods, as measured by border prices, is largely built into the price system prior to a realignment of the exchange rate. This is a definite plus. And, to the extent that it is not true, then there must be scarcities on domestic markets which can be relieved by devaluation. The effect of devaluation should then be to raise productivity which, again, will tend to stabilize prices. So, the affect of devaluation on domestic prices is not necessarily as severe as might otherwise be thought.

When exchange rates are over-valued and trade is restricted by licences and quotas, the logic which can explain how such distortions can come about is usually to be found in the fact that they are advantageous to some politically powerful group within the population, and such a group is not very likely to include the poorer members of society. Devaluation and, more generally, the resurrection of market forces to replace administrative control can, therefore, be associated with a transfer of power and, more specifically, a reduction in discrimination against the poor. It requires a high standard of governance to improve on the market as an equitable way of allocating foreign exchange. Since it is only exceptionally that the market can be improved on from an efficiency point of view, it follows that the case for liberalizing trade and the foreign exchange regime, albeit progressively, is normally overwhelming.

The other side of this coin is that foreign assistance to adjusting countries should respond to the opportunity which is presented by a serious effort to restore balance of payments equilibrium. The case for debt rescheduling and forgiveness does not need to be rehearsed here in full. But it should be noted that, while the contractual obligation of countries to repay loans which they were unwise to accept is clear enough, it is also the case that the IMF and World Bank failed many of the developing countries as their principal advisers in these matters. It was noted in the introduction to this essay that perhaps the main factor in the persistence of the debt crisis has been the switch from negative to positive real interest rates in the major economies of the world. The Bretton Woods institutions saw this happening and knew what its implications would be for third world debt and the balance sheets of the international banks. They also foresaw the need to refinance the debt incurred in 1973 *et seq* in the years immediately following the second, 1979, rise in the price of oil. It is an

interesting question for the historian, therefore, to ask why it took so long for the alarm bells to go off. And it is an important operational question for today to ask what the developed countries ought now to be doing by way of promoting world trade and revaluing the currencies of surplus economies, given that the aid flow has gone into reverse for so many poor countries.

Finally, it should be noted that, for a variety of reasons, capital markets are increasingly becoming international markets so that the possibilities for controlling capital flight and operating an interest rate policy which is independent of exchange rate policy are diminishing. This is an important part of the reality within which adjustment policies need to be conceived. It implies the loss of an important degree of freedom in formulating policy.

6.2 Raising revenue

If all the taxes were collected that are meant to be collected, then few developing countries would have a serious problem in balancing their budgets and hence in achieving internal equilibrium. The first order of business, therefore, should be to improve tax collection, even if it means going so far as to contract out parts of the task, e.g. by putting it out to tender. Bad governance often begins with the tax system, and there is a case accordingly for focusing in the first instance on the collection of taxes which are already on the statute book.

There are then perhaps four particular avenues towards the raising of substantial new sums of money which emerge from the foregoing discussion.

The first, and perhaps the most straightforward to implement, operates through public utility pricing policy. If prices can be set so as to approximate marginal social cost in the short-run, then that should be attempted. But, if that is difficult to achieve, then there is much to be said for encouraging public utilities to maximise profits. The efficient use of resources is encouraged in this way and the market is cleared by price rather than by rationing. To the (limited) extent to which such a strategy is arguably penal, the penalty would fall on those best able to pay - factories, offices and houses with air conditioning, etc.. And for those who could least afford to pay, protection could be provided through the use of multi-part tariffs.

Such an aggressive pricing policy applied to water, electricity, gas and telecommunications could potentially raise a great deal of revenue, especially when allied to a policy under which alternative sources of energy are costed at their border price.

Next, the institution of a land tax would again be progressive, eminently fair in principle, and do much to demonstrate both the seriousness of the situation in which a country might be placed and the willingness of its leadership to play their full part in taking the strain. It is all too easy for observers to underestimate the magnitude of the task which many countries have to address in making necessary adjustments. Experience shows that success in doing so requires a degree of consensus which may not easily be achieved. A land tax has potential for contributing to the formation of such a consensus and also of raising substantial sums of money. The factors which make this difficult to implement are precisely the ones which make it a good idea.

Given a land tax, developments of tax policy in two other areas would be facilitated - externality taxes and user charges. Both of these, it has been argued, are potentially

desirable in their own right, even when there is no domestic deficit in need of financing. The case for introducing them when there is such a need is therefore very strong. And, again, a constituency in favour of such taxes can be developed, not least in relation to the sustainability of the new development path towards which adjustment policy is intended to steer the economy.

Making polluters pay for the externalities they impose on others presents a clear case for intervention in the market. In the first instance, this intervention should be conceived entirely as a revenue raising activity which will therefore help the budget at the same time as it promotes the efficient use of resources. It is then a separate and subsequent question as to whether public money should be invested in the restoration or protection of the environment. The answer will normally be that any such investment should be left to the polluter, who now has an obvious incentive to reduce the extent to which they pollute. The role for government will therefore be restricted to the administration of the tax system, which must presuppose a resolution of such legal questions as the acquired rights of practising polluters.

User charges can similarly be a source of revenue which leads to multiple benefits, in this instance because the revenue is potentially useful and because of the catalytic effects which the introduction of user charges can have in promoting user groups and articulating their interests. These are important advantages to add to the benefits of an instrument for which the immediate purpose is to rationalise the use of a resource. The allocation of irrigation water provides perhaps the best illustration of the context in which the introduction of user charges can have powerful advantages even (or especially) when none of the revenue acrues to government.

Considerable sums of money can be raised by some if not all of these various means, with obvious contributions to the reduction of the government's deficit. The question which then arises is how much further should the government go towards a balanced budget.

The answer, in the medium term, may well be 'all the way' since the qualifications of this general rule that can legitimately be argued may all too easily admit policies and behaviour that are less defensible. By the same token, it can be just as important for the government to gain control of the deficit, in the sense of knowing what it is and what it is going to be, as it is to achieve a particular size of deficit. In so far as structural adjustment obliges governments to gain control of their own budgets and set targets, this is a major contribution.

In bringing the budget under control and reducing the deficit, the objective should be the achievement of equilibrium in the sense that the government should be able to finance its deficit without excessive monetary expansion, crowding out or resort to high interest rates. This, then, leaves open the possibility of deficit financing as a transitory measure during a period of adjustment. However, in admitting this possibility, it should be recognized that the selection of what to finance is crucial in this context. Structural adjustment implies a need to change structure. A general increase in effective demand cannot be good enough, it needs to be targeting towards the protection of those things which it is undesirable to change and the stimulation of the changes that are needed.

6.3 Cutting expenditure

Cutting expenditure may be easier to do than raising taxes for governments that want to retain the goodwill of their principal supporters, and this is probably the main reason why most governments have emphasized this approach in trying to restore internal equilibrium. But it is probably the wrong emphasis for most countries, for two reasons. One is that the need, and even the desirability, of cutting back on some categories of expenditure must be set against the need to increase expenditure under some other heads. There is therefore a case for a shift in the pattern of expenditure which does not imply a reduction in the aggregate given the option to raise more revenue. The other is that there is a tendency in practice for expenditure cuts to fall on the poor, while increases in taxes fall more on the rich. Since it is the latter who are more likely to be responsible for the policies which lead to a need for adjustment, there is a case in justice as well as equity for seeking the restoration of internal balance through revenue raising, and changes in the pattern of expenditures within aggregate controls.

Defence must be a prime target for cuts in current expenditure and represents an easy target from an economic point of view. Similarly, if private buyers can be found for state enterprises that make losses, then they are to be welcomed, at least in those cases where the alternative of closing the enterprise would not disrupt the economy. A third, relatively straightforward strategy is to streamline government via a thorough programme and budget review, which takes on board whatever opportunities there may be to contract out and otherwise to realise savings as a result of the transfer of responsibility for resource allocation from administrators to the market. Civil service reform can then be associated with this exercise. This may well require an increase in rates of pay for a new, streamlined bureaucracy, if only because wages in the public sector often rely on the bonuses to be had through the perks of the bad old system. And, when this is taken into account, and added to the need to finance early retirement, retraining, etc. it is likely that the gains in efficiency which can result from Civil Service Reform will prove to be more important than any saving in cost.

In practice most of the savings which governments achieve come from a reduction of their capital expenditure and cutbacks in current services. The former is generally appropriate in so far as a delay in the availability of new infrastructure is not usually disastrous and may even be desirable, pending the emergency of new priorities as the economy adjusts. It is also the case that the import content of capital projects is quite likely to be high, so that important savings on the external account can be achieved by such means.

A further consideration which mitigates against the continuation of capital projects such as school buildings and hospitals is that in these instances, the shells are more or less useless unless continuing recurrent finance can be found to provide a continuing, ongoing service. In general, the access to basic social services is a fundamental form of social security which it is critical to sustain. It is therefore significantly more important to continue providing teachers, and basic services in health clinics, than it is to put up new and empty buildings. Beyond that, if cuts must be made in the recurrent budgets, they should impinge at the tertiary level, not on primary services. The maintenance and enhancement of existing facilities should be afforded the highest priority when adjustments have to be made, and that is indeed what is likely to happen if the criteria promoted here for determining optimal maintenance and the selection of investment projects are adopted.

Within this general argument, there are two specific considerations relating to human capital which are worth pointing out. The first is that, in cutting back on investment, the case for cutting back on the birth rate in particular is a very strong one. Birth control is therefore an activity which calls for more generous funding, not less. And primary and secondary education are the least suitable activities to cut. If a road is not maintained for some years then, of course, this is a serious problem, and probably more serious than that the start of some new road construction should be delayed. But whichever saving might be preferred, it is more important to note that such activities can always be reinstated at a later date. A child, on the other hand, has only one life, and an extended break in education probably means its premature and permanent disruption. Continuity is of the essence, therefore, and should be protected. By the same token, the case for maintaining basic health and nutrition should not be denied.

When resources are scarce, the need to use them to their best effect is clearly at a premium. It is in these circumstances that small sums of money or other help which is focused and well-targeted can be most effective. The role for NGOs and Human Development Trusts finds its place in this context. Their activities, which are the antithesis of large, capital intensive projects requiring foreign aid, local cost financing and significant absorptive capacity, are accordingly at a premium, while the customary offerings from the international development banks should be heavily discounted.

In contrast to these, the maintenance and investment projects which are likely to emerge in the productive sector as being the most attractive from a cost-benefit point of view are those which can, on the one hand, draw on resources which are in excess supply and therefore have low shadow prices and, on the other, are potentially attractive in the new environment to be achieved after adjustment. Both considerations argue for a gradualist approach to adjustment as opposed to the "big-bang" approach which is favoured by some macro-economists.

All of which brings this discussion to its last and most important theme. Development is about people and so is structural adjustment. On the one hand, this refers to their basic health and welfare, the protection of which is fundamental. But adjustment implies change, which in turn implies new jobs, new aspirations and new challenges. Collectively, it has been suggested, adjustment requires a consensus and fiscal policy can be instrumental in helping to form this. But, for the individual, adjustment means uncertainty and potential hardship, the best antidote for which is a buoyant job market in which everyone, with luck, can find a new niche. For fiscal policy, therefore, the key consideration at the macro level is to maintain as much effective demand for labour as best can be achieved, and to stimulate its growth.

However, this needs to be done in ways which are constructive from the longer term point of view so that resources are redirected by the market and complementary sources of information towards those new activities which can support and sustain the viability of the economy in the longer term. There is accordingly a need for participation in the process of structural adjustment, and a recognition of the need for new social contracts to be forged. The burden of adjustment in many countries has fallen disproportionately on poor and vulnerable members of society. There is a clear obligation to avoid this happening and otherwise to allow that those who are asked to take the strain can genuinely look forward to a better future. The role of women in particular in effecting adjustment should be recognized through their empowerment in general and an end to discrimination in particular. All of this

should be recognized in the fiscal regime which supports an adjustment programme. It has been argued here that such a regime should reflect a concern for efficiency in the use of resources and a concern to mobilize new resources while reorganising the pattern of expenditures. The way in which this is done can provide important signals not only for the allocation of resources as argued at some length in this paper, but also for the formation of a consensus in favour of reform.

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