THE STRUCTURE OF PUBLIC SPENDING AND DEVELOPMENT

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Introduction

The difficulties of assessing the impact of public intervention in the underdeveloped economies may be summed up in the proposition that the underdeveloped countries are caught in a contradiction, a virtual vicious circle, thus:

a) The underdeveloped countries are such because the domestic and international market mechanisms needed to initiate the development process are lacking, insufficient, or indeed inhibitory (the reasons are countless: shortage of capital, low technological level, dependency on world prices and world demand, lack of skilled labor, lack of entrepreneurial spirit, and so on.) These structural shortcomings make government intervention in economic and social field to offset or at least help overcome them indispensable. Indeed, each one of the problems burdening the underdeveloped economies can be seen in relation to a possible, and essential, government program or policy to take the place of the relative non-existent or insufficient market mechanism[1]

b) The features and the structure of public action are themselves conditioned by the economic and social structure. The conception of public intervention as almost purely exogenous must be described as nothing more than a simple didactic exercise in macroeconomics. The qualitative and quantitative capacity of the state to spend and tax is crucially dependent on the economic performances and the country's level of development.

In short, development depends on state intervention, but at the same time the possibility and the structure of intervention depend on the level of development.

Historically, underdeveloped countries have sought to get out of this impasse in essentially two ways: foreign borrowing or aid and orienting public expenditure very heavily towards capital spending and economic interventions.

The first of these instruments has been a mean of compensating for inadequate domestic formation of public resources, while the second has been conceived of as the way to lay the foundations for self-sustained growth.[2]

There is some evidence that, at least at a very high level of aggregation, the structure and trend of public expenditure in the underdeveloped countries has long been, from the point of view of growth, decidedly "better" than in the industrial countries. Nevertheless, the social and economic performance of the underdeveloped countries has fallen far short of the development objectives at which government action had aimed.

In the face of this fact, two different responses are possible. One, currently fashionable in the international organizations and among many development economists, is to blame the bulk of the Third World's economic troubles overspending by the government. The other, which I take in these remarks, is to question whether our current theoretical apparatus for the study of public expenditure is adequate and appropriate to analyze the relationship between public spending and growth and development in the underdeveloped countries.

This paper puts forward a model in which the structure of public spending plays a crucial role in growth and development and argues, with the aid of several assumptions concerning the effects of the structure of public expenditure on growth and development, that our traditional methods of analyzing public spending in the underdeveloped countries are at best simplistic and often actually misleading.

The structure of public spending

As part of an on-going international comparative study on the structure of public spending, I have analyzed public expenditure data for 75 countries between 1975 and 1983[3]

The first results are interesting in that they show that not only the incidence and structure of public expenditure, but also the dynamic structural links between growth and public spending are essentially different in the underdeveloped countries from the developed ones.

TABLE 1 - Elasticity and public expenditure average structure (1975-83)

	Total Expenditure		Capital Expenditure	
COUNTRIES	%GDP	Elasticity	% Total expenditure	Elasticity `
Developed	35.56	2.00	7.68	0.49
Total underdev.	25.07	1.59	20.62	2.20
Africa	27.73	1.90	21.95	2.96
Asia	20.99	1.60	21.92	1.97
Latin America	24.64	1.50	17.95	1.90

	Social Expenditure*		Economic Expenditure**	
COUNTRIES	% Total expenditure	Elasticity	%Total expenditure	Elasticity
Developed	66.73	2.12	33.27	0.67
Total underdev.	44.07	1.54	55.93	2.10
Africa	38.78	1.59	61.22	2.26
Asia	42.44	1.62	57.56	1.98
Latin America	51.34	1.04	48.66	1.45

Source: FMI(1986)
* Defense, Social Security and Welfare, Education, Health, Housing and Community Amenities.
**Economic services, Agriculture, Fishing Hunting, Forestry, Mining, Manufacturing, Construction, Electricity, Gas, Steam, Water, Roads, Transportation and Communication

Table 1 traces the structure of public spending and its GDP elasticity[4]. The results of our analysis offer several indications relevant to the present paper:

1) The incidence and GDP elasticity of public spending are much higher in the industrial countries.

2) The share of public spending going to capital investment and its GDP elasticity are higher in the underdeveloped countries**.**

3) In the underdeveloped countries the GDP elasticity of capital spending is higher than that of total public expenditure; in the industrial countries, it is lower[5].

4) Social public spending is both higher and more elastic with respect to GDP in the industrial countries.

5) Public spending for economic purposes is both higher and more elastic in the underdeveloped countries.

These differences also hold when more detailed groupings of the underdeveloped countries are used[6]

The picture of public expenditure in the Third World as it emerges from the analysis of the data unquestionably jibes with the requisites for its playing a propulsive role in development: high investment rates and a low share dedicated to non directly productive outlays.[7] The problem is that although the characteristics of public spending conform perfectly to the prescription for sustained development, such development appears far from having been initiated.

A thorough explanation must obviously treat virtually the entire gamut of problems of underdevelopment. In this paper I shall only set forth a theoretical model with which to isolate the effects of public spending on development. The importance of such a reference model derives, to my mind, from the extreme difficulty of discovering regular patterns by purely empirical study. In the real world, in fact, where all variables are intercorrelated, it is next to impossible to study any single correlation between one variable and another. And this is particularly true of public spending[8]

A theoretical model

The point of departure for the model is the almost self-evident consideration that a crucial role in the relationship between public spending and economic growth is played by the structure of the spending. I believe that this applies with special force to the underdeveloped countries, where qualitative factors more heavily influence the strictly quantitative variables. Two facets of the structure of public expenditure in particular will be highlighted here: the economic distinction between capital and current outlays and the functional distinction between economic and social spending.

A. Current and capital expenditure

The earmarking of a large share of public spending for public capital formation has often been considered the key to a propulsive role for state intervention in the

economy. As we have seen, the underdeveloped countries have commonly pursued such a policy, so that both the average rate of public investment and the GDP elasticity of public capital spending are appreciably higher there than in the industrial countries. In and of itself, this is viewed as a positive, growth-inducing factor.

However, it seems to me that we cannot afford to neglect the existence of an "indissoluble" linkage in the medium to long run between capital spending and a current spending flow, or more precisely between capital outlays and the need for a flow of current spending if the capital investment is to realize its full potential. This is also true for current expenditures, that need previous capital spending (i.e., the existence of capital stock) to realize their full potential. It is likely that any current expenditure needs a certain quantity of capital stock. This linkage is glaringly obvious for many types of public investment, yet it is nevertheless often utterly neglected.

In microeconomics, the connection between capital investment and current outlays is the very basis of theory, as in the theory of the production function or more generally the analysis of technological structure. But in macroeconomics, and in particular with respect to government spending, little or nothing is made of the link[9]

The fundamental hypothesis of the model presented here is that given public capital spending, the long-term effects of capital spending depend on the trend in current spending. In other words, we assume that there exist one or more identifiable values of the ratio of capital to current spending such that the growth-stimulating impact in the long run of capital expenditure is maximized. The ratio of capital stock to current expenditure can thus be regarded as a technical-economic indicator of the technology incorporated in public capital stock and investments. To postulate a limited range of variation for the optimal ratio is to assume that, at least ex post, the flexibility of the technology is limited.

B. Economic spending and social spending

At least conceptually, there are two distinct functions of public intervention, thus of government spending: to maintain and accelerate economic growth on the one hand and to promote the qualitative aspects of social welfare on the other. We shall call the

former outlays "economic" and the latter "social." I shall ignore the complex definitional problems involved in the distinction. For present purposes it will suffice to define as "economic" those public spending items that have a direct, impact on economic growth and as "social" those items that have direct effects on social development[10].

Other things being equal, whereas the ratio of current outlays to capital stock in economic expenditure will affect the economic growth rate, the efficacy of social spending in determining the level of social development will depend on the ratio of current social outlays to social capital stock

C. The correlation between economic and social development

If it were possible to construct a straightforward functional correlation between the level of economic development and the level of social development, that curve could represent the optimal development path and all deviations therefrom would represent disequilibrium points. If the unit of measurement were perfectly standardized, the structural parameters of the functional correlation between social and economic development would stand for the relative importance of the social and of the economic aspects in determining the concept of overall development.

In reality, this kind of correlation can be derived, and has been derived, using factor analysis to correlate standardized yardsticks of two sets of variables representing, respectively, economic and social performance[11]. The slope of the correlation is positive, and the location of each country with respect to the average correlation, represented by the regression function, could be viewed as its position with respect to the optimal combination of economic and social development.

The problem, however, is that the correlations so constructed are static and can only be used to establish a kind of ranking of countries. What is wrong, I believe, is to consider it, as is, as a causal, dynamic relationship in which economic development, for which per capita GDP is the virtually universal proxy, is the independent variable and social development the dependent one[12]. In the model set forth here, by contrast,

the two variables (economic performances, i.e., GDP and social development) are intercorrelated[13].

The question thus becomes what kind of intercorrelation it is. I believe that the relation between economic and social performances, that determines the overall pace of a country's development, can be concisely summed up in the historical analysis of the structural dynamics of public spending as divided into its two functional components: economic and social. Actually there is a strong evidence that as GDP rises the structure of public spending progressively shifts more heavily towards social outlays.

This linkage between social spending and economic growth has been interpreted in two distinct ways:

a) An increase in economic growth generates an increase in the quota of social spending by the same mechanism that augments "luxury" spending: namely, an increase in GDP expands the economic scope for both private actions (consumption) and public ones (social programs) that are not necessary from the productive stand-point[14]

b) An increase in social spending is inseparably linked, as both a social and an economic necessity, to the process of economic growth, but at the same time such spending historically tends to conflict with and impede economic growth itself.[15]

However, there is a third way of looking at the correlation, based on the distinction between growth and development. In order for economic growth to constitute development, it is necessary that there be an increase in public social spending. It follows that social spending should be considered neither as a residual of growth nor as inevitable waste but as an integral and indispensable part of the overall development process.

To come back to the relation between GDP and social development, I should like to introduce the concept of a sustainable level of development as the level of development characterized by an optimal ratio of GDP to social development. The concept of an optimal value for this ratio can be ex-post defined as follows. If the ratio between the rates of economic and social development is not optimal, therefore

does not correspond to a sustainable level of development, then social mechanisms are promptly set in motion which, other things being equal, tend to bring the system towards a sustainable level of development. These social mechanisms stand for political and economic actions in reaction to this unsustainable social or economic condition. This doesn't mean that these actions necessarily and automatically succeed, but only that there is a strong social pressure to change economic or social conditions.

As we will see later, the results of social action will tend to bring the system toward a lower level of development, with a downwards adjustment either of GDP or of social development, whichever has "overshot" the optimal ratio. In the long run, it follows, the upper limit on the pace of development is constituted by the lower of the two variables. This highlights the functional dependence of the variable that has grown "too fast" on the one that has grown less.[16]

The hypothesis that there is a sole ratio of social development to GDP that corresponds a sustainable level of development is over-restrictive. More realistic is the hypothesis of a broadening band of optimal ratios as the value of GDP and the level of social development rise. In other words, when GDP and social development are low, the range of values of the ratio compatible with a sustainable development is narrow; as societies become wealthier and more socially advanced, the range of possibly optimal ratios is extended.

At this point, let me introduce two specifications. First, the mechanisms of adjustment that intervene to bring development back to a sustainable level may be either countered or reinforced by policy action. If the former, "unsustainable" situations will tend to persist and to become worse over time; if the latter, adjustment may be swifter and less traumatic. Second, if there is a relatively wide range of same sustainable development levels, policy measures will be crucial in determining which of the many possible positions the society will tend towards.

The model

In constructing the model, I have sought to isolate public spending from all the other factors that influence GDP and social development. The purpose of the exercise, indeed, is to see how GDP and social development are affected by the structure of public spending.

a) <u>The model of growth</u>

$KE = f(EP)$ (1)

$GDP = \frac{1}{\Omega_t}(KE+A_e+A_S+XD)$ (2)

$CE_e^* = \alpha_e^* K_e$ (3)

$CE_e = A_e + ß_e\ GDP$ (4)

$\frac{1}{\Omega_{t+1}} = f\ (|\alpha_e^* - \alpha_e|, EE)$ (5)

in which:

EP = exogenous economic policy decisions

$KE = (KE_e + KE_S)$ = public capital expenditure

KE_e, KE_S = public economic and social capital expenditure

A_e,A_S = exogenous public current expenditure

XD = exogenous private demand

GDP = gross domestic product

$K_e = (KN_{e-1} + KE_e)$ = the stock of public capital in the economic sector, given the sum of net capital in the previous period (KN_{e-1}) plus capital expenditure

CE_e = public current economic expenditure

$ß_e$ = marginal ratio between GDP and public current economic expenditure

$1/\Omega_t$= the multiplier of exogenous demand

$1/\Omega_{t+1}$ = multiplier in subsequent period

$Ï_e^*$ = optimal ratio of current economic expenditure to capital stock in public sector

$Ï_e = CE_e/K_e$ effective ratio of current economic expenditure and capital stock in the public economic sector

$EE = (K_e + CE_e)$ total economic public expenditure

(1) The first equation treats the size and functional structure of public capital spending as totally exogenous, depending solely on domestic and international (e.g., aids) policy decisions.

(2) This relation determines real GDP in a given period (e.g., year) using a multiplier of an exogenous public demand and an aggregate private exogenous demand which includes exports, private investments, etc.

(3) It is hypothesized that, given the stock of capital in the public economic sector, there is a single optimal value for current expenditure in the sector. Obviously, this implies an extremely rigid technological structure in public sector investments; in other words, once the type of capital spending is determined, there is a fixed, technologically-given ratio with current spending[17]. The value of $\ddot{I}_e^*$ in each period is a weighted average of the value deriving from the net capital stock of the preceding period ($\ddot{I}_{e-1}^*$) and the value deriving from capital spending in the period in course ($\ddot{I}'_p{}^*$):

$\ddot{I}_e^* = [\ddot{I}_{e-1}^*(KN_{e-1}) + \ddot{I}'_e{}^* (KE_e)]/K_e$.

Although this simplification too could be made less constrictive by allowing for a range of possible values, it does not seem unrealistic to posit that in the underdeveloped countries investment projects can be considered, ex post, as technologically rigid.[18]

(4) This equation posits that actual public current expenditure is endogenous and dependent, in linear proportion, on GDP. In other words, it reflects the hypothesis that current spending decisions are in some way determined by the performance of the economy and that any scope for economic policy action can be reflected in changes in the value of the angular coefficient, which thus assumes the significance of an economic linkage with a certain margin for policy action.[19]

It follows that current spending forms part of a logical causal chain that makes it, ex post, at least partly not directly determined by the public capital stock.

(5) The fifth equation displays the long-term efficacy, in terms of growth, of economic public spending. It is assumed that this efficacy can be represented by

its influence on the multiplier for the subsequent period[20] The multiplier depends on the level of economic public spending (in the hypothesis of the existence of economy of scale), but the farther the structure of public economic expenditure diverges from the optimal distribution between capital and current outlays, the lower the multiplier. It is assumed that in the subsequent period the elasticity of the productive sector's response to exogenous demand will be higher when the structure of economic public spending, as represented by the ratio of current economic outlays to capital stock, is closer to the optimum ratio[21]

b) The model of social development

$CE_S = A_s + ß_S \, GDP$ (6)

$SOC = \prod_t SE$ (7)

$CE_S^* = Ï_S^* \, K_S$ (8)

$\prod_{t+1} = \boldsymbol{f}(|Ï_S^* - Ï_S|)$ (9)

in which:

CE_S = current public social expenditure

A_S = exogenous public current social expenditure

$ß_S$ = marginal ratio of GDP to current public social expenditure

GDP = gross domestic product

$SE = KE_S + CE_S$ = public social expenditure

KE_S, CE_S = capital and current public social expenditure

SOC = level of social development

$K_S = (KN_{s-1} + KE_S)$ stock of public capital in the social sector, given by the sum of net capital in the preceding period and public capital expenditure in the social sector

$Ï_S^*$ = optimal ratio of current social spending to stock of capital in the social sector

$Ï_S = CE_S/K_S$ effective ratio of current social expenditure to capital stock in the social sector

$\prod_t$ = indicator of efficacy of social spending.

$\prod_{t+1}$ = indicator of efficacy of social spending in subsequent period.

(6) This is strictly analogous to Equation (4) and represents the endogenous function of current social expenditure.

(7) Social development is described as a linear function of social spending, in which the value of the angular coefficient stands for productivity or the efficacy of social expenditure in determining the social development level.

(8) For social expenditure too, we postulate the existence of an optimal ratio between current and capital outlays, which will be:

$Ï_S^* = [Ï_{s-1}^* (KN_{S-1}) + Ï'^*_s (KE_S)]/Ks$

(9) As was assumed with regard to economic expenditure, the ratio of current expenditure to capital stock in the social sector will also influence the efficacy of social expenditure in the subsequent period. In the case of social development it is assumed that the economy of scale plays a negligible role.

c) The model of overall development

$$DEV = a\ GDP + b\ SOC \qquad (10)$$

$$\partial^*_{min} \leq \frac{SOC}{GDP} \leq \partial^*_{max} \qquad (11)$$

in which:

DEV = the level of overall development

GDP = gross domestic product

SOC = level of social development

a,b = weighting factors of social development and GDP

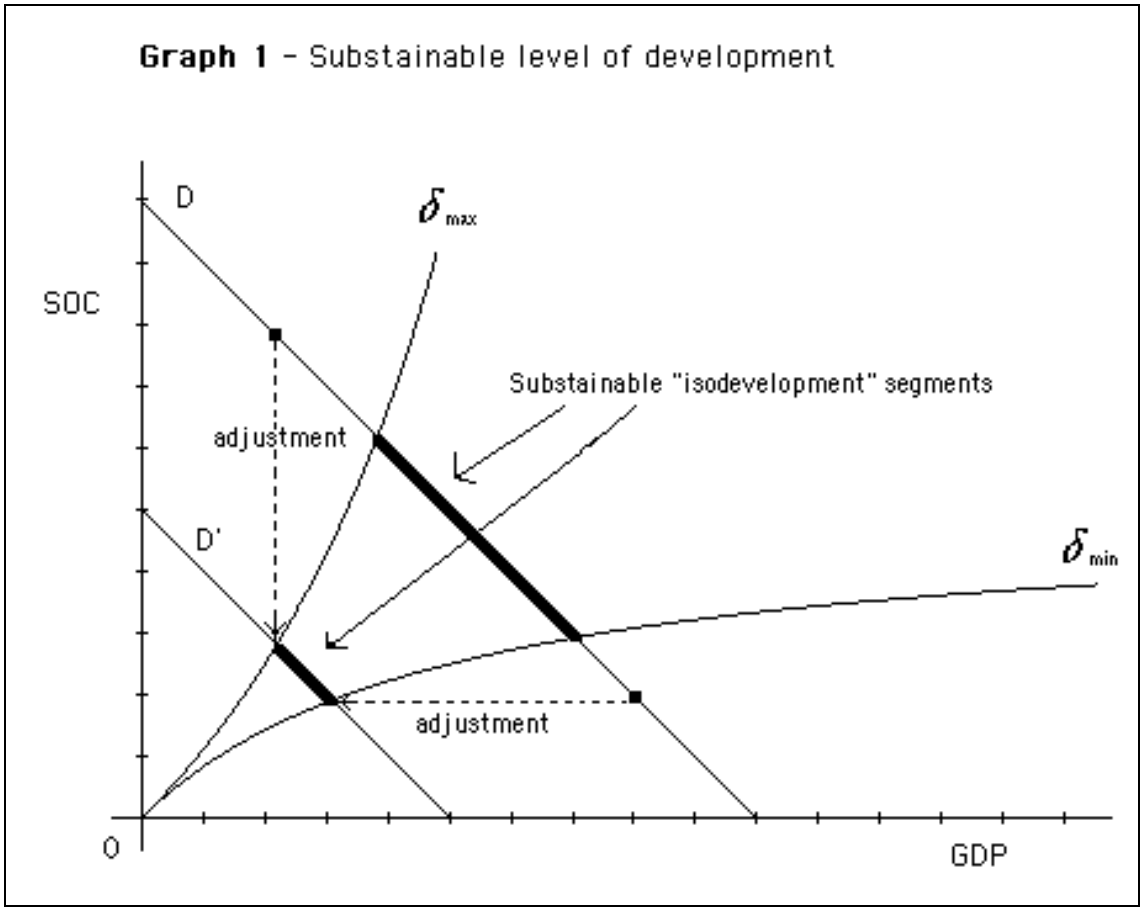
∂ = ratio between social development and GDP

∂^*_{min} = border function of lower limit of minimum values of optimal ratio between social development and GDP

∂^*_{max} = border function of upper limit of maximum values of optimal ratio between social development and GDP

(10) A country's level of overall development is made a linear function of the two variables that indicate the rates of social development and GDP growth. If the unit of measure of SOC and GDP is standardized, it follows that a+b=1 and the values of the weighting parameters indicate the relative importance of economic and of social factors in determining the level of development.

(11) Under the hypothesis of a variety of optimal ratios, we can identify two functions that define the range of values of $\frac{SOC}{GDP}$ compatible with a sustainable level of development. We assume that as GDP or, and SOC rises so does the number of possible ratios between social development and GDP growth that can characterize a sustainable level of development.



This is made clearer in Graph 1, which plots social development and GDP. The two functions plotted are of the following type:

$$SOC = c\,(e^{d\,GDP} - 1)$$

$$SOC = \frac{1}{d}\,\ln\left(\frac{GDP}{c} + 1\right)$$

The parameters c and d must comply with the following condition:

$$c\,(e^{d\,GDP} - 1) \geq \frac{1}{d}\,\ln\left(\frac{GDP}{c} + 1\right)$$

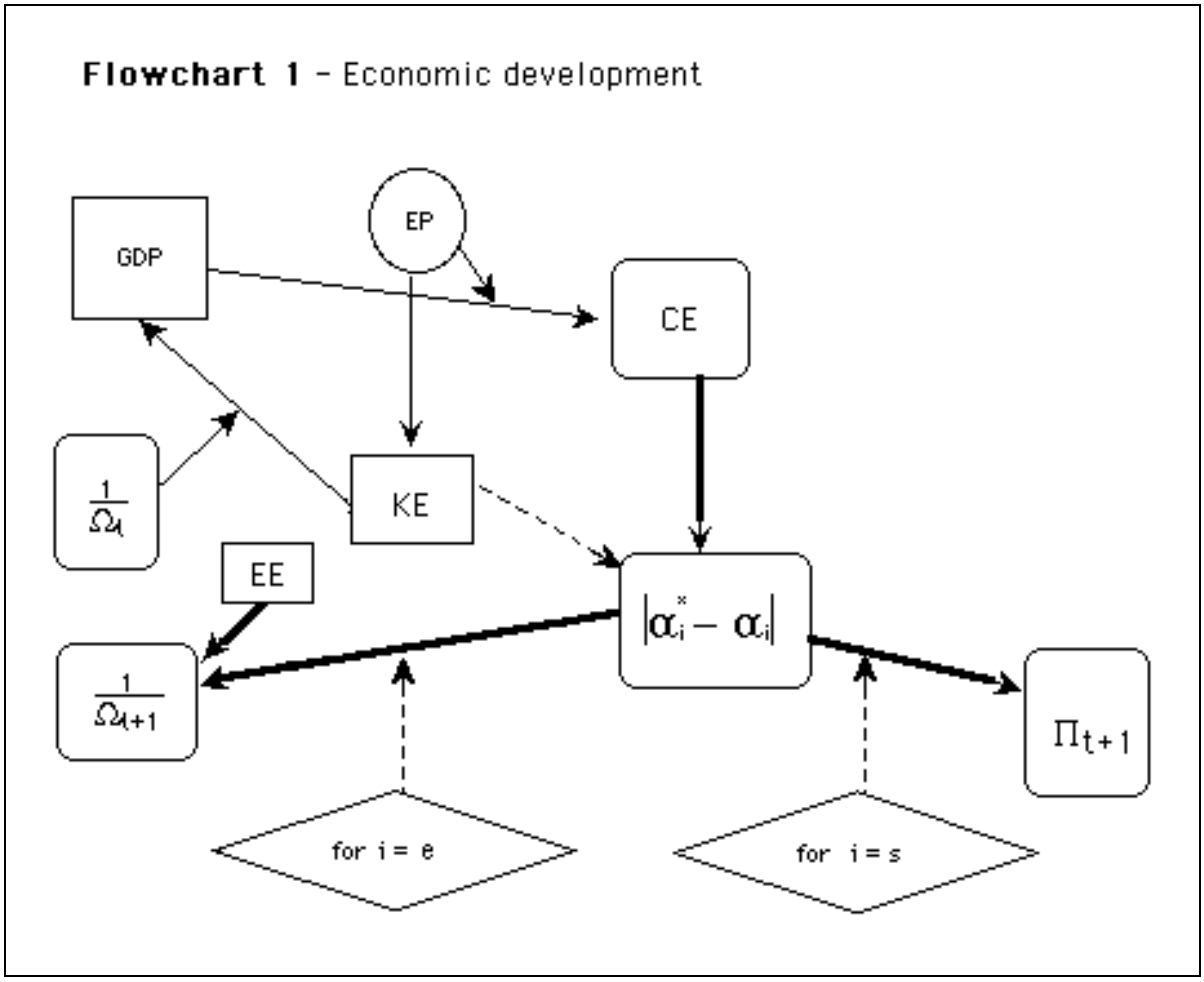
with $GDP \geq 0$.

The area between the two functions comprises all possible values of $\frac{SOC}{GDP}$ that generate a sustainable level of development using Equation (11).Given the assumption of a linear relation between DEV, GDP and SOC, we can plot parallel isodevelopment segments which, for each given level of development, identify the values of GDP and SOC that can define it as a sustainable level[22]. The graph traces two "isodevelopment" straight line, D>D'. The shaded segments represent the values of $\frac{SOC}{GDP}$ that identify the two sustainable levels of development D and D'. For all the

pairs of values of SOC and GDP on the "isodevelopment" line outside that segment, the level of development is to be considered non-sustainable. Other thing being equal, the new sustainable conditions will be achieved by downward adjustment to a pace of development consistent with the variable whose value is lower.

Causal relations in the model

Flowchart 1 depicts the causal relations of the growth model. It begins with autonomous economic policy decisions on public capital expenditure. The other exogenous components of demand being given, this expenditure determines the GDP level through the multiplier mechanism. The GDP determines public current expenditure, and once the process is completed we have an actual structure of public expenditure which, if different from the optimal (given by the technologically rigid economic and social production function), will influence negatively the parameters of the GDP multiplier and the efficacy of social spending in the subsequent period. The possibility of non-optimal ratios between current spending and the stock of capital depends on the degree of independence of current spending from capital stock and capital spending.



Two readings of the schema are worth setting forth here. One, which we might term "passive-structuralist," is the following: Through its short-term effect on GDP, public capital expenditure, exogenously decided, determines public current expenditure, which if properly augmented in line with the economic and social production function, lays the structural basis for an increase in the country's responsiveness to autonomous demand impulses.

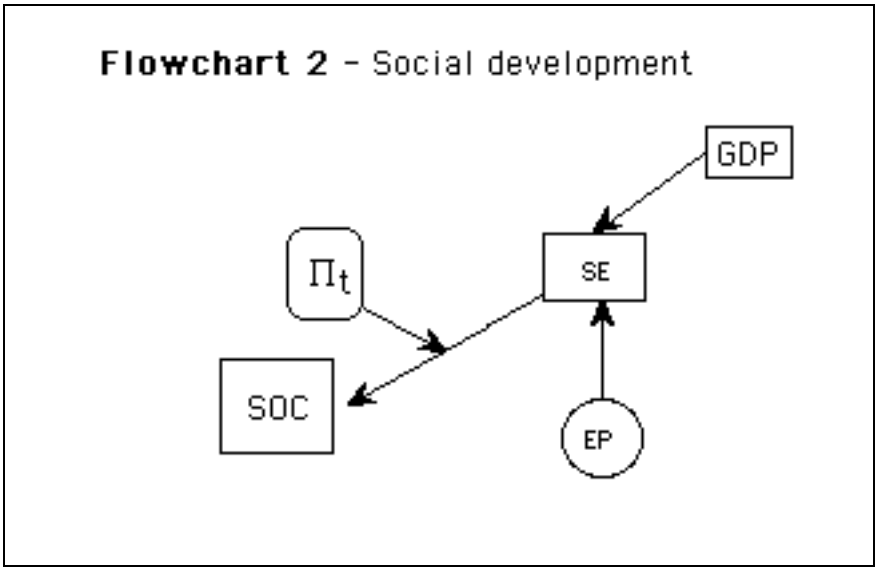
An alternative reading assigns a significant planning role to economic policy: the point of departure is the objective of maximizing the long-term effects of public spending. To achieve this, with public capital expenditure and therefore the public capital stock given, policymakers can act simultaneously on the linkage between GDP and current public spending and on the technology embodied in the investment projects to be carried out. Especially if capital expenditure is considered as totally exogenous, it must be “technologically” determined in such a way as to make possible

a volume of current spending compatible with an optimal ratio. The factors on which to act may be: $Ï'_e{}^*$ and $Ï'_s{}^*$, i.e., the technology embodied in new capital expenditure, and $ß_e$ and $ß_s$, the link between growth and current spending.

In the first reading, economic policy intervention consists solely in an exogenous decision on investment. A virtuous circle is set in motion if the structure of the administrative apparatus and the market in general is such as to ensure independently that the linkage between the variables will effectively lead to an optimal result. In the second reading, however, public action has a significant management and planning role to play. For it is public policy itself that must adopt measures capable of bringing the ratios into the optimal range.

The validity of the first reading appears to be dubious at best, partly owing to difficulties involved in the "free" working of the market and partly because government's capacity to respond promptly and efficiently to the needs of the market is problematical. The second reading, however, very arduous problems, as we will see in the following section.

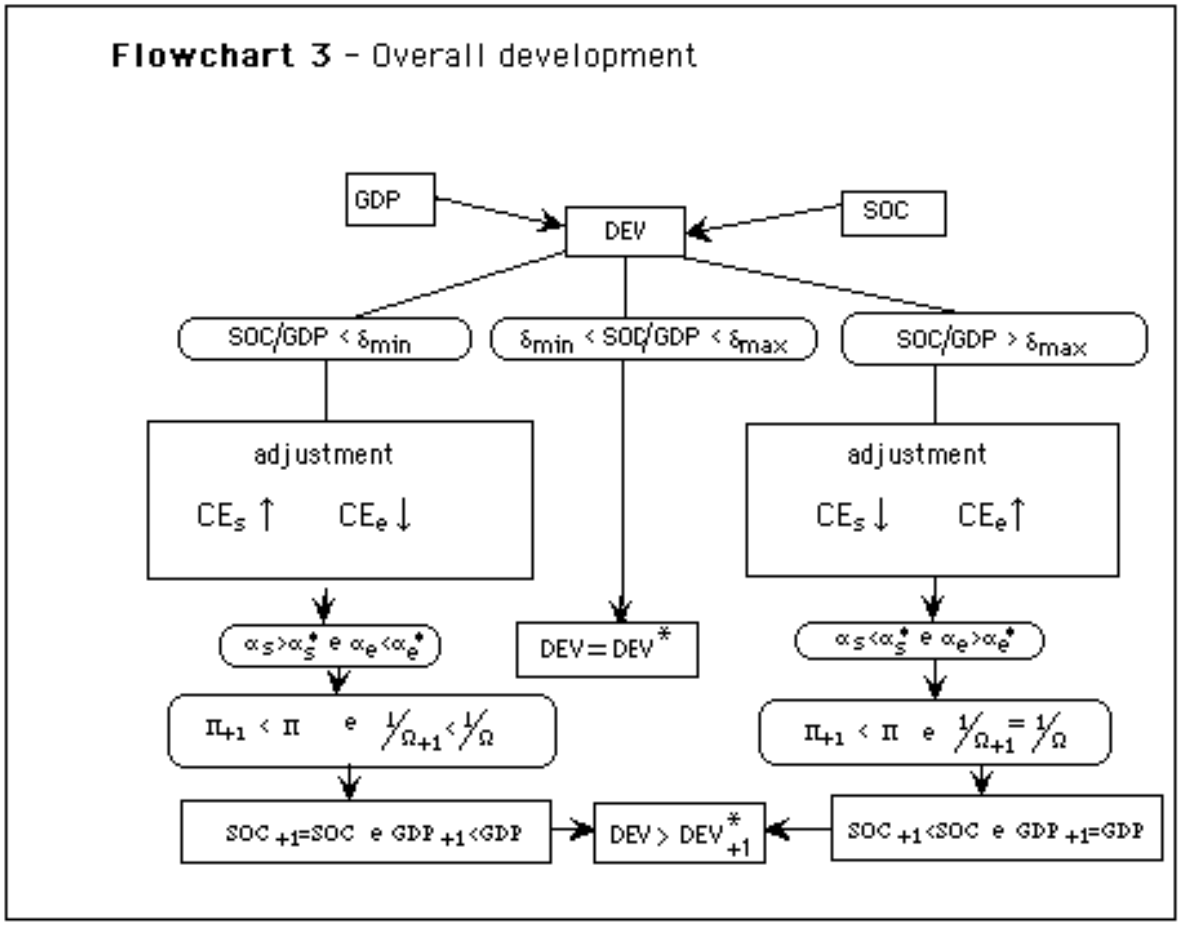
Flowchart 2 diagrams the causal relations of social development model. The decision-making processes concerning autonomous capital spending determine the amount of social spending, directly through the decision on capital expenditure in the social sector and through the autonomous part of social current expenditure and indirectly by the linkage with GDP and current social spending. Here again a reading is possible whereby economic policy, through an analysis of the "technological" linkages between current and capital spending in the social sector, seeks to bring about the combination that maximizes the efficacy of social expenditure.



Matters become more complicated in the hypothesis that the values of the ratio of social development to economic development must be comprised in a predetermined range if overall development is to be sustainable. Underestimating the importance of this condition may mean that the intertemporal maximization of the efficacy of economic and social spending, taken singly, is theoretically achieved but that the ratio between them fails to generate a sustainable level of development.

Flowchart 3 diagrams the causal relations involved in the model of overall development. The following considerations will concern the effects on the development of the composition of public spending, the size of which being equal.

Starting from the assumption that both GDP and SOC are consistent with the best combination of current and capital expenditure, the ratio between them is open to three alternatives[23].



A) The ratio is in the optimum range. In this case the level of development may be considered as sustainable, so that the positive effects on the GDP multiplier and the efficacy of social spending can emerge in full.

b) Social spending is too low to put $\frac{SOC}{GDP}$ in the optimum range. In this case, the shortage of social facilities generates strong social and political pressure for increased social spending, and on the assumption of a real budget constraint in the short run this can only come at the expense of current economic outlays. This, however, has negative repercussions both on the exogenous demand multiplier and on the efficacy of social expenditure in the subsequent period, in that the only way for the adjustment to be made is by a change in current spending, which alters the ratio of the latter to capital stock.

Social development is thus affected by two counterpoised impulses: positive in the short run, thanks to the high level in current social spending; negative in the long run, because of the reduced efficacy of social expenditure. Assuming that the two impulses offset one another, the level of social development in the subsequent period

will tend to remain constant. But GDP in that period will suffer the negative impulse of a reduced multiplier, owing to the suboptimal ratio of current economic expenditure to economic capital stock and the decrease of economic expenditure. The result is that, exogenous demand being equal, the subsequent period will have a lower level of development because a lower level of GDP.

c) Social development may be too high with respect to GDP. In this case, an argument symmetrical to that set forth in (b) applies. We will have strong pressure for an increase of GDP. This can bear to an increase in economic spending through the reduction of the social one This will have no positive effects in the short run on GDP because the aggregate demand is constant. The repercussions in the multiplier will be twofold: positive because the increase of economic spending, negative because suboptimal ratio of current economic spending to economic capital stock, so we can assume that the multiplier will stay constant. The efficacy of social spending will decrease because suboptimal ratio of capital to current social spending. The subsequent period will have, exogenous demand being equal, a lover level of development because of decrease in social development.

Policy problems

If the above approach is right, at least for the underdeveloped countries, significant policy difficulties arise. They involve the capacity to define the objective and the capacity to identify the optimal parameters of the model equations.

a) Capacity to define objectives

In the model, the major objective can be defined as the overall development of the country. But obviously in moving from this generic standard to a more explicit definition a host of serious obstacles must be surmounted, because the definition of development shapes the reference model.

A quantitative approach can be concisely described as defining the objective as the maximum growth rate. In this case, the need is to devise a theoretical model capable of determining the value of the parameters compatible with the real structure of the economy such as to maximize medium-term GDP growth. The improvement of socio-political indicators is entrusted to the hypothesis of a direct, automatic causal link between GDP and the yardsticks of social development.

But since there is no denying the close links between the level of social development and the incidence and structure of government expenditure, if the link between GDP and qualitative development is to be made a dynamic one, a key additional assumption concerning public spending is needed. Namely, that once the rate of GDP growth is optimized, the linkage between it and public spending is such as to produce an adequate qualitative development as well.

This hypothesis is tenable only to the extent that one also assumes that the model used to determine GDP provides for endogenous market mechanisms whereby the structure of public spending tends automatically to be consistent with qualitative development. But given the socioeconomic and administrative structure of the underdeveloped countries, this is highly unlikely. It follows that a purely quantitative objective is woefully inadequate. Naturally, the same applies with equal force to merely qualitative and social objectives.

A preliminary conclusion can thus be drawn: if the correct approach is to set quantitative and qualitative objectives simultaneously, one cannot treat public spending, and its functional and economic structure, as a residual variable to be dealt with apart, by, for instance, concentrating on purely monetary variables. In other words, it cannot be considered as an exogenous variable whose structure can be determined independently of development goals.

b) The ability to identify the parameters that link the variables

The possibility of using the equations of our model to analyze policy goals depends essentially on an analysis of the parameters by which the variables are

reciprocally linked. For what I have presented here as rigid relations are actually both variables over time and subject to modification by economic policy decisions.

The optimal relation between the public capital stock and current spending can obviously change over time, since it depends on the country's social and technological structure. But even in the short term it is affected by the technological options embodied in investment spending. A view of the technological structure most appropriate to an underdeveloped country, where low labour costs offer an incentive for labour-intensive investment, must be tempered, in the case of public spending, by the capacity for a high GDP elasticity of current public spending. A symmetrical observation can be made in the case of capital-intensive technology.

The relation of public expenditure itself to GDP, which depends on the nation's administrative, social and political structure, may also be the object of policy measures. On the simple assumption that current spending too comprises an exogenous component, for instance, short-term alteration of the ratio of public spending to GDP becomes feasible. But another possibility is the direct modification of the elasticity ratio itself. For example, changes in fiscal policy enable the government to increase the GDP elasticity of public expenditure without adverse budget repercussions.

In the more complicated case in which the relation between social development and GDP is brought in, political and economic policy decisions are decisive in determining both the parameters by which development is defined and the range of variation within which the GDP/SOC ratio does not lead to strong social and political tensions. Consider, for instance, the vast difference between a democratic and a dictatorial regime. Clearly, in a dictatorship domestic economic and political impulses have less chance to surface, so that conditions that in other circumstances could appear unsustainable do not, in practice, generate explicit pressure for change and may thus be treated as sustainable conditions. Such a sustainability, however, is strictly dependent on the political regime itself, and when this changes (for whatever reason) the level of development can prove to be unsustainable virtually overnight, and the adjustments that ensue will obviously be much more painful and often dramatic. In a

democracy the range of sustainable conditions of development can be narrower, but in compensation adjustments are presumably prompter and less traumatic. A second conclusion concerning economic policy that follows is that one must not only define the structure of the parameters by which the model's variables are related but also treat the parameters themselves as variables and study their alterability by economic, social and political action.

Conclusion

In the model constructed here, the key assumption is that the functional and economic structure of public expenditure is not a residual variable, in that the make-up of government spending has direct and indirect repercussions on the economic and social development of a country, therefore on its overall development.

This is an extremely simple assumption, verging on the self-evident. Somewhat less self-evident, however, are the consequences of this hypothesis for a model in which public expenditure and its structure are at least partly endogenous. In this case, as we have seen, we can introduce concepts of GDP, social development and overall development, in which the levels and the sustainability conditions are crucially determined by the structure of public expenditure.

It is worth stressing the special relevance of these concepts for the underdeveloped countries, not because the model is inapplicable to the advanced industrial economies, but because it seems a reasonable hypothesis that in the underdeveloped countries the “technological,” both economic and social, options are less numerous. This means that the functional and economic structure of public spending compatible with sustainable levels of development has a narrower range of variation, therefore affords less freedom of choice. On the one hand, then, the economic policy options concerning public spending in the underdeveloped nations are more limited; and on the other, the achievement of a sustainable level is more

difficult, so that more or less drastic swings around sustainable development levels are more frequent.

I find that very commonly the guide-lines for public spending proposed internationally, and largely adopted by the underdeveloped countries, are drawn up without the slightest theoretical consideration of the development impact of a modification, or forcible conditioning, of public spending structure.

A cut in government expenditure has become the all-purpose remedy, the standard prescription for all countries and on all occasions. Even conceding the validity of the macroeconomic analyses that blame public spending and budget deficits for the bulk of economic difficulties, it is readily apparent that the reduction will have a significant impact on the structure of public spending itself. And the consequent alteration of the structure of expenditure may very well have serious repercussions on the country's economic and social structure that impede the achievement of the original objectives.[24]

A detailed account of the structure of public spending is beyond the scope of this paper. Still, the preliminary findings of a broader study, not yet completed, strongly suggest that development capacity and potential in many Third World countries has been curtailed by a failure to consider the interrelation between the structure of public expenditure and social and economic development.

The policy of indiscriminately increasing the incidence of capital investment on overall government outlays, with limited possibility of exogenous adjustment of the parameters linking current spending and GDP, may well have been harmful both to strictly economic growth and to qualitative development. For with such an increase can only be achieved either by distorting the equilibrium between public current expenditure and public capital stock in each sector or by shifting expenditure into the more capital-intensive sectors, with perverse effects on the balance between economic and social spending.

One gets the impression that in a good many underdeveloped countries this has been the result of the massive pressure to curb public spending and the increasing importance of international credit in funding the public sector, and further that this pressure has generated a badly unbalanced structure of public expenditure. Regarding

the ratio of social to economic spending, finally, because they have underestimated the importance of the interaction between economic and social development, many economists have tended to treat the ratio as a residual variable depending on short-term and long-term political options and economic policy choices. Objectives and instruments have often been selected on the basis of models that utterly neglect this interaction's role in overall development. The results have frequently been not just the failure to attain objectives but an actual lowering of the level of development itself.

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Footnotes

* I would like to thank Claudio Buccellato, Paolo Piacentini, Alessandro Roncaglia and Claudio Sardoni for their helpful comments and suggestions. Needless to say that I take full responsibility for any possible mistake.

1 There is no lack of observers with a preconceived ideological hostility to public intervention in the underdeveloped countries, seen as always and ineluctably harmful

(Landau, 1986), but there is no point here in a critique of that position. This is offered in other works: see for example Ram (1986) and Palazzi & Sardoni (1987).

[2] Naturally, the two tools are not mutually independent, since in most cases the structure of international funding strongly affects domestic government action. It can be reasonably maintained, however, that the structure of international financing has not seriously conflicted with the objective of concentrating public spending on capital investment.

[3] The data are taken from IMF (1986). My analysis has been conducted on 20 advanced capitalist and 55 underdeveloped economies.

[4] The elasticity is the estimated coefficient of the logarithmic regression between GDP and public spending,

[5] This bring the tendency of a decrease of the ratio of current public spending to public capital stock.

[6] Actually, with very few exceptions, these generalizations hold for all underdeveloped countries.

[7] The definitions made in the Table 1 of social and economic spending are quite simple, but all the possible alternative classifications of the two type of spending (in particular taking defence spending out of social expenditure) lead to similar results.

[8] Empirical investigation of the relation between government spending and GDP is difficult, especially if one seeks to establish a causal nexus. A good effort is made by (Ram, 1986), but his findings suggest that there are no precise empirical rules of behaviour.

[9] In the study of individual public investment projects the relation is brought out, one way or another, as in the question of project evaluation and the assessment of the capacity for self-sustained continuation. What is lacking is a macroeconomic evaluation of the linkage.

[10] In this case, let us note, the concept of social development partakes of the nature of a flow, like income, not a stock. Social development can be defined as the level of

production of goods and services, through public social spending, in order to satisfies social needs. Naturally there are also levels of the stock of social development, whose relationship to the degree of development is analogous to the relationship of wealth to income of a country.

[11] See for example Palazzi & Sardoni (1987) and Berlage (1988).

[12] A notion of development that equates the concept essentially with economic development has been and continues to be found among economists, even though, especially with reference to the underdeveloped countries, many authoritative scholars have raised criticized the narrowly economic vision of development. For recent contributions on this issue see, among others, Sylos Labini (1989) and Sen (1989).

[13] In this paper we will consider GDP as a proxy of per capita GDP, as we assume in the model the exogeneity of population's growth in the short and medium run.

[14] There is a vast literature that totally or partially endorses this viewpoint. For a review, see Saunders & Klau (1985).

[15] Those who have argued this thesis are generally those taking a Marxist approach, though rather than social spending they tend to refer to unproductive expenditure. See for instance Baran (1966) and O'Connor (1973).

[16] The concept of a sustainable level of development is not to be confused with a qualitative or political judgment. If there is a broad range of alternatives, two countries that differ in economic and social structure may both be at the same sustainable level of development.

[17] The ratio $\ddot{I}_e^*$ has to be calculated for any single type of capital spending. The aggregate ratio will be a weighted average of all types of capital spending.

[18] Just recall that in the underdeveloped countries the technology is not only frequently imported in toto but also "culturally and economically" alien, so that there is scarcely any possibility of adjustments either during the implementation of the investment project or once the facility has been completed.

[19] Of course the relation between current public spending and GDP is more complex because in general it is not linear. Yet a more complicated formula would significantly complicate the overall formalization without yielding substantially different results. For the working of our model, in fact, all that is necessary is to posit that at least a portion of public current expenditure is endogenous.

[20] The multiplier in a given period can be modified by the efficacy of economic public spending in the preceding period. For instance, public investment may affect import coefficient either directly (as in import substitution) or indirectly via the impact on productivity.

[21] In the case of insufficient current spending, this postulate is indisputable, but it also holds when current spending is larger than necessary, for two reasons: excess current expenditure generates work organization that, in an effort to utilize an oversupply of manpower or goods, may yield less efficiency to react to the demand than would have been if the ratio were optimal; moreover, it may generate a change of the structure of domestic demand unaccompanied by an expansion of domestic productive capacity (e.g., an excessive shift of manpower from agriculture to other sectors).

[22] The hypothesis that development is a linear function has been made solely for the sake of simplicity. If it is dropped, it follows that the segments are not necessarily parallel, and with more complex hypotheses they may be non-linear functions. The only necessary characteristic of the "isodevelopment" functions is that they not intersect in the area comprised between the two limiting functions of the ratio between GDP and SOC.

[23] If GDP and SOC are not consistent with the best combination of current spending and capital stock, in the following period, all thing being equal, the level of GDP or SOC will be lower because of negative impact on the GDP multiplier and social expenditure efficacy, and the level of development will be also lower even if it was a sustainable level.

[24] In the industrial countries as well, the economic policy suggestions of the international organizations concerning public expenditure follow the same lines, but of course, given their relative bargaining power, these countries have a much stronger chance of not following them, or a much high probability that these policies will not effect the level of development.