PLANNING FOR NATIONAL DEVELOPMENT: AN AGENDA GUIDED BY THE SOCIOECONOMIC SYSTEM'S SOCIAL PHILOSOPHY

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INTRODUCTION

The idea of sovereignty, which involves self determination, is undermined with each suggestion for harmonization of socio-economic systems and the globalization of trade, which is deemed to be inevitable. Being able to trade voluntarily with any country is highly desirable, but having to transform one's way of life - from one that is desirable to one that is not desirable - is a serious problem. In the interest of social harmony and social welfare, each country has to start out with its own social philosophy. Some countries wholeheartedly desire the free market to determine the goods and services that are to be produced, the number of unemployed workers, the investment in human capital, the rate of interest and so on. Other countries, however, are coerced in overt and covert ways to adopt the free market system although that system will not serve the needs of the citizenry of those countries. To say that the free market provides the answer for all socioeconomic systems is to ignore the fact that the free market is blind and indifferent to human needs. The unconditional requirement, that the system be adopted by developing countries, violates the rights of those sovereign nations to choose a mode of operation that would foster their desired developmnent without infringing on the rights of other countries.

Indubitably, co-operation among members of the world community is highly desirabale, since it would be a step in the right direction to alleviate some of the world's problems. However, the coercion of developing countries into becoming subjected to harsh, blind, confrontational competition, where ultimately those with the muscle to alter the rules of the game will prevail, is most unfair. For example, at the present time, one finds that the USA is asking Japan to observe certain targets for exports to the USA and imports from the

USA into Japan. This clearly is managed trade - changing the rules of the game. The European Union (EU) objects to this approach; however, according to Leon Brittan, the EU will follow the approach of the USA so that the USA may not be the sole benefactor of favoured nation treatment [Newsday 1993, 5,95]. But some may say, so who cares about what is fair! Nevertheless, to remove fairness from the agenda is indeed a denial of the rights of the citizens of those countries where the bedrock of the social philosophy is care, concern, and compassion for other citizens. Unequivocally, some countries would prefer to control their own destiny (to the extent that it is possible) rather than have the invisible hand, which is blind, control it.

The basic assumptions in this chapter on planning for national development are: (i) each developing country is a sovereign nation with the right to shape its own destiny; (ii) the national government is the agent for planning; (iii) the objective function is social welfare maximization; (iv) the means to attain the objectives will be compatible with the objectives of an employment-based domestic economy; and (v) the economic system in each developing country will develop *pari passu* with evolving needs - continuous adjustments as circumstances reveal themselves.

SOCIAL PHILOSOPHY

The responsibility for the progress of developing countries and the direction that this development is to take belongs to the citizens and national governments of those countries. The governments of developing countries have to look inwards and not outwards for the means to undertake the necessary development - growth compatible with their social philosophies. The most available resource in developing countries is also the single most important resource of those countries human beings/human capital. The challenge to developing countries is to harness the vast amount of that available resource and shape a bright future with and, simultaneously, for those human beings.

First and foremost in any planning process is the recognition that human beings make up society. Society is an organization and not organism; hence, there is no automatic adjustment process. To the extent that individual members of society feel they are part of the system, they can and will make a contribution to that system. With social welfare

maximization as the objective function, individuals are to be made aware of the system's objectives: where the effort is for the betterment of the lot of human beings, the greater the willingness of individuals to contribute to that effort. The fact that a collective effort is being recommended in no manner implies a lack of incentives. It will not be a simple monetary question as to the level of participation of any individual. To permit maximum flexibility in the system, the emphasis is on educating the citizenry to the extent feasible, and then permit individual participation in the decision-making process at points in the operations where individuals feel comfortable. The interests of the many must have ascendancy over the interests of the individual.

The major concerns of any responsible society are the provision of sound health care, high quality education, adequate housing, uncontaminated food, and meaningful retirement benefits. These are social imperatives which cannot be left to chance. It is doubtful that any developing country would willingly wish to become a warehouse for the larger industrial countries and be exporters of their own citizens (seeking jobs in those larger countries) to produce in those other countries goods that would be exported back to their own countries. There are many who contend that the profit motive and monetary incentives are sufficient to produce the best results. The evidence in today's world does not support such a contention. Today, privatization is seen as an end in itself, with shareholder wealth maximization as being the most pivotal consideration. Since the concerns of the many are not considered in this blind transition, the effect on the bulk of the citizenry in developing countries can be devastating.

In developed countries. the concern is made clear by Sherman [1991, 391-392] that free market or market capitalist economies are incapable of dealing with the issue of full employment, among other things; only institutionalized macroeconomic planning can produce positive benefits to any and all societies. Henderson [1993, 204] maintains that it is the 'governed market theory' as expounded by Robert Wade which best explains the achievement of the South-East Asian countries. The roles of 'state leadership' and 'state followership', which are not captured by the 'invisible hand", are foremost (according to some observers) in this miraculous achievement. According to Weitzman [1993], the East European model based on contemporary neo-classical economic theory is failing. Yet, in

spite of the fact that it is supposed to fail because it does not conform to the orthodox theory, the Chinese model has had remarkable success. The Township-Village Enterprise model, a communal organization having no well-defined ownership structure, is the Chinese model. It is an evolutionary approach which emphasizes collective organization and co-operation.

The measures employed by any developing country must take into consideration the type of society that exists. The measures employed by Western economies concern themselves with the amount of money spent on goods and services. However, in many developing countries possibly a significant portion of the output is not in the form of monetary expenditures (for example, self-supporting food growing; recreation - free access to beaches and a host of sporting activities; medical care; personal relationships and so on). Each developing country has to establish measures that would capture the essence of its philosophy of life. The measures employed by Western economies are incapable of measuring the essential qualities cherished by those social systems.

The needs of the developing countries can only be understood from within and the means necessary to attain those ends can only be provided from within. The challenge is there. It is up to these developing countries to accept the challenge and produce the necessary change.

NATIONAL PLANNING: ACCOUNTING INFORMATION AND MACROECONOMIC POLICY DECISIONS[1]

In any given country, the concern for macroeconomic policy can be appreciated in the light of incentives that are provided to stimulate the economy. For example, in the case of the US economy, in order to encourage investment in capital goods (primarily machinery and equipment), the investment tax credit was enacted in 1962 and repealed with the 1986 Tax Reform Act. Combating unemployment was the objective of the US government's fiscal policy. If the desired investments were to be made by business firms, then new jobs would be created. However, within a market economy, the effectiveness and efficiency in achieving the desired outcome is questionable, since such an incentive is generally made available to all firms. This condition obtains because it is the availability of money capital that determines the ability to invest in plant and equipment:

(i) Since money capital is not equally accessible to all firms in a market economy, the advantage of such a tax incentive can be enjoyed only by the 'money capital abundant' firms. The consequence of such a condition might very well be the construction of excess capacity.

(ii) For labour-intensive firms, the ability to secure the necessary money capital to invest in plant and equipment may come only at the expense of the labour force (substitution of machines for labour).

In Situation (i), if excess capacity ensues, then a misallocation of resources would be experienced. In Situation (ii), the condition to be ameliorated would be exacerbated.[2] Yet, such a tax incentive can be effective in a planned economy where resources are able to be directed to the areas that require development.

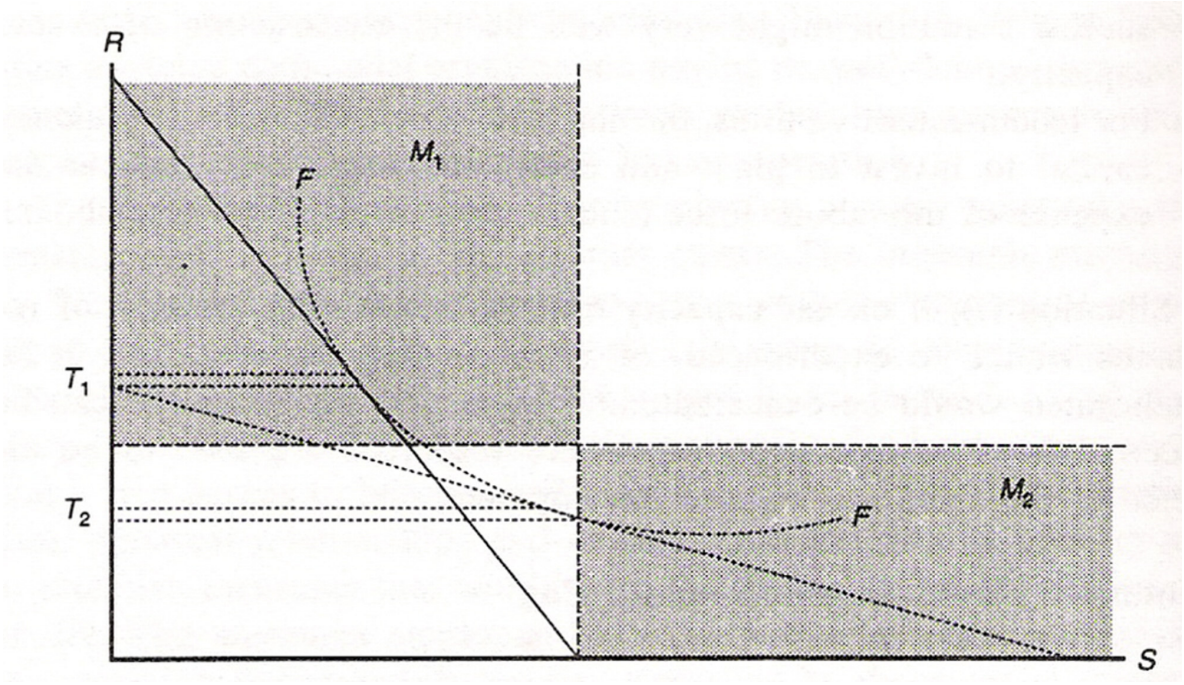
Economic Stimulation and Monitoring

For any national government, the means of stimulating the economy and how to monitor the effects of stimulants that are applied to the economy are of great concern. The remaining subsections of this section attempt to demonstrate a possible means of determining, through the medium of financial statements, whether optimal use is being made of the factors of production in a market or planned economy. This process/analysis constitutes the monitoring mechanism. In this analysis, the information content of financial statements is subject to marginal analysis; in essence, it is microeconomic analysis for the purpose of macroeconomic policy evaluation.

Technological Frontier Facing Developed and Developing Economies

In developing countries, business firms are smaller than those in developed countries. They have limited funds, substitute labour for physical capital, use less modern technology, and have fewer skilled employees and a lower wage rate. In Figure 25.1, these conditions translate into dual zones of efficient production for developed and developing countries. The most efficient firms in developing economies would be operating at T_2 in M_2, while firms in the developed economies would be operating at T_1 in M_1. It is important to note that there is an efficient zone for both sets of firms; therefore, government planners
in developing countries must guide their business firms to the efficient zone (T_2) in M_2, which is labour-employing rather than labour substituting.

Figure 25.1 Technological Frontier and Substitution Possibilities



Notes: M_1 = Developed Economy M_2 = Developing Economy F = Technological Frontier
T = Efficient Zone S = Degree of Labour Skill R = Range of Technology

Planners in developing countries should not try to upgrade their technology to the efficient zone (T_1) in M_1 because it is labour-substituting. In those economies, technology should be upgraded when the technology would increase labour productivity and/or increase employment opportunities.

Planning Objective, Problems, and Assumptions

The planning objective is to improve national economic policy decisions. The emphasis is on the usefulness of financial accounting information in contributing to more effective policy-making at the macro level. The model developed in this chapter permits observations of corporate factor utilization, enabling a better understanding at the micro level of the impact of some national economic policies on the economy's non-financial corporate sector. Hence a vehicle is provided for improving national economic policy decisions. The focus is on measuring at the micro level the productivity of the factors of production using factor costs[3] and not on the measurement of the impact of technology on the productivity of the factors of production.[4] The latter involves issues of technical changes that are not addressed in this chapter.[5]

Two serious problems to be confronted are: (1) the inefficient allocation of existing financial capital; and (2) the arbitrary selection of accounting methods which affect the reliability of financial accounting data. One of the more crippling factors in economic growth is the inefficient allocation of existing financial capital. To ensure the availability of funds for expansion in desirable areas and industries, accounting information can be used to determine tax policy for redistributing financial capital. Assessment and monitoring is necessary to determine: (a) the impact of an industry on the economy; (b) individual firms' profitability, and (c) the effect of other factors on an industry as a whole. In assessing the allocational efficiency of financial capital, it is necessary to look at the individual firms[6] to determine: (i) the degree of variation in production performance (the level of efficiency attained), and (ii) the possible causes of such variation (the effects of factor substitution). The disaggregated approach avoids the problem of information concealment which occurs with the use of highly aggregated data.

In this discussion, the usefulness of financial accounting data is not assumed. The efficiency test to be applied to the firms should confirm the usefulness of financial accounting data. Indubitably, the use of financial accounting information requires an understanding of its structure, content and limitations [Salvary 1985 pp.8-26]. Care must be exercised to ensure the reliability of the financial accounting data used in the analysis.[7] It is necessary to group together firms with similar accounting methods within each industry; an individual firm's performance is to be compared to the aggregate group's performance. Because of the indivisibility of plant and equipment as a factor input, to overcome the problem of the arbitrary selection of a method of depreciation, gross plant and equipment are to be used in lieu of depreciation.

There are three basic assumptions underlying the planning model:

(i) A planned resource-optimizing decision confronts the firm. The various factor inputs of the firm are in great part determined in prior periods (plant and equipment from the preceding period and so on). In great part, the major constraint on the material factor input is the firm's existing technology and labour skills (for example, impracticality of substituting metal with plastic). Given this scenario, (a) the existing technology would constrain marginal investments (but not major investments) in plant and

equipment and in labour; and (b) the impact that labour-displacing technology would have on the level of unemployment would constrain the level of labour-displacing technology that could be adopted.[8]

(ii) The firm is engaged in limited competition with foreign goods in the domestic market; thus its output is market-determined because factor costs are more or less market determined. The firm is faced with a closed, convex and negative monotonic production set, making profit the objective function to be maximized.[9] As income redistribution is an overriding concern, profits will be negative in some cases.

(iii) The firm is a price-taker. Production is based upon prices expected to prevail when output is sold and input is acquired. Because of uncertainty the expected prices would differ from the actual prices. The absence of information, on *ex ante* output selling prices and *ex ante* input factor costs, prevents two measures (output mix and input mix) of allocative inefficiency from being computed.[10] Except for large-scale investments in new plant and equipment, inefficiency (efficiency) in the firm's production is attributable to allocative inefficiency (efficiency) of scale versus technical inefficiency (efficiency).[11]

Evaluating Resource Allocation: Macro vs. Micro Level

In most studies on factor productivity, it is assumed "that when entrepreneurs anticipate a relative increase in real wages, they will, in the short run, substitute capital for labor (provided that the elasticity of substitution is positive) and then concentrate on innovations which are labor saving" [Nadiri 1970, 1146]. Such a business policy leads to more unemployment; thus the resource allocation process is not Pareto-optimal. Such a policy is highly undesirable for developing countries, where a major goal is 'full' employment or 'low' unemployment. Hence, business policies must be guided by effective national tax policies.

Highly aggregated information, though useful, does not enable an awareness of the variation in resource allocation among individual firms. Thus, factor utilization analysis at the firm level is a means of assessing the marginal efficiency of factor inputs for individual firms. Despite its crudity, the model offered in this chapter is useful for policy-making.

Data and Methodology

The efficiency or inefficiency in the allocation of resources is to be determined using financial accounting information. The recommended financial accounting data is to be adjusted in certain areas for price-level changes. Since the analysis focuses on productivity analysis, the data to be employed consist of:

(i) *sales revenue* adjusted for price level changes using the specific industry's wholesale producers price index;
(ii) *the materials cost component of cost of sales,* adjusted in a similar fashion as (i);
(iii) *the overhead cost component of cost of sales* would be deflated by an appropriate price deflator;
(iv) *the labour cost component of cost of sales* would be deflated by the specific industry's wage index;
(v) *investment in plant and equipment* would be analyzed using current prices, on the assumption that new additions to plant and equipment embody new technology; and
(vi) *inventories* adjusted in a similar fashion to (i) above.[12]

Efficiency Measures of Factor Utilization

To provide an indication of the efficiency of resource allocation at the firm (micro) level, three ratios have been developed: (i) Factor Utilization Optimality Ratio (F_r), (ii) Convergence to Optimality Ratio (0_r); and (iii) Labour Disproportionality Ratio (L_r). These three measures of efficiency relate to those of Fare *et al.* [1985, 23,49-53,64, 79,80,93-96].[13]

(a) An 'overall input efficiency measure'

(b) An 'overall output efficiency measure'

The *input efficiency* measure determines whether a less expensive input vector exists to produce the given output vector. The *output efficiency* measure determines the output that should have been produced given the input vector. The validity of those measures hinges on the assumption that: (a) an output level is chosen by the firm that is consistent with market conditions and the firm's production capabilities; and (b) the firm selects the least expensive combination of factors consistent with its quality standards.

Because of uncertainty on the prices and conditions that will obtain, the firm will eventually reach optimal, sub-optimal or super-optimal production results caused by differences between expectations and actual prices and conditions. The response to and impact of an unexpected upsurge in consumer demand, along with an increase in price,

would differ for a firm operating at less than full capacity compared to a firm operating at full capacity.

The State of Technology

In order to establish (i) the level of technology; and (ii) the full capacity level of production, two procedures have been devised.

1. *Level of technology* - When new equipment is introduced, a period of adjustment ensues (that is, a learning period); therefore, for each firm, the year subsequent to the year in which the major investment in plant and equipment has taken place is considered as the benchmark at this point, the firm's level of technology is deemed to have been established. The output/input factor relationship (0_t) is the standard output/input function at the micro level by which the actual output function (O_{tn}) in subsequent years would be judged. The calculation of the output/input ratios (OI) is as follows:

$$OI_{tn} = R_{tn}(C_{tn})^{-1} \qquad n = 1, 2, 3, \ldots \tag{25.1}$$

where OI = output to input ratio
R = revenue
C = cost of output sold
t = index.

$$OI_{tn} = R_{t0}(C_{t0})^{-1} \qquad n = 1, 2, 3, \ldots \tag{25.1.1}$$

where t_0 = benchmark year

2. *Full capacity level of production* - The year in which gross output (R) is at its highest level subsequent to the benchmark year (for determining the level of technology) is considered as an approximation of the full capacity level of production (FC_r) - the 'full capacity benchmark year' (t*). The output/capital ratios (OC_r) are developed as follows:

$$OC_r = R_{tn}(K_{tn})^{-1} \tag{25.2}$$

In the 'full capacity benchmark year' (t*), the output/capital ratio (OC_r) will be considered as the full capacity (FC_r). The output/capital ratio (OC_r) for every other individual year will be expressed as a percentage of the full capacity (FC_r) to arrive at the

capacity utilization ratio (U_r). (In the presence of excess capacity, an increase in capacity usage can produce a change in output that would be an unexpected maximized situation.)

Production Functions: Ex Ante and Ex Post

The development of the production function follows the approach suggested by Johansen [1972]. Output {Revenue (R)} is a function of factor inputs (gross plant and equipment (K), labour (L), materials (M), and overhead (A) - without depreciation) reflected in the financial statements of individual firms: $R = f(K, L, M, A)$.

In each industry, by means of multiple regression analysis, estimates of the coefficients of factor inputs (CFI) will be calculated for each firm. Each estimate will represent a moving (forward-rolling) five-year period. That is, if the years 1983-93 constitute the period to be covered by the study, then seven estimates would be calculated for each firm. The *ex ante* production function would be the production function estimated for the period that contains the benchmark year as the last year of the five-year period. (If 1988 is deemed the technology benchmark year, then the *ex ante* production function would be the estimate calculated for the period 1984-8. The reason for this position is that it is expected that production after 1988 would be more efficient than production in the earlier periods.) Estimates calculated for the other periods will be considered as *ex post* production functions. The *ex ante* production function is estimated by Equation (25.3); whereas, the *ex post* production function is estimated by Equation (25.4).

$$R_x = (b_i K_{t0} + d_i L_{t0} + p_i M_{t0} + q_i A_{t0}) \qquad (25.3)$$

where x = *ex ante,* $_{t0}$ = benchmark year.

b_i, d_i, p_i and q_i = the coefficients of factor inputs (CFI) for the individual firm.

To arrive at the coefficients, the logarithmic form of the variables are to be used in order that the estimated partial regression coefficients can be interpreted as elasticities. The variables in Equation (25.3) are used to develop Equation (25.4):

$$R_y = (b_i K_{tn} + d_i L_{tn} + p_i M_{tn} + q_i A_{tn}) \qquad (25.4)$$

where y = *ex post.*

The 'overall input efficiency measure' (a vector (K^*, L^*, M^*, A^*)) and 'overall output

efficiency measure' (R^*), for years after the benchmark year, are calculated using Equations (25.5) and (25.6).

$$R^a_n = (b_i K^*_{tn} + d_i L^*_{tn} + p_i M^*_{tn} + q_i A^*_{tn}) \quad (25.5)$$

where a = actual.

$$R^*_n = (b_i K_{tn} + d_i L_{tn} + p_i M_{tn} + q_i A_{tn}) \quad (25.6)$$

In Equation (25.7) changes in the magnitudes of the coefficients (Equations (25.3) and (25.4)) and direction of change in those magnitudes are captured in the aggregate by u:

$$R^*_n = R^a_n + u \; (-k < u < k) \quad (25.7)$$

where u = random factor, $k < \infty$.

The standard output for a given capital input is the change in output (ΔR) in the year subsequent to the benchmark year. This standard enables the calculation of: (a) efficiency measures of marginal factor inputs; and (b) an efficiency measure of marginal output.

Optimality and Convergence to Optimality

Optimality in utilization of factors of production is determined via the 'factor utilization optimality ratio' (Fr). Changes in values of the variables in Equation (25.1) are the basis of this ratio, which is stated as follows:

$$Fr = (\Delta Ctn)(\Delta Rtn)^{-1} \quad (25.8)$$

where Δ = change.

Evidence on optimal use of the factors of production would be $Fr = 1$, or very close to 1 - that is, plus or minus some tolerance level/an adjustment factor (a): $Fr = 1 +$ or $- a$. This adjustment (a) is for minor deviations which are caused by factors not related to optimum use (namely, idle time caused by mechanical problems; or transitory periods, including a learning period with the introduction of new machinery). Yet, in another way, the 'factor utilization optimality ratio' (Fr) can be derived and expressed (Equation (25.9) as the relationship between the rate of change in the cost of output sold ($r\Delta C$) and rate of change in revenue ($r\Delta R$):

$$Fr = (r\Delta C)(r\Delta R)^{-1} \qquad (25.9)$$
$$(r\Delta C) = (C_{tn} - C_{tn\text{-}1})(C_{tn\text{-}1})^{-1}$$
$$(r\Delta R) = (R_{tn} - R_{tn\text{-}1})(R_{tn\text{-}1})^{-1}$$

W.E.G. Salter's [1966, 30-31] equations for T' and $T_{r'}$ and J.D. May and M. Denny's [1979, 760] equation for P_t (a measure of total factor productivity) are the counterparts of Equations 25.8 and 25.9, which are measures of technical advance (cost savings per unit of output).

According to W. H. Locke Anderson [1970,153], 'when adjustment costs are important, firms will operate on the static production function only at seasonal or cyclical peaks. At other times, they will "hoard" labor in order to avoid adjustment expenses - referred to as "the presence of on-the-job underemployment" [You 1979, 97].' In this model, the existence of excess plant capacity or the hoarding of labour will be captured by the tolerance factor ($-a$).[14] There is the danger of a false lag in adjustment [Anderson 1970, 161]. To eliminate (or at least to minimize) the false lag in adjustment that otherwise would appear, adjustments for changes in: (a) inventory levels; and (b) capacity utilization rates are to be undertaken. Since marginal analysis is employed in this model, inventory levels[15] have to be considered to avoid distortions in the measurement of F_r.

Convergence of optimality in utilization of the factors of production is discerned by means of the 'convergence to optimality ratio' (O_r); the firm's gross profit ratio (G) and its marginal gross profit ratio (Gm) are used in this ratio, which is the relationship between gross profit in period zero and marginal gross profit in subsequent periods:

$$O_r = (Gm_{tn})(G_{t0})^{-1} = \lim_{0 \to n} 1 \qquad n = 1, 2, 3, \ldots \qquad (25.10)$$

$$(Gm = (\Delta R_{tn} - \Delta C_{tn})(\Delta R_{tn})^{-1};\ G = (R_{t0} - C_{t0})(R_{t0})^{-1})$$

Convergence is intimated by Equation (25.10). The movement from period zero with a ratio of 100 (a grossly inefficient use of factors) and moving in each successive period closer to 1, or beginning in period zero with a ratio of 0.01 (an incredibly efficient use of factors) and each successive period moving closer to 1 is evidence on convergence to optimality.

Factor Substitution - Diminishing Returns to Factor Input

Inefficiency, in this study, signifies continued substitution of one factor (for example, plant and equipment) for another (for example, labour). Factor substitution possibilities and the conditions necessary for factor substitution (for example, the decision to use a large factory with a single shift versus a small factory with double shifts, as indicated by Betancourt and Clague (1975) are factors that must be considered in order to obtain a better insight on the problem of capital availability.16 Any firm experiencing diminishing returns on factor inputs can be indentified when the 'factor utilization optimaIity ratio' produces a result for any given year greater than 1 + *a.* Diminishing returns on labour are discernible using the 'labour disproportionality ratio' *(Lr),* which is derived as follows:

$$L_r = (r\Delta L)(r\Delta R)^{-1}$$

where L = labour and related expenses.

$$r\Delta L = (L_{tn} - L_{tn\text{-}1})(L_{tn\text{-}1})^{-1} \qquad n = 1, 2, 3, \ldots \qquad (25.11)$$

Diminishing returns to labour are experienced whenever $L_r > 1 + a$. Factors that impinge on the measure of L_r are changes in employee mix and/or the quality of labour input (improved skills of previously unskilled workers). These factors should be isolated and accounted for [Chinloy 1980]. In this model, these factors are compensated for in two ways, on the assumption that: (i) wages reflect changes in employee mix where pay scales differentiate between skilled, semi-skilled, and unskilled workers; and (ii) wages are adjusted to retlect employees' upgrading of skills. If diminishing returns experienced by the firm are attributable to capital (a disproportionate use of that factor exists in relation to labour), then $F_r > 1 + a,$ but $L \leq 1$. Similarly, Equation (25.12), which states that the relationship between the rate of change in investment in plant and equipment ($r\Delta K$) and the rate of change in revenue ($r\Delta R$), is used to determine the 'capital disproportionality ratio' (Ir):[17]

$$Ir = (r\Delta K)(r\Delta R)^{-1}$$

where K = investment in plant and equipment.

$$r\Delta K = (K_{tn} - K_{tn\text{-}1})(K_{tn\text{-}1})^{-1} \qquad n = 1, 2, 3, \ldots \qquad (25.12)$$

Given the complementarity of labour and physical capital, the use of a ratio which incorporates both factors is necessary. This approach addresses the problem that productivity measures related to a single input cannot measure the specific contribution of that factor. A number of interrelated influences (namely, technological change, substitution of factors, capacity utilization, change in skill. levels and so on) are responsible for a change in output [Eisenberg 1974, 22]. Indices, constructed from annual ratios, provide a basis for standardizing (offsetting the complementarity of) factor inputs. One form of standardizing is to use the ratio of L to K for each year to determine the coefficient of substitution. This ratio reflects the relationship between deflated labour dollars and investment in plant and equipment. Also, further refinement of the measurement of L_r and I_r would necessitate use of the level of plant capacity utilization (U_r) in the measurement process.

General Comments

Regional economic conditions and their causes have to be considered carefully.[18] To produce the desired macroeconomic goals of income redistribution and full employment, economic incentives must be tailored to microeconomic level conditions. The preceding analysis focused on identifying change within and among firms and on measuring the direction of such change. The information generated in that analysis would reveal: (i) the existence of misallocations of resources within specific industries; (ii) the extent of such misallocations, and (iii) the peculiar geographic distributions of such misallocations. This knowledge enables policy prescription to be consistent with the existing economic situation.

ASSESSING REGIONAL ECONOMIC CONDITIONS[19]

Regions in developing countries, for the purpose of this presentation, are geographical areas with specific characteristics, be it land or natural resource features.

Regional Economies within Developing Countries

Regional economies in developing countries are driven by agriculture, manufacturing or service activities. The agricultural regional economies tend to become more capital-intensive; this condition aggravates the labour excess problem. Hence, an introduction or

expansion of the manufacturing sector in those regions would enable displaced labour from the agricultural sector to be absorbed back into the workforce. In some developing countries, small manufacturing regional economies are losing some of their industries to developed and other developing countries, entailing significant displacement of labour. These economies may then experience growth in the service sector (mainly tourism), which in turn may absorb the labour displaced from the manufacturing sector. Of necessity, planning in developing countries must begin with a sharp focus on identifying the strengths and weaknesses of regional economies within those countries.

Social welfare maximizing subject to a budget constraint is the basic assumption underlying this chapter; hence, public expenditures and tax decisions of national governments for regional development would be based upon a social welfare maximizing principle. In this analysis, the social welfare to be maximized in a region is the employment opportunities for its residents. A region's economic growth, the prime source of employment opportunities, can be influenced by a region's mix of public expenditure that paves the way for the region's employment portfolio of industries. Therefore, arriving at a proper allocation of tax revenues, among the various types of public expenditures to maximize the region's social welfare, is of the utmost concern to the national public administrator/regional planner.

The model presented below demonstrates how national public administrators/regional planners can assess the economic conditions of the various regions in order to determine the fiscal policies compatible with the national current economic situation. Indubitably, the objective is to ensure that recognizable regional problems are ameliorated rather than accentuated.

Identification of Economic Conditions

This section is an exploration of dynamic analysis for regional policymaking which entails an identification/a determination of: (i) the distinct economic regions within the country; (ii) the economic needs of the country; (iii) the available resources (including the transportation network); (iv) the level of technology; (v) the skills of the labour force; and (vi) the compatibility of the various regions with certain economic activities. The planning perspective is on economic conditions identified with recognizable regions: (a) economic

activities; (b) population growth; (c) unemployment rates; (d) regional output; and (e) public spending. The objective is to maximize regional employment opportunities in order to minimize relocation of citizens. The methodology for: (a) an assessment of the quality of a region's economic conditions; and (b) a measurement of the extent of the disparity in the quality of economic conditions among regions, follows.

Evaluative Model

The quality of a region's economic condition (Q) is a function of the efficiency (E) with which the region absorbs its growing population into the labour force, and dependency (D) of the region on public spending - the degree of importance of public spending to the region's economy: $Q = f(E, D)$. The key variables are: the ratio of unemployment growth (or decline) rate to population growth (or decline) rate and the ratio of the rate of change of public spending to the rate of change of regional output. All regions cannot be expected to share the same quality level of economic conditions; however, through efficient management of the regional economies, a sharp contrast in the quality of economic conditions among the various regions can be avoided.

In general, the cause/effect relationship between a region's public and private expenditure would run from the former to the latter with a long time-lag. A national government can encourage economic activity in specified regions with appropriate expenditure of revenues. Planning for the long term would require public spending for the improvement of skills of the workforce and the infrastructure to produce a climate conducive to private investments. Public spending can be expected to grow in all regions. However, the pattern of public spending should differ because: (a) the economic climates of regions differ; and (b) the limits to public funds necessitate a trade-off among public expenditure to achieve short-term goals and those needed to produce longterm maximization of social welfare. Classification of regions by existing conditions enables a determination of the appropriate mix of regional public expenditure.

Regional Classification

Regions in developed countries can be classified as congested, intermediate, or lagging [Hansen 1970]. In a free-market system, it is assumed that when congested regions'

agglomeration reach the point where the marginal social cost from external diseconomies for new and existing firms exceeds the marginal social benefit from the external economies, economic activities will flow from congested regions to intermediate regions. In many cases congested regions attract more investments, while investments opportunities in other regions go begging. Given market imperfections, developing countries cannot look to the market as a corrective device. Regional development has to be planned by directing investments to attain the desired results.

In developing countries, regions can be classified as either 'highly potential' (HP), 'moderately potential' (MP), or 'little potential' (LP). Each region cannot be developed in a similar fashion; each region has to be developed according to its potential. Redirection of economic activities can be achieved by investments in: (a) direct productive activities (DPA) - public investments; (b) social overhead capital (SOC) - investment in human beings (education, health, and so on); and (c) economic overhead capital (EOC) - basically work projects (roads, bridges and so on). In MP regions, there should be public investments in EOC, while emphasizing SOC; LP regions should invest in SOC projects and DPA; SOC is to enable the mobility of displaced workers from LP regions.

Evidence on SOC projects indicates that there are more positive benefits than simply the mobility of the labour force. In the USA, New England's experience with SOC projects, particularly education, is indicative of the profound and positive consequence of such a policy - the attraction of specialized industries by the educated workforce [Business Week 1976, 98; *Wall Street Journal* 1985, 1; Rosengren 1990]. Unequivocally, each region's economic activities should be stabilized by directing spending related to the region's existing economic conditions. Empirical evidence does suggest that in a tight labour market, government spending may reduce the demand for labour in the private sectors [Crihfield 1989, 365]. In most developing countries, a tight labour market does not exist; therefore government investments can be used to absorb displaced labour. Clearly, the government's role should be to: (i) create conditions conducive to the development of the private sector; and (ii) maximize the positive aspects of its own impact upon the economy.

Regional Policy Analysis: Qualitative Measures of Regional Economic Conditions

To shape the region's development policy with its expenditure programs, policy

analysis should be undertaken. Two ratios can furnish information on economic conditions of the regions: the efficiency ratio and the dependency ratio [Salvary, 1991].

Data and methodology

Data for analysis of regional economic conditions are: output, population, unemployment, and public spending. Growth in regional output is a surrogate for regional economic growth. Exponential growth rates (regional output (V^g) and regional public spending (G^g) are to be calculated for each region. The growth rates can be calculated via 'exponential growth curve theory' [Glover 1930, 470-83).[20] As fitted to the serial data in this analysis, it is based upon the mathematical formula: $y = ar^x$; where y = dependent variable; a = a constant; r = a rate of growth; and x = a time period.

The efficiency ratio (ER) - the relationship between exponential growth rates of levels of unemployment (u^g) and population (p^g): u^g/p^g - is a measure of a region's ability to absorb increases in its labour force and/or combat unemployment. ER = 1 implies that relatively no deterioration of the unemployment situation has occurred. A region with a ratio of ER < 1 is experiencing economic conditions which are qualitatively sound.

The dependency ratio (DR) measures the relationship between rate of change in total public spending (G^g) and rate of change in total regional output (V^g): $(G^g)(V^g)^{-1}$. This ratio measures the quality of a region's growth; the higher the ratio (DR > 1), the poorer is the quality of economic growth. DR = 1 is preferable to DR > 1; the ideal situation would be DR < 1. DR = 1 signifies no change in the quality of economic conditions; DR < 1 signifies that a healthy economic climate is developing. Low economic growth leads to a higher dependency on public spending. However, since public spending is a vehicle for ameliorating ailing regional economies, a long-term increasing dependence, while not desirable, is not bad. However, since the amount of financial capital needed is generally greater than the amount available for public spending in any region, there has to be a concern for the tax burden implicit in such spending.

CAPITAL AVAILABILITY

A primary capital market can be beneficial, but an unbridled capital market is a luxury, not a

necessity. Banks are the facilitators of the flow of financial capital for the economic system, and interest rates are the means to ration financial capital for investment projects. While credit is a means to stimulate economic activity, if it is not controlled it becomes counter-productive. Banks, interest rates and consumer credit policy are items that have to be carefully managed. Banks in free market economies effectively transfer wealth from those who are the cogs of the economics system to those who are passive savers. The use of interest rates as a mechanism for controlling inflation has had serious consequences in terms of bankruptcies, unemployment, reduction of economic activities and exorbitant earnings for banks. Inadequate consumer credit policies' can encourage unwise spending and lead to un-necessary business fluctuations.

The general belief among developing countries is that foreign capital is necessary to enable the development of the domestic economy. This is false. The initiative has to be taken by these countries to use the available natural and human resources and to finance the projects that are necessary and beneficial to their welfare with the savings generated in those economies. Both Germany and France have used the banking systems as partners with business. This is the ideal situation. Banks are the means for accommodating domestic thrift, which enables the internal financing of domestic projects. Unfortunately, banks in many developing countries invest available savings abroad to demonstrate their sophistication, while inadvertently sacrificing domestic growth opportunities.

CLOSING COMMENTS

In the planning process, it is imperative that national planners pay particular attention to local voices in the determination of needs and means to achieve those needs. Often, consultants whose recommendations achieve success are those who have obtained solutions from the local individuals. Accordingly, much time, effort and funds can be saved if national planners provide for the full participation of local individuals in the planning process.

NOTES

1. Significant parts of the discussion in this section are drawn from Salvary [1990].
2. In the USA, the Economic Recovery Tax Act of 1981 permitted firms that were losing money to sell their tax benefits to other, profitable, firms. Since financial benefits are reaped by firms not contributing to new job creation, one can conclude that investment tax credit policy is inefficient.
3. On the use of factor costs to measure macro level productivity, see Kraus [1978] and Eisenberg [1974].
4. Problems encountered in the measurement of factor productivity are discussed by Nadiri [1970].
5. For an extensive presentation of measuring technical change, see Salter [1966, 46-47].
6. For studies conducted on the US economy, see Alberts [1979]; Clark [1984]; Schmalensee [1985].
7. The issues discussed by Benston [1985], Schmalensee [1985], Salamon [1985], Jacobson [1987], and Scherer *et al.* [1987] must be considered by countries following the US model of accounting. Various methods exist in accounting to enable financial accounting measurement to capture the reality of the economic circumstances of the observed phenomena [Salvary 1989, 15-16,71-75]. However, when accounting methods selected disregard the economic circumstances to be captured, measurement is not attempted and, hence, is not exacted [Salvary 1989, 69]. The major accounting measurement problem is the *arbitrary use of inventory and depreciation methods.*
8. Studies conducted by Clark [1984] and Schmalensee [1985], have used micro data to focus not on national fiscal policy issues but on the impact of specific factors (for example, unionization, market and market share) on the profitability of individual firms in their sample.
9. This assumption on profit maximization is consistent with Varian [1984, 584].
10. Inefficient input mix: a better input mix could have been used given the output produced. Inefficient output mix: a better output could have been produced with the given inputs used.
11. Technical inefficiency: failure to maximize output that would maximize profit given an efficient allocation of inputs.
12. The use of various indices is to refine measurements and overcome issues raised by Fenoaltea [1976].
13. Also, these measures are suggested by Diewert [1980, 263-264.
14. For evidence on the hoarding of labour, see Fay and Medoff [1985].
15. It is necessary to consider whether there are only a few firms in the industry. Efficient and inefficient firms alter their capacity utilization rates and inventory levels in concentrated industries over the cycle, while in competitive industries, price is adjusted rather than supply [Greer and Rhoades 1976, 1036].
16. Edmunds [1978, 30] used an approach similar to this approach, but conducted at the macro level.
17. Macro level measures to assess related policy issues are given by Coen and Hickman [1980, 218). In this study, the focus is on micro level measures for developing macroeconomic policies.
18. An 'ecologically-based theory' has been used in the development of models which can adequately quantitatively assess the quality of a region's economic conditions [Dendrinos 1984; Salvary 1991].
19. Significant parts of the discussion in this section is drawn from Salvary [1991].
20. 'Exponential functions are closely related to logarithmic functions' [Chiang 1964, 281], and seemingly are superior to the logarithmic functions for serial data [Glover 1930]. The exponential growth curve is not free from all defects [Spurr and Bonini 1967, 492-493].

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