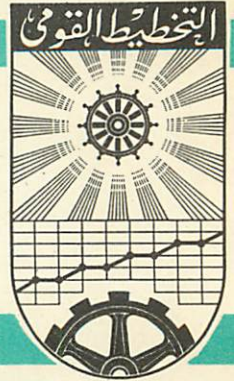


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BALANCED GROWTH CONCEPT AND ITS  
APPLICATION TO ECONOMIC PLANNING

by

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## THE BALANCED GROWTH CONCEPT

The train of thought leading to the idea of Balanced Growth in economic development can be traced back to the old days of classical economics. Adam Smith stated that "the division of labour is limited by the extent of the market". J.B. Say, believing human wants to be insatiable, formulated the famous law of markets and coined the dictum "production creates its own demand". John Stuart Mill said that if every increase of production is "distributed without miscalculation among all kinds of produce in the proportion which private interest would dictate, (it) creates, or rather constitutes its own demand". 1/ Mill's statement is a correct view of the modern formulation of the concept of Balanced Growth.

Allan Young in his celebrated paper "Increasing Returns and Economic Progress"<sup>2/</sup> showed that the extent of the market is mutually dependent on the division of labour, he argued that economic progress could be brought about by adopting more capitalistic roundabout methods of production and greater specialization of labour at any given level of technique, and by applying, whenever possible, new knowledge to production methods. The introduction of roundabout methods depends not on "area or population alone, but ... (on) .... buying power, the capacity to absorb a large annual output of goods".<sup>3/</sup> "The division of labour", Young concludes, "depends on the extent of the market, but the extent of the market also depends on the division of labour. In this circumstance lies the possibility of progress."<sup>4/</sup> And he goes on to remark that,

"In an inclusive view, considering the market not as an outlet for the products of a particular industry, but as the outlet for goods in general, the size of the market is determined and defined by the volume of production. If this statement needs any qualification, it is that the conception of a market in this inclusive sense ... carries with it a notion that there must be some sort of a balance, that different productive activities must be proportioned to each other."<sup>5/</sup>

The ideas of Adam Smith, John Stuart Mill and Allan Young were later taken by Ragnar Nurkse and Rosenstein-Rodan and expounded to

1/ Quoted by R. Nurkse in his book Problems of Capital Formation in Under-developed Countries, Oxford: Basil Blackwell, 1953, pp.11-12.

2/ Young, A., "Increasing Returns and Economic Progress", The Economic Journal, Vol. XXXCIII, No.152, Dec. 1928, pp. 527-554.

3/ Ibid., p. 533.

4/ Ibid., p. 539

5/ Young realized that strict interpretation of his arguments would mean that an increase in the supply of one commodity is an increase in demand for other commodities, and every increase in demand must evoke an increase in supply; and was therefore quick to point out that in the real world the responses are not so automatic and development encounters obstacles in the form of human resistance to changes and of capital shortage which may take time to rectify. Young, A., Ibid., p. 539



suit the problems of planning for economic development in under-developed countries.<sup>1/</sup>

Nurkse considers the narrowness of the market and the lack of demand due to the low per capita productivity as the most important factors inhibiting the growth of investment and output in under-developed economies. In order, therefore, to stimulate investment, foreign or domestic, it is necessary to expand the size of the market. But since the size of the market is a function of the volume of production, economic growth should be possible through the cumulative effect of income on production and production on income. Nurkse rechristened this idea as Balanced Growth, and went on to point out that Say's law of the markets should not be interpreted to mean that increased production in one industry constitutes its own demand:

"Even though in economically backward areas Say's law may be valid in the sense that there is no deflationary gap, it never is valid in the sense that the output of any single industry newly set up with capital equipment, can create its own demand. Human wants being diverse, the people engaged in the new industry will not wish to spend all their incomes on their own products."<sup>2/</sup>

The law is best interpreted to mean that a given quantity of resources, when applied to produce a number of different products, was likely to create income which in turn constituted the demand for the output. "A more or less synchronized application of capital to a wide range of different industries", will enlarge the market in under-developed countries and provide an escape from the deadlock of small markets, low productivity and insufficient demand. "People working with more and better tools in a number of complementary projects become each other's customers".<sup>3/</sup>

The complementarity of projects stems from the diversity of human wants and to that extent, it may be said, such wants are determined independently of the pattern of production. To ensure balance the latter would have to be adjusted to the former. From this we move to the general criterion that the expansion of output, and therefore the allocation of resources, should be limited or conditioned by the demand pattern which evolves as growth of income

<sup>1/</sup> See Nurkse, R., Problems of Capital Formation in Under-developed countries, Oxford: Basil Blackwell, 1953. Rosenstein-Rodan, P.N., "The Industrialization of East and South-east Europe", The Economic Journal, Vol. LIII, No. 210-211, June, Sept., 1943, pp.202,212. Though Nurkse's book was primarily concerned with the problems and obstacles of private investment in under-developed economies, the gist of Balanced Growth doctrine is best given by him. We will, therefore, discuss his ideas as representative of the ideas of the proponents of the approach.

<sup>2/</sup> Nurkse, R., Op. Cit., p.9.

<sup>3/</sup> Nurkse, R., Op. Cit., p.11.



take place . Available funds, according to the Balanced Growth doctrine, must, therefore, be invested in such a way as to increase output of the various products by the required proportions in accordance with the pattern of demand.

### Balanced Growth and Development Programmes of Under-developed Economies

Investment in a certain project considered individually and in isolation from others may well be discarded, according to the Balanced Growth approach, as unprofitable. In an under-developed country, for example, the demand for shoes at the prevailing level of income may be insufficient to absorb the production of a new shoe factory. It is possible, however, to increase the sale of shoes by decreasing the price of the commodity or increasing the income of the consumers. If we decrease the price of shoes, income remaining the same, the increase in sales depends on the price elasticity of demand for shoes. In such a case all that would happen is a redistribution of consumers' outlay, increasing the share of shoes in a family's budget and decreasing others. But the operation of a new shoe factory will add to the income stream as a result of the payments made to the factors employed in the new project. This added income will not be spent wholly on shoes, of course, but distributed over a number of commodities depending on the tastes and preferences of income recipients. The demand for shoes will most likely be insufficient, therefore, to absorb the products of the new factory while the demand for other goods may increase. Now the discrepancy, according to the Balanced Growth approach, could be avoided by making simultaneous investments in a number of industries. The products of these industries will, or are expected to, rise in such proportions as are indicated by the estimates of the probable increase in demand as a result of the increase in income generated by the new projects.<sup>1/</sup> The increase in demand needed to absorb the products of the shoe factory at the prevailing prices will therefore require an increase in disposable income such that the demand for shoes, given its income elasticity of demand, will rise by an amount equal to, or more than, the increase in the production of shoes.

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<sup>1/</sup> Nurkse admits that ordinary price incentives may bring about balanced growth (growth according to pattern of demand) by small degrees. This method may be too slow for anxious under-developed countries, and wrought with disproportionalities. It is still true, however, that disproportionalities of one kind or another that Mill warned against, "have been a feature of the cyclical booms through which economic progress was achieved by private enterprise." Nurkse, Op. cit., pp. 12, 16.



This is one way of interpreting Balanced Growth. The approach depends on analysis of the patterns of consumption and uses the analytical tools of factor supply elasticities as well as the essential pattern of investment in facilitating growth. The difference between autarky and this approach is also made clear by its proponents. Though economic development under this approach is likely to concentrate, at the beginning, on local requirements, the increase in the level of productivity and hence real purchasing power will,, in the long run, help international trade.

There is another way of looking at Balanced Growth. A large part of total production goes to meet intermediary demands rather than consumers' final demand. But since the purpose of production is to meet the final demand of consumers, and since a unit of output of a commodity requires a number of inputs of known quantities, it is possible to estimate, at least in theory, the requirements of intermediate inputs needed for a given final output or demand. In other words, in order to meet a certain level of demand for various products, it is necessary to have a certain level of output in each and every intermediary activity. The appropriate levels of intermediate outputs can be calculated given the co-efficient for each input per unit of output. The planning of intermediary output, and hence investments, in such a manner as to meet the requirements for producing a given final output is another way or viewing Balanced Growth. It is an input-output approach to problems of planning.<sup>1/</sup>

#### Theoretical Applications of Balanced Growth Approach

Increasing attention is being given to the possibility of using the principle of Balanced Growth in planning for development. Man-

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<sup>1/</sup> Input-output tables show how much the output of a given industry goes to each of all other industries and to consumers. It also shows how much the same industry buys from each other industry and how much it pays to factors of production in wages, salaries, etc. From such a table calculations can be made from which the effects of a given change in a particular industry on all other industries can be estimated. For example, if there is an assumed increase in construction, the likely increase in purchases from the lumber, cement, paint and other industries can be estimated and also the effects from the expanded operations of those industries on some other industries can be shown. In this way it is possible to get a quantitative idea of the total effect of any change in production.



delbaum's book "Industrialization of Backward Areas"<sup>1/</sup> is an outstanding attempt in this direction. He tried to work out a developmental model based on Balanced Growth for some East and South-east European countries. Mandelbaum defined his development objective in terms of diverting the surplus agricultural labour to industrial activities. In his own words, he wanted "to achieve a rate of industrialization sufficient to absorb in industrial employment the natural increases of population within say a generation".<sup>2/</sup> From an estimate of the rate of increase of the labour force and the present surplus labour in agriculture, and assuming a rate at which the present surplus and the probable increase are sought to be absorbed outside agriculture, Mandelbaum was able to measure his objective in terms of an annual increase in non-agricultural employment. This increase in employment was then distributed among the various non-agricultural activities of the economy according to a pattern prevailing in an advanced country which could be considered plausible for the planning country.<sup>3/</sup> He did make allowances, however, in the distribution of employment, for the high level of demand for construction industries in a newly developing economy.

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1/ Mandelbaum, K., "Industrialization of Backward Areas" Oxford: Institute of Statistics, Monograph No. 2, Kelly & Millman, New York, 1955. Another attempt is that of Chenery in his paper "The Role of Industrialization in Development Programs", American Economic Review, Vol. XLV, No. 2, May, 1955, pp. 40-57. Chenery does not deal with industrialization versus agriculture as the title of the paper may suggest, but modifies his Social Marginal Productivity criterion for selection of projects among all sectors. He admits that the S.M.P. criterion for investment planning favours primary production in under-developed countries especially when external economies are ignored and goes on to present a comprehensive model based on Balanced Growth. He takes into account in his new approach the total effect of an investment programme, the interdependence of the sectors and the structural disequilibrium in the use of the factors of production in less developed economies. "The demand for basic materials", he says, "depends on the demand for finished goods; the demand for minerals and agricultural products depends on the first two categories; and finally, the demand for fuels, power, transport and producer services depends on all of the others. To assess output requirements we start from the top of the list; and to see the effects of external economies on prices we start from the bottom. See Chenery, H.B., Ibid., p. 56.

2/ Mandelbaum, K., Op. cit., p. iii.

3/ Mandelbaum, K., Op. cit., pp. 21-25.



In the next stage, Mandelbaum assumed, for each of the industries among which the surplus labour was distributed, a standard coefficient for gross output, investment and value added. The assumptions were again based on actual ratios prevailing in countries with comparable situations. Given these ratios the capital and output requirements of the different industries corresponding to the level of employment in each were calculated. To express this procedure in symbols:

$K_1, k_2, k_3, \dots k_n$  denote investment per worker in industries 1, 2, 3, n.

$V_1, V_2, V_3, \dots V_n$  output per man in industries 1, 2, 3, ..., n.

$g_1, g_2, g_3, \dots g_n$  value added (net output) per worker in industries 1, 2, 3, ..., n.

Value of total output therefore =  $V = X_1 V_1 + X_2 V_2 + X_3 V_3 + \dots X_n V_n$

Where  $X_1, X_2, X_3, \dots$  etc., denote the quantity of the labour to be absorbed in industries 1, 2, 3, ..., n.

Total capital requirement =  $k = X_1 k_1 + X_2 k_2 + X_3 k_3 + \dots + X_n k_n$

Total net output or income generated in the new industries =

$$G = g_1 X_1 + g_2 X_2 + g_3 X_3 + \dots + g_n X_n$$

The newly generated income was then distributed among the major categories of the gross national product, viz., wages and salaries, profits, corporate taxes, corporate savings and depreciation. Demand results directly from the incomes paid out (wages and profits) and indirectly more raw materials, power and capital equipment will be needed. Both the final and intermediate demands determine together the kinds and quantities that should be produced. A balanced programme should yield the products in the quantities demanded.

Total demand was then divided into demand for current and capital requirements. The demand for current requirements was further divided into direct demand for finished goods and derived demand for intermediary products. The first was estimated from family budgets and consumers' surveys and the second, for lack of detailed input-output relations, was roughly calculated. The demand for capital requirements must be broken down according to the groups of industries whose products are needed for the purposes of capital expansion."1/

1/ Mandelbaum, k., Op. cit., p. 55.



From all these calculations, the total demand for goods and services was estimated.

At this step the patterns of demand and supply, as derived from the calculations, were compared. Discrepancies were found and attributed to the fact that the model was built on the basis of employment without regard to market requirements. Adjustments were then made to match the supply and demand patterns. For this purpose the number of persons to be engaged in each industry was estimated on the basis of the same ratios assumed at the first stages of the model, and the pattern of the distribution of labour was readjusted so that any increase of production over demand should be in certain specified industries, the requirements of certain others must be covered and any deficit should be concentrated in the rest. This distribution was still found wanting because it ignored the availability and scarcity of natural resources and the structure of costs. Mandelbaum found it then necessary to make, as a final step, some allowances for regional and international specialization on the basis of comparative advantage. While recognizing the dynamic nature of the principle of comparative costs, he suggested as a rough guide that under-developed countries should start with labour intensive methods in implementing their programmes. This guide was subject, however, to important exceptions depending on the type of demand that needed to be satisfied. Given the final distribution of labour, after taking into consideration the resource endowments of the country and the structure of costs, the calculation of capital requirements and output flows became a matter of multiplying employment in each industry with the corresponding standard co-efficient of capital and output per head.

Mandelbaum's model reveals a clear grasp of the circular relationship between production, income and demand, the inter-dependence of the various sectors, and the benefits of international specialization.

### The Analysis of Demand

Demand analysis figures very highly in the Balanced Growth Approach to the problems of allocation of resources in under-developed countries and therefore a brief word on this topic may be in order.

Final or consumers' demand is probably the most important for the allocation of resources and the most difficult to assess. Traditional theory deals with the relationships between price, income and demand and recognizes tastes and preferences as the long run determinants of consumers' behaviour. But the use of demand analysis for development purposes made us aware of other non-economic factors in



determining demand. The other factors to be taken into consideration, even in the short-run period, are the contractual commitments, the habits of consumers, the anticipated movements of prices, and government and business policies. We will discuss briefly the role of government and business in determining the pattern of demand.

Government and business policies set limits to the choices of consumers. Business through its sales promotion activities influences the pattern of consumption.<sup>1/</sup> In a planned economy the decision of what to produce can be decided, to some extent, on a political basis and then the pattern of consumption can be influenced accordingly. Sales promotion activities could be used, for example, to favour products of domestic industries in order to save foreign exchange. Government taxation and income distribution policies affect the size and pattern of consumption. A distribution of income which reduces inequalities may tend to increase the demand for essential products and decrease the demand for luxury items. And if the government taxes the rich and provides social improvements this may create a different pattern of consumption than if the redistribution of income was effected through direct transfers. Obviously, the effects of government policies in under-developed countries on consumption patterns could hardly be over-emphasized. For all these reasons demand analysis can become a very difficult task and the determination of the pattern of investment cannot be made, therefore, with any certainty. Moreover, the lack of elaborate statistical data in under-developed countries makes the forecast of demand more difficult.<sup>2/</sup> But the use of whatever data exist may be the only way to approximate the kind of information needed. The available statistical data, supplemented by personal observations and interviews may sometimes yield a surprising amount of information as regards the pattern of consumption. Estimates based on such primitive techniques may still suggest

<sup>1/</sup> It is interesting to note here Schumpeter's view that wants do not "arise regularly and systematically from consumers' initiative.. in such a way that this initiative constitutes one of the main motive powers of economic evolution ...". "All change in consumers' tastes is incident to, and brought about by, producers' action." (See Schumpeter, J., Business Cycles, A Theoretical, Historical, and Statistical Analysis of the Capitalist Process, Vol. I, McGraw-Hill Book Co., Inc., New York, 1939, pp. 73-74). If this is true, the government in planning for development can influence the composition of demand and therefore output in the way it deems necessary. The idea of balanced growth is obviously not incompatible with complete central planning. It simply demands that output should match the pattern of demand irrespective of how demand is influenced or determined.

<sup>2/</sup> See I.B.R.D., Iraq, Op. cit., pp. 114-117 on the deficiency of statistics; and Syria, Op. cit., pp. 30-33.



that the demand for a given product is too small to justify investment while the demand for another product in the local market is quite good. In this way estimates give a more likely forecast of what will happen to market demand for certain products than can be had without such analysis. The lack of adequate data in under-developed countries need not preclude a Balanced Growth approach to problems of planning. It would obviously be wasteful, even if possible, to make a detailed analysis of demand or to build up an inter-industry input-output table for an under-developed economy. A general notion of the kinds of products needed based on rough estimates of demand, general knowledge and common sense may serve the purpose in hand by showing the limits of the market potentialities and suggesting points of concentration.

The investment allocation under the approach of Balanced Growth depends on the resource availabilities, the complementary requirements in all sectors of the economy and the market conditions: The approach presents a method of selection between sectors and among individual industries compatible with all stages of development and without prejudice to the degree to which any sector, agriculture or industry, will be indicated by the analysis. The greatest handicap against the implementation of a balanced programme is the difficulty to secure at one time the managerial ability, equipment and manpower as the various projects require.