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**RAPPORTEUR'S REPORT**  
**ON**  
**THEORY OF ECONOMIC GROWTH IN OVER-POPULATED COUNTRIES**

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The topic of discussion lends itself to a three-fold classification : (i) A review of growth models; (ii) Empirical investigations; and (iii) Strategy for agricultural development in over-populated countries.

I. MODELS OF ECONOMIC GROWTH

The models discussed in different papers fall into four broad categories :

- (a) Papers which emphasize a critical minimum size of investment effort (based on models of Leibenstein, Adelman, Hirschman, Rosenstein-Rodan, etc.)
- (b) Those which focus attention on the pool of unused resources in subsistence sector in the form of surplus labour which could be used to step up investment in the capitalistic sector (based on the models of Nurkse, Lewis, Ranis-Fei, etc).
- (c) Theories which emphasize the balanced growth approach.
- (d) Models which emphasize the rational reorganization of agricultural resources, especially land (based on models of Georgescu-Roegen, Dandekar, Doring, etc).

Theories dealing with the critical minimum effort and the 'big push' have been discussed in two papers, one by Baidyanath Misra and the other by T.K. Meti. The need for large investment to overcome indivisibility and diseconomies of scale and to break the initial barriers to growth and to generate sufficient momentum in the economy have been recognized. However, the size of the minimum effort and the nature of investment have not been examined in detail. It may be noted that the critical minimum effort does not presuppose some absolute magnitude of effort but contains a 'built-in time dimension,' which permits the size of effort to vary with the length of the take-off period.

The application of these models under agrarian economies is limited by the huge investment needed to produce an impact. Also, social infra-structure and administrative machinery need to be geared to this stupendous task. Even if

capital restraints are removed for the leading sectors, there is no guarantee that it will not perpetuate dual economies owing to the absence of a connecting ladder between the developed sectors and the subsistence sector.

The growth models of Lewis, Ranis-Fei and Nurkse have engaged the attention of a number of authors—V. Rajagopalan, G. C. Mandal, M. V. George and A. J. Singh, Bandhudas Sen and S. L. Shah. These theories generally recognize the existence of redundant labour and disguised unemployment in the subsistence sector. Therefore, in the first phase, farm workers who are not adding to farm output are shifted to the industrial sector and the economy moves along its balanced growth by making use of under-employed agricultural labour force through increases in agricultural productivity. In the second phase, workers whose marginal productivity is positive but less than their wages are shifted to the capitalist sector. If the transfer process continues, a point is reached where farm workers producing output equal to their wages are shifting to industry. This marks the commercialization point and the beginning of the third stage. Thus “we enter a world in which the agricultural sector is no longer dominated by non-market institutional forces but assumes the characteristic of a commercialized capitalistic system.”

Mandal takes issue with the concept of surplus labour in the subsistence sector. To him what appears as a surplus labour is nothing but a full employment equilibrium at a low level of productivity and a low level of technology where the marginal productivity of labour is equal to the subsistence wage. An effective or real labour surplus emerges only after the emergence of a product surplus (subsistence farms cannot release labour for non-farm sector where surplus making farms can do so). Thus, labour surplus is the consequence of product surplus rather than causing it. Therefore, the more relevant issue is the adequacy of an agricultural surplus to support the transfer of certain amount of labour force from agriculture to the industrial sector.

Mandal has also attempted a mathematical model to support his theoretical framework. Though his agricultural production and consumption functions are over-simplifications, and his model does not possess the elegance and sophistication of Ranis-Fei three stage model, he has succeeded in establishing his point.

Following this route of agricultural surplus supporting the transfer of labour to the capitalist sector, some transfer of labour is thus recognized. Thereafter, what happens to the wage rates, capital-labour combinations and the rate of return on invested capital on different sectors is not spelt out. Mandal's model does not show whether economy's actual growth path will exhibit capital broadening or capital deepening. Certainly this analysis could be further advanced to fit Lewis's description of two-stage model or three-stage model of Ranis and Fei.

In a similar vein, Sen has argued that the process of labour transfer depends on the absorption capacity or the rate of growth of the non-farm sector. He thus seeks to place agriculture's capital and product contribution in a better perspective. The creation of the agricultural surplus through increase in productivity and income in the farm sector and its diversion to the non-farm sector are essential for the growth of the non-farm sector. Sen concludes that the major limiting factor in the growth of the non-farm sector is clearly the overall lack of capital.

George and Singh bring out the problems of labour reallocation as economic development gets underway. The transfer costs of labour and the problems of developing basic skills in the primary sector before actual transfer takes place need detailed examination. Although their criticism of Ranis-Fei model has some relevance, the authors fail to discuss the form of capital investment in the rural sector which would promote the kind of basic skills which are required in the non-farm sector.

Curiously enough, in a model where transfer of surplus labour from the subsistence sector to the capitalist sector is the corner stone, there is very little discussion in the papers on the costs of transfer of labour, particularly in terms of opportunity cost of the family labour engaged in farm production in the context of Indian culture and social organization. Socio-cultural barriers are not bottlenecks for growth in Ranis-Fei model, but they certainly are in the less developed over-populated countries. Rajagopalan has touched this point in his paper and has rightly pointed out that growth inhibiting features of social structure and cultural patterns need thorough investigation. Needless to say that positive features of these organizations are even more important for investigation because they can help the policy makers to promote the right kind of growth promoting institutions.

The assumption of a constant real wage is necessary in the Ranis-Fei model, to increase the rate of profit in the capitalist sector and for capital formation. This is challenged by Rajagopalan who, taking some clues from Leibenstein, Schultz and Oshima's models, argues that increases in real wages increase productivity and shorten the shortage phase, and brings commercialization of agriculture earlier. Besides, a higher wage share leads to widening of the product market and economies of scale in production.

Another significant contribution in Rajagopalan's paper is the role of non-neutral technology. On account of the shortage of capital in under-developed countries, capital deepening technologies are unsuited to sustained growth. Instead, labour intensive technologies are necessary in over-populated countries up to the point of commercialization of agriculture. After that stage is reached, capital deepening is required as labour-saving technology turns out to be a necessary adjunct for rapid economic growth.

The concept of balanced *versus* unbalanced growth was examined in two papers. Using pure economic calculus, Misra admits that unbalanced growth is inevitable to exploit economies of scale but he hastens to add that economic practice cannot be based on abstract analysis. He argues that unbalanced growth will create social tension. Further, immobility of labour and low level of capital absorption capacity of the under-developed economies will make it difficult to follow an unbalanced growth approach. After discussing in detail these implications of unbalanced growth, Misra concludes that because of the peculiar conditions prevailing in the under-developed countries, the pattern of development needed to transform the economy seems to be a combination of several variables such as increase of capital per labour, improved organization, reorganization of agriculture, control of population and widening of the market. He thus calls for a multi-dimensional approach, which is nothing but a variant of the balanced

approach to development. A critical reading of his paper would show that he has very little quarrel with the arguments of balanced growth.

Shah also emphasizes the need for maintaining inter-sectoral balance between agriculture and social overheads and agricultural input manufacturing industries.

It may be noted that both balanced and unbalanced growth theories recognize the need for development of different sectors in such a way that the growth in each sector is equal to the demand for its products; that one sector does not act as a drag on the rest of the economy. This is because income elasticity of demand for industrial products is greater than one and for agricultural products is less than one (Lewis).

The importance of developing a new agrarian structure and a socio-cultural milieu is emphasized by Gyaneshwar Ojha as a contributory factor for increasing labour productivity. Rajagopalan also points out that lack of economic opportunities and risks and uncertainties around economic and social institutions are real bottlenecks for economic growth.

## II. EMPIRICAL INVESTIGATION

A number of contributors have attempted to apply the theoretical models to the Indian economy. Sen used the Dovring measure of the coefficient of differential growth to measure the speed at which the non-farm sector is growing and the speed of transfer of labour from agriculture to industry. He found that the coefficient of growth was merely 0.23 during 1951-1961. He concluded that the growth of the Indian economy has been limited not by the problems of labour transfer, but by inadequate growth of the non-farm sector.

George and Singh also show that the take-off stage in Indian agriculture has not been reached, as no real transformation has taken place in the rural sector during the three Plan periods. Agricultural productivity per worker has not increased. In contrast to several other countries, there has occurred a marginal shift of labour into agriculture. Further, unlike the experience of other developing countries (like Japan in the early stages of its development) a process of capital deepening has been observed in Indian industries instead of capital shallowing during this period. This resulted in a failure of the non-farm sector to absorb surplus labour from the rural sector. Inherent in this argument is the implicit assumption that investment in capital intensive industries is a wrong move in over-populated countries not because it fails to bring about growth—for generally it does—but because they are not growth-sustaining (Georgescu-Roegan). The power to sustain growth, thus, is the only valid criterion of investment in under-developed countries.

Amiyamoy Chatterjee also provides some statistical evidence to show that productivity in Indian agriculture has not increased significantly and that it has been a drag on the rest of the economy.

I. J. Singh, on the other hand, argues that the take-off stage in agricultural development was reached around 1954-55; but since then it has become stagnant

again due to adverse natural conditions. This view seems to contradict the Rostovian growth model where the take-off stage leads to sustained growth. It may, however, be noted that if the take-off period is lengthened due to adverse conditions, and population pressure continues to grow, the end of take-off period may not be reached to promote sustained growth in the economy.

### III. THE STRATEGY FOR AGRICULTURAL DEVELOPMENT

Although the unbalanced growth theories emphasize the importance of a 'big push' focussing on certain key sectors for the achievement of a so-called 'turning point' for bringing about economic transformation, economic practice in under-developed countries does not support such an abstract analysis. On the basis of historical experience and the peculiar conditions prevailing in the under-developed countries, the strategic role of agriculture is generally recognized.

S. C. Jain details four conditions for development of agriculture and productivity, *viz.*, (i) resource approach to planning; (ii) creation of favourable terms of trade in agriculture through higher prices; (iii) generation of savings after meeting consumption requirements; and (iv) investment to match needed inputs. His arguments boil down to the need for farm planning at the village level, which should in turn form the basis of district, State and national plans. However, his contention that the level of consumption has been stabilized in the Indian economy has not been supported by facts. Similarly, his thesis that the terms of trade have been favourable to agriculture during the past 15 years is debatable.

George and Singh mention among the strategy for agricultural development such non-conventional inputs as labour intensive technology, education, research, extension, institutional factors like land tenure reforms, markets, etc., and the need for forward and backward linkage between industry and agriculture. Also, the need for developing labour intensive technology and the process of capital shallowing even in the industrial sector.

The implications of labour use and productivity for development of agriculture itself have not been extensively discussed by any author. However, empirical studies on farm planning for higher incomes conducted in the Punjab Agricultural University substantiate the view that introduction of technological improvements such as high yielding Mexican wheat, hybrid maize, hybrid bajra and improved paddy varieties such as T. N. 1 and I. R. 8, and the increased use of technological complementary inputs such as fertilizer and water will entail large additional labour inputs. A careful analysis of this yield increasing technology and intensive use of technological inputs shows that Indian agriculture will move in the direction of a more labour intensive production function for some time to come till a stage is reached when Indian agriculture gets commercialized, and necessitates capital deepening rather than capital broadening.

Ojha after examining the pros and cons of different forms of farm organization—co-operative, joint, collective and State farms—concludes that none of these could solve the problems of under-employment, low productivity and low capital formation in the rural sector. Having rejected the feudalistic as well as the capitalist and socialistic pattern as unworkable, he suggests the creation of 'family



farms' of economic size. This is to be followed up by measures to create more employment through development of cottage industries, rural public works programmes, supply of agricultural inputs, etc.

It may be mentioned that whatever the form of farm organization, following the farm management approach, it must ensure increased output and productivity in agriculture. Certainly, output and productivity of traditional sector could be increased primarily by enhancing the efficiency of labour and other resources that are present in large quantities and which are difficult to transfer in the early stages of development.

#### IV. ISSUES FOR DISCUSSION

For the purpose of group discussions, the three-fold classification used in the report could be taken as the starting point. In addition, a few specific issues need further examination.

Almost all the growth models emphasize the contribution that agriculture can make to overall economic growth. Perhaps the question can be reversed to ask : What is the role of industries in fostering agricultural development ? What type of industrial complex is needed which will prevent the perpetuation of a dual economy and instead support and foster the development of the primary sector ?

2. The existence of disguised unemployment is taken for granted in all these models. Do we have enough data to support this ? Is this phenomenon the consequence of a backward technology or the cause of it ?

3. What are the social and economic implications of a balanced *versus* unbalanced growth approach to economic development in less developed and over-populated countries ?

4. What type of technology is appropriate to early stages of economic development: capital intensive or labour intensive and yield increasing for achieving rapid economic growth ? What type of empirical data do we have to support one or the other ?

5. What methods would we suggest to mobilize capital and output surplus generated in the agricultural sector so that we can utilize them in the non-farm sector—or the farm sector, itself ? Would we recommend additional agricultural taxes at a time when political parties are clamouring for abolition of even the land revenue ?

6. How do faulty land tenure and size of the farm inhibit the development of modern technology in agriculture and agricultural development ? The question may well be raised : What does long term development in agriculture require ?—maximization of returns per worker or per land area, appropriate to different stages of development.

7. Is the size of the farm a pre-requisite in the adoption of yield increasing technology ? This issue assumes importance if it can be shown that small size



*per se* inhibits adoption of modern technology. To answer this question, characteristics of new farm technology require threadbare discussion. Which of these new inputs are indivisible and cannot be used profitably on small farms ? If it could be shown that almost all the new inputs are highly divisible and can be used equally profitably on small as well as large farms, then intensification of these inputs would not affect the competitive efficiency of farms of different size.

Once the characteristics of yield increasing technology are determined, we should examine the question which agencies will produce such technologies if the farmers cannot do it ? Commercial organization could make some contribution in this direction but most of the investment outlay will have to come from the resources of the State and Central Governments. In that case the Government could be well advised to step up investment in agricultural research and education which would further promote yield increasing technology.