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Vol XXIII
No. 1

ISSN 0019-5014

JANUARY-
MARCH
1968

INDIAN JOURNAL OF AGRICULTURAL ECONOMICS



INDIAN SOCIETY OF
AGRICULTURAL ECONOMICS,
BOMBAY

SUMMARIES OF GROUP DISCUSSION

SUBJECT I

AGRICULTURAL DEVELOPMENT IN DEVELOPING COUNTRIES —A COMPARATIVE STUDY

RAPPORTEUR : C. H. SHAH*

The group started off the discussion allowing free scope to participants regarding the points to be touched within the framework given in the Rapporteur's report. The issues were not taken up seriatim nor did we adhere to any agreed sequence. Since the group composed of sections of people with varying backgrounds of academic interest, institutional allegiance and field experiences consisting of sales, extension, technological research, finance, etc., rather free discussion proved of particular avail; it helped to collect the views of various participants regarding the growth experiences and growth pre-requisites. Out of this discussion on the first day emerged a list of important factors which in the opinion of the members of the group were of direct help for promoting growth of agriculture in developing economies. Whereas, the original objective of the subject for discussion was to compare experiences of different developing economies in regard to growth of agriculture, the participants who contributed in the discussion drew freely from experiences of specific regions within our own country.

A basic question was raised at a fairly early stage in the discussion, regarding the comparability of the growth rates and factors associated with growth in different countries. Two points were mentioned. Firstly, it was pointed out that there was a need for exercising a good deal of caution in a comparison of experiences of two countries, experiencing growth. Since no two countries are alike in physical, social or for that matter political situations, and there are also differences in traditions and traditional outlook, a comparison of their growth experiences would not lend easily to generalizations. Secondly, different countries, at any given point of time, would not always be in a comparable stage of development, those passing through the initial stages of change would falter in many directions and face bottlenecks in many respects. Comparatively those in advanced stage would have relatively greater momentum in many respects. Hence a comparison between two countries in different stages of growth is not valid. What applies to different countries applies to different regions in a country too.

In addition to the general difficulties of a comparison of growth experiences, it was pointed out with specific illustrations that necessary caution was not exercised by some of the contributors of the papers. A definite disadvantage of this lapse was that a reader was unable to draw confident inferences from specific comparisons given by the authors.

Regarding the general difficulty of the comparison, it was pointed out that the objectives of a comparative study of growth experiences of different countries

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would include among others, an investigation into existence or non-existence of the basis for comparison. If one starts from the basis that there exists no ground for valid comparison between different countries passing through the experience of growth, we would be denied even the preliminary knowledge about the specific factors that obstruct such comparisons. To illustrate, it is of use to know why experiences of Taiwan or Pakistan are not comparable to that of India. Whereas the basic objection to the comparison was accepted to be important, the group was of the opinion that such comparisons are not devoid of all utility. The discussion that ensued subsequently showed that it was possible to collect a bundle of key factors that are of direct help to growth of agriculture on the basis of experiences both at home and abroad.

The factors mentioned by different members of the group were not new; they are all known to most of us. They included land reforms, education, extension, technical research, investment in irrigation, fertilizer and other new physical inputs including insecticides. Attention was drawn to the importance of enlightened and efficient administration, and evolution of suitable organization in different fields, such as marketing, extension, sales, finance and research. Stable and profitable price level was also indicated to be an important pre-requisite of growth of agriculture.

As the discussion progressed, it became evident that though the factors mentioned above were of direct importance to growth of agriculture, none of them individually or jointly, had unique importance. Variation or some amount of substitutability among them can be observed from actual growth experiences. In particular, literacy and extension were believed to have a degree of substitutability between them, at least at an early stage of growth. This was illustrated from experiences of different regions in India. This illustration, however, would not deny the contribution education would make in the long run.

Though land reforms were mentioned to be a growth promoting factor, a doubt was expressed regarding their exact role in specific instances. Mexico was cited as a specific case where contribution of land reforms to growth, either as a pre-requisite or as a dominant factor was considered suspect. Some members of the group, notwithstanding the Mexico experience, enthusiastically supported the importance of land reforms to growth. They leaned for support to their case, on Taiwan in international comparisons, and West Bengal in comparisons at home, the former for positive and the latter, by contrast, for negative contribution. Equal enthusiasm was expressed regarding usefulness of extension by those who had field experience of extension work. While they admitted that the degree of efficiency in extension work varied where efficient extension work was put in, the reward was not wanting.

In the second sitting, the group focussed attention on the possibility of varying emphasis on different measures. During this discussion also, participants returned frequently to the common theme that isolating the importance of one factor from that of the others was difficult, as most of the factors mentioned were observed to be together in most cases of growth. According to many of them, this was as it should be, particularly in the context of countries planning for rapid economic growth from low level.

Ideally, it was suggested that an economic calculus regarding the relative pay-offs of different growth factors is inevitable for efficient use of limited human and non-human resources. It was pointed out that a beginning in this direction has been made. In particular, a detailed methodology has been evolved for measuring social costs and benefits of education and technical research. Similarly efforts may have to be made regarding measurement of net contribution of other factors such as land reforms and extension. Some members of the group expressed a view that ultimately this might be the proper criterion for varying the extent of efforts on different growth measures. In the immediate context, however, one faces a somewhat difficult situation. If one can simulate experimentally the conditions in which a given growth factor is allowed to expand beyond the expansion of others, a pay-off associated directly and indirectly with it alone, can be measured with some confidence. But if most of the growth promoting factors are found in a real situation to expand together, we can find the pay-off for the bundle and not for the individual factors. A comparison of the pay-off of individual factors in such a case becomes impossible. From the pay-off of individual factors that have been worked out for some countries no unique inference can be drawn for the applicability of their results to other countries where levels of other factors not included in these studies differ.

On a different plane, issues were raised regarding the contents, in terms of quality, direction and intensity of different measures. It was readily accepted that a wide variation exists regarding the quality and intensity of extension in different countries and in different regions in the same country. Whereas partly this variation reflects a varying degree of organizational ability, in major part it reflects the different degree of availability of trained personnel and financial resources. In regard to research, it was emphasized that failure to appreciate the types of problems facing a particular community was the major drawback that prevented the maximum return out of the given research efforts. It was also held that the division between the basic and the non-basic research was less relevant than the division between the problems of direct relevance for growth and those of purely professional interest.

The group ended the discussion on a pessimistic note regarding the possibility, at the present stage, of evolving a bundle of measures of proven merits for common application. Nor was the group in a position to indicate a definite process to vary the combinations of the components of the bundle. This largely reflects the difficulty which currently the thinking on the subject experiences. But it also provides a spur for future research on this challenging problem.

SUBJECT II

THEORY OF ECONOMIC GROWTH IN OVER-POPULATED COUNTRIES

RAPPORTEUR: A. S. KAHLON*

The group discussed some of the issues raised by G. C. Mandal in his paper¹ in sharp contrast to the findings of Nurkse, Lewis, Ranis and Fei and noted some errors in his mathematical note:

Agricultural production in this note is governed by the relationship :

$$Y = a + bL - cL^2 \quad \dots \quad (1)$$

Where Y = total product,

L = quantity of labour employed,

a, b and c are constants.

L or labour force at the point of maximum production is equivalent to $\frac{b}{2c}$ and $Y = a + \frac{b^2}{4c}$. So far the results are all right, but thereafter Mandal's calculations relating to output of the reduced labour force $\left(\frac{b}{2c} - R\right)$ do not seem to be right.

Substituting $\left(\frac{b}{2c} - R\right)$ for L in equation (1), we get $\frac{b^2}{4c} - cR^2$ and not $\frac{b^2}{4c} - bR + cR^2$ which Mandal gets.²

The results that Mandal sets out to establish, therefore, do not follow.

The group concentrated its discussions on the two-sector model of Lewis and the refinement that was built on this model by Ranis and Fei. In this context, the concept of surplus agricultural labour and its marginal productivity was discussed. Surplus labour implies that some people could be withdrawn from the traditional sector without reducing output. With fixed amount of land, there will be some size of population which is large enough to render MPP zero.

The empirical evidence regarding marginal productivity of labour appears to be mixed. Some members of the group shared the views of Viner, Schultz and quoted the work of Arrow, Chenery and Solow to show that with some production functions, with positive elasticity of substitution, MPP never falls to zero. They were of the view that agricultural labour could not be withdrawn without reducing output in the agricultural sector.

It was felt that a sharp distinction should be drawn between units of labour hours and units of population and stock of labour and flow of labour to obtain more realistic estimates of MPP in these models.

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1. "Agricultural Surplus, Labour Surplus and Economic Development—A Theoretical Approach," this *Journal*, Vol. XXII, No. 4, October-December, 1967, pp. 75-78.

2. a is assumed to be zero.

In the theory of a dual economy, the output of agricultural sector is a function of land and labour alone. It was, therefore, felt that empirical studies are necessary to substantiate the concept of institutional wage—a caloric minimum wage substantially higher than the MPP.

The group discussed the difficulties involved in siphoning of surplus agricultural labour. It was felt that industry could not provide gainful employment to those who lacked basic skills. In fact, shortage of skilled labour meant shortage of capital and not necessarily that of labour. Also, part of wage differential in the agricultural and industrial sectors was illusory, viewed from the angle of opportunity cost of family labour earnings and higher cost of living in the capitalist sector. The Indian social matrix and cultural barriers also inhibited mobility of labour although these bottlenecks were assumed away in the Rani-Fei model.

The group also discussed the assumption of constancy of real wage rate under conditions of increasing agricultural productivity in the Ranis and Fei model and felt that in the Indian situation, such an assumption could not hold good.

The implications of agricultural labour use and productivity for the development of agriculture were further examined. It was felt that with the introduction of labour using yield increasing technology and associated modern inputs, surplus agricultural labour could be substantially reduced in the agricultural sector. Some capital deepening will be required but most of it will come in the third phase of Ranis-Fei model.

The group was of the opinion that agricultural surpluses generated in the process of economic development could be impounded for the development of capitalist sector. As an alternative, these surpluses could be mobilized to build up the infra-structure in the agricultural sector itself so that this sector would pay at least partly for its own development.

The group recognized the significance of economic interdependence and felt that although it was necessary to maintain relative prices of the products of different sectors in accordance with income elasticity of demand, strictly speaking, it was not a practicable proposition, because existing knowledge was not adequate to produce a balanced programme of investment priorities.

The group also considered the question of strategy for agricultural development. Great emphasis was laid on the adoption of such yield increasing technology as would make intensive use of labour. It was felt that importance of development services such as agricultural research, which will lead to further improvement in farm technology, should receive a high priority in our design of development. The group also recommended that those manufacturing industries which produced the modern inputs required by the agricultural sector, should receive top priority in our industrial development programme. It was felt that Agro-Industrial Corporations should pay special attention to the specific needs of farm machinery that agriculture needed to speed up its development. To ensure higher levels of farm incomes, resource approach to planning was considered preferable to target approach.

The group also examined the relationship of the size of the farm with the adoption of yield increasing technology. It was felt that small size did not *per se* inhibit the adoption of yield increasing technology and particularly divisible technology. It was, however, felt that the implications of agricultural labour use and productivity on different farm size-groups required further examination, particularly in the context of the recent technological break-through in the agricultural sector.

SUBJECT III

FORESTRY DEVELOPMENT IN INDIA

RAPPORTEUR: K. K. NAIR*

The group commenced the discussion with a review of the National Forest Policy. The issue whether it was necessary to have a fixed target, regarding the percentage of land area that should be under forests, was discussed at length. The rationale behind such a target on the national forest policy was questioned. Some advocated that there was no harm in stating an objective with the idea of achieving a rational land use pattern, keeping in view the diverse demands on forests. Another view was that legally defined forest area was not of so much significance as the total tree clad area in the country. It was also expressed that an evaluation of the implementation of national forest policy should be undertaken, and the experience gained so far should be utilized to effect any modifications that might be necessary in the policy. In general, it was felt that there was scope for research on this aspect, and the extent of forests required to meet the demand for goods and services provided by forests should be determined by detailed studies. The issue of rationale behind the fixing of a target forest area was again discussed at the concluding plenary session and stress was laid on the importance of maximization of the worth of the existing forest area to meet the diverse demands.

The inadequacies of existing forest statistics, and the variations in the statistics from different sources were pointed out. The consensus was that forest statistics should be collected more accurately and that there should be co-ordination among the different organizations in compiling these and that there should not be any appreciable time lag in publishing the statistics.

Firewood was the main source of fuel in rural areas and would continue to be so in years to come, since the use of gas, electricity or coal was possible only in urban areas and further, these were often beyond the reach of the villagers. Hence provision of firewood to rural population was important. This would also save valuable cowdung being burnt and this would be utilized for fertilizing the fields.

The important role of farm forestry was discussed and the following measures were considered necessary to make this scheme a success.

(1) In the case of plantations raised on village common lands, the institutional aspects were important. There should be clear understanding regarding

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the sharing of cost, responsibility for protection and final utilization of the produce, so that active participation by the villagers could be really effective.

(2) If it was more profitable for very poor agricultural lands to be put under tree cover, it might be worthwhile persuading the owner to do so, after working out in detail the technical and economic aspects of the proposition. The example of coastal Andhra Pradesh and Madras, where poor agricultural lands were being utilized for growing Casuarina trees for selling as firewood at high prices was cited.

(3) The villagers and agriculturists should be induced to grow trees along the boundaries of fields, around homesteads, etc., by providing seedlings and other assistance, which could be taken up as an extension activity by the forest departments.

The issue of appropriate land use particularly in river valley catchments was discussed. Land capability and technology should decide the correct type of soil cover required over different areas. The values of indirect benefits of the forests were often overlooked and it should be very useful to evolve a suitable method of assessing the value of these indirect benefits of the forests. There was scope for research in this field.

Forests should be able to provide the required raw material to various forest produce based industries, continuously. Some of the participants wanted to know how this was being done since the forests were vested with the Government and industries were mostly in the private sector. It was clarified that before setting up any major forest produce based industry, the assurance was given by the concerned State Government to the industry that a minimum quantity of raw material would be provided, at an agreed rate, for a stipulated period, with provision for revision of prices at convenient intervals. Most of the larger units had assured raw material supplies and no difficulty was being experienced. Some of the units had acquired land either on long term basis or by purchase and were raising their own plantations. The issue of leasing forest lands to industries for growing raw materials was also raised. It was explained that one of the most important functions of the forest departments in the States was to raise plantations of valuable species and that a scheme to raise 4 lakh hectares of plantations of quick-growing species like Eucalyptus, at a cost of about Rs. 28 crores has been formulated and is already under implementation. These plantations would augment the supplies of industrial wood and no difficulty would be experienced by the existing industries like pulp and paper and that some more units for producing pulp and paper were likely to be established. Further, the concept of multiple use of forest lands for meeting the requirements of wood, water, fodder, wild life and recreation and limitations of private management, in a long term proposition like forestry were also to be considered. These considerations are paramount, and should weigh against the leasing of lands for putting them to a single use by private organizations or individuals.

The procedure adopted for assessing forest resources by Pre-Investment Survey by aerial mapping, photo interpretation and ground sampling was discussed. The integrated approach followed in this type of survey, cost studies regarding raw material extraction demand and market studies and industrial possibilities studies were highlighted. The measures adopted to determine and minimize the errors in sampling and ensuring that data do not become out of date were considered adequate. A case for recognizing the role of forest economics

was made in a forcible way. The importance of preparing demand schedules and supply schedules was emphasized. On planning the cut from forests, it was suggested that conventional technical objectives adopted in the forest working plans should be replaced by the concept of yield planning with explicit economic aims. The economic criterion set was that of maximization of present worth (the difference between the sum of items of future revenue each discounted to some arbitrary year and the sum of items of expenditure each discounted to the same year). Though this course might provide less wood in perpetuity, the net discounted revenue (or present worth) would be higher than with the course determined only on technical criteria. Yield planning should imply the whole business of investment appraisal and control of the stock of the capital represented by the trees involved. An optimizing model for solution according to different sets of physical yield, cost and price assumptions should be developed and a sensitivity analysis conducted to assess the preferred course of action, resulting from the optional solutions calculated on the different assumptions.

While agreeing with the importance of economic aims in planning the cut from forests, it was expressed by some that principles of financial rotation are already in vogue for yield calculations in some cases. Some expressed that maximization of production obviously resulting in faster cutting may not suit all situations. The principle of sustained yield may have to be continued as in the case of the management of evergreen forests which supply large sized logs to some of the already established industries like ply wood.

It was pointed out that for various forestry operations tribals and other forest dwellers could be utilized as trained labour with advantage. The tribals trained as skilled workers and provided with employment would be an asset to the forest department and the present conflict of interests between the forest departments and tribals, regarding the utilization of forest area could be overcome. It was emphasized that the forest department had a special responsibility for the welfare of the forest dwellers.

The question was raised whether forest development would be accelerated if the department were to cut and market more forest produce realizing larger revenues and if they were permitted to use the increased revenue for developmental activities such as the creation of plantations, by replacing the less valuable forests. It was expressed that in areas where forest working plans have covered all the areas of a forest division with appropriate prescriptions for yield regulation and conversion this might not be feasible, whereas, if there were unallotted areas of forest available for conversion into plantations, this might be considered within the limitations of availability of labour and the capacity of the market to absorb the forest produce released.

The possibility of creating a special fund for forest development utilizing the revenue from the forests was discussed. There was general agreement on the advantages of such a fund, especially from the point of ensuring adequate financial provision for forestry operations over a period of five years or so instead of on a year to year basis, as at present. Assurance of provision of adequate funds would be essential for a continuous developmental activity in a field like forestry, where operations even for creation of a plantation were spread out over a number of years. In this context, the creation of special development fund for forestry was commended.