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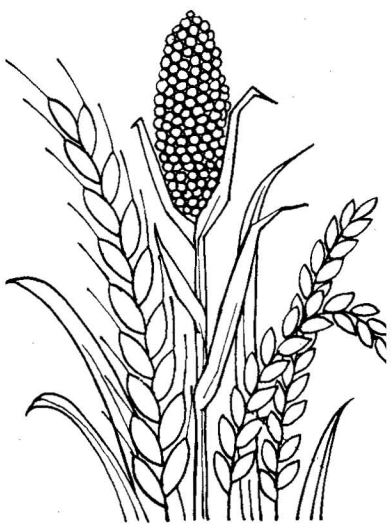

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RAPPORTEUR'S REPORT

ON

AGRICULTURAL DEVELOPMENT IN DEVELOPING COUNTRIES— A COMPARATIVE STUDY

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In all there are 15 Papers before us relating to this subject for discussion. This reflects the growing interest in the problem of agricultural growth and a need for 'looking over the hedge' to see what other countries do. Some of the Papers present an analytical comparison, while many others have contented themselves with broad inferences regarding the factors influencing agricultural growth. Most of the authors have followed a similar approach, and their review would lead us to a mere listing up of growth promoting factors. However, underlying their analyses are several important issues. An attempt is made in this report to bring out these issues, besides listing the factors promoting growth.

I

The era beginning with the end of World War II can be appropriately described as the development era. This is particularly so for the relatively less developed countries. They received a special fillip to their efforts to improve their economic conditions. The new political climate created after the war brought into focus the economic uplift of the poor nations. The result has not been disappointing. If we take the group of the less developed nations as a whole, we find that, on an average, their performance regarding the growth of per capita income during the last two decades has been better than that of the economically developed nations. Since most of the less developed nations are primarily agricultural countries, the expansion of agricultural production has also been on an average fairly rapid. Despite the will and efforts of most of the less developed nations for expanding agricultural production, the degree of success achieved has a wide variation ranging from less than 1 per cent per annum to over 6 per cent per annum.

The search for an insight into the growth promoting factors may begin with listing of these factors. A fairly long list of the factors can be prepared based on the analysis presented in the Papers submitted for the Conference. This list will include on the one hand such factors as increased use of fertilizers, irrigation, improved seeds, and on the other, such measures as land reforms, agricultural extension, research and education. The authors differ in their emphasis, as many authors have emphasized the use of fertilizers as have emphasized the importance of land reforms. A few have taken up the related issues such as the relative prices of fertilizers, adequacy of research facilities for developing better seeds or proper distribution of inputs and better organization for supply of credit.

It seems we have already passed a stage in which reluctance of the farmer, lack of appreciation or willingness on his part to undertake a change or to make greater efforts to produce more were considered responsible for lack of growth of agriculture; none of the authors who have submitted Papers for the Conference has referred to it.[1] It is equally important to note that none of the authors has mentioned differences in the physical endowments,—the quality of soil, type of weather, and health of people—as a factor responsible for hindering the agricultural growth.

If one attempts to prepare an exhaustive list of factors that are beneficial to agricultural growth, one may end up with a very long list, longer than the one given above. For instance, a U.S.D.A. study on "Changes in Agriculture in 26 Developing Nations, 1948-63" (1965) has listed, scattered over several chapters, over 50 factors that help expansion of agricultural production. It is often argued, not entirely without convincing reasoning, that the factors thus listed have a tendency to bunch together. In other words, they are inseparable components of a given package or packages. The sociological forces, the technology and the production resources, it would be contended, should combine together to move agriculture forward. However, in the analysis presented in the Papers the emphasis on the importance of individual factors varies. This variation in the emphasis also may not be without justification either (though from the analysis given in the Papers one may gather an impression that the emphasis reflects in a large measure the preferences of the authors). To illustrate, we do find, in reality, such extreme cases as Japan and some of the Middle-Eastern countries providing a contrast in literacy or educational levels, with narrow difference in the growth rate of agriculture. Similarly, we have Israel and Taiwan, the former relying heavily on investment and organization and the latter depending dominantly on research and land reforms with sufficiently attractive growth rate in both the cases. Such individual contrasts if extended sufficiently would hardly permit any one factor to emerge as the most important one for the growth. The economists equipped with their traditional tools face a difficult situation here. Trained in the analysis of allocational efficiency, they find it difficult to deal with, on the one hand, factors that are non-measurable in themselves like land reforms or research, and have indirect or uncertain outcomes. On the other hand, a group or groups of complementary factors make it difficult for the determination of optimality of efforts and achievements. Till recently, economists sealed the growth promoting factors in the famous *ceteris paribus* box. Now, when they are required to open up that Pandora's box, they face, as mentioned, a different and a difficult situation.

Under these circumstances, it may be an easy temptation for economists to pass on the growth problems to other disciplines. They may be tempted to pass on the problems of technology to technicians. They would, for instance, welcome a continuous and increased flow of research, if with it much of the problem of growth can be solved without economic adjustments. Similarly, the social problems connected with growth would be passed on to the social psychologists. What sort of land reforms, credit organization, or grouping of farms will preserve or enhance farmers' incentives to produce ? How will education

1. In a selection of anthropological studies, one would still come across this contention that some nations are backward because farmers there are backward in their outlook, etc. Even among anthropologists an influential school of thought has emerged which refutes this contention.

create the will to work, to change or to improve production methods and outlook? These and many other problems would be handed over to social psychologists or professionals in other related disciplines.

At the initial stage of analysis, usually the question posed by many of us is couched in terms of rigid social preferences, *e.g.*, 'land reform or no land reform,' 'research or no research,' 'co-operativization or individual enterprise,' etc. The answer obtained is therefore "a package of several measures," *i.e.*, all measures are equally important. If we examine the problem of growth through international comparisons of rates of expansion of agricultural production, we get a wide spectrum of combination of measures. This spectrum widens when we allow varying degree of emphasis on each of the growth promoting factors. To illustrate the former, we get enough number of instances in which the nations relied primarily on such traditional measures as expansion of area under crops for expansion of agricultural production. In other instances, irrigation seems to have occupied a dominant place. Mention has already been made about the countries like Japan, Taiwan, Israel and Mexico, where education, use of fertilizer, land reforms, and capital inputs have dominated. And this variation in the combination of measures is found among those that have attained fairly high and comparable levels of agricultural growth. The economists would be more at home with such a situation—a situation of a range of variation suggesting substitutions. He would now be interested in asking a different set of questions. He would ask: If it is possible to vary the composition of the package, (*i*) does this variation depend on the stage of development, or readiness of the society to accept a given package? or, (*ii*) is the composition of the package preconditioned by the physical and social endowments of the society?

At this stage, we shall find that a pure economic question emerges, Take question (*ii*) given above. The varying physical and social endowments of a society, in effect, would mean that a given bundle would imply different levels of costs for a given package of measures. In fact, the economist then asks : What will be the cost of a given bundle for a given situation, when the goal to be attained in terms of rate of expansion of agricultural production is given? If the components of the package are quantifiable, the cost variations—arising out of alternative physical and social conditions—can bring into play the economic criterion of cost minimization to determine the process of growth and proportions of expenses of different programmes. Not all components will lend themselves easily to quantification for being subjected to this economic analysis. Technical research will be probably the first one to escape. But with the cost analysis (excluding technical research) it may be possible to determine the type of technical researches required for the present or for a given period in future. For instance, whether the technical research should emphasize land substitution or not, can be indicated by the cost optimizing analysis.

This does not resolve completely the problem whether the growth process is particularized for a nation or the experience of different countries can be generalized with benefit to most of the developing nations. It only suggests that whereas

2. The other answer which may emerge with equal likelihood—that none of the factors will be important when each one is considered in isolation—is a reflection of the answer relating to the package of complementary measures.

the generalized experience describes the growth components, the particular situations will determine the relative importance of these components.

II

There is another angle also to the problem. Take the first question of the two listed above. What it really implies is that if the pre-determined growth rate is to be obtained soon—within a given short period—reliance will have to be placed on those factors of growth with which the producers are generally familiar. These factors may be traditional in character. Further, the types of the factors that have shorter gestation period and flexible supply may be preferred.

The gestation period of the measures included in a given growth package does vary. To illustrate, research on Taichung Native 1 took nearly 10 years to fructify and 5 more years for extension to farmers in Taiwan. The subsequent experiments following the same basic approach took about 5 years in the International Rice Research Institute (Philippines), and Ceylon (IR 8 and H 4 varieties respectively). Investment in education would take nearly a generation to make an impressive impact. As against this, the supply of fertilizers can be increased within a relatively much shorter period. Depending on the type of irrigation, the gestation period of irrigation would vary from one year to one decade or more. Land reforms take a fairly long period to make a positive impact. The varying length of gestation periods of different measures can be employed for varying emphasis on different measures included in a growth package. With this variation in emphasis on different measures the outcome—the rate of growth—can also be varied. Very probably, the observed variations in the emphasis on different growth measures can be traced partly to the variations in the urgency of attaining a given growth rate. Thus the food surplus and the food-scarce economies would form two distinct groups facing different degrees of urgency for attaining a given growth rate; the former might plan on the basis of higher growth rate to be attained in the longer run and the latter might plan on the basis of a higher growth rate to be attained in a shorter period. Of course, the cost of a given growth level of the economy over a period will be different, being higher in the case of those who prefer higher growth rate sooner.

An interesting problem that is related intimately to the growth of agriculture but which is not discussed by many of the authors of Papers—with only one exception—is about the relation of inter-sectoral relationship and the expansion of agricultural production. From the short term point of view, an economy with more intimate inter-sectoral relationship may find its agricultural sector benefiting directly with no or small time lag from the growth of other sectors. It is also likely that part of the differences observed currently in the growth rates for the agricultural sectors in different countries may be traced to the differences in the degree of inter-sectoral relationships. This point needs a deeper analysis.

Lastly, it may be added that for an international comparison a careful prior scrutiny of data is necessary. For instance, whether the yield per acre refers to output per acre of land under cultivation or to an acre of cropped area, *i.e.*, after counting twice the double cropped area, needs to be made clear. International sources of data leave this vague.

III

We may recapitulate the points that may be taken up for discussion :

1. Are there really many or a few key factors of growth ?

2. Whether the growth promoting factors bunch themselves together into a a package or packages ?

3. Are the components of the growth package variable—both in content and in emphasis ?

4. If the components are variable, are these variations based on cost considerations arising out of :

   (*i*) given physical and social endowments,

   (*ii*) varying gestation periods of growth measures,

   (*iii*) any other related consideration?

5. Whether the observed variations in the emphasis on different growth measures are dictated by different degrees of urgency for growth, caused by general ease or scarcity of food facing a given economy ?

6. Whether the growth experiences of agriculture in different countries lend themselves to some generalizations ?