

INCREASING AGRICULTURAL PRODUCTIVITY IN UNDERDEVELOPED COUNTRIES

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Agricultural scientists seem reluctant to specify a unique set of conditions, organizations, and circumstances under which productivity in agriculture would be maximized. This reluctance is, of course, understandable if for no other reason than that agriculture is but one sector of a socio-economic system. In other places (see footnote) I have set forth certain definitional and measurement concepts, so will not specify them here.

It is my firm belief that some of the greatest obstacles to increased productivity lie in the area of cultural, institutional, and community conditions. Altering the willingness of farm people to respond, and converting them to receptive attitudes, should be closely combined with, and may even precede, programs which would change their mechanical ability to perform. Certainly, these changes must be made before large-scale technical programs are introduced.

By receptivity I do not mean simple acceptance of methods of performance or modes of activity which are new but proven and which will, of themselves, enhance production. Instead, the notion of receptivity is better correlated to attitudes which relate to such things as material values, incentives, advancement, etc.

For example, the contemplative, non-experimental, incurious, and fatalistic outlook of large sectors of the rural population of India, and even certain of the intelligentsia, typifies an attitude. Such attitudes no doubt account for the absence of skill in husbandry and the low level of productivity in Indian agriculture. But they dictate to some degree the elasticity of response of agricultural producers in every country.

Improving the Human Agent

Productivity in agriculture may be improved by attending to both the physical and other needs of human beings who compose the labor factor. One of the places where the vicious circle of poverty and low productivity can be broken is through better diets and nutrition; but care must be taken that food and nutrition programs don't just "feed the worms." Getting rid of worms, parasites, and disease is equivalent to a substantial increase in the food supply; hence, health programs play a vital role in increasing productivity.

Education offers another way to increase the capabilities of the human agent in underdeveloped areas. Schooling in many countries tends toward a formal, verbal, and academic emphasis, with an undue amount of professional training. The goal of such training is likely to be the acquisition of techniques rather than the spirit of learning which produced techniques. Learning by verbal instruction and rote memory is put ahead of libraries, laboratories, and research pro-

grams in the physical, biological, and social sciences.

The United States has been, in a sense, aggravating the problem by attempting to make high-powered analysts and development economists out of far too many agricultural and run-of-the-mill people. Let me be specific. In the case of Brazil, there is a dire need for elementary training in farm accounting and management techniques of research. What have we done in many of our recommendations but send Brazilians and others to schools in the United States and Europe, which plunges them immediately into advanced courses in production economics, or the like, to receive training which in many cases is not only inappropriate but is also non-communicable to those in need back home.

Land Reform Is Popular

Because of the dominance of agriculture in the economies of under-developed countries — which is, in itself, indicative of underdevelopment — a land reform program is usually high on the list in plans to increase productivity. Unfortunately, the need for some constructive measures with respect to man's rights in land has been lost in slogans and emotionally conceived programs of confiscation which would expropriate, break up, and redistribute large land holdings. This is the all in all of land reform in many situations, *coute que coute*.

Redistribution of rights in land may in the short run even reduce productivity, due to the lack of experience and capital of the new entrepreneur. It will almost always reduce temporarily the marketable surplus in agriculture, and in extreme cases, such as the Russian experience, may result in widespread hardship and starvation.

Land reform programs, therefore, must be combined with a broad attack on other institutional fronts in order to meet the objectives of development needs. Raup¹ emphasizes that land reform, as such, is no panacea.

Market Organization

It is apparent to those who have had the opportunity to observe conditions first hand that productivity will not be increased by grafting a modern market structure to peasant-type production units, and that archaic market conditions and

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¹Philip M. Raup, "The Contributions of Land Reforms and Agricultural Development: An Analytical Framework," Social Science Research Council Conference on the Relation between Agriculture and Economic Growth held at Stanford University, Nov. 11-12, 1960.

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market structures may, in fact, be "efficient" with respect to existing production organization.

Many of us have seen the rotting remnants of canneries, warehouses, cold storage plants, milk bottling depots, forced upon unready economies without either suppliers or customers able to use them. It is apparent that farm production is not predominantly market-oriented in less advanced countries and, further, that changes in food and nonfood agricultural markets will probably have to be induced from changes in general economic buying power.

Certainly, without a condition which enhances market growth, there is little opportunity — and little need — to attempt to increase productivity.

The Man-Land Complex

When we examine further the question at issue, it is evident that other matters may be at the root of low productivity per head or per man-hour in agriculture. Certain of these I shall refer to as resource deficiencies, for lack of better terminology. These deficiencies are of two types. First, there is the low ratio of natural resources to population which prevails in many countries, as is the case with much of southeast Asia. Second, but no less important, is the limiting factor of capital and organization, good examples of which are found in Central Africa and parts of Latin America. Typical of most underdeveloped areas is the small-sized holding which is cultivated with primitive tools by ancient methods and where no capital is being generated to alter the situation.

One can detect in the literature a difference of interpretation as to the significance to productivity of a low ratio of land resources to people. For example, Belshaw states, "There is a rough, but striking, relationship between area per worker and productivity per head and, therefore, the surplus available for non-farming populations."²

He proceeds to cite Colin Clark's study on agricultural productivity in New Zealand, Japan, and southeast Asia to substantiate the thesis that there is a strong relationship between greater land resource availability and per capita output. The Food and Agricultural Organization takes a different line.

The apparent divergence of conclusions found in these studies may be reconciled by pointing out that where the physical limits of land expansions have been

²H. Belshaw, Address given before the Auckland Branch of the Economic Society of Australia and New Zealand, August 1951.

Where Was This Picture Taken?



In our last issue we began a series of "mystery pictures," Arizona scenes which could be positively identified but which might be remote or unusual.

Here's our second such mystery picture. How many Arizonans recognize this picturesque plank bridge, interestingly named "Heart Trouble Bridge"?

The trees in the background should give you a clue. But if you're still in the dark, turn to Page 11.

reached, and in countries where farms are small, farm income (productivity) is limited by these factors.

Technical Improvement Programs

The most fashionable of the proposed methods to increase productivity in backward agricultural areas is the technical assistance program. It is one thing which almost everyone is for and which, ideologically speaking, runs into little opposition.

But there is further agreement as to the matter of technology and knowledge, especially among those who have been part of working aid programs. I speak of the impossibility of transplanting modern technology from one country to another on a large scale. As with the importation of capital, there is a limit to the absorptive capacity for technical assistance. These limits are set in part by cognitive or knowledge space of individuals and

the valence structure of their individual values.

Limits are also set by the cultural heritage. For agriculture, rural tradition of small groups and their geographic and historical pattern of civilization will weigh heavily in determining their responsiveness to new ideas, new methods, and new results.

Incentives Must Come First

Hence, I emphasize again the principal thesis that increases in productivity will be conditioned not only by educating farmers and disseminating knowledge to them, but also by incentives which are created through environmental changes and by a willingness on the part of a rural population to absorb new ideas, skills, and techniques. Individual farmers and groups must, therefore, adjust to new patterns of production and living which in time will draw them further and further from the accustomed pattern of peasant agriculture.