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Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

Articles should have a maximum length of 10 folio pages (including tables, graphs, etc.) typed in double spacing. Contributions, in the language preferred by the writer, should be submitted in triplicate to the Editor, c/o Department of Agricultural Economics and Marketing, Pretoria, and should reach him at least one month prior to date of publication.

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\*Compiled at the beginning of August 1973. Latest figures included herein are provisional

# The farm problem, economic development and growth, and interdependence of disciplines in agriculture

by

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This synthesis is based on the experience of the economist Karl Brandt, which is that the study of aspects of agricultural policy in countries on both sides of the Atlantic over a period of 35 years has taught him that the farm problem in all countries is part of the dynamic process of economic development and of the dislocations and adjustments that are integral elements in it.<sup>1)</sup> Under any democratic form of government, agricultural affairs tend to become an increasingly hot political and social problem as the accelerated increase in labour productivity in agriculture demands a grater migration of agricultural labourers. The ever changing symptoms of the farm problem may be tackled with any number of policy programmes, but the hard core of the farm problem, namely the structural change involved in a country's economic growth, can never be solved in the same way as problems of a temporary nature.

For the purpose of this article the farm problem can therefore be defined as the lag in the average agricultural income in relation to the average income in the rest of the economy, with the adjustment of agricultural resources to changed circumstances brought about by economic growth as its core.

Particularly important in this definition is that it has economic development as its background. The concept of background can be taken in two senses, i.e. the preceding circumstances which explain a matter, or a concomitant component of the problem. In this discussion the background, economic development, is both because the process for solving the farm problem is a continual adjustment to changed circumstances which are caused by economic development, but which must be viewed in the light of economic development as a continuing process. For this reason economic development is regarded as the kingpin around which the representation of the farm problem and its concomitant components is built up in Fig. 1.

## 1. DEMAND AND SUPPLY IN AGRICULTURE

Originally, the causes of the relatively lagging average agricultural income were put down to superficial features such as the demand and supply of agricultural products and the particular conditions under which these two price elements operate<sup>2)</sup>. The limited possibility of bringing about a rapid increase in the demand for agricultural products was generally recognised. Comprehensive

literature on the subject of the relationship between economic development and growth and the demand for agricultural products resulting from an increase in the population, improvement in general welfare, alternative practices, etc., is generally available<sup>3)</sup> (channel 1, Figure 1). What is rather surprising, however, is that the limited increase in the demand for agricultural products used to be accepted to a large extent as a characteristic of economic developedness, whereas surplus production capacity was regarded as an evil. Consequently much time and energy is devoted to formulating possible methods of controlling either production or the marketing of production. In these attempts, however, it has been mainly a case of looking at the output side of the farmer's production activities and it was only recently that the agricultural producer's input mix came to be regarded as the basic cause of the farm problem. With a view to applying the right remedial measures it is also important, therefore, that causes and effects be brought into line.<sup>4)</sup> Heady and associates<sup>5)</sup> differentiate clearly between the farm problem as a phenomenon and the basic causes of the phenomenon. They agree with Shepherd and others<sup>6)</sup> who put the emphasis on labour adjustments and other resource shifts, but dissociate themselves from those who regard surpluses and unstable income<sup>7)</sup> as the basic causes of the farm problem. Heady and associates believe that the basic cause of the farm problem lies in the quantities and forms of the inputs used. In this new view economic development figures very prominently and a second demand and supply schedule is defined, namely the demand for and supply of agricultural inputs (channel 2).

A factor that crystallises out very clearly is that the view of some of the economists mentioned, namely that surpluses and the business cycle sensitivity of agricultural product prices are the beginning and end of agriculture's income problems, is an outdated one founded upon inadequate data. The inability of the price and income policies applied for the past four decades to counteract the problem of surpluses and the relatively downward trend of the average agricultural income goes to show, very clearly, that this approach is not the right one. In the opinion of Schultz, students of economics are inclined to consider the farm problem in the short term with the accent on glutted markets, chronic surpluses and low farm prices, which are only a superficial manifestation of a more fundamental dislocation<sup>8)</sup>. It is also in expanding on this point that the dispute as to whether problems of adjustment or the relatively low income is the true farm problem begins to look like

a confusing academic exercise, because both "schools" say that the average income in agriculture can be raised by taking fundamental action and aiding the process of resource adjustment.

## 2. THE DEMAND FOR AND SUPPLY OF AGRICULTURAL RESOURCES

A view commonly held by the researchers who see the demand for and supply of resources as the basic cause of the relatively lagging agricultural income is that, hand in hand with the economic development of a country, certain changes are initiated and that the necessary adjustments to these changes should take place at the level of the basic demand for and supply of agricultural inputs. The supply of agricultural inputs will be looked at first (channel 2.1).

### 2.1 The supply of agricultural inputs

Both the quantitative and qualitative aspects must receive attention. It goes without saying that, although differentiated, technological development, the incentive and propagator of economic development, filters through all sectors. The supply of agricultural inputs expands and improves quantitatively and qualitatively. This process then manifests itself in practice, where the conventional agricultural inputs - such as draught animal power, land, kraal manure, labour - are increasingly replaced by non-conventional inputs such as mechanical tractive power, artificial fertiliser and chemical pest control. The elasticity of supply and the productivity of the non-conventional inputs are higher and these characteristics are carried over to the supply of agricultural products.<sup>9)</sup> Consequently the supply and the elasticity of supply of agricultural products increase. The direct result of the increase in the supply of agricultural products is that fewer and fewer people in agriculture are able to satisfy the demand for agricultural products in the growing urban complexes at relatively low prices. As a result of the increase in the elasticity of supply of agricultural products, it is relatively easier for producers to adjust their supply to changed market and production conditions.

### 2.2 The demand for agricultural inputs

Economic development influences the demand for agricultural inputs directly and indirectly. Directly (channel 2.2), because the national economy is an integrated whole and favourable economic development and growth create a favourable climate which stimulates and facilitates the demand for agricultural inputs. The stimulus comes from sales promotion campaigns and generous discount advantages on specific purchases. The demand is facilitated in that favourable terms for credit and credit as such are more readily offered during economic development and growth than at other times. The demand conditions surrounding agricultural inputs are therefore such that the elasticity of the demand for agricultural inputs is relatively high and rapid absorption of these improved, highly productive inputs is possible.

It is, however, a well-known fact that, in spite of the demand conditions just mentioned, a large section of the agricultural population is slow to

adopt.<sup>10)</sup> For the healthy economic development of a country it is important that fewer and fewer people should remain tied up in the slow-growing agricultural industry and that this shrinking farming population should be able to offer food and basic agricultural products at relatively low prices on the markets. Government intervention becomes important at this juncture because the Government, realising that rising food prices and a generally inefficient agricultural industry - like some other industries - contribute to the inflationary spiral which can harm economic growth, tries to stimulate the demand for productive inputs in a great number of ways. Not only does the Government subsidise some commercially manufactured inputs, but it undertakes research itself, not only to lead the farmers into the process of acceptance, but to develop improved inputs (channel 3).

The acceptance of new techniques by the farming community, and consequently the demand for agricultural inputs, is also influenced indirectly in another way by economic development (channel 4). Specific demand shifts among agricultural products are brought about by the income-elasticity of demand.<sup>11)</sup> The result of these shifts manifests itself in the return to the production factors involved in the various production processes. One of the functions of prices is to regulate production and allocate resources. Therefore in cases where, according to economic indicators, the return to the production factors no longer represents an economically rational situation, the further attraction of resources must be stopped. The economic development of the country also influences the economic indicators directly in that the general business cycle position also affects the price levels in agriculture.

#### 2.2.1 Biographic factors

The acceptance of new techniques is also influenced by biographic factors of the agricultural entrepreneurs<sup>12)</sup> (channel 4). The biographic factors include the training and age of the farmer and his attitude towards changed circumstances, which is influenced by the process of urbanisation. The rate of economic development may put pressure on the farmer and his personal shortcomings but still allow him to remain in agriculture, or it may force him to retire from agriculture. The mere acceptance of improved techniques is, however, not necessarily the solution to the productivity problem. Instead of the slow acceptors, who are usually also unproductive, holding back their inputs from production they try to salvage their declining financial position by employing non-conventional inputs with high marginal products. The result is relatively lower earnings and a surplus production capacity.

Arising out of the economic development of a country, the supply of and the demand for agricultural inputs are so influenced that the input mix changes with regard to quantities, origin and productivity (box A). This input mix directly determines the supply of agricultural products. More significant, however, is the efficiency with which the input mix is applied (box B) and therefore the efficiency of agricultural production. Efficiency here does not mean only the efficient conversion of inputs into outputs, but whether the input mix and the nature of agricultural production are syn-



chronised with the changed demand conditions. In this connection the ability of the entrepreneur to interpret and use correctly the economic indicators and the changed circumstances plays an important part. For the policy-maker too, it is important continually to evaluate or have evaluated from this angle the effect of instruments of policy, with a view to the possible solution of the farm problem. By making a start with the solution to the farm problem at this level, that is to say, not by influencing alone, but by directing, more fruitful end results will be achieved.

### 3. THE AGRICULTURAL STRUCTURE

Another important area of influence of economic development is the agricultural structure, which it influences both directly and indirectly: Directly (channel 5.1) because the national economy forms an integrated whole with the main aim of raising the national welfare. The agricultural structure must therefore change continually in such a way that, as an economic sector with specific functions, it achieves this aim. During economic development the farm problem is an integral part of the dislocation and adjustment that are characteristics and components of economic development. Forces which originate in the development of the national economy also put pressure on the agricultural structure to undergo specific changes, such as the creation of fewer and larger farm units. Indirectly (channels 5.2 and 5.3) the national economic development exerts its influence on the structure and organisation of agriculture because these are to a large extent a function of the values of the farmers and the general public and of the resource base, situation and technology.<sup>13)</sup>

### 4. SUBNATIONAL

The agricultural structure and organisation is an important determinant of the farmers buying action and particularly so in regard to the buying centres. This buying action also includes the demand for non-agricultural goods and services (box C). Therefore, although the agricultural income determines the quantitative aspects of the demand for non-agricultural goods and services, it is the agricultural structure and organisation which determine the place where purchases are made. In rural communities in general this situation entails specific consequences (box D). It is at this point, however, that the subnational approach to solving the farm problem in its multilevel dimensions links up with the overall pattern discussed so far. Just as Figure 1 applies to the whole agricultural industry, the forces that are generated by the national economic development create certain influences in the various subnational agricultural areas. The appropriate and varying subnational agricultural structure changes that are necessary in the respective cases to increase both the national and subnational income are not all of the same nature.<sup>14)</sup> The reasons for this must be put down to the resource basis and situation, the demand for the various agricultural products, the input mix and productivity, etc., of the different subnational agricultural areas.

### CONCLUSION

Because economic development and growth are the background to the farm problem, thinking and

work in the search for solutions to the farm problem must be multilevel and multidisciplinary. It is of the utmost importance that the researchers in the different disciplines, who concern themselves with agriculture and its development, should not think in homo-disciplinary terms, but find points of contact with one another. One way to put this into practice is to keep the policy-makers constantly informed as to whether their policy programmes are on target or not.

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