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Agricultural problems in economically developed countries [1]

A. Maris

Agricultural Economics Research Institute, The Hague, The Netherlands

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Summary

The chief concern in agriculture in the growing economies of Western Europe is cost reduction and adjustment of supply to demand. Though agriculture in these countries is of relatively declining importance production both before 1940 and after 1950 has risen uninterruptedly. The economic growth and the technological development draw attention to the agricultural structure. In particular the farm size structure has obstructed improvements in the cost/return relations. Increase in scale is therefore the most important aspect of the transformation of Western European agriculture. In the article the author deals with:
Agriculture in a growing economy;
The uninterrupted rise in agricultural production;
Agricultural structural problems in the prosperous countries;
The degree of increase in scale of agriculture;
Structural policy, an essential aspect of agricultural policy.

1 Agriculture in a growing economy

It is a remarkable fact that not only agriculture in developing countries has its problems, but that also and in particular agriculture in economically developed countries is confronted with serious questions, though these are of quite a different nature from those in the developing countries. In the latter there is generally a shortage of food, and the all-prevailing question is how production can be increased at a sufficient rate. Since in these countries cheap labour will be available in abundance for some considerable time to come, what matters in the first place here is stepping up the weight yields per acre and per animal by utilizing yield-raising cultivation and breeding techniques and means of production.
In the economically developed countries, on the other hand, there is more of a surplus of food than a shortage, while labour is expensive and scarce. In these countries attention is therefore focussed mainly on the reduction of costs of production, notably labour costs, and on adjustment of supply to demand. This requires the large-scale introduction of labour-saving techniques, so that production can take place with less labour. However, this development calls for radical changes in farm structure and the external circumstances of production.
These different problems of agriculture are naturally connected with the phase through which the process of economic growth of a country is passing. Exaggerating somewhat, it may be said that the initial condition of economic growth is technological

[1] The observations in this article are based mainly on the economically developed countries of Western Europe, notably the six members of the EEC.

improvements in agricultural production. While before the Industrial Revolution one man could only produce enough food for at most two families, gradually improvements in production techniques enabled the farmer to produce enough for ten and more families. The industrial expansion in the countries of the West was preceded by a period of agricultural progress, while this progress has also continued.

The great increase in agricultural production in the Western countries was rendered possible by expansion of the area of land under cultivation and the livestock population, and above all too by an increase in the weight yields per acre and per animal as a result of better varieties and breeds and by the growing use of artificial fertilizer and improvements in cattle feed and disease control. Thanks to this great progress in production techniques, the sombre predictions of food shortages proved false. Population growth in the countries of the West has been great, and agriculture has proved capable of providing this swelling flood of people with food.

The strange thing is that, as far as Western Europe is concerned, this marked increase of production in the first half of this century took place with an agricultural working population whose numbers increased only slightly, while since 1950 it has been accompanied by a considerable drop in the farming population. Up to 1940 the attention of the authorities and of farming was directed above all to improvements in growing and breeding techniques, the aim being high physical yields per acre and per animal. The startingpoint in research and extension work was the belief that these high physical yields best served prosperity in general and that of the agricultural population in particular. This policy already has a long record, since it was a direct consequence of the great agricultural depression that afflicted Europe in the second half of the 19th century. In the period 1880–1940 production techniques progressed by leaps and bounds, while animal products played an increasingly great part in the production pattern.

On the other hand, no great changes occurred in the farm size structure and the man-land ratio during this period. Nor did major changes take place in the organization of labour. Before 1940 the easy labour market and the relatively low wages did not encourage the introduction of labour-saving techniques.

In the countryside, too, the changes before 1940 could hardly be described as spectacular. The economic structure remained fairly one-sided and the infrastructure consequently showed little improvement. Rural society was also fairly static and withdrawn into itself. In brief, farming and the countryside were still in a certain isolation, and there was as yet no question of close integration with industry and urban society.

This isolation of agriculture and the countryside has been radically interrupted in Western Europe since 1950. Farming and rural society have entered into direct communication with the non-agricultural branches of industry and with urban society, and this confrontation has led to great problems which have given rise to an understandable feeling of unease and uncertainty among the agricultural population.

It suddenly proves that agriculture is in a phase of radical structural change, which may rightly be described as an agricultural revolution. We need only point to the drastic reduction in the agricultural working population, to the urgent problem of the too small farms, to the question of agricultural surpluses, to the arrears of agricultural incomes in the development of national prosperity and to the steadily shrinking labour force per farm with all the attendant consequences to make it clear that the words used were no exaggeration.

That the problems of agriculture are important at present and have not only moved

agriculturists is evident from the great role that agriculture has played in politics in the postwar period. For some considerable time now there has been government concern with agriculture in many countries. Until the Depression in the 1930's this government care was confined mainly to research, education and extension work, chiefly with regard to cultivation and breeding techniques. During the Depression a modest start was made with a market and price policy. Since the war that market and price policy has become an essential aspect of agricultural policy. The authorities have become aware of the fact that for various reasons agriculture is not able to achieve market and price control by its own efforts. But the government does not only follow a market and price policy; an essential part of agricultural policy is now also formed by structural policy.

The question imposes itself what the cause may be of these basic problems with which agriculture was confronted so suddenly after 1950. The answer to this may be brief, viz. economic growth and the resultant need for agriculture to introduce labour-saving techniques on a large scale, or in other words to mechanize to a large degree. Economic growth means income growth and a greater demand for products over and beyond the first necessities of life. In the second place it is important that economic growth is accompanied both by an improvement in the quality of the means of production and by an increase in the amount of capital goods. A third aspect of economic growth entails that wages rise more strongly than the prices of the other means of production.

It will be clear that the substitution effect of the change in the price relations between the factors of production and the qualitative improvement of these factors of production, viewed in connection with the relatively only slight increase in the demand for agricultural products, must lead to a reduction in the agricultural population and far-reaching changes in agricultural structure.

Agriculture in the economically developed countries, viewed relatively and, as regards the number of persons employed, absolutely too, is therefore a branch of industry declining in importance. Agriculture does not stand alone in this respect; other branches of industry are already in the same position. For a characteristic of economic growth is not only the shift that occurs from the agricultural to the non-agricultural sectors of economic life, but also the shift from industry to services.

To sum up, one may say that in the economically developed countries agriculture has gradually lost its dominating position. It is true that the agricultural branch of industry is still important and the increase in productivity in agriculture is still of significance to the whole economy, but viewed in relation to the other sectors of the economy this significance has become much less from a quantitative point of view. In this stage agriculture no longer forms the essential driving force behind the general rise in prosperity. The situation is rather that agriculture is obliged by the marked economic growth to make far-reaching structural adjustments. The pattern of production and the structure of agriculture have to adapt to the changing demand and price relations and the sharply rising wages.

2 The uninterrupted rise in agricultural production

Before going further into the structural developments, in which attention will be notably paid to the question of the increase in scale, some remarks will first be made about the rise in production. It has already been commented that the growth of production both before 1940 and after 1950 — when agriculture still displayed major

changes in the manner of production — has steadily continued. In agriculture the application of the results of technical research can hardly be restrained. True, propagation of this knowledge costs time, but the process continues irrevocably. Agricultural education and extension work ensure this, and moreover agricultural production is still a kind of open trial field where much can be observed in practice with the naked eye. This is supplemented by discussion between the farmers, for there are no such things as monopoly positions.

In the six member-countries of the EEC gross production in the period 1953–1965 increased by 40 %; this is an average annual growth of over 3 %. It is expected that this growth will become less in the future. For the industrial states together this future growth in supply is estimated at 2.5 to 2 % and that of the demand at 1.5 %. Since the industrial states already have a high degree of self-sufficiency in food products, this development will have to lead to increasing exports to the developing countries. Against this are increasing imports of tropical products from the developing countries. It therefore looks as if trade between the developing countries and the industrial states will increase in the future. After 1950 this trend already began to be apparent.

This growth of production has been accompanied by an increasing use of means of production from other branches of industry, the non-factor inputs; from 1953 to 1965 this quantity doubled, in other words an average annual increase of 6 %. In the cost structure of agriculture in the economically developed countries we therefore see that the share of the non-factor inputs in total costs regularly increases. This means to say that in these countries agriculture is becoming increasingly integrated with other sectors of the economy and that the interdependence is increasing. This too is a structural phenomenon connected with economic growth and technical development, in which agriculture is making ever-more use of the results of these developments in the ancillary firms.

From the economic point of view it is, of course, favourable that more and more is produced by less and less of a labour force. In general it may be said that the consumer benefits more from this than from backward production techniques, which would have led to too small a supply of products and high prices. And yet too high a production and too high a degree of self-sufficiency in the Western countries from a subject of concern for some products. But the difficulty here is that it is practically impossible to key the supply exactly to the demand. In order fully to ensure food supplies, surpluses will probably always be needed. It may be said that the surpluses on the agricultural market are the price that must be paid for ensuring the food supply and providing industry with agricultural raw materials.

It should be added that it is very difficult to indicate the point at which these necessary surpluses change into structural ones. This is all the more the case because in large parts of the world there are still considerable shortages of food. For it may not be considered impossible that in the future a demand for agricultural products from the developing countries backed by a not inconsiderable purchasing power will eventuate. Experts have calculated that up to 1980, but also in the period 1980–2000, the supply of agricultural products in the economically developed countries will increase more strongly than the demand, while the developing countries will display the opposite picture [2]. The best prospects will be offered for the developing countries and

[2] Thorhil Kristensen : The approaches and findings of economists. International Journal of Agrarian Affairs, May 1967.

the economically developed countries not by aiming at self-sufficiency but by fostering international trade. This development of trade does not apply only to agricultural production; it will also be necessary that the developing countries can export industrial products without major obstacles being placed in their path.

3 Agricultural structural problems in the prosperous countries

Since 1950 the method of producing has come to occupy the centre of interest in the countries of Western Europe. First and foremost came and still comes the effort to reduce the costs of production, while before 1940 the stress lay above all on increasing the weight yields. The period before 1940 may be described by the term intensification phase, while the period 1950–1965 was characterized by mechanization and the outturn of labour from agriculture. In the coming period increase in scale will be the main issue. Since 1950 it has become clear to everyone that agriculture in the economically developed countries is confronted with serious problems of a structural nature; problems that had their cause in the marked economic growth. The great growth in prosperity has been accompanied by a rapid rise in wages, also in farming. This has greatly stimulated the motorization and mechanization of agriculture. Characteristic of the period 1950–1965 was the introduction on a large scale of labour-saving techniques. Employment in agriculture consequently dropped sharply, and as a result the great exodus of labour from agriculture referred to at the beginning could take place. In the period 1950–1965 the agricultural working population decreased by 40%, the number of agricultural workers and farmers' sons declining considerably more strongly than the number of farm heads. The labour force per farm has therefore dropped sharply; more than 40% of the farms now have a permanent staff of one man only. The tilling capacity per man has risen so much through this mechanization that in the period to come too this drop will have to continue.

In the six countries of the EEC the male agricultural working population dropped by over 3% a year in the period 1950–1965 to about 7 million. As a result the percentage which this forms of the overall male working population has fallen from 26 to 14; for West Germany and the Benelux countries this percentage is already well below 10. If this drop is considered for all economically developed countries, the average annual decrease in the agricultural working population in the above period proves to vary between 3 and 5%. This decrease will doubtless continue, though perhaps at a slower rate, since in the period to come the number of farm heads in particular will have to decline. It looks as if in the longer run the employment of 4 to 6% of the overall working population in agriculture will enable the economically developed countries not only fully to meet their own food requirements but also to provide considerable exports.

In the mechanization phase the increase in productivity — the aim of every structural policy — was achieved in the first place by the outturn of farm-workers and farmers' sons. This was conditional on there being sufficient employment outside agriculture. In the coming period the existing farm size structure and, in a number of regions, the external circumstances of production will form a considerable bottleneck in a further increase of productivity. For, owing to the marked decrease in agricultural workers and farmers' sons, the amount of labour per farm has dropped practically to a minimum. A further decrease will therefore have to be effected above all by a reduction in the number of farm heads and thus of the number of farms.

As a result, the remaining farms can be increased in size. This increase is necessary for making economic use of the labour force on the farms and of the agricultural machinery available. The problem of Western European agriculture could also be characterized as follows: for the industry viewed as a whole there is more than enough land in production with still far too much labour, while every farm has in itself a shortage of land and a minimum labour force.
What are required here are larger units of production. That is why, in addition to increasing the size of independent farms, increasing the sections of the farms, i.e. specialization, may be important. And in the third place the advantages of larger units of production can be realized by an intra-farm organization of labour. These three aspects may be summed up by the term increase in scale. For the coming period this increase in scale is imperative; it will have to have high priority in agricultural policy.
In Table 1 a survey is given for five countries of Western Europe (West Germany, France, and Benelux) of the farm size structure in 1950 and 1965. We see from

Table 1 Number of farms of 5 hectares and over in the EEC (excl. Italy) according to farm size

Farm size (ha)	*Number of farms (approx. 1965)*		*Number of farms (approx. 1950)*	
	× 1,000	in %	× 1,000	in %
5–10	752	32.4	1,006	39.8
10–20	870	37.4	877	34.7
20–50	572	24.6	527	20.9
50 and over	130	5.6	115	4.6
Total	2,324	100	2,525	100
Average area per farm (ha)	19.8		17.8	

Source: Agricultural Statistics EEC

this table that the average area of the farms larger than 5 ha has increased by only 2 ha and that the number of small farms is still very great. Surveys show that the labour density on the large farms is much smaller than on the small farms and that this is the main reason for the great differences in labour productivity. The size of many farms is too small to allow of adapting the rational requirement of labour to the supply of labour. The converse is not possible either: the labour force on many small farms cannot become much less. And added to this is the fact that agricultural machinery cannot be sufficiently used on small farms, not only because the overall farm size is too small, but above all because the sections of the farm are so small. For production tied to the soil the farm area therefore forms a major bottleneck in optimum use of the factors of production. The only possibility that still remains of using labour and machinery in an economically sound manner is in our opinion increasing the size of the units of production. The question then arises as to what degree of increase in scale is desirable.

4 The degree of increase in scale of agriculture

Increase in scale in the field of production may be generally defined as follows: enlarging the units of production, as a result of which the use of means of production and/or the sales of products can take place in a manner that is more economically justified. This is done in agriculture by increasing the size of farms and of sections of farms and by the intra-farm performance of work. The last form of increase in scale means the performance of certain activities by contract workers or machinery cooperatives, by intensive collaboration between farms and by the farm service organizations. For in fact this organization of labour leads to larger units as regards the performance of the work. As a result the farm's independence is in part sacrified in order to be able to realize the economic advantages of larger units of production. Finally, the question arises whether, within the framework of this increase in scale, efforts must be made to achieve enlarged family farms with a modern set-up or large farms with a number of labour. This question will be dealt with below in greater detail by means of the situation in the Netherlands. However, in principle this approach is of importance to agriculture in all economically developed countries, since the question of increase in scale is essential to the future position of agriculture in these countries.
Four factors are of importance to an appraisal of the above structural views: the situation on the labour market; attachment to the farm; the cost-return relation and financing of the farm.

The situation on the labour market. Since 1950 the labour market has been displaying a marked decrease in the number of agricultural workers, and this decrease is still continuing. In various agricultural areas hardly any farm-workers are still present.
The number of farmers' sons has also dropped greatly, but for the viable farms there is still more than enough enthusiasm to become farmers. The occupation of entrepreneur in agriculture is therefore still attractive to many farmers' sons. A structural view will have to make allowance for this situation on the labour market.

Attachment to the farm. Needless to say, the attachment of the farmer to a family farm is greater than to a farm with a number of paid labour. In this respect, therefore, the family farm is at a disadvantage. However, the question is whether these disadvantages cannot be largely eliminated by farm service organizations and/or by cooperation between the farms. The facts show that the farm service organizations have considerably grown in importance and also that cooperation is acceptable to many farms. In 1967 there were more than 150 farm service organizations in the Netherlands with more than 21,000 affiliated members. In the pastoral areas in particular these organizations are of great significance. Initially their main purpose was aid in the event of illness or accident. Later this help was extended to enable the farmer to take a few days off and to go on holiday. In this way the social disadvantages of the family farm are largely obviated.

The cost-return relation. The question of the costs per unit product is, of course, also important. A survey performed so far has shown that on farms with a labour force of more than two the cost advantages become small. However, the one-man farm has obvious cost disadvantages in respect of the two-man farm: these differences in cost relate above all to the tilling costs. The other cost factors are of little

importance to the question of the size of the farm. That is why the cost disadvantages can be largely countered by the use of contract workers and/or collaboration with other farms with respect to certain items of machinery. This also happens on larger farms. In field work in particular contract workers occupy an important position. On arable farms more than a quarter of all work is done by the contract worker. On the other types of farm this is less than 10%; animal production prevails on these farms and contract work is of subordinate importance here. The daily activities of milking and care of stock are much less suitable for performance by contract firms. The contract firms, independent concerns with a large stock of machinery that is operated by their own personnel, have concentrated above all on field work. In this way the capacity of the machinery is much better utilized and the advantage of large units of production is nevertheless realized.

Financing of the farm. The fourth point relates to the financing of the farms. On this point large farms are faced with very great difficulties. Characteristic of the traditional farm is that the functions of financier, manager and farm-worker are combined in one person, that of the farm head. It is impossible that this personal form of entrepreneurship can be maintained for large farms. The capital invested in large farms is, after all, of the order of several million guilders. For the financing of these farms a call will have to be made on the capital market. Since the profitability of the capital invested in agriculture is rather low, there will probably be insufficient interest in the farms on the part of the capital market. As long as no realistic solution has been found for the financing of large farms, the obvious solution seems to us to be the maintaining of the personal form of entrepreneurship.

On the strength of these factors we are of the opinion that for the time being the endeavour must be towards enlarged family farms with a modern set-up. By these we mean farms with a permanent labour force of one or two men and a limited number of farms with a labour force larger than two. The organization coordinating the activities of a number of farms will have an important part to play in this farm size structure. We have seen that in this respect major developments are going on. At first sight this structural view does not seem very ambitious, but the survey shows that for farms set up on modern lines a great increase in scale is needed.
For a modern pastoral farm with dairy cows one could take the minimum size of the dairy herd at about 35 cows, with an area of grassland of about 25 hectares; for a two-man farm the figures double. These figures are simply meant to give an approximate idea of the size of the farm when modern facilities are used for milking and feeding, starting from a cubiclehouse or combination cowhouse. Working longer hours and greater or lesser utilization of contract workers and of farm service organizations are of course of influence on the figures stated, as are the external circumstances in which the farm must work. As regards arable production, if profitable use is made of modern machinery without employing contract workers, it proves that for cereals an area of about 40 hectares is required and, for sugar beet and potatoes, 20 hectares each. With a production plan as occurs on the south-west sea clay soils this therefore means that for one farm not using contract workers an area of at least 100 hectares is required. However, in actual fact most farms use contract workers and/or operate certain machinery together with others. In these circumstances an arable farm of about 50 hectares can also be economically sound, and even a one-man farm of 30 to 35 hectares.

Essential to a development in the direction of the above farm size structure are contract workers, farm service organizations and/or intensive forms of collaboration. The intra-farm forms of organization of labour are necessary to obviate the economic and social disadvantages of enlarged 'family farms'; this is particularly so for the one-man farms set up along modern lines.
If we compare the farm size structure that we advocate with the situation as it actually is, a considerable increase in scale will still have to take place. The increase in farm size that took place after 1950 is only a modest beginning compared to this. In the period 1950–1968 the average farm area increased only by about 3 hectares to 14 hectares, and the average number of dairy cows per farm from 7.5 to 12. In the coming 15 to 20 years the number of farms will have to be at least halved and the size of the farms more than doubled. In the period 1950–1968 productivity was able to increase above all by a reduction in the labour force per farm; however, this is no longer possible in the period to come. Only an increase in scale still creates the possibility of utilizing labour and machinery in an economically sound manner. These figures relate to the Netherlands, but the same order of size may be envisaged for the other countries of Western Europe.

5 Structural policy, an essential aspect of agricultural policy

Reviewing the above, we are obliged to conclude that there are still important tasks ahead for structural policy. In principle, the means of realizing a structural policy can be the same for all the countries of Western Europe. For, viewed broadly, agriculture in these economically developed countries is confronted in the field of production with the same problems, viz. too dense a labour force, too small units of production and many areas with unfavourable external circumstances of production. To obtain a further reduction of the agricultural population attention will have to be devoted in good time to intensive vocational advice and occupational counselling, and further to reskilling possibilities for young farmers who are still eligible for another occupation and finally to the creation of possibilities for farm termination for farmers who in fact wish to leave their farms. In this way land will also be released for increasing the size of the remaining farms; this increasing will have to be given a high priority in the coming period. A growth in the size of the various sections of the farm is also important in this respect. Before 1940 the completely mixed farm developed in the countries of Western Europe. In those days farming was in an intensification phase, in which expansion of employment took precedence in connection with the superfluous supply of labour. At that time the cost disadvantages of small units of production in respect of larger ones were not great either. This has now changed. Owing to the considerable increase in wages and the enhanced mechanization the cost disadvantages have now become important. A certain degree of 'demixing', i.e. fewer and thus larger sections of the farm, now seems inevitable. On the arable farms fewer crops per farm will have to be grown, for the same reason.
Measures for fostering intra-farm organization of labour will be essential here. What is meant here is collaboration, farm service organizations and contract workers. The necessary mechanization of the work, for the purpose of reducing tilling costs, can be considerably promoted by land improvement. Moreover, opening up rural areas stimulates communication in these, as a result of which the switch of occupations is facilitated and the outturn of labour increased.

All this requires an increase of knowledge by research, but above all the transmission of knowledge by among other things education and intensive extension work. Knowledge and insight are called for in the first place in order to know what to do, but above all increased knowledge often levers away opposition to change. Knowledge is power, also as regards irrational resistance.

The above points are in our opinion the essential points of action which, taken together, require the full attention of structural policy and which must make it possible to bring about a radical increase in scale in Western European agriculture. An increase in scale which is necessary for realizing the desired increase in productivity in the future as well. Although per country and per area the extent to which the various means are applied will differ, in accordance with the structural position of agriculture, the means outlined above must be regarded in principle as one inseparable whole. In order to realize this agricultural structural policy a widening of the economic structure calls for the fullest consideration. It is self-evident that a widened economic structure, training possibilities outside agriculture and good communication in the countryside render the departure from agriculture possible and at the same time facilitate change of occupation. These factors must be regarded as a prerequisite of following an effective agricultural structural policy.

Summing up, one may say that the purpose of agricultural structural policy is to increase productivity and that in the present development phase this purpose must in the first place be achieved by increasing the size of the units of production and reducing that of the labour force.

But, however important and necessary it is to follow a vigorous structural policy, it should be borne in mind that structural policy offers no solution for all the difficulties confronting agriculture in a growing economy. This applies in particular to a weak market position of agricultural products and to the adjustment of supply to demand. That is also why structural policy must not be regarded as an alternative to price or production policy. Structural policy tries in the main to increase productivity notably by reducing the costs of production. This can, of course, facilitate the following of a market and price policy by for instance alleviating the budgetary consequences, but it does not make this policy superfluous.

In the past agriculture has more than contributed to economic growth, and it is still doing so. Agriculture, still a major branch of industry, is therefore fully entitled to modernization of its structure through structural policy. The government has a considerable responsibility for this, because the individual farmer cannot achieve this task. In addition a market and price policy remains necessary, while in the long run production policy will probably be inevitable. In the near future agricultural policy will not be able to escape the problems of agriculture in the developing countries. These problems can be solved for instance by stimulating world commodity agreements and by directing the superfluous productive capacity towards those products for which there is a demand in the world and which fit into the pattern of production for which the territory of the wealthy countries offers the most favourable natural factors.