

AGRICULTURAL POPULATION PRESSURE IN EUROPE ¹⁾

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SUMMARY

In the past century and a half Europe has experienced both an unprecedented increase in population and a powerful increase in the means of earning a livelihood. This development has been accompanied by mass emigration to territories overseas and a migration on the same scale within Europe from the countryside to the towns.

Summing up, we are forced to conclude that in Southern Europe and, more particularly, in Eastern Europe, economic development has lagged far behind the increase in population, and that in almost all the countries of Europe, excepting Great Britain and France, migration from country to town has been inadequate. Apart from these two exceptions, the countries of the Continent are now faced with the results of too high a density of agricultural population, that is to say: farms of insufficient size, considerable rural under-employment and, finally, low per capita production. The problem of population pressure is all the more serious because it hampers improvement in the conditions of production, that is to say, it hampers change in the agrarian structure and the technique of production. Compared with the great changes in economic structure that Europe exhibits in other fields, the changes in agrarian structure must be regarded as insufficient.

As means of easing the pressure of agrarian population, the following have been mentioned: a greater degree of efflux from agriculture among country youths, to be achieved *inter alia* by intensive advice and information regarding choice of school and occupation, and consolidation as regards size of farms and other conditions of production.

The problem of efflux from agriculture to non-agricultural industries, and the improvement of the agrarian structure, are even more important in the countries of Southern and Eastern Europe. These countries, in fact, stand at the threshold of economic development, and are consequently able to profit by the mistakes Western Europe has made in the past. If, from the outset, they were to give simultaneous attention to promoting migration from the countryside and improving the conditions of production, it would prove an enormous fillip to their development.

Needless to say, these changes in the economic structure will naturally be accompanied by changes in the social structure of the countryside. This subject, however, lies outside the scope of the present argument.

1 POPULATION TRENDS IN EUROPEAN AGRICULTURE

Perhaps one of the most remarkable features of the development of European civilization is the enormous increase in population which has taken place during the last century and a half. In this period the population of Europe has grown from 180 to 540 million.

Another salient feature of 19th and 20th century Europe has been the great expansion in the population's means of earning a livelihood, and especially the differentiation that has come about in this respect. For up to the end of the 18th century Europe was a relatively sparsely populated continent whose inhabitants were principally engaged in agriculture, plus a certain amount of trade and commerce. A close relationship existed between the productivity of the soil and the density of population. We lived, in fact, by the direct trapping of the sun's energy via the plant (KOHNSTAMM, 1947). It was only through the invention of the steam engine that man was able to unleash the mechanical power necessary for modern mining, industry and transport. And this power

1) Received for publication July 18th, 1954.

has brought about a radical change in the economic structure of Europe. In order to get an impression of this it is only necessary to point to the very sharp absolute and relative increase in the numbers employed in industry, trade and commerce, and the relative decline in the size of the population engaged in agriculture, which goes hand in hand with that increase. Whereas prior to this change in Europe's economic structure, known as the Industrial Revolution, 50-80% of the working population was employed in agriculture, the percentage has now declined in some of the countries concerned to less than 20%. This process has gone farthest in Great Britain.

Table 1. Population trends in agriculture in a number of countries.

Nations	Active males in agriculture per 100 hectares of agricultural land 1950 ¹⁾	Active males in agriculture as percentage of total active males in 1950 ¹⁾	Number of active males in agriculture per tractor 1952 or 1953 ¹⁾	Number of farms of 1-5 ha in % of the total number of farms \geq 1 ha	Net production per male engaged in agriculture (I.U.) ³⁾	Necessary flow off of agricultural youngsters 0-14 age per year, in % of the total active males in agriculture	Total male entrants to the productive ages 15-64 per 100 departures
U.S.A.	2	16 ²⁾	2	9 ⁵⁾	623	3.54	162
Great Britain	8	6	3	37 ⁴⁾	531	1.76	128
Sweden	10	21	5	47 ⁴⁾	354	2.25	129
Denmark	13	27	8	19 ⁴⁾	592	3.45	167
France	13	28	20	29 ⁴⁾	414	1.96	123
W.-Germany	18	16	7	56 ⁵⁾	416	2.29	149
Belgium	20	14 ⁷⁾	25	59 ⁴⁾	466	1.86	116
Netherlands	22	17	17	42 ⁶⁾	489	2.55	197
Rumania	23	63	236	62 ⁹⁾	158	2.62	250 ⁹⁾
Yugoslavia	31	62	323	68 ⁸⁾	148	3.59	250 ⁹⁾
Italy	33	41	73	67 ⁴⁾	154	2.74	197
Bulgaria	35	65	122	69 ⁹⁾	201	3.67	267
Spain	-	52	264	78 ¹⁰⁾	291	2.89	206

1) U.N. - European Agriculture - A Statement of Problems (Geneva, 1954).

2) U.N. - Economic and Social Council - European Agriculture (Febr. 1954).

3) The Way Ahead - Quarterly Economic Review, Vol. II, Number 2.

4) Tijdschrift voor Econ. en Soc. Geografie - June/July 1952.

5) F.A.O. - Monthly Bulletins - World Censuses.

6) C.B.S. - Netherlands.

7) Yearbook of Labour Statistics - 1953.

8) Departement v. Landbouw - Netherlands.

9) Estimates.

10) "Economic demography of Eastern and Southern Europe" by W. E. MOORE, Geneva 1945, page 82.

With only 6% of the working population engaged in agriculture, Great Britain occupies a unique position in the world. On the other hand, a very high percentage of the employed population is still engaged in agriculture in some countries of Europe, such as Roumania, Bulgaria and Yugoslavia, with over 60%, while, as regards Southern Europe, Spain and Italy, with about 50%, are far from having reached the same stage of development as Western Europe.

The rapid increase in prosperity, especially in Western Europe, and improvements in sanitation coupled with a sharp decline in infant mortality, brought

about an enormous acceleration in the growth of population. It soon became apparent that Europe had insufficient raw materials to feed the ever-increasing numbers of its population and to keep its rapidly expanding industry running. Accordingly, we observe a continual increase in the import of raw materials to feed man, beast and machine. And this severed once and for all the link that had existed for centuries between the volume of raw materials the soil of Europe produced and the density of its population.

It is not, of course, surprising that the increase in the number and variety of means of earning a living, and the growth in population, were not always and everywhere the same. It would have been much more surprising if the whole situation had developed in a harmonious and balanced fashion. An important safety valve for the pressure set up by lack of equilibrium between means of subsistence and the number of people was emigration. For Europe this emigration, in the main to North and South America, was of great importance. In the period 1821-1932 about 54 million Europeans emigrated, no less than 34 million going to the United States. Up to 1880 85% of the European emigrants had originated from Western Europe, while in the period 1910-1914 this figure was only 30%. The combined figures for Southern and Eastern Europe for the same periods were 15 and 70% respectively (MULDER, 1948). This shift was brought about on the one hand by the fall in the rate of population growth in Western Europe, resulting from a declining birthrate, and on the other by the continued rise in the prosperity of this region of Europe, which rendered emigration less necessary. For countries such as England, Norway, Italy and Spain this emigration amounted to a number of people equal to about one third of the total population in 1910. In the case of Germany, but even more so in the case of the Netherlands, Belgium and France, it was of much less significance.

What, now, has been the result of this unprecedented growth in population, the rapid increase in means of subsistence, the mass emigration to America, and the decline in the birthrate that had already set in during the 19th century? Have these developments, perhaps, had an effect on agricultural population pressure? My answer is a very definite "yes". There can be no doubt, in my view, that changes in the economic structure of some countries resulted in a flight from the land, and no doubt either that, in other countries, these changes resulted in too little migration from the land to the town.

What is the present position as regards this population pressure in rural areas in Europe? Opinions on the matter tend to differ. COLIN CLARK holds the view that population pressure in rural areas will not increase very sharply. He even predicts a shortage of agricultural workers in the near future. He is therefore far more concerned about the flight *from* the land. "There are many factors making for an increase in the rate of rural population. The motor bus, the radio, universal education, military service, political movements and a host of other social and incidental factors are bringing the countryman into ever closer association with town life and giving him opportunities to obtain urban employment. Within the memory of older men still living in Western Europe, and up to the present day in Eastern Europe and Asia, the countryman has been separated from the towns not only by difficulties of transport but also by wide divergencies of custom and even of dialect. All these barriers are rapidly disappearing, and in the near future we may expect them to disappear in other parts of the world also. It is not therefore the law of diminishing returns, or the lack of agricultural areas for cultivation, which has caused the world food shortage in the future; it is the lack of labour". (CLARK).

J. D. BLACK and T. W. SCHULZ, on the other hand, write quite differently on the matter. BLACK is of the opinion that the very factors CLARK mentions

will increase migration to the countryside. SCHULZ regards the problem of population pressure in rural areas as one of the major challenges confronting agriculture.

In order to be able to pronounce an opinion on this, we shall have to review the facts, confining ourselves, in doing so, mainly to Europe. First and foremost, it must be stated that it is impossible to speak of Europe as a whole when dealing with our problem, for it is precisely in this respect that Europe displays great heterogeneity. The fact that it shows great differences as regards economic structure has already been seen from the figures concerning the working populations. And great differences are also found in its agrarian structure. As the chief features of this structure to reveal wide disparities, we can mention: size of farms; the parcelling out and opening up of land for agricultural purposes; the juridical forms assumed by the use of land; the supply of credit and public utilities (electricity, water, telephone); degree of mechanization; the density of the agricultural population; and, finally, the technical skill of those employed in agriculture, which is ultimately determined by the provision made for research, training and advice and information (extension service) in it.

It is these closely linked factors which determine the level of farming, and thereby the level of prosperity in agriculture. Actually, these factors represent the conditions under which agriculture is carried on and which largely determine agrarian income. It is, of course, true that certain price conditions can mean high returns for agriculture on a short-term basis, but lasting prosperity is only possible if the conditions for production are healthy.

Here we shall deal in somewhat greater detail with two factors of direct significance as regards agricultural population pressure and welfare in agriculture. They are: the size of the farms, and the density of the agricultural population.

2 THE SIZE OF THE FARMS

It is not only in the ancient areas of cultivation in Europe, the Middle East and Far East, that large numbers of small farms are found. In other areas too, areas which have only relatively recently been brought under cultivation -- in particular, the United States -- the small farms present an urgent problem. Confining ourselves to Europe, it is only necessary to look at a few figures showing the numbers of farms of 1 to 5 hectares in size to realize just how urgent this problem is.

In Sweden, Switzerland and the Netherlands, the number of farms between 1 and 5 hectares in size amounts to 40-50%. In Belgium, Germany and Italy the number is well over 50%. Denmark and, to a lesser extent, England and France occupy a more favourable position in this respect. The relatively low number of small farms in Denmark is partly the result of the constructive policy followed by the government at the beginning of the present century with regard to the use made of waste land newly brought under cultivation.

The large number of small farms should be no cause for surprise. In the first place, many farms came into being at a time when the technique of production was rather primitive and when there was practically no question of mechanization, while in the second place, these farms have become still smaller in course of time, owing to continual subdivision as a result of population pressure.

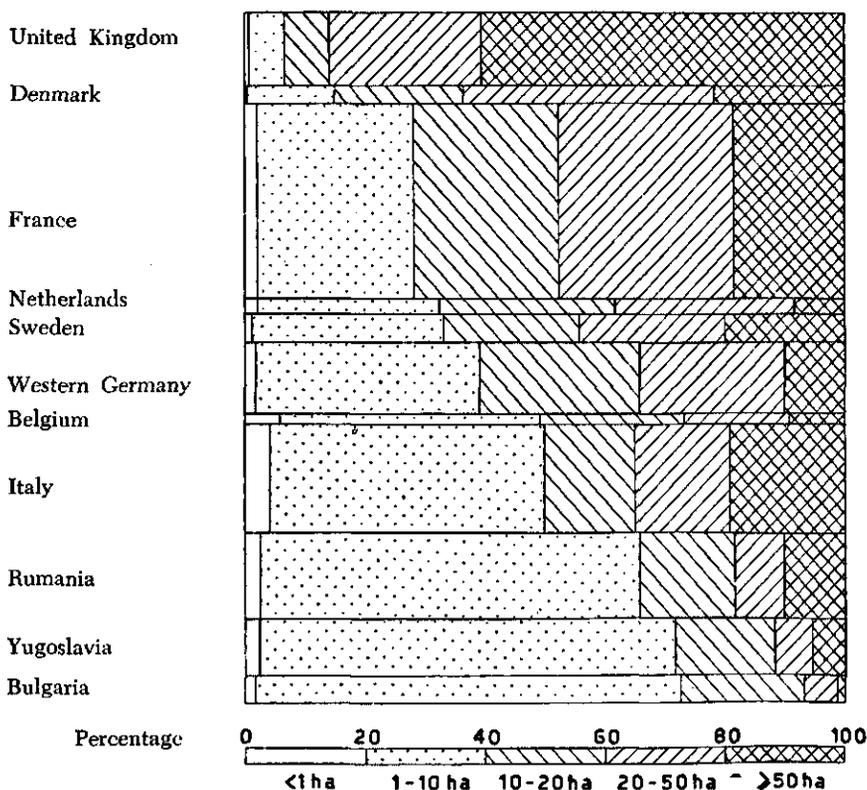


FIG. 1. DISTRIBUTION OF AGRICULTURAL LAND AMONG FARMS OF DIFFERENT SIZES.

Why should the size of farms interest us, and why should the existence of many small farms represent a pressing problem? In the first place because, as a result of the development mentioned above, the present arrangement of lots is very bad in many countries. An average of 20 and more lots per farm, and very small lots at that, is not exactly conducive to efficient production.

In the second place — and this is more important from our particular point of view — there appears to be a close connection between size of farms, per capita production, and the occurrence of rural underemployment. The quantitative relations between these phenomena have been laid down in various reports (BAPTIST & WATERSCHOOT; DUCOFF & HAGOOD, 1944; MARIS, SCHEER & VISSER, 1951; underemployment, 82nd Congress, Washington). Investigations carried out in the Netherlands have shown that on the larger farms the per capita production is almost three times as much as that on the smallest ones. It has also been demonstrated that the reason for this lies in the overabundant supply of labour on the small farms — three or four times as much labour per unit of cultivated land as on the large farms. If one takes into account the fact that agriculture in the Netherlands is fairly intensive, it will be clear that in certain other countries, where farming is far less intensive, the problem must be far more pressing.

The above-mentioned results of the investigations made are really nothing other than quantitative illustrations of the disequilibrium that exists in many European countries between the amount of land and the number of people

dependent on agriculture. It has been calculated for in respect of the Netherlands and Belgium that between a quarter and a third of the labour employed on the small farms could be dispensed with. Estimates made in Italy and Greece revealed that, unemployment and underemployment taken into account, one half to two-thirds of the labour force must be regarded as redundant.

In principle, there are three possible means of solving the problem of the small farmer. These are: more intensive production, increased efflux from agriculture, and finally, enlargement of the small farms. It is impossible to prescribe uniform doses of these remedies for all countries. The doses applied will depend on the opportunities present in the countries concerned – opportunities bound up with the waste land which can still be brought under cultivation, the technique of production, and the increase in employment openings in non-agricultural industries. There can be no doubt that a great deal can be done along these lines. The solution of the problem will ultimately depend, however, on the willingness of peoples and governments to turn such opportunities to good account by means of a constructive agricultural policy. This would remove one of the weak spots in European agriculture and bring about a considerable improvement in Europe's position as a competitor.

3 THE DENSITY OF THE AGRICULTURAL POPULATION

As we have already seen, great changes in demographic structure have come about in many of the countries of Europe as a result of changes in the birth-rate and deathrate on the one hand, and as a result of emigration on the other; while in some countries, particularly in Western Europe, significant changes have come about in the economic structure too. The result is: large differences in the percentage of people engaged in agriculture, and – more important from our point of view – great variations in the density of the agricultural population.

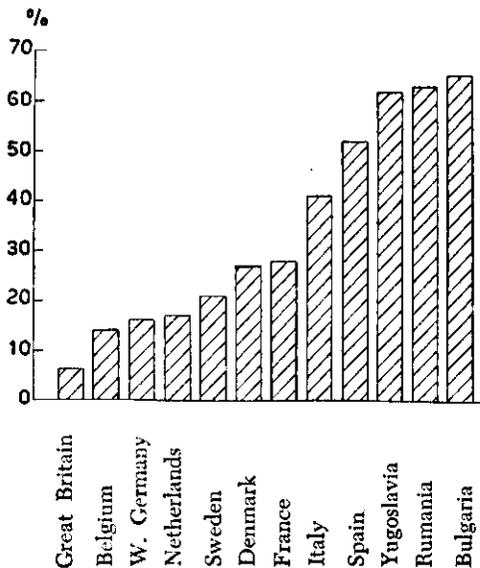


FIG. 2. ACTIVE MALES IN AGRICULTURE AS PERCENTAGE OF TOTAL ACTIVE MALES IN 1950.

Western and Central Europe are very different in this respect from Southern and Eastern Europe. In the first two regions the number of males engaged in agriculture varies between 8 and 20 per 100 hectares of cultivated land, whereas in Southern and Eastern Europe this figure exceeds the thirty mark. If we make a comparison with the U.S., Canada and Australia, we find that in those countries the relevant figure lies considerably lower than 8, while in Egypt and China it is 74 and 41 respectively.

Coupled with this are great differences as regards the per capita production. In his calculation for Eastern and Southern Europe, COLIN CLARK arrives at figures of 156–250 International Units per worker; for Western Europe, the U.S., and Canada, at 400–600 I.U.'s; for New Zealand, 2000 I.U.'s; and for Egypt, China and India, less than 100 I.U.'s (CLARK, 1951, p. 193 et Seq.). The per capita production is not determined by density of population alone, of course; the technique of the production is also a great factor. This explains why the Netherlands and Belgium have a reasonably high per capita production, despite the great density of their agricultural populations; in these countries the per capita production is almost as high as in Great Britain and Canada, where the density of the agricultural population is so much lower. Special mention must also be made, as regards the Netherlands (and also, to a lesser extent, as regards Belgium), of the highly intensive horticultural industry, which puts these countries in a special category. A country where horticulture is far less important, but where agriculture is nevertheless very intensive and on a high level, is Denmark. In this country 13 males are engaged in agriculture per 100 hectares of cultivated land, while the per capita production is almost 600 I.U.'s. If Denmark is taken as a model for Europe, an idea will be obtained of the pressure of agricultural population and productivity in the countries of Eastern and Southern Europe. That the density of the agricultural population in these countries — where the percentage engaged in agriculture has not declined during the last century, and where the agricultural population has shown an absolute rise — is far too high, no one will wish to deny. Yet even in many countries of Western and Central Europe, where there has been a drastic decline in the percentage of people engaged in agriculture, and where the actual number so engaged has also declined, there is still over-population in agriculture. An exception is France. Only in this country (and then only in certain parts) is the reverse process, the flight from the land, in progress. The fact, however, that the density of agricultural population is still too high in such countries as Germany, Belgium and the Netherlands, countries which underwent a very considerable degree of industrialization in the past century, demonstrates very clearly that internal migration from the countryside to the town is no simple matter.

This ought not, in our opinion, to be a cause for surprise, for the numbers involved here are not small. It would, however, be a cause for surprise if the stream of people that must flow each year from the countryside to the town were large enough. For in countries undergoing a process of economic development agriculture is a declining industry, which means that — assuming that in such countries the agricultural population may, under no circumstances, increase — the total annual surplus of births over deaths in rural areas must migrate to the town.

For the Netherlands the annual surplus is more than 10,000, or 2% of the

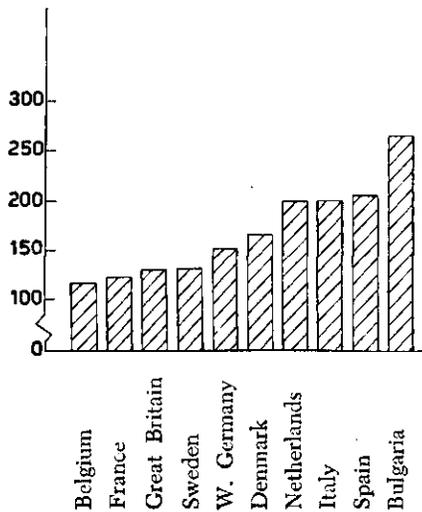


FIG. 3. MALE ENTRANTS TO THE PRODUCTIVE AGES (15-64) PER 100 DEPARTURES.

agricultural population. If we take this percentage and apply it to all the countries in Europe (in Eastern and Southern Europe the figure is higher), it would mean that, for Europe as a whole, about 1 million rural youths ready to enter employment have to migrate to the towns. This figure represents the bare minimum - in the first place because it is based on the present working population, which in most countries is far too large, and in the second place because increasing mechanization will cause the demand for labour to decline. This last factor can, without doubt, still be of great significance for Europe. Existing disparities as regards mechanization are still very large. The number of tractors per 1000 hectares of arable land varies in Europe from 35 to 1, while the number of male workers per tractor varies from 3 to over 300. In Eastern and Southern Europe agriculture has as yet only been mechanized to a small extent, while in various countries in Western Europe there is a rather high degree of mechanization. With the increase of mechanization, therefore, especially in Eastern and Southern Europe, the demand for agricultural labour will undergo a further considerable decrease, so that migration to the town will have to increase proportionately.

The facts show that migration is inadequate. Furthermore, experience teaches that it takes place too late in life; it is only in their later years that many come to realize that there is no room for them in agriculture. It need hardly be said that this state of affairs is not very encouraging for those concerned and that it is also detrimental to welfare. The inevitable results of insufficient migration from rural areas are unemployment and underemployment. The population pressure which goes hand in hand with these stimulates a further subdivision of farms, so that underemployment becomes even greater. Another serious adverse factor is that it is precisely in areas which have a labour surplus that the impulse towards the rationalization and mechanization of agriculture is weak. Naturally, in such areas, the inclination to follow courses of specialist training is not very great either. Here then are some of the characteristic features of the areas we nowadays refer to as "underdeveloped".

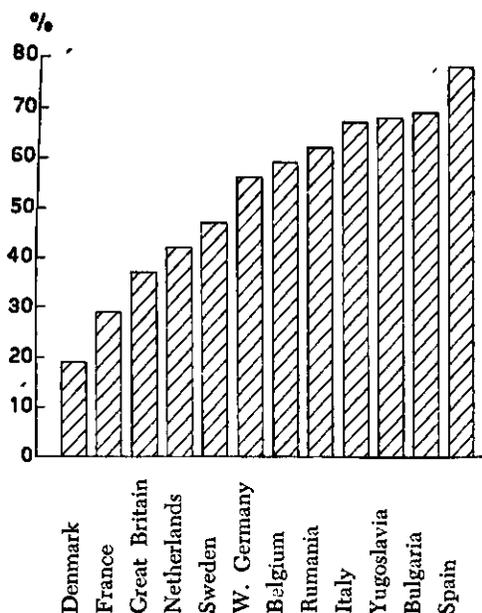


FIG. 4. NUMBER OF FARMS OF 1-5 HA IN % OF THE TOTAL NUMBER OF FARMS \geq 1 HA.

We are obliged to ask ourselves how these areas can be helped, and where a beginning must be made. In the areas concerned the main difficulty lies in the disequilibrium between the number of people and the area of arable land. The first thing to do, therefore, is to encourage efflux to non-agricultural industries. An effective way of doing this would be to give the rural population advice concerning choice of school and employment, and information about the occupations open to them — a point of importance here being that the people would have to be tested to ascertain their suitability for the occupations concerned. Information regarding the existing training facilities for the various occupations is the next logical step. It is really remarkable — to say the very least — that one of the most important decisions in the life of practically every person is taken by the large majority on the basis of so little knowledge. The setting up of an adequate number of advice bureaux to give advice on choice of school and employment is, therefore, the least that should be done to ensure that enough young men in the rural areas select an occupation outside agriculture.

In many countries no information of any kind is supplied on this point, and in those countries where advice is given it appears to be largely confined to urban centres. Insufficient attention has been paid to the matter during the last century and a half of rapid economic development in Western Europe. The enormous migration from the countryside to the towns during this period was allowed to take its own course — undoubtedly to the detriment of both town and countryside.

Perhaps those countries which are still only at the beginning of this stage of evolution can draw a lesson from what has happened. In this connection it is primarily the countries in Southern and Eastern Europe that we have in mind. These countries, with over 60% of their working populations engaged

in agriculture, and with their low standard of living, still have a long way to go before they reach the same standard of living as Western Europe and other economically advanced countries. It would be of great importance if they could turn to good advantage the experience that Western Europe has gained in the course of its development.

It should be mentioned here that social questions play a prominent part in this migration, and in the resulting modification of the economic structure. Advice bureaux, however important in themselves, are certainly not sufficient to secure the necessary degree of efflux from agriculture to industry. Attention will also have to be given to the social resistance the agricultural population shows to such migration. The farmer is by nature a traditionalist and little inclined to leave the beaten track. The problem, in fact, amounts to increasing the rural population's powers of adaptation. This central problem is of great significance to the countryside for other reasons too. Here, we only have to call to mind increasing industrialization and the important structural changes in agriculture resulting from modifications in production conditions (for instance, the re-allotment of land in various countries and the large-scale agrarian reforms in Eastern Europe and Italy), to realize that such changes must inevitably be accompanied by changes in social structure.

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