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SPATIAL DIFFERENCES IN THE LEVEL OF EDUCATION OF  
POLAND'S AGRICULTURAL POPULATION

The main task of agriculture is to meet the demand for food required by a still growing population under conditions of a continually decreasing supply of agricultural land. To fulfill this task, modern technology and new forms of organization should be introduced and agricultural methods should be changed.

Modern agriculture requires specialized machines, fertilizers, and new techniques of production. However, to stimulate progress, not only are skilled operators necessary, but also individual farmers should possess both general and specialized knowledge. A certain departure can now be observed from the traditional cultural pattern, when the heir inherits not only the farm but also takes over all practical procedures applied by his parents, which he learns when working under their guidance but which are no longer adequate /Rosner 1973/.

One of the essential factors contributing to increased agricultural production, which is also one of the basic components of progress in agriculture, is the level of education and professional knowledge of farmers. In agriculture, this factor is even more important than in many other branches of the economy because it determines not only the standard of management but also the scale of activities.

In the rich literature dealing with various

aspects of education in the countryside, many studies, mainly on the scale of the country or selected regions, are concerned with relations between the level of education and production effects /Malanicz 1965; Kurek 1971; Ziólek 1978; Trzcinski 1979; Debowski, Kozok 1983; Klank 1985; etc/; but not many of them analyse spatial differences in the education of the agricultural population /Krzyszowska - Kostrowicka 1979; Trzcinski 1981/. The lack of spatial analyses of the level of education of the agricultural population at the commune scale for the whole country and of relations existing between the education of the agricultural population and production effects has induced the author to carry out the described study. Initial results, which were concerned with the level of farmer's education and production effects, are described by the author together with Kulikowski /1986/, and those concerned with the spatial differences in the level of education of agricultural population in Poland in a paper by the author /1986/. A summarized description of these studies is included in this paper.

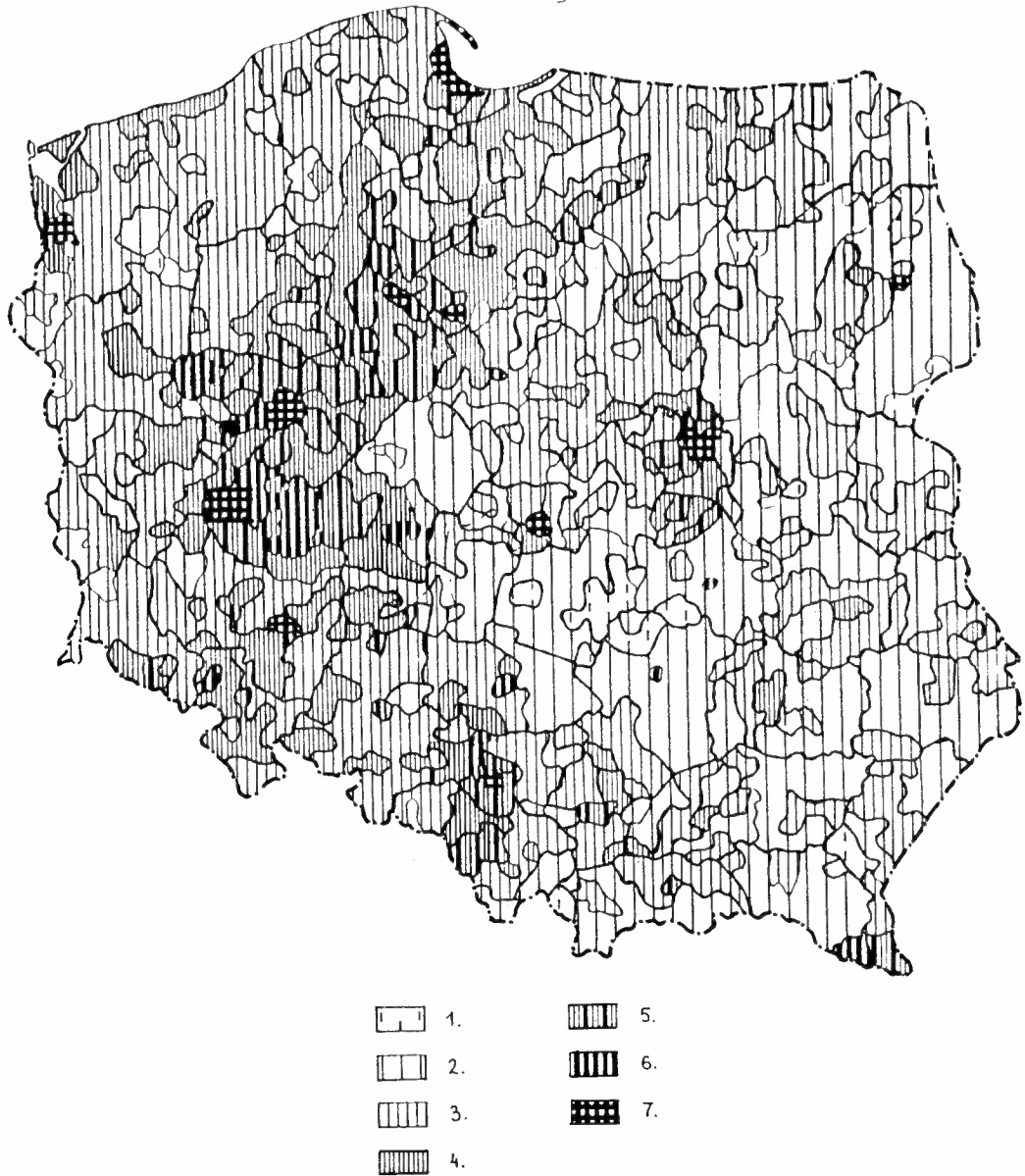
In post-war Poland, progress in the development and dissemination of education has been considerable. The number of people with above-primary /higher, secondary, or vocational/ education has increased significantly. The share of people engaged in agriculture who possess above-primary education increased from 2.7 % in 1960 to 19.1 % in 1978, of which in peasant farming the levels increased from 2.1 % to 17.1 % and in socialized farming from 13.6 % to 49.3 %.

The number of people not completing primary school declined from 73.3 % in 1960 to 26.6 % in 1978 /31.3 % in peasant farming and 6.9 % in socialized farming/. However, in 1978 65 % of the total unqualified labour force working in the national economy was still employed in agriculture /Padowicz 1984/. The share of population with above-primary education in the countryside was still three times lower than in the towns /Muszyńska 1983/.

The statistical data used in the study are taken from the 1978 General Census, which presents them separately for five levels of education /higher, secondary, vocational, primary, and primary not-completed/ mainly of self-employed farmers, grouped according to communes for Poland as a whole. The 1978 General Census indicated that there were in Poland 5.3 million people active in agriculture aged 15 or over. Employment in peasant farming amounted to 4.25 million and 3.936 million were mainly self-employed /92.6 % of the total force employed in peasant farming and 74.3 % of the total labour engaged in agriculture/.

Almost 12 % of the self-employed farmers are graduates of above-primary schools /0.2 % from higher schools, 2.8 % from secondary schools, and 8.7 % from vocational schools/. The dominant proportion /57.4 %/ completed primary education, about 31 % did not finish a primary school.

The highest percentage of people with above-primary education was found in Greater Poland, Cuiavia, and the areas along the Lower Vistula /Fig. 1/. In the communes situated there, the proportion of that group oscillated from 20 to 30 %; in many



Individual agriculture 1978

- |          |          |
|----------|----------|
| 1= <5    | 5= 20-25 |
| 2= 5-10  | 6= 25-30 |
| 3= 10-15 | 7= 30<   |
| 4= 15-20 |          |

FIGURE 1 Percentage of people with above-primary education of total actively employed on own farms

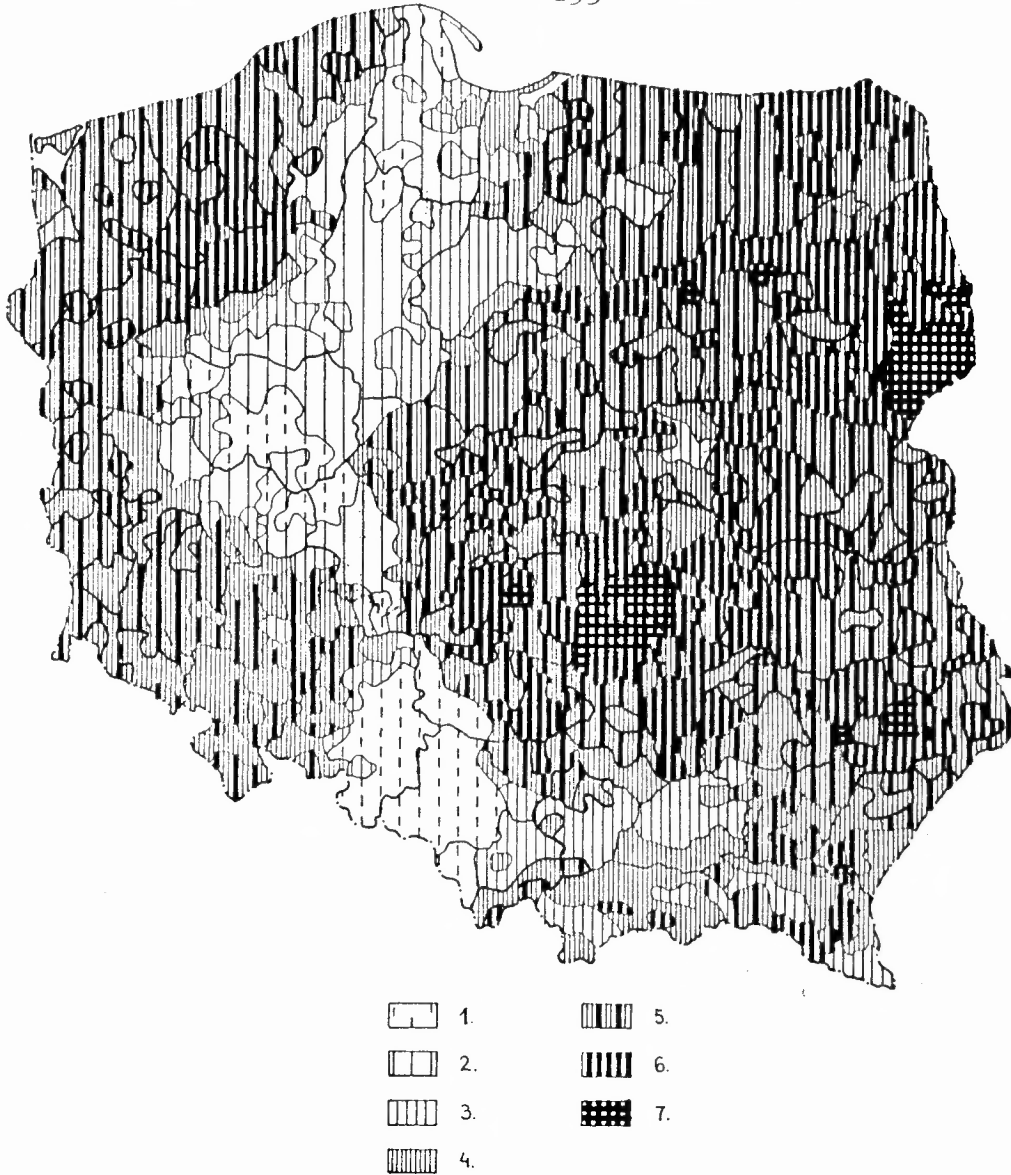
communes in the Leszno voivodship, it exceeded 30 %. The percentage of people with above-primary education was higher in these communes than elsewhere in Poland /15-20 %/.

A high percentage of the agricultural population with above primary education /over 20 %/ was registered in Upper Silesia, Cieszyn Silesia, numerous communes in Warsaw's suburban zone, certain communes in the Silesian Lowland and the Sudeten Foreland, as well as in Western Pomerania.

However, in most of Poland the agricultural population with above-primary education did not exceed 15 % of self-employed farmers; in north eastern Poland, this percentage was even 5-10 %. The lowest percentages of self-employed farmers with above-primary education /under 5 %/ were found in the communes of Poland's central region /Piotrków, Kielce, and the southern part of Radom voivodship/ and in the south-east /Przemysl voivodship/.

The highest number of graduates from vocational schools was registered in the areas where the share of population with above-primary education exceeded 20 %; it oscillated from 15 to 20 % and, in the voivodships of Leszno or Poznan, it even exceeded 20 %. In the same areas the number of graduates from secondary education was also the highest /over 5 %/. At the same time the percentage of self-employed farmers who did not complete a primary school was lowest there /from 5 to 10 %/; in many communes in Opole Silesia, Cieszyn Silesia, and Greater Poland, part of Cuiavia, and the Casubian Lakeland it was even under 5 % /Fig. 2/.

Those territories are traditionally known as having attained very high agricultural standards, where



Individual agriculture 1978

1= <5  
2= 5-10  
3=10-20

5= 30-40  
6= 40-50  
7= 50<

FIGURE 2 Percentage of people with uncompleted primary education of total actively employed on own farms

for generations the custom of acquiring professional knowledge and improving qualifications has been preserved, and where this task is thought to be of the utmost significance.

The situation with regard to the level of education is also quite auspicious in southern Poland, where the share of farmers with above-primary education was large /10-15 %/ and the number of people with uncompleted primary education relatively small /10-30 %/. These territories are characterized by a high proportion of bioccupational population; obtaining a job in non-agricultural occupations requires at least the completion of a primary school or professional training.

In turn, the percentage of people with uncompleted primary education was highest /30-40 %/ in large areas in eastern and central Poland, which are characterized by a low or even very low percentage with above-primary education; in many communes the percentage even exceeded 40 % and sporadically in the communes of the Białystok and Piotrków voivodship even 50 % of self-employed farmers.

A similar situation was noted in the Recovered Territories, where the share of people who did not complete primary school was 30-50 %. This is due to the fact that up to the present most of the farmers are people who settled there, having come from central Poland and the USSR, mostly from the areas where agricultural standards were low and where there was not an inborn tendency to raise one's own qualifications. The specific features characterizing these areas are, on the one hand, a high proportion of people with uncompleted pri-

mary education, and, on the other hand, a high percentage /10-15 %/ of mainly young people with above-primary education /mostly graduates of vocational and secondary schools/.

The introduction of the general system of education has caused young farmers to be much better educated than their parents /Adamkiewicz 1979; Wyderko 1980/. In 1982, 34.5 % of agricultural workers up to 45 years of age were graduates of above-primary schools, but only 13.6 % completed agricultural schools /Galczyńska, Kulikowski 1986/. Szemberg /1980/ tells us that almost half of the future farm owners have completed above-primary schools and that the number of heirs who did not complete a primary school is very small /5-6 %/.

There are also differences in the level of farmers' education in holdings of various sizes. If we analyse data of 1978, we will see that the proportion of farmers with above-primary education in farms up to 2 ha was 13 %, from 2 to 5 ha 9.7 %, from 5 to 10 ha 11 %, and 16 % in farms of over 10 ha /Trzcinski 1981/.

In peasant farming in Poland the share of people with above-primary education is determined by the number of people with completed vocational schools /Poland's average = 8.7 %/; graduates of secondary education play a lesser role /2.8 %/. There are few graduates of higher education in peasant farming /Poland's average = 0.2 %/. Their number is higher in towns and communes lying in the vicinity of large urban centres. The only exception is the Warsaw voivodship, where for many communes the respective index exceeds 1 % and in



certain communes it is even higher: Lesznowola 2.1 %, Brwinów 1.8 %, Michalowice and Jabłonna 1.6 %.

A positive relationship between the level of education and production effects is emphasized in many studies carried out by economists /Malanicz 1963; Kurek 1971; Ziólek 1978; Klank 1985/ and by geographers /Galczyńska, Kulikowski 1986/. The studies point out that the higher the level of education, the greater the land productivity and the degree and level of commercialization /Malanicz 1965; Galczyńska, Kulikowski 1986/. Properly trained farmers as a rule obtain from the same area 1.5-2 times greater production at a much lower cost /Brzóška 1976/. Net production per ha of agricultural land in farms managed by people with above-primary education is almost 15 % more than that obtained in farms run by people with uncompleted primary education; final production is even higher by almost 20 % /Klank 1985/.

The level of education is also a factor that differentiates agriculture in separate farms, since better educated farmers are more willing to use modern methods. The more advanced the level of education, the higher are material and financial inputs per ha of agricultural land and the lower are labour inputs /Malanicz 1965/. Farmers with above-primary education manage their farms much more efficiently, i.e., they use less labour to produce a certain net production /Trzcinski 1979/ and also they willingly introduce all new techniques /Adamkiewicz 1979, Rosner 1973/.

In Poland as a whole the processes effecting agricultural progress have accelerated more rapidly

in the northern, western, and south-western regions. Fertilization is much more intensive /200 kg per ha of agricultural land/ and mechanical power is used more frequently in the areas where the farmers' level of education is higher, as in the territories along the Lower Vistula, Greater Poland, Cuiavia, Lower and Upper Silesia, as well as in certain communes of Western Pomerania and the Sudeten Foreland; the use of draught animals is much less frequent here /under 30 %/. Undoubtedly, agricultural qualifications gained by the farmers condition a rational use of inputs.

Modern progressive agricultural methods are also applied in the vicinity of large urban agglomerations /e.g., around Warsaw or Łódź/. The development of modern market gardening /production of vegetables and fruit/ is an example of abandoning traditional agricultural methods in the most rapid way /Stys 1983/. The vicinity of a big town with a well-developed network of all types of schools, makes it possible for future farmers to acquire general and specialized knowledge, whereas the application of modern farming methods brings about concrete economic results encouraging the operation of highly specialized farms. Suburban areas are characterized by the highest proportion of farmers who have completed higher education. The existing acute regional differences in the level of education among private farmers result from the still extant historical conditions of the development of the country's separate parts.

Because of an evident interdependence between the level of education of farmers and production effects, the identification of spatial differences in

the level of education of the agricultural population has not only cognitive values but also practical effects, since it may influence the further course of the development and intensification of agriculture. It is, however, of vital importance to continue studies in this respect, including such topics as an analysis of links between the level of farmers' education and age structure, or between the level of education and orientations in agricultural production.

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