

# HISTORICAL CONDITIONING AS THE DECISIVE FACTOR IN THE CONTEMPORARY SPATIAL STRUCTURE OF POLISH AGRICULTURE

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## Introduction

Agricultural production in Poland and Polish exports of agricultural produce are developing dynamically. Yet, the share of farming in the national product and its significance on the labour market has been constantly decreasing since World War II. The contribution of farming to the national income dropped from 58% in 1947 to 3.7% in 2006 (*Kulikowski, 2009*). Nevertheless, in comparison with other countries of Central-Eastern Europe, and especially with those of Western Europe, Polish agriculture does still play an important role as a sector of the national economy (*Kulikowski, 2005*).

Numerous authors agree that the high significance of agriculture in Polish economy has an historical conditioning. The majority of contemporary analyses, concerning Polish agriculture, however, take up the subject of its dynamic transformations and the functioning in new circumstances, following the accession of Poland to the EU. It is, though, much less frequent to note that the spatial structure of Polish agriculture is still marked by distinct discontinuities and that this structure still reflects to a much higher degree the historical background than the financial support instrument application or even the natural conditions, the latter constituting the truly decisive factor in case of many countries.

An exceptionally high importance of the historical factors, in comparison with other countries, can be explained by two facts. First, during the entire 19<sup>th</sup> century, until the year 1914, the territory of Poland was divided by hard-to-penetrate state boundaries, separating the three partitioning powers, Russia, Prussia and Austria, featuring different levels of economic development and implementing different agricultural policies. This brought about a significant differentiation of the development levels within the confines of the present day Poland, dating back to the period of industrialisation of the country and the important agrarian reforms of the 19<sup>th</sup> century. The second important historical event that exerted strong influence on the contemporary spatial structure of Polish agriculture was the shift of the national boundaries after the World War II and the socio-economic processes, associated later on with this fact.

The degree of spatial differentiation of the qualitative and quantitative features of the Polish agriculture in different regions is, however, also bigger than that observed for the remaining sectors of economy. They underwent more dynamic transformations, both in the period of the socialist People's Poland, and later on. One can, therefore, draw a conclusion on the relatively high inertia of agriculture in terms of the evening out of this differentiation across the territory of the country.

The objective of the present paper is to demonstrate the persistent presence of the still decisive historical factors in the shaping of the spatial structure of modern agriculture. The analysis is based on the statistical and cartographic materials developed for the purposes of the Atlas of Polish Agriculture (*Bański*, 2010).

### **The historical and the other main factors of spatial differentiation of Polish agriculture**

The most important groups of factors of spatial differentiation of agriculture include natural conditions, human factors, farming structure, technical and production means, as well as historical factors. The role of the latter group of factors is especially important in view of their significance in the case of the spatial differentiation of the Polish economy, but also in view of the fact that this group of factors exerts influence on agriculture both directly and indirectly through the intermediary of the spatial structure of other factors.

The sole group of factors shaping the differentiation of the spatial structure of agriculture that are relatively independent of the historical processes, are the factors associated with natural conditions. Soils, climate, relief, as well as water conditions – resulting from the former – all exert a strong influence on the kind of agricultural production that can be effectively carried out within a given area. On the other hand, virtually all of the socio-economic factors are, to a lesser or bigger extent, a consequence of the historical conditioning.

The numbers of agricultural population in the 20<sup>th</sup> century changed, primarily under the influence of the variable – in time and space – and usually negative rate of rural-to-urban migration. The outflow of population from agriculture has been taking place, though, also to a large extent owing to the multi-functional development of rural areas and the increase of daily commuting-related migrations on the suburban areas. Thus, the total outflow of population from agriculture depends upon (*Frenkel–Rosner*, 1987):

- demand for human resources in the non-agricultural sectors of economy and the balance of manpower in agriculture itself;
- differences of the levels of incomes of the urban and rural population, as well as of the standards of living in the city and in the countryside;

- the psycho-social factors, such as occupational aspirations of the population, the social status of the farming activity, traditions, etc.

All of the above factors have been changing over the historical periods in a significant manner.

The demographic structure of the rural population in particular regions of Poland differs mainly due to the migration movements, associated with the shifting of the boundaries of Poland after World War II. The socio-occupational structure, on the other hand, is closely associated with, for instance, the differentiated accessibility of education in the particular parts of Poland in the 19<sup>th</sup> century, belonging to different neighbouring powers, and with the different paces of industrialisation and urbanisation related to it in the individual regions of the country during the second half of the 19<sup>th</sup> and at the beginning of the 20<sup>th</sup> century. In the Austrian and Prussian parts, much bigger emphasis was placed on the education of the young than in the Russian part. It was also in that period that the tradition of upgrading one's skills and improving farming culture developed among the inhabitants of the western part of the country. A different course of the process of industrialisation in particular parts of Poland under the 19<sup>th</sup> century occupation finds also its expression in the different levels of dispersion of the settlement network and in the associated differentiation of the infrastructural equipment level of the rural areas, especially with respect to the network infrastructures. This differentiation is visible with respect to both the technical and the social infrastructure.

Spatial differentiation of the acreage and ownership structures of farms is to the highest degree conditioned by the historical factors.

The influence of the historical factors is also clearly visible in the case of evolution of the land use structure in Poland. The spatial pattern of the shares of agricultural land in the territory of the country, having taken shape in the past, is a function of the differentiation of demographic pressure and the appropriateness of natural conditions for farming. During the successive centuries until the inter-war period, changes in land use consisted primarily of the increase of the area of agricultural land, mainly at the expense of forests (*Bański–Stola, 2002*). The share of agricultural land in Poland increased in the historical period from a couple of per cent to 65.8% in 1938. At the same time, the share of forests has been decreasing. At the end of the 18<sup>th</sup> century forests occupied approximately 43% of the country's area, while in 1939 – only 22.2%. During this time the area under forests shrank first of all under the influence of developments in construction, industry and mining, which entailed an increase of demand for wood, which was in older times also a basic energy source (*Bański–Stola, 2002*). These processes, though, have been taking place with varying intensity on the territories, belonging to the particular partitioning powers in the 19<sup>th</sup> century. Large changes took also place in land use during World War II, when the cultivation of roughly 7 million hectares

was given up, while the forest area dropped to the all-time low of 21%. The current spatial structure of the shares of agricultural land and forests is largely the consequence of the processes described above.

### **The influence of the partitions of Poland in 1795–1918 and the shift of the national boundary in 1945 on the spatial structure of Polish agriculture**

The partition between Russia, Prussia and Austria divided the country into three parts, featuring different levels of socio-economic development as well as different administrative and legal systems. It was in that period that the development of industry and the urbanisation processes entailed the development of commercial agriculture. The sales market for the food products broadened, while the technologies of crop cultivation and animal breeding improved. During the 19<sup>th</sup> century technological progress, the increased application of fertilisers, land improvement, the introduction of machines and the improvement of knowledge on methods of farming brought about a two-, even threefold increase of productivity of agricultural land. Yields of basic cereals on Polish lands increased during only the period between the middle and the end of the 19<sup>th</sup> century from roughly 0.55 tonne per hectare to 1.1–1.8 tonne per hectare, depending upon the region. Yet under the differentiated socio-economic and legal-administrative conditions, agriculture developed at different rates and in somewhat different ways in each of the three parts of Poland. Likewise, the structure of crops among the basic cereals was also distinctly differentiated. Much higher yields, achieved in the Prussian part, were conducive to an increase of the area under rye, which is more resistant to disadvantageous natural conditions, but features lower yields than wheat or barley. Until today the differentiation of farming culture and methods of farming among the Polish lands that belonged in the 19<sup>th</sup> century to various partitioning powers can be clearly seen.

On the territory of Prussia the agrarian reform of 1826 endowed peasants with land and brought about consolidation of the manor land (*Cymerman–Falkowski–Hopper*, 1992), while the highly absorptive German market, associated with the development of towns and industry, as well as development of infrastructure, along with strong customs barriers on imported cereals and other food products, in force in Prussia, were advantageous for the development of agriculture even considering the relatively high taxes imposed by the Prussian administration. The agrarian reform in Prussia, through consolidation and regulation of plots as well as establishment of convenient conditions of land purchase, favoured large and effective farms. This led to emigration of a part of rural population to towns and was conducive to the increase of productivity of agriculture and orientation at commercial

production. In the years 1880–1910, production of the four basic cereals per capita increased in the part of Poland annexed by Prussia fourfold.

In the Austrian part (the so-called Kingdom of Galicia) small and medium sized manor estates dominated, along with small peasant farms, and the prices of agricultural produce were much lower. The strongly partitioned structure of properties was due mainly to the liberal policy of the Austrian occupants. The first half of the 19<sup>th</sup> century was characterised by a complete stagnation of agriculture, in which feudal relations still persisted. Although in 1848 peasants were granted land ownership, the structure of plots was not advantageous for the development of agriculture. In the middle of the 19<sup>th</sup> century approximately 43% of all farms in Galicia had less than 3 hectares of land, and more than half of those – less than one hectare. Roughly 80% of inhabitants of Galicia lived in the countryside. The share of the very small farms decreased over the subsequent decades only slightly. Yet in 1902 more than 42% of all farms had less than 2 hectares of land. Besides, the small peasant farms were charged with heavier tax burden than the manor estates, and so were not capable of introducing innovations into their farming practice.

In the so-called Polish Kingdom, ruled by the Russian tsars, where agrarian reforms were introduced at the latest date among the three parts, and that only to a limited degree, agriculture played the most pronounced role, but the technologies of cultivation and animal breeding were most backward, and the peasant farms the poorest. During the first half of the 19<sup>th</sup> century the manor estates have been expanding their property (their average acreage exceeding 500 hectares) through forced appropriations of the peasants' lands. Among the peasant farms the smallest ones dominated decidedly, while a significant number of landless peasants were employed as farmhands on manor estates. It was only the tsar's act of 1864, granting ownership rights to peasants, that brought an increase of the number and total area of the peasant farms. Yet, at the same time the average acreage of a peasant farm dropped from roughly 8.4 to 7 hectares. Every third farm had the area of less than 2 hectares. In the same period many estates went bankrupt under the pressure of high import custom rates imposed by Prussia, competition from cheap cereals from the United States, and the necessity of paying the farmhands after the saccage had been abolished (*Jezierski–Leszczyńska*, 1997).

During the inter-war period, the changes in the spatial structure of agriculture resulted from the parcelling of the estates and consolidation of farming plots after 1925, which, however, was carried out to only a very limited degree in the overpopulated villages of southern Poland. Numerous farms, holding several hectares of land, were established at that time. The processes mentioned, though, concerned the territory of the pre-war Poland, but not the areas that Poland gained after the World War II. Yet, the most important changes in the spatial structure of Polish agriculture, associated with the shift of boundaries after the World War II, were linked with the agrarian reform of 1944. According to this reform, private estates

of more than 50 hectares of land were parcelled,<sup>2</sup> and the land was given to the newly established peasant farms. The resulting changes affected to the highest degree the northern and western parts of Poland, i.e. the so-called “regained territories” where the largest area of agricultural land was put to use owing to the reform. On the other hand, the spatial and property structure of agricultural land in southern and eastern Poland has not changed much. On the “regained territories” some 5 million people were settled, coming from the East, essentially from the former Polish eastern territories, this population having a different farming culture and methods of farming than the farmers from the Prussian annexation. Then, in 1947 the collectivisation of agriculture was started, aiming at the formation of farming cooperatives and meant to counter the partitioning of the agricultural space. In view of the strong resistance from the side of farmers, attached to the land that they had oftentimes just obtained, as well as lack of traditions of joint farming economy among a large part of the rural population, socialised agriculture developed mainly in the West and the North where, after the post-war relocation of Germans, large areas of agricultural land had no longer a proper owner, as well as in the south-eastern Poland, from where the Ukrainian population was resettled. On such areas, in a vast majority taken over by the state, land became the property of the then established state farms. Until today the average acreage of farms on these areas is much higher, and the share of family farms much lower than the respective mean values for the entire country.

### **Spatial differentiation of factors of spatial structure of agriculture in Poland**

A very important group of factors, decisive for the development of agriculture, and conditioning its spatial differentiation, is constituted by the natural conditions. Within this group, the leading one in Polish situation is the quality of soils. The best conditions with respect to soils exist in the East-West belt of uplands, where the complexes of brown and fallow soils dominate, with rendzinas in some locations, as well as chernozems. Among the most fertile of the soils existing in Poland are the fen soils, occurring in the valleys of the biggest rivers and in the delta of Vistula. In the northern and central parts of the country large areas are occupied by the podzolic and rusty soils, having arisen from sandy bedding. They account approximately for 26% of the territory of Poland (*Bednarek – Prusinkiewicz, 1997*). For the distribution of the majority of most important crops in Poland this factor has a decisive importance. A significant influence on the distribution of many essential crops in Poland is also exerted by the agricultural climate, and, in particular, by the duration of the growing season and the frostless period. The

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<sup>2</sup> Within the newly acquired territories (“regained territories”) this limit was at 100 hectares.

differences as regards the duration of the growing season across Poland are significant. This duration ranges from only 180 days in the mountains to 230 days in the south-western part of the country (*Gumiński*, 1951). Of lesser importance is the differentiation of the humidity conditions, which, over the majority of the territory of Poland are only little diversified. Annual precipitation totals range outside of the mountain areas from 500 mm to 700 mm. More than half of the territory of Poland is situated at less than 150 m a.s.l. Diversified surface relief constitutes an essential obstacle to the development of agriculture only in the southern part of the country and in some parts of the lakeland belt.

The here mentioned natural conditions often influence each other and perceived comprehensively are decisive for the general quality of the agricultural production space. The Institute of Soil Science and Plant Cultivation in Puławy developed a method of evaluation of this production space (*Waloryzacja...*, 1981). It has the form of an index, which sums within a score ranging between 0 and 120 such aspects as soil quality, water conditions, agricultural climate and surface relief in proportions appropriate for their significance in Polish circumstances. At the level of municipalities, soil quality in Poland ranges between 18 and 95, climate – between 1 and 15, water conditions between 0.5 and 5, while surface relief – between 0 and 5 score points. The summary value of the index ranges between 31 and 111 score points. Values exceeding 80 points are determined for the belt of uplands and the submontane dells, the eastern part of the region of Masovia, the delta of Vistula river and for the Szczecin Lowland. Low values are assigned to the majority of the northern and western areas of Poland and the mountains. The importance of the influence, exerted by natural conditions, on the spatial differentiation of agriculture, can be easily seen through the values of the correlation coefficient between the index of quality of the agricultural production space (IQAPS) and the shares of individual elements of land use structure, as well as the shares of areas under selected crops. For a set of 800 municipalities from various regions of the country the value of the correlation coefficient between IQAPS and the share of arable land was +0.479, between IQAPS and the share of meadows -0.478, and between IQAPS and the share of pastures -0.384. In the same group of municipalities the values of IQAPS are also significantly correlated with the shares of the most important crops in the crop structure (rye: -0.796, wheat: +0.772, sugar beets: +0.619, barley: +0.412, oats: -0.402, potatoes: -0.358), see *Bański* (2007).

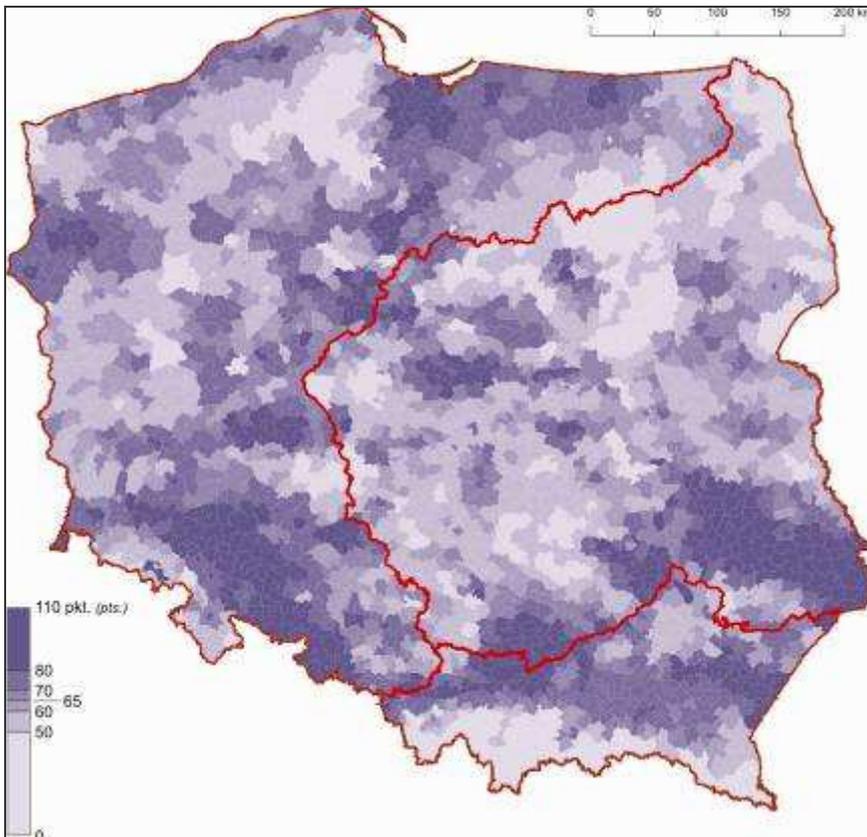
As we analyse the influence of historical factors on the spatial structure of Polish farming, we should pay attention to the fact that these factors are quite independent of the natural conditions. This statement is confirmed by, in particular, the fact that in each of the three parts of Poland annexed in the 19<sup>th</sup> century there were significant areas featuring advantageous as well as disadvantageous natural conditions. Hence, the differentiation of the characteristics of agriculture on the territories having belonged to different neighbouring powers during the 19<sup>th</sup> century can

to only a marginal degree be explained by the associated differentiation of the natural conditions (*Figure 1*).

The socio-economic factors, such as the socio-demographic structure of the agricultural population, the agrarian structure, or the equipment with technical infrastructure and production means, can be treated not only as a category of conditions for the development of farming, but also as diagnostic features, describing its spatial differentiation. Yet, beyond doubt, the spatial structure of these characteristics has a key significance for the explanation of spatial differentiation of productivity, commercialisation, as well as the dominating profile of agricultural production on a given area.

Figure 1

*IQAPS and annexations borderlines*



Source: Author's construction based on Institute of Soil Science and Plant Cultivation data.

The contemporary spatial differentiation of the ownership structure of agriculture is, first of all, the consequence of the historical transformations on Polish territories and the agrarian reforms in the period of partitioning of Poland and after the World War II. Due to the radical agrarian reforms of the 19<sup>th</sup> century the role of peasant farms increased. Changes concerned in a particular manner the structure of ownership of arable lands, since in 1910 only 15% of forests were in the hands of peasants. Ownership structure, though, was spatially diversified, in view of the different nature and scope of reforms, as well as different legal and administrative situations in particular annexed parts of Polish territories.

Another essential change in the ownership structure of agricultural lands and in its spatial distribution was brought about by the agrarian reform, introduced after the World War II. Large (manor) farms were replaced by smaller peasant farms and, on the other hand, larger agricultural cooperatives and state farms. These changes, though, concerned in a clearly highest degree the north-western and western parts of Poland. In central and eastern Poland the shares of family farms in the total area of agricultural land exceed 90%. Since 1989 the highest increase of the share of land owned by family farms took place on the areas until quite recently to a large extent administered by the state-run agriculture, especially in northern Poland. Yet, the regional differentiation of the ownership structures was evened out to an only very limited degree. In the period between 1990 and 2002 the share of agricultural land owned by the State Treasury dropped from roughly 24% to 17% (Głębocki, 2005). Likewise, the less popular ownership forms are distributed in the manner that often refers to the historical courses of state boundaries. Thus, for instance, farming cooperatives have some, though limited, significance only within the confines of the former Prussian annexation, where in the 19<sup>th</sup> century a tradition developed of forming cooperative undertakings meant to protect Polish farmers against the German attempts of purchasing land for purposes of German colonisation. Commercial law companies have been established on the basis of the privatised state farms, and so their spatial distribution follows closely the spatial structure of the shares of the state sector in the ownership structure of agriculture. Land communes, being a relic form of land property, originating yet from the feudal period, exist almost exclusively on the territory of the former Russian occupation, where this form had not been abolished until Poland regained independence in 1918. On the other hand, these territories feature a much lower share of the churchly estates, which were subject over the 19<sup>th</sup> century to numerous confiscations from the side of the Russian administration. The image of the ownership structure, having developed and persisted for decades, has numerous consequences, including direct and indirect influence on the current spatial structure of Polish agriculture. Thus, for instance, the pattern of distribution of the land in lease is nowadays highly similar to the distribution of the shares of land, belonging to the

State Treasury, since it is quite common that the land of the Agricultural Property Fund of the State Treasury is leased by large commercial farms.

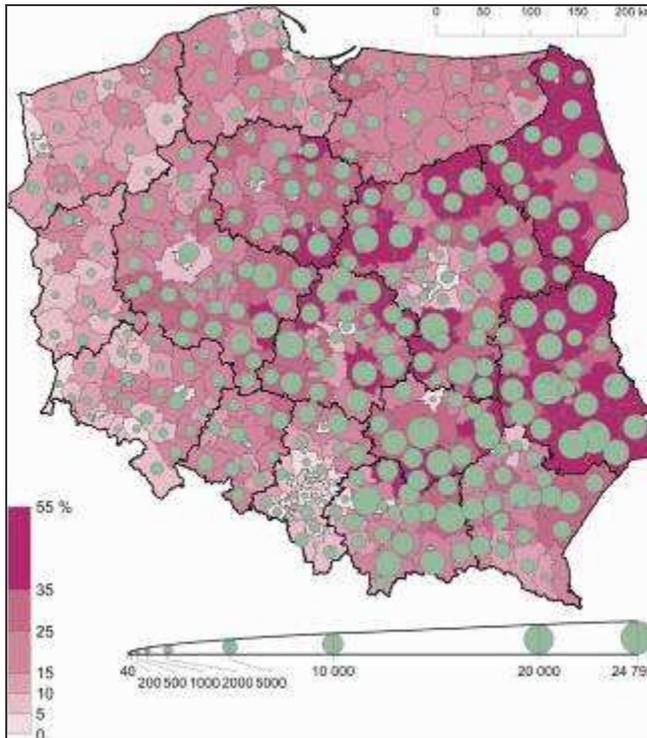
The acreage structure of the farms in Poland is also associated, though to a slightly lesser degree, with the course of historical state boundaries. As demonstrated by the Agricultural Census of 2002, in a clear way the smallest average acreage of farms is observed on the areas having belonged in the 19<sup>th</sup> century to Austria (3.4 hectares in Małopolskie province and 3.7 hectares in Subcarpathian province), while the biggest on the “regained territories” (the Western Pomeranian province – 24.7 hectares, and Warmian-Masurian – 23.8 hectares), the latter mainly owing to large state farms and the commercial farming companies, having arisen on their basis. Since 1989 certain changes took place in the regional differentiation of the acreage structure of farms, consisting in the increase of the percentage share of large family farms in the entire northern and western Poland, due to purchases of agricultural land from the public sector and the liquidation of small farms. The spatial structure of the average acreages of farms is also associated with the distribution of spatial structures of farms themselves. These spatial structures are definitely the most dispersed on these areas, where small farms dominate, that is – on the territory of the former Austrian annexation, although regional differentiation with this respect has been slowly diminishing over the last years. The processes of division of property in Galicia have slowed down, while there has been a worsening of the spatial structures of larger farms, which purchase from the State Treasury new plots that are often located at a distance from the farmyard itself (*Głębocki, 2005*).

The number of farming population is linked with the natural conditions for agriculture on a given area and the associated possibility of securing upkeep from farming activity. Yet, in the case of Poland historical factors have a high significance for the distribution of agricultural population. Namely, the acreage structure of the farms in various parts of the country is largely historically conditioned, just as is the differentiation of the level of industrialisation, linked with the outflow of rural population to towns. In 2002 the share of agricultural population in particular provinces ranged from 10.4% in Western Pomeranian, 10.5% in Silesian, 10.9% in Pomeranian and 12.7% in Lower Silesian, up to 47% in Subcarpathian province (*Figure 2*). On the territories of the traditionally overpopulated rural areas of the former Austrian annexation the highest percentage shares are registered. This, however, is partly due to the hidden unemployment, existing there, consisting of a surplus of employees in relation to labour demand, and quite a numerous bi-occupational population, for whom the farm is merely an additional source of income, or is altogether maintained for self-supply in terms of some of the food products. On the other hand, the highest rates of registered unemployment characterise the farming population in the areas where large state farms have been liquidated. In some counties of the north-western Poland the unemployment indicator,

registered in the middle of 2004, significantly exceeded 40%, this being associated with the social and economic degradation of such areas.

Figure 2

*Number and share of farming population in the total number of employed, 2003*



Source: Bański, 2010.

The level of education of the farm managers is linked, first of all, with the effectiveness of management of respective farms. Yet, studies demonstrate that it has also an influence on the level of infrastructural equipment and innovativeness, and in the recent years – on the acquisition of financial means from the EU funds, as well (Bański, 2005). It is expected that this factor shall be playing an increasing role. The spatial structure of the level of education of rural population has developed also, in particular, according to the course of historical socio-economic processes. The least educated population live in the East of the country where the depopulation and ageing processes have been most intensive. The highest education levels characterise the population of the suburban areas, where access to edu-

cation is the easiest. The highest percentage shares of farmers having proper agricultural education are observed on the territory of the former Prussian occupation (with exception of the “regained territories”), where since the 19<sup>th</sup> century the farming culture has been high. A similar situation exists only on the areas of intensive farming within the suburban zones. The lowest level of agricultural education is observed on the territory of the former Austrian annexation, this fact being closely linked with the numerous group of bi-occupational population.

The level of education of the farm managers is also correlated with the use of modern machines and farm appliances, and with introduction of innovative methods of farming. Introduction of modern agricultural production is hampered by the small acreages and partitioning of the farms, as well as surplus labour force in the countryside. These barriers are, therefore, effectively limiting the development of agriculture in southern and eastern Poland. On these areas there is, at the same time, a dispersed pattern of the rural settlement system, significantly lowering the possibility of improving the state of technical infrastructure. The level of innovativeness and the advance of modernisation in agriculture are, however, hard to assess with the commonly available statistical data. The number of tractors per 100 hectares of agricultural land, which increases with the decrease of the average acreage of farms, displays an opposite spatial pattern to that of the general level of mechanisation in farming. Yet, it is nowadays an inappropriate yardstick of innovativeness in agriculture, in view of high average age and low power of the majority of tractors used in small farms (*Stola–Szczęsny*, 2001). Similarly, the distribution of electric energy consumption on farms per area unit, which increases, again, with the decrease of the average acreage of farms, is the evidence of low effectiveness of agricultural production in small farms, and not of an advance in mechanisation. Progress in the modernisation of agriculture is better reflected through the distribution of indices of mineral and organic fertiliser application. On the territory of the former Prussian annexation the use of mineral fertilisers and herbicides/pesticides per unit area is the highest, and it decreases from the West towards the East, to the advantage of increased application of organic fertilisers. The differences, existing until today, concerning the infrastructure, between the territories of different 19<sup>th</sup> century annexations, are well illustrated by, for instance, the distribution of railway lines or the shares of dwellings equipped with bathroom.

The spatial differentiation of the shares of agricultural land, shaped in the past, results from the intensity of demographic pressure and the natural conditions for agriculture on a given area. High shares of agricultural land characterise the areas featuring the best natural conditions. Yet, one can also notice their relatively higher share on the territory of the former Russian part of Poland, where weak development of industry constituted a barrier to the migration of rural population to the towns, and resulted in the “dearth of land”. Arable land dominates in the structure

of agricultural land, and this share is distinctly higher on the areas, characterised by better natural conditions for agriculture.

### **The spatial structure of Polish agriculture**

The distribution of particular crops is to a large extent associated with the natural conditions that are advantageous for these crops. Yet, even in this case one can notice a differentiation, which is linked with the course of historical state boundaries, and is the consequence of differences in the agrarian structure, traditions in farming methods, or the level of development of the food processing industry.

The leading role in the crop structure in Poland is played by the cereals. Their lowest share in the sown area is observed in Galicia, which has been affected in the lowest degree by the recent phenomenon of extensification of Polish agriculture, in view of a low share of larger farms. Definite traces of the historical divisions can also be observed with respect to the distribution of particular crops. Thus, for instance, rye constitutes the most important crop in central and eastern Poland – the former Polish Kingdom under the tsarist rule being closely associated with the mostly traditional, barely commercial or intensive farming that dominates on this territory.

An instance of the linkage between the distribution of crops and the historical boundaries of Poland from the pre-war period is provided by the industrial crops, especially rapeseed and (partly) sugar beets. Rapeseed necessitates specialised machines and equipment. In the past, such equipment was at the disposal of the state farms, which cultivated large areas under this crop. A part of the state land was taken over by private farming, but the majority of cultivation of rapeseed is still concentrated within the “regained territories”. The largest areas of cultivation of sugar beets are mostly connected with the regions featuring the best quality of agricultural production space. Yet the popularity of this crop in Kujawy and in Wielkopolska can only be explained by high farming culture and a well-developed sugar industry.

Side by side with the spatial distribution of crops, the share of fallow land also displays a relation to the historical background. The largest areas of the relatively high shares of fallow and waste lands in the total surface of arable land are observed there, where the ownership structure had been characterised by the highest shares of the state sector, that is – mainly on the “regained territories”. Fallow and waste lands are constituted nowadays primarily by the poor quality plots that have not been made any economic use of by the State Treasury.

Spatial distribution of animal husbandry is to a lesser degree related to the historical boundaries. This fact results primarily from the large fluctuations of the numbers of animals raised, connected with changes in respective business condi-

tions, which contributed to the gradual evening out of the differences between various agricultural regions with this respect. Still, even in the case of animal husbandry one can find the examples of spatial structures, which are related to the historical background. This applies, in particular, to the domination of dairy cattle raising in the former Polish Kingdom and the much higher significance of the dairy-and-meat specialisation on the “regained territories”, where, on the other hand, the overall intensity of cattle raising is much lower. The lands of the 19<sup>th</sup> century Austrian occupation feature, characteristically, a relatively high number of goats per area unit, since a vast majority of these animals is raised on farms not exceeding 5 hectares.

Horses are used on Polish farms mainly for transporting the produce and for some of the fieldwork. That is why on the territory of the former Prussian annexation, where the process of mechanisation of agriculture started at the earliest time and has been most advanced, the relative numbers of horses are the lowest.

The proposition of the most advanced mechanisation of agriculture in the former Prussian part of Poland is confirmed by the spatial structure of productivity and commercialisation of agriculture. This is, in particular, the effect of the popularity of cultivation of industrial crops and pig raising in the regions of Wielkopolska, Kujawy and Opole. On this territory the percentage share of farms producing primarily for sale is the highest. The lowest indicator of commercialisation (sale to market), below 50%, is registered for the small-scale farming in Galicia. A characteristic feature of agriculture of this region is the high percentage share of farms producing uniquely for holders’ own needs (largely the equivalent of subsistence farming). Production on such farms is subordinated to the consumption needs of the farm dwellers, while their main incomes are constituted by pensions, retirement pays or employment outside farming.

## Conclusions

The historical factor is of particular importance for the spatial differentiation of agriculture in Poland due to the persisting feedback with human factor, land use structure and technical facilities. This factor has a great impact on productivity and market orientation of agriculture and somewhat lesser impact on distribution of cultivation of particular crops. The borderlines of the 19<sup>th</sup> century annexations and of the inter-war Poland are still well seen in the current spatial pattern of Polish agriculture; the strong differentiation in the socio-economic aspect, dating from the administrative divisions of the past, is seen even on the very local scale (e.g. twin towns inside the today’s Polish territory, resulting from the 19<sup>th</sup> century boundaries, the suburbs of Cracow). The strongest differentiation is observed between the former Polish Kingdom and East Prussia (the provinces of Podlasie and Masovia

vs. the Warmian-Masurian province), this being the effect of persistence of the very same borderline before and during the partitions, and then also in the inter-war period.

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