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## EDUCATION AS A FACTOR THAT DIVERSIFIES THE POSSIBILITIES OF ECONOMIC DEVELOPMENT IN POLAND

### INTRODUCTION

Nowadays, education and the human capital that depends on it are strongly recognised as key factors for development. These factors explain the causes of unequal growth of spatial systems much better than the classical economic factors used previously (land, capital, and labour). As Florida (2002, p. 221) points out, the clustering of human capital is even more important to economic growth than the clustering of companies. Thus, places characterised by a great concentration of people with high education should be recognised as potential areas of economic development. According to von Hayek (1945), economic success is, to a great extent, realised thanks to the 'knowledge' that enables rational assessment of individual situations and the realistic formation of objectives. The greater the 'knowledge', the better educated the man.

The basic factor responsible for the level of 'knowledge' is education, or to be more precise its availability. The establishment of 'centre-periphery' models in modern economy appear when access to education is concerned. Migrations of people that are the most enterprising and have the best 'knowledge' and skills are both the consequence of and the factor in causes contributing to the establishment of the 'core-periphery' system. Such a system results in the formation of areas where people with higher education concentrate as well as in the consistently better education of councillors in local authorities. The level of absorption of the funds from the European Union (EU) also is an important factor which diversifies the development potential of these local economies albeit contingent, in great measure, on the competence of local councillors (See Bański, Stola 2002; Ciok, Raczyk, 2006).

The main objective of the paper is to present the role that education plays as a factor that diversifies the possibilities of economic development potential. Spatial diversification of education processes are here described through the following factors: education availability at the junior high school and university level, regional migration and education of local authority councillors. The analysis will depict the relationships between development centres and peripheral areas. In doing so, we consider the absorption of EU structural funds in Poland (ISPA, SAPARD, and PHARE) from 1990 to 2003 as an indicator of the ability of territorial systems to promote socio-economic development. Our hypothesis is that the influx of external finances is positively correlated to the education of authorities and inhabitants.

Analysis was based on statistical data from State offices in Poland as well as from independent surveys. Spatial frames cover the whole country, typically disaggregated into counties (NUTS 4), while time frames span several years.

### ACCESSIBILITY TO EDUCATION SERVICES FOR POLISH YOUTH

From the point of view of education success, the junior high school level (pupils at age of 14-16) is significant. 'Knowledge' obtained between the ages of fourteen and sixteen years influences the possibility of high school completion as an attractive choice and, consequently, the desire for continued learning at higher educational levels. Pupils with poor grades have less choice, which is consistent with high schools of a lower training level. That is, low performance levels among students prevent them from studying at the best universities, and eventually access to the best paid jobs.

In fact, in comparison to the urban youth, pupils from rural schools achieve results that are 10% lower on average at their final junior high school examinations. One of the most important reasons of relatively poorer exam results among rural youth is their limited accessibility to different cultural and education institutions.

In 2006 a survey was conducted on 1551 pupils from the 3rd grade of junior high school (16 years old). Thirty percent of those polled from rural schools took less than 10 minutes to reach the voivodeship capital while for the pupils of urban schools this share was equal to 80%. Access of the pupils from the rural areas to educational facilities in central localities in the voivodeship capital was obviously more difficult (See Figure 1).

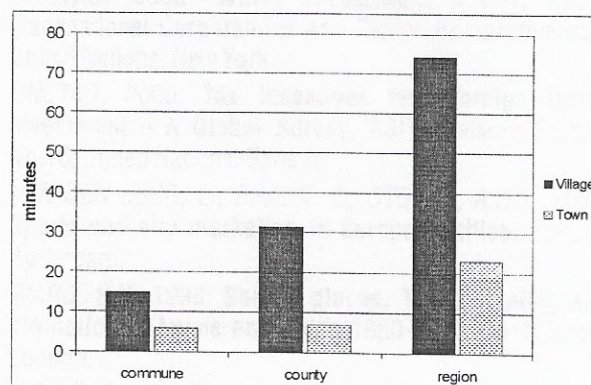


Figure 1.

Average time of commute to the different levels of local authorities for examined pupils from rural and urban schools

(Source: Czapiewski, Śleszyński, 2006)



Pupils from the rural schools have on average more than 70 minutes to reach the voivodship capital, and for every fourth pupil it takes more than 120 minutes. Such relatively long distances often prevent them from travels to the regional centre or voivodship capitals where a lot of institutions offer additional training and the possibilities to develop new skills. In fact, the accessibility to these centres is fourfold worse for the pupils from rural schools than those from urban ones.

One in every three polled pupils lives in the same locality where their school is located, which implies significant time commutes (See Figure 2). A pupil from a rural school needs on average 15 minutes to go to school and back, while it takes 13 minutes for a pupil from an urban school. The difference in time is not significant because the school bus travels 15 km on communal roads, which is equivalent to 3 km via public transport during rush hours. Though, significant difference appears when one analyses how long pupils from rural and urban junior high schools have to wait for the beginning of classes after their arrival to school or for the return-transport after classes have finished. Urban pupils can use municipal means of transport with more regular departures, while rural pupils have to go by school bus or public transport with relatively limited services. Total travel time of rural pupils is therefore almost 20 minutes longer in comparison to their urban peers. Moreover, the "waste of awaiting time" of rural pupils for whom the school does not organise the commute forces them to have to use less efficient means of public transport (Guzik, 2003).

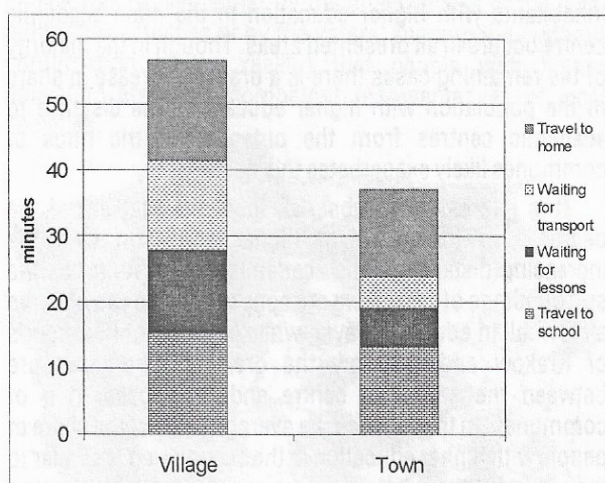


Figure 2.

Examined pupils' time of commute to school and home and their time of anticipation of transport and school classes  
(Source: Czapiewski, Śleszyński, 2006)

Urban youth also have more possibilities for additional training and skills development. Every second urban and every fourth rural pupil have declared participation in various after school activities (e.g., language and exam

courses, and interest clubs). Again, this limited accessibility to different cultural and entertainment institutions for rural youth is partly due to the urban concentration of these facilities and the long commute times described above.

### HIGHER EDUCATION ACCESSIBILITY

Although the physical distance to school is less essential at the university level than at the lower stages of education, it still plays an important role. It is especially crucial that rural youth be able to afford accommodation in an academic centre. At the beginning of the 1990s the number of academic centres was limited to 33 towns with higher education institutions and 21 towns with their branches and external divisions (Figure 3). In the following years, the dynamic increase in the number of schools and their branches took place. In 2002 there were 133 localities that can be recognised as academic centres (at least one institution or a branch). Relations of higher education institutions with respect to settlement patterns and urban hierarchy (town, cities and voivodship capitals) are clear. Whilst universities have gradually begun to appear in smaller towns, the greatest increase is observed in the traditional and largest academic centres. It is caused on the one hand by the limited mobility of scientific personnel who generally want to reside in close proximity to academic centres and on the other hand by the foundation of new institutions in urban centres where the greatest demand for intellectual capital is located.

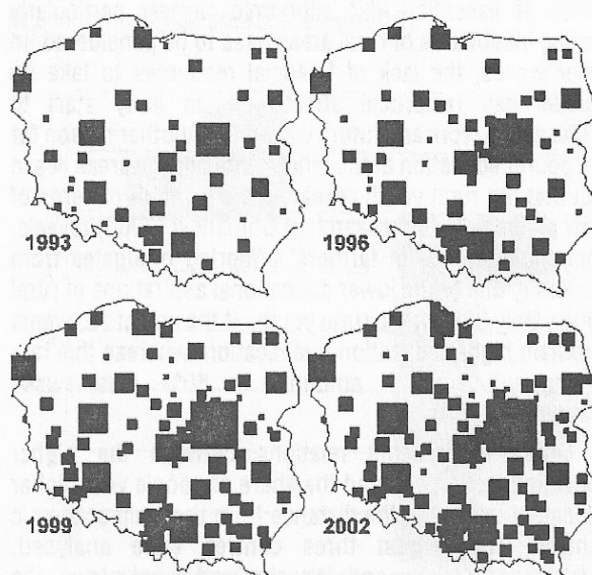


Figure 3.

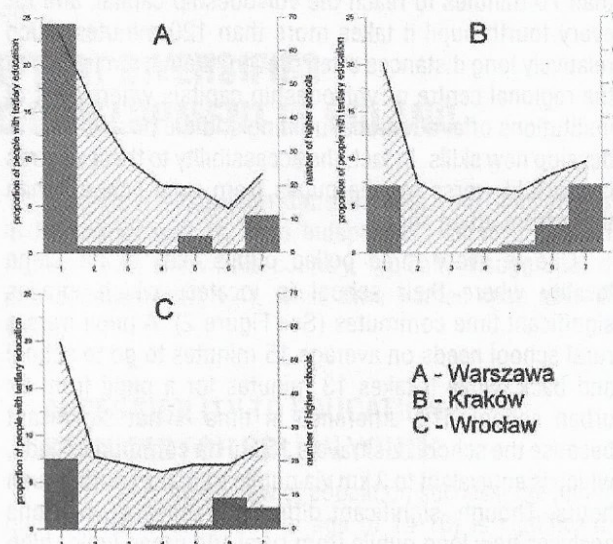
Universities and their branches in the years:  
1993, 1996, 1999 and 2002 (Source: Own calculations based on Rocznik Statystyczny Szkolnictwa 1993/1994, 1994; Szkoły wyższe w roku szkolnym 1996/97, 1997; Szkoły wyższe w roku szkolnym 1999/2000, 2000; Szkoły wyższe i ich finanse w 2002 roku, 2003)



The increase in number of schools has meant the obvious growth in student numbers. At the beginning of the 1990s it was relatively low (1,4% of population), but this percentage has increased (2,5% in 1996; 4,2% in 1999) to approximately 5% in 2002. In 2002 the highest number of students was in Warszawa (300 thousand), which is followed by the centres of Kraków, Poznań and Wrocław each with a similar student population (130-150 thousand). These centres, together with some other towns with high concentrations of education institutions, offer a wide range of study options that is contrary to private institutions in smaller towns. One also must consider the prestige, the atmosphere of studying, the availability of cultural and scientific resources (libraries, archives and bookshops) and the entertainment infrastructure of these academic centres; they are attractive to youth not only from surrounding areas but also from the more distant parts of the region.

Despite constant increases in the concentration of academic centre networks in the last decade, limited accessibility continues to persist as of 2002. Changes in the availability of higher education institutions that took place in the 1990s, resulted not only in the general increase in higher educational attainment but paradoxically also in the decrease of the share of rural students at universities. Taking into consideration the low percentage (3%) of rural youth studies (Bański, Stola, 2002), one can assume that the level of their education will likely decrease without far-reaching changes in the system of support of education aspirations for rural population. Barriers in the access to higher education are significant factors affecting this situation. Some barriers ought to be distinguished. As mentioned above, the selection at the level of junior high school is essential. Also economic barriers particularly among inhabitants of rural areas need to be considered. In other words, the lack of financial resources to take up studies has reciprocal affects on an early start to professional work and future wellbeing. Another reason for the poorer education of the inhabitants of rural areas lies in fact that the rural youth repeats the education patterns of their parents. As the research of Domański (2000) reveals, approximately 1% of farmers' offspring graduates from university due to the lower educational aspirations of rural youth. Only 38% of the rural youth, at the age of 16, wants to obtain higher education qualification, whereas this rate among urban youth amounts to 60% (Czapiewski, Śleszyński, 2006).

Figure 4 presents relations between the higher education institutions and the share of people with higher education relative to the distance from the main academic centres. The largest three centres were analysed. (Warszawa, Kraków and Wrocław). We calculated the percentage of the overall population with a higher education (based on student population) against the concentration of higher education facilities for seven concentric rings of communes (NUTS 5) around the academic centres.



**Figure 4.**  
**Changes in the share of people with higher education and in the number of universities in individual groups of communes around the largest academic centres**

(Source: Own calculations based on Main Statistical Office of Poland; Szkoły wyższe i ich finanse w 2002 roku, 2003)

The co-presence of universities and the greater share of people with higher education is immediately apparent. The percentage of people with higher education in all localities in Poland that are academic centres (15,4%) confirms this relationship; the value of this rate for the rest of the country amounts to 6,1%. Concentration of the schools and inhabitants with higher education in the main academic centre occurs in all presented areas. Though in the majority of the remaining cases there is a drastic decrease in share of the population with higher education. The distance to academic centres from the outer concentric rings of communes likely exacerbates this decrease.

It is interesting to observe, then, the gradient of the decrease in the share of higher education with the increasing distance to the academic centre. As far as the surroundings of Warszawa are concerned, one can observe a slow fall in education level, while in the neighbourhoods of Kraków and Wrocław the greatest differences are between the academic centre and the closest ring of communes. In these cases the average value of the share of people with higher education in the second ring is similar to the value for the whole area around the academic centre. This implies that the spatial influence of these centres on surrounding areas is more spatially diffuse.

The observed relation is partially caused by the character of the localities in which universities are localised. These are large and medium urban centres where even without the presence of a higher education institution, the share of people with higher education is greater than in the other areas. That is, there is a co-presence of these phenomena. Though, one should not underestimate the





influence of the presence of universities on the concentration of well-educated people. It is important to remember that students that came from outside the academic centre stay there once they have graduated. In other words, the academic centre offers the greater possibility of finding work not to mention maintaining social networks that are established during the course of study.

### COUNCILLORS' EDUCATION

Spatial diversification of the councillors' educational attainment (Figure 5) is evident in the differences between largely urban agglomerations and less urbanised ones. The majority of the largest towns where the percentage of councillors with higher education is above 74%, and regions added to Poland after the World War II is the most illustrative of this point. They characterise, in great measure, relative to the average value of the rates in the central and eastern parts of the country, where the lowest values occur. It is interesting that this pattern bears no resemblance to the general diversification of the education level. One ought to relate this state of affair to the voters' preference towards councillors with potentially greater 'knowledge', which is presented in some regions. It is worth to recall results of Gorzelak and Jałowicki (1997). According to them inhabitants of western Poland mostly recognise that poor qualifications limit local authorities' activity. This fact seems to be confirmed, in great measure, in the spatial diversification of councillors' educational attainment. Though without data referring to the councillors' tenures one cannot find out if the inhabitants' choice was caused either by the effectiveness of the local authorities activities or by the voters' assumption (without confirmation in the reality) that people with higher education are more competent representatives of local societies.

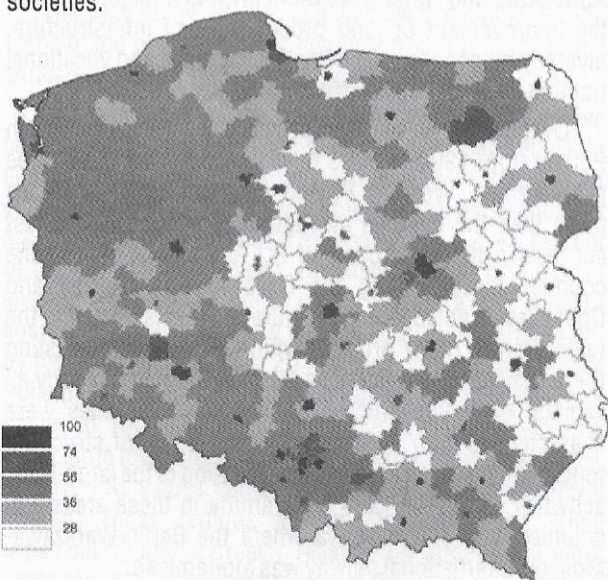


Figure 5.

Share of the councillors with higher education in 2002  
(Source: Main Statistical Office of Poland)

It has to be emphasised that education of the councillors in rural areas is much poorer than in the towns. The percentage of the councillors with higher education in tenure from 2002 to 2006 amounted to 30% in rural communes whereas in urban communes this rate was over twice higher and reached 67%.

### MIGRATIONS

The population of 15 million in the rural areas of Poland has not changed much in the years following World War II. The increase in population was due to high positive birth rates and the migration to dynamically developing and industrialising towns or abroad. In the years between 1995 and 2002 out-migration from rural localities was equal to left by over 277 thousand inhabitants. Average annual birth rate in that period was 1,64% while the migration rate amounted to -2,37%. Thus the real birth rate was -0,73%, which meant the outflow of 10 thousand people from rural areas per year. When the intensive industrialisation took place in Poland in the 1970s, over 250 thousand inhabitants migrated from villages to towns. However one should remember that the urban suburbs are nowadays the most often chosen destination of settlement. And, statistically, they are in the majority of cases considered rural areas. Also the out-migration from rural areas to peripheral areas of the large urban centres and important communication routes remains significant. This is particularly the case for those rural areas characterised with a mono-functional (agricultural) structure of economy, low living conditions and where an out-migration of population is over five times higher than multi-functional or economically diverse areas (Figure 6).

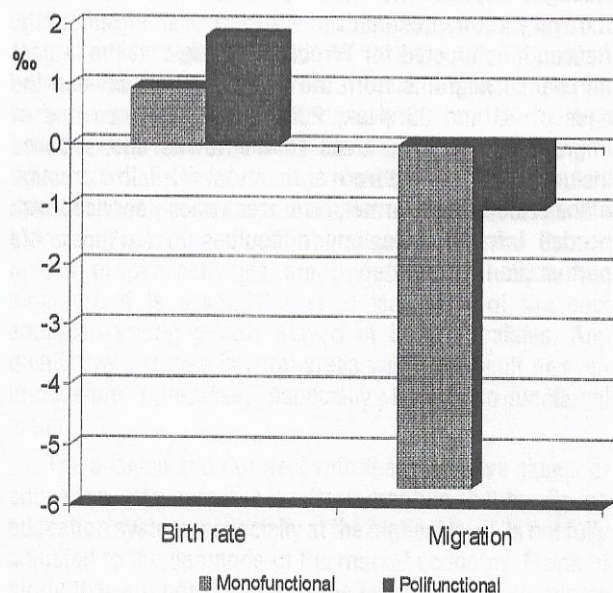


Figure 6.

Demographical processes in mono- and poly- functional rural areas  
(Source: Main Statistical Office of Poland and own calculations)



The suburbs are the destination of migrants from both rural areas of depopulation and towns (Figure 7). The previous group settles in suburbs with the intention of finding a job, i.e. there is a decisive economic factor. The latter one consists of wealthy people who seek for the better living conditions in these areas, i.e. the decisive factors are aesthetics and health (Śleszyński 2004).

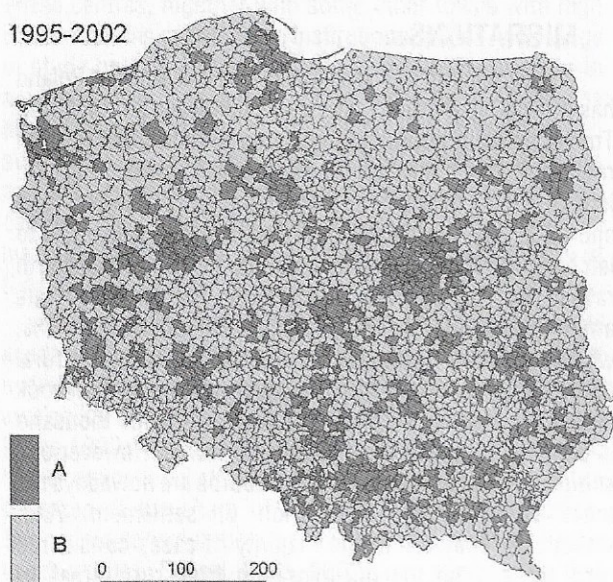


Figure 7.

Migrations increase (A) and decrease (B) in Poland in period 1995-2002 (Source: Main Statistical Office of Poland)

Young, enterprising and mobile people are the most willing to migrate. Therefore the demographic potential of the migration destination areas rises significantly. Research conducted for Wrocław reveals that the largest number of migrants from the rural areas is between the ages of 20 and 35 (Huk, 2002). The other reasons of migration from rural areas to the towns and suburbs include: small income from agricultural work, low prestige of the profession of farmer, rural areas poorly serviced with needed infrastructure, and difficulties in finding a life partner (Bański, 2006).

## ABSORPTION OF EU FUNDS

EU funding is diversely allocated in Poland. There are many reasons for this: individual areas need new investments; courses of important communication routes, international community; and current regional development policy (e.g. efficiency or equality, competitiveness or cohesion). However, the inner potential for the use of possible external support seems to be a factor of equal or even higher importance. Sobala-Gwosdz (2005) aptly points out that the level of utilisation of elements coming from the outside (finances, investments, tourism and governmental or EU programmes) depends on the level of endogenous factors. External stimulation of development is important, sometimes essential. But this support can be wasted when local councils are incapable of implementation.

Since Poland's accession to the EU on May 1st, 2004, it has been able to take part in a wide range of EU programmes, funds and initiatives. However, already before the accession Poland had taken part in three pre-accession programmes: ISPA, PHARE and SAPARD. The objective of ISPA programme (Instrument for Structural Policies for Pre-Accession) was to support the candidate-countries in social and economical cohesion with co-financing huge investment programmes in environment and transportation sectors. At the beginning, the PHARE programme (Poland and Hungary Assistance for Reconstructing of their Economies) focused only on the support for the economies of Poland and Hungary. However, later it was extended to all candidate countries. The programme sought to close the gap in development inequalities between regions via the promotion of economic activity, solving labour market-related problems, and re-structuring and development of infrastructure. Programme SAPARD (Special Accession Programme for Agriculture and Rural Development) was directed towards the improvement of food processing and infrastructure, diversifying economic activity in rural areas and vocational training ([www.fundusze-strukturalne.gov.pl](http://www.fundusze-strukturalne.gov.pl)).

Over 5 billion Euro (140 Euro per capita) was invested in Poland from 1990 to 2003 over the course of these three programmes. Western Poland obtained over two times more than the national average in funding. The greatest success in the absorption of EU funds is evident in the counties located along the Polish-German border and Dolnośląskie voivodeships (Figure 8). This is related to the realisation of many projects within Euro-regions existing there. Nevertheless, finances were distributed to nearly all capitals of voivodeships. Though some counties were characterised with unexpectedly high influx of structural funds, which was related to the realisation of the large-scale activities within the ISPA programme in these areas e.g. counties east of Warszawa where the Berlin-Warszawa-Moscow international railway was modernised.



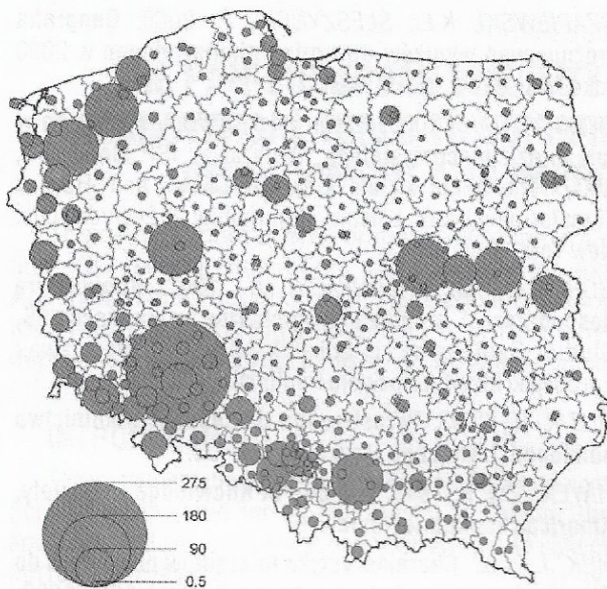


Figure 8.

Finances from structural funds (1990-2003) in Poland in million of Euro (Source: Office of the Committee for European integration, 2005)

Similar spatial patterns can be observed where absorbed finances were calculated per capita. The highest values occur in border areas, which also include the eastern border. This was a result of directing structural funds for realisation of infrastructure projects (e.g. construction and modernisation of border crossing points with Byelorussia and Ukraine) or international co-operation. Consequently, central Poland had the lowest level of absorption of EU funds (both in direct and per capita absorption) where agriculture is important in terms of land use and the space is dense with rural localities.

The last stage of the analysis was devoted to the comparison of the height of finances from EU funds to the education of local authority councillors (Figure 9).

One third of the units was characterised with positive correlation (i.e. the higher than the national values in absorption of EU funds corresponds with the higher educational attainment of local councillors); these counties are inhabited by almost 18,5 million people (i.e. 48 percent of the national population). Negative relation occurred in another third of the units, which means a low level of absorption as well as a low level of educational attainment by local councillors. Only 20 per cent of the population of Poland live there. In other counties no relation was observed. High values of both analysed features occurred in the large towns mainly in the western part of the country. In turn, low values can be found in eastern and central Poland. These regions are characterised with small urbanisation and a greater reliance on agricultural work practices for their everyday livelihood and economic sustainability.

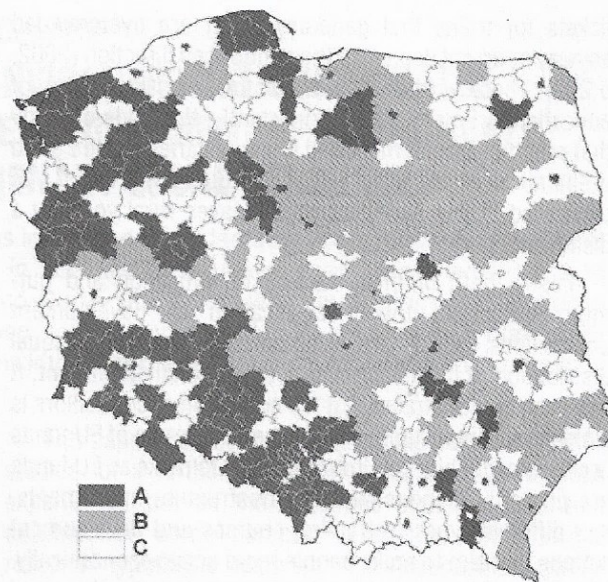


Figure 9.

Relationship between the absorption of structural funds and education of councillors in local authorities: A- high values of both phenomena, B- low values of both phenomena, C- no relationship (Source: Own calculations based on Office of the Committee for European Integration, Main Statistical Office of Poland)

## CONCLUSIONS

Analysis presented in this paper concludes that Polish space is obviously divided into core towns (especially large ones) and peripheral rural areas. This has significant implications for spatial planning. Firstly, clear disproportions in access to education at junior high school and university levels raises the need to further examine ways to increase the availability of education for rural youth. The improvement of education access by rural youth at the junior high school level is especially important because pupils from these rural areas are losing at an early stage of education compared to their urban counterparts who will likely have an earlier start in the labour market. Observed out-migration that is caused by unequal development opportunities will contribute to the increasing process of peripheralisation of rural Poland unless proper activities are undertaken to rectify the situation. It is essential that at least part of the best educated young people stayed in home localities. Any qualitative changes in rural areas will be difficult or even impossible otherwise, especially for mono-functional areas.

The analysis did not deal with the qualitative aspect of education. However it is worth to mention that the Polish education system, especially at the highest level, is not fully adjusted to the demands of the market economy. Fields of study that are not popular in the labour market dominate higher education or university programmes. It is worthwhile to quote Beck who in reference to the German education system of the 1980s, said: they handle over



tickets for trains that generally either are overcrowded anyway or do not depart for the announced direction (2002, p 222). These words seem to illustrate the actual state of education in Poland. More importantly, the fields of study that offer full employment and higher salaries require good preparation at earlier stages of education, which, as discussed in this paper, currently leaves rural youth at a disadvantage.

Lastly, both of these factors of education and out-migration affect the diversification of development possibilities, which are supplemented by the unequal distribution of local councillors' educational attainment. It has been demonstrated that the education of councillors is significantly important as far as the absorption of EU funds is concerned. This is an important fact to make as EU funds are primarily responsible for infrastructure investments, and different types of training courses and development actions that aim to make people more active economically. Moreover, the uneven development between urban and rural areas will increase if these funds are not successfully implemented by local councils. It is especially worrying for one to consider the fact that rural areas with great agricultural importance also possess the lowest educational attainment levels among local councillors and the poorest absorption of EU funds so far. At the beginning of 2007, Poland, unlike other countries from Central and Eastern Europe, faces the future challenge of absorption of EU funds during the new programming period (2007-2013). Thus, one will have to wait with apprehension whether rural areas in Poland will be able to overcome its challenges in education and out-migration and improve its socioeconomic standing in coming years.

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