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Relation between the level of educational infrastructure development and enterprises development in the region

1. Admission

In our times, in the age of economy based on knowledge, one way to increase enterprise chances for rapid development is well educated staff. It is hard to disagree with the fact that lack of appropriate amount in highly qualified staff, practically makes impossible to effective use remaining developmental factors. Individual enterprises effectiveness in a lesser degree is conditioned to technical equipment (e.g. machines, equipment) than non-material values (e.g. knowledge and abilities). Increasing nowadays globalization processes, which trigger the rise in competition, create a brand new function conditions as well as enterprises development. Popularization of new technologies (among others modern communications technologies, advanced manufacture technique), forces in a way, a new business activities, through among others effective acquisition, creation and effective knowledge use for the realization of deliberate objectives. It is possible to establish that in the near future, these exactly immaterial elements will constitute a fundamental base

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for enterprises development, conditioning the efficient resource management, which disposal the enterprise. Increase of such non-material values as knowledge or effectiveness staff action, indeed is conditioned to the individual regions equipment with educational infrastructure. Apart from mobility issue of learners as well as workforce, it is possible without bigger stipulations to assume that increase of earlier recalled non-material values in the given region, significantly is conditioned to the individual regions equipment with educational infrastructure.

The aim of this article is to define relation between educational infrastructure of individual regions as well as enterprises development. In the first part of article an educational infrastructure was described as the social infrastructure subsystem. Next, focused on educational infrastructure financial aspect, conducted an empirical analysis of the relation between educational infrastructure individual elements and enterprises development. The study included all 16 Polish provinces. In research used development Hellwig standard as well as correlation analysis. Their completeness and availability for everyone examined objects in 2007-2011 years were the main criterion for variables selection. Data source describing individual elements of the educational infrastructure and enterprises development measures in individual provinces was BDL GUS.

2. Educational infrastructure as the social infrastructure subsystem

In the subject literature an infrastructure doesn't have a clear definition of term. According to K. Wojewódzkiej-Król this term derives from English and means "database i.e. necessary economy" (Provincial, Rolbiecki 2009, p. 12). L. Kupiec, T. Truskolaski and A. Gołębiowska (2004, p. 11)definite infrastructure as the equipment complex of public utility, necessary to provide adequate national economy function and population lives, appropriately allocated in space along with historically formed as well as characteristic relations occurring between its individual elements. According to M. Ratajczak (1999, p. 11) determining something as the infrastructure aims to emphasize that it is about objects, which are perceived as a foundation, without which the creation, development, correct function of some social system fragments or system as the whole isn't possible. Due to functions which an infrastructure performs, authors most often distinguish two its subsystems: technical (economic) and social infrastructure.

According to G. Dobrzański (2001, p. 43) the social infrastructure includes equipment and institutions directly meeting needs of the society and ensures appropriate living conditions. Similarly L. Kupiec defines the social infrastructure

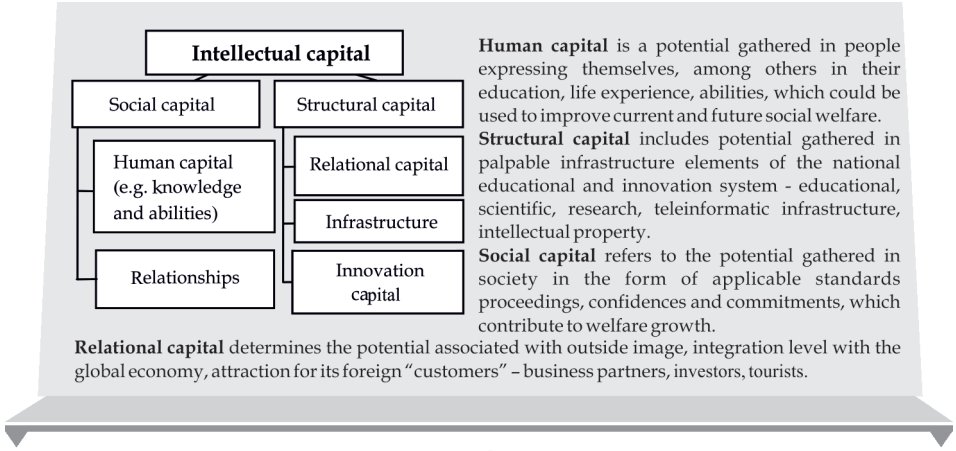
as "a public utility equipment complex essential above all for direct satisfying needs of the given society and enabling appropriate living conditions of the population" (Kupiec et al. 2004, p. 18). In social infrastructure frames it is possible to distinguished subsystems providing services in inter alia education, learning, health care, public administration, culture, social welfare, safety and social organizations. However, as a part of technical infrastructure are included transport equipment, energy, draining and providing communication services.

It appears from the quoted earlier definition that education and learning are social infrastructure subsystems. In the subject literature, rarely are brought up the educational infrastructure issues and in order to properly define this category, seems appropriate to define "education" concept. According to encyclopedic definition, an education is "a state and process of popularizing education as well as culture in the society". However, the educational system is defined as "organizations of popularizing general as well as professional education in the society, carried out by the school system" (Petrozolin-Skowrońska 1996, p. 709). R. Piwowarski (2001, p. 3) defines education infrastructure as a social (personnel) and material conditions achieving school tasks, educational system. In accordance with the Act from 7 September 1991 about the educational system, into Polish educational system are included, among other nursery schools; primary schools, including: special, integration, with integration and sports branches, sports and sports championships; secondary schools, including among others: special, integration, bilingual, sports; post-secondary; artistic; educational-education institutions. According to this Act, higher institutions – universities aren't ranked among the educational system. However, according to the Article 4 paragraphs 3. Acts about higher education from 27 July 2005 universities "constitute an integral part of the national education and learning system". Due to the important universities role in the human capital development (educating high-qualified staffs), for present article purposes they were taken into account in analyses.

According to W. Grzywacz (1972, p. 75) shaping human development, preparing it for the creative involvement in career, requires investment on the education. Education development must have an extensive and intense character. Extensive by including the widest educated group and intense, thanks to increase in the education scope, deepening general and specialist knowledge. According to the author, losses arising from employment of low qualified staff are disproportionately high towards expenditure on the education.

Educational infrastructure, responsible for shaping and raising knowledge as well as abilities, is an important component of the intellectual country capital,

and appropriate its use can be a source of current and future welfare. It may also be a crucial element for the economy shape and factor enabling developing competitive edge of enterprises.



Picture 1. Components of the intellectual capital

Source: own study based on Bochniarz 2008, p. 6

Important infrastructure role (among others scientific infrastructure), in the context of creating developmental enterprises strategy, underlined M.E. Porter. Based on conducted research he specified four domestic features (or local) environment which decides about location majority of the given country (region), contributing to create the growth, innovation and effectiveness (Porter 2001, p. 404): production factors conditions; strategy and competition context; demand conditions; related and assisting sectors. Amongst distinguished through M. E. Porter production factors conditions, having a key importance for subjects competitiveness located in the given country (region), an important are scientific infrastructure elements as well as costs of these elements use.

It is hard to disagree with the fact that quantitative and quality educational infrastructure state indeed decides about the possibility to meet educational demand as well as determine the educational level and quality. Education, which decides about the quality of human capital, performs dual role in enterprises development context. From one side, has impact on the entrepreneurs and workforce supply, and from other side creates demand for produced products.

Particular importance gains a possibility of recruitment qualified employs, deciding about potential developmental and enterprises competitiveness. Education society level and educational system quality may affect the enterprises development in different ways (Piasecki et al. 2001, p. 97-98): participation of population with higher education in total number of people can decide about quality and late about development of newly established enterprises; proportion of science, technical and humanistic directions graduates in the total graduates number may affect "entrepreneurs supply" in advanced technologies sectors; teaching methods on all education levels may have an impact on the attitude towards entrepreneurship.

Development and modernization of the educational infrastructure elements creates investment regions attraction. In IMD report *(International Institute for Management Development), The IMD Word Competitiveness Yearbook*, infrastructure, by economic outturns, government and enterprises effectiveness, was recognized as one of four categories determining economy competitiveness of the given country (http://www.imd.org/research/publications/wcy/factors_and_criteria. cfm, 8.02.2013). It should be noted that as many as 114 from 329 variables applied by IMD, regards the infrastructure (16 closely associated with educational infrastructure). It results from the World Economic Forum report that in the context of technical infrastructure competitiveness increase is considered as a base factor, having a key importance especially for rising economy. However, social infrastructure role (including educational) increases along with economy transition to the economy developed stage and based on innovations (Schwab 2010, p. 9).

3. Analysis of the relation between regions equipment in educational infrastructure and enterprises development

According to W. Grzywacz (1972, p. 75), lack of protecting increase base in the employee qualifications causes pace impair of t economic development and growth as well as generates economic losses. It is worthwhile to consider how the infrastructure equipment (in the educational infrastructure) impact on enterprises development in the micro-scale? Driving force of the individual market economies development are exactly enterprises, which create numerous employment places, significantly affect the standard of populations living, create GDP as well as contribute state budget. The aim of every business activity should be development, therefore extremely important becomes to identify factors shaping this process as well as analyzing of power and direction their

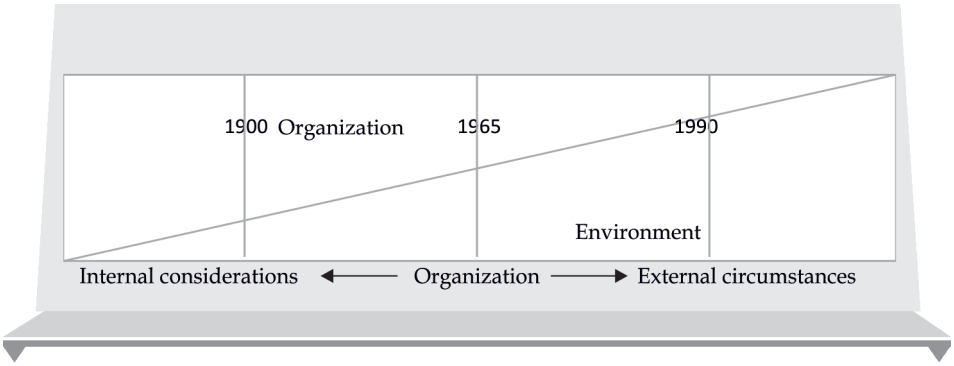
impact on business entities development. This justifies attempt to determine the impact of educational infrastructure on enterprises development.

Under enterprises development concept the changes process was understood, occurring amongst entities conducting a business activity, about quantitative, quality and effectiveness character, which from one side allows to meet reported needs by the environment, and from other side contributes to improve the profitability, market position or also increase the financial potential. Analyzing development of an economic activity in the region, among others quantitative changes including income amount, revenue costs from the entirety activity were taken into consideration as well as effectiveness change including indicators concerning among others financial liquidity and profitability of sales.

Enterprises development is determined with row of diverse factors, concerning personal features, internal sources of the given entity as well as environments in which functions. In relation to the fact that entities conducting a business activity are open systems, their development in the significant degree is determined by external environmental factors, including infrastructure environment elements. Necessity for analysis of the external factors results among others from the following premises (Gabrusewicz 2002, p. 15): an economic entities relations with the environments are primal towards phenomena and processes occurring in their interior; environments constitute a powering source of economic entities and results recipient of their activity; entities results conducting a business activity indeed are determined by external environments. Nowadays, changes which occur in the further environment, concerning economic factors (i.e. environment infrastructure), technological, political, legal, social or cultural, have a significant impact on functioning and development of the contemporary entities conducting business activity. It is hard to disagree with the fact that what occurs inside entities conducting a business activity is a consequence of changes in their environment. In consequence the external environment is more often recognized as a factor deciding about the enterprises success (or failure), rather than their internal sources.

In analysis spatial provinces diversifying due to educational infrastructure state, we deal with many research facilities described by numerous variables set; therefore it is hard to express using only one the measurable feature (this also regards process of the enterprises development). This fact causes that in order to analyze the educational infrastructure development level and examine relation between enterprises development and individual regions equipment in the educational infrastructure, must use taxonomical method based on synthetic development measurements (SMR). Synthetic measurements application allows

measure multidimensional phenomenon which is an enterprises development level variation, as well as will enables for linear rank of examined objects.



Picture 2. Environment role in the organization development

Source: own study base on Urbanowska-Sojkin et al. 2007, p. 103

One of the most often applied in practice linear organizing method is development Hellwig standard. Synthetic development measurements application is justified by the fact that it replaces a description of examined objects with many features, described by one, aggregated size what facilitate analysis of resemblances examined objects and their lineup. SMR values increase along with reduce distance of the given object from standard, artificially formulated object characterized by optimum properties (maximum values of stimulant features and minimal destimulant). Considering limited size of the article, linear organizing provinces process due to educational infrastructure development as well as enterprises development level won't be an object of presentation.

In the first research phase, as a result of substantive-formal analysis, suggested 14 fragmentary indicators, reflecting regions equipment in the educational infrastructure: X1 – junior high schools entirely on 1000 km2, X2 – school rooms at junior high schools for 1 junior high school, X3 – junior high schools for adults on 1000 km2, X4 – school rooms at junior high schools for adults for 1 junior high school, X5 – secondary schools entirely on 1000 km2, X6 – school rooms at secondary schools for 1 secondary school, X7 – secondary schools for adults on 1000 km2, X8 – school rooms at secondary schools for adults for 1 secondary school, X9 – primary schools on 1000 km2, X10 – school rooms at primary schools

for 1 school, X11 – higher education institutions on 1000 km2, X12 – universities on 1000 km2, X13 – technical colleges on 1000 km2, X14 – vocational school for adults on 1000 km2.

Variables have indicative character, rather than values about ruthless character, what allows in some extent to avoid disturbance associated with having by some objects certain characteristic features (e.g. much greater area than remaining objects). In the second phase, in order to obtain ultimate variables obtain a discriminatory variables ability and their capacity were examined, i.e. correlation degree with other variables. At the variables selection it is required to demonstrate appropriate changeability, because poorly diversified variable constitutes the little analytical value (to measure variable diversify a rate of variation was used). From potential variables set were eliminated features, which rate of variation value was smaller than determined in an arbitrary way, critical threshold value of this rate established on the level of 10%. Due to low changeability X6 feature, reflecting number of rooms at secondary schools was eliminated from the fragmentary variables set. Apart from significant changeability the selection criterion is their correlation. It is assumed that the two high correlated variables, proved similar information (in this case correlating is equivalent with operation transfer of the same information about examined objects); therefore it is recommended to eliminate one of them. In that purpose one of discrimination features methods was used depending on the matrix correlation value e.g. inverted matrix correlation method. Based on the inverted matrix correlation value the X2, X3, X5, X9, X11, X14 variables were eliminated. After considering all criteria of the selection variables, for ultimate diagnostic set 7 variables were categorized (X1, X4, X7, X8, X10, X12 and X13) which have stimulant character (maximum values are desirable from the point of examined phenomenon view).

Table 1. **Diversification measures state of the educational infrastructure in Poland, 2007 and 2011 years**

	Min. value	*Max. value*	*Average value*	*Coefficient of variation*	*Standard deviation*	*Median*	*First quartile*	*Third quartile*
	2007							
X1	*9,7216 (14)*	*53,1906 (12)*	*21,1979*	*56,67%*	*12,0129*	*19,0984*	*14,2628*	*21,087*
X4	*0,0000 (6,13)*	*5,2000 (11)*	*2,1289*	*85,58%*	*1,8219*	*1,6455*	*0,6607*	*3,675*
X7	*0,8966 (9)*	*7,7029 (12)*	*3,6549*	*47,26%*	*1,7274*	*3,3559*	*2,8239*	*4,4966*

X8	0,5313 (13)	2,7586 (11)	1,6769	32,01%	0,5369	1,7503	1,3606	2,02
X10	10,3943 (3)	14,3780 (1)	12,3338	10,57%	1,3035	12,4076	11,3442	13,1696
X12	0,0000 (13)	0,1113 (2)	0,0597	45,28%	0,027	0,0555	0,0481	0,0735
X13	0,0000 (4,14)	0,2432 (12)	0,0743	80,82%	0,0601	0,0553	0,0471	0,0921
	Min. value	Max. value	Average value	Coefficient of variation	Standard deviation	Median	First quartile	Third quartile
	2011							
X1	10,0560 (10)	54,3258 (12)	21,7753	56,71%	12,3496	19,4546	14,7595	21,7366
X4	0,0000 (6)	6,5714 (11)	2,1875	82,40%	1,8026	1,6389	1,000	3,1714
X7	2,2877 (4)	12,4057 (12)	4,3577	57,20%	2,4925	3,7536	2,5112	5,1925
X8	0,4857 (8)	3,6667 (11)	2,0851	41,07%	0,8563	2,0088	1,4277	2,6158
X10	10,9323 (9)	15,0248 (1)	12,9054	10,21%	1,3171	12,9194	11,7172	13,8123
X12	0,0335 (14)	0,1113 (2)	0,0651	34,61%	0,0225	0,0561	0,0500	0,0800
X13	0,0000 (4,14)	0,3243 (12)	0,0849	88,95%	0,0755	0,0615	0,0500	0,1071

Values in parentheses: 1-dolnośląskie, 2-kujawsko-pomorskie, 3-lubelskie, 4-lubuskie, 5 - łódzkie, 6 - małopolskie, 7-mazowieckie, 8 - opolskie, 9 - podkarpackie, 10-podlaskie, 11-pomorskie, 12- śląskie, 13 - świętokrzyskie, 14-warmińsko-mazurskie, 15-wielkopolskie, 16-zachodniopomorskie.

Source: own study based on BDL GUS data

Data from Table confirms considerable (and comparatively permanent in the analyzed period) diversity of the educational infrastructure spatial state on provinces level. It results among others from heterogeneous population distribution, historical condition and diversified action efficiency of local authorities (also in the eliminating issue of infrastructure gap). Large diversity of regions equipment in the education infrastructure was noted especially in case of indicators reflecting the number of school rooms at junior high schools for adults for 1 junior high school and number of technical higher education institutions for 1000 km2 (it has particularly importance in the context of creating an innovative environment region). It proves above all very high value of variation rate (for every variable both in 2007 and 2011, this indicator exceed 80%). Dispersion variables measure analysis points out at right-side character of the disintegration features in case of X1 X4, X7, X8, X12, X13 variables (data from 2011). In 2011 yr. for three quarters provinces, the indicator value rate of X1 was

included in a range below 21.74, at minimum 10.06 and maximum 54.33 values. The value of X4 indicator for 75% provinces was included in a range below 3.17 (at minimum 0.00 and maximum 6.57 values), however in case of X7 indicator below 5.19 (at minimum 2.29 and maximum 12.41 values). It is necessary to pay attention on large disproportions between the minimum and maximum value of included variables. For example, maximum value relations to minimal in case of X8 variable and X12 appropriately amounts 7.66 and 3.32 in 2011 yr.

In order to conduct analysis of the enterprises development level such rates were taken into account: Y1 – entrepreneurship rate (number of enterprises for 1000 residents); Y2 –income value for 1 enterprise; Y3 – income value for 1 employee; Y4 – obtained income costs from the entirety activity on 1 enterprise; Y5 – profitability ratio of gross turnover; Y6 – profitability assets ratio; Y7 – profitability assets of capital equity; Y8 – liquidity ratio of the first degree; Y9 – liquidity ratio of the second degree; Y10 – liquidity ratio of the third degree; Y11 – short-term investments on 100 km2; Y12 – long-term investments on 100 km2. Most of indicators have stimulant character, and some formally have nominate character (liquidity ratios). In case of variables about nominate character the stimulation was conducted, where for nominal values of liquidity ratios I, II and III degree was adopted respectively 20%, 100% and 200%.

Table 2. Synthetic measurements of the educational infrastructure and enterprises development level in 2007-2011 years

Province	SMR of the enterprises					SMR average value	SMR of the educational infrastructure and enterprises development level					SMR average value
	2007	2008	2009	2010	2011		2007	2008	2009	2010	2011	
Dolnośląskie	*0,427*	*0,370*	*0,449*	*0,467*	*0,541*	*0,451*	*0,401*	*0,353*	*0,328*	*0,301*	*0,348*	*0,346*
Kujawsko-pomorskie	*0,335*	*0,301*	*0,351*	*0,239*	*0,256*	*0,297*	*0,446*	*0,386*	*0,408*	*0,392*	*0,457*	*0,418*
Lubelskie	*0,193*	*0,252*	*0,243*	*0,181*	*0,256*	*0,225*	*0,285*	*0,225*	*0,273*	*0,209*	*0,250*	*0,248*
Lubuskie	*0,317*	*0,222*	*0,359*	*0,190*	*0,161*	*0,250*	*0,215*	*0,180*	*0,222*	*0,250*	*0,307*	*0,235*
Łódzkie	*0,337*	*0,309*	*0,374*	*0,306*	*0,200*	*0,305*	*0,381*	*0,430*	*0,445*	*0,407*	*0,450*	*0,422*
Małopolskie	*0,427*	*0,393*	*0,440*	*0,482*	*0,289*	*0,406*	*0,457*	*0,381*	*0,367*	*0,319*	*0,390*	*0,382*
Mazowieckie	*0,595*	*0,524*	*0,672*	*0,514*	*0,389*	*0,539*	*0,511*	*0,412*	*0,414*	*0,417*	*0,447*	*0,440*

Opolskie	*0,230*	*0,227*	*0,183*	*0,275*	*0,259*	*0,235*	*0,345*	*0,250*	*0,219*	*0,254*	*0,287*	*0,271*
Podkarpackie	*0,271*	*0,230*	*0,290*	*0,243*	*0,206*	*0,248*	*0,318*	*0,297*	*0,301*	*0,277*	*0,337*	*0,306*
Podlaskie	*0,328*	*0,261*	*0,327*	*0,191*	*0,085*	*0,238*	*0,299*	*0,248*	*0,215*	*0,190*	*0,250*	*0,240*
Pomorskie	*0,401*	*0,313*	*0,460*	*0,433*	*0,286*	*0,379*	*0,483*	*0,430*	*0,431*	*0,419*	*0,452*	*0,443*
Śląskie	*0,505*	*0,422*	*0,446*	*0,395*	*0,381*	*0,430*	*0,626*	*0,628*	*0,582*	*0,601*	*0,624*	*0,612*
Świętokrzyskie	*0,399*	*0,364*	*0,338*	*0,201*	*0,211*	*0,303*	*0,118*	*0,168*	*0,167*	*0,147*	*0,346*	*0,189*
Warmińsko--mazurskie	*0,250*	*0,184*	*0,192*	*0,281*	*0,121*	*0,205*	*0,283*	*0,244*	*0,243*	*0,240*	*0,270*	*0,256*
Wielkopolskie	*0,423*	*0,388*	*0,492*	*0,353*	*0,306*	*0,392*	*0,313*	*0,304*	*0,288*	*0,261*	*0,272*	*0,288*
Zachodniopomorskie	*0,279*	*0,220*	*0,236*	*0,143*	*0,159*	*0,208*	*0,398*	*0,327*	*0,322*	*0,290*	*0,342*	*0,336*

Source: own study based on BDL GUS data

Silesian, Pomeranian and Mazovian provinces are characterized by the highest education SMR, what results from relatively high value of individual diagnostic variables. Considerable majority of education SMR value in Silesian province arises largely from the polycentric province layout. It is particularly important due to the fact that main secondary schools centers, especially higher education institutions, are the largest cities of region. SMR minimum education values in the analyzed period were noted in Eastern Poland (Świętokrzyski, Podlasie and Lublin) and Lubusz province. In this place it is necessary to emphasize that SMR time series of the education and enterprises SMR are stationary, what was verified based on Quenouilla statistics, what increases the correlation analysis reliability.

Table 3. Correlation rate between SMR educational and enterprises infrastructure

Description	*2007*	*2008*	*2009*	*2010*	*2011*
The correlation coefficient	*0,5407*	*0,5514*	*0,5207*	*0,5598*	*0,4367*

Source: own study

Conducted analysis showed that there is a positive correlational relation between individual regions equipment in the educational infrastructure and

enterprises development level. In analyzed period we can say about high degree of relation on the significance level $p<0.05$ (Stanisz 1998, p. 2005). Critical value of correlation rate on the significance level 0.05 amounts $r^{*}0.05\ (16) = 0.4973$. Calculated values of the correlation rate, in 2007-2011 years, oscillated between 0.44 and 0.56, and were ahead of a critical value in almost an entire analyzed period, what allows to state about correlation rate significance on the significance level 0.05. The significant decline in correlation value rate in 2011 yr. results largely from relatively SMR large increase of education in Świętokrzyski province (as a conversion result in 2011 yr. the adjectival university in Kielce (Jan Kochanowski Humanistic-Natural University) into classical (Jan Kochanowski University in Kielce)), at simultaneously low enterprises SMR.

Correlation values rates in the analyzed period largely are a consequence derived from relatively large disproportions between education and enterprises SMR noted in case of Lower Silesia, Łódź, Świętokrzyski and West Pomeranian provinces. These disproportions may result, from one side due to pose-infrastructure limiting enterprises development factors in the region (high education SMR, low enterprises SMR), on the other from underdevelopment of the educational infrastructure in many regions, compensated by other stimulating enterprises development factors (low education SMR, high enterprises SMR).

4. Summary

It results from conducted analyses that regions equipped with the educational infrastructure determines conditions of conduct business activities, and are reflected in the management results. Presented research results show that the most attractive in terms of educational infrastructure state are Silesian, Pomeranian and Mazovian provinces, whereas least Świętokrzyski, Lubusz and Podlasie provinces.

It is necessary to remember that enterprises development is determined with row of diverse factors, concerning personal features, internal sources of the given entity as well as environments in which functions. In the context of creating developmental conditions, infrastructure (including educational infrastructure) must consider the enterprises development as a necessary, but insufficient condition. In our times, in the age of economy based on knowledge, educational institutions constitutes a peculiar base to raise ability and qualifications, become an element conditioning the use of other factors, which determine development of an economic activity in the region.

In research omitted the managerial mobility issue of staff and employee potential. In further deliberations, it would be worthwhile to take this aspect into account. In analysis it is worthwhile also to use division into the urban and country environment, what would enable fuller analysis of diversifying regions equipment in the educational infrastructure. However, the major problem is lack of statistical data taking such a division into account. In order to deepen analyses, it is also worthwhile to apply econometric techniques to determine the relation direction (among others Granger causality test).

Summary

Relation between the level of educational infrastructure development and enterprises development in the region

The aim of this article is to define the relation between educational infrastructure of individual regions as well as enterprises development. In the first part of article an educational environments were characterized and described as a development factor of enterprises. In the second part, based on statistical data the relations were examined between educational environment and enterprises development state in individual provinces in 2007-2011 years.

***Keywords*:** *infrastructure, educational infrastructure, enterprises development.*

Streszczenie

Zależność między poziomem rozwoju infrastruktury oświatowej i rozwojem przedsiębiorstw w regionie

Celem artykułu jest określenie zależności między infrastrukturą oświatową poszczególnych regionów i rozwojem przedsiębiorstw. W pierwszej części artykułu scharakteryzowano otoczenie oświatowe oraz przedstawiono je, jako czynnik rozwoju przedsiębiorstw. W części drugiej, na podstawie danych statystycznych zbadano zależności pomiędzy stanem otoczenia oświatowego i rozwojem przedsiębiorstw w poszczególnych województwach w latach 2007-2011.

Słowa kluczowe: *infrastruktura, infrastruktura oświatowa, rozwój przedsiębiorstw.*

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