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Regional Conditions of Innovativeness of Enterprises on the Example of the Silesian Voivodeship

Summary

The disproportion between Polish and European enterprises is one of the reasons precipitating the need to diagnose the conditions of innovativeness of enterprises in Poland. As far as the external conditions are concerned, regional mesoenvironmental factors, largely dependent on the actions of local authorities of a given voivodeship, are analysed relatively rarely. The aim of this paper is to verify the thesis that there are a number of factors at the regional level, which influence innovativeness of enterprises, and proper stimulation of these factors by local authorities of the voivodeship may contribute to increasing the innovativeness of enterprises. The conclusions are drawn from a survey performed in Poland on a sample of 259 small, medium, and large enterprises from the Silesian Voivodeship.

Key words: innovativeness, region, regional conditions of innovativeness.

JEL codes: O30, O32, R11

Introduction

Innovations play the role of a specific catalyser of development of enterprises and, further on, regions and countries. Therefore, it is not a surprise that there is an enormous interest in innovations at the part of both economic theoreticians and practitioners, while one of the assumed research issues is impact of internal and external determinants on innovativeness of enterprises. If the internal factors, connected with the resources being in enterprises' disposal, and the external factors, stemming from the macro and micro environment, are often a subject of academic research, then the role of regional factors has still been emphasised insufficiently by practitioners and scientists. It is surprising as voivodeship self-governments are equipped with a number of tools enabling active stimulating innovative measures being undertaken by the organisations present in the areas of individual voivoideships (regions), while in the current EU financial perspective for the years 2014-2020 the role of self-governments has significantly increased, *inter alia*, in result of holding greater funds than hitherto.

In her article, the author adopted the definition of innovation concurrent with the Oslo Manual, according to which an innovation is "the implementation of new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations" (OECD, Eurostat 2005).

The notion of innovation is related to innovativeness meaning an ability of enterprises to be involved in innovations aimed at the introduction of new products, processes or concepts (Hult, Hurley, and Knight 2014). The level of enterprises' innovativeness decides their competitiveness and one of the reasons for low competitiveness of Polish enterprises is their low innovativeness (Nowacki 2010). Innovativeness is determined by a number of factors originating from the enterprise's environment and in its interior. The subject matter of considerations in this article is the factors originating from the mesoenvironment (the regional environment). The aim of the publication is to verify the thesis that at the level of a region there is a number of factors affecting innovativeness of enterprises, while proper stimulation of these factors by voivodeship self-governmental authorities may have contributed to improvement of enterprises' innovativeness.

The region as a stimulator of enterprises' innovativeness – the theoretical approach

The modern strategies of regional development are oriented on supporting innovativeness. This stems from the nature of the innovative process where an important role is played
by contacts between the enterprises located in the region as well as between enterprises
and the institutions responsible for creation and supply of innovation such as universities,
research centres, business-support institutions (Nowacki 2009, p. 64). Since the 1990s there
has been taking place of the development of concepts emphasising the impact of the region
on enterprise innovativeness. The region is the place of occurring not only tangible assets
affecting the innovative potential of enterprises but also the place of creation of intangible
assets being an effect of learning, mutual interactions affecting the actors operating in its territory, who making use of the physical proximity, common principles, standards, objectives
share knowledge and participate in the implementation of an innovation. Contemporarily,
the region becomes a source of information and innovativeness, while the measures taken by
self-governmental authorities largely determine the inspiring role of the region in undertaking innovative ventures by organisations (Kamińska 2017a).

More and more authors say that the 'heart' of innovative processes should be regions and the regional level should be considered as the key one from the viewpoint of the socioeconomic development. A. Nowakowska (2011, p. 6, 8) remarks that an innovation is a localised and territorially embedded process, while innovative processes are a derivative of assets and regional mechanisms. There is the need to stimulate innovativeness and this is the regional level where there take place the most adequate conditions and factors for setting up the proper climate for the development of enterprise and for creating innovativeness (Stawasz 2009, p. 106).

At the same time, as A. H. Jasiński (2014, p. 69) notices, the mesoeconomic level of innovativeness management plays, to be sure, an important role, but is rather underestimated by researchers. The same opinion is uttered by the author, alleging that both the world of science and that of the economic practice does not see to a sufficient degree the essence of regions in stimulating innovativeness as well as the importance of innovative policy implemented by voivodeship self-governments (Kamińska 2017b). F. Moulaert and F. Sekia (2003), when analysing the regional aspects of innovativeness, have introduced, similarly to R. Rothwell (1990) arranging individual generations of models of innovative processes taking place in organisations, the idea of territorial models of innovation (TMI). They have singled out four generations (traditions) of regional models of innovation:

- the first: the French model of innovative milieu, the industrial districts, local systems of production focusing on the local institutional endogeneity;
- the second: the regional system of innovation, learning regions;
- the third: new industrial spaces (the Californian school);
- the fourth: innovative clusters.

A somewhat different division was applied by A. Nowakowska (2009) as well as S. C. Santos Cruz and A. A. C. Teixeira (2007) who, taking into consideration the key elements of models and the time-period of their emergence, singled out the three main categories of the theories dealing with the regional context of processes of innovation: the theories focused on assets, focused on network relations, and focused on institutions (the system approach) (Table 1).

Table 1
Territorial models of innovation

Period	Territorial models of innovation	Authors /leading representatives	Key elements
up to 1970	Neoclassical theories of location	Isared, Mutch, Mills	Focusing on assets
	Italian industrial districts	C. Antonelli, G. Becattini	
1970-1990	New industrial spaces (Californian school)	A. J. Scott, M. Storper	Focusing on network relations
	Innovative milieu	P. Aydalot	
simaa 1000	Clusters	M. E. Porter	The system approach focusing
since 1990	Learning regions	R. Florida	on institutions
	Regional systems of innovation	Ph. Cooke	

Source: Author's ow elaboration based on: Nowakowska (2009, p. 26); Santos Cruz, Teixeira, (2007), p. 4-9.

The neoclassical theories of location, emerged in the epoch of agricultural and industrial economy, were based on assets. Since the 1970s, there have been developing the concepts based on the network relations between entities. This stream's representatives are C. Antonelli and G. Becattini researching the phenomenon of Italian industrial districts as well as representatives of the Californian school: A. J. Scott and M. Storper. Since the 1990s, in the epoch of the knowledge-based economy, there has been taking place an intense growth of interest in the region as the place of creation knowledge and innovation. Numerous researchers, in the line with the system model of innovative process, pay attention to the essence of mutual interactions and ties between individual actors of the system, being a broad network of economic, educational, academic entities, and public units. Representatives of

this stream are, *inter alia*, P. Aydalot (1986), the author of the concept of innovative milieu; M. E. Porter (2002), considered as the author of the concept of clusters; R. Florida (1955), who authored the learning regions and the creative class; Ph. Cooke (2001) and B. T. Asheim (2002), analysing the regional systems of innovation.

The analysis of territorial models of innovation is helpful in the understanding the regional context of processes of innovation as well as the impact of the region on innovativeness of enterprises. Despite the variety of contemporary territorial models of innovation, they have common features. They emphasise the growing importance of the intangible factors in the form of knowledge, experience, social relationships, interactions based on confidence between entities which set up the innovative potential of the region affecting the enterprises' innovative abilities. In the system models, there are analysed not only cooperation between enterprises, but there is also perceived the role of other institutions, research units, and public administration entities, which the author applied in her own research.

The assumptions and methodology of author's own empirical research

The objective of empirical research was to define the strength of impact of the regional determinants on enterprises' innovativeness and the relationships taking place between the level of enterprises' innovativeness and assessment of the importance of the factors being surveyed. An overview of the subject literature and author's own experience and observations allowed her singling out the five essential, interdependent groups of regional determinants to which there were assigned the 27 following factors of the mesoenvironment determining enterprises' innovativeness (Kamińska 2017a):

- I. Financial support for the entities operating in the region by the self-government:
 - 1. Financial aid to enterprises for investment in fixed assets.
 - 2. Financial aid to enterprises for purchasing consulting services, licences, patents, etc.
 - 3. Financial aid to enterprises for their independent carrying R&D work.
 - 4. Financial aid to enterprises for cooperation with research units.
 - 5. Financial support for setting up and development of research institutions, centres of innovation, training and consulting centres.
 - 6. Bailout and development of financial institutions and facilitating the enterprises' access to capital.
 - 7. Bailout of setting up and development of special economic zones.
- II. Organisational and consulting support for the entities operating in the region by the self-government:
 - 1. Organisational and consulting assistance to enterprises (*inter alia*, commitment in projects, organisation of conferences and training courses).
 - 2. Involvement of centres of innovation in implementation of proinnovative measures.
 - 3. Filing by self-governmental authorities of public orders for innovative products and services.
 - 4. Development of investments based on public and private partnership.

III. Stimulating cooperation between entities in the region by the self-government:

- 1. Self-government's assistance in the functioning of networks of ties between enterprises and proinnovative institutions, including clusters.
- 2. Facilitating the enterprises' access to services rendered by research institutions and laboratories.
- 3. Facilitating cooperation of enterprises with the science sector.
- 4. Facilitating cooperation of enterprises with centres of innovation.
- 5. Facilitating cooperation of enterprises with training and consulting centres.
- 6. Matching the offer of the business-environment institutions to the enterprises' needs.
- 7. Location of the institutions supporting innovativeness.
- 8. Price for services of the institutions supporting innovativeness.
- 9. Self-government's assistance to enterprises as regards interregional and international cooperation (including organisation of fairs, meetings, study visits, etc.).

IV. Building and reinforcing other intangible assets of the region:

- 1. Self-government's commitment in development of human capital (assignment of grants, scholarships, organisation of training, talent identification, adjustment of the educational profile to the region's needs, etc.).
- 2. Raising qualifications of the public administration as regards innovation as well as improvement of functioning of the public administration.
- 3. Promotion of enterprise and innovative attitudes in the region (organisation of contests, assignment of grants, implementation of educational programmes, etc.).
- 4. Setting up centres of knowledge in the region and provision of free analyses of the market, data bases, sources of information, etc.
- V. Building and reinforcing other tangible assets of the region:
 - 1. Development of the transport infrastructure.
 - 2. Development of the ICT infrastructure.
 - 3. Raising the level of region's attractiveness for foreign investment.

The author is fully aware that the presented list of factors is not complete and does not exhaust all possibilities of region's influencing enterprises' innovativeness; however, it provides the grounds for identifying the most substantial determinants and allows definition of the strength of their influence.

The empirical research was carried out in October-December 2016 with the use of the method of surveys, which was supplemented with the method of in-depth interviews conducted with the managerial staff of enterprises. In the surveys, the research tool was a survey's questionnaire worked out by the author, while the research was carried out by the Centre for Public Opinion Research (*Centrum Badania Opinii Społecznej*, CBOS, in the Polish language) by the CATI (computer assisted telephone interview) method.

The research comprised the representative in terms of size (having in mind the number of employees) and the type of activity (NACE section) sample of enterprises, what is compliant with the Oslo Manual's recommendations: "It is therefore recommended that the stratification of random sample innovation surveys should be based on the size and principal

activity of the units" (OECD, Eurostat 2005). The research sample accounted for 259 small, medium and large enterprises located in the area of the Silesian Voivodeship. The Silesian Voivodeship belongs to the group of better developed regions in Poland. Taking as the criterion the volume of per capita GDP, the Silesian Voivodeship is placed in the 4th position in the country (GUS 2017b). The same place is occupied by the Silesian Voivodeship in terms of the level of innovativeness (RIS 2017).

The structure of the enterprises surveyed corresponded with the structure of the whole population. Small enterprises accounted for 85.5%, medium for 12.3%, while large for 2.2% of the sample surveyed. The omission of microenterprises in the research stemmed from their relatively low innovativeness, inability to cover a representative sample by the research as well as from the specificity of these entities issuing, *inter alia*, from a significant reduction of the assets held.

Taking into consideration the type of the carried out activity, the highest share was in case of industrial enterprises (41.7%), next service ones (32.4%), commercial (22.4%), and those carrying out mixed activity (3.4%). The most numerous in terms of their representation in the NACE sections, issuing from the region's economy's structure, were manufacturing (24.5%), wholesale and retail trade (23.0%), and construction (14.8%).

In terms of the organisational and legal form, almost one half (46.3%) was represented by limited liability companies, while almost every fourth (23.9%) enterprise surveyed meant individual business. General partnerships (8.5%) and joint-stock companies (4.0%) are the next most often represented legal forms.

The overwhelming majority (91.2%) of the enterprises surveyed operated on the grounds of Polish capital, 3.9% held foreign capital, while 4.9% had mixed capital.

Impact of the region on enterprises' innovativeness in the light of empirical research findings

Analysing the region's impact on enterprises' innovativeness, one should determine the level of innovativeness of the enterprises in question. Based on the subject literature, as the most important ratios of the level of enterprises' innovativeness there was considered the number of product, process, marketing, and organisational innovations implemented in 2013-2015; the degree of novelty of innovation was determined using the five-level scale (novelty in the enterprise's scale, in the local scale, in the region's and country's scale, and in the international scale) as well as there was determined the subjective rating of the level of enterprise's innovativeness by the respondent. Based on the specified criteria, innovativeness of every enterprise was determined as 'very high', 'high', 'average', 'low', 'very low', and 'non-innovative enterprise' (Kamińska 2017a).

The research findings indicate low innovativeness of enterprises from the Silesian Voivodeship and they comply with the results of surveys carried out the Central Statistical Office, GUS (2017a). As much as half (56.1%) of the surveyed enterprises did not implement in the period in question even a single innovation receiving the name of non-innovative

enterprise. Every fifth enterprise (21.2%) introduced in the three years into the market up to three innovations being a novelty in the scale of enterprise (very low innovativeness). Only 1.5% of enterprises may pride themselves on high or very high innovativeness. Table 2 presents the criteria of division of enterprises and the structure of the sample in terms of the level of enterprises' innovativeness.

Table 2 Criteria of division of enterprises and the structure of the sample of enterprises surveyed in terms of the level of innovativeness (N = 259)

	Criteria for asso	essment of the level of enterprises' innovativeness	Sample's	structure
Level of enterprises' innovativeness	Number of innovations implemented in 2013-2015	Scale of innovation's novelty	Size	% of N = 259
Non-innovative enterprises	0		145	56.1%
Very low level	1-3	novelty in the enterprise's scale	55	21.2%
Low level	1-3	novelty in the local, regional scale	36	13.9%
	1-3	novelty in the scale of the country		
Average level	4-10	novelty in the scale of enterprise, local, regional, country's scale	19	7.3%
High level	more than 10	novelty in the scale of enterprise, local, regional, country's scale	4	1.5%
Very high level	at least one	novelty in the international scale		

Source: Author's own elaboration based on the research.

The importance of the regional determinants to enterprises' innovativeness is defined on the basis of rating of the already specified 27 factors by the respondents. The respondents were presented with the five-degree scale: 'very high importance' (5), 'high importance' (4), 'average importance' (3), 'low importance' (2), and 'doesn't matter' (1). Next, there were enumerated the Spearman's rank correlation coefficients and determined the interdependences occurring between the rating of the importance of each factor and the level of enterprises' innovativeness. The obtained results are presented in Table 3.

Financial aid to enterprises for investments in fixed assets as well as bailout and development of financial institutions, and facilitating the enterprises' access to capital are the two most important in the opinion of respondents factors in the group of financial determinants. Therefore, entrepreneurs prefer financial aid addressed to enterprises and not, for instance, to research institutions, which is understandable. On the other hand, in the group in question, there is the greatest interdependence between the rating of the importance of financial aid to enterprises for cooperation with research units and the level of enterprises' innovativeness ($r_s = 0.268$) what evidences the impact of cooperation with the R&D sector while implementing innovation on enterprises' innovativeness.

Importance of the regional conditions to enterprises' innovativeness (% of responses) as well as the Spearman's rank correlation coefficients between the rating of the importance of factors and the level of enterprises' innovativeness

					•		
	Rating	of the in	Rating of the importance of determinants	of determi	nants	Correlations be	Correlations between rating of
)	%)	(% of responses)	es)		the importance of determinants	of determinants
	Doesn't matter	Low	Average	High	Very high	and the level of enterprises' innovativeness	e level of enterprises' innovativeness
FINANCIAL SUPPORT FOR THE ENTITIES OPERATING IN THE REGION BY THE SELF-GOVERNMENT:	ON BY TH	IE SELF	-GOVER	NMENT:			
7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		7	1 70	101	G	ŗ	0.135*
Financial aid to enterprises for investment in fixed assets	7.0	0./1	7.07	40.1	8.0	d	0.030
Time of the state	7 11	0,00	0 00		c	ŗ	0.181**
r mancial and to enterprises for purchasing consulting services, needees, parems, etc.	0.11	0.00	0.07	7.4.7	4.7	d	0.004
	14.6	3 00		0 00	0	ŗ	0.263**
Financial and to enterprises for their independent carrying out $\kappa \alpha \nu$ work	14.0	27.3	7.97	6.77	1.8	d	0.000
T	4 [177	0.76	10.0	-	$\Gamma_{ m s}$	0.268**
Financial and to enterprises for cooperation with research units	 C:	34./	30.9	19.9	1.0	d	0.000
Financial support for setting up and development of research institutions,	, 30	٠, ۲	200	C	-	ŗ	0.244**
centres of innovation, training and consulting centres	5.5.3	0.00	30.0	7.6	1.9	ď	0.000
Bailout and development of financial institutions and facilitating the enterprises'	0 01	0.00	1 00	10 5	17.6	$\Gamma_{ m s}$	0.112
access to capital	10.9	0.67	73.1	16.5	17.0	d	0.074
Dailout of actions are and darral amount of the contract of actions	1 1	1 00	202	11.0	c	$\Gamma_{ m s}$	0.095
Danout of Setting up and development of special economic zones	1/./	29.1	57.5	11.0	7.0	d	0.130
ORGANISATIONAL AND CONSULTING SUPPORT FOR THE ENTITIES OPERATING IN THE REGION BY THE SELF-GOVERNMENT:	ITIES OP	ERATIN	G IN THI	REGIO	N BY THI	SELF-GOVER	NMENT:
Outside the second seco	3 0	15.7	71.0	7 20	17 6	$\Gamma_{ m s}$	0.043
Organisational and consuming assistance to enterprises	C.7	13.3	41.0	0.77	13.0	d	0.492
Involvement of centres of innovation in implementation of proinnovative	3 4	0.17	0.30	7	-	ŗ	0.174**
measures	 	0.76	0.00	77.0	1.0	d	0.005
Filing by self-governmental authorities of public orders for innovative products	7 2 1	7.00	20.7	10.7	0.3	$\Gamma_{\!\!\! s}$	0.223^{**}
and services	0./1	7.67	37.1	17.7	0.3	р	0.000
Daralamant of invactorante parad on mildie and mirate monthanchin	7 10	203	1	3.0		$ m r_s$	0.071
Development of investments based on public and private partitioning	7.17	30.3	++.T	5.9	0.0	р	0.255

	Rating	g of the in (%)	Rating of the importance of determinants (% of responses)	of determines)	nants	Correlations be the importance	Correlations between rating of the importance of determinants
	Doesn't matter	Low	Average	High	Very high	and the level of innovat	and the level of enterprises' innovativeness
STIMULATING COOPERATION BETWEEN ENTITIES IN THE REGION BY THE SELF-GOVERNMENT	TIES IN T	HE REG	ION BY I	THE SELI	GOVER	NMENT	
Self-government's assistance in the functioning of networks of ties between	216	0 00	370	1 00	0,0	r	0.115
enterprises and proinnovative institutions	0.12	70.9	C:/7	70.1	7.0	d	0.065
Facilitating the enterprises' access to services rendered by research institutions	171	226	37.5	0.50	-	r	0.299^{**}
and laboratories	14.1	72.0	27.7	73.0	4. O.	d	0.000
Do willited in a communication of surfacement of and surfacement of the source of the surfacement of the sur	0 1	0 66	300	217	0.1	ŗ	0.090
racinianng cooperation of enterprises with the science sector	0.1	0.77	27.7	21.7	4.7	d	0.151
Dodilitotisa o oceanomotion of antomonione artist	7 1	216	20.4	202	7 (r	0.045
racinianing cooperation of enterprises with centres of innovation	/.1	21.0	57.4	27.3	7.0	b	0.472
Do allite discussion and transfer of and beam about the second and a second blue as a second second	,	12.0	12.1	0.00	0 01	ŗ	0.110
raciniaung cooperation of enterprises with training and consuming centres	4.	13.8	1.64	73.9	10.8	d	0.078
Matching the offer of the business-environment institutions to the enterprises'	,	0.50	315	21.7	-	r	0.031
needs	t.	23.0	J+.J	31.2	÷.	р	0.616
Continu of the inclitations cummonting importations	0	375	16.0	0 90	,	r	0.061
Docation of the institutions supporting innovativeness	1.0	777	40.7	20.7	7:7	р	0.326
Duron for courions of the inefficience commenting immeriativeness		00	376	20.0	10.7	$\Gamma_{\rm s}$	0.104
rrice for services of the institutions supporting innovativeness	1.,	0.0	32.0	20.0	19.7	d	0.097
Self-government's assistance to enterprises as regards interregional and international	7 %	9 1	378	273	1 7 1	r	0.065
cooperation		7:1	0.70	J.: 1.	17:1	р	0.303
BUILDING AND REINFORCING OTHER INTANGIBLE ASSETS OF THE REGION	R INTAN	GIBLEA	SSETS O	F THE RI	GION		
Colf correspondence occurrent and and are a dorred commence of furnament and	7	0	207	3 31	1,5	r	0.052
эен-government s сопшпипенt in development от пиптап сарна	L.3	0.0	20.7	40.3	12.3	d	0.407
Raising qualifications of the public administration as regards innovation as well	0	11.0	7.00	171	1, 0	r	-0.049
as improvement of functioning of the public administration	0.7	11.7	23.1	4/.1	7.7	p	0.433
Danasation of antonomics and innervative attitudes in the more of	-	171	75.4	126	4 (r	0.018
FIOIDOLOID OF EINCEPTISE AND IMPOVATIVE AUTUMES IN THE LEGION	1.4	1/.1	55.4	45.0	77	р	0.774
Setting up centres of knowledge in the region and provision of free analyses of	-	17.8	24.0	77 6	V	ŗ	-0.089
the market, data bases, sources of information, etc.	1.1	0.4.0	5) F	ŗ.	р	0.154

	Ratin	g of the ir (%	Rating of the importance of determinants (% of responses)	of determines)	nants	Correlations between rating of the importance of determinants
	Doesn't matter	Low	Low Average High	High	Very high	and the level of enterprises' innovativeness
BUILDING AND REINFORCING OTHER TANGIBLE ASSETS OF THE REGION	HER TANG	IBLE AS	SETS OF	THE RE	SION	
D	,	,	ه در	76.3	C 3C	r _s -0.004
Development of the transport mitastructure	C.1	5.4	72.0		7.67	p 0.946
D	0 0	0 0 0 0	10.6	707	101	r _s 0.057
Development of the IC 1 mirastructure	0.0	12.9	18.0 49.7	49.7	10.1	p 0.366
Division of the leavest of meeting additional and form forms and meeting	7 1	1 6 147	210 475	3 77	5.3	r _s 0.066
Naising the fevel of region's attractiveness for foreign investinent	1.0	14.		C:/+	5.5	p 0.292

r – Spearman's rank correlation coefficient, p – significance level.

** The correlation is significant at the level of 0.01.

* The correlation is significant at the level of 0.05.
Other pointed out ones – the correlation is significant at the level of 0.11.
Source: as in Table 2.

The importance of the six out of the seven financial factors surveyed is higher rated by more innovative entities (Table 2). Among the factors included into the group "Organisational and consulting support for the entities operating in the region", the respondents also prefer assistance addressed directly to enterprises (commitment in projects, organisation of conferences and training courses), then the "Stimulating centres of innovation in organisation of proinnovative measures". The impact of investment based on public and private partnership as well as public orders for innovations is still perceived as not high. The latter factor if more important for enterprises with a higher level of innovativeness ($r_s = 0.223$).

Of the greatest importance for cooperation between entities in the region (the third group in question) are prices of the services rendered by institutions supporting innovativeness. Entrepreneurs are also interested in participation in fairs, meetings and in another form of assistance of the self-government in developing cooperation between regions and countries. Considering the interdependences between the rating of the importance of the factors surveyed and the level of innovativeness, we found a greater importance of the facilitating of the enterprises' access to services provided by research institutions for more innovative entities ($r_{\rm i} = 0.299$) what evidenced a favourable impact of cooperation on innovativeness.

In the fourth group, "Building and reinforcing other intangible assets of the region", respondents rate the highest self-government's commitment in development of human capital, which positively evidences entrepreneurs' awareness as regards the key importance of knowledge, skills, employees' commitment in implementation of innovative undertakings. As it regards the last group, "Building and reinforcing other tangible assets of the region", the priority in the context of increasing innovativeness is given to the transport and ICT infrastructure. These two factors are the essential prerequisite of improvement of enterprises' innovativeness and their importance is rated the highest out of all the 27 factors surveyed.

At the same time, extremely interesting is that all enterprises, both with a high level of innovativeness and non-innovative, are similarly rating the importance of the factors from the two last groups; there were not observed any occurrence of interdependences between the rating of the importance of these factors and the level of enterprises' innovativeness (Table 2).

Conclusion

Out of the five investigated groups of regional conditions, in the opinion of entrepreneurs from the Silesian Voivodeship, the greatest impact on the level of enterprises' innovativeness has the building and reinforcing tangible and intangible assets of the region (places 1 and 2). The respondents especially high locate the importance of self-government's measures related to the development of human capital, what indicates their perception of the role of knowledge in innovation implementation. Among tangible assets, the highest was rated the development of the transport infrastructure which is of the key importance particularly for production and commercial enterprises.

The third place took the group of determinants named "Stimulating cooperation between entities in the region by the self-government". The most important for the growth of enterprises' innovativeness factor in this group is the level of prices for services of the institutions supporting innovativeness, what is compliant with findings of other research (Kamińska 2016), as well as the self-government's assistance to enterprises in the development of interregional and international cooperation.

Out of the group called "Organisational and consulting support for the entities operating in the region by the self-government", entrepreneurs assign the greatest importance to direct assistance addressed to enterprises.

As financial constraints are one of the greater barriers for the microenvironment in the implementation of innovation, extremely interesting is the locating of this group in the last place among the regional determinants of innovativeness. An exception is investment in fixed assets which, in the opinion of respondents, are the most important in this group in stimulating innovativeness.

The research findings allowed for confirming the thesis of the occurrence at the level of the region of many factors affecting enterprises' innovativeness, while a proper stimulation of these factors by self-governments may have contributed to improvement of enterprises' innovativeness.

The presented conclusions stemming from research are important information for voivodeship self-governments which, realising the innovative policy, should pay greater attention to the most important in entrepreneurs' opinion factors stimulating innovativeness. The presented findings may also be useful for enterprises, whose level of innovativeness is still unsatisfactory, as well as for institutions of the business environment offering services supporting the implementation of innovative processes and, in consequence, contribute to the growth of innovativeness of enterprises, regions, and the country.

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Regionalne uwarunkowania innowacyjności przedsiębiorstw na przykładzie województwa śląskiego

Streszczenie

Dysproporcje występujące między poziomem polskich a europejskich przedsiębiorstw stanowią jedną z przesłanek potrzeby diagnozy uwarunkowań innowacyjności przedsiębiorstw w Polsce. Wśród zewnętrznych uwarunkowań stosunkowo rzadko analizowane są czynniki regionalne wywodzące się z mezootoczenia i zależne w dużym stopniu od działalności wojewódzkich władz samorządowych. Celem publikacji jest weryfikacja tezy mówiącej, iż na poziomie regionu występuje wiele czynników mających wpływ na innowacyjność przedsiębiorstw, a właściwe ich stymulowanie przez wojewódzkie władze samorządowe może przyczynić się

do poprawy innowacyjności przedsiębiorstw. Podstawą wnioskowania są wyniki własnych badań ankietowych przeprowadzonych na próbie 259 małych, średnich i dużych przedsiębiorstw z terenu województwa śląskiego.

Slowa kluczowe: innowacyjność, region, uwarunkowania regionalne innowacyjności.

Kody JEL: O30, O32, R11

Региональные обусловленности инновационности предприятий на примере Силезского воеводства

Резюме

Расхождения, выступающие между уровнем польских и европейских предприятий, представляют собой одну из предпосылок необходимости провести диагноз обусловленностей инновационности предприятий в Польше. В числе внешних обусловленностей относительно редко анализируются региональные факторы, вытекающие из мезосреды и зависящие в большой степени от деятельности воеводских органов самоуправления. Цель статьи — проверить гипотезу о том, что на уровне региона выступает ряд факторов, оказывающих воздействие на инновационность предприятий, а соответствующее стимулирование этих факторов воеводскими органами самоуправления может способствовать повышению инновационности предприятий. Основу умозаключения представляют рузультаты собственных опросов, проведенных на выборке 259 малых, средних и крупных предприятий с территории Силезского воеводства.

Ключевые слова: инновационность, регион, региональные обусловленности инновационности.

Коды JEL: O30, O32, R11

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