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**Article**

## Regional innovativeness strategies and their impact on innovativeness of provinces in Poland: A spatio-temporal analysis

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JAN KOWALIK\*

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## **Regional Innovativeness Strategies And Their Impact On Innovativeness Of Provinces In Poland. A Spatio-temporal Analysis**

### **Abstract**

*Regional Innovation Strategies (RIS) have existed in Poland for almost ten years and in this period they have been developed, accepted and implemented in all provinces. The basic aim of Regional Innovativeness Strategies is to support regional or local authorities and other regional development organizations in defining and implementing an effective system of supporting innovativeness in the region. The current scope of realizing projects connected with RIS is different in particular provinces. The author of the paper attempts to evaluate the effects of implementation of pro-innovativeness solution included in Regional Innovation Strategies with particular consideration of their influence on the growth of region innovativeness level in Poland.*

**Keywords:** *Regional Innovation Strategies, regions innovativeness in Poland, Composite Indicator of Provinces Innovativeness, spatio-temporal analysis*

### **1. Introduction**

Innovations play a leading role in the creation of economic growth on the national and regional level. However, from the enterprise point of view they are recognized as a basic factor of their development and gaining a competitive

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advantage. The relationship between innovations and regional development has been explained in numerous studies describing the importance of economic growth and development.<sup>1</sup>

The awareness of the dependence between a region innovativeness and its development forces local governments to create the innovative policy, which supports activity of domestic enterprises in the scope of undertaking and implementing innovative solutions in enterprises such as technological, managerial, information flow and marketing ones.

The basic tool of implementing the innovative policy on the regional level are Regional Innovativeness Strategies (RIS). Regional Innovativeness Strategies (RIS) have existed in Poland for almost ten years and in this period they have been developed, approved and implemented in all the provinces. The basic aim of Regional Innovativeness Strategies is to support regional or local authorities and other regional development organizations in defining and implementing an effective system of supporting innovativeness in the region. The strategy is created on the basis of the analysis of technological needs, capacity and potential of the research and scientific sector as well as enterprises in the scope of management, finances, training, organization and technology itself. The strategy determines directions of innovative policy and ways of building and optimizing a regional infrastructure supporting innovativeness<sup>2</sup>.

The current scope of implementing projects connected with RIS is different in particular provinces. The author of the paper attempts to evaluate the effects of pro-innovativeness solutions implementation included in Regional Innovation Strategies with particular consideration of their influence on the growth of region innovativeness level in Poland.

The study comprised all 16 provinces (regions) in Poland in the period between 2005 to 2012. The paper discusses basic aims and assumptions of Regional Innovativeness Strategies in particular provinces.

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<sup>1</sup> A wide list of publications describing the relationships between regional development and innovations can be found in the publication: Świadek A., *Regional innovative system in the European Union*, [in:] Janasz W. (ed.) *Innovations in enterprises operations in integration with the European Union*, Difin, Warszawa 2005, p. 86.

<sup>2</sup> Definition after Innovation Portal [http://www.pi.gov.pl/Polityka/chapter\\_86578.asp](http://www.pi.gov.pl/Polityka/chapter_86578.asp) (accessed 14.02.2014).

## 2. Innovativeness as a basis of social-economic region development

Regional development depends on numerous factors connected with current realities of social-economic life in Poland. The most important ones include: human, material, financial and social capital, technological and organizational innovations and external flows of people, capital and goods (Churski 2008, pp. 66-72).

The role of innovations in the process of development and social-economic progress is particularly important as innovations constitute an indispensable condition of dynamic and effective economy development (Firlej 2012, pp. 143-144). Economists assess that as much as 2/3 of the economic growth of developed countries should be associated with introduction of innovations (Kozioł 2005, p. 132).

The term innovations is a fairly general one. There is no single definition characterizing the described issue and the changes undergoing in the world which surrounds us cause that the subject scope of innovations is getting wide and wider. In the economic literature we can encounter two approaches to interpreting (defining) innovations, i.e. in the broad sense (*sensu largo*) and the narrow sense (*sensu stricto*). In the broad grasp (global one) innovation is defined as any change in production consisting in acquisition of obtained knowledge. In the *stricto* sense grasp innovations are identified only with changes in products and manufacturing methods. We encounter the broad grasp of innovations in publications and reports issued by the OECD or Eurostat where innovations are recognized as introduction of a new largely improved product (good or service), process, new marketing method or a new organization method in the business practice at the workplace and external relationships (Oslo Manual 2005). In the *stricto* sense grasp innovations are defined by K. Szatkowski who states that under the term innovations we understand changes consisting in improving or replacing existing products, manufacturing methods, manufacturing means, work organization methods and work tools (Szatkowski 2001, p. 25). In such a grasp of innovations the ones connected with social and organizational changes are omitted, concentrating on the technological ones. This results primarily from the fact that the scope of technological changes in the largest extent determines transformations in the manufacturing process and economic development.

The condition of innovations occurrence is the presence of propensity and possibility to implement them, i.e. innovativeness. Innovativeness is an economic category which can be discussed and defined on three different levels, namely, on the level of enterprise, region and state (economy). Under the term enterprise innovativeness we should understand their ability to create and implement innovations and the real capability of the enterprise to introduce new and modernized products, new or modernized technological or organizational-

technological processes. Economy innovativeness in turn is defined as the ability and motivation of enterprises to constantly seek for and use in practice results of scientific research, new ideas, concepts and inventions. Innovativeness also means improvement and development of existing production technologies, introduction of new or improved solutions in organization and management as well as improvement of information processing, gathering and making it available (Kierunki zwiększania innowacyjności gospodarki na lata 2007–2013, 2006, p. 6). Economy innovativeness depends on innovativeness of its particular regions, the level of region innovativeness in turn is dependent on innovative activeness of economic subjects located in the particular territorial area.

In the subject literature the role of regions in creating a proper innovative environment (innovative policy) is stressed more and more often. The regional grasp of innovativeness and its influence on the development of regions seems to be the right one, first of all because of very well developed awareness of being a member of a given community in the European reality - local patriotism. In some countries it results from the political structure, in the others it is conditioned historically or geographically (Szajt 2007, p. 71). A region, through its specific resources, which may include: knowledge resource, ability to learn, organizational culture, infrastructure and many others, influences the competitiveness of local enterprises and their innovative activeness. These competitive advantages of the local nature come from concentration of highly specialized knowledge, presence of public institutions, competition, business partners, consumers (Porter 2003, pp. 549-578).

Innovations, as so called soft factors, fulfil the role of a vital stimulus in the process of region social-economic development, and thus they have influence on their competitiveness improvement. Under the term region competitiveness we should understand an advantage over other regions, being the product of service offer attractiveness directed at present and potential region users, who are the inhabitants, companies, investors and guests, and its source is modern material, institutional and intellectual infrastructure of the region (Klasik, Markowski 2002, pp. 99-100).

Innovations influence improvement of region competitiveness in two ways. Firstly, they result in organizational changes, changes of manufacturing methods and marketing strategies, the effect of which is production efficiency improvement. Secondly, the result of their realization is introducing a new or largely improved product to the market (Golejewska 2012, p. 34).

Region competitiveness may be manifested in direct and indirect competition (Markowski, Marszał 1998, p. 133). From the point of view of enterprises and growth of their innovativeness what seems more important is indirect competition, which comes down to building regional environment conditions for enterprises functioning in it in order to obtain competitive advantage in the aspects which are beyond the

subjects control. Enterprises owe their innovativeness not only to their own organizational abilities, but also to the external environment in which they function, including the institutions on regional and local level (Golejewska 2012, p. 36).

### 3. Regional Innovativeness Strategies in Poland

Strategies should be understood as a consciously assumed and consequently realized in a longer time horizon way of maintaining constant competitive advantage by an organization, a region, a country (Koźmiński 1999, p. 97).

In various definitions of strategies we can distinguish several reoccurring issues (Marchesnay 1994, pp. 12-13):

- issue of goals - which is recognized as every behaviour focusing on formulation of long-term goals,
- plan issues - strategic are all activities at the basis of which lies planning to use resources in a longer time horizon,
- environment level - any behaviour is strategic if it leads to obtaining a constant competitive advantage in a long period with reference to the competitive environment,
- issues and scope of a change - decisions that cause vital structural changes and changes in the management domain.

In case of innovative strategies one can state that this is a set of main decisions in the following areas of operation (Kieżun 1997, p. 97):

- choice of the basic direction in the scope of shaping a triple possibility: the product, the market and the technologies,
- determining quantitative goals in the following domains: economic one, technological one and social-political one,
- gathering and allocating financial and technical resources as well as the staff which makes it possible to realize the intended tasks.

Regional Innovativeness Strategies (RIS) are a tool of shaping the innovative policy and building an effective system of innovativeness support in the region. They constitute the foundation of creating cooperation and partnership of all regional actors creating and supporting the course of innovative processes. RIS constitute the basis of building efficient regional innovativeness systems, and first of all the basis for using the European Union's funds for activities of innovative nature (Nowakowska 2007, p. 204). A regional innovativeness system is a set of interactions taking place among the knowledge domain, R+D sector,

economic subjects, education system, finances and public authorities, facilitating processes of adaptation and collective learning (Nowakowska 2007, pp. 302-303).

In accordance with the guidelines of the European Union the most important principles of building regional innovativeness strategies are (Wieloński, Szmigiel 2006, p. 20):

- partnership and public-private consensus (at all stages of work),
- stress on the demand side and the bottom-up approach at their development,
- orientation on activities (they should contain a plan, but also projects),
- making the use of European dimension,
- cyclicity.

As a basic factor in creating a proper innovativeness policy in the region, regional innovativeness strategies should contain at least three areas:

- development of innovativeness and entrepreneurship centres,
- development of financing instruments of a new enterprise and risky innovative ventures,
- stimulating and promoting technological entrepreneurship.

In addition, they should comprise four groups of supporters:

- businessmen,
- business environment institutions,
- research-development units (RDU, presently: research institutes) and universities,
- local governments.

Table 1 presents basic goals of RIS developed by individual regional governments in order to improve their innovativeness level and what follows, their competitiveness.

**Table 1. Basic goals of Regional Innovativeness Strategies in Poland**

| Province/Strategy                                       | Basic goals   |
|---|---|
| <b>Dolnośląskie</b><br>Dolnośląska Innovations Strategy | <ul style="list-style-type: none"> <li>- supporting regional entrepreneurship clusters,</li> <li>- real support of the regional innovativeness system by the scientific-research facilities,</li> <li>- building the innovative infrastructure supporting both incubation processes and processes of innovations commercialization,</li> <li>- use of present resources to create a system of innovations financing (lack of legislative solutions on the national level makes it impossible to create such a system from scratch),</li> <li>- lowering the barriers for operations of innovators,</li> </ul> |

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|--|---|
|  | <ul style="list-style-type: none"> <li>- education for innovations through thorough changes of the existing education model,</li> <li>- promoting innovative successes, rewarding innovations authors and in particular setting goals which require an innovative approach.</li> </ul>  |
| <b>Kujawsko-Pomorskie</b><br>Regional Innovativeness Strategy of Kujawsko-Pomorskie Province until the year 2015                       | <ul style="list-style-type: none"> <li>- development of enterprises towards knowledge-based economy through e-business development, supporting restructuring traditional economy areas to meet the contemporary requirements, more efficient attracting of investors from the high-tech technologies area,</li> <li>- building an effective system of cooperation between economy and knowledge in the region, in which the scientific-research centres realize expectations of enterprises and create new products,</li> <li>- pro-innovative business environment consisting of four systems comprising: common access to information for enterprises, network of institutions acting for innovativeness, pro-innovative system of education, pro-innovative climate and a way of operation of government in the region.</li> </ul> |
| <b>Lubelskie</b><br>Regional Innovativeness Strategy of Lubelskie Province, Innovative Lubelszczyzna – Transforming Ideas into Actions | <ul style="list-style-type: none"> <li>- growth of entrepreneurship in the region</li> <li>- improved effectiveness of classic agriculture,</li> <li>- development of organic products sector,</li> <li>- growth of competitiveness of scientific-didactic offer.</li> </ul>  |
| <b>Lubuskie</b><br>Regional Innovativeness Strategy of Lubuskie Province   | <ul style="list-style-type: none"> <li>- making the use of knowledge potential and R+D for the growth of the region's economy competitiveness,</li> <li>- building a system supporting innovations and modern innovative infrastructure in the region,</li> <li>- supporting entrepreneurship and innovative activity of enterprises.</li> </ul>  |
| <b>Łódzkie</b><br>Regional Innovativeness Strategy of Łódź Province – RIS LORIS 2005 - 2013  | <ul style="list-style-type: none"> <li>- increase in expenditures on R+D,</li> <li>- increase in regional R+D potential effectiveness,</li> <li>- creating conditions facilitating high-tech industries development,</li> <li>- significant increase in the level of knowledge-intensiveness of traditional industries and agriculture,</li> <li>- development of information society services and knowledge-based economy.</li> </ul>  |
| <b>Małopolskie</b> Regional Innovativeness Strategy of Małopolskie Province 2008-2013  | <ul style="list-style-type: none"> <li>- increase in innovativeness of enterprises in the province, through, among others, developing tools supporting financing of innovative activity of enterprises and increased participation of enterprises and research institutions in international research-development programmes and transfer of technologies,</li> <li>- reinforcing network contacts of institutions connected with the region innovativeness and a better use of their potential,</li> <li>- increased importance of innovativeness in regional policy.</li> </ul>   |



|   |  |
|---|--|
| <b>Mazowieckie</b> Regional Innovativeness Strategy for Mazowsze 2007-2015                                | <ul style="list-style-type: none"> <li>- cooperation increase in the processes of innovations and innovativeness development,</li> <li>- growth in internalization of Mazowieckie province enterprises,</li> <li>- growth of resources and effectiveness of financing pro-innovative activities in the region,</li> <li>- shaping and promoting pro-innovative and pro-entrepreneurial attitudes in the regions.</li> </ul>  |
| <b>Opolskie</b> Regional Innovativeness Strategy of Opolskie Province 2004-2013                           | <ul style="list-style-type: none"> <li>- creating an effective regional system of innovativeness support</li> <li>- increased use of the potential of scientific-research institution in the province,</li> <li>- increase enterprises competitiveness in the region through an increase in innovativeness of enterprises from the Small and Medium Enterprises sector.</li> </ul>   |
| <b>Podkarpackie</b> Regional Innovativeness Strategy of Podkarpackie Province for the years 2005-2013     | <ul style="list-style-type: none"> <li>- open and effective network of creating and supporting innovativeness,</li> <li>- increase in the potential of educational institutions,</li> <li>- strengthening innovative enterprises in the region and creating new ones.</li> </ul>   |
| <b>Podlaskie</b> Regional Innovativeness Strategy of Podlaskie Province 2005-2013                         | <ul style="list-style-type: none"> <li>- strengthening the Podlasie economy competitiveness through innovations,</li> <li>- establishing institutional mechanisms of innovativeness support of Podlaskie province,</li> <li>- pro-innovative transformation of scientific-research institutions potential in Podlaskie province,</li> </ul>  |
| <b>Pomorskie</b> Regional Innovativeness Strategy of Pomorskie Province (RIS-P)                           | <ul style="list-style-type: none"> <li>- building consensus and partnership for the development of information society and innovativeness in the region,</li> <li>- shaping innovative culture and pro-innovative education,</li> <li>- supporting development of the area outside the Tri-City agglomeration through innovations,</li> <li>- supporting the development of Small and Medium Enterprises in the region through the use of innovative potential of the Tri-City agglomeration.</li> </ul> |
| <b>Śląskie</b> Regional Innovativeness Strategy of Śląskie Province for the years 2003-2013               | <ul style="list-style-type: none"> <li>- increased share of high innovativeness enterprises in the total number of small and medium enterprises,</li> <li>- increased use of research-development potential,</li> <li>- ensuring an effective Regional Innovativeness System based on mutual trust, creativity and perfection.</li> </ul>  |
| <b>Świętokrzyskie</b> Regional Innovativeness Strategy of Świętokrzyskie Province for the years 2005-2013 | <ul style="list-style-type: none"> <li>- improving educational system which shapes open, innovative and entrepreneurial attitudes</li> <li>- development of research activity in order to trigger internal factors of region development,</li> <li>- building the infrastructure of information society,</li> <li>- development of business environment institutions,</li> </ul>   |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>- building institutional forms of cooperation among academic environment, regional governments and economy,</li> <li>- optimum use of the EU funds for implementing RIS.</li> </ul>   |
| <b>Warmińsko-Mazurskie</b><br>Regional Innovativeness Strategy of Warmińsko-Mazurskie Province | <ul style="list-style-type: none"> <li>- growth of qualifications,</li> <li>- promoting high quality,</li> <li>- promoting cooperation,</li> <li>- building innovative potential.</li> </ul>   |
| <b>Wielkopolskie</b> Regional Innovativeness Strategy "Innovative Wielkopolska"                | <ul style="list-style-type: none"> <li>- integrating social-economic communities for innovations,</li> <li>- increasing the capacity of enterprises to introduce innovations,</li> <li>- making use of the research potential of Wielkopolska for economy competitiveness growth,</li> <li>- building modern innovative infrastructure.</li> </ul> |
| <b>Zachodniopomorskie</b><br>Regional Innovativeness Strategy in Zachodniopomorskie Province   | <ul style="list-style-type: none"> <li>- growth of innovative awareness of Small and Medium Enterprises,</li> <li>- creating conditions for development of technology and innovations market in the region,</li> <li>- developing a support system for innovative actions in the region.</li> </ul>  |

Source: Own elaboration on the basis of Regional Innovativeness Strategies in individual provinces.

Regional Innovativeness Strategies in Poland have been approved by local government assemblies of all provinces. The first strategies were developed and approved in the provinces of Zachodniopomorskie, Wielkopolskie, Śląskie, Opolskie and Warmińsko-Mazurskie. The last provincial local government where RIS was elaborated was Mazowsze region.

It ensues from the studies concerning Regional Innovativeness Strategies (Regionalne Systemy Innowacji w Polsce. Raport z badań, 2013, pp. 59-70) that the provisions of all regional innovativeness strategies indicate their completeness. The goals of RIS most frequently and to the largest extent concentrate on interventions in the areas connected with development of innovativeness and entrepreneurship centres as well as stimulating and promoting technological entrepreneurship. Less emphasis is put on creating the instruments of financing tools of new enterprises and risky innovative ventures (lack of such goals in RIS of the provinces: Łódzkie, Mazowieckie, Śląskie, Wielkopolskie). The provinces of Podkarpackie and Zachodniopomorskie stand out positively in this respect as they put particular emphasis on these instruments. As a rule all RIS include beneficiaries from all groups of supporters in their impact. In some regions (Łódzkie, Podlaskie, Śląskie, Wielkopolskie) RIS to a small extent or do not include at all the intervention of the local government of the province.

#### 4. The analysis of Polish provinces innovativeness level in the years 2005-2012

Evaluation of the economy innovativeness level or its particular regions is conducted on the basis of direct and indirect indicators. Indirect indicators are based on intensity of research-development works. They measure the results of inventive activity and on the basis of them conclusions concerning the innovative situation of a country or a region are formulated. Direct indicators in turn concentrate on the effects of product, process, organizational and marketing innovations (Nowak 2012, pp. 153-154).

In order to evaluate innovativeness level of provinces in Poland the author has chosen nine indicators. Data comes from the Local Data Bank published by the Central Statistical Office. The following set of variables have been proposed:

- X1 – the number of centres conducting research-development activity,
- X2 – share of individuals employed in R+D in total number of working individuals (in percentage),
- X3 – internal expenditures on research-development activity calculated per one individual employed in R+D,
- X4 – expenditures of an enterprise on research and development as a percentage of GNP,
- X5 – expenditures in the higher education sector on research and development as a percentage of GNP,
- X6 – enterprises, which incurred expenditures on innovative activity as a percentage of all enterprises,
- X7 – innovative enterprises, which in the given year launched at least one product or process innovation to the market, as a percentage of all enterprises,
- X8 – share of the production of sold new/substantially improved products in industrial establishments in the total value of product sale,
- X9 – registered inventions and granted patents calculated per 1000 individuals employed in R+D.

The presented variables have been used to determine the Composite Indicator of Provinces Innovativeness (CIPI), which has been determined as arithmetic mean from the normalized primary variables:

$$s_t = \frac{1}{n} \sum_{i=1}^n z_{it} \quad (1)$$

where:  $st$  – synthetic measure for  $i$  – th province in  $t$  period,  $\sum_{i=1}^n z_{it}$  - sum of normalized values of diagnostic variables in  $i$ -th province in  $t$  period,  $n$  - number of provinces.

The applied normalization method was the benchmark normalization. As the benchmark the author used the maximum value of the diagnostic variable  $x_{jt}$   $j \in \{1, 2, \dots, m\}$   $t \in \{1, 2, \dots, k\}$  for provinces in the given time moment  $t$

$$z_{ijt} = \frac{x_{ijt}}{\max_i x_{ijt}}, \quad \max_i x_{ij} \neq 0 \quad i \in \{1, 2, \dots, n\}; \quad j \in \{1, 2, \dots, m\}; \quad t \in \{1, 2, \dots, k\} \quad (2)$$

The values of the Composite Indicator of Provinces Innovativeness for particular regions of Poland and their basic measures of central tendency and differentiation have been summarized in Table 2.

The values of the innovativeness measure indicate that in the analyzed period Mazowieckie, Małopolskie and Pomorskie provinces were characterized by the highest innovativeness level. On the other hand, these are also the regions where the highest rate of decrease in innovativeness level occurs, measured year-over-year. The province whose innovativeness level is characterized by the highest growth rate is Świętokrzyskie province, for which the value of the innovativeness indicator grew year-over-year on average by 7,4%.

Regions of the highest innovativeness level proved to be least resistant to economic slowdown, caused by the world economic crisis, which in Poland dates back to years 2009-2011. In Mazowiecki, Małopolski, Pomorski, Dolnośląski and Śląski regions one can observe a clear decrease in the value of innovativeness indicator after the year 2009.

A positive phenomenon that can be observed in the years 2006-2012 is a decrease in the differentiation of provinces innovativeness level in Poland. The value of the coefficient of variation in this period dropped from the level of 30,9% to 18,7%. Still the value of the coefficient demonstrates a distinct differentiation in the innovativeness level of provinces, but the differences are becoming smaller. This phenomenon may confirm the effectiveness of actions taken at the central and regional level both within the confines of Regional Innovativeness Strategies as well as in the scope of the innovative policy and sustainable regional development in Poland.

**Table 2. Values of the Composite Indicator of Provinces Innovativeness in the years 2006 – 2012**

| PROVINCE                        | YEAR  |       |       |       |       |       |       | Average change rate of the phenomenon in time [%] |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|---|
|                                 | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  |   |
| ŁÓDZKIE                         | 0,466 | 0,446 | 0,443 | 0,478 | 0,456 | 0,435 | 0,432 | -1,3  |
| MAZOWIECKIE                     | 0,862 | 0,853 | 0,884 | 0,761 | 0,711 | 0,670 | 0,620 | -5,4  |
| MAŁOPOLSKIE                     | 0,663 | 0,672 | 0,707 | 0,669 | 0,609 | 0,618 | 0,574 | -2,4  |
| ŚLĄSKIE                         | 0,558 | 0,576 | 0,532 | 0,656 | 0,583 | 0,515 | 0,514 | -1,4  |
| LUBELSKIE                       | 0,447 | 0,463 | 0,461 | 0,484 | 0,456 | 0,495 | 0,488 | 1,5   |
| PODKARPACKIE                    | 0,572 | 0,555 | 0,510 | 0,559 | 0,622 | 0,645 | 0,528 | -1,3  |
| PODLASKIE                       | 0,414 | 0,352 | 0,435 | 0,373 | 0,384 | 0,383 | 0,411 | -0,1  |
| ŚWIĘTOKRZYSKIE                  | 0,304 | 0,341 | 0,428 | 0,477 | 0,439 | 0,429 | 0,466 | 7,4   |
| LUBUSKIE                        | 0,282 | 0,283 | 0,294 | 0,341 | 0,305 | 0,307 | 0,301 | 1,1   |
| WIELKOPOLSKIE                   | 0,465 | 0,524 | 0,523 | 0,572 | 0,510 | 0,546 | 0,502 | 1,3   |
| ZACHODNIOPOMORSKIE              | 0,340 | 0,357 | 0,389 | 0,407 | 0,412 | 0,400 | 0,373 | 1,6   |
| DOLNOŚLĄSKIE                    | 0,496 | 0,528 | 0,581 | 0,612 | 0,535 | 0,511 | 0,534 | 1,3   |
| OPOLSKIE                        | 0,382 | 0,351 | 0,353 | 0,453 | 0,401 | 0,466 | 0,394 | 0,9   |
| KUJAWSKO-POMORSKIE              | 0,447 | 0,371 | 0,428 | 0,477 | 0,424 | 0,412 | 0,390 | -2,3  |
| POMORSKIE                       | 0,676 | 0,613 | 0,673 | 0,637 | 0,597 | 0,593 | 0,582 | -2,5  |
| WARMIŃSKO-MAZURSKIE             | 0,345 | 0,446 | 0,374 | 0,400 | 0,426 | 0,359 | 0,365 | 0,9   |
| <b>Descriptive statistics</b>   |       |       |       |       |       |       |       |   |
| Arithmetic mean                 | 0,482 | 0,483 | 0,501 | 0,522 | 0,492 | 0,487 | 0,467 |   |
| Median                          | 0,456 | 0,455 | 0,452 | 0,481 | 0,456 | 0,481 | 0,477 |   |
| Coefficient of variation in [%] | 30,9  | 29,9  | 29,1  | 22,3  | 21,3  | 21,3  | 18,7  |   |

Source: own calculations on the basis of the Local Data Bank of CSO.

## 5. Conclusions

Regional Innovativeness Strategies have already almost a 10-year history in Poland. These strategies determine the directions of the innovative policy and the ways of building and optimizing regional infrastructure facilitating innovativeness. As any activity, especially the one of strategic meaning, developed in a dynamically changing environment RIS are not free of some

imperfections. The following, most frequently occurring imperfections may be indicated in Regional Innovativeness Strategies (Regionalne Systemy Innowacji w Polsce. Raport z badań, 2013, p. 63):

- goals are not always precisely defined and are not quantified,
- in many cases not all actions have defined terms, contractors and financing sources,
- not always a proper structure of goals has been applied, distinguishing at least three levels of goals,
- most frequently they lack prioritizing of tasks,
- not always a monitoring system of goals realization have been foreseen, or even goals implementing indicators.

However, as a basic tool of creating an innovation policy in the region RIS undoubtedly have influence on positive changes that take place in level of the region innovativeness in Poland. This influence can be most clearly perceived in case of provinces such as Świętokrzyskie or Opolskie, where the innovativeness level of these regions has improved substantially in the years 2006-2012. Another positive change which can be observed in the innovativeness level of provinces is that the disparities in the innovativeness level of individual regions are blurring.

A big advantage of RIS is the fact that unlike earlier developed programmes whose task was to support innovative activity, all goals included in RIS in each province find financing sources determined in the operational programmes for these provinces for the years 2007-2013.

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## Streszczenie

### **REGIONALNE STRATEGIE INNOWACJI I ICH WPŁYW NA INNOWACYJNOŚĆ WOJEWÓDZTW W POLSCE – ANALIZA PRZESTRZENNO-CZASOWA**

*Regionalne Strategie Innowacji (RSI) istnieją w Polsce blisko dziesięć lat i w tym okresie zostały one opracowane, przyjęte i wdrożone we wszystkich województwach. Podstawowym celem Regionalnych Strategii Innowacji jest wspomaganie władz regionalnych lub lokalnych oraz innych organizacji rozwoju regionalnego w zdefiniowaniu i wdrożeniu efektywnego systemu wspierania innowacyjności w regionie. Dotychczasowy zakres realizacji projektów związanych z RSI jest różny w poszczególnych województwach. W pracy podjęto próbę oceny efektów wdrażania rozwiązań proinnowacyjnych zawartych w Regionalnych Strategiach Innowacji ze szczególnym uwzględnieniem ich wpływu na wzrost poziomu innowacyjności regionów w Polsce.*

**Słowa kluczowe:** *Regionalne Strategie Innowacji, innowacyjność regionów w Polsce, syntetyczny wskaźnik innowacyjności regionów, analiza przestrzenno - czasowa*