
Analysis of methodological approach to identify smart specialization on the example of Polish regions

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Abstract

The aim of this article is to present and compare the methods of smart specialization identification on the example of Polish regions. In the paper the systematic literature review was conducted in order to identify the methods of smart specialization design. The article presents: (i) the idea of smart specialization strategy in regions, (ii) the presentation of chosen methodological approaches to identify smart specialization at the regional level (iii) the comparison analysis of methods of smart specialization identification in Polish regions. As far as smart specialization is a new idea on European Union, the paper gives a complex overview of methodological approaches to smart specialization identification. The results shown in this paper can be useful in future assessment of the influence of smart specialization on the development of regions.

Introduction

Facing the last financial crisis, global challenges and rising competition, the European Union aims to boost its economy in the way of smart, sustainable and inclusive growth. The key point of new policy stipulated in Strategy Europe 2020 is to strengthen the development of knowledge based economy (smart growth), contribute to resource efficiency (sustainable growth) and strengthen employment, social and territorial cohesion (inclusive growth) (European Commission, 2010). The Strategy Europe 2020 emphasizes the necessity of reinforcing the innovativeness and competiveness of Europe’s economy as many research prove the strict and direct relationship

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between the innovativeness and the economic development of region (Dębkowska, 2013, Maastricht Economic and Social Research Institute on Innovation and Technology, 2014). In order to achieve strategic goals, the European Commission prepared the new concept of innovation policy based on smart specialization, which is described in one of flagship initiatives called Innovation Union (Nowakowska, 2010). Member states are obliged to elaborate their smart specialization strategies in order to be supported by Structural Funds (European Commission, 2012A). Therefore, the identification of smart specialization is the extremely important process as it decides which priorities will be supported by EU funds and in consequences determines the directions of regions’ development. The research methods used at the particular stages of this process can significantly influence the choice of smart specialization in particular region (Piatkowski et al., 2014). Therefore, from the scientific point of view, it is worth answering the question in what way regions have chosen their specialization, which methods have been utilized and appeared to be the most popular. As the literature review shown the lack of complex overview of research methods utilized in smart specialization process so the aim of this article is to present and compare these methods on the example of Polish regions. The article presents: (i) the idea of smart specialization strategy in regions, (ii) the presentation of chosen methodological approaches to identify smart specialization at the regional level (iii) the comparison analysis of methods of smart specialization identification in Polish regions. The results shown in this paper can be useful in future assessment of the influence of smart specialization on the development of regions.

1. Smart specialization strategy in regions

1.1. The concept of smart specialization

The concept of smart specialization was elaborated by the group of researchers that actually advise the European Commission called as ‘Knowledge for Growth’ (Foray et al. 2007, 2009). According to them smart specialisation means the discovery of those potential domains or areas, which are based on exceptional features and assets of each region in order to reinforce the regional economy and build its competitive position on the global market. In this way, smart specialisation does not mean only supporting of existing strengths of the regions but rather finding the new possibilities of their development. Therefore, the R+D+I resources should be concentrated on these limited priorities, which will lead - in short term - to technical transformation of existing sectors, the increase of assets productivity and diversity of economic structure, while in – long term – to new, technologically advanced industries and service. According to the European Commission, smart specialisation chosen by regions should be linked with Key Enabling Technologies (micro/nano-electronics, photonics, nano-technology, industrial biotechnology, advanced materials and advanced manufacturing systems) as one of the main innovation priority of EU. Moreover, smart specialisation should be identified in bottom-up process called as entrepreneurial discovery, which means engaging stakeholders not only from governmental sector but also participants representing research centres, society and enterprises (Foray, 2015).

1.2. Research and innovation strategy for smart specialisation

Although the documented beginning of the concept is not distant, the theoretical concept of smart specialisation was adopted into European politics very fast. In order to benefit from Structural Funds, the member states are obliged to prepare research and innovation strategy for smart specialisation (RIS3) both on the regional and national level (European Commission, 2012). RIS3 as a transformation agenda should be prepared in accordance with rules called as Four C’s depicted on Fig. 1.
In order to help countries/regions to elaborate RIS3, the European Commission released Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3 Guide) and the Smart Specialisation Platform. Both tools do not intrude the methods of smart specialisation designing but rather suggests some of them and gives general advice for the participants responsible for the RIS3 preparation. The process of elaboration of RIS3 strategy should be conducted in six steps presented on Fig.2 (European Commission, 2014).

First step of RIS 3 should be concerned on the analysis of regional economy, society and innovation structure in order to evaluate present assets and find perspectives for future development. This stage should be based on the one of the most important element of smart specialisation concept, which means related variety. Each region can find new areas of development based on local know by diversifying the existing specialisation and finding the synergy and links between them taking into account not only their relations with other regions and the position within the EU (European Commission 2012B).

The process of setting the aim and scope of the strategy should involve stakeholders from different sectors, which means not only industry–university–government but also society - the representatives of civil society and non-governmental organisations (Quadruple Helix Model). The society participation gives habitants opportunity to join in the process of innovation but also shed light on their needs as a direct consumer of innovation (European Commission 2012B). The government and the public administration agencies are expected to take a leadership role in shaping the strategy but also are supposed to be a kind of innovation animators to encourage new solutions and inspiring dialogue between other sectors (Todeva, 2014).

As participants committed in the process have different expectations, the RIS 3 should be elaborated as shared vision of region’s future with clear directions of regional development. This step is an important political process, which decides if the strategy is going to be successful.

On the basis of the analysis of existing assets, comparative advantage and regional potential (step 1), regions should set strategic priorities for regional development. To select priorities it is essential to analyse sectors taking into account: key strength and advantage, diversification inside and outside sectors, critical mass and potential, international position of region within the value chain. The goals have to be determined with accordance between top-down objectives of EU policies and a bottom-up identification of niches through entrepreneurial process. In addition to specific technological priorities, the strategy should indicate also horizontal priorities related to Key Enabling Technologies as well as social and organizational innovation.
Afterwards, the strategy should be implemented by a means of a clear action plan allowing for a degree of experimentation through diverse pilot projects. Finally, from the very beginning the strategy should include the mechanisms for monitoring and evaluation. The European Commission recommends the implementation of these six steps in sequence shown on the Fig. 2. However, it is important to point out that they can sometimes overlap in case of many unexpected situations coming up in the process like entering of new actors or discovering unrealised potential. Therefore, they should be thought as interacting elements of a comprehensive design scheme, which implementation order depends on the specificity of regional context (European Commission, 2014).

2. Methods of identification of smart specialization on example of Polish regions

According to the European Commission, smart specialisation can be identified with the use of many different methods, but regions should decide which are the most appropriate to the regional specificity. The World Bank indicates seven following potential methods: analysis of science and technology, looking for clusters, foresight, market selection, competitive selection, case-studies, gravity model. There is no uniform method of selecting smart specializations, however it is recommended to utilise the mixture of methods to obtain a comprehensive overview of potentials. Moreover, there is also no clear timeline or sequencing for how these methods should be applied, although it seems reasonable to start with the two first methods (analyses of S&T and looking for clusters), since they are relatively easy to conduct and provide decision-makers with basic information about the region’s innovation system. Other methods are more complex, but could well be more accurate to utilise the triangulation of methods - quantitative analysis complemented by a qualitative layer (Piatkowski et al, 2014).

RIS3 Guide mentions only several research methods which can be utilized during the smart specialization selecting. The most suitable among qualitative methods are: SWOT analysis, desk research, expert assessments, public consultation while among quantitative methods: targeted surveys and questionnaires personal interviews (face-to-face, telephone, or in working groups) web-based or surveys.

The analysis of the process of smart specialisation selecting in Polish regions revealed that it was very differentiated - more often integrated with the updating of regional innovative strategies or regional development strategies (the list of the analysed documents is listed in References). Only a few regions prepared specially dedicated strategies towards smart specialisation (Dziemianowicz et al., 2014). Taking into account the research methods, the analysis of regional documents has proved that the process of smart specialisation was very differentiated in each voivodeship (Tab. 1).

<table>
<thead>
<tr>
<th>Research methods</th>
<th>voivodeship</th>
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<td>Focus Group Interview</td>
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<td>Five Porter’s forces analysis</td>
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The most popular were traditional qualitative methods like desk research, statistic methods and SWOT analysis complemented by interview methods like IDI or FGI, but without complementation by a qualitative layer. It is worth outlining that smart specialization were selected not only by experts but also in the process of entrepreneurial discovery, which is proved by high share of public consultations. All regions have their advisory body formed by the Marshal Office, which consist of entrepreneurs, scientists and other relevant actors taking part in the regional innovation system in order to identify areas of regional specialization. On the contrary, only a few regions have chosen strategic methods like scenario analysis, five Porter’s forces analysis or technological foresight. Many authors emphasize that foresight method is an efficient, but unappreciated instrument of regional strategic management, supporting the development of regional policies, development scenarios and decisions. It could be also used as the tool in smart specialisation identification thanks to its long time-span, flexibility and ability to adapt to changing conditions but also participation of all stakeholders in the process (Ejdys, Lulewicz-Sas 2012; Kononiuk, Nazarko 2011).

Although regions did not strictly keep to the steps of smart specialisation selecting mentioned in RIS3, the author’s analysis of regional documents allowed to classified methods into particular stages of this process. The most broad and complex method seems to be foresight as a mixture of different methods (Fig.3).

![Fig. 3 Classification of research methods into six steps of RIS3 elaboration](image)

The good example of research project aiming to select technological specialisations on regional level was Foresight technologiczny «NT FOR Podlaskie 2020»: Regionalna strategia rozwoju nanotechnologii (Nazarko 2011, Nazarko et al. 2013). Although the project included revolutionary vision of Podlaskie Voivodeship including the intensive exploration of the possibilities afforded by nanotechnologies, the local authorities did not pay attention on this research results.

Conclusions

The paper presented the idea of smart specialization strategy in regions, the overview of chosen methodological approaches to identify smart specialization at the regional level and the comparison analysis of methods of smart specialization identification in Polish regions. The analysis of the regional documents has revealed that regions had chosen their smart specialisation in differentiated way with the use of variety research methods. The most popular appeared to be traditional qualitative methods, but not complemented by the quantitative ones. Moreover, in case of Polish regions, smart specialization were selected in the bottom-up process through entrepreneurial discovery.
Foresight method still stays as unappreciated instrument of regional strategic management, supporting the development of regional policies and selecting smart specialisation. From a scientific point of view, further research need to be conducted in order to analyze the relation between methods of smart specialization chosen by regions and future development of particular region.

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