South East European Journal of Economics and Business
Volume 15 (1) 2020, 93-104
DOI: 10.2478/jeb-2020-0008

REGIONAL POLICY AS A FACTOR IN SHAPING REGIONAL DEVELOPMENT IN POLAND

Maciej Czaplewski, Rafał Klóska

Abstract

Regional development is firmly rooted in the theory of land management, and today's considerations and analyses in this area are gaining special importance. The relationship between specific conditions and the observed effects of regional development was considered under various theoretical concepts. Additionally, the interdependence of processes taking place on the international, national and regional level renders it necessary to pursue, inter alia, an effective regional policy. In this study, particular attention was given to the premises and objectives of intentional actions taken both at supra-regional level (inter-regional policy) and regional level (intra-regional policy). The theoretical considerations concerning the regional policy carried out were supplemented with current statistics regarding the development of regions in Poland. The aim of the study is to show the role of regional policy in shaping regional development and to analyse its current state on the basis of own research using multidimensional comparative analysis (MCA) methods. The considerations presented in the article lead to the conclusion that regional policy is an important factor in regional development, and the presented research results allow to assess the current level and diversity of this development in Poland.

Key words: *regional development, regional policy, statistical analysis*

JEL classification: *O18, C19, R59*

INTRODUCTION

Regional policy is one of the policies of modern economic policy carried out by the European Union, member states and local authorities. It is an important element of intervention activity in market economy conditions (Szymla 2000). Winiarski defines it as the deliberate influence of public authorities on the socio-economic development of regions (Winiarski and Patrzałek 1994). Makulska shares this view, noting that this influence pertains to the economic and spatial structure of the country and inter-regional proportions of development (Makulska 2004). In his definition of the regional policy, Szlachta additionally stresses the purposefulness of the activities of public

Maciej Czaplewski, PhD (corresponding author)
Assistant Professor
Institute of Spatial Management and Socio-Economic Geography
University of Szczecin
E-mail: maciej.czaplewski@usz.edu.pl
Address: ul. Mickiewicza 64, 71-101 Szczecin

Rafał Klóska, PhD
Associate Professor
Institute of Spatial Management and Socio-Economic Geography
University of Szczecin
E-mail: rafal.kloska@usz.edu.pl

Copyright © 2020 by the School of Economics and Business Sarajevo

authorities aimed at regional development (Szlachta 1996). While the above definitions are of general nature, Grosse proposes a much more precise definition, namely: 'strategic activities undertaken on the initiative of the government in cooperation with province (voivodeship) self-governments and other self-government authorities, which are aimed at improving economic competitiveness of all regions, providing regions with equal development opportunities and striving for economic, social and territorial cohesion on the national level and in respect of individual provinces (Grosse 2009, p. 42)'.

Regional development can be treated as a process of continuous socio-economic changes of specific spaces, including separate regions, aiming at improving the existing state from the point of view of the adopted criteria (Markowska 2002; Kudłacz 1999; Cooke, Leydesdorff 2006). These changes, of course, occur on the basis of various conditions, relate to various phenomena and numerous areas of activity, and thus cause the need to recognize many factors with different directions and strength of impact, which increases the complexity and ambiguity of the described problems. This topic is the subject of research and reflection of numerous scientists. In this regard, the changes within the whole economy and within entrepreneurship in general seem also to be of major importance, as rapid and vast changes in the economy and related emerging challenges force enterprises to develop and improve their entrepreneurial concepts in relation to regional development.

The article is organized as follows. Following the introduction, is presented a theoretical comparison between inter-regional and intra-regional policies. Subsequently, is described the evolution of Polish regional policy, as well as the meaning of regional development as a support for local entrepreneurship. The next sections explain the used methodology and present the results of the research. The article ends with conclusions and an assessment of the current development level in Poland.

INTER-REGIONAL POLICY vs INTRA-REGIONAL POLICY

Regional policy provides ground for special cooperation between government and self-government bodies as well as other relevant entities with an appropriate level of central, regional or local authority, and therefore distinction is made between inter-regional and intraregional policy (Table 1).

Inter-regional policy involves structured activities of central authorities at the supraregional level aimed at, inter alia (Rynio 2004):

1) Exploiting spatially diversified resources and opportunities and specific features of regions for the growth of economy;
2) Achieving the intended level of changes in the economic structure in the region;
3) Stimulating the economic development of the country by treating regional development as an element of development processes in the entire country;
4) Improving the distribution of revenues between regions to prevent considerable interregional disproportions;
5) Expansion of technical, economic and social infrastructure to implement the concept of land development of the country;
6) Elimination of inter-regional disparities in the standard of living and cultural development of the population;
7) Environmental protection, especially in crisis areas.

Table 1. Comparison of the objectives of inter-regional and intra-regional policy

Inter-regional policy (national level)	Intra-regional policy (province level)
– Improvement of entrepreneurship and creation of new jobs; – Education activities; – Investment in technical and transport infrastructure; – Projects regarding regional and local culture constituting a part of national culture and the protection and development of cultural heritage; – Innovation and technology transfer, as well as studies and research needed to implement regional development policy; – Development of institutions stimulating activity of local and regional self-government units.	– Providing conditions for social and economic development, including creation of the labour market; – Actions to improve educational level of citizens; – Investment in technical and social infrastructure of provincial importance; – Supporting the development of culture as well as the protection and rational use of cultural heritage; – Promoting technological progress and innovation and supporting the development of science and its cooperation with the economy; – Promotion of province values and its development opportunities.

Source: Zakrzewska-Półtorak 2011.

Intra-regional policy is defined as deliberate and purposeful actions undertaken by selfgovernment regional authorities in support of socio-economic development processes taking place in the region (Potoczna 2006) which encompass, within the scope of competences granted and on the basis of available financial resources (Rynio 2004).

Therefore, it is recognised (Szewczuk, Kogut and Zioło 2011; Kudłacz and Woźniak 2006,) that regional policy in Poland is carried out by public authorities at the central level in relation to all regions – provinces (so-called inter-regional policy) and each province (by province self-government) in relation to its territory (so-called intra-regional policy). Although it is sometimes pointed out that there are disproportions in financial resources of entities carrying out inter-regional and intra-regional policy and that their objectives and activities are substitutable, which may result in the popularity of certain solutions and omission of others (Zakrzewska-Półtorak 2011), it should be stressed that due to the complementarity of the two policies:

1) Intra-regional policy must not contradict inter-regional policy objectives; on the contrary – intra-regional policy is intended to support and implement inter-regional policy (Rynio 2004);
2) Both a strong intra-regional policy mobilising resources of particular regions to solve their problems and to create conditions for sustainable development, as well as an effective inter-regional policy allowing well thought-out and economically effective reduction of development delays of historical origin in a significant part of the national territory and facilitating restructuring processes in regions affected by depression, are necessary (Potoczna 2006).

The numerous and complex relationships that occur in practice depend on multiple factors (Korenik 2002), and the formation of appropriate relations between the two policies is subject to the requirements of Polish legislation, while preserving the relevant EU rules. The most important principles are: subsidiarity, partnership, concentration of regional policy resources, complementarity, programming, compliance, and coordination of regional policies of member states. The multidimensional and cross-sectoral actions implemented in a long-term perspective must be closely interrelated and require coordination between initiatives taken at central and regional level, as well as between European instruments and state regional policy instruments. In addition to the publications cited in this part, other literature items are also worth recommending, e.g. Pike, Rodriguez-Pose and Tomaney (2006), Szlachta and Zaleski (2010), Makulska (2010), and Strahl (2006).

EVOLUTION OF POLISH REGIONAL POLICY

In the initial period of systemic transformation in Poland, regional policy was not actively implemented and it was based on the centralisation of decisions, taking into account regional conditions, but without a thorough analysis of the problems of a given region (Bocian 1999). The then model of territorial organisation of the state impeded the pursuit of a comprehensive regional policy in Poland (Szlachta and Zaleski 2011). It is pointed out that until the end of 1998 there was excessive centralism, unification of solutions, insufficient financial resources and no instruments and institutions enabling the implementation of coordinated actions (Stawasz 2001). In practice, it was not until 1999 when the public administration reform was adopted, substituting 49 small voivodeships with 16 large ones, and opportunities were created for the introduction of intraregional policy (Szlachta 2009). It was based on the Act on the principles of supporting regional development and the National Regional Development Strategy for the years 2001-2006. However, the public finance crisis entailed a reduction of funds for the adoption of regional policy and the basic state budge expenditure was still of a sectoral rather than spatial nature (Korenik 2005). Deconcentration enabling a territorial approach to development as opposed to a sectoral, industry-oriented approach is a natural consequence of decentralisation (Pietrzyk 2001), and nowadays regional policy is inherently related to the decentralisation of the state and shifting power, resources and responsibilities to the regional level (Sługocki 2009). Nowadays, the formal and legal solutions in force in the EU provide for the possibility of using regionally diverse regulatory instruments (Czaplewski 2015). EU regional policy has had a significant impact on the changes in Polish regional policy and non-refundable EU funds have become an important instrument and at the same time the main source of financing for development projects, especially among self-governing provinces. The establishment and adjustment of the Polish regional policy standards to the EU reality was carried out in two stages and the first stage involved all activities undertaken by Polish authorities in the pre-accession period, and appropriate structures and procedures resulting from fully-fledged membership in the European Union were created after the change of the status of Poland from a candidate country to a member state. In the 2007-2013 programming period, support for balanced development of the community and at the same time reduction of disparities between regions was considered a priority in the EU regional policy (Dylewski 2006) which results from three basic objectives adopted at that time:

1) Convergence, the aim of which is to create pro-growth conditions while eliminating delay of the least developed member states and regions;
2) Competitiveness and employment in the regions – intended to improve the competitiveness and attractiveness of the regions while increasing employment;
3) European territorial cooperation – designed to strengthen cross-border cooperation through joint initiatives, international cooperation, inter-regional cooperation and exchange of experience.

In the 2014-2020 perspective, the policy priorities are intended to achieve growth which would be: smart (by investing more effectively in education, research and innovation), sustainable (by promoting a low-carbon economy and a competitive industry) and encouraging social inclusion (by creating new jobs and reducing poverty) as set out in the 'Europe 2020' strategy (Europe 2020). 11 thematic objectives were formulated for the current programming period (Komisja Europejska 2014):

1) Support of research, technological development and innovation;
2) Increasing the availability, utilisation and quality of information and communication technologies;
3) Increasing the competitiveness of small and medium-sized enterprises;
4) Supporting the transition to a low-carbon economy;
5) Promoting adaptation to climate change, hazard prevention and risk management;
6) Protecting the environment and promoting efficient use of resources;
7) Promoting sustainable transport and improving key network infrastructures;
8) Promoting permanent and high-quality employment and supporting labour mobility;
9) Promoting social inclusion and combating poverty and all forms of discrimination;
10) Investing in education, skills and lifelong learning;
11) Improving the efficiency of the public administration.

Complex interactions of regional policy instruments of national and supra-national nature often result in the implementation of EU objectives, actions or programmes, which in turn allows external sources of financing to be obtained (Spychalski 2007). Therefore, the National Regional Development Strategy for 2007-2013 included three basic target objectives of the Polish regional policy which are as follows (NSRR 2007-2013):

1) Development of economic competitiveness of Polish regions;
2) Supporting flexible diversification of objectives and exploiting the endogenous potential of regions;
3) Providing provinces with equal development opportunities.

In turn, the newest strategic documents of the state's regional policy in the perspective of 2030 (Krajowa Strategia Rozwoju Regionalnego) was released in 2019. Eventually, however, drawing up the most important document so far regarding the state regional policy carried out across all provinces of the National Regional Development Strategy was abandoned and the National Development Strategy 2007-2015, which actually substituted the National Development Plan 2007-2013, did not contain detailed territorial objectives and principles of financial support under the national regional policy, but only identified priorities defining the most important directions and main activities aimed at the achievement of the main objective, i.e. the improvement of the standard and quality of life of the inhabitants of Poland (Strategia Rozwoju Kraju 2006):

1) Increase in the competitiveness and innovativeness of the economy;
2) Improvement of the condition of technical and social infrastructure;
3) Increase in employment and improvement of its quality;
4) Building an integrated social community and its security;
5) Rural development;
6) Regional development and improved territorial cohesion.

It should be emphasised that the observed changes in regional policy evolve towards (Krajowa Strategia Rozwoju Regionalnego 2010): undertakings strengthening the competitiveness and development processes of regions, departing from short-term, top-down subsidies for the indicated areas in favour of long-term, decentralised development policies supporting all areas and replacing dispersed interventions with concentrated investments (Table 2).

Strictly defined objectives are intended to ensure greater effectiveness and efficiency of regional policy, and their proper implementation may be a response to the challenges that the rapidly changing reality poses to the development of regions. According to Korenik, some of the greatest challenges faced by Polish regions at the beginning of the 21st century include (Korenik 2011):

1) Optimal use of the development potential of individual regions;
2) Building civil society;
3) Ensuring sustainable and balanced development;
4) Creating a knowledge-based economy;
5) Continuous improvement of the competitiveness and cohesion of the region;

Table 2. Old and new paradigm of regional policy

	Old paradigm	New paradigm
Strategies	Sectoral approach	Integrated development projects
Objectives	COMPETITIVENESS	
	Identifying multiple elements of the socio-economic structure as factors of competitiveness, which result in overlapping of various uncoordinated activities.	Strategic direction of the regional policy (expansion of growth) implemented in all regions, including in the most competitive centres. Precisely defined competitiveness factors and strategically selected methods of its improvement. A multi-sectoral, territorially oriented approach.
	EQUALISATION	
	Strong emphasis on compensatory measures, however counterproductive – greater disparities, dispersion of resources.	Improvement of cohesion as a result of increased absorption capacity (greater flow of capital, people, knowledge, innovation). Special 'compensatory' measures tailored to the potential of the territories concerned, relevant for the whole country, concentrated on selected areas, to discover and exploit their potential, allowing the achievement of the 'critical mass' necessary for further development.
Tools	Subsidies and public aid.	Integrated 'soft' and 'hard' instruments, business environment, social capital, networking, better coordination.
Territorial dimension	Regions treated homogeneously, without taking into account their internal and external diversity. Territorial dimension not addressed adequately, predominance of the sectoral approach, the so-called 'poverty algorithm'.	Territorial approach in all development activities (recognition of diversity, good coordination, multi-level governance). Integrated programmes dedicated to areas subject to strategic intervention while maintaining spatial integration facilitated under regional policy.
Territorial Units	Administrative units. Urban-rural relations not included in policy instruments, rural areas treated alike across the country.	Functional units. Diverse approach to different types of territories. A policy adapted to places, taking into account the dependence of growth-generating areas, functionally related areas and peripheral areas.
Players	The government and self-government of the province.	All levels of public administration, social players and business representatives.

Source: Krajowa Strategia Rozwoju Regionalnego 2010.

6) Meeting such challenges of globalisation as: the ageing population, diseases of affluence, climate change, financial and economic crises.

A similar list is compiled by Grosse (2009), whereas according to Szlachta and Zaleski (2008), the most significant challenges of the Polish regional policy include:

1) Introduction of a decentralised model of development policy by means of the currently used structural funds and the consolidation of the decentralised model of development policy in our country after 2013;
2) Formulation of objectives for the target structure of relations between the delegated government administration and the province self-government;
3) Defining the potential and conditions of regional policy in systems other than a province system, including those concerning: macro-regions, metropolitan areas, subregions or problem inter-regional areas;
4) Considerably increasing the number of instruments of regional policy in Poland;
5) Defining and proposing systemic and model solutions in relation to the actual processes of regional development and the need to stimulate the development of the country and provinces;
6) Evaluation of synthetic effects of regional policy in the inter-regional and intraregional dimension and adjustment of the regional policy model in Poland on the basis of such evaluation, including the legal and institutional system;
7) Further decentralisation of public finances.

It seems that the vast majority of voices in the scientific debate of Polish regionalists was reflected

in the National Regional Development Strategy as the following strategic challenges, which must be addressed by regional policy through detailed solutions, were defined (Krajowa Strategia Rozwoju Regionalnego 2010):

1) More effective use of potential of major urban areas to encourage growth and employment and stimulate the development of other areas;
2) Ensuring the internal cohesion of the country and preventing excessive territorial disparities;
3) Increase in the potential for creation, diffusion and absorption of innovations;
4) Counteracting negative demographic tendencies and better utilisation of labour resources;
5) Improving the quality of labour resources;
6) Ensuring energy security and responding to climate change;
7) Nature conservation and rational use of natural resources;
8) Exploitation of cultural and tourist potential in regional development;
9) Support for the development of social capital;
10) Adequate transport and information and communication technologies (ICT) infrastructure;
11) Increase in institutional capacity to manage development at national and regional level.

Accomplishment of the regional policy objectives contributes to the development of the regions and the development of the country based on the development of the regions is nowadays, at the turn of the century, an objective necessity resulting from the participation in the global economy, however, the growth rate of individual areas is diversified and a clear spatial polarisation is noticeable. As a result of the differences in the natural environment conditions and different factors of geographical or social development, individual regions are characterised by different dynamics of development (Szymla 2004). Additionally, contemporary development mechanisms, which include technological progress, development of information society or globalisation of the economy, contribute to greater disproportions in the development of knowledge-based economy, both between individual countries or regions as well as within regions (Miszczak 2004). Different levels of economic development of regions, uneven dynamics of their development or heterogeneous competitiveness are common phenomena constituting the essence of economic growth and result from historically, socially, economically and ecologically conditioned heterogeneity of space (Kaja and Piech 2005).

It is emphasised (Gawlikowska-Hueckel 2002; Martin and Sunley 1998; Massey 1979) that the ongoing debate on the development of regions concerns the issue of whether there is regional convergence within the European Union which in the future will lead to a reduction in disparities in their development, or whether polarisation processes will lead to permanent disparities and even an increase in inequalities. The economic theory does not provide a clear answer to the question of the impact of spatial disproportions on the development of the economy as a whole. New endogenous growth models, as opposed to the previous neoclassical models, do not provide evidence for an objective tendency towards the equalisation of the development level of countries and regions (Adamczyk-Łojewska 2011). Thus, views on convergence or divergence in development economics evolve (Jabłoński 2008) and in the last dozen or so years regional differences in almost all EU member states have been increasing (Szlachta 2010). Some argue (Szlachta and Zalewski 2008) that the government uses EU funds pro-developmentally, whereas regions in a pro-consumption manner. Sometimes the compensatory regional policy is questioned and even considered harmful, however, the greatest doubts concern the economic effect of transfers to rural or poorly urbanised regions (Gajewski 2007). On the other hand, however, it is suggested that the inter-regional policy should be aimed at changing the manner of financial resources allocation between more developed regions and regions lagging behind as well as the support of the latter through non-financial instruments (Prusek and Kudełko 2009). Regional inequalities may increase, as the same financial resources invested in more developed regions bring greater growth benefits than in less developed regions (Nowakowska 2004). Nevertheless, the strategy involving the support of the strongest regions is proposed to be treated as a temporary solution and not as a permanent orientation of the regional policy (Winiarski 1999).

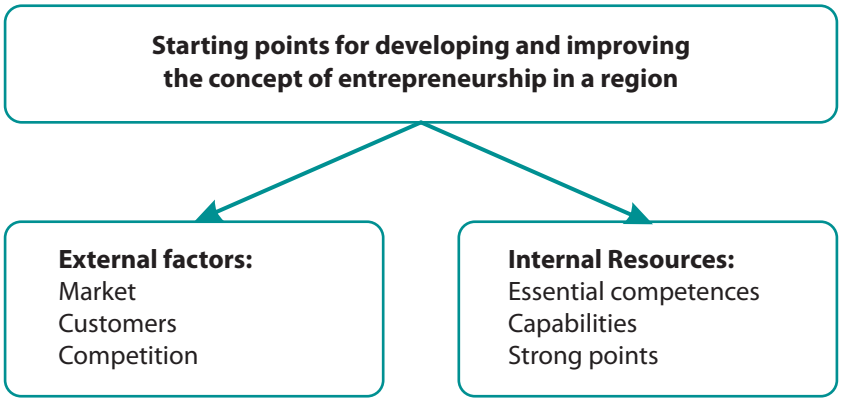
REGIONAL DEVELOPMENT AS A SUPPORT FOR LOCAL ENTREPRENEURSHIP

Regional development strategies as well as rapid changes in the economy and related emerging challenges force enterprises to develop and improve their entrepreneurial concepts. This should be approached in a thoughtful and systemic way. According to the authors, this requires:

1) Indication of the starting points for developing and improving the concept of entrepreneurship;
2) Defining the stages of the procedure in the event of a decision on the need to improve the concept of entrepreneurship.

The basic information on the starting points in the

Figure 1. Starting elements for creating the concept of entrepreneurship in a region



Source: Own study based on: H. Simon 1999.

process of developing and improving entrepreneurship is presented in Figure 1.

If a decision is made about the need to improve the concept of entrepreneurship, it is desirable to designate a procedure covering the following stages of the procedure:

1) Diagnosis of the initial situation;
2) Analysing strengths and weaknesses of the implemented entrepreneurship concept
3) Presenting the new proposed concept;
4) Demonstrating the main differences of the implemented and proposed concept;
5) Proposing instruments to move from the implemented concept to the proposed concept of entrepreneurship;
6) Indication of the necessary financial and personnel requirements, as well as the desired legal and organizational changes related to the implementation of instruments enabling the transition to the new proposed concept of entrepreneurship;
7) Determining the stages of the implemented entrepreneurship concept and assigning them specific deadlines;
8) Control of the planned enterprise.

This kind of designated procedure taking into account the regional policies should be a base for local entrepreneurship strategies and it has to be contained in a multidimensional characteristic of regional development.

METHODOLOGICAL NOTES AND RESULTS OF OWN RESEARCH

From a statistical point of view, regional development is a multidimensional characteristic the measurement method of which remains ambiguous. Different degrees of generalisation, dynamic or spatial representation as well as the multitude of changes taking place in regions make it possible to consider regional development in various aspects, taking into account specific factors of regional development. This multidimensionality leads to a broad understanding of this process of continuous socio-economic transformations of specific spaces aimed at improving the existing state in respect of the adopted criteria. On the one hand, there is a need for a theoretical description and empirical measurement of the examined process of continuous socio-economic changes in the regions, and on the other hand, inconsistent criteria for evaluating the improvement of the existing state necessitate individual selection of specific instruments and, consequently, entail the risk of incorrect recognition of the nature of the analysed phenomenon. The limited availability, or in fact often the lack of complete, homogeneous and fully comparable statistical data, causes additional difficulties in the examination of the nature of regional development and may result in simplified assumptions.

In order to depict the current state of regional development in Poland, 18 diagnostic variables have been applied (more information in: Klóska 2017) concerning three dimensions:

1) Social:
   - Infant deaths per 1,000 live births;
   - Relative at-risk-of-poverty rate (%);
   - Number of university students per 10,000 inhabitants;
   - Registered unemployment rate (%);
   - Number of fatalities in road accidents per 100,000 inhabitants;
   - Water consumption for the purposes of national economy and total population (hm^3) per 10,000 inhabitants;

2) Economic:
   - GDP (current prices) per capita in PLN;
   - Share of business entities' outlays in total outlays on R&D activity (%);
   - Number of newly registered entities of the national economy in the private sector per 10,000 inhabitants;
   - Working persons per 1,000 inhabitants;
   - Total capital expenditure (current prices) per capita in PLN;
3) Environmental:
   - Percentage of population using wastewater treatment plants (%);
   - Level of forestation (%);
   - Recycling of packaging waste (%);
   - Share of devastated and degraded land requiring rehabilitation in total area (%);
   - Share of recovered waste (excluding municipal waste) in the amount of waste produced during the year (%);
   - Share of electricity production from renewable sources in total electricity production (%);
   - Electricity consumption per 1 million PLN of GDP (GWh).

The substantive selection of variables, in the strict sense, was considered superior, and the selection of variables was based on statistical criteria of dispersion and correlation.

Proper measurement of regional development requires careful selection of a set of specific indicators, which should take into account the spatial and temporal scope, as well as the purpose of analyses or diagnoses. However, this issue has not been solved unambiguously, and in known empirical works on this subject matter, the defined sets of measures constitute a compromise between the substantive premises and information possibilities. Most often, those sets are a result of the arbitrariness of the research team's approach (Strahl 2006). Chmielak (2009) emphasizes that the complexity of development processes means that there is still an unsatisfactory level of their recognition and interpretation, which makes it impossible to precisely determine the course and likely results of these processes.

Sometimes–as in the work of the Institute for Market Economics, for example–fields that characterize specific areas of socio-economic life are created (Guzik 2008). However, Obrębalski (2002) points out that the specification of the groups of regional development identifiers formulated in theoretical considerations, despite various attempts to quantify them, encounters difficulties. The economic literature takes into account various indicators of socio-economic changes in regions, and their number in various works usually ranges from a few to several dozen (Diang, de Vries and Han 2014; Xinjian and Junhai 2011).

Taking into account the postulate of features discrimination, the classic coefficient of variation was applied to eliminate quasi stable variables. The relatively strong correlations observed were each time subjected to a thorough substantive assessment with regard to the provision by the variables, thus indicating a certain specific information ultimately affecting regional development. As a result of this approach, statistical data series were obtained for eighteen indicators adopted as the final set of diagnostic variables, which seem to describe regional development in Poland in a fairly comprehensive manner.

The study used a synthetic developmental measure (SDM) convergent in terms of methodology with the *Summary Innovation Index* (SII) commonly used in the EU nomenclature (Innovation Union Scoreboard 2019), which is an aggregate measure constituting an arithmetic mean of non-weighted diagnostic variables reduced to comparability by zero unitarisation multiplied by one hundred.

A relative development coefficient was used as an SDM formula to rank the objects analysed by means of the diagnostic variables adopted in the study, which is as follows:

$$W_i = \frac{100}{k}\sum_{j=1}^{k}\alpha_j z_{ij} \tag{1}$$

where:
W_i – relative development coefficient;
k – number of variables used in the study;
α_j – the weight of the *j-th* variable;
z_{ij} – standardized by means of a zero unitarisation of the statistical x_{ij} feature values included in the study.

This is an aggregate measure, which is the arithmetic mean of the diagnostic variables rendered comparable by zero unitarisation multiplied with the following algorithm for the stimulants:

$$z_{ij} = \frac{x_{ij} - \min\{x_{ij}\}}{\max\{x_{ij}\} - \min\{x_{ij}\}} \tag{2}$$

and for the inhibitor:

$$z_{ij} = \frac{\max\{x_{ij}\} - x_{ij}}{\max\{x_{ij}\} - \min\{x_{ij}\}} \tag{3}$$

A higher value of the aggregate formula (1) with values between 0 and 100 ensures a higher rank.

On the basis of the collected statistical material (GUS 2019), the primary values of the SDM applied were obtained, which allowed the ranking of the provinces in Poland based on regional development levels, taking into account the aforementioned eighteen diagnostic variables. The results obtained[1] are presented in Table 3 below.

Table 3. Results of linear ordering of regional development in Poland

Voivodeship	As at the end of 2018	
	Primary value SDM	Ranking position
Lower Silesia	49	5
Kuyavia-Pomerania	44	9
Lublin	32	15
Lubusz	47	8
Lodzkie	36	13
Lesser Poland	58	3
Masovia	61	1
Opole	43	12
Subcarpathia	48	6
Podlaskie	43	11
Pomerania	61	2
Silesia	54	4
Świętokrzyskie	22	16
Warmia-Masuria	34	14
Greater Poland	47	7
West Pomerania	44	10

Source: own work based on GUS (2019) data.

The results of the research presented in Table 3 allow only a general assessment of the current state of dispersion of regional development in Poland. However, the range of SDM values indicates large disparities in the development of regions in Poland at the end of 2018.

Additionally, based on the information contained in Table 3, it can be observed that in terms of the development of regions in Poland (in the context of the adopted variables and the applied research methodology), the leader is Masovia Voivodeship, followed by Pomerania and Lesser Poland Voivodeship. The last and penultimate places in the presented ranking were taken by the Świętokrzyskie and Lublin Voivodeships respectively. It is also worth noting the significant difference in the development of the strongest and the weakest region, as evidenced by the obtained values of the taxonomic SDM. The results obtained on the basis of formula (1) are convergent with the results of other analyses that indicate the polarization of regional space in Poland (Małys 2001; Gorzałczyńska-Koczkodaj 2005; Markowska-Przybyła 2008; Rączaszek 2010).

Formula (1), as previously indicated, is widely used in EU research. From the methodological point of view, it does not raise major objections. However, criticism can be found in literature (e.g. Hollanders and van Cruysen, 2008), and they concern mainly the following problems: collinearity and correlation of variables, data availability and quality, and the significance of the adopted variables for the policy pursued, assuming equal weights. Efforts should continue to improve the statistical indicators used in this type of research, because the limited availability of complete and comparable data is the main barrier to the quantification of the research area.

CONCLUSION

Our research implies that purposeful strategic actions taken deliberately both at the supra-regional level (inter-regional policy) and at the regional level (intra-regional policy) as well as establishing proper relations between the two policies due to their substitutive and complementary nature, leads to regional development and plays a crucial role in encouraging it as well as building up local entrepreneurship. The achievement of the objectives based on strictly defined rules results in the development of the regions and the level of this development poses new challenges and at the same time leads to the evolution of the priorities set. The achieved objectives create new conditions which sometimes require paradigm shifts and periodical reprofiling of the existing accents of the regional policy as well as improvement of its instruments. It is natural that individual regions develop at different rates, however, the rational and effective implementation of regional policy should ensure effective use of potential for the development of individual regions and, at the same time, eliminate prodevelopment barriers. The aforementioned debate on the existence of economic convergence or divergence of EU countries and regions is reflected in numerous studies, which suggest – as noted by, among others, Adamczyk-Łojewska (2011) – the possibility of co-existence of two opposing processes, namely: convergence of national economies in relation to other countries and an increase in the diversity of regional development within the country, i.e. regional divergence.

Taking into account the results of our research and

the large disparities in the development of different regions, we would recommend to focus on a sustainable development model, rather than on the diffusion-polarization model that was followed in Poland until 2015. The latter model, which relied on the concentration of development in large urban centres relatively quickly brings effects because of the greater concentration of various types of services, capital, population, and production. However, due to these previously adopted solutions, disparities have grown not only between regions but also within them. For this reason, it is better to focus on a more sustainable development. Of course, this does not mean promotion of identical development in different regions, because those have their specifics. It is about directing various tools in order to use all internal potentials that are present in particular places with simultaneous, good cooperation between self-governments, entrepreneurs, and the national government.

ENDNOTES

1. As at date of the data update, i.e. 04.11.2019. It is normal that publicly available statistical data are subject to a time delay, sometimes of more than a year. It is understood that the results of the research conducted under this study depict the situation at the end of 2018, however, if the data from that period were not available, the data from the last available year were used, which is consistent with the commonly adopted approach in EU research (e.g. Innovation Union Scoreboard).

REFERENCES

Adamczyk-Łojewska, G. 2011. Problemy konwergencji i dywergencji ekonomicznej na przykładzie krajów Unii Europejskiej, w tym Polski. Ekonomia 4 (16) 2011, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 211, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.

Bocian, D. 1999. Zadania polityki regionów w okresie transformacji systemowej w Polsce. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 799, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Chmielak A. 2009. Pułapki rozwoju gospodarczego. Optimum. Studia Ekonomiczne nr 4 (44) 2009, Wydawnictwo Uniwersytetu w Białymstoku, Białystok 2009.

Cooke, P., Leydesdorff, L. 2006. Regional Development in the Knowledge-Based Economy: The Construction of Adventage, "The Journal of Technology Transfer" nr 1, vol. 31.

Czaplewski, M. 2015. Wykorzystanie polityki regionalnej w kształtowaniu rynku usług telekomunikacyjnych. In Niskoemisyjność we współczesnej polityce gospodarczej, edited by K. Pająk, M. Urbaniak, S. Zwierzchlewski, Wydawnictwo Adam Marszałek, Toruń.

Diang Y., de Vries B., Han Q. 2014. Measuring regional sustainability by a coordinated development model of economy, society, and environment: a case study of Hubei province. Procedia Environmental Science 22 2014, Elsevier.

Dylewski, M. 2006. Ewolucja polityki regionalnej Unii Europejskiej. In Kierunki transformacji społeczno-ekonomicznej przestrzeni Polski ze szczególnym uwzględnieniem obszarów metropolitalnych, edited by S. Korenik, M. Rogowska. Biblioteka Regionalisty Nr 3 (1/2006), Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Europe 2020. A strategy for smart, sustainable and inclusive growth (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF;
Accessed: 25.10.2019).

Gajewski, P. 2007. Ekonomiczne efekty polityki regionalnej. Gospodarka Narodowa Nr 1-2/2007, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Gawlikowska-Hueckel, K. 2002. Konwergencja regionalna w Unii Europejskiej. Gospodarka Narodowa Nr 10 2002, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Gorzałczyńska-Koczkodaj M. 2005. Zróżnicowanie w poziomie rozwoju województw w Polsce. Kierunki transformacji społeczno-ekonomicznej przestrzeni polski ze szczególnym uwzględnieniem obszarów metropolitalnych, edited by M. Łyszczak, K. Wilk. Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu,

Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Grosse, T. 2009. Cele i zasady polityki regionalnej państwa. In Koncepcja nowej polityki regionalnej, Ministerstwo Rozwoju Regionalnego, Warszawa.

GUS. 2019. Główny Urząd Statystyczny, https://stat.gov.pl/ (access 12.03.2020).

Guzik B. 2008. Atrakcyjność inwestycyjna województw. Gospodarka Narodowa Nr 3/2008, Wydawnictwo Szkoły Głównej Handlowej, Warszawa 2008.

Hollanders H., van Cruysen A. 2008. Rethinking the European Innovation Scoreboard: A New Methodology for 2008-2010, Pro Inno Europe, Inno Metrics, Maastricht.

Innovation Union Scoreboard 2019, Inno Metrics, European Union 2019.

Jabłoński, Ł. 2008. Ewolucja poglądów na temat konwergencji w ekonomii rozwoju Gospodarka Narodowa Nr 5-6/2008, Wydawnictwo Szkoły Głównej Handlowej, Warszawa: 25-46.

Kaja, J., K. Piech, ed. 2005. Rozwój oraz polityka regionalna i lokalna w Polsce, Wydawnictwo Szkoły Głównej Handlowej w Warszawie, Warszawa.

Klóska, R. 2017. Rozwój zrównoważony regionów w ujęciu statystycznym. Progress in Economic Sciences, Czasopismo Naukowe Instytutu Ekonomicznego Państwowej Wyższej Szkoły Zawodowej im. Stanisława Staszica w Pile Nr 4 (2017), Piła 2017: 159-175.

Komisja Europejska, Wprowadzenie do unijnej polityki spójności na lata 2014-2020, czerwiec 2014 r., http://ec.europa.eu/regional_policy/sources/docgener/informat/basic/basic_2014_pl.pdf (access 12.10.2019).

Korenik, S. 2005. Ewolucja polskiej polityki regionalnej po roku 1989. In II Forum Samorządowe - Samorząd terytorialny w zintegrowanej Europie, edited by B. Filipiak, A. Szewczuk, Z. Zychowicz, Zeszyty Naukowe Uniwersytetu Szczecińskiego Nr 401, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin.

Korenik, S. 2011. Kierunki zmian społeczno-ekonomicznych w regionach Polski w pierwszej dekadzie XXI wieku. In Rozwój lokalny i regionalny, edited by M. Dylewski, Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu Nr 39/2011, Wydawnictwo Wyższej Szkoły Bankowej w Poznaniu, Poznań.

Korenik, S. 2002. Związki i relacje polityki regionalnej i polityki rozwoju lokalnego. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 939, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego, Wrocław.

Kudłacz, T. (1999). Programowanie rozwoju regionalnego, Warszawa: Wydawnictwo Naukowe PWN.

Kudłacz, T. and Woźniak D. 2006. Skuteczność polityki regionalnej w Polsce w latach 2001-2003 w świetle oceny metodą Paradise. Zeszyty Naukowe Akademii Ekonomicznej w Krakowie Nr 693, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków.

Krajowa Strategia Rozwoju Regionalnego 2010-2020: Regiony, Miasta, Obszary wiejskie, Ministerstwo Rozwoju Regionalnego, Warszawa 2010.

Krajowa Strategia Rozwoju Regionalnego 2030, https://www.gov.pl/web/fundusze-regiony/krajowa-strategia-rozwoju-regionalnego (access 12.10.2019).

Makulska, D. 2004. Instrumenty polityki regionalnej w Polsce, Oficyna Wydawnicza: Szkoła Główna Handlowa w Warszawie, Warszawa.

Makulska D. 2010. Rozwój jako przedmiot działań polityki regionalnej. In Polityka gospodarcza: wyzwania, dylematy, priorytety, edited by J. Stecewicz, Prace i materiały Instytutu Rozwoju gospodarczego SGH, Szkoła Główna Handlowa w Warszawie - Oficyna Wydawnicza, Warszawa.

Małys E. 2001. Zróżnicowanie poziomu rozwoju województw w Polsce. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 905, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Markowska, M. 2002. Czynniki rozwoju regionalnego, Prace Naukowe Akademii Ekonomicznej we Wrocławiu nr 939, Wrocław: Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu.

Markowska-Przybyła U. 2008. Zmiany wewnątrzregionalnych dysproporcji rozwojowych w wybranych województwach w latach 1999-2005. Gospodarka Przestrzenna XI 2008, edited by S. Korenik, Z. Przybyła, Wydawnictwo Katedra Gospodarki Przestrzennej i Administracji Samorządowej Wydziału Nauk Ekonomicznych Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.

Massey, D. 1979. In what sense a regional problem? Regional Studies 13, 2/1979.

Miszczak, K. 2004. Poziom rozwoju regionów w Polsce na początku XXI w.. In Konkurencyjność i potencjał rozwoju polskich metropolii – szanse i bariery, edited by S. Korenik, K. Szołek, Biuletyn z. 214, Polska Akademia Nauk, Komitet Przestrzennego Zagospodarowania Kraju, Warszawa.

Nowakowska, A. 2004. Regionalne zróżnicowanie polityki inwestycyjnej samorządu terytorialnego. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 1023, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

NSRR 2007-2013, Założenia Narodowej Strategii Rozwoju Regionalnego na lata 2007-2013, http://www.nsrr.gov.pl/NR/rdonlyres/DA09CB61-6BC8-49B1-862F-D03E1D57EE75/0/zalozeniansrr.pdf (access 12.10.2019).

Obrębalski M. 2002. Rozwój regionalny – identyfikacja, pomiar i ocena. Gospodarka lokalna w teorii i w praktyce, Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 939, Wrocław 2002.

Pietrzyk, I. 2001. Integracja europejska a polityka regionalna w Polsce. Gospodarka Narodowa Nr 4/2001, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Pike A., Rodriguez-Pose A., Tomaney J. 2006. Local and Regional Development, Routledge, Taylor&Francis Group, London-New York.

Potoczna, I. 2006. Polska polityka regionalna na początku XXI wieku – aspekt teoretyczny. In Kierunki transformacji społeczno-ekonomicznej przestrzeni Polski ze szczególnym uwzględnieniem obszarów metropolitarnych, edited by S. Korenik, M. Rogowska, Wydawnictwo: Katedra Gospodarki Przestrzennej i Administracji Samorządowej Wydziału Gospodarki Narodowej Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Prusek, A. and J. Kudełko. 2009. Analiza i ocena zróżnicowania poziomu rozwoju polskich regionów w latach 2000-2006 w świetle polityki spójności. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu Nr 46, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.

Rączaszek A. 2010. Zróżnicowanie poziomu rozwoju społeczno-ekonomicznego regionów i jednostek samorządu terytorialnego w Polsce. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu Nr 95, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.

Rynio, D. 2004. Współczesne trendy gospodarki regionalnej. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 1016, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Simon, H. 1999. Tajemniczy mistrzowie. Studia przypadków, Wydawnictwo Naukowe PWN, Warszawa.

Sługocki, W., ed. 2009. Polityka regionalna w Polsce jako przestrzeń aktywności samorządu terytorialnego, Dom Wydawniczy ELIPSA, Warszawa.

Spychalski, G. 2007. Polityka regionalna wobec współczesnych wyzwań rozwojowych. Europa Regionum IX 2006, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin.

Stawasz, D. 2001. Współczesne wymiary polityki wspierania rozwoju regionów. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 905, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Strahl, D., ed. 2006. Metody oceny rozwoju regionalnego, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Strategia Rozwoju Kraju 2007-2015, Ministerstwo Rozwoju Regionalnego, Warszawa 2006.

Szewczuk, A., Kogut M., Zioło M. 2011. Rozwój lokalny i regionalny. Teoria i praktyka, C. H. Beck, Warszawa.

Szlachta, J. 2010. Europejska polityka regionalna po roku 2013 – wyzwania dla Polski. In Polityka gospodarcza: wyzwania, dylematy, priorytety, edited by J. Stecewicz, Prace i Materiały Instytutu Rozwoju Gospodarczego SGH, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Szlachta J., Zaleski J. 2010. Kierunki polityki regionalnej w Polsce do roku 2020. Gospodarka Narodowa, Nr 10/2010, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Szlachta, J. 1996. Główne problemy polityki rozwoju regionalnego Polski na przełomie XX i XXI wieku. Strategiczne wyzwania dla polityki rozwoju regionalnego Polski, Wydawnictwo: Friedrich Ebert Stiftung, Przedstawicielstwo w Polsce, Warszawa.

Szlachta, J. 2009. Model instytucjonalny dla prowadzenia polityki regionalnej z uwzględnieniem zasady partnerstwa. Koncepcja nowej polityki regionalnej, Ministerstwo Rozwoju Regionalnego, Warszawa.

Szlachta, J. and J. Zaleski. 2008. Dylematy polityki strukturalnej Unii Europejskiej po roku 2013. Gospodarka Narodowa Nr 3/2008, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Szlachta, J. and J. Zaleski. 2011. Programowanie rozwoju społeczno-gospodarczego w układach makroregionalnych. Gospodarka Narodowa Nr 7-8/ 2011, Wydawnictwo Szkoły Głównej Handlowej, Warszawa.

Szymla, Z. 2000. Determinanty polityki regionalnej Polski. Zeszyty Naukowe Akademii Ekonomicznej w Krakowie Nr 545: Prace z zakresu gospodarki regionalnej, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków.

Szymla, Z. 2004. Podstawy rozwoju regionalnego. Prace Naukowe Akademii Ekonomicznej we Wrocławiu Nr 1016, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Winiarski, B. 1999. Konkurencyjność regionów a cele polityki i kierunki strategii rozwoju regionalnego. In Przekroje regionalne w polityce ekonomicznej, edited by S. Korenik, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław.

Winiarski, B., Patrzałek, L., ed. 1994. Promowanie rozwoju lokalnego i regionalnego, Zakład Graficzny Akademii Ekonomicznej we Wrocławiu, Wrocław.

Xinjian D., Junhai M. 2011. Study on the indicato system for evaluating economic development efficiency in Shandong province. Energy Procedia Nr 5 2011, Elsevier.

Zakrzewska-Półtorak, A. 2011. Rozwój polskich regionów w warunkach zmian w polityce regionalnej i polityce spójności Unii Europejskiej. In Rozwój lokalny i regionalny, edited by M. Dylewski, Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu Nr 39/2011, Wydawnictwo WSB, Poznań.