CONTEMPORARY DETERMINANTS OF THE DEVELOPMENT OF SOCIO-ECONOMIC REGIONS

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ABSTRACT: This article examines the effect on the development of socio-economic regions in Poland of contemporary external determinants considered at the European and the world scale. It consists of two parts. The first gives a description of the main general processes that are external determinants of regional development today: modernisation changes, globalisation, metropolitanisation, and European integration. Part two is empirical in character and seeks to find regional manifestations and effects of those determinants in Poland, and to establish how they influence regional income and spatial differences in its value.

KEY WORDS: external determinants, modernisation, globalisation, metropolitanisation, European integration, regional development, regional differences, Poland

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Introduction

Today, in the conditions of growing geographical disparities in the level of socio-economic development, regional issues are in the mainstream of the research in this field. Regional conceptions and analyses are a key to the understanding of the nature of development processes (Scott, Storper 2003).

A territorial region is a basic unit of the structuring and spatial organisation of socio-economic reality at a meso-scale. The regional approach to socio-economic development can assume a variety of forms, depending on the adopted conception of a region. In the research on socio-economic development, the systems conception of a region as a territorial social system should be adopted (Chojnicki 1996). It employs a structural-relational approach to a socio-economic region and involves a study of both, relations within the region and those it has with the outside.

The development of a region (in this context also called regional development) is a set of socio-economic changes that occur within this region-system (Chojnicki, Czyż 2005). The changes are generated by internal factors and external determinants that arise in a concrete historical and geographical situation. Internal factors are those components and properties of a socio-economic region that cause changes in other components and properties of the region and that control its structural transformation. External determinants come from a system superior to the region-system. The superior system is a two-tier structure

consisting of the national and the world system. Today a significant role in moulding the development of a region is played by external determinants deriving from the world system. In a world approach, external determinants are the processes and changes taking place in the structure and spatial organisation of economies and societies that occur in the world socio-economic system.

A survey of the output of regional studies reveals that an object of special interest in the Polish literature in this field is internal factors of regional development, which is a consequence of a wide use of the conception of endogenous growth (R. Domański 2005, Churski 2008). However, regional development is a product not only of internal factors, but also of external determinants. To make further advances, Polish studies of regional development will have to accommodate also external determinants because of the contemporary transformation of the world system and its effect on regional development (Chojnicki 1998, Kudełko 2011). At the present stage of Poland's socio-economic development, the influence of changes in the world system on the development of Polish regions is ever stronger because of the opening of regional economies and their participation in the process of European integration.

This article examines how contemporary external determinants, considered at the European and the world scale, affect the development of socio-economic regions in Poland. It consists of two parts. The first gives a description of the main general processes that are external determinants of regional development today: modernisation changes, globalisation, metropolitanisation, and European integration. The empirical part two seeks to find regional manifestations and effects of those determinants in Poland, and to establish how they influence regional income and spatial differences in its value.

New determinants of regional development

Modernisation changes

As far as changes in the economy are concerned, modernisation involves primarily new economic structures and forms. For new tendencies to appear in the development of regions, two kinds of modernisation change are necessary: in the regional organisation of production and in the state-region relation (Chojnicki 1993).

Changes in the regional organisation of production take the form of three development tendencies: (1) post-industrialisation, or a decline in the predominance of industrial production over the service sector, (2) small-scale entrepreneurship, and (3) elastic industrial production. Elastic production, in turn, gives rise to new tendencies in the regional organisation of the economy, e.g. in the location of high-tech industries and centres producing technological innovations. The formation and growth of regions is closely connected with the building of a knowledge-based economy and the emergence of a creative society (Chojnicki, Czyż 2006, Stryjakiewicz 2008).

Apart from changes in the structure of the economies of regions, a significant component of modernisation is a change in the mutual relations between the state and a region (Chojnicki 1998). They determine the position and role of the region, which is a unit of the state's territorial organisation. It is assumed that the modern state undergoes structural changes brought about by a systemic crisis and dysfunctionality. This leads to the devolution of the state's power, i.e. the transfer of its competencies to a lower rung of its territorial organisation. One of the aspects of those changes is a vertical redistribution of competencies and responsibilities 'downward', to the regional level and its self-government bodies. It is a manifestation of decentralisation, in particular the decentralisation of taking and implementing decision in the conditions of better regional information (Chojnicki, Czyż 2005: 21).

Globalisation

What can boost the importance of a region in socio-economic development is the intensity of two basic processes structuring its economy: integration and diversification. Integration shows especially in the globalisation of the economy on the geographical, organisational and institutional planes. However, globalisation is accompanied by growing spatial disparities manifesting themselves in an unequal distribution of physical and

social infrastructure, and in different intensities and dynamics of economic activity. Diversification processes, in turn, occur in the basic units structuring socio-economic reality and development, namely in socio-economic regions.

Both those dimensions shaping socio-economic development, global and regional, are complementary in nature and remain in mutual functional-structural relations. The functional integration of the world in a global dimension that leads to the internationalisation of the economy, culture and politics can have various relations with a regional system (Stryjakiewicz 2011). A region showing endogenous activity can be included in the globalisation process which speeds up its further development. What decides about the inclusion of a region in the globalisation process is a characteristic described metaphorically as its 'stickiness', which is largely a product of endogenous factors of regional development: human capital, social capital, the business environment, and networks of economic links.

The nature of relations holding between globalisation and regional development is considered by B. Domański (2005) and Stryjakiewicz (2011) in terms of relations between a supra-national corporation and a region in the process of investing abroad. Today the economic development of regions depends, to no little extent, on their ability to attract and keep mobile capital (firms) and people that are free to locate in a variety of places. The regional 'embeddedness' of globalisation shows in global firms seeking cooperation with regional businesses and relying on regional labour markets, local resources, transport systems, and endogenous activity. The 'embeddedness' of firms is a condition of their endurance in a region. What decides about the stability of the location of a firm over time is primarily its network of links supplying it with goods and services as well as research and development. Large supra-national corporations with a stable location have an influence on the regional labour market. They generate intra-regional links with local firms and communities as well as inter-regional links embracing the flows of goods, services, capital, information, and people. A consequence of the mutual relations between corporations and regions is the inclusion of regional economic systems into the global systems of large corporations and the formation of new networks of connections.

In spatial studies, the opposition and complementarity of such dimensions as globality and regionality provide a new conceptual framework for the examination of processes shaping the spatial structure of socio-economic reality (Chojnicki 2000: 155). One should therefore note that globalisation has not only failed to marginalise the role of regions, but even made their position stronger as basic units of spatial structuring and organisation. There has developed a new research stream in regional analysis "seeking not only to identify and describe dissimilarities and specific characteristics of regions, but also to interpret dissimilarities in local milieux in terms of their effect on the pattern of general, global processes. Thus, the new regional studies focus on establishing relations between the effect of general processes and specific local conditions that ultimately decide about the nature and development path of a concrete region" (Sagan 2003: 46).

Metropolitanisation

Regional development is integrally connected with the processes of the spatial concentration of economic activity and growth in urbanisation. Of special significance is the formation of metropolitan areas as crystallisation cores of regions. The centre of a metropolitan area, or a metropolis, is a city that meets the size criterion and in the economy of which modern high-order services of at least regional range predominate.

In the process of metropolitanisation, advancing suburbanisation leads to the spread of socio-economic functions to the external zone of a metropolis and the appearance of boundaries of a metropolitan area. A crucial feature of the spatial structure of the metropolitan area in the next stage of its transformation is a relative functional balance between the metropolis and the rest of the area. The characteristics of a metropolitan area are a concentration of factors stimulating economic growth, the location of economic management institutions, and business activity. Metropolitan areas have a global, a national and a regional range of impact (Jałowiecki 1999, Maik 2003). By performing a function of a regional range, they become poles of development

of 'their own' metropolitan regions[1] (Korcelli 1998). An effect of the metropolitan area on the surrounding region is intra-regional functional integration of a complementary nature and the spread of development into peripheral areas.

In the processes of globalisation and metropolitanisation, an increase in economic potential and further development of internationally offered high-order services can lead to a change in the status of a metropolitan region involving its shift from the national to the international plane of relations. There emerge global regions with a non-hierarchical, net-like structure of links between metropolitan areas.

Metropolitanisation affects the spatial concentration of and growth in the resources of creativity, i.e. an ability to create new forms and values, whether material (e.g. products) or immaterial (e.g. symbolic values, ideas). In the opinion of Florida (2005), human creativity is the most significant source of socio-economic development in a metropolis, including the establishment of new firms and the creation of new jobs. Clusters of the creative class can be found in areas highly advanced technologically, offering a high quality of life, and attracting talent. Usually, such areas are metropolitan regions. The development of the creative sector is the chief factor boosting the competitiveness of metropolitan regions (Stryjakiewicz 2008: 107).

European integration

Regions have become socially and economically important territorial units in the multi-directional activity of the European Union, especially under its regional policy. Its basic goal is to reduce differences in the development of regions in the member states because regional disparities are among the chief barriers to socio-economic development. The Community seeks to attain this goal via: (1) regional convergence, (2) the competitiveness of regions, and (3) European territorial cooperation (Parysek 2008). The implementation of those regional development tasks is largely supported from the EU Structural

Funds and Cohesion Fund. The European Union assumes that directing suitable assistance means to a region is more effective than their sectoral or national distribution.

However, an assessment of the EU regional policy implemented so far has shown it to lack the expected effectiveness in equalising the development of regions, and triggered proposals of change. The proposed reorientation of this policy seeking development convergence rests on a polarisation-diffusion model of development and the conception of functional regional cohesion (Churski 2011).

The chief effect of steering development under EU regional policy is European integration, which is a significant external determinant of the regional development process. European integration has a favourable effect on the dynamics of endogenous growth of regions through, e.g., the development of international exchange, the inflow of innovative technologies, and increased mobility of the labour force (Churski 2008).

Research on the role of contemporary determinants of regional development in Poland

In this analysis of regional development in Poland, the focus is on the impact of its chief external determinants: the processes of modernisation, globalisation, metropolitanisation, and European integration.

Poland's regional system consists of 16 units of the country's territorial division called voivodeships[2]. The analysis embraces the years 2005–2010, a period when Poland had already reached an advanced stage of transformation and was going through further dynamic changes. On accession to the European Union in 2004, the country actively entered European structures and opened wider to international contacts and cooperation.

[1] In the classical conception, a metropolitan region is a first-order region in the regional structure of a country.

[2] A voivodeship is not only an administrative unit, but also a territorial subsystem of the state, consolidating and organising social, economic and cultural activities of its inhabitants in territorial terms (Chojnicki, Czyż 2000).

Polish regions came under a marked influence of European and world determinants.

Defining the role of external determinants in regional development is a hard task because their effects mix with those brought about by internal factors.

In the research procedure it was assumed that regions developed certain properties under the influence of external determinants. The following regional indices of the impact of individual determinants were employed:

1. The knowledge-based economy (KBE) (employment in high-tech manufacturing and high-tech services per 1,000 workers) as a modernisation index,
2. Foreign capital (calculated per 10,000 population) as a globalisation index,
3. Knowledge-intensive services (employment in knowledge-intensive service sections per 1,000 population) as a metropolitanisation index, and
4. Assistance funds as a tool of EU regional policy in equalising inter-regional differences and leading to European integration.

The empirical study of the effect of the determinants on regional development based on the above indices sought answers to the following questions:

1. Does the effect of the determinants on a region's development crucially depend on the level it has attained already, as measured by regional income (per capita GDP)?
2. Do specified properties of regions, attributable to the impact of external determinants, enhance their development dynamics and help diminish regional contrasts?

Regions in 2005

In 2005 Polish regions fell into three classes of development level: high, average and low, defined by their per capita GDP in relation to the national average[3] (Table 1). The class of a high development level embraced the regions of Mazovia, the leader, as well as Silesia, Wielkopolska and Lower Silesia (Fig. 1). The class of regions
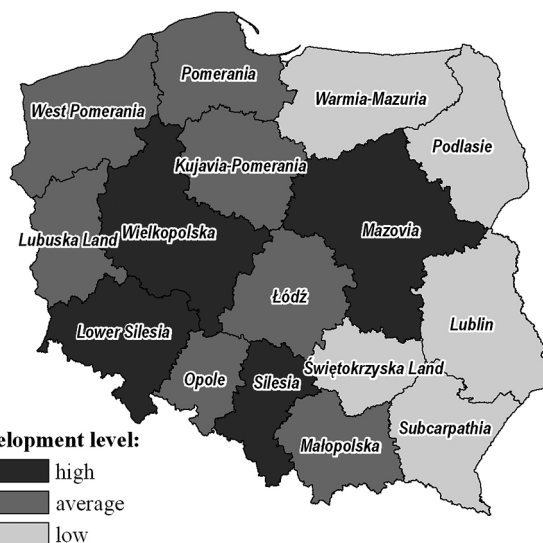

Fig. 1. Regional differences in Poland in 2005
Source: own compilation

at an average level had seven regions of western and central Poland, and the class of a low development level, four eastern regions and Świętokrzyska Land in the central part.

The regional indices of external determinants of development: the knowledge-based economy (index G), foreign capital (K), and knowledge-intensive services (U), showed statistically significant relations with the development level measured by per capita GDP (index D) (Table 2). Those relations are given by the following correlation coefficients: r(G,D) = 0.581, r(K,D) = 0.893,

Table 1. Classification of regions by per capita GDP in 2005 (Poland = 100%)

Class	Region	Index in %
I	Mazovia	158.4
	Silesia	107.9
	Wielkopolska	106.9
	Lower Silesia	103.3
II	Pomerania	98.2
	West Pomerania	92.8
	Łódź	91.8
	Lubuska Land	90.2
	Kujavia-Pomerania	87.2
	Małopolska	85.3
	Opole	82.8
III	Warmia-Mazuria	76.5
	Świętokrzyska Land	74.8
	Podlasie	74.0
	Subcarpathia	69.0
	Lublin	68.3

Source: own compilation on the basis of the 2012 Statistical Yearbook of Voivodeships

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[3]   Membership of a region in a specified class means that it is placed lower or higher than other regions of the country.

Table 2. Socio-economic indices in 2005

Region	Index				
	D	G	K	U	F
Lower Silesia	26.6	90	33.1	73	2.3
Kujavia–Pomerania	22.5	59	7.3	65	2.2
Lublin	17.6	40	2.9	64	2.3
Lubuska Land	23.2	61	12.1	63	2.9
Łódź	23.7	52	10.3	68	2.6
Małopolska	22.0	59	28.5	72	1.8
Mazovia	40.8	76	108.6	105	2.2
Opole	21.3	70	12.1	58	2.3
Subcarpathia	17.8	72	6.0	62	2.3
Podlasie	19.1	33	1.7	61	2.3
Pomerania	25.3	89	13.3	72	2.4
Silesia	27.8	83	19.8	73	2.0
Świętokrzyska Land	19.3	35	22.6	60	2.6
Warmia–Mazuria	19.7	43	3.5	61	3.0
Wielkopolska	27.5	76	30.3	69	2.1
West Pomerania	23.9	64	9.1	62	2.4
mean	23.63	62.63	20.08	68.00	2.36
standard deviation	5.44	17.75	24.81	10.71	0.30
coefficient of variation	0.23	0.28	1.24	0.16	0.13

Explanation: **D** – per capita GDP (thous. zlotys. current prices); **G** – employment in KBE (HTM+HTS) per 1,000 workers; **K** – foreign capital per 10,000 population (million zlotys); **U** – employment in knowledge–intensive service sections per 1,000 population; **F** – EU structural funds (2004–2010) per capita (thous. zlotys)

Source: own compilation on the basis of Central Statistical Office data

and r(U,D) = 0.917 (significant at α<0.005 level). The relation between the knowledge-based economy, foreign capital and knowledge-intensive services on the one hand, and regional income on the other was of a feedback type. One direction of the relation involved the effect of G, K and U on regional income (D). The high positive correlation coefficients demonstrate that the higher the indices G, K and U in a region, the higher its level of income. But not all regions showed an income (D) proportional to the values of G, K and U. Regional deviations from this dependence are described by residuals from regression calculated on the basis of estimated linear regression equations taking the form:

$$D = 0.178G + 12.482$$
$$D = 0.196K + 19.700$$
$$D = 0.465U - 8.043$$

significant at α<0.005 level.

Negative deviations, or a relatively low level of income against that of KBE, were shown by Pomerania and Subcarpathia; against that of foreign capital, by Małopolska, Subcarpathia and Świętokrzyska Land; and against that of knowledge-intensive services, by Małopolska, Subcarpathia, Podlasie and Lublin. Positive de-

viations, or a relative surplus of income against that of KBE and knowledge-intensive services, characterised Mazovia, and against that of foreign capital, Silesia. Thus, the regions where income was not proportional to G, K and U, even roughly, belonged to different income classes. Negative deviations were displayed by average regions (Małopolska and Pomerania) and those at a low development level (Subcarpathia, Podlasie, Świętokrzyska Land and Lublin), and positive deviations – those at a high development level (Mazovia and Silesia).

Thus, the analysis of regional deviations demonstrated that the effect of contemporary external determinants seen in terms of the G, K and U indices was relatively weak in average regions, still grappling with a structural transformation of

Table 3. Correlation matrix of socio-economic indices in 2005

	D	G	K	U	F
D					
G	0.581				
K	0.893	0.370			
U	0.917	0.452	0.931		
F	–0.268	–0.373	–0.290	–0.347	

Source: own compilation

their economies, and in those at a low development level, economically retarded, with a fixed, traditional economic structure and limited endogenous resources. The susceptibility of regions at a high development level to external determinants can be explained as follows: their effect in those regions was 'reinforced' by still other factors of regional development. This means that the chances of Polish regions to be included in modern development processes are closely related with their current economic performance, i.e. the development level already attained.

Regions in the years 2005–2010

Over the years 2005–2010, the annual pattern of increase in income (constant prices, previous year = 100) varied irregularly in the individual regions. The regional curves of income growth are presented in Fig. 2.

Fluctuations in the curves are characteristic of regions belonging to all three classes of development level. They occurred mainly in the periods of acceleration (2006–2007) and slowdown (2009) in the national economy.

It should be noted that, fluctuations in the yearly pattern notwithstanding, in 2010 all regions registered an increase in their income compared with 2005 (Table 4). High rates of its growth, above the national average (125.7%),

Table 4. Dynamics of per capita GDP by region in 2010 (constant prices, 2005 = 100)

Region	Index of dynamics
Lower Silesia	126.1
Kujavia-Pomerania	120.6
Lublin	122.8
Lubuska Land	119.9
Łódź	127.5
Małopolska	120.9
Mazovia	132.5
Opole	115.9
Subcarpathia	122.5
Podlasie	118.3
Pomerania	112.5
Silesia	135.1
Świętokrzyska Land	124.9
Warmia-Mazuria	117.7
Wielkopolska	117.4
West Pomerania	117.0
Poland	125.7

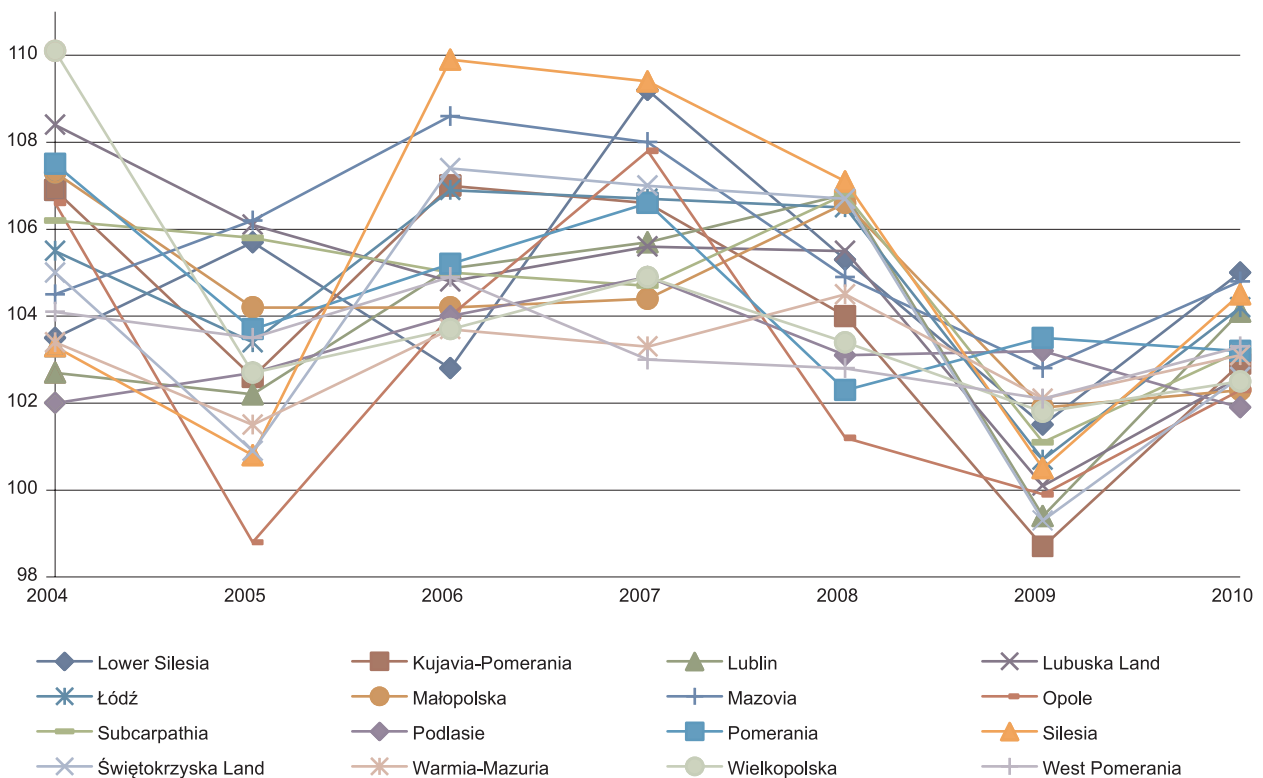Source: own compilation on the basis of GUS (2012)

Fig. 2. Dynamics of per capita GDP by region (constant prices, previous year = 100)
Source: own compilation on the basis of the Central Statistical Office's 2012 data

were recorded by Mazovia, Silesia, Lower Silesia (a high development level) and Łódź (an average level). The growth rates were lower in Wielkopolska (a high level), West Pomerania, Opole (an average level), and Warmia-Mazuria (a low level).

In the years 2004–2010, following the assumptions of the EU regional policy, a great role in regional development was ascribed to the EU funds intended to level out inter-regional differences. Over that period Poland obtained structural funding to the amount of 86,785 million zlotys. The amount per inhabitant (in accordance with the chief line of the fund division algorithm) was negatively correlated with regional income ($r = –0.268$) and ranged from 1.8 thous. zlotys in Małopolska to 3 thous. zlotys in Warmia-Mazuria (Tables 2 and 3). However, it should be observed that although transfers of structural funds per head were favourable for regions at a low development level, their concentration (in terms of absolute sums) was registered in regions at the highest level (cf. Borowczak 2011): Mazovia and Silesia (13.3% and 10.8%, respectively, of the total allocation for the Polish regions).

Regions in 2010

The 2005–2010 development dynamics, regionally different, did not lead to changes in the composition of individual classes. While 12 regions had changed position on the scale of regional income, those were merely intra-class shifts (Table 5). Over that period, Mazovia further reinforced its very high position in the class of a high development level, while the rank of Lower Silesia improved and that of Wielkopolska lowered (as an effect of its relatively poor income growth dynamics). In the class of an average development level, a clear drop was recorded by West Pomerania, Lubuska Land and Kujavia-Pomerania, which was a consequence of their relatively poor income growth rate.

The year 2010 saw not only an increase in income over 2005 (125.7%), but also a marked rise in the values of the remaining indices: KBE (103%), knowledge-intensive services (121%), and especially foreign capital (144%) (Table 6).

The relations between regional income and the regional indices G, K and U are described by correlation coefficients 0.795, 0.942 and 0.922, respectively, again higher than in 2005 (Table 7). In all the 16 regions there was an increase in index U, in 15 regions (the exception being Świętokrzyska Land) an increase in index K, and only in 9 regions an increase in index G. A high increase in indices G, K and U was recorded in Mazovia, of index G, in Świętokrzyska Land, and of index U, in Łódź and Małopolska. The greatest drop in index G took place in Wielkopolska.

The sustained leading position of Mazovia, the promotion of Lower Silesia from fourth to second position in the class of a high development level, and the shifts of Małopolska and Łódź up the scale in the class of an average level can be associated to some extent with an advantageous effect of their increase in foreign capital and knowledge-intensive services.

In 2010 regional income ranged from 162.7% to 67.3%, wider than in 2005 (158.4%; 68.3%). There was also a further increase in the coefficient of differences in regional income, from 23.3% to 25.1%. Between 2010 and 2005, the coefficient of

Table 5. Classification of regions by per capita GDP in 2010 (Poland = 100%)

Class	Region	Index in %
I	Mazovia	162.7
	Lower Silesia	112.5
	Silesia	107.0
	Wielkopolska	104.1
II	Pomerania	96.0
	Łódź	92.1
	West Pomerania	87.0
	Małopolska	84.9
	Lubuska Land	84.5
	Kujavia-Pomerania	83.9
	Opole	79.5
III	Świętokrzyska Land	75.8
	Warmia-Mazuria	73.4
	Podlasie	72.7
	Lublin	67.6
	Subcarpathia	67.3

Source: own compilation on the basis of GUS (2012)

Table 7. Correlation matrix of socio-economic indices in 2010

	D	G	K	U
D				
G	0.795			
K	0.942	0.716		
U	0.922	0.694	0.952	

Source: own compilation

Table 6. Socio-economic indices in 2010

Region	Index			
	D	G	K	U
Lower Silesia	41.7	81	50.4	92
Kujavia-Pomerania	31.1	70	13.4	77
Lublin	25.1	26	4.8	78
Lubuska Land	31.3	63	18.6	75
Łódź	34.2	63	17.2	84
Małopolska	31.5	64	31.5	86
Mazovia	60.3	108	151.0	128
Opole	29.5	70	14.8	73
Subcarpathia	25.0	60	9.4	74
Podlasie	27.0	32	3.5	76
Pomerania	35.6	80	20.5	83
Silesia	39.7	86	30.2	85
Świętokrzyska Land	28.1	65	20.4	74
Warmia-Mazuria	27.2	50	10.0	73
Wielkopolska	38.6	57	41.8	78
West Pomerania	32.3	49	25.1	77
mean	33.64	64.00	28.91	82.06
standard deviation	8.44	19.36	33.86	13.00
coefficient of variation	0.25	0.30	1.17	0.16

Explanation as in Table 2.

Source: own compilation on the basis of GUS (2012)

the regional variability of index K dropped from 124% to 117%, that of index G grew from 28% to 30%, while index U remained unchanged (16%). Thus, the spatial distributions of those indices, especially the high concentration of foreign capital, were not favourable to the levelling out of inter-regional differences.

Also the redistribution of the EU structural funds proved of little effect in stimulating regional development. In 2010, of the two regions with the highest indices of funds per head, Warmia-Mazuria had an income at 73.4% of the national average (as against 76.5% in 2005), which means that it slid down the scale of the country, while Lubuska Land attained 84.5%, as against its 2005 figure of 90.2%. As follows from the Polish experience so far, the use of EU funds is not in itself a guarantee of sustainable and dynamic development of a region (Gorzelak 2012). Equally important is an *a priori* choice of investment directions in accordance with the region's chosen, often unique, development path.

Final remarks

Over the years 2005–2010 – a period of Poland's dynamic growth – regional development was influenced by external determinants. Their effect was mainly visible in the inflow of foreign capital as part of the globalisation process, and in the development of knowledge-intensive services connected with metropolitanisation and urbanisation. In turn, the effect of the modernisation process was poor, as shown by the persistently low level of the knowledge-based economy. The impact of general growth-stimulating processes differed regionally. The regions that proved susceptible to the influence of the external determinants were those at a high development level. The knowledge-based economy, foreign capital, and knowledge-intensive services were largely concentrated in six regions with urban agglomerations. Thus, development controlled by external determinants favoured, or even heightened, regional contrasts as seen against the national average. Also regional policy relying on the EU Structural Funds failed to give the expected results in stimulating regional convergence and narrowing down inter-regional differences.

Table 8. Per capita GDP as per cent of the EU average (PPS, EU27 = 100.)

Region	2005	2010
Mazovia	81	102
Silesia	55	67
Wielkopolska	55	65
Lower Silesia	53	70
Pomerania	51	60
West Pomerania	47	54
Łódź	47	58
Lubuska Land	46	53
Kujavia-Pomerania	45	52
Małopolska	44	53
Opole	42	50
Warmia-Mazuria	39	46
Świętokrzyska Land	38	47
Podlasie	38	45
Subcarpathia	36	42
Lublin	35	42
Poland	51	62

Source: own compilation on the basis of Eurostat (2013)

Still, the fast rate of increase in regional income over the years 2005–2010 under the influence of both internal and external determinants made the Polish regions attain higher positions in the regional system of the European Union (Table 8). In 2005 the per capita income index (in PPS), expressed as per cent of the EU average, varied from 35% (Lublin) to 81% (Mazovia). By 2010, 16 Polish regions registered a substantial, though varying, increase in this index, and hence a shift up the EU scale. The index rose the steepest in Lower Silesia (from 53% to 70%, or 17 points) and Mazovia (from 81% to 102%, or 21 points), and in the remaining regions, by 6% to 11%. The number of regions in which the index was below 50% of the EU average diminished from 11 to 5. Even so, Polish regions, with the exception of Mazovia, still occupy farther positions in European rankings.

Translated by Maria Kawińska

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