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REGIONAL DIMENSION OF THE EU ECONOMIC POLICIES IN POLAND

OFICYNA WYDAWNICZA

WARSAW SCHOOL OF ECONOMICS PRESS
WARSAW 2015

This book is a result of statutory research of the Collegium of World Economy, Warsaw School of Economics, conducted by the Jean Monnet Chair of European Integration and co-financed with funds provided by the Ministry of Science and Higher Education.

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First Edition

ISBN 978-83-8030-021-7

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tel. +48 22 564 94 77, 22 564 95 46
www.wydawnictwo.sgh.waw.pl, e-mail: wydawnictwo@sgh.waw.pl

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Order 146/IX/15

Contents

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Regional Dimension of State Aid to Entrepreneurs After Poland's Accession to the European Union

Abstract

State aid is one of the economic policy instruments enhancing competitiveness of national entrepreneurs at national and regional level. There are many types of state aid which may have an impact on the growth of companies. On the other hand, public interventions should take place only to tackle market failures. The aim of the study is to identify the scope of support and spatial distribution of public resources earmarked for the development and enhancing the competitiveness of undertakings in voivodeships in Poland after accession to the EU as well as the assessment of potential impact of granted subsidies on the change of selected indicators of social and economic development at regional level. The study revealed that in the period covered by the research, only ca. 30% of public aid could be considered aid designed to directly improve the competitiveness of companies. The research does not let formulate conclusions on positive impact of aid granted for SMEs development, R&D&I, training or regional aid on respective social and economic indicators.

1. Introduction

State aid includes all types of preferences granted to economic operators or their products from resources managed by public authorities. The notion covers domestic funds from local, regional and central government coffers as well as the EU funds together with co-financing from the central budget earmarked for economic operators. The definition was repeated in Art. 107 par. 1 of the Treaty on the Functioning of the European Union, which concerns aid granted by a Member State or through State resources in any form whatsoever, which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods.

After the EU accession, state aid in Poland can be granted only in accordance with the EU legislation. In 2005 European Union introduced a wide range of reforms

to rules of granting state aid to undertakings in an attempt to adjust it to both the new financial perspective for the period 2007–2013 and to the implementation of the Lisbon Strategy (Ambroziak, 2005). At that time the so called pro-Lisbon aid was identified as a support that could reinforce the competitiveness of the European Union in global markets in accordance with the competition rules. The possibilities of granting sectoral aid got seriously restricted in favour of an increased role of horizontal aid. The aim was to ensure that public interventions take place only when we are dealing with the so called market failure (e.g. high risk innovative ventures, the need to re-train the staff, to return those excluded from the labour market into the economy, environmental aspects and combating climate change, ensuring access to transport and telecommunication infrastructure). Relatively wide room of manoeuvre was left for granting the so called regional aid designed to reduce costs to operators investing in less developed regions (European Commission, 2005; Ambroziak, 2006)[1].

The aim of the study is to identify the scope of support and spatial distribution of public resources earmarked for the development and enhancing the competitiveness of undertakings in voivodeships in Poland in the period 2007–2013 as well as the assessment of potential impact of granted subsidies on the change of selected indicators of social and economic development at regional level. In order to fully reflect trends in the directions of transfers of public resources to enterprises we analysed the entire period following the EU accession (starting from 2005, the first full year of membership) divided into three sub-periods of three years each: 2005–2007 (immediately after the accession without any meaningful allocation of the EU resources), 2008–2010 (when economic crisis broke out and when the funds from the financial perspective 2007–2013 were launched), 2011–2013 (after the crisis when most of the EU funds have already been disbursed).

The study covered only selected types of aid, which, in the author's opinion, may impact the growth and competitiveness of companies in the most direct way. As we have already mentioned, public interventions can take place only to tackle market failures. The following market failures, which inhibit or prevent from improving the ability of Polish enterprises to compete in international markets have been identified for Polish regions:

[1] In parallel to these processes, private entrepreneurs started entering areas previously reserved exclusively for the State. As a result many activities, which by their nature call for the support from public resources (e.g. selected services rendered in general economic interest) started being pursued by private operators. The reason was to guarantee possibly the highest efficiency of public spending on aims to be achieved by public authorities (e.g. public transport). Under such circumstances, pursuant to the EU law, it is possible to identify aid element in transfer payments from the State to undertakings, which means these transfers must be subject to the EU state aid rules (Commission Decision of 20 December 2011).

- little funds allocated for research and implementation of innovative solutions, which implies relatively high business risk for such activities (Community Framework for State Aid for Research and Development and Innovation, 2006);
- mismatch between the quality and skills of labour and new expectations of employers who internationalise their operations and need to retrain their workers;
- difficult access to financing for initiatives undertaken by small and medium-sized enterprises (SMEs) whose own capital is limited and who do not have an army of advisors like large companies;
- little attractive investment perspectives in less developed regions, which result in higher additional cost of new investments compared to better developed areas, that translates into fewer start-ups and fewer new jobs thus weakening development trends (Guidelines on National Regional Aid for 2007–2013, 2006).

In the years 2005–2013 state aid, besides the above mentioned objectives, targeted also other social tasks which could impact the competitiveness of Polish enterprises only indirectly or not at all. That is why the study did not cover the following categories of aid:

- employment aid since it is granted almost exclusively as wage subsidies to encourage the hiring of the disabled and ca. one third of the total amount is paid to companies offering security and detective services (Office of Competition and Consumer Protection, 2014). Although we do not question the need to reintegrate the disabled into the labour market, it is hard to find any direct link between public subsidies and the competitiveness of companies in this case;
- aid for environmental protection, as most of these resources were *de facto* allocated to concrete, sectoral aims: modernisation of heat and energy distribution networks, undertakings connected with exploring geothermal waters or the production of bio-fuels. Support to, e.g. investment projects to implement clean and energy saving technologies or to save raw materials was marginal compared to the above mentioned activities (Office of Competition and Consumer Protection, 2014). Precise analysis is not possible as available data cannot be compared due to differences in classifications applied to public interventions in individual years of the period covered by the study;
- aid for rescuing and restructuring of firms, since this type of aid is designed to help inefficient firms survive for a short period necessary to develop a restructuring plan or to create conditions necessary to restore long-term viability of a company (Community Guidelines on State Aid For Rescuing and Restructuring Firms In Difficulty, 2008). It means the aid is granted to keep companies in the market rather than to improve their performance in international markets;

- sectoral aid addressed to concrete industries as there is no clear economic programme in Poland that would specify, which of them are fundamental for improving the competitiveness and foster economic growth. There are programmes, which identify horizontal activities and which can be supported with public resources earmarked for aid to research, development and innovation (R&D&I), training or SMEs development (Ministry of Economy, 2011, 2013, 2014).

2. Classification of Regions

In order to assess geographical trends in public interventions and to evaluate the intensity of granted support and its potential effect on selected indicators of regional development we divided Polish voivodeships into three groups: more developed, moderately developed and less developed.

Gross Domestic Product (GDP) per capita and unemployment rate compared to the EU average are usually used to identify the level of regional development and maximum aid intensities (Guidelines on National Regional Aid for 2007–2013, 2006). However, as already demonstrated in earlier surveys (Ambroziak, 2015), making reference to relative GDP or unemployment only is a too far reaching simplification. Hence, to more precisely distinguish the groups of voivodeships in Poland, we analysed data from the labour market and the performance of companies. In the first case, besides the already mentioned unemployment rate, we analysed its dispersion across counties within the same viovodeship as well as the proportion of working age population who are unemployed by educational attainment. That helped us to take account of divergences recorded for regions proportionally to the unemployed and working population as well as to match the skills of the labour force and the job offers in particular regions. When grouping the voivodeships we also used data, which describe the situation of enterprises: their overall number and the number of start-ups per 10,000 of inhabitants, investment outlays and fixed assets per capita, and, finally, the value of production sold per capita. In most cases we also considered the dispersion within a voivodeship at the level of counties. As a result we were able to grasp the homogeneity of regions in terms of companies engagement in investment activities expressed as investment outlays and the value of accumulated fixed assets.

We assumed the first full year after the Poland´s EU accession to be the reference period with respect to which data were collected on social and economic performance of regions. Most of aid schemes offering public funds to enterprises were developed in the period preceding the financial perspective 2007–2013. Taking account of the above assumptions we have distinguished three groups of regions (Table 1):

Tabela 1. Ranking of voivodeships based on GDP per capita, unemployment and performance of companies in 2005

	GDP per capita (Poland = 100)	Unemployment rate (PL=100)	Unemployment rate dispersion	Proportion of unemployed people with higher education in working age population	Proportion of unemployed people with general secondary education in working age population	Proportion of unemployed people with basic vocational education in working age population	Registered start-ups per 10K of inhabitants	Dispersion of start-ups per 10 K of inhabitants	Number of economic operators per 10 K of inhabitants	Dispersion of economic operators per 10 K of inhabitants	Investment outlays per capita	Gross value of fixed assets in companies per capita	Dispersion of gross value of fixed assets in companies per capita	Total industrial production sold per inhabitant
Dolnośląskie (I)	102.1	117.5	0.285	0.600	0.850	4.150	76.0	0.299	1,050.0	0.195	3,783.5	27,232.0	0.9605	18,289.5
Kujawsko-Pomorskie (III)	88.0	125.5	0.245	0.500	1.000	5.250	62.0	0.192	900.0	0.217	2,438.0	18,820.0	0.5108	15,422.5
Lubelskie (III)	68.9	95.2	0.165	0.900	1.000	3.700	48.5	0.310	684.0	0.279	1,920.0	14,606.0	0.6097	7,943.5
Lubuskie (II)	89.3	132.7	0.291	0.500	0.900	5.050	77.5	0.212	996.0	0.194	3,007.5	20,619.5	0.5953	14,387.5
Łódzkie (II)	92.0	102.2	0.210	0.700	1.100	3.750	60.5	0.191	957.0	0.182	3,146.5	22,188.5	1.0251	14,058.0
Małopolskie (III)	85.7	78.7	0.318	0.550	0.750	3.350	60.0	0.239	886.5	0.270	2,951.5	20,357.0	0.6038	13,880.5
Mazowieckie (I)	155.7	77.9	0.480	0.600	0.800	3.400	76.5	0.245	1,152.5	0.252	5,471.5	50,301.5	0.5420	27,109.5
Opolskie (II)	83.9	105.8	0.343	0.500	0.700	3.550	50.0	0.244	853.0	0.271	2,382.5	25,423.0	0.6147	16,751.0
Podkarpackie (III)	69.8	102.8	0.258	0.750	0.950	4.600	44.0	0.317	664.0	0.324	2,392.5	16,288.0	0.6853	11,469.0
Podlaskie (III)	74.3	86.7	0.285	0.700	0.850	2.950	53.5	0.355	749.0	0.267	2,520.0	15,676.5	0.4881	9,768.0
Pomorskie (I)	98.3	110.9	0.447	0.550	0.900	4.150	77.0	0.241	1,023.5	0.293	3,206.0	24,084.0	0.5395	18,476.0
Śląskie (I)	110.2	88.5	0.299	0.500	0.600	3.200	59.5	0.211	911.5	0.205	3,173.5	30,394.0	0.5726	27,221.5
Świętokrzyskie (III)	76.1	116.4	0.307	1.200	1.250	5.200	49.0	0.283	806.5	0.283	2,323.5	17,828.0	0.7039	11,805.0
Warmińsko-Mazurskie (III)	76.8	154.1	0.243	0.600	1.200	5.500	65.5	0.194	766.5	0.205	2,450.0	15,402.0	0.5852	10,973.5
Wielkopolskie (I)	107.1	83.4	0.355	0.500	0.700	3.700	69.5	0.208	1,003.0	0.211	3,796.0	25,516.5	0.5107	22,977.0
Zachodniopomorskie (I)	91.7	145.1	0.281	0.700	1.250	4.950	87.5	0.179	1,206.5	0.258	2,867.0	22,121.5	0.5757	12,214.5

Explanatory note:
– the name of a voivodeship (I, II, III): I – more developed voivodeships, II – moderately developed voivodeships, III – less developed voivodeships;
– the darker the box, the more developed the region.

Source: Own calculations based on the Database of Local Data Bank of the Central Statistical Office.

- more developed with relatively smaller problems in the labour market and in enterprises (Dolnośląskie, Mazowieckie, Pomorskie, Śląskie, Wielkopolskie);
- moderately developed with enterprises moderately engaged in creating new jobs and in investment (Lubuskie, Opolskie, Zachodniopomorskie);
- less developed experiencing serious problems in the labour market and with investment effects clearly below the average (Kujawsko-Pomorskie, Lubelskie, Małopolskie, Podkarpackie, Podlaskie, Świętokrzyskie, and Warmińsko-Mazurskie).

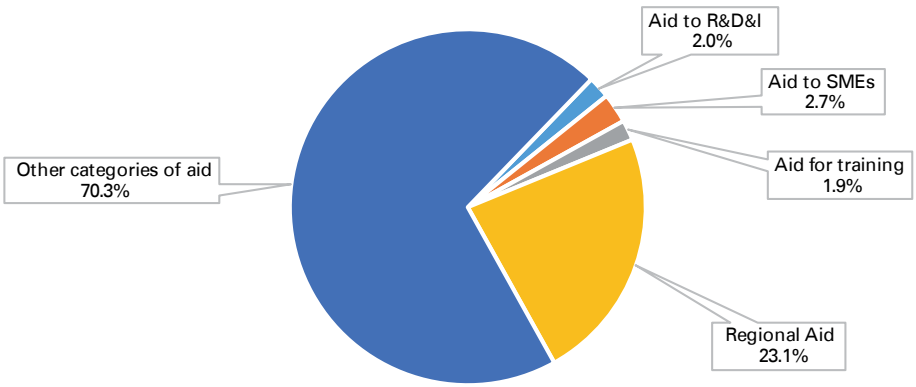
3. Main Trends in State Aid to Entrepreneurs

The period of 2005–2013 witnessed the evolution of both the amount and structure of state aid granted to entrepreneurs in Poland. In the first three years of the period covered by the study, i.e. 2005–2007 the total amount of state aid (calculated as gross grant equivalent – GGE) granted in Poland was slowly increasing from PLN 8.2 bn to PLN 9.5 bn. Clear increase was recorded in the following two years when the total amount of aid tripled reaching almost PLN 33.3 bn in 2009. That coincided with two important events: economic crisis and the beginning of spending the EU resources under the financial perspective 2007–2014. However, already since 2010 the amount has gradually dropped to PLN 24.4 bn although in the last two years of the perspective it grew again on average by 10% annually. Altogether, in the years 2005–2013 granted state aid exceeded PLN 204 bn and only ca. 30% (PLN 60.8 bn) can be treated as growth promoting horizontal aid (aid to R&D&I – 2.0% of total aid, aid to SMEs – 2.7%, aid for training – 1.9%, and regional aid – 23.1%). It means horizontal aid represented only 22% of growth promoting aid in the analysed period while the rest of resources were distributed as regional aid. Other categories of aid, which slightly, indirectly or not at all contributed to the competitiveness and development of Polish enterprises had the biggest share in public interventions (Figure 1).

In the first three years following the Poland´s EU accession growth promoting horizontal aid was dominated by aid to small and medium-sized enterprises granted primarily as subsidies for new investment projects. Since 2008 when resources from 2007–2013 financial perspective were launched the same objective could be financed from regional aid schemes. Aid schemes aimed at strengthening the competitiveness of Polish companies through innovation ranked second. However, they were gradually increasing starting from 2009. It is also worth noting that in the years covered by the study aid granted for improving the quality of human capital through training was continuously available to enterprises and its amount increased particularly only in the period 2009–2011. Regional aid, the last category of growth promoting aid, has

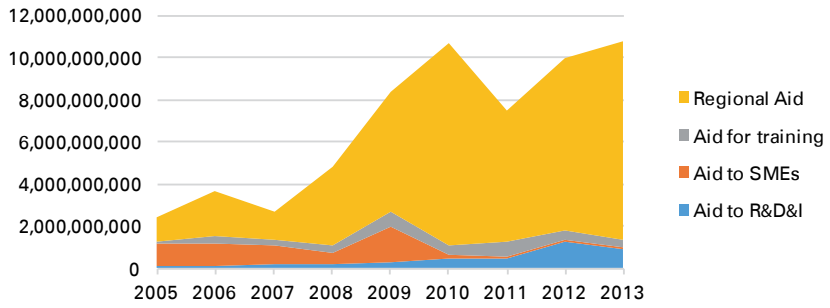
been granted to enterprises since the beginning of our EU membership in amounts exceeding the sums allocated for growth promoting horizontal aid, which we hereby discuss (Figure 2).

Figure 1. Structure of state aid granted in Poland in the years 2005–2013



Source: Own calculations based on the Office of Competition and Consumer Protection data.

Figure 2. Changes in the structure of growth promoting aid in Poland in 2005–2013 (PLN)

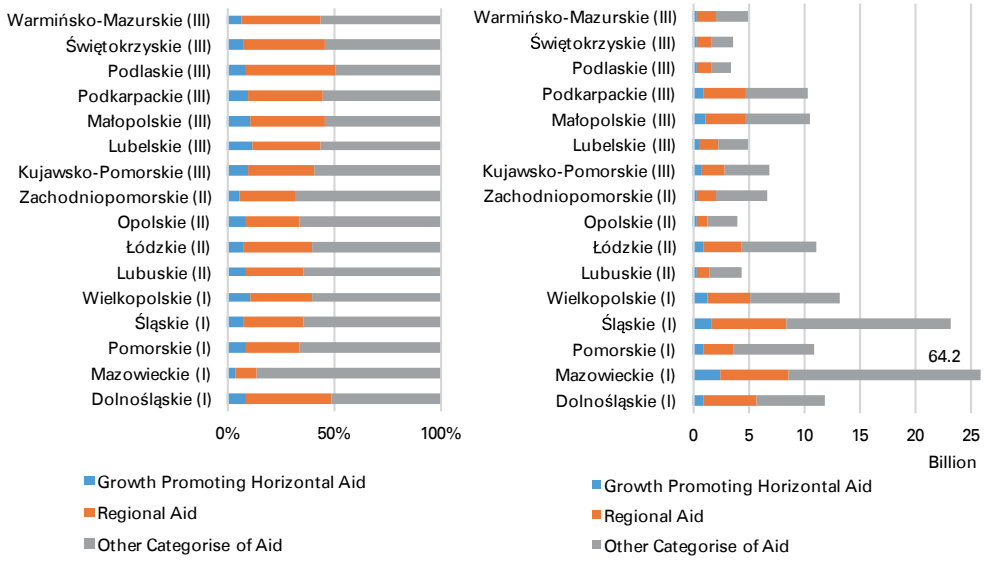


Source: See Figure 1.

In absolute terms, the majority of growth promoting aid was earmarked in 2005–2013 to voivodeships from group I, i.e. the most developed (Mazowieckie, Śląskie, Dolnośląskie and Wielkopolskie). The smallest amount of assistance granted in the form of growth promoting horizontal aid was recorded in less and the least developed regions. These voivodeships were dominated with regional aid which did not require any specialist R&D back-up or the presence of high quality human resources (Figure 3). Based on that we can conclude that general direction of

transfers within growth promoting state aid took account of the development levels of assisted voivodeships and the quality of endogenous factors as at 2005. Considering, however, the amount of resources compared to the total of public interventions, one may doubt the effect of growth promoting aid upon basic social and economic indicators in regions. More precise diagnosis will be feasible when we include the outcomes of the analysis of how relative (not only absolute) values evolved, where the aid was addressed and who were the beneficiaries of its individual categories.

Figure 3. Absolute amounts (PLN) and structure of cumulated growth promoting and other aid (%) in Poland in 2005–2013



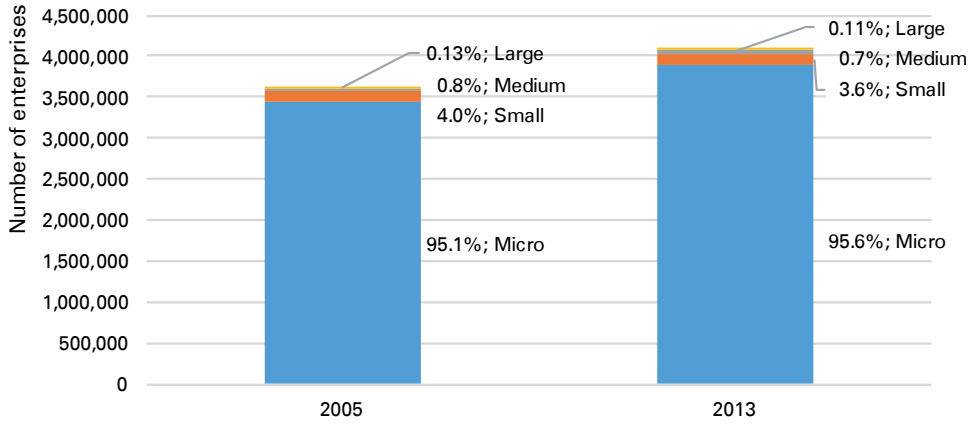
Source: See Figure 1.

3.1. Aid to SMEs

In 2005–2013 the highest share (41.3%) in growth-promoting horizontal aid was reported for aid to SMEs, which accounted for ca. 2.7% of the total amount of state aid granted in Poland. It is worth noting that, in terms of numbers, SMEs dominate in the population of Polish companies (ca. 99%). SMEs are mainly micro businesses (which employ up to 9 people), usually with little capital and the staff recruited from family members. Enterprises generate almost three fourths of GDP and the SMEs contribute to ca. 68% of it (micro: 44.8%, small: 10.5%, medium: 12.7%), and large enterprises provide the remaining 32% (Figures 4 and 5). It means that SMEs and

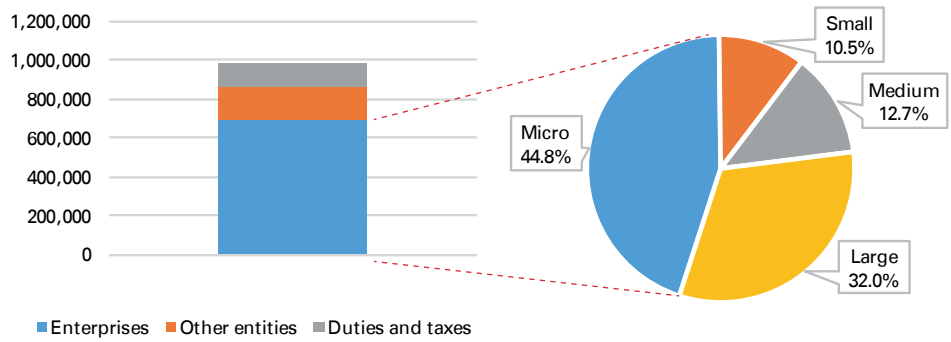
micro businesses in particular have an important impact on economic growth of Poland. Hence we should expect special treatment of SMEs in the policy of public interventions in Poland, which should eliminate permanent market failures faced by these enterprises.

Figure 4. Polish enterprises by size in 2005 and 2013



Source: Own calculations based on the data from Database of the Local Data Bank of the Central Statistical Office.

Figure 5. Composition of GDP broken down by categories of enterprises in Poland in 2005

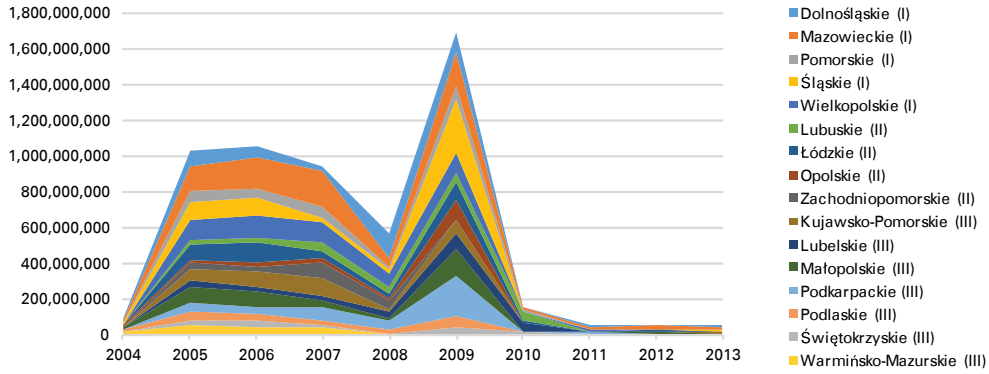


Source: Polish Agency for Enterprise Development (2013, p. 16).

The amount of aid allocated for SMEs growth in 2005 exceeded PLN 1 bn but it decreased in subsequent years to almost PLN 0.56 bn in 2008. Special attention should be paid to 2009 when aid granted to SMEs rapidly increased to reach the highest amount in the analysed period of PLN 1.7 bn. In the years that followed

granted subsidies dropped again to the level of PLN 0.15 bn in 2010 and in the years 2011–2013 to ca. PLN 0.05 bn annually (Figure 6). The first half of analysed period was dominated by aid granted to new investments in SMEs (95–99% of aid for SMEs development), however, as available resources got quickly exhausted, the aid to the sector in subsequent years boiled down to partial reimbursement of the cost of consulting services, which often could be rendered by other beneficiaries. These subsidies improved financial standing of companies but it is hard to say if they could contribute to their meaningful development. In absolute terms, the highest amount of aid to SMEs was granted in 2005–2013 in the voivodeships: Mazowieckie, Wielkopolskie, Śląskie and Dolnośląskie, i.e. in the group of relatively more developed regions. The list can be supplemented with Podkarpackie, where a substantial financial intervention was conducted for SMEs in the crisis year 2009.

Figure 6. Change in geographical distribution of aid granted for SMEs development in Polish voivodeships in 2005–2013 (PLN)

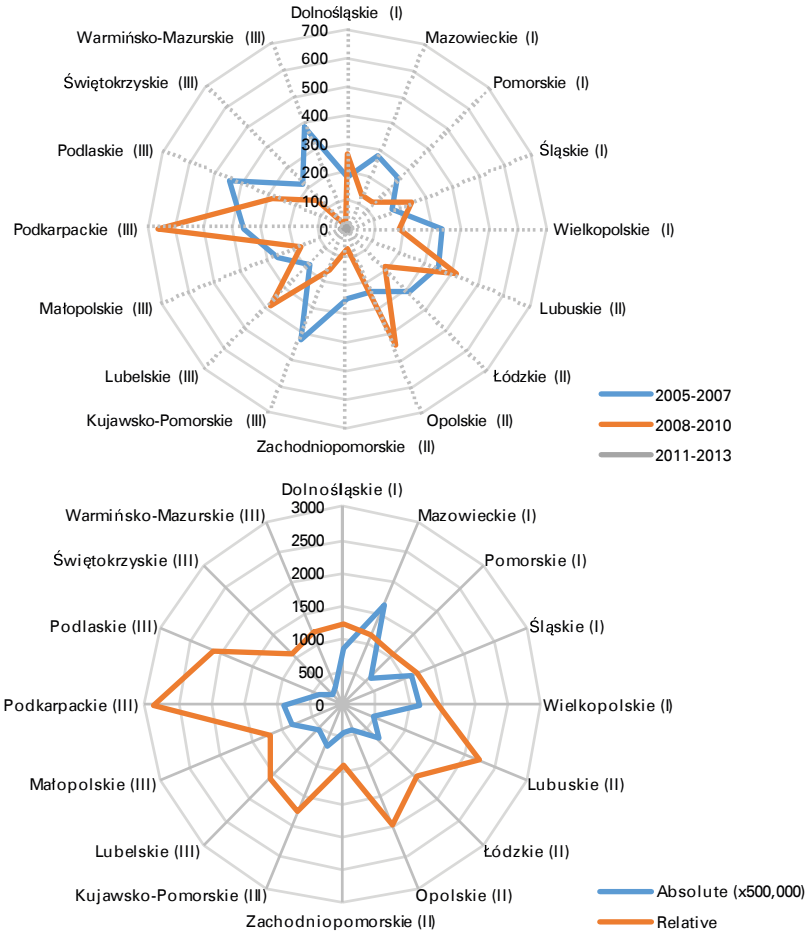


Source: See Figure 1.

When analysing average relative amounts (per a single potential beneficiary) of aid to SMEs we can notice a significant change in the years 2005–2013 (Figure 7). In the first three-year period 2005–2007 the highest aid to SMEs per economic operator was granted in the following voivodeships: Mazowieckie, Wielkopolskie, Lubuskie, Łódzkie, Kujawsko-Pomorskie, Podkarpackie, Podlaskie, and Warmińsko-Mazurskie (from PLN 278 to 443 per potential beneficiary). In the years of economic crisis, 2008–2010, we can clearly see the increase in average aid granted in Dolnośląskie, Śląskie, Opolskie, Lubelskie, and Podkarpackie (up to PLN 664). Then, as we have already mentioned, aid to SMEs dropped dramatically (to several PLN), although the leaders in relative amounts of aid remained the same.

Based on the study of cumulated amounts of aid granted to the SMEs in 2005–2013 we can conclude that the most of aid was available in richer regions (Mazowieckie, Śląskie, Wielkopolskie, and Dolnośląskie), however, the comparison of absolute amounts to the number of potential beneficiaries introduces also voivodeships from moderately or the least developed regions (Podkarpackie, Lubelskie, Kujawsko-Pomorskie, Opolskie, and Lubuskie) into the list of voivodeships where aid to SMEs was the highest (Figure 7).

Figure 7. Regional distribution of aid for SMEs development in 2005–2013 (PLN)

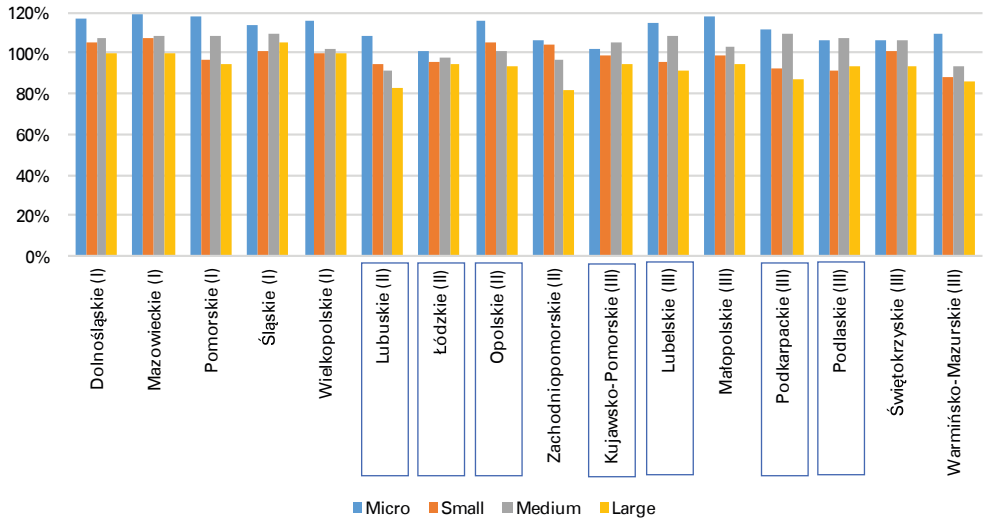


Explanatory notes:
Figure on the top: average relative amount of aid for SMEs growth (in relation to the number of economic operators in a given year) in 2005–2013.
Figure on the bottom: absolute (GGE) and relative (in relation to the number of economic operators as at the end of 2013) cumulated aid for SMEs development in 2005–2013.

Source: See Figure 1.

Higher amount of state aid for SMEs development available per economic operator should be accompanied by the increase in the numbers of SMEs start-ups in the region. Firstly, higher intensity and availability of aid should translate into bigger interest in receiving such resources and, consistently, into the inflow of SMEs at least from neighbouring voivodeships and the establishing of start-ups by local population. Secondly, more investment projects, which were the primary objective of aid to SMEs in the first years of analysed period, should increase demand for additional services connected with the implementation of such projects rendered by the SMEs rather than by large companies. Thirdly, expected growth of assisted firms should increase demand for links with local suppliers and business clients for goods and services offered by the beneficiaries, which should also increase the number of economic operators in the region.

Figure 8. Changes in the population of entrepreneurs per 10 thous. working age inhabitants by the size of companies in 2013 compared to 2005 (2005 = 100%)



Explanatory note: names of voivodeships in boxes indicate aid to SMEs per a single economic operator above the average for all regions in Poland.

Source: See Figure 4.

But the above hypothesis is not confirmed by the analysis of the change in relative numbers of SMEs in individual voivodeships. The highest increase in the number of SMEs per 10 thous. working age inhabitants was recorded foremost in richer and more developed regions although aid amount per economic operator was smaller. In voivodeships where average aid was higher, the dynamics of increase in the number

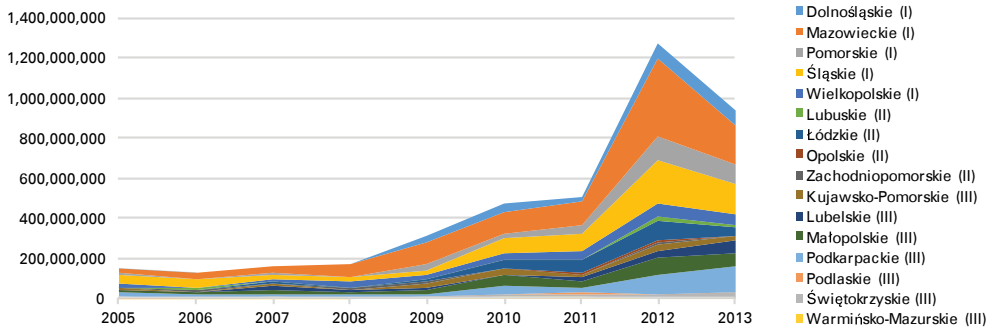
of firms per 10 thous. inhabitants was lower or even on the negative side. Only in Opolskie and Kujawsko-Pomorskie higher resources granted for SMEs growth were accompanied by the increase in relative numbers of firms in voivodeships (per 10 thous. working age inhabitants) (Figure 8). That allows us to conclude that higher intensity of aid for SMEs growth in moderately and the least developed regions was not accompanied by meaningful increase in the relative number of economic operators.

3.2. State aid for R&D&I

Aid for research, development and innovation (R&D&I) ranked second with respect to the amount of absolute growth promoting horizontal aid. It became admissible under the EU law as a result of the recognition of market failure in the area. Market participants usually do not consider (positive) externalities which got transferred to other economic operators and research, development and innovation projects may suffer from insufficient access to finance (because of information asymmetry) or coordination problems among enterprises (Community Framework for State Aid for Research and Development and Innovation, 2006). Obviously, to be competitive, companies should conduct R&D works and commercialise the results of research, however, sometimes they are prevented from doing so by the lack of resources (that is true mostly for small firms) and high uncertainty when it comes to the effects. This is clearly a reflection of some lack of entrepreneurship spirit as risk is inherent to any economic activity. Nevertheless, the European Commission admitted the possibility of public interventions in the R&D&I area. Considering the nature of aid, we should expect support to be granted mostly in richer regions, where companies are engaged in R&D activities to improve their competitive position on the market.

The amount of R&D&I aid in Poland was gradually increasing starting from 2005 (from PLN 152.7 m), however, the data clearly demonstrate that the launching of resources under the financial perspective 2007–2013 helped increase the aid considerably from 2009 (PLN 311.5 m) until 2013 (PLN 936.9 m). That was true mostly in the richest regions of Poland (Mazowieckie, Śląskie, Pomorskie and Wielkopolskie voivodeships). As a rule, the tendency should be considered correct as economic operators with innovation potential establish themselves in richer regions where, thanks to public assistance, they can speed up or intensify their R&D programmes. Special attention needs to be paid to Podkarpackie voivodeship where aid to R&D&I significantly increased in 2012 (most probably because economic operators established in the special economic zone got interested in this category of aid) (Figure 9).

Figure 9. Change in geographical distribution of aid to research, development and innovation in Polish voivodeships in 2005–2013 (PLN)

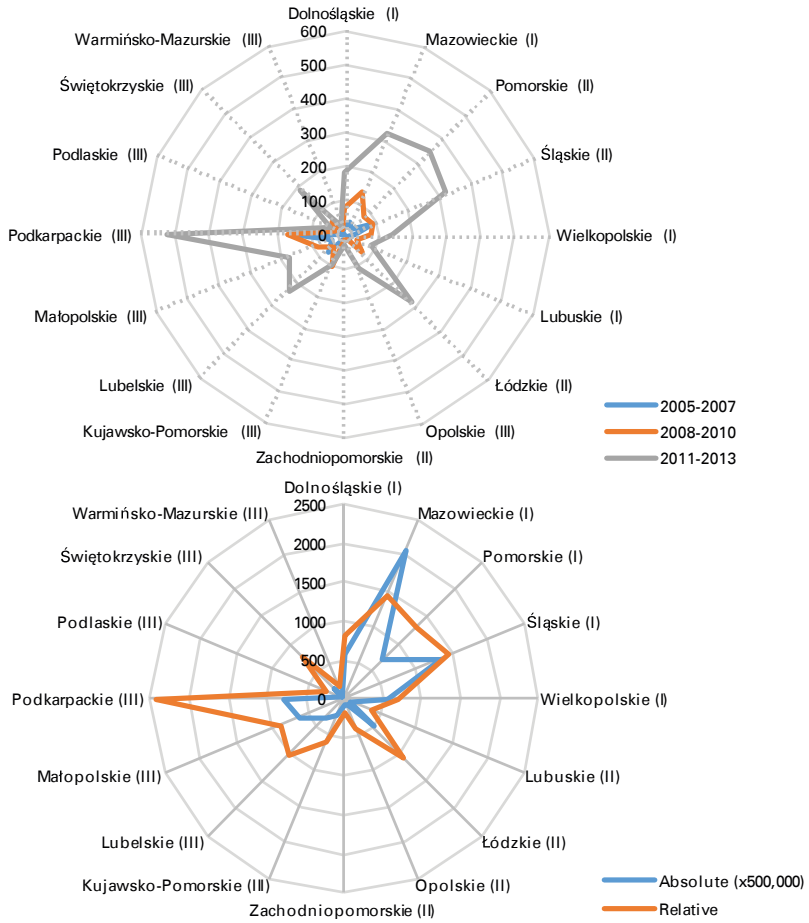


Source: See Figure 1.

For the sake of better comparability of data amounts of R&D&I aid in individual voivodeships were referred to the average size of the population of registered economic operators. On top of that, we distinguished three 3-year periods before, during and after the economic crisis: 2005–2007, 2008–2010 and 2011–2013 (Figure 10). The analysis gave grounds to conclude that substantial amounts of aid to R&D&I per potential beneficiary were continuously, although not evenly, increasing in subsequent years. Between 2008–2010, compared to the times from before the crisis, aid per economic operator clearly increased (from several to several dozen PLN) in Dolnośląskie (PLN 80), Mazowieckie, Pomorskie and Śląskie, but also in Łódzkie and Podkarpackie (up to PLN 169). In the times of crisis relative support for innovation did not change significantly in other medium and little developed regions in Poland (several dozen PLN). Only the period following 2010 witnessed a significant increase in the amount of R&D&I aid per potential beneficiary in the richest voivodeships (PLN 183–349), but also in Podkarpackie (526), Łódzkie (282), and Lubelskie (235), i.e. in voivodeships with relatively bigger business potential.

Taking account of cumulated absolute amount of R&D&I aid we can conclude that the highest amounts of aid were available in richer regions (Mazowieckie: 25% of all R&D&I resources, Śląskie – 16.3%, Pomorskie – 8.6% as well as Dolnośląskie and Wielkopolskie 6.8% each) and in poorer regions with industrial and research agglomerations (Łódzkie – 6.3%, Małopolskie – 7.5% and Podkarpackie 9.4%). However, when we compare absolute amounts to the number of potential beneficiaries, the rankings of Podkarpackie, Lubelskie and Małopolskie among voivodeships with the highest relevance of R&D&I aid per potential beneficiary improve while those of Mazowieckie and Pomorskie deteriorate (Figure 10).

Figure 10. Regional distribution of state aid to research, development and innovation in 2005–2013 (PLN)



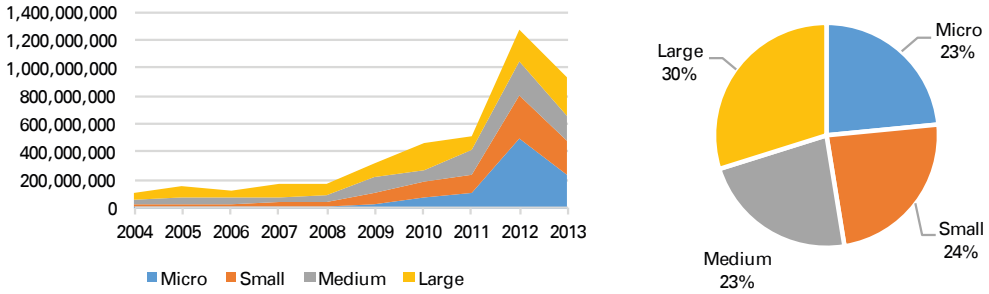
Explanatory notes:
Figure on the top: average relative amount of R&D&I aid (in relation to the number of economic operators in a given year) in 2005–2013.
Figure on the bottom: absolute (GGE) and relative (in relation to the number of economic operators as at the end of 2013) amounts of cumulated R&D&I aid in 2005–2013.

Source: See Figure 1.

In the first three years following the Poland's EU accession large and medium enterprises were the main beneficiaries of public support granted to R&D&I (from 42.7 to 56.1%) (Figure 11). Aid to other categories of enterprises started to grow gradually from 2009. In particular the period of 2012–2013 recorded substantial increases of aid granted to micro and small enterprises both in absolute terms and as a share in total aid to R&D&I (for micro from 6.4% in 2008 to 38.4% in 2012

and for small enterprises from 17.1% to 24.9%). Finally, cumulated amounts of aid to R&D&I in the period 2005–2013 were rather evenly distributed across categories of enterprises.

Figure 11. Structure of R&D&I aid by the size of beneficiary (PLN) (left) and cumulated for years 2005–2013 (right)

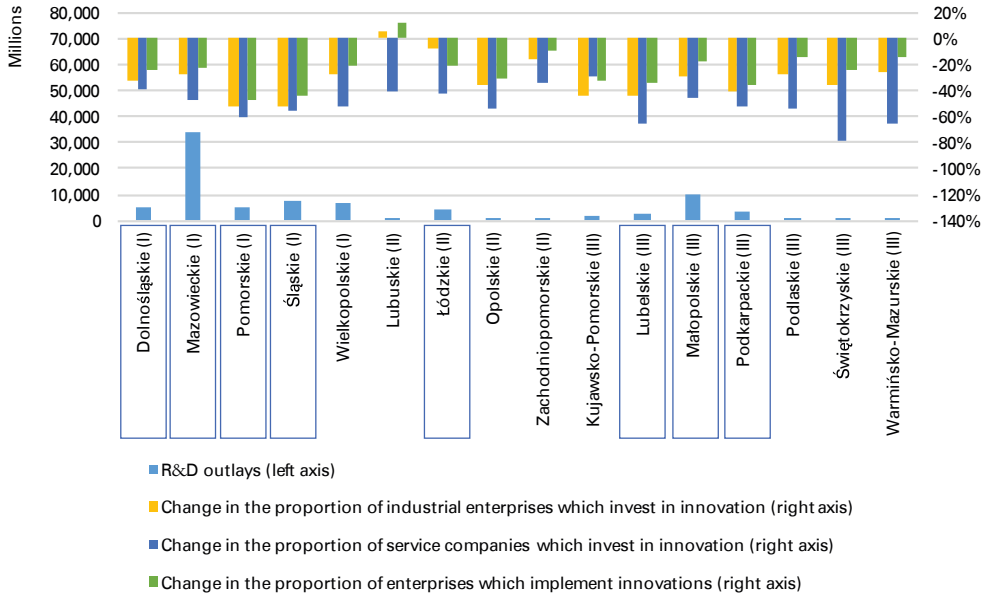


Source: See Figure 1.

It seems that in voivodeships which granted the highest amounts of state aid for R&D&I (both in absolute and relative terms) we should see increased involvement of economic operators in research, development and innovation. On the one hand, the list of regions with the highest allocations for R&D&I aid per economic operator is identical with the group of voivodeships where absolute R&D outlays are the highest. On the other hand, however, the highest drop in the share of industrial and service companies, which invest in innovation was reported in voivodeships where aid granted to R&D&I was the highest (Pomorskie: drop by 48% in 2013 compared to 2006, Śląskie: – 43.8%, Podkarpackie: – 35.2%, Mazowieckie: – 23.1%) (Figure 12). The same regions recorded considerable decrease in the percentage of innovative companies, i.e. firms which introduced at least one product or process innovation (a new or substantially improved product or new or substantially improved process) in the analysed period.

The analysis allows us to conclude that public funds earmarked for R&D&I were granted to companies based in industrial and service centres distributed independently of relative development level of individual voivodeships, which might suggest their correct regional targeting. Nevertheless, it is hard to unambiguously grasp the positive effect of state aid to R&D&I on the performance of enterprises in this area, their innovation or placing new products on the market. The reason may be too little amount of aid compared to the needs, poor quality of assisted R&D projects or problems in the commercialisation of research results.

Figure 12. Cumulated R&D&I outlays in the years 2005–2013 and the change in the percentage of economic operators who invest in innovation and implemented innovation in 2013 compared to 2006



Explanatory note: names of voivodeships in boxes: regions with the highest R&D&I aid ratio per a single registered economic operator.

Source: See Figure 4.

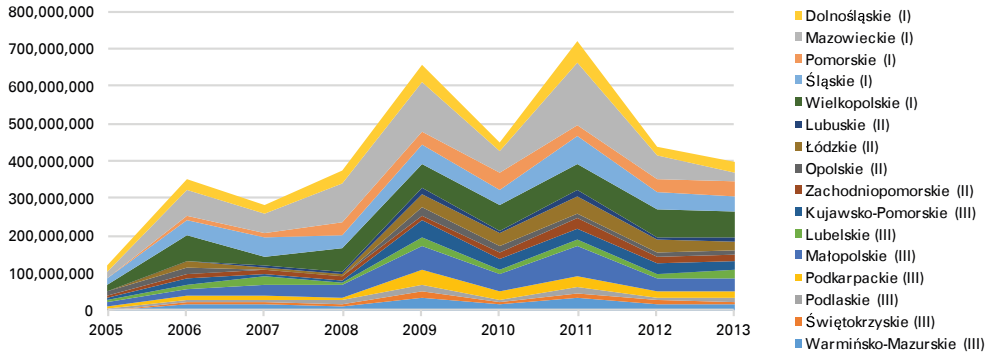
3.3. Public Support Schemes to Improve the Quality of Human Resources in Firms

High quality of human resources and the adjustment of their skills to employers' expectations are among fundamental factors decisive for investment attractiveness of specific locations and, by the same token, for regional development opportunities and rate. In order to live up to these challenges training aid schemes have been introduced under which aid is granted to improve the skills or to retrain present or potential workers. In this particular case, market failure consists in insufficient interest of employers in improving the skills of their staff, who after having acquired new knowledge and skills are legitimately expected to be more efficient at their workplaces, on the one hand, but also become more attractive to other employers. Since analysed data concern any type and scope of training including a complete change of vocational profile and improving already acquired skills, we should expect there is

no significant divergence when it comes to the amounts of aid granted in individual voivodeships in Poland.

In the period 2005–2013 absolute amounts of aid addressed to economic operators to cover the costs of training of workers were generally increasing although decreases were recorded in 2007, 2010 and 2012–2013. The highest amount of training aid was allocated in the most developed voivodeships (Mazowieckie 17.9% of the overall amount of such an aid, Wielkopolskie: 13.4%, Śląskie: 10.5%, and Małopolskie (9.5%). The least amounts were distributed in the poorest and least developed voivodeships (Świętokrzyskie: 1.9%, Podlaskie: 2.2% but also Lubuskie: 2.2%) (Figure 13).

Figure 13. Changes in geographical distribution of training aid in Polish voivodeships in 2005–2013 (PLN)



Source: See Figure 1.

A slightly different picture emerges when we analyse absolute amounts of aid for training (per economic operator as operators are not beneficiaries of such a public intervention) (Figure 14). The first three years following the EU accession were the period of highest training aid allocations per economic operator in Wielkopolskie (PLN 104), Opolskie (PLN 102), Warmińsko-Mazurskie (PLN 102), Lubelskie (PLN 84), Śląskie (PLN 85), Małopolskie (PLN 72), and Podlaskie (PLN 71). In the two subsequent 3-year periods: 2008–2010 and 2011–2013 there was a tendency to increase relative support in more developed voivodeships (e.g. in Mazowieckie PLN 148 and PLN 121 respectively, Pomorskie PLN 162 and PLN 137, Wielkopolskie PLN 177 for each period) and to significantly increase training aid per potential beneficiary in Warmińsko-Mazurskie (up to PLN 189), Podkarpackie (to PLN 133), Małopolskie (to PLN 152) and Kujawsko-Pomorskie (to PLN 150).

The end result was the highest amount of cumulated training aid granted in more developed voivodeships: Mazowieckie, Śląskie and Wielkopolskie. Considering,

however, average amount of aid per single economic operator, the distribution of aid across voivodeships is, as expected, much less differentiated, although still we can identify the leaders: Warmińsko-Mazurskie, Wielkopolskie, Opolskie, Kujawsko-Pomorskie (Figure 14).

Figure 14. Regional distribution of training aid in 2005–2013 (PLN)

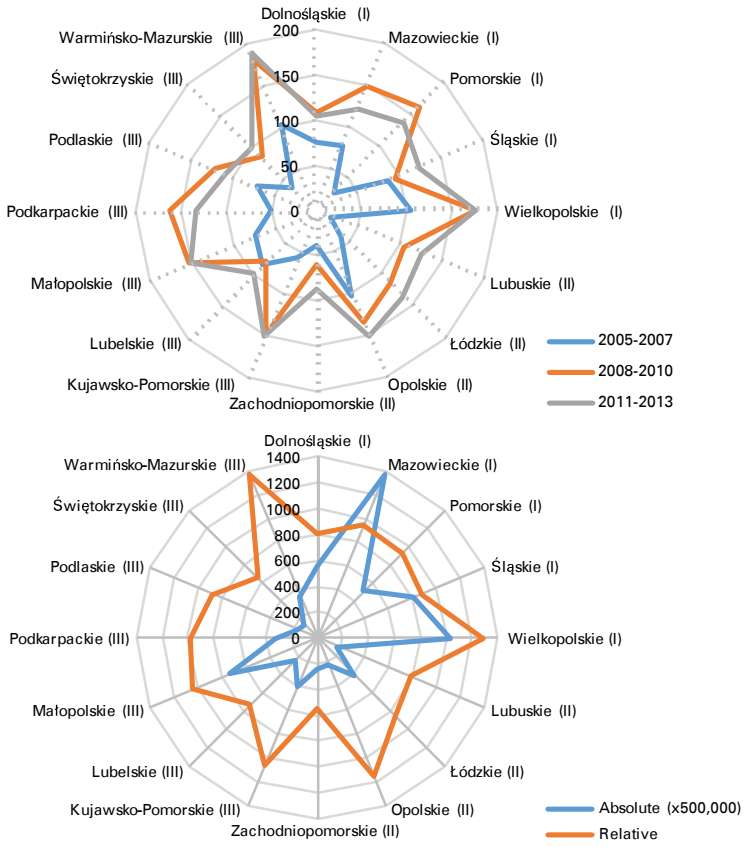


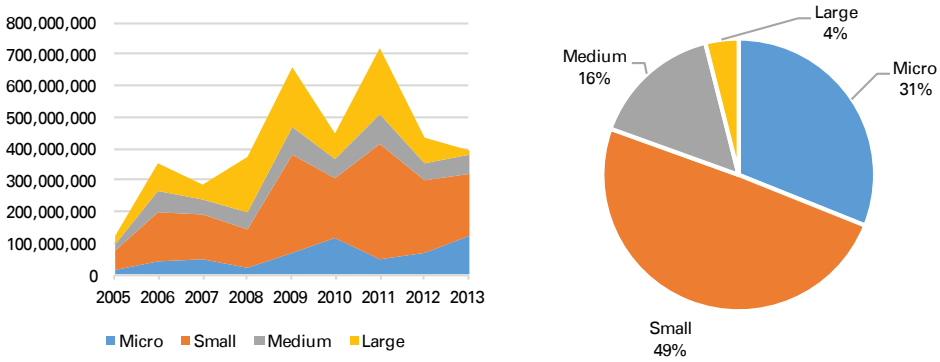
Figure on the top: average relative amount (in relation to the number of economic operators in a given year) of training aid in years 2005–2013.
Figure on the bottom: absolute (GGE) and relative amount (in relation to the number of economic operators as at the end of 2013) of cumulated training aid in years 2005–2013.

Source: See Figure 1.

Micro and small enterprises were the main beneficiaries of training aid in Poland from the beginning of the EU membership (Figure 15). Their share in cumulated amount of training aid reached 80%. It means that large and medium-sized companies benefited less from such a support, which implies that larger Polish employers were less willing to delegate their staff to trainings compared to smaller employers.

As we have already mentioned, to some extent it was dictated by the fear of losing workers who improve or change their skills using state aid resources. Besides, large corporations have their own training schemes and career paths independent of public interventions. More restrictive EU regulations governing the allocation of training aid for large companies are another reason why their interest in such subsidies was not impressive. That is why workers of smaller, often family, businesses benefited more from training aid.

Figure 15. Training aid structure by the size of the beneficiary (PLN) (left) and cumulated for years 2005–2013 (right)



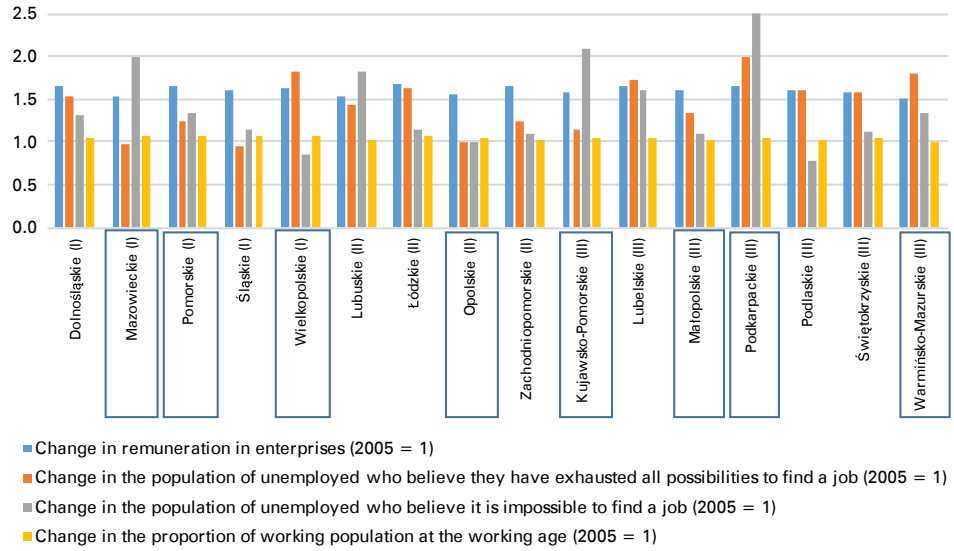
Source: See Figure 1.

As mentioned before, training aid is designed to improve skills of those already employed, which should translate into better quality and improved mobility of labour. We should thus expect the increase in remuneration of workers and generally improved vocational engagement of people in regions where more training aid was available. That is contradicted by the data on the change in salaries and wages in enterprises, the population of unemployed who believe they have exhausted all known possibilities of finding a job, unemployed who cannot find a job and the change in the percentage of working population at working age in all the voivodeships which granted the highest amounts of training aid per potential beneficiary in 2005–2013.

We must note that in some voivodeships which granted higher amounts of training aid the number of unemployed convinced they would not be able to find a job considerably increased (Kujawsko-Pomorskie, Podkarpackie, Mazowieckie) (Figure 16). Also the number of unemployed people who claimed they had exhausted all known possibilities of finding a job increased in Wielkopolskie, Podkarpackie and Warmińsko-Mazurskie. The proportion of vocationally active working age population strongly increased in the analysed period in more developed voivodeships, which

was not necessarily due to higher amounts of training aid. We should also stress the absence of the sufficiently precise data describing the situation of persons who have benefited from training subsidised from public resources and those who have not. Thus, based on the conducted analysis we are not in a position to unambiguously identify positive effects of training aid at regional level. Moreover, perhaps too little funds allocated to training as well as its sometimes questionable scope and quality did not lead to any significant changes in regional labour markets.

Figure 16. Changes in remuneration in enterprises, in the population of unemployed and in the proportion of vocationally active in 2013 compared to 2005 (2005 = 1)



Explanatory note: names of voivodeships in boxes: regions with the highest training aid ratio per registered economic operator.

Source: See Figure 4.

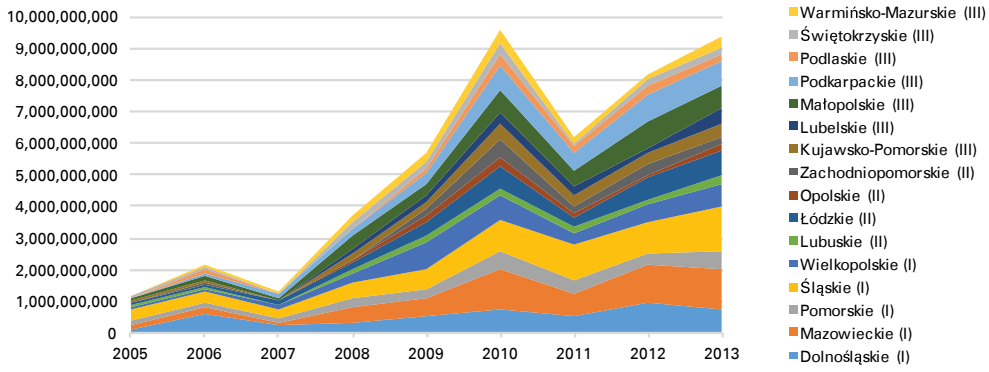
3.4. Regional Investment Aid to Enterprises

The above discussed categories of state aid were addressed to all economic operators independently of the industry or location of their activities. In absolute terms, the most important impulse to improve the competitiveness of Polish enterprises came from regional aid. Regional aid is granted in areas where the standard of living (calculated as GDP per capita) is abnormally low and which suffers from high unemployment. In this case market failure consists in additional costs that

must be paid by economic operators who invest in areas offering poor transport and telecommunication infrastructure, lower quality labour force not exactly matching employer's expectations and suppliers and customers at distances much longer than in better developed territories. In other words, regional aid should be granted in regions much less developed compared to other areas. As in the case of Poland practically all of the territory of the country is little developed, regional aid became admissible in all regions although in different intensity. It is also worth noting that such an aid does not have to be linked with the introduction of new technologies or innovative solutions and thus it does not always provide an impulse to improve the competitiveness through investments. However, as resources are made available to enterprises for new investment projects, it facilitates development and provides necessary equity base to compete in international markets (Ambroziak, 2006, 2015).

These are the reasons why regional aid has become the key form of public assistance, which can be interpreted as growth promoting measure. In 2005 regional subsidies amounted to ca. PLN 1.17 bn and despite they nearly halved in 2007 compared to the previous year, they increased to almost PLN 9.6 bn in 2010. Next year, when the financial crisis was over regional aid dropped by almost 30%, but then it started to increase again to reach PLN 9.4 bn in 2013. In the period 2005–2013 the highest amounts of regional aid in absolute terms were granted in the following voivodeships: Śląskie (14.1% of all regional aid resources), Mazowieckie (12.7%) and Dolnośląskie (10.2%). The least regional aid was granted to medium developed (Opolskie – 2.1%, Lubuskie – 2.5%) and the least developed voivodeships: Świętokrzyskie (2.9%), Podlaskie (3.1%) and Warmińsko-Mazurskie (3.8%) (Figure 17).

Figure 17. Changes in geographical distribution of regional aid in Polish voivodeships in 2005–2013 (PLN)



Source: See Figure 1.

Figure 18. Regional distribution of regional aid in 2005–2013 (PLN)

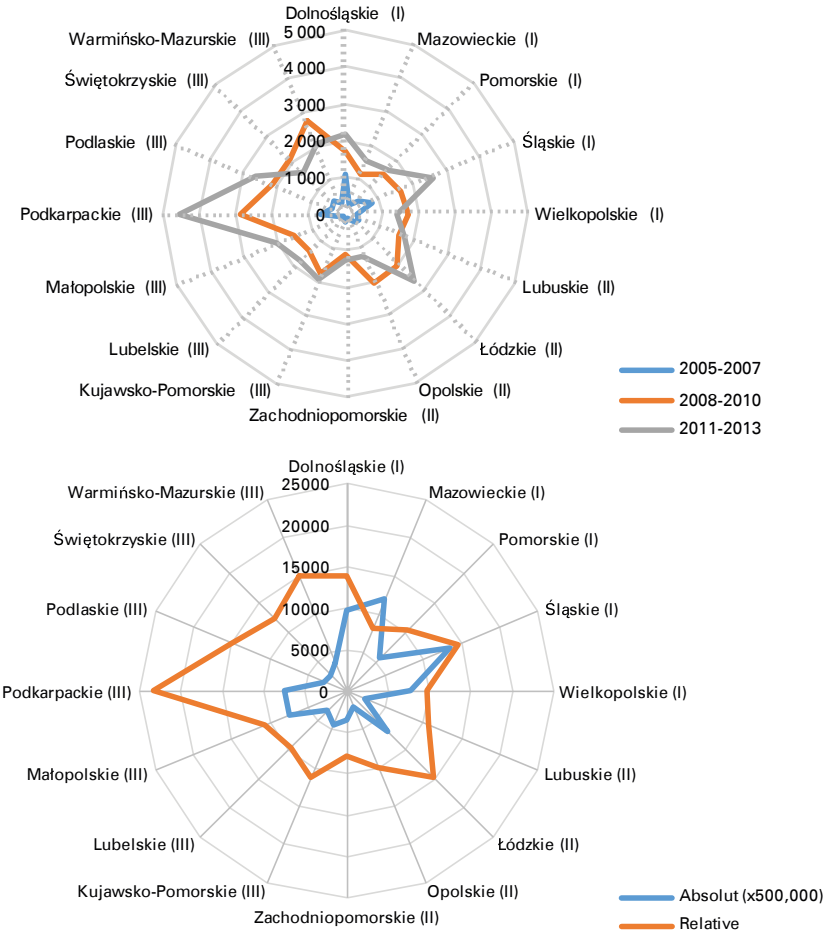


Figure on the top: average relative amount (in relation to the number of economic operators in a given year) of regional aid in the years 2005–2013.
Figure on the bottom: absolute (GGE) and relative amount (in relation to the number of economic operators as at the end of 2013) of cumulated regional aid in the years 2005–2013.

Source: See Figure 1.

However, when we analyse relative amounts of regional aid (per a single economic operator) we may conclude that in the first three years of the period covered by the study (2005–2007) the highest aid was granted to Dolnośląskie (PLN 1094), Śląskie (PLN 765) and Podkarpackie (PLN 663). In the times of economic crisis, which coincided with the launching of the EU funds for the financial perspective 2007–2013 the ranking of voivodeships changed in favour of the least developed regions in Poland. In 2008–2010 the leaders who granted the highest amounts of

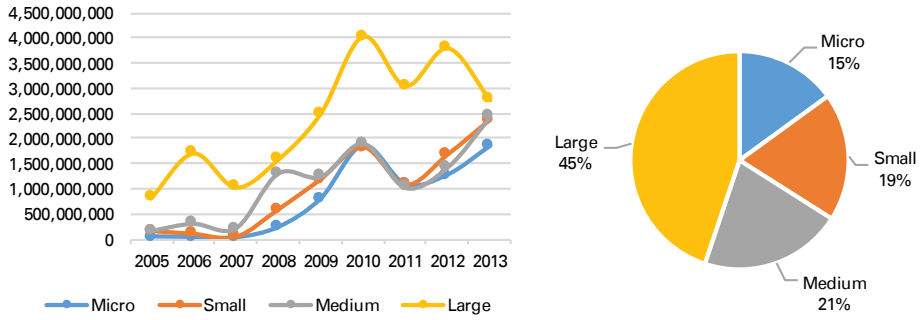
regional aid per statistical economic operator could be found in the least developed voivodeships: Podkarpackie (PLN 2893), Warmińsko-Mazurskie (PLN 2744), Podlaskie (PLN 2175), Świętokrzyskie (PLN 2131) and Kujawsko-Pomorskie (PLN 1791) but also some medium developed voivodeships: Łódzkie (PLN 1999) and Opolskie (PLN 2036). Last three analysed years, 2011–2013, clearly improved the ranking of Podkarpackie (PLN 4530), Łódzkie (PLN 2633), Kujawsko-Pomorskie (PLN 1912) and Śląskie (PLN 2595), though in the remaining ones the amounts of regional aid granted per economic operator also increased. Considering accumulated amount of aid for the period of 2005–2013, the highest aid was granted in more developed voivodeships but when we compare the amounts to the number of economic operators in a given region, the highest amounts of regional aid per operator were granted in the least or moderately developed regions. It means that when we take the support to the least developed regions as the primary aim of regional aid, it correctly targeted the poorest voivodeships (Figure 18).

In Poland, in the years 2005–2013, large enterprises were the main beneficiaries of regional aid, although their share in regional aid schemes fluctuated from 69.8% in 2005 through 79.8% in 2006 to drop to 29.4% in 2013. In 2008 a shift was recorded in the proportion of groups of regional aid beneficiaries when the share of micro businesses increased to 6%, small enterprises to 15.9% and medium-sized ones to 35.4%. In the years to come the share of medium and large enterprises shrank for the benefit of micro and small firms (Figure 19). Ultimately, however, the main recipients of regional aid were enterprises able to deliver large investment projects and employing substantial numbers of staff, which for social and political reasons is very attractive (45% of all regional aid). Doubts have been raised whether large enterprises in Polish regions genuinely need aid. They generate many jobs and often, but not always, collaborate with local suppliers but their bankruptcy implies huge problems in monopolised labour market and problems to suppliers, which may be solved by another big investor or by regional SMEs.

As we have already explained, the aim of regional aid is to limit additional investment costs in less developed regions. Aid measures should attract new waves of investments to such regions. Considering the analysed period of 2005–2013 we can conclude, however, that the map of cumulated investment outlays by enterprises does not overlap with voivodeships where the most of regional was granted (Figure 20). In voivodeships where relatively more regional aid was granted no significant change in investment outlays was recorded in companies in the period 2005–2012 compared to the situation in more developed regions, where regional aid allocations were smaller. Also the proportion of investment outlays in these voivodeships in the years 2005–2013 compared to the reference year 2005 was lower than in more developed

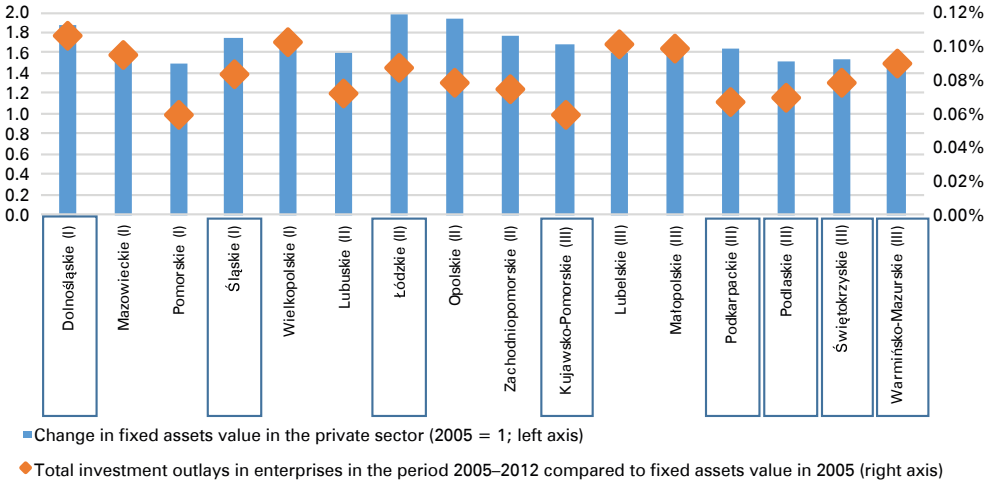
regions. Thus it is hard to unambiguously decide that regional aid significantly contributed to the increase in fixed assets value and to the inflow of non-subsidised investment projects into these regions.

Figure 19. Structure of regional aid by the size of beneficiaries (left) and cumulated in the period 2005–2013 (right)



Source: See Figure 1.

Figure 20. Change in the value of fixed assets in the private sector and the sum of investment outlays in enterprises in 2005–2013 compared to fixed assets value in 2005



Source: See Figure 4.

4. Conclusions

Pursuant to the EU law and in accordance with the theory of public interventions, state aid should apply only to the cases of market failure. This is the spirit of the EU legislation, which allows the Member States to support only the initiatives, which for reasons pertaining to costs or risks involved or to the absence of direct effects are not dealt with by economic operators. Hence public assistance should be granted only when it is indispensable and when it may encourage firms to pursue specific operations. The mechanism should lead to the growth of enterprises and areas where they are based.

The study revealed that in the period of nine years, 2005–2013, public assistance was granted in the amount of PLN 204 bn and only ca. 30% (PLN 60.8 bn) of it can be considered aid designed to directly improve the competitiveness of companies (R&D&I aid, aid to SMEs, training aid and regional aid). Most resources ended up in companies, which applied for restructuring aid, employed the disabled or operated in a particular sector and was not necessarily intended for growth promoting measures.

The analysis of collected data shows that the highest growth promoting horizontal aid was granted to SMEs. However, higher intensity of aid to SMEs in moderately and the least developed regions did not produce tangible increase in the population of economic operators. As a result, the intervention brought benefits to individual firms and did not engage operators in regions with the highest state aid to SMEs.

Also for the aid for research, development and innovation it is hard to identify its impact upon firms' performance in the area. Because firms with innovative potential are usually located in industrial and service centres, which can be found in all voivodeships, we were not able to identify a group of regions in which the aid was granted in bigger amounts. Funds were allocated to firms independently of relative development levels of voivodeships, which could suggest their correct spatial distribution. However, either the amounts were too small or financed projects not enough innovation oriented (which was not analysed) or there were problems with the commercialisation of the outcomes of research because no clear improvement in R&D&I area was reported for enterprises.

State aid for training was rather evenly distributed across voivodeships if we take account of its average amount per economic operator. That is due to the nature of aid, which is to improve the skills of workers in enterprises, independently of their capabilities or tasks. Also in this case our analysis has not revealed clearly positive effects of training aid at regional level.

Regional aid was considered potential growth promoting aid as it is supposed to limit negative consequences of higher investment costs in less developed regions. Considering the cumulated amount of aid the biggest allocations were granted in more developed voivodeships, but when we compare the amount to the number of economic operators based in a given region, it turns out that the highest allocations per operator were granted in the least and moderately developed voivodeships. To a large extent that was the result of maximum aid intensity ceilings imposed by the European Commission to give preference to poorer regions. The analysis of selected investment indicators did not demonstrate clear effect of regional aid upon the increase in fixed assets value or the inflow of non-subsidised investment to the regions.

In conclusion we can say that, with the exception of regional aid, it is hard to identify clear-cut criteria of spatial distribution of other categories of analysed growth promoting aid granted in Polish voivodeships in 2005–2013. The study does not let formulate conclusions on positive impact of aid granted for SMEs development, R&D&I, training or regional aid upon respective social and economic indicators. That may be due to: (a) delayed response of the economy to public interventions, (b) too little amounts to be able to influence the development of certain areas, (c) deficiencies and mistakes made in preparing and implementing assisted projects, (d) government failures consisting in the inability to match public support with expectations and capabilities of economic operators.

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