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Economic Effectiveness of Private Enterprises in Poland – Regional Approach

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**ECONOMIC EFFECTIVENESS OF PRIVATE
ENTERPRISES IN POLAND – REGIONAL APPROACH**

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Key words: private enterprises, effectiveness, regional diversification.

A b s t r a c t

The aim of the undertaken research was to assess the regional diversification in economic effectiveness of private enterprises in Poland. The assessment was conducted at NUTS II regional level encompassing the voivodships for two selected years – 1999 and 2006. The studies confirmed that regional diversification is indicated by all three indicators of the economic effectiveness of enterprises, i.e. labor productivity, gross return on capital employed and return on equity. However the scale of that diversification measured by the variability coefficient level decreased during the period covered. For example, in 1999 the variability coefficient for the ROE was as much as 75.5%, which means high diversity of voivodships as, concerns the level of that indicator. On the other hand, in 2006 that indicator was at the level of 18,9% and the voivodships proved less diversified as concerns that indicator.

**EFEKTYWNOŚĆ EKONOMICZNA PRZEDSIĘBIORSTW PRYWATNYCH W POLSCE –
UJĘCIE REGIONALNE**

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Słowa kluczowe: przedsiębiorstwa prywatne, efektywność, zróżnicowanie regionalne.

A b s t r a c t

Celem podjętych badań była ocena regionalnego zróżnicowania efektywności ekonomicznej przedsiębiorstw prywatnych w Polsce. Ocenę przeprowadzono na poziomie regionalnym NUTS II, obejmującym województwa w dwóch wybranych latach – 1999 i 2006. Badania potwierdziły, że zróżnicowanie regionalne wykazują wszystkie trzy wskaźniki efektywności ekonomicznej przedsiębiorstw, tj. wydajność pracy, rentowność obrotu brutto i rentowność kapitału własnego.

Skala tego zróżnicowania mierzona poziomem współczynnika zmienności w badanym okresie jednak się zmniejsza. Przykładowo w roku 1999 współczynnik zmienności dla wskaźnika ROE wynosił aż 75,5%, co oznaczało dużą niejednorodność województw pod względem poziomu tego wskaźnika. W roku 2006 współczynnik ten wynosił 18,9%, a województwa okazały się najmniej zróżnicowane pod względem tego właśnie wskaźnika.

Introduction

Economic effectiveness of enterprises can be considered and assessed in micro-scale, i.e. in relation to the entire enterprise or one of the production factors engaged in that enterprise or in macro-scale, i.e. in relation to the entire national economy (TARACIŃSKA 2006, p. 243). Microeconomic assessment is of fundamental importance for owners of enterprises, their partners and competitors and it is the necessary condition for any effectiveness of all other tiers of the economy. Assessment of the economic effectiveness at macro level provides, on the other hand, the information on efficiency of activities of all the enterprises in the country and, indirectly, on the situation of the entire society. Currently, however, not only the enterprises or countries but also territorial units such as regions are the competing entities. The increasing role of the regions as the basic units for statistical comparisons concerning the development of individual member countries of the European Union indicates the need for assessment of the effectiveness of enterprises also from the regional perspective. Diagnosing the condition of the regional diversification in the economic effectiveness of enterprises and answering the question of “Do regional differences in the level of economic effectiveness of enterprises increase or are they being closed?” is becoming an important issue as it is generally known that excessive diversification has a negative influence not only on the poorer areas but also the global interest of the country and additionally results in negative political, economic and social consequences.

In view of the above, the aim of the studies undertaken was to assess the regional diversification in economic effectiveness of private enterprises in Poland. The considerations of this paper focus around the following research hypothesis: *The regional differences in the level of economic effectiveness of private enterprises in Poland increase.*

The study encompassed private enterprises in Poland that maintain accounting ledgers in which the employment exceeds 9 persons. The studies were conducted at the regional level of NUTS II, which according to the Regulation by the Council of Ministers of the 14th of November 2007 on implementation of the Nomenclature of the Territorial Units for Statistical Purposes, cover the voivodships. The time scale of the presented studies, as a consequence of the limited volume of the paper, covers two selected years – 1999 and 2006.

The study uses the data of the Central Statistical Office published in the statistical yearbooks of individual voivodships as well as the unpublished data made available on request by the author in the regional system of 16 voivodships. The comparative method was applied for analysis of the collected data, that is the values of the studied indicators of economic effectiveness of private enterprises for all the voivodships for the two years covered were compared. The variance measures were also used that according to M. SOBCZYK (2007, p. 48), serve determining the diversity of units in the statistical population as concerns the value of the characteristic studied. In this paper they served determining the degree of diversification of the individual indicators of economic effectiveness of enterprises in the regions and determining whether the regions are homogenous or non-homogenous as concerns the indicators investigated.

Economic effectiveness of enterprises and its measures

The category of effectiveness has accompanied human activities for thousands of years being more or less consciously the result of the inherent rationality of doing things and as a consequence it is the subject of assessment for uncounted levels of economic activities (KOZUŃ-CIEŚLAK 2005, p. 201). In economic literature, however, the definition of effectiveness as an independent notion is not given. According to the economists, effectiveness (similar to, e.g. percent) has “no reason for independent existence” and it is organically bound to a specific object of study (RYBICKI 2005, p. 362). That category, as a consequence, should be applied to a specific activity carried out at a specific place and conducted within a strictly determined timeframe. That approach indicates the need for relativization of effectiveness to specific entities, particularly enterprises (subject effectiveness), selected processes implemented by them (object effectiveness) and defined set of enterprises (macroeconomic effectiveness) (BIEDACZ 2001, p. 289). Additionally, according to H. PFOHL (1998, pp. 32-34), the issues of effectiveness of enterprises; activities should be interpreted in the context of four dimensions: technological, economic, social and ecological.

Economic effectiveness that is the subject of the studies presented in this paper expresses the relation between the effects obtained and the outlays incurred (MATWIEJCZUK 2000, p. 29). It is understood as the result of practical application of the rational management principle that represents maximization of the economic results at given outlays or minimization of outlays at a given economic result. It is the result of economic activities and most frequently it is defined as the relation between the results achieved and the outlay of factors necessary for obtaining them (MELICH 1980, p. 17, *Nowa*

Encyklopedia... 1995, p. 192, PIĘTOWSKA-LASKA 2005, p. 172, CZAKON 2005, p. 58, WASZCZYŃSKI 2005, p. 31). It is among the characteristics determining the nature of the enterprise, it conditions the operations of the organizations and determines their development (OSBERT-POCIECHA 2006, p. 8).

The relation of effects to outlays expressed in numbers is the measure of the level of economic effectiveness of a specific entity or tier of the economy (*Ekonomia od A do Z...* 2007, p. 105). According to A. SKOWRONEK-MIELCZAREK (2007, p. 31), in economic practice, analysis of enterprise operation effectiveness represents in most cases the holistic approach to its operation from the perspective of the development of specific financial relations. The choice of appropriate methods and tools for effectiveness measurement, nevertheless, is not a simple task. Computation of effectiveness indicators, particularly in the situation when the analysis is to be conducted in macro scale or according to the regional approach may represent an issue as while collection of the data necessary for computation of the effectiveness indicators for a specific enterprise is relatively simple, in macro scale where the studies encompass a large sample of enterprises conducting diversified activities collection of such data may prove impossible. That is why analysis of effectiveness of enterprises conducted in macro scale or at regional level is generally based on the indicators computation of which is possible on the base of the available aggregated data concerning all the entities studied. In view of the above, in this paper the following measures were assumed for measurement of economic effectiveness level of private enterprises in Poland according to the regional approach: labor productivity, gross profitability of trade and return on equity.

Labor productivity belongs to the so-called measures of productivity, which in the subject literature are used the most frequently for measurement of effectiveness of enterprises. This can be justified by the fact that *“the improvement of effectiveness is usually treated as equivalent to the increase in productivity of production factors”* (ŚWIECZEWSKA 2004, pp. 29–30). The labor effectiveness indicator for the enterprises covered was computed as the relation between the revenues from their entire activities and the employment of those enterprises. The gross trade profitability indicator represents the relation between the gross financial results to revenues from the entire activity. The indicator computed in that way is the most inclusive indicator of the profitability of sales. It encompasses the entire business activity (operational + financial) adjusted by the balance of extraordinary events. It is commonly applied in assessment of profitability of enterprises and used for comparisons between industries and international ones as it does not react to the differences in the income taxes (GRZENKOWICZ et al. 2007, p. 209). The last of the effectiveness indicators chosen – the return on equity, allows assessment of the effectiveness of use of the capital provided by the owners in the enterprise. It “shows” the owners how much they may earn on investment in

a given enterprise and allows assessment of profitability of capital placed in it covering not only the capital invested but also not disbursed profits that were left available to the enterprise (KORNACKI 2008, p. 65). According to R. PASTUSIAK (2003, p. 101), that indicator is one of the most important measures in the market economy.

Regional diversification of economic effectiveness of private enterprises in Poland

In 1999, the study covered 43.363 (*Bilansowe wyniki... 2001*) private enterprises operating in Poland while in 2006 the number of enterprises covered was 43.971 (*Bilansowe wyniki... 2007*). During both years analyzed, private enterprises represented over 90% of the total number of enterprises in Poland employing more than 9 persons and maintaining accounting ledgers. The analysis of the levels of effectiveness indicators for those enterprises from regional perspective showed a significant diversification among them.

In 1999, the labor productivity indicator assumed the following values in the individual voivodships (Fig. 1).

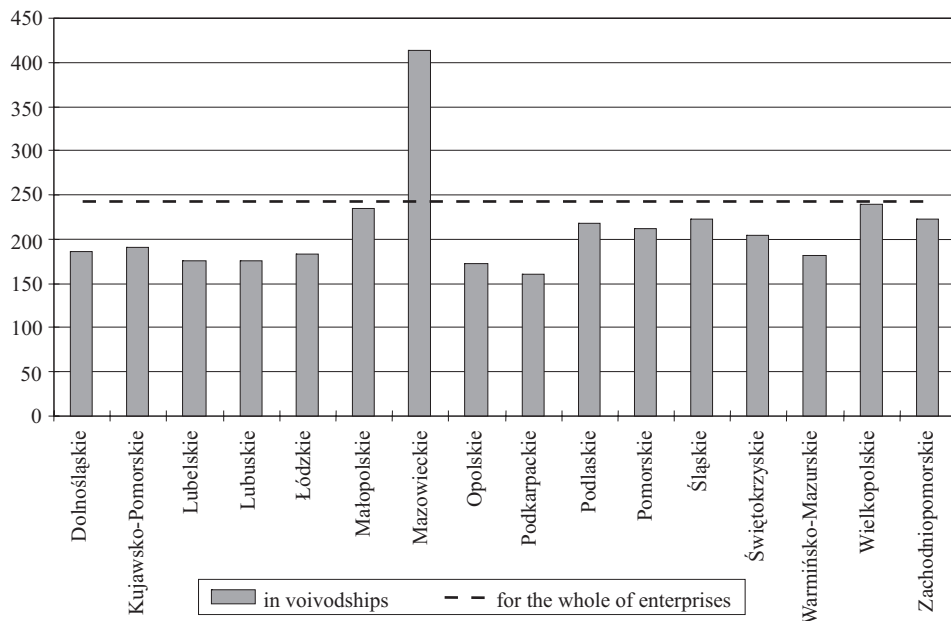


Fig. 1. Labor productivity in enterprises studied in 1999 (PLN K/employee)

Source: own work based on the unpublished CSO data from SP and F-02 financial reports of the investigated entities.

The data presented in Figure 1 indicate that the highest labor productivity was recorded by enterprises situated in Mazowieckie voivodship at PLN 413,000 per 1 employee and that it was higher by PLN 170,400 than the productivity indicator computed for the entire studied population of enterprises in Poland, which was PLN 242,600. In the remaining voivodships the labor productivity indicator was below the value computed for the entire population of enterprises covered. The Podkarpackie voivodship was one with the lowest labor productivity indicator in 1999 as it was at the level of PLN 160,700 per 1 employee. The difference between the highest and the lowest value of the labor productivity indicator computed for individual voivodships was PLN 252,300 per 1 employee.

In 2006, the labor productivity indicator in individual voivodships was as presented in Figure 2.

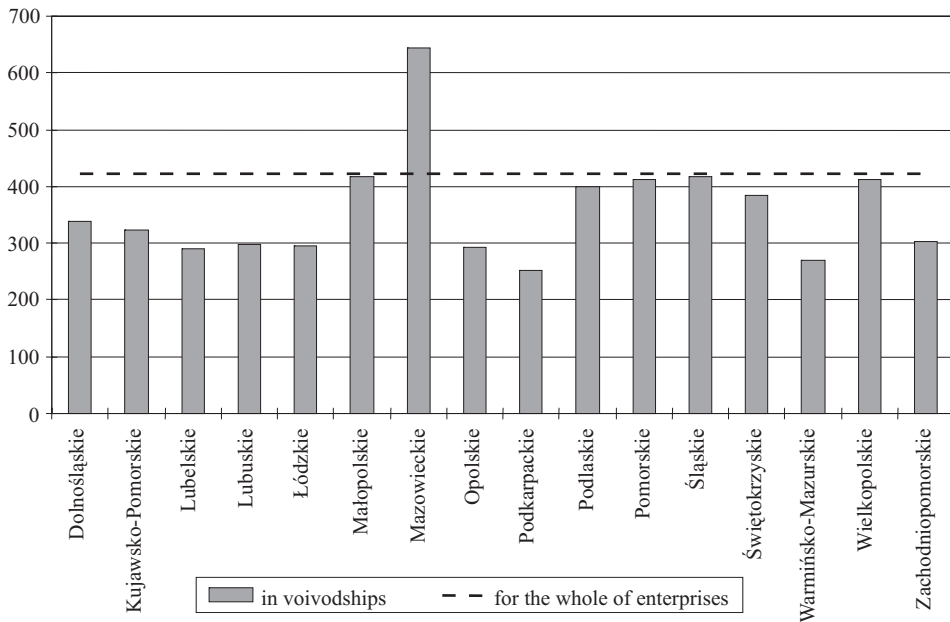


Fig. 2. Labor productivity in enterprises studied in 2006 (PLN K/employee)

Source: own work based on the Statistical Yearbooks for individual voivodships of 2007.

Mazowieckie voivodship continued to be the one with the highest labor productivity indicator. The labor productivity indicator for enterprises situated in that voivodship was at the level of PLN 643,400 per 1 employee. Similar to the situation in 1999, Podkarpackie voivodship was the one with the lowest value of that indicator at PLN 252,200 per 1 employee. Similar to the situation

of 1999, only in Mazowieckie voivodship the labor productivity indicator was higher than the value computed for the entire population of enterprises in the country that was PLN 421,800 per 1 employee. The difference between the highest and the lowest value of the labor productivity indicator in the individual voivodships was PLN 391,200 per one employee.

In analyzing the next indicator – the gross profitability of trade – its regional diversification can also be noticed. In 1999, it was as in Figure 3.

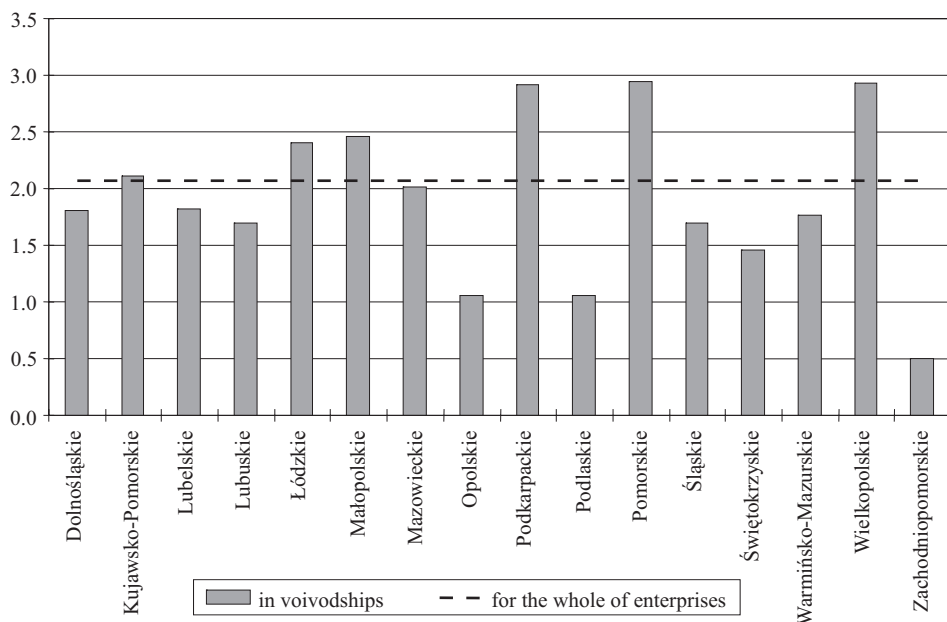


Fig. 3. Indicator of gross profitability of trade in enterprises covered in 1999 (in %)

Source: own work based on the unpublished CSO data from SP and F-02 financial reports of the investigated entities.

The highest gross profitability of trade in 1999 was achieved by enterprises from Pomorskie, Wielkopolskie and Podkarpackie voivodships for which that indicator reached the level of 2.9% and was higher than the indicator computed for the entire population of enterprises in Poland by 0.8 percent point. Zachodniopomorskie voivodship recorded the lowest profitability indicator. Enterprises of the private sector situated in that voivodship recorded profitability at the level of 0.5%, that is 1.6 percent point lower than the indicator computed for the entire population covered by the study in 1999. The difference between the highest and the lowest value of the gross profitability of trade indicator values for individual voivodships was 2.4 percent points.

The regional diversification in the level of that analyzed indicator was also visible in 2006, which is confirmed by the data presented in Figure 4.

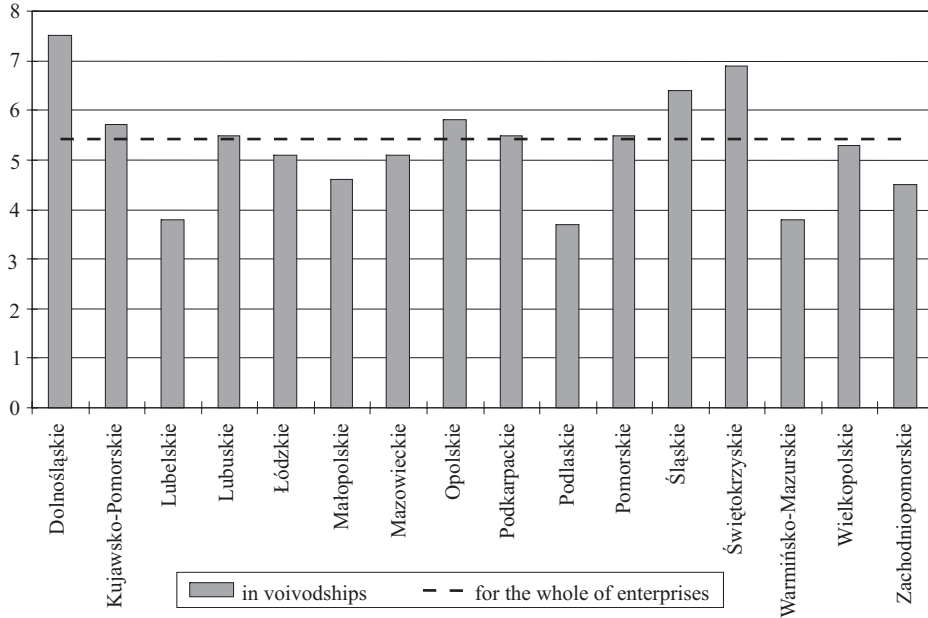


Fig. 4. Indicator of gross profitability of trade in enterprises covered in 2006 (in %)
 Source: own work based on the Statistical Yearbooks for individual voivodships of 2007.

The highest gross profitability of trade during that year was recorded by enterprises in Dolnośląskie voivodship at 7.5% and Świętokrzyskie at 6.9%. Podlaskie voivodship was the one that achieved the lowest value of that indicator during that year. Enterprises situated in it recorded the profitability at the level of 3.7% while the indicator for the entire population of enterprises studied in Poland was at the level of 5.4%. The difference between the highest and the lowest value of that indicator computed for individual voivodships was 3.8 percent points.

Regional diversification in the effectiveness of private enterprises in Poland was also confirmed by the analysis of the level of the last effectiveness indicator – the return on equity. In both 1999 (Fig. 5) and 2006 (Fig. 6) significant differences between the highest and the lowest values of ROE computed for individual voivodships were recorded. In 1999, it was 6.7 percent points while in 2006 as much as 7,5 percent points. As indicated by the data presented in Figure 5, Podkarpackie voivodship was the one with the highest value of the ROE in 1999. Enterprises situated in that voivodship recorded the profitability

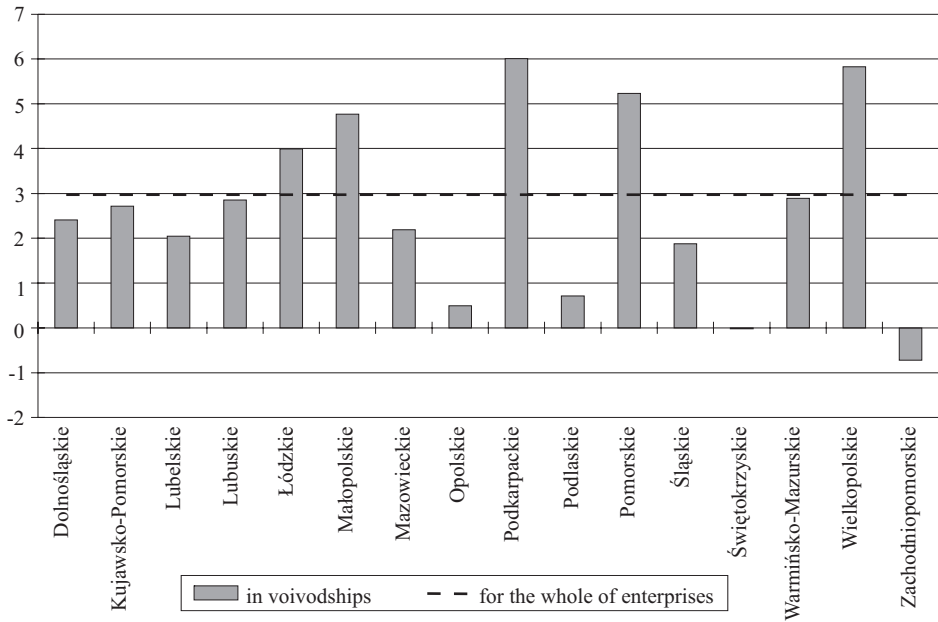


Fig. 5. Indicators of the return on equity in enterprises covered in 1999 (in %)

Source: own work based on the unpublished CSO data from SP and F-02 financial reports of the investigated entities.

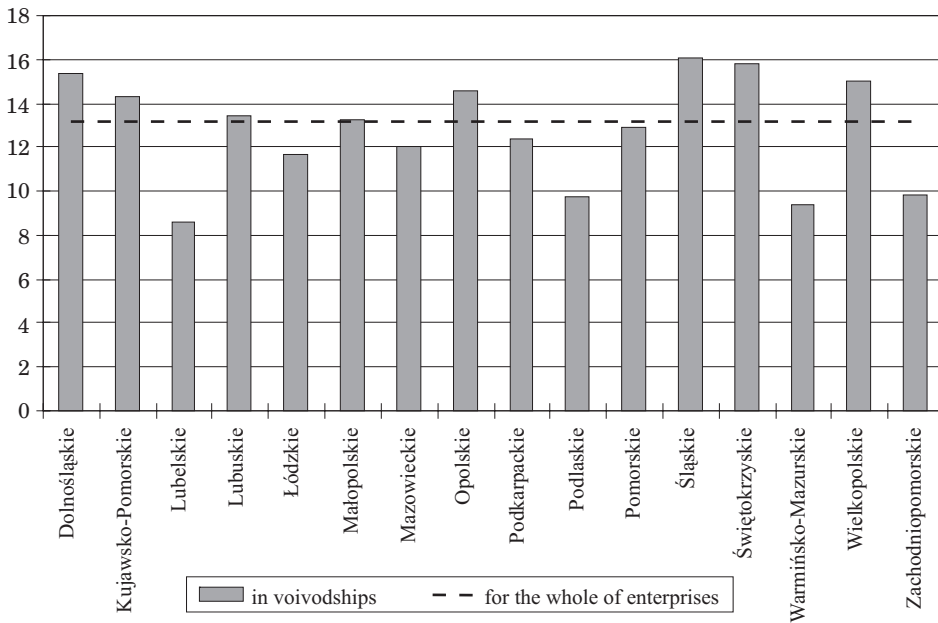


Fig. 6. Indicators of the return on equity in enterprises covered in 2006 (in %)

Source: own work based on the Statistical Yearbooks for individual voivodships of 2007.

at the level of 6.0%. On the other hand enterprises situated in Zachodniopomorskie and Świętokrzyskie voivodships proved unprofitable as the ROE computed for those enterprises was at the level of -0.7% and -0.02% respectively. Only in case of five voivodships the ROE computed for enterprises situated in them was higher than the value computed for the entire population of enterprises covered by the study that was at the level of 3.0%. In the remaining eleven voivodships the values of that indicator were lower than the value for the entire population of enterprises covered.

In 2006, Śląskie voivodship recorded the highest value of the ROE at 16.1%. The lowest returns on equity at 8.6% was recorded by enterprises situated in Lubelskie voivodship. In case of a half of voivodship the values of the ROE for enterprises situated in them were higher than the value computed for the entire population of enterprises in Poland covered by the study that reached the level of 13.2%.

Analysis of the level of economic effectiveness indicators for enterprises from the individual regions showed that the effectiveness of enterprises is diversified spatially. This is confirmed also by the values of the measures of variation presented in Table 1 computed for the three analyzed characteristics (effectiveness indicators) and two years covered.

Table 1
Variation measures for indicators of economic effectiveness of private enterprises in Poland
in 1999 and 2006

Effectiveness indicators Variation Measure	Labor productivity (PLN K/employee)		Gross profitability of trade (%)		Return on equity (%)	
	1999	2006	1999	2006	1999	2006
Minimum	160.69	252.21	0.5	3.7	-0.7	8.6
Maximum	413.02	643.36	2.9	7.5	6.0	16.1
Spread	252.33	391.16	2.4	3.8	6.7	7.5
Standard deviation	58.7	95.4	0.7	1.1	2.0	2.4
Coefficient of variation	27.7	26.6	37.0	20.4	75.5	18.9

Source: own work based on the unpublished CSO data from SP and F-02 financial reports of the investigated entities and Statistical Yearbooks for individual voivodships of 2007.

As indicated by the data in Table 1, voivodships show significant diversification in all three analyzed effectiveness indicators. The coefficients of variation computed for each of them for both years covered by the study assumes the values exceeding 10%. In 1999, the voivodship were most diversified as concerns the return on equity. The coefficient of variation for that characteristic was 75.5% meaning lack of homogeneity among the voivodships. A minor

diversification was recorded as concerns labor productivity and gross profitability of trade. The situation in 2006 looked different. Although the regional diversity within all the analyzed characteristics was at the moderate level the regional differences in the returns on equity decreased significantly. In 2006, that characteristic was the least diversified within the regional system. The diversity of labor productivity on the other hand decreased slightly. The coefficient of variation for that characteristic decreased from 27.7% in 1999 to 26.6% in 2006.

Conclusions

Analysis of regional diversity in the level of economic effectiveness of private enterprises in Poland conducted for the years 1999 and 2006 indicated that the regional differences in the levels of studied enterprises effectiveness indicators during the period studied decreased. Despite that trend, in 2006, the voivodship still showed significant diversification as concerns the three analyzed indicators of economic effectiveness of enterprises. This is confirmed by the value of the coefficient of variation, which for all the studied indicators exceeded the level of 10%. That coefficient assumed the highest value for the labor productivity indicator at 26.6%, which means that in 2006 the voivodships were diversified the most as concerns that indicator. The indicator of the return on equity for which the coefficient of variation assumed the value of 18.9% showed the lowest diversification among the voivodships

More detailed analyses conducted during the study showed that:

1. In 1999, Mazowieckie voivodship was the one with the highest labor productivity indicator. Private enterprises situated in that voivodship registered labor productivity at the level of PLN 413,000 per 1 employee while enterprises situated in the voivodship with the lowest value of that indicator, i.e. Podkarpackie voivodship, registered the productivity at the level of PLN 160,700. The spread between those values exceeded PLN 252,000 per 1 employee. In 2006, similar to 1999, Mazowieckie voivodship recorded the highest level of the labor productivity indicator while Podkarpackie voivodship the lowest level of that indicator. Enterprises situated in those voivodships registered the following values of the labor productivity coefficients: Mazowieckie – PLN 643,000 and Podkarpackie – PLN 252,000. The spread between those values was over PLN 391,000 per 1 employee in 2006. Comparing the data for 1999 with those for 2006 it can be concluded that during the period studied labor productivity in the enterprises covered in all voivodships increased, however, the absolute difference between voivodships with the highest and the lowest level of that indicator increased. On the other hand, from the relative

perspective the regional differences in the level of the labor productivity indicator computed for enterprises situated there decreased slightly, which is confirmed by the decrease in the value of the coefficient of variation from 27.7% in 1999 to 26.6% in 2006.

2. Regional diversity also occurs in case of the gross profitability of trade indicator. In 1999, the absolute difference between the highest and the lowest value of that indicator computed for the private enterprises situated in individual voivodships was 2.4 percent points while in 2006 3.8 percent point. The situation looks different if we apply the relative measure of variation considering the arithmetic average for the voivodships. The decrease in the value of the coefficient of variation from 37% in 1999 to 20.4% in 2006 indicates that the scale of diversification of voivodships as concerns gross profitability of trade for private enterprises situated in their area decreased.

3. Comparative analysis of the levels of the return on equity for private enterprises situated in individual voivodships showed that significant regional diversification existed also in that indicator. In 1999 the voivodships were diversified the most as concerns that indicator. The coefficient of variation for the ROE in 1999 was as much as 75.5%, which means high non-homogeneity of voivodship as concerns that characteristic. The fact seems interesting that during the period covered the diversification in that indicator decreases significantly and in 2006 the coefficient of variation for the ROE was at the level of 18.9%, and the voivodships were the least diversified as concerns that indicator.

Concluding, the comparative analysis of the levels of economic effectiveness indicators for private enterprises in individual voivodships showed that they are diversified regionally, although the scale of that diversification measured by the level of the coefficient of variation decreased during the period covered. As a consequence the hypothesis concerning deepening of the regional differences in the level of economic effectiveness of private enterprises in Poland was rejected.

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