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ECONOMIC GROWTH IN THE WARMIA AND MAZURY VOIVODSHIP COMPARED TO SELECTED COUNTRIES AND REGIONS OF THE EUROPEAN UNION*

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K e y w o r d s: economic growth, regional policy, Warmia and Mazury voivodship.

A b s t r a c t

The aim of the research was to evaluate the level and the dynamics of the economic growth of Warmia and Mazury voivodship compared to the rest of the country and the average economic performance of selected countries and regions of the European Union to determine if the Polish economic gap is decreasing. The obtained results could contribute to the discussion on the efficiency and reasonability of regional policy towards achieving economic cohesion.

The analysis indicated that regions of the so-called "eastern wall" of Poland (including Warmia and Mazury voivodship) have a low rate of economic growth. This may suggest that the process of economic divergence has a permanent and objective nature.

WZROST GOSPODARCZY W WOJEWÓDZTWIE WARMIŃSKO-MAZURSKIM NA TLE WYBRANYCH PAŃSTW I REGIONÓW UNII EUROPEJSKIEJ*

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S ł o w a k l u c z o w e: wzrost gospodarczy, polityka regionalna, województwo warmińsko-mazur-
skie.

A b s t r a k t

Celem badań była ocena poziomu oraz dynamiki zmian wzrostu gospodarczego województwa warmińsko-mazurskiego na tle całego kraju oraz przeciętnych wyników osiąganych w wybranych grupach państw i regionów Unii Europejskiej. Podjęto się także oceny, na ile obserwowane dysproporcje rozwojowe mają charakter trwały, czy w długim okresie się zmniejszają, czy wręcz przeciwnie – się powiększają. Uzyskane wyniki mogą stanowić pewną przesłankę do dyskusji nad skutecznością i zasadnością polityki regionalnej ukierunkowanej na osiągnięcie spójności gospodarczej.

Wyniki przeprowadzonych analiz pozwalają stwierdzić, że regiony tzw. ściany wschodniej Polski charakteryzowały się względnie niskim tempem wzrostu gospodarczego. To może wskazywać, że procesy regionalnej dywergencji mają trwały i obiektywny charakter.

Introduction

Contemporary processes of economic globalization and economic liberalization are accompanied by an increase in the level of competition. Competition is a fundamental fac//tor in the functioning of big companies, small and medium-sized enterprises, national governments and, recently, also between regions. The essence of economic competition between different actors is to achieve advantage in accumulating capital, in the application of modern technologies and innovations, as well as to gain access to labour, sales and supply markets. In general, countries and regions which are richer and better located have the natural conditions allowing them to achieve an advantage in these economic activities. As a consequence, the distance separating them from regions and countries with worse locations (and thus poorer regions and countries) is growing. This thesis, which is often used in discussing the application of regional policy aimed at economic convergence (including the European Union's Cohesion Policy) has many supporters. They emphasize that under conditions of free competition, investors will always choose those locations that provide the highest return rate per unit of invested capital. This condition is fulfilled mainly by highly developed regions with high levels of agglomeration effects (BOGDAŃSKI 2012, p. 27).

The aim of the research was to evaluate the level and rate of economic growth of the Warmia and Mazury voivodship compared to the whole country and average economic performance of selected groups of countries and regions of the European Union. Juxtaposition of data on the economic growth of the Warmia and Mazury voivodship, which can be defined as a peripheral region, with the economic growth dynamics of selected groups of regions (both, highly and low developed), will allow to verify the thesis that the process of economic divergence is inevitable and natural. Its confirmation or rejection may also serve to assess the effectiveness of regional policy, taken within the framework of European Union's Cohesion Policy at the beginning of a new financial perspective for 2014–2020.

Research methods and the time range of the analysis

Studies on the economic growth of countries and regions are often relative. Whether the economic growth level is high or low, or its rate is fast or slow, depends on the comparison with other objects. In the presented analysis, it was done with a similar approach.

The use of comparative analysis delivers desired and valuable results only if it is conducted properly, with an adequate selection of reference objects. Entities selected for this purpose may have very different relations with a studied region. S. Korenik, for example, believes that a key factor that determines the dynamics of the economic development is the overall macro-economic situation of the country and the world. Since economic activity is increasingly a subject of the globalization, the diagnosis of its condition and dynamics in a regional dimension is not possible without taking into account the processes occurring in its national and international surroundings (KO-RENIK 2003, p. 106).

An assumption was therefore adopted that the analysis should have a comprehensive character. It requires careful selection of studied objects so the obtained results could be presented in a diverse context. The main part of the empirical research is presented compared to the rest of the country and selected groups of Polish voivodships, as designated on January 1, 1999. The basis for the selection was data on the level of economic growth achieved by the voivodships at the time of their designation. The first group consisted of four voivodships with the highest level of economic growth, namely: Dolnośląskie, Mazowieckie, Śląskie and Wielkopolskie. This group is briefly defined as "leaders". The second control group also had four elements. It consisted of four voivodships which, together with the Warmia and Mazury voivodship, form the so-called "eastern wall" of Poland. These include: Podlaskie, Podkarpackie, Lubelskie and Świętokrzyskie voivodships. As it is known, this group forms a macro-region of Poland which is characterized by the lowest level of economic growth. Additionally, a common feature of these voivodships is their peripheral location.

The second part of the empirical research was based on a comparative economic analysis of the Warmia and Mazury voivodship against the average economic performance of the group of 15 countries of the so-called "old" EU and also against 9 countries (new member states) which, together with Poland, joined EU on May 1, 2004. A valuable addition to the analysis was the selection of other regions of the European Union. It was assumed that another bench-mark would be the average economic results obtained by six eastern German Lander, namely: Berlin, Brandenburg, Mecklenburg – Western Pomerania, Saxony-Anhalt and Thuringen. The decision to adopt this group of regions as

a reference object was decided by several arguments. The first and the most general was, *inter alia*, the fact that these regions, similar to voivodships in Poland in the early 1990s, were subject to political and economic transformation. These areas were (and still are) also characterized by a much lower level of economic growth in comparison with the rest of Germany. Regional GDP *per capita* of former DDR accounted only for 40% of the average value of the western Länder (MOSZYŃSKI 2012, p. 3). Labour productivity in eastern Germany was close to half that of western regions (MAŁACHOWSKI 2001, p. 88). Since the beginning of the transformation process, these regional economies were, therefore, characterized by economic backwardness in relation to the rest of the country. Adoption of this group to the analysis also expanded the subject scope of the second part of the empirical research.

An important issue in studies on the level and rate of economic growth is the length of the study period and also an appropriate selection of measures. In the presented material, the research period covered 2000–2010. The year 2000 was the second full year as an expanded voivodship. The year 2010 is, in turn, the last for which comparable data were available at the time of the study (January 2014). Data were collected from Główny Urząd Statystyczny (GUS) and Eurostat database.

Regarding the measures of economic growth level and its dynamics, it was assumed that a synthetic approach is the most appropriate one. Such a condition is fulfilled by Gross Domestic Product calculated in different relations, for example, in both absolute figures as well as a ratio of a national GDP or as a measure calculated per inhabitant (*per capita*). The use of GDP *per capita* as a basic criteria to make comparisons between regions is also justified by the fact that its value was decisive in qualifying the region to gain public financing under the Convergence objective during the financial period 2007–2013 (PUIG-CERVER-PENALVER, 2007, p 179).

Regional economic growth and development in theory

Issues of regional economic growth and development have been the subject of many studies in many fields and scientific disciplines. Theoretical reflections on the nature and course of these processes are among the most popular thematic areas. Theories that relate mainly to economic issues stem from two main schools of economics.

The first (and a very general) trend which until today has a significant impact on practical aspects of regional policy of national states and of the European Union, are the classical and neo-classical economic doctrines. According to these doctrines, economic growth and development on the local and

regional scale are induced by a specific set of endogenous factors and developmental conditions. The second trend, with a similar scale of impact on regional policy, is sometimes identified with the Keynesian school of economics. This trend treats regional development as a part of larger process occurring firstly in the whole national economy, after which it is transmitted to regions (BOGDAŃSKI 2010, p. 29).

In the development of economic thought, one can observe a gradual evolution of regional growth and development theories from theories of exogenous (top-down) theories to the endogenous (bottom-up) development theories. Most recent theories strongly emphasize the importance of endogenous conditions in stimulating regional economic development. According to these theories, since the internal potential of a region is immobile it has to be used in the best way to ensure full employment together with high productivity of other production factors (STAWASZ 2004, p. 68–69). The source of endogenous development is the creation, expansion and use of internal resources at every spatial level. As in macroeconomic models, theories of endogenous development have a special interest in knowledge and innovations as the main determinants of the process of economic development (SZAJNOWSKA-WYSOCKA 2009, p. 83–84).

Such recognition of new, yet important, determinants of regional development clearly shows a distinctly different way of stimulating this process. Technological progress is not exclusively determined by external factors, nor can it be fully controlled and planned by central authorities. On the contrary, the ability of regions to effectively compete and develop in the era of the information economy is largely determined by their internal potential and ability to learn by doing (learn by practice). It is also dependent on the efficiency of information flow between regional actors and on the quality of human and social capital (NIJKAMP, ABREU 2009, p. 5–6).

Among endogenous regional growth and development theories (which significantly contributed to understanding of this process nature and also essentially determined the direction and tools of regional policy) one can distinguish such theories as: the theory of industrial districts and the associated concept of territorial system of production (TSP), cluster theory and the theory of regional systems (networks) of innovation. Some of the issues and problems typical for endogenous regional development theories are also included in another significant group of theoretical considerations on the nature and sources of the process of economic development of regions – New Economic Geography (CHURSKI 2004, p. 5).

Warmia and Mazury voivodship economy compared to Poland and selected groups of voivodships

The economic growth dynamics of the Warmia and Mazury region compared to Poland and two groups of selected voivodships is presented in Tables 1 and 2 using fixed prices from 2000.

Table 1

GDP *per capita* of selected voivodships as a percentage of GDP *per capita* of Poland
(in %, fixed prices from 2000)

Year	Warmia and Mazury	Leaders	Eastern Wall
2000	78.6	117.4	73.0
2001	76.4	117.8	74.0
2002	75.8	117.5	74.1
2003	78.5	117.6	74.2
2004	77.1	118.5	72.7
2005	76.4	119.0	71.8
2006	75.2	119.5	71.4
2007	74.2	119.8	71.7
2008	73.8	119.5	72.8
2009	73.9	120.7	71.8
2010	73.4	121.6	70.9
Change in percentage points	–5.2	4.2	–2.1

Source: own calculations based on Bank Danych Lokalnych GUS, http://www.stat.gov.pl/bdl/app/strona.html?p_name=indeks (access: 03.01.2014).

Based on the data presented in Table 1 it can be seen that the economic growth observed in the whole country was faster than the GDP *per capita* growth rate in the region of Warmia and Mazury. During the study period, the share of studied voivodship in the national GDP declined from 2.9% to 2.7%, i.e. by 0.2 percentage points. This gap is even more pronounced when comparing data calculated per inhabitant. The GDP *per capita* in Warmia and Mazury in percentage relation to the national GDP decreased from 78.6% to 73.4%, which means that the difference is larger in 2010 compared to 2000 by 5.2%.

An analysis of the figures presented in Table 1 also reveals that not only in the region of Warmia and Mazury did the distance in relation to the average level of GDP *per capita* in Poland increase. The average relations in the group of four other voivodships of the eastern wall were also the same direction. **It is worth noting, however, that the gap for Warmia and Mazury grew**

faster, which means that the rest of the eastern wall regions are at the same level of economic growth. This indicates the existence of f-conditional convergence between these voivodships.

In contrast to the observed process of economic convergence between voivodships of the eastern wall, the relations between Warmia and Mazury and the group of regional "leaders" are completely different. The data show that the share of this group in national GDP, not only in the initial year (2000), was significantly higher (by 17.4 percentage points) in comparison with the national average, but throughout the study period it increased by a further 4.2 percentage points. **It follows that the growth of GDP** *per capita* in Warmia and Mazury was relatively slower than the average growth dynamics of the whole country due the relatively faster growth or regional "leaders".

Table 2

GDP *per capita* growth rate in Warmia and Mazury, Poland and groups of selected regions (previous year = 100%, in fixed prices)

Year	Warmia and Mazury	Poland	Leaders	Eastern wall
2000	100	100	100	100
2001	96.5	99.3	99.4	100.7
2002	101.1	101.8	101.7	101.9
2003	107.2	103.6	103.7	103.7
2004	104.1	106.0	106.9	103.9
2005	103.2	104.2	104.5	102.8
2006	105.1	106.8	107.2	106.2
2007	107.0	108.3	108.6	108.9
2008	103.5	104.0	103.9	105.6
2009	101.8	101.7	102.7	100.3
2010	102.0	102.6	103.3	101.4
Dynamics 2000=100%	135.8	145.3	150.5	141.1

Source: own calculations based on Bank Danych Lokalnych GUS, http://www.stat.gov.pl/bdl/app/strona.html?p_name=indeks (access: 03.01.2014).

The scale of disparities in the level of economic growth between studied voivodships is clearly visible when analysing the figures presented in Table 2. Throughout the studied period, the fastest average rate of GDP *per capita* growth (approximately 50.5%) occurred among the regional "leaders". Because of the relatively high dynamics of economic growth in this group, the GDP *per capita* of the whole country also grew quite fast (by 45.3%).

The lowest growth rate could be observed in the region of Warmia and Mazury (approximately 35.8%) and was noticeably higher in the group of the

other four voivodships of Eastern Poland (around 41.1%). This confirms the thesis of the progressive economic divergence between regional leaders in economic growth and Warmia and Mazury as well as other representatives of the eastern wall of Poland. In turn, the slower dynamics of economic growth in the Warmia and Mazury region in comparison with Podlaskie, Lubelskie, Podkarpackie and Świętokrzyskie voivodships confirms earlier findings, that in the case of these regions, f-conditional economic convergence can be observed.

Warmia and Mazury voivodship against selected regions of the European Union

In order to present data on the dynamics of economic growth in the Warmia and Mazury region in a broad perspective, the second part of the research included regions from outside the Polish economy as reference objects. It was decided to select three groups of regions for further analysis. The first one consisted of regions of the fifteen countries of the so-called "old EU" (EU-15). The second group was formed by regions of countries which on the 1st of May 2004, together with Poland, joined the European Union. Finally, the last group consisted of six Lander of the former DDR. In this part of the analysis, all results were based on purchasing power parity[1] and the data source was different. Data were obtained from the statistical database of Eurostat, not GUS. In some cases, it caused the presented figures to differ from the data analyzed in the previous stage of the study.

Table 3 presents data characterizing the *per capita* GDP value of Warmia and Mazury voivodship as a percentage of the average value of this measure in groups of selected regions of the European Union. The presented data indicate that virtually throughout the entire study period, Warmia and Mazury was at a low level of economic growth.

Regardless of the specific economic growth disparities, there are very interesting development trends which could be observed in subsequent years. One can notice characteristic similarities and differences between studied groups of regions and countries of the EU. Changes in the value of GDP *per capita* in Warmia and Mazury regions are close to those observed in EU-15 and in the former DDR. Although during years 2001 and 2002 this relation

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[1] Purchasing power parity (PPP) is one of the techniques used to assess the relative value of a currency. By taking into account the differences in price levels between countries, it shows how much goods and services could be purchased in the studied economy per one unit of the currency. Purchasing power parity therefore provides a better basis to make comparisons on the level and the dynamics of economic growth.

GDP *per capita* of Warmia and Mazury voivodship as a percentage of EU-15, EU-9 and East Germany Länder GDP *per capita* value (in PPP)

Year	EU-15	EU-9	Eastern Germany
2000	32.9	61.8	45.0
2001	31.3	57.5	43.3
2002	32.1	57.2	44.2
2003	33.9	58.2	45.8
2004	34.7	57.8	46.5
2005	34.6	56.0	46.0
2006	35.0	55.1	46.2
2007	36.2	54.9	47.1
2008	37.5	55.0	48.9
2009	40.5	60.4	52.0
2010	41.6	62.2	52.2
Change in percentage points	+8.7	+0.4	+7.2

Source: own calculations based on Eurostat, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (access: 04.01.2014).

declines, from 2003 (the year preceding Polish accession to the European Union) to 2008, there was a gradual improvement in favor of Warmia and Mazury. In relation to EU-9 these changes progressed differently. After 2001, one can observe a clear deterioration in the relationship of GDP *per capita*, which lasted practically until 2007, when it reached the lowest level of approximately 54.9%. In practice, almost all of the improvement in the relation of 0.4 percentage points, which occurred between 2000 and 2010, was a result of changes in the two last years (2009 and 2010). During two last years, in relation to all groups of regions in the EU there was a rapid improvement in favor of the Warmia and Mazury voivodship. In comparison with EU-15 it was 3 percentage points, to EU-9 it was 5.4 percentage points and in comparison to the former DDR it was 3.1 percentage points.

The direct causes, which may explain the changes in the presented relations, are presented in the studies of, among others, R. Warżała. They show that in March 2007 in Warmia and Mazury voivodship, there was the peak of the business cycle which had lasted since 2002. The lowest point, that signalled a return to economic growth, occurred in March 2009 (WARŻAŁA 2012, p. 119, 145). It should be noted that the period of economic downturn in Warmia and Mazury coincides exactly with the economic crisis among the EU-15 and Eastern Germany in 2008–2009 and among the EU-9 in 2009 (Table 4).

GDP *per capita* growth rate
(previous year = 100%, in purchasing power parity)

Year	Warmia and Mazury	Poland	EU-15	EU-9	Eastern Germany
2001	98.6	102.2	103.7	106.0	102.6
2002	105.6	105.3	103.1	106.2	103.6
2003	106.7	102.0	100.8	104.7	102.8
2004	106.3	108.9	103.8	107.0	104.7
2005	103.5	104.5	103.7	106.9	104.6
2006	105.7	107.0	104.7	107.4	105.3
2007	108.6	110.6	104.9	109.0	106.5
2008	103.0	103.7	99.3	102.8	99.2
2009	101.0	100.7	93.5	92.0	95.0
2010	106.7	107.7	103.9	103.5	106.2
Dynamics 2000=100%	145.7	152.6	121.4	145.5	130.5

Source: own calculations based on Eurostat, http://epp.eurostat.ec.europa.eu/portal/page/portal/
eurostat/home/ (access: 04.01.2014).

An explanation of other direct causes of changes in the relations described earlier can also be found by analysing the figures presented in Table 4. In this table, data relating to Poland were also added. It can be noted that during the studied period, the fastest economic growth was observed in Poland, followed by Warmia and Mazury and EU-9 regions. A relatively slow rate of GDP *per capita* growth was observed in the Länder of eastern Germany and the slowest was in EU-15.

The presented data show (Tables 3 and 4), that throughout the studied period in the case of Warmia and Mazury (except 2001) and Poland one could observe steady economic growth. However, in 2008 and 2009 there was a clear slowdown in the growth dynamics. During the same years (especially in 2009) in the EU-15 and in Eastern Germany, a significant reduction in the level of GDP *per capita* was noted. An even greater decrease was observed in 2009 in the EU-9. It follows that the economic crisis which occurred in many European countries had a decisive influence on a more favourable assessment of the economic growth in Poland and in Warmia and Mazury. The relatively good economic results of these areas against two groups of countries and selected regions of the EU are rooted in continuing economic growth. However, part of this favourable assessment is a result of the economic crisis, which caused an absolute decrease in the GDP *per capita* in EU-15, EU-9 and in the Lander of eastern Germany in 2008 and 2009.

Conclusions

1. The presented research results confirm the existence of two distinctively different paths of economic growth for regions in Poland. The process is dominated by relatively fast-growing regional "leaders". At the other end, there is the group of relatively slow growing voivodships of the eastern wall, with Warmia and Mazury among them. Such division may be explained in different ways – including rational arguments. There is no doubt, however, that in the long term, it will lead to the accumulation of negative effects resulting from growing economic disparities. Already, Poland is split into areas relatively attractive to business and, hence, also to other activities (culture, sport, science), while on the other hand, there are areas moving towards economic and social degradation and this gap will probably increase in the foreseeable future. The lack of opportunities to communicate quickly with large urban centres is just one of the practical implications of such exclusion, in this case communication. Today, young people migrate from poor regions, not only to Warsaw, but mainly to better-developed regions and countries of the European Union. Hence, the faster economic growth of today;s backward areas, including Warmia and Mazury, is expected and necessary mainly to reduce the scale of social exclusion.

2. The results of the second part of the analysis show that Poland and the Warmia and Mazury region grew faster than the EU- 15 and eastern Lander of Germany. Thanks to this, the economic disparities over the study period between these areas declined. It is, however, a very optimistic conclusion, because it omits the most important cause of this decline – the economic crisis which occurred among some countries in Western Europe. The crises caused an absolute decline in GDP in 2008 and 2009. Therefore, there is no question of systematic improvement in relations between GDP growth rates. Also worth noting is the fact that although one could not observe a decline of GDP in Poland during the crisis, there was a clear slowdown in the growth rate. This indicates a fairly strong connection between the Polish and European (especially German) economies.

3. If one considers only extreme years when analysing relations in the GDP level between Warmia and Mazury and EU-9, it could be concluded that there was virtually no change. It means that the economic distance between them became stable. The relationship between GDP *per capita* of Warmia and Mazury and the EU-9 countries in 2010 was 6.2:10, which means that the chances to relatively quickly close this gap are small.

The research results could be interpreted in two ways. The first interpretation assumes that the phenomenon of the existing economic disparities between regions is objective. Therefore, one should not worry about the differences and reduce the external actions taken to decrease them. Faster economic

growth of regions with a higher level of economic growth, in this approach, is seen as a positive. It is an indicator of the higher economic efficiency of the whole country and, thus, a faster rate of economic growth. A second interpretation is completely different. It assumes that existing and (what is worse) increasing, regional disparities in the level of economic growth in a country are undesirable for many reasons and they, therefore, should be decreased. If the latter opinion is correct, there are two different ways to achieve a higher level of economic cohesion. The first way is through the doctrine of development called "top-down", and the second, the doctrine of development "from below". It should be noted, however, that only properly-matched relations between the two doctrines and, thus, their rational composition may lead to successful economic convergence among countries and regions, for the benefit of all participants in society. Thus, it is worth discussing methods of stimulating economic growth, especially due the fact that the research results do not indicate that the gap in the level of economic growth, even in a long period, is being reduced.

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VALUE AND STRUCTURE OF PUBLIC AID IN POLAND AGAINST THE EUROPEAN UNION BACKGROUND DURING THE YEARS 2007–2012

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K e y w o r d s: interventionism, public aid, forms of public aid.

Abstract

Evaluation of changes in the value and structure of public aid in Poland and EU during the years 2007–2012 was the objective of the paper. The data from reports by the Office of Competition and Consumer Protection as well as data from the *State Aid Scoreboard* published by the European Commission based on the information provided by the Member States concerning that aid was used. In Poland, evident increasing trends of the horizontal aid value can be observed. In 2012, as compared to 2007, it increased by 0.5 billion euro to the level of 1.64 billion euro. Its share in the total value of support oscillates within 55–60% range. In the European Union that share is generally at the level of 70–74%. In Poland, the sectoral aid is limited gradually although its magnitude still differs from the Union standards. In 2012, the share of that aid was relatively small at ca. 14% while in the EU it was 12.9%. The regional aid is at the similar level both in Poland and in the EU oscillating around 20%. However, in 2012, the share of regional aid in Poland increased to the level of 26% and it was higher by 8 pp than the share of that aid in the EU. Significant differences are characteristic for the share of the aid in the GDP. During the period covered by the study the largest differences occurred in 2010 when the share of support in Poland was 1.7% of the GDP and in the EU 0.6% of the GDP. In 2012, a half of the public aid in Poland was allocated to large enterprises.

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S ł o w a k l u c z o w e: interwencjonizm, pomoc publiczna, formy pomocy publicznej.

Abstrakt

Celem artykułu jest ocena zmian wartości i struktury udzielanej pomocy publicznej w Polsce i UE w latach 2007–2012. Wykorzystano dane z raportów Urzędu Ochrony Konkurencji i Konsumentów oraz dane ze sprawozdań *State Aid Scoreboard* publikowanych przez Komisję Europejską,

sporządzanych na podstawie informacji udostępnionych przez państwa członkowskie. W Polsce można zaobserwować wyraźne tendencje wzrostowe wartości pomocy horyzontalnej. W relacji do 2007 r. w 2012 r. wzrosła ona o 0,5 mld euro, do poziomu 1,64 mld. Jej udział w ogólnej wartości wsparcia wynosi 55–60%. W UE udział ten kształtuje się przeważnie na poziomie 70–74%. W Polsce pomoc sektorowa jest sukcesywnie ograniczana, jednak jej rozmiary wciąż odbiegają od norm unijnych. W 2012 r. udział pomocy wyniósł stosunkowo niewiele – ok. 14%, w UE 12,9%. Pomoc regionalna zarówno w Polsce, jak i UE kształtuje się na podobnym poziomie, ok. 20%. W 2012 r. jednak udział pomocy regionalnej w Polsce wzrósł do poziomu 26% i był wyższy o 8 punktów procentowych od udziału w UE. Istotne różnice charakteryzują udział pomocy w PKB. W badanym okresie największe różnice wystąpiły w 2010 r. Udział wsparcia wyniósł w Polsce 1,7% PKB, w UE 0,6% PKB. W 2012 r. połowę wartości pomocy publicznej w Polsce przyznano przedsiębiorstwom dużym.

Introduction

Functioning of free market mechanism suffers from existence of numerous imperfections called market failures. This results from the fact that despite the market ability to regulate itself, sectors of economy exist in which circumstances supportive for achievement of the required solution do not exist. In those cases, even if the market operates efficiently and effectively, situations occur where state intervention is required (AMBROZIAK 2009). State interventionism is defined in the literature as "active, aiming at accomplishment of specific objectives, influence of the state (government) on economic and social processes" (MARKOWSKI 1992).

The phenomenon of state intervention in the economy has occurred since the earliest times. Already in the ancient times one can find regulations by the state concerning work of slaves and land ownership. Currently the issue whether the state should intervene is the subject of heated discussions. Some economists such as A. Smith, D. Ricardo or M. Friedman support limiting the role of the state in the economic life while others, such as J.G. Fichte, J.M. Keynes or K. Marks see the necessity of state intervention in the economy (STANKIEWICZ 2007). Even the most liberal market concepts support state interventionism although the level of state intervention in the economy is the undetermined issue that is subject of disputes.

Not every intervention by the state is able to minimise or eliminate negative phenomena. This is a consequence of state deceptiveness. In the case the state excessively exceeds its competences and its activities do not give the expected outcomes the costs of intervention projects may exceed the inefficient market operational costs (GARBARSKI et al. 1994). There are situations where government activities may only worsen the situation in the market and the intervention leads to waste of funds and power abuse. Interventionism that offers more benefits than loses should be characterised by comprehensive nature, correlation with the development of actual economic processes and

relative stability; otherwise it becomes a set of incidental undertakings causing negative consequences in the economy (WOJTYNA 1990).

It is very hard to imagine the market mechanism operation without applying the instruments available to the state. The state willing to implement the economic policy in the most effective way stimulates entities present in the market. Providing specific benefits to enterprises or entire sectors called public aid is one of the methods of supporting the economy (JANKOWSKI 2001, LIZIŃSKA, KISIEL 2012, NAZARCZUK 2012).

Public aid is an issue that has encompasses many aspects and it is one of the most complex issues in the European Union (EU). It may result in numerous negative consequences for the economy of both the given country and the entire EU. It may cause competition disturbance and contribute to disrupting the intra community exchange, however, applied in the appropriate way, it contributes to rapid development of the economy, decreasing disproportions between regions and accelerating necessary changes as well as the development of certain industrial sectors or agriculture (ZAWOJSKA 2013).

Continual striving for the most effective use of public aid, particularly during the period of economic crisis, contributed to introduction of numerous reforms. The European Commission (EC) appeals to the Community countries to decrease the sectoral aid and to target it at horizontal aid (research and innovation as well as human capital optimisation) that results in the lowest risk of disturbing competition and has the most favourable influence on the market (JANKOWSKA, MAREK 2009).

Objective and methodology of the work

Public aid is an extensive phenomenon creating numerous economic as well as legal problems but it is very important from the perspective of European economic development. In Poland, the share of provided aid in the GDP is still too high comparing with its share in the GDP of 27 EU countries. The difference can also be noticed in the structure of support provided. Bringing public aid trends closer to the trends characterising the EU countries represents one of the methods for satisfying the EC requirements concerning public aid.

The aim of the paper is to present the evaluation of changes in the value and structure of public aid provided in Poland and in the EU during the years 2007–2012. During the analysed period, as a consequence of manifestation of the economic crisis outcomes renewal of the discussion on justification for and methods of providing public aid was observed. It was also a period of a significant increase in value of that aid. Based on the conducted analyses, an attempt

was undertaken to assess the directions of changes in providing public aid. The research material in the form of data from reports was obtained from the Office of Competition and Consumer Protection, which is in charge of providing opinion on and notification of public aid projects, represents the Government of Poland in proceedings in front of the European Commission and European courts as well as monitoring the aid awarded to Polish entities. Data from the *State Aid Scoreboard* reports published by the European Commission drafted based on the information made available by the Member States concerning that aid was used for comparison of public aid value in Poland and the average value for 27 EU countries. The data concerning the value of aid awarded in the EU made available on the EC website was also used in the paper.

The notion, objectives and conditions
for awarding public aid

Public aid (state aid) is one of the most common forms of state intervention in the field of both economic and social activities in the market economy. It means providing specified benefits to economic entities by using the instruments and institutions of public sector for that purpose (WOŹNIAK 2006).

Public aid causes consequences to the market such as disturbance of competition, favouring entities covered by the aid in comparison to other entities, it offers certain benefit on conditions more favourable than market conditions and it exempts from fees. Moreover, it is allocated to chosen entities, it decreases the budget revenues or represents a burden to the budget and it also influences trade by favouring chosen enterprises and products (NAZARCZUK 2012). EU regulations lack a specific, classic definition of public aid. Only the premises of aid that is incompatible with the common market principle can be found in the Treaty on the Functioning of the European Union (TFEU).

Lack of a specific definition of that aid hinders the process of taking decisions on award of such aid, extends the waiting time for issuance of decisions and causes numerous problems. Lack of the appropriate definition, according to some authors, was intentional because a rigid definition results in the risk of bypassing it in various ways by the Member States. On the other hand, the aim of that solution was to provide the Commission and Tribunal with the possibilities of flexible and wide interpretation of the issue. The gap caused by absence of the legal definition is closed by the activities of the Commissions and judicial decision of community courts (POSTUŁA, WERNER 2008).

All the issues related to the public aid are governed by regulations of both primary (basis principles of the EU functioning) and secondary legislation. The TFEU is the fundamental base of the EU policy on that aid. The most important regulations are contained in articles 107, 108 and 109 of the TFEU[1]. Article 107 of the TFEU defines the aid incompatible with the regulations and the expected deviations from the ban on providing it. Article 108 of the TFEU defines the competences of the European Commission and of the Council as concerns control of aid award while article 109 of the TFEU specifies the competences of the Council to publish regulations on application of the two earlier mentioned articles. The Treaty also contains regulations that govern the ban and authorisation of granting public aid in agriculture – art. 42 of the TFEU and transport – art. 93, 96, 98 of the TFEU. Moreover, separate regulations govern public aid for public enterprises – art. 106 section 2 of the TFEU (MARQUARDT 2007).

There is a general assumption in the EU law that forbids providing support from public funds. Aid that may be considered forbidden is the aid that satisfies four premises simultaneously. The so-called premises for public aid eligibility are: state aid, selectivity, anti-competitiveness and negative influence on trade between Member States (PODSIADŁO 2013). The subject of evaluation from the perspective of public aid is not entities or groups of entities but transactions between entities and specifically the character of the transactions and consequences of those transactions (www.bsskancelaria.pl).

It happens very often that the benefits of providing public aid exceed the losses that it could cause. Hence, such aid is allowed even though it satisfies the premises of the ban provided for in the treaty. This is the so called allowed aid[2].

The situations mentioned above have a certain common objective – preventing negative consequences of the given phenomena or reversing them. In providing that type of aid it is assumed that the intention of the state is to restore the situation that existed prior to occurrence of the disturbing factor, e.g. a natural disaster and not improving the standing of some enterprises at the expense of the others. Protection of competition is of secondary importance there and the aid is considered consistent with the common market and it is awarded automatically (*Pomoc...* 2009).

Article 107 section 3 of the TFEU specifies also other types of support to entrepreneurs that may be considered compatible with the internal market after being first considered by the Commission and after issuance of the

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[1] Previously art. 92, 93, 94 of the TFEU.

[2] According to art. 107 TFEU such aid is, e.g. aid aimed at minimising the damages caused by natural disasters or extraordinary situations, aid of social nature granted to individual consumers on condition that it is granted without discrimination related to the origin of products and aid granted to some regions of the Federal Republic of Germany suffering as a consequence of the division of Germany, www.nfosigw.gov.pl

positive decision (so-called allowed aid) (www.nfosigw.gov.pl). However, they are specified in very general terms and the Member States are not sure whether the support measures provided would be considered allowed. In response to the situation, the European Commission issued numerous documents containing the interpretation of the TFEU as concerns the objectives and conditions for the allowed aid. Based on them the rules for allowing regional, horizontal and sectoral aid were established.

The area of business activity conducted by the business entity is the major criterion based on which the specific aid may be classified as regional aid. That support may be obtained only by the entities that operate in the territory characterised by low level of economic development as compared to the situation in the European Union as a whole (KRÓLIKOWSKA-OLCZAK 2011). Regional aid is not represented separately in the EC reports. It is included in the total value of horizontal aid while in the reports by the Office of Competition and Consumer Protection regional aid is treated as a separate category.

Aid for horizontal objectives with inter-sectoral profile is targeted at all the entrepreneurs that, after obtaining the aid of that kind, will aim at accomplishment of specified objectives indicated for the determined types of horizontal aid. The European Commission prefers that type of aid the most because of the benefits it provides to the economy and the lowest influence on distraction of competition. It is a type of support targeted for general objectives related to modernisation and support of economic growth indifferent of the region or sector (*Raport o pomocy...* 2013). It is targeted, first of all, to research, development and innovation, environment protection, training and employment. To a significant extent, it is used for implementation of the European cohesion policy, including its three fundamental objectives: strengthening territorial, economic and social cohesion. Horizontal aid may be considered the least harmful to the common market because socioeconomic objectives accomplished thanks to it compensate possible negative consequences resulting from unfavourable influence of the aid granted on competition (SNAŻYK, SZAFRAŃSKI 2010).

Sectoral aid is granted to entities based on the criterion of belonging to a given sector (JANKOWSKA 2005)[3]. Restructuring of the given sector that should restore its capacity of effective functioning in the market is the sole possible objective of sectoral aid. Such aid cannot be granted to a given sector of production or services if it would not be capable of functioning on its own without the public funds. However, those assumptions are not applied in

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[3] It is granted to entities operating in the sectors of: shipbuilding, coal mining, power, cinematography, natural gas and recently the financial sector that suffered as a consequence of the financial crisis outbreak in 2008 (*Raport o pomocy...* 2013).

practice because in numerous sectors such aid is granted continually and without it they would not be able to survive (MARQUARDT 2007). Sectoral aid represents potentially the highest threat to competition because of its temporary nature and direct influence on trade in the Union. Hence the Commission applies restrictive rules allowing more stringent control of that aid (CIEŚLIŃSKI 2007).

Entities operating in the market, besides regional, horizontal or sectoral aid, may apply for *de minimis* aid as well as aid for rescue and restructuring[4]. The support measures provided within the frameworks of public aid may be of direct nature, so-called positive aid exemplified by subsidies (the most transparent and preferred form of aid) or it may assume the form of reduction of or resignation from taxes, fees and charges (so-called negative aid) (GASZ 2010). Moreover, public aid may be granted within the framework of the aid programme or as individual aid[5].

Currently the value and the directions of support provided have changed as a consequence of the economic-financial crisis the consequences of which increased the susceptibility of the market to anti-competitive actions. Aid provided to the financial sector resulted in several-times increase of public aid in the Union as a whole. However, the total outlays on public aid not related to the crisis continued decreasing in long-term perspective (in 1993 state aid was over 0.9% of the EU GDP while in 2011 it was 0.5% of the EU GDP). This indicates the trend of decreasing the overall level of aid resulting probably from more difficult budget situation in many Member States (*State aid scoreboard* 2012). Still, nevertheless, public aid is not a safe instrument and hence it causes numerous problems and requires modernisation. The strategy for the years 2013–2020, i.e. the "Strategy 2020" assumes changes in the aid that should contribute to stimulating economic growth. The major directions include: more precise definition and better explanation of the notion of public aid and principles of granting it, revision and standardisation of guidelines, tighter control of aid with significant influence on the internal market and simplification of the rules and shortening the time for taking decisions. Those

[4] *De minimis* aid is the aid granted to the entrepreneur during three consecutive years not exceeding the total value of EUR 200,000. That aid, because of the negligible influence on competition is not subject to compulsory notification. Aid for rescue and restructuring represents a particular type of support because of the largest threat to the community market. This type of support is subject to unconditional notification to the EU and it is subject to restrictive eligibility criteria (*Raport o pomocy publicznej...* 2012).

[5] We can call a legislative act that defines the principles, conditions and forms of providing support as well as legal bases for providing it an aid programme. On the other hand, individual aid is granted outside the programme, i.e. if the given body did not foresee such aid during elaboration of the programme or it was unable to foresee it because of its nature. Individual aid aims at supporting a large investment project so it is addressed to the given entrepreneur for the determined use, www.mg.gov.pl

actions are focused on creating the dynamic and competitive uniform market in which public funds are spent efficiently and effectively (*Unowocześnienie unijnej polityki...* 2012).

The level, trends and directions of public aid changes in Poland against the European Union background

The basic differences between the practice of granting support in Poland and in the EU are not only its level but also the application and form. This results from the difference in the level of development and the diversified structure of the needs of the economies. In Poland, structural activities resulting from the necessity for transforming the economy still dominate as some industries are not independent yet and they require support of the state to increase productivity. Modernisation and restructuring activities in the individual EU countries took place a few years ago and hence the share of sectoral aid in the total sum of public aid is at the lower level (Tab. 1).

Table 1

Value and structure of public aid according to the target in Poland and in the EU during the years 2007–2012

Aid target	Years											
	2007		2008		2009		2010		2011		2012	
	UE	PL	UE	PL	UE	PL	UE	PL	UE	PL	UE	PL
Value in billions €*												
Horizontal aid**	44.58	**1.14**	50.76	**1.52**	55.00	**1.79**	52.16	**2.05**	49.31	**1.55**	49.63	**1.64**
– including regional aid	10.45	**0.31**	13.69	**0.47**	15.74	**0.61**	13.60	**0.76**	12.52	**0.55**	12.13	**0.72**
Sectoral aid	11.42	**0.24**	12.83	**0.94**	12.44	**0.91**	10.82	**0.63**	7.50	**0.66**	8.67	**0.40**
Total aid value	67.77	**1.94**	75.47	**3.18**	78.36	**3.35**	72.30	**3.36**	65.79	**2.91**	67.16	**2.74**
Share in the total value of aid granted [%]												
Horizontal aid**	65.78	**58.94**	67.26	**47.87**	70.19	**53.44**	72.15	**60.97**	74.95	**53.43**	73.90	**59.83**
– including regional aid	15.42	**16.02**	18.13	**14.69**	20.08	**18.33**	18.80	**22.49**	19.04	**19.09**	18.06	**26.11**
Sectoral aid	16.85	**12.37**	17.00	**29.48**	15.88	**27.11**	14.96	**18.76**	11.41	**22.89**	12.92	**14.42**

* the aid value does not include the crisis aid granted
** the European Commission considers regional aid a component of horizontal aid

Source: own work based on: http://epp.eurostat.ec.europa.eu/tgm_comp/table.do?tab=table&plugin=1& language=en&pcode=comp_ncr_xrl_01; http://ec.europa.eu/competition/state_aid/scoreboard /non_crisis_ en.html.

During the analysed period, clear increasing trends in the value of horizontal aid in Poland can be observed. In 2012 as compared to 2007, it increased by 0.5 billion euro. it is impossible to define any clear trends as concerns the share of the horizontal aid value in the total support value. As of 2009,

however, it has oscillated within 55–60%. In the EU that share was usually at the level of 70–74%. Sectoral aid in Poland is successively limited although its magnitude still differs from the Union standards. The share of sectoral aid was at the highest level of ca. 30% in 2008. As of 2010, the share of that aid has decreased successively and in 2012 it was over 14%. The aid in the EU is characterised by a different structure. Sectoral aid recorded the highest level in 27 countries in 2009 although that value was 13% lower than the maximum share of that aid in Poland. Sectoral aid of the EU is characterised by the decreasing trend and in 2011 its share was over 11% while in Poland it was twice higher. Regional aid, both in Poland and in the EU is at the similar level oscillating around 20%; however in 2012 the share of regional aid in Poland was 26% and was lower by 8 percent points than its share in the EU.

The shares of the individual categories of aid in the total aid in Poland differ significantly from the trend in the EU, first of all in case of the horizontal aid, although those differences decrease gradually. The share of horizontal aid in Poland continues to be too low as compared to the EU. For example, in 2011 the horizontal aid share in Poland was lower by over 20%. Bringing public aid closer to the Union standard should be the priority for Poland.

Significant differences occur also in the share of the aid in the GDP of Poland and the EU. As of 2008, those differences take significant values. During the period studied, the largest differences occurred in 2010. The share of support in Poland at that time was 1.7% of the GDP while the average share of aid in the EU countries was almost three times lover at the level of 0.6% of the GDP (Fig. 1). In the EU, Malta, Hungary. Portugal and Denmark are the countries with the highest share of aid value in the GDP. In 2010, Hungary recorded the highest share of aid in the GDP at 2.3%.
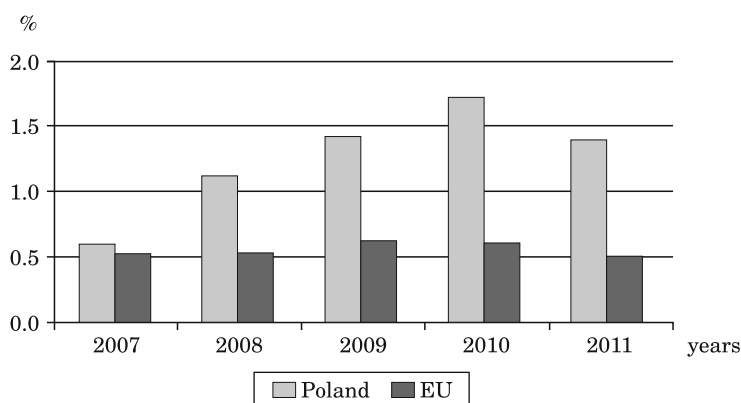

Fig. 1. Share of the value of granted public aid in the GDP during the years 2007–2011

Source: own work based on: http://ec.europa.eu/competition/state_aid/studies_reports/ expenditure.html#1 and Reports on public aid in Poland granted to entrepreneurs during the years 2007–2011.

The positive phenomenon indicating bringing the value of the public aid granted in Poland to the EU standard is the continual increase of the public aid in the form of direct expenditures (mainly grants) coupled with limiting forms such as exemptions and tax discounts and remission. Direct expenditures in Poland in 2009 and 2010 represented over 70% of the total value of aid while in 2010 that value exceeded 85%. Providing aid in the form of direct expenditures (active aid) causes that the state aid is more transparent and supportive to development of enterprises. That is why the European Commission recommends decreasing the other forms of aid, i.e. passive aid to increase grants and subventions. Policy focused on closing the development gap between Poland and the other economies of the EU countries characterised by higher levels of *per capita* GDP is the recommended policy for granting public aid in Poland.

Still, too much funds within the framework of aid in Poland is targeted at the sector of large enterprises instead of the SME sector. In other EU countries small and medium entrepreneurs receive much more public aid. In 2011, large enterprises received more than 61% of the total aid value. That was the highest share during the studied period (Tab. 2). The Office of Competition and Consumer Protection report on Public aid for 2011 indicates that 11 largest beneficiaries received almost 25% of the total aid, i.e. over 200 million PLN.

Table 2

Value and structure of public aid granted according to beneficiary 2007–2012

Size	Value and share of public aid in individual years											
	2007		2008		2009		2010		2011		2012	
	bn PLN	%	bn PLN	%	bn PLN	%	bn PLN	%	bn PLN	%	bn PLN	%
Large	2.1	44.0	5.9	50.9	8.7	53.9	11.7	55.1	10.8	61.8	8.5	50.3
Medium	1.5	30.1	3.1	27.1	3.4	21.4	3.8	18.2	2.8	16.0	3.4	20.1
Small	0.8	16.9	1.7	14.5	2.5	15.6	3.1	14.5	2.2	12.3	2.8	16.4
Micro	0.4	9.1	0.8	6.8	1.5	9.1	2.6	12.2	1.7	10.0	2.2	13.1
Total	4.8	100.0	11.5	100.0	16.1	100.0	21.2	100.0	17.5	100.0	16.9	100.0

Source: own work based on the: Report on public aid in Poland granted to entrepreneurs during the years 2007–2012. Office of Competition and Consumer Protection, Warsaw.

The differences in magnitude and structure of aid in Poland and in the EU are influenced by economic circumstances, that is the differences in the levels of economic development (Poland is still struggling with outdated structures offering low productivity) as well as institutional circumstances. In Poland, the transparency is still insufficient and legal solutions are poorly coordinated. Excessive number of decision-takers, e.g. ministries, foundations, agencies, deals with providing aid. This situation leads to lack of integrity of public aid objectives and tools.

Currently, we see gradual improvement as the state aid granted in Poland is gaining successively the character of aid stimulating socioeconomic development. Comparative analysis Comparative analysis of aid value in Poland and in the EU shows significant differences. At the same time, positive changes take place in the structure of those values in Poland. The report on the aid granted in 2011 indicates that the value of aid granted for training, aid in employment and R D projects is characterised by the increasing trend. In Poland, the value of aid for rescue and restructuring should absolutely be limited. In 2010 it amounted to the total exceeding PLN 222.3 billion. Based on the Office of Competition and Consumer Protection report, we can notice its decrease in 2011 to the level of PLN 63 billion. Still that value is too high although its gradual decrease may indicate an increase in effectiveness of some sectors as well as the trend of limiting their dependence on public funds.

Changes that will take place in public aid were initiated by the communique concerning modernisation of the EU policy in 2012. The objectives assumed as a consequence of the reform are to contribute, first of all, to implementation of the strategy "Europe 2020" and supporting the efforts of the Member States aiming at budgetary consolidation. The strategy of reforms contained in the multiyear financial framework of the EU will be based on better collaboration of the Member States with the EC. The main intention is to increase the role of countries in the process of providing any forms of aid and obligating them to grant lower amounts of public aid. All the activities undertaken by the EC aim at securing economic growth in the competitive internal market that is permanent, integral and supportive to social inclusion, improving the efficiency of control activities conducted *ex ante* on the issues of the largest influence on the internal market, optimisation of the rules and shortening the time for taking decisions (*Unowocześnienie...* 2012).

Conclusion

Public aid is the issue that has many aspects. It is one of the most complex areas in the EU, which is highlighted by authors of numerous publications. Its application may result in many negative consequences for both the economy of the given country and the entire EU (disturbance of competition, disruption of trade within the Community). Despite those threats, public aid is allowed because, appropriately applied, it contributes to the faster development of economy, decreasing disproportions between regions, stimulating necessary changes and development of some industry sectors. Continual striving at the most effective public aid use contributes to introduction of numerous reforms. The issue of state aid to entrepreneurs is the phenomenon raising numerous

doubts. On the one hand, the current market needs competition protection while on the other hand certain areas of the economy require support to implement structural changes. Current market is characterised by turbulent, rapidly changing environment the changes of which are very hard to foresee. That is why public aid should not be excluded entirely. Its negative consequences should, however, be reduced by resigning temporary, ad hoc, sectoral aid to the benefit of horizontal aid.

Analysis of the EC report allows concluding that Poland is moving successively towards targeting public aid in the way characteristic for the entire European Union. This is confirmed by, for instance, the domination of aid granted in the form of direct expenditures. The structure of public aid is characterised by a different structure. Still excessively large aid amounts are allocated to sectoral aid (ca. 20% of total aid), while too little is allocated to horizontal objectives that are the most demanded from the perspective of the entire EU development. In Poland numerous sectors are still dependent on that type of support. In some cases cessation of aid might contribute to collapse of those sectors. The new development strategy "Europe 2020" proposed by the EC may contribute to accomplishment of objectives by stimulating and supporting innovation, introduction of environment-friendly technologies and financing research and development activities.

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UNPAID WORK AS A POTENTIAL SUPPORT FOR EMPLOYMENT IN THE LABOUR MARKET

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K e y w o r d s: unpaid work, white jobs, child care, adult care, household services.

A b s t r a c t

This paper considers the problem of unpaid work in households. It focuses on the different categories of unpaid work, particularly the implementation of housework, child care and adult care. Specifically, household services, and domestic care services with included health services are designated as "white jobs" which may have the potential to create new jobs. These "white jobs" represent an untapped source of employment in the labour market.

The main objective of the paper is to explore the various social determinants influencing the decision of Slovak families to use or not use alternative market substitutes of selected categories of unpaid work with the aim of identifying the hidden potential for job opportunities in the labour market in Slovakia and the potential demand for those services.

The results of the primary research suggests that Slovak households have a potentially greater interest in procuring household services from external sources, rather than procuring personal services for themselves. In terms of the perspective demand for the above mentioned services, the research found that in this case it should be necessary to take into consideration the strong influence of traditionalism and conservatism, which affects the scope and nature of market substitute usage.

NIEODPŁATNA PRACA JAKO POTENCJALNE ŹRÓDŁO ZATRUDNIENIA NA RYNKU PRACY

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S ł o w a k l u c z o w e: nieodpłatna praca, białe miejsca pracy, opieka nad dziećmi, opieka nad osobami starszymi, usługi domowe.

A b s t r a k t

Artykuł dotyczy problemu nieodpłatnej pracy w domu. Zwrócono w nim uwagę na różne kategorie pracy nieodpłatnej, szczególnie na prace domowe, opiekę nad dziećmi i opiekę nad osobami starszymi. Poruszono w nim również kwestie związane z usługami domowymi oraz usługami pomocy w gospodarstwach domowych, które wraz z usługami opieki zdrowotnej są określane jako „białe miejsca pracy", stanowiące niewykorzystane źródła zatrudnienia na rynku pracy.

Głównym celem pracy było zbadanie różnych czynników społecznych wpływających na decyzje rodzin słowackich o korzystaniu lub niekorzystaniu z wybranych kategorii nieodpłatnej pracy, identyfikacja ukrytych możliwości zatrudnienia na rynku pracy w Słowacji oraz potencjalnego popytu na te usługi.

Wyniki badań wskazują, że słowackie gospodarstwa domowe są bardziej zainteresowane korzystaniem z usług innych gospodarstw domowych niż świadczeniem usług domowych we własnym zakresie. Badania wykazały również, że silny wpływ na rozmiary potencjalnego popytu na tego typu usługi ma tradycjonalizm i konserwatyzm.

Introduction

The current global economic crisis can be evaluated and assessed from various aspects. In most cases the results of this analysis is finding the significant negative impacts on production, trade, finance or consumption. The most significant, in terms of being the most sensitive, are the effects that occur in the context of direct distortion or in the restriction of production, which then reduces the number of jobs and increases layoffs. Job loss, unemployed status, is becoming a potential threat and a nightmare for people of working age in the labour markets of most national economies, including Slovakia, as evidenced by the available statistics.

The economic activity rate of people 15 to 64 years of age in Slovakia in the years 1998–2011 was on average of 58.74%. The lowest value of 56.8% was recorded in Slovakia in the years 2000–2002 and the highest value of 62.3% in 2008 (Eurostat 2012a). Compared with those statistics, the unemployment rate for the same period was on average 15.11%, the lowest unemployment rates 9.53% was in 2008 and highest rate of 19.28% was recorded in 2001 (Eurostat 2012b). The current unemployment rate in Slovakia for the first quarter of 2013 reached 14.53% (Statistical Office 2013). With regard to the above mentioned data, experts warn that the domestic labour market has generated for its citizens only 45% of job opportunities in the years 2000 – 2006, the remaining job opportunities were created abroad. This figure is interesting from the point of view that it refers to the period when the economic crisis was not yet a reality of our daily lives. In relation to the expression of negative impacts of the ongoing crisis, predictions are also appearring that the natural mechanisms of the open labor market tend not to be able to generate jobs to a greater extent even in the near future (DIVINSKÝ, POPJAKOVÁ 2007). It is therefore important to examine the actual dynamics of

job creation and job destruction in the domestic labor market and also its changing nature.

Underlying assumptions and objectives of the research

We can characterize the current stage of development of human society mainly by naming societal attributes such as postindustrial, information, knowledge or supersymbolic society. The fundamental changes relate to lifestyle as a whole. The changes in the labour market involve applying and adapting to changing demands and criteria of the labor market. The general characteristics of the labour market and its trends of development in the near future include:

– permanently increasing requirements of an individuals mental skills necessary for success in the labour market (computer skills, language skills, knowledge of different fields),

– flexible adaptation to rapid changes in production and the need for requalification during working career,

– acceptance of parallel (sub) workloads,

– increased importance placed upon lifelong learning for individuals,

– the replacement of a low-skilled workforce with modern labour technology,

– a demand for a highly skilled workforce in the labour market (KLINEC et al., 2009, KELLER 2010, STANEK 2009, RIEVAJOVÁ 2009, URAMOVÁ-TUSCHLOVÁ 2012).

Given the complexity and parallelism of the specific factors in the current labour market it is difficult to comprehend the interplay of all these factors. According to experts, the world is divided into countries that are able to adapt to these changes, countries which have a problem with adaptation, and countries that fail to adapt (KLINEC et al. 2009). Those pressures significantly affect the overall compatibility of working-age people in the labour market. At the same time, however, the pressures are causing a paradoxical phenomenon. While the information society requires flexible, educated and skilled computer users, in order to meet these enormous demands, society tends to commit a so called "demographic suicide" (HAŠKOVÁ 2009, POTANČOKOVÁ 2009). On the other hand, people who have few or no applicable skills are growing in number. They become unemployable and often their entire existence, and also the existence of their more numerous offspring, pose a greater burden on active workers. (BEDNARIK et al. 2005) To put this in context, it has been indicated that up to 27.3% of respondents who are the beneficiaries of government poverty programs reported that the main cause of their lack of contact with the labour market was maternity and/or parental leave.

We can identify the main determinants of the current economic crisis, which directly or indirectly affects national labour markets and thus the unemployment rate as follows:

1. streamlining production and the reduction of the workforce,

2. increasing demand for high skilled labour,

3. a quantitative increase in groups of people, who hardly possess any applicable skills for the labor market in this new system

4. increasing fertility rates among people with lower levels of labour market participation and low levels of education.

These trends have their impact on the character of development of the welfare state in many ways. Usually public debate is concerned with an increase in social spending. The new knowledge indicates that people who are fully integrated in the information society will require a perceptible reduction of social solidarity, in order to avoid supporting those who are dependent on this solidarity for a long time. KELLER (2010) even argues that an increase of selfishness and individualism will reduce the welfare state.

Those facts, statistics and forecast trends are not optimistic or positive. Therefore, it is necessary to search and find potential reserves or previously untapped possibilities of new job creation, ideally suited to those social groups who hardly possess any applicable skills for the modern labor market

The main objective of this paper is to explore the various social determinants influencing the decision of Slovak families to use or not use alternative market substitutes. On this basis, the hidden potential job opportunities in the labour market and the demand for those services may be evaluated.

Research methods and methodology

Efforts to promote and create new job opportunities for national labor markets in the coming years will be among the priorities of the EU. The creation of new jobs at a time of fiscal consolidation is part of a strategy designed to help increase the employment rate in the 20–64 year age group to a level of 75% by 2020 (European Commission 2012). In this context, member states should focus their attention into several areas. One of them is to create initiatives that facilitate the development of the sectors with the greatest potential for job creation. The health sector and social services sector are included in this area. Activities that contribute to the well-being of families and individuals in the home, such as care services (care for adults and children) and household services, have a significant and important potential in terms of job creation. Domestic care services are part of the so-called. "white jobs" along with the health services and activities in institutional care and service.

Household services are on the border of this category. It is expected that the demand for care services and household services will increase due to the important trend of an aging population in all member states and also due to the current and expected decline in the number of potential caregivers in families.

The reasons why it is precisely these type of services for which support at the official labour market is extremely urgent are the following:

– Better balance between work and private life, which can be achieved by outsourcing more routine tasks done at home, as well as care for children and the elderly. Accessible and affordable care services are also a prerequisite for increasing female participation in the labour market.

– Creating employment opportunities for people with relatively low skills, particularly in terms of service performance in households that are at a low cost to public finances. The support of these services within the formal economy will bring these services out of the shadow economy. Job creation is also a factor in assessing the costs of various options of long-term care.

– Improving the quality of care due to the fact that workers have the right skills and work in good working conditions and that service providers are subject to strict quality controls.

It is assumed that the transfer of these services from the informal economy to the formal economy will also contribute to the creation and growth of micro, small and medium-sized enterprises, since many of these services are provided by the self-employed and small businesses.

This idea has several dimensions which are necessary to take into account for its gradual implementation. In particular it is important to clearly specify those types of activities which will be considered as being appropriate for transfer into the category of formal work. It is the specification of the particular activities currently carried out within the unpaid work in households that are family members and relatives willing to move to the official market. As shown by surveys (MARTINKOVIČOVÁ, KIKA 2012) with respect to social motives, such factors on which the household members decide which activities they would still like to make themselves through unpaid work in their own families (the education of children, care for sick and elderly parents, traditional household chores) play an important role. These factors fundamentally affect the actual demand for such services and activities, in case these services will be outsourced. Real demand is simultaneously determined by the place of residence, and the location of the household. Regional disparities in economic development are unquestionable and also need to be taken into account. The present state of knowledge indicates that residents of smaller towns and municipalities; will be more cautious and conservative in this respect. On the contrary, the residents of larger cities have increased requirements for these types of market services. The level of education is undoubtedly

a non-negligible determinant of the use or non-use of market substitutes in personal and household services. From the above mentioned characteristics of the current job market and the prospects for its development we can conclude that people with higher education have a significantly higher chance of employment in the official labor market, which naturally reduces the time they spend on running the household and taking care of its members. Conversely, people with lower educational attainment are less compatible with the requirements of the labour market. They are at greater risk of joblessness, which in turn paradoxically creates for them the potential to spend more time on personal home care, or caring for children and/or adults. We can therefore expect that these target groups will not saturate the demand for personal services offered by the official market, which ultimately "block" the creation of new (official) jobs in the formal market.

The categorization of different types of unpaid work in the household shows precisely that housework and childcare are among the most time consuming activities. Table one shows the results of the primary research concerning unpaid work in Slovak households which has been continuously conducted by a team of experts from EF UMB. The most recent data available is from the last phase of research which was conducted on a sample of 1,902 respondents and 861 households in the Slovak Republic in the period of April-May 2013 (Table 1).

Table 1

Number of hours per week devoted to selected types of unpaid work in the household

Specification		Food preparation	Cleaning	Production and repair of textiles	Cultivation of ornamental plants	Pet care	Repair and maintenance services	Shopping services	Childcare
N	Valid	860	859	849	826	813	822	858	776
	Missing	1	2	12	35	48	39	3	85
Mean		12.287	9.523	3.749	3.56	4.0646	2.1058	7.6713	11.913

Specification		Caring for adults	Volunteering	Commercial cultivation of plants	Livestock farming	Construction and reconstruction	Unpaid work without commercial exploitation	Total unpaid work per week
N	Valid	759	758	804	760	773	860	860
	Missing	102	103	57	101	88	1	1
Mean		2.3332	0.6367	3.1173	1.7234	1.6476	55.8	61.718

Source: VEGA 1/0935/13. Unpaid work as a potential source of socio-economic development and determinant of individual well-being. EF UMB, 2013

We suggested firstly that it is necessary to specify the categories in more detail, which include personal services and household services. The working paper of the European Commission (EC, 2012b) includes under this term a "broad range of activities that contribute to the well-being of families and individuals and ranks among it: child care, long-term care for the elderly and persons with disabilities, housekeeping, tutoring, household repairs, gardening, ICT and other household chores".

Personal services and household services have a number of interesting characterisitics in terms of employment policy:

– low import share (activities carried out on the spot), which means low import loss in the case of public intervention,

– a high share of employment, which in the case of public support is a potentially important impact on job creation,

– different levels of requirements for technical skills (in some areas of the "self-help activities" there are higher requirements for care), but in general, a need for adequate levels of e-skills and social skills,

– low productivity in some specific operations but indirect productivity growth in the cases where customers of personal and household services can focus more on their work, which has higher productivity,

– since there is predominance of illegal workers in these sectors, public intervention is unlikely to lead to a shift of employment from other sectors,

– a growing need for these services due to the aging population and the need to increase women's participation in the labor market.

Activities in the field of personal services and household services help to improve the balance between work and private life and also provide benefits through a higher number of hours worked in the labour market or on a return to the labour market. Personal services and household services are traditionally provided in households by women, mainly. Some of these services were gradually externalized outside the household (through service facilities such as catering, laundry facilities, kindergartens and homes for the elderly) or stayed within households through outside workers who were directly or indirectly employed by the household. A significant part of these activities still remain outside the formal market, thus creating the potential for official employment.

Results and discussion

The facts and processed data allow clear underlying assumptions relating to the analysis of demand and the real possibility of outsourcing of selected types of unpaid work in Slovak households. Based on the above-defined nature of personal services and household services we interpret the existing results

with respect to the variables: the place of residence, age and education of respondents. This, in our opinion, may significantly influence the decisions of households and their members on the use of selected types of unpaid work which falls under the classification of observation services, offered by the market. The following tables (2–4) show the basic structure of respondents by age, education and place of residence.

Table 2

Identification of respondents with respect to place of residence

	Specification	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	town + municipality	1,472	77.4	77.4	77.4
	the regional seat	430	22.6	22.6	100
	total	1,902	100	100	–

Source: VEGA 1/0935/13. Unpaid work as a potential source of socio-economic development and determinant of individual well-being. EF UMB, 2013.

Table 3

Identification of respondents with respect to age group

	Specification	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (15 – 25)	565	29.7	29.7	29.7
	2 (26 – 40)	451	23.7	23.7	53.4
	3 (41 – 64)	603	31.7	31.7	85.1
	4 (65 or older)	284	14.9	14.9	100
	total	1,902	100	100	–

Source: VEGA 1/0935/13. Unpaid work as a potential source of socio-economic development and determinant of individual well-being. EF UMB, 2013.

Table 4

Identification of respondents with respect to education

	Specification	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	wthout education	5	0.3	0.3	0.3
	basic education	117	6.1	6.1	6.4
	secondary 1	303	15.9	15.9	22.3
	secondary 2	629	33.1	33.1	55.4
	secondary 3	87	4.6	4.6	59.9
	higher education	762	40.1	40.1	100
	total	1,902	100	100	

Source: VEGA 1/0935/13. Unpaid work as a potential source of socio-economic development and determinant of individual well-being. EF UMB, 2013.

Table 5

Reasons for use/potential use of market service given the place of residence (number of respondents)

Specification	Food preparation		Cleaning		Cultivation of ornamental plants		Repair and maintenance services		Childcare		Caring for adults	
	town and municipality	the regional seat	town and municipality	the regional seat	town and municipality	the regional seat	town and municipality	the regional seat	town and municipality	the regional seat	town and municipality	the regional seat
Professional and quality	19 / 0	9 / 0	1 / 0	10 / 0	0 / 0	0 / 0	87 / 2	45 / 5	12 / 0	0 / 0	1 / 8	1 / 0
Fast	83 / 5	28 / 0	18 / 4	0 / 0	11/	0 / 0	26 / 2	0 / 0	1 / 0	0 / 0	0 / 0	0 / 0
Cannot be provided by the family	17 / 29	1 / 2	10 / 0	0 / 0	0 / 0	0 / 0	153 / 12	48 / 5	7 / 0	1 / 0	3 / 1	3 / 0
Reasonably Priced	94 / 15	29 / 3	0 / 23	0 / 0	0 / 19	0 / 0	247 / 4	8 / 0	0 / 0	1 / 0	0 / 0	0 / 0
Time saving	192 / 6	141 / 0	7 / 1	0 / 12	0 / 1	0 / 0	21 / 5	5 / 7	1 / 1	0 / 0	1 / 1	1 / 0
Allow to devote more time to career	37 /0	17 / 0	0 / 4	0 / 8	0 / 0	0 / 0	4 / 0	0 / 1	3 / 0	0 / 0	0 / 1	0 / 1
Available	34 / 1	8 / 0	0 / 0	0 / 0	0 / 0	0 / 0	7 / 4	0 / 0	2 / 1	0 / 0	0 / 1	0 / 0
Other	40 / 1	6 / 0	0 / 3	0 / 3	0 / 2	0 / 4	3 / 3	0 / 0	0 / 4	0 / 3	9 / 2	9 / 3

The research was conducted through a questionnaire which consisted of 9 modules, where the majority of the modules precisely monitored the current issue of the use, potential use or non-use of market substitutes for each type of unpaid work.

In addition, the research also aimed to identify the reasons that lead household members to the decision to use or reject opportunities to outsource certain activities and services that fall under the classification of personal services and household services. Prepared frequency tables document the first significant imbalances between respondents in the current use of market services. As shown in Table 5, the highest concern was regarding the use of market services including the category of food preparation and repair and maintenance (equipment, furniture and automobile).

The interesting thing is that these services are being used mostly by respondents from towns and municipalities, rather than by respondents from the regional seats. This observation could be due to the fact that the proportion of surveyed households and their members was greater in the category of town and municipalities. The main reasons for the interest in the most utilized services provided by the market include: time savings, affordability, speed, professionalism and quality, but also the fact that the respondents cannot provide these services within the family. The reference terms show potential support for business development in areas that would be able to provide these types of services in the official market. It is interesting to note that a minimum number of respondents described the various categories (except cooking) at affordable, in terms of distance, diversity and capacity. It is also a signal to increase their awareness of potential clients or customers.

Table 6 captures another context. It reveals the non-use of market services by respondents. According to the results, we can divide identified motives into two groups. The first, and most massive group, is represented by the opinion that respondents are able to provide a substantial part of the activities related to running a household by themselves, mostly in the category of cleaning, the planting of ornamental plants and food preparation. These activities are more prevailant in towns and municipalities than in the regional seats. This group of conservative reasons can include an attitude that the respondents still prefer to carry out those actions and activities in their home even in the presence of market substitutes. Here we can also add child and adult care to the reported categories of unpaid work. The support of these activities was dominant in the towns and municipalities. The second group of observed reasons is the opinion that respondents do not perform those types of unpaid work. Within this group are the most labeled following categories of care (municipality – 687 respondents) and care for adults (municipality – 744 respondents).

Table 6

Reasons for non-use of market services with regard to the place of residence (number of respondents)

Specification	Food preparation		Cleaning		Cultivation of ornamental plants		Repair and maintenance services		Childcare		Caring for adults	
	town and municipality	the seat of the region	town and municipality	the seat of the region	town and municipality	the seat of the region	town and municipality	the seat of the region	town and municipality	the seat of the region	town and municipality	the seat of the region
Professional and quality	6	0	0	0	4	0	2	0	0	2	0	0
Priced unavailable	46	8	77	2	23	10	10	1	0	0	3	0
Inflexible and lengthy	1	0	10	0	2	0	1	6	0	0	7	0
Unavailable	4	0	13	1	5	0	9	1	0	0	6	0
Can arrange them by yourself	480	106	836	303	568	104	312	86	214	28	142	37
Do not create more opportunity to pursue career	1	1	1	0	3	0	0	0	0	0	0	0
Do not spare time	5	1	0	0	8	1	0	3	0	0	5	0
Do not perform it	17	6	27	8	315	227	357	137	687	310	744	294
Want to continue to be performed at home	25	20	68	40	106	21	17	16	76	14	81	25
Other	5	0	5	0	27	12	13	4	40	6	33	9

This paradoxical finding can be interpreted at this stage of the evaluation, as follows: the research sample of respondents was moved to households that already have children over 14 years of age requiring less care than in the case of minor children. In the case of a high number of respondents predominantly from towns and municipalities, who say they do not provide care for adults within their families, it can be assumed that they live in separate households and do not have to worry about parents or living with them does not require caring for them.

The potential demand for personal services and household services can be further examined using the next variable – the age of the respondents as is shown in Table 7. This indicator reveals to us the deeper structure of the target group of potential customers of such services and also shows their characteristics and interests. The results clearly show that the most utilized market services are in food preparation (in most age categories except retirees) and repair and maintenance at ages corresponding to the respondents of working-age. In terms of creating space for substitution market initiatives and to support job creation in this context, it is noteworthy that in the case of age group 65 and over, the respondents claim that it is exactly this field where potential demand is the highest. In this respect, the category of housework has equal prospects – cleaning (25 respondents in age group 2) and services in repair and maintenance (total of 41 respondents in the 2nd and 3rd age group).

Table 7

Use / potential use of market services by age (number of pondents)

Specification	Food preparation	Cleaning	Cultivation of ornamental plants	Repair and maintenance services	Childcare	Caring for adults
1 (15 – 25)	198 / 5	6 / 9	0 / 2	59 / 3	0 / 0	0 / 1
2 (26 – 40)	265 / 7	8 / 25	0 / 6	133 / 20	2 / 1	0 / 4
3 (41 – 64)	229 / 7	16 / 14	3 / 7	213 / 21	3 / 5	6 / 11
4 (65 and more)	62 / 42	17 / 11	8 / 10	31 / 6	0 / 3	8 / 1

Source: VEGA 1/0935/13. Unpaid work as a potential source of socio-economic development and determinant of individual well-being. EF UMB, 2013.

The final variables that affect the decision on the use of externalised services and activities associated with running a household that was examined was education. Concerning the educational structure of the survey sample where 53.6% of respondents have secondary education and 40.1% of respondents achieved a college education, it is natural to expect the actual use of the monitored service types on the market at the high school sample, as shown in Table 8.

Table 8

Use / potential use of market services by educational level (number of respondents)

Specification	Food preparation	Cleaning	Cultivation of ornamental plants	Repair and maintenance services	Childcare	Caring for adults
Basic	30/29	0 / 0	0 / 0	1 / 0	0 / 0	0 / 0
Secondary 1	64 / 11	12 / 2	1 / 1	80 / 12	4 / 2	0 / 3
Secondary 2	226 / 5	14 / 7	10 / 1	146 / 15	13 / 1	12 / 6
Secondary 3	48 / 1	20 / 0	0 / 5	25 / 0	3 / 0	0 / 1
College education	388 / 16	46 / 49	0/19	182/24	8 / 7	2 / 10

Source: VEGA 1/0935/13. Unpaid work as a potential source of socio-economic development and determinant of individual well-being. EF UMB, 2013.

Respondents with higher education, as expected, in addition to the active use of market services, also create a potential for their support and development in the future. The frequency of those who in this category said they plan to use the services market is the largest in all studied types of unpaid work. At the same time they represent an exploitable potential for business development and employment in these areas.

Conclusion

This kind of research of unpaid work in Slovakia is unique. The obtained results are continuously processed. We assume they are compareable with foreign sources, and will test that assumption in the next phase of research.

The examination of unpaid work in Slovak households is possible in many ways. In this paper we focus attention on the evaluation of the results and the interpretation of the findings of the research based on the analysis of location of housing, age and education of respondents. As for the place of residence, we take into account the fact that the category of the regional seat was represented in Slovakia by only 8 points with this status. A rather surprising observation seems to be finding that the inhabitants of smaller towns and villages are showing interest and actively using the existing market substitutes, thus supporting the productive capacity of producers and providers of the services as well as regional employment. Another interesting finding is that there is a greater interest in this regard for domestic services (food preparation, cleaning, repair, and maintenance) than for personal services (child and adult care). In terms of prospective demand for such services, research has produced a finding that in some categories of work there are strong influences of traditionalism and conservatism, which affects the scope and the nature of the

use of market substitutes towards saturation which is favoring their own resources and home environment. This trend is naturally stronger in smaller towns and villages.

In terms of age, it was shown that the strongest category of residents supporting the use of market substitutes were people of working age (categories 26-40 and 41-64). The fact that even in this variable preferences for the use or potential use is higher for household services than for personal services.

Education was a significant factor. Given the educational structure of respondents, higher education played an important role in the case of university graduates and in favor of increased support for household services (cleaning, repair and maintenance and food preparation) and the market demand for these substitutes in the future.

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RANKING OF EUROPEAN UNION MEMBER STATES BASED ON THE LEVEL OF KNOWLEDGE CREATED BY THE RESEARCH AND DEVELOPMENT SECTOR

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K e y   w o r d s: knowledge, knowledge-based economy, R&D, linear ranking methods with a reference standard, European Union.

Abstract

The contemporary era is characterized by revolutionary changes in the economy, technological progress, social and political life. Globalization exerts pressure on businesses and entire economies to increase their competitive strength which is defined as the ability to create knowledge. Knowledge creation and management became the new management paradigms. The responsibility for knowledge creation rests mainly upon the research and development sector. The aim of this study was to rank European Union Member States based on the level of knowledge created by their respective research and development sectors and to identify knowledge creation leaders. The analysis relied on EUROSTAT data for 2007–2011 and linear ranking methods with a reference standard. Our results indicate that Western European and Scandinavian countries are the leaders in the area of knowledge creation.

CHARAKTERYSTYKA WSPÓLNOTY EUROPEJSKIEJ ZE WZGLĘDU NA KREOWANIE WIEDZY W WYNIKU DZIAŁALNOŚCI BADAWCZO-ROZWOJOWEJ

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S ł o w a   k l u c z o w e: wiedza, GOW, działalność B+R, metoda porządkowania liniowego ze wzorcem, Unia Europejska.

Abstrakt

Współczesność cechuje duża turbulentność otoczenia ekonomicznego, technologicznego, społecznego i politycznego. Zjawisko globalizacji dodatkowo potęguje presję wywieraną na przedsiębiorstwa oraz całe gospodarki do zwiększania ich konkurencyjności, za której fundament przyjmuje się uniejętność kreowania wiedzy. Tworzenie oraz wykorzystywanie wiedzy stało się

nowym paradygmatem zarządzania. Odpowiedzialność w tym zakresie spoczywa głównie na sektorze B+R. Celem artykułu jest próba charakterystyki Unii Europejskiej uwzględniającej identyfikację krajów Wspólnoty będących liderami w kreowaniu wiedzy w wyniku prowadzenia działań w sferze badawczo-rozwojowej. Do analiz wykorzystano dane statystyczne EUROSTAT z lat 2007–2011 oraz metodę porządkowania liniowego ze wzorcem. Wyniki badań wykazały, że największy udział w kreowaniu wiedzy mają kraje Europy Zachodniej oraz państwa skandynawskie.

Introduction

In the last decade of the 20th century, the concept of a knowledge-based economy became a fundamental determinant of microeconomic and macroeconomic development. The term "knowledge-based economy" (KBE) was coined in the 1990s by the OECD to imply an economy which is directly based on the production, distribution and use of knowledge and information (The knowledge – based economy 1996). At the time, there existed a general belief that the convergence of knowledge, information and computer technology would be the main driver for economic growth, wealth creation and employment in all market segments. The new century marked the beginning of Toffer's Third Wave Society, a concept that envisaged the birth of a knowledge-based economy where the predominance of knowledge would act as a substitute for the remaining resources (TOFFLER 1986, pp. 34–35). A knowledge-based economy became the leading trend in the international community of the 21st century, and most countries shifted their focus to the creation of a supportive environment for technological innovation (The knowledge – based economy, 2006). One of the first people to develop this concept was Peter Drucker who argued that knowledge would be the principal economic resource in the coming decades, and "knowledge workers", namely well-educated employees, would form the leading social group. Drucker referred to this period as the era of "knowledge society" (DRUCKER 1999, pp. 13–19). This concept has enjoyed soaring popularity in the past years because it enables businesses and economies to maintain their competitive advantage, and it enhances the effectiveness of innovative technologies (LIN et al., 2007, pp. 22–39). The knowledge management concept is increasingly likely to determine a company's performance (GRANT 1996, pp. 109–122). The rate of knowledge acquisition, creation and processing and knowledge building skills are the driving force for success in business and economy. In line with the discussed concept, knowledge became an object of interest in various scientific disciplines, including management science.

The objective of knowledge management is to amalgamate the richness of experience (discovering new production techniques and problem solving methods through experimentation) while maintaining clarity of action and exercising control over knowledge (JAYAWARNA, HOLT 2009, pp. 775–785).

In modern economies, knowledge is created mainly through research and development (R&D). Pursuant to the provisions of the Lisbon Strategy of 2000, whose goals have not been fully achieved, and the Europe 2020 strategy, the EU Member States, including Poland, are expected to invest in knowledge creation and "intelligent growth" based on knowledge and innovation.

The aim of this study was to rank European Union Member States based on the level of knowledge created by their respective research and development sectors and to identify knowledge creation leaders. It was assumed that the analysis would identify differences between the EU Member States rather than European regions.

Materials and Methods

The levels of knowledge created by research and development institutions in the EU Member States were analyzed based on EUROSTAT data for 2007–2011. Data for Greece covered the last four years of the analyzed period. The analyzed objects were classified by a linear ranking method with a reference standard. The diagnostic variables were: research and development spending (% GDP), share of government budget appropriations on research and development (% of total government expenditure) and employment in the R&D sector. All diagnostic variables were stimulants of knowledge creation. The choice of variables was determined by the availability of statistical data.

In the linear ranking approach, objects are classified based on a single attribute. The ranked objects are assigned numbers from 1 to n. A set of n objects is ranked by determining the sequence of objects in that set according to a set criterion, from the best (number 1) to the worst (number n) (Perkal in: BALICKI 2009, p. 317). Although objects are ordered based on a single parameter, linear ranking methods support an analysis of multidimensional objects. To add other dimensions to the classification process, a composite statistic is required, and the Human Development Index is generally used as a function of variation in a set of attributes. Z. Hellwig proposed a composite measure of development which involves a hypothetical reference for determining the distance from real points. The reference (an ideal and abstract object) is characterized by the best values of diagnostic variables reported for all objects (HELLWIG 1968). Those variables can be further classified as stimulant (positive variables), destimulant (negative variables) and nominant (neutral variables).

There are many methods of developing composite measures of development. This study relies on the method proposed by Hellwig (TARCZYŃSKI 2002, pp. 94–98). The first stage involved the construction of a two-dimensional

matrix X containing observations of diagnostic variables for the analyzed objects:

$$X = \lfloor x_{ij} \rfloor \quad (i = 1,..., n; j = 1,..., m) \tag{1}$$

where:
X — matrix of observations of variables describing the analyzed objects (countries),
N, m — number of objects, number of variables.

In the second stage, the elements of matrix X were standardized using the below formula:

$$x_{ij} = \frac{x_{ij} - \bar{x}}{S_j} \tag{2}$$

where:
$\bar{x}$ — arithmetic mean for the j-th variable,
Sj — standard deviation for the j-th variable

$$S_j = \sqrt{\frac{\sum\limits_{i=1}^{n} (x_{ij} - \bar{x})^2}{n - 1}} \tag{3}$$

After standardization, matrix X was transformed into matrix Z with elements z_{ij}. The reference object was developed based on the elements of matrix Z. The highest value was selected from each column of matrix Z, producing a reference object (reference country) with the best coordinates observed in reality:

$$z_{01}, z_{02}, ..., z_{0m}; z_{0m} = \max\{z_{ij}\} \tag{4}$$

The distance separating each country from the reference was calculated. Various distance measures have been proposed in literature (e.g. BALICKI 2009 p. 317). In this study, the Euclidean distance was used:

$$d_j = \sqrt{\frac{\sum\limits_{i=1}^{m} (x_{ij} - z_{oj})^2}{m}} \quad (i = 1, 2,..., n) \tag{3}$$

A synthetic variable expressed by formula (5) is not normalized, which could obstruct the analysis. The below formula can be used to achieve normalization and create a scenario where higher values of the variable testify to higher levels of knowledge creation (ŁUNIEWSKA 2005 p. 470):

$$z_i = 1 - \frac{d_i}{d_0} \quad (i = 1, 2,..., n) \tag{6}$$

where:
z_i – composite measure of development for the i-th object,
d_i – distance between the i-th object and the reference determined according to (5)
d_0 – standard which guarantees that the value of zi falls in the range of 0 to 1.

Results

The values of the composite measure of development are presented in Table 1. The composite measure of development objectifies a given country's ranking in the knowledge creation hierarchy. It can assume values in the range of [0,1]. In the surveyed years, a relatively high level of knowledge created by R&D units was determined in France, Germany, Finland and Sweden (the composite measure of development exceeded 0.5 in each country). The performance of the United Kingdom, which ranked at number five, was weakened only in 2011 when the value of the measure of composite development fell to 0.4984. In Denmark, the level of created knowledge was marked by continued improvement.

In 2007 and 2008, the measure of composite development attained average values, and it continued to grow in the following years to exceed the 0.5 threshold by 0.0086 in 2009, by 0.0582 in 2010 and by 0.0851 in 2011. The countries characterized by the highest values of the composite measure of development are global leaders as regards their competitive advantage. In the Global Competitiveness Report for 2010–2011, Sweden, Finland and Germany ranked 4th, 6th and 7th, respectively (World Economic Forum, 2011). Sweden has the highest level of informatization in the world. The remaining economies became highly competitive due to substantial expenditures for research and development with the State's involvement. Poland ranks far behind the ranking leaders. In 2007–2008, the value of the composite measure of development for Poland was seven times lower in comparison with the ranking leader. Despite a significant increase in spending on research and development, Poland continued to lag behind other EU countries in successive years of the

Table 1

Composite measure of development as a reflection on R&D activities in the EU Member States

Country	Year				
	2007	2008	2009	2010	2011
France	0.6273	0.5954	0.6116	0.6040	0.6237
Germany	0.6263	0.6277	0.6707	0.6794	0.6630
Finland	0.5910	0.6048	0.6028	0.6086	0.6399
Sweden	0.5629	0.5702	0.5476	0.5647	0.5920
United Kingdom	0.5317	0.5250	0.5537	0.5223	0.4984
Denmark	0.4415	0.4565	0.5086	0.5582	0.5851
Netherlands	0.4050	0.4182	0.4151	0.4015	0.4054
Austria	0.3979	0.4079	0.4399	0.4777	0.4964
Spain	0.3505	0.3970	0.4362	0.4448	0.4297
Belgium	0.3375	0.3673	0.3909	0.4109	0.3974
Italy	0.3001	0.3010	0.3442	0.3594	0.3469
Luxembourg	0.2745	0.3021	0.3394	0.3571	0.3810
Czech Republic	0.2648	0.3023	0.3305	0.3172	0.3264
Slovenia	0.2591	0.2790	0.2889	0.3039	0.3847
Ireland	0.2500	0.2481	0.2706	0.2822	0.3112
Portugal	0.1799	0.2236	0.2768	0.3589	0.3863
Estonia	0.1733	0.2308	0.2386	0.2674	0.2786
Lithuania	0.1484	0.1497	0.1707	0.1214	0.1021
Hungary	0.1194	0.1158	0.1377	0.1592	0.1852
Greece	0.0998	(*)	(*)	(*)	(*)
Poland	0.0896	0.0922	0.1105	0.1008	0.1057
Slovakia	0.0634	0.0717	0.0587	0.0851	0.0737
Bulgaria	0.0496	0.0691	0.0487	0.0727	0.0816
Romania	0.0212	0.0654	0.0841	0.0956	0.0340
Latvia	0.0190	0.0736	0.0910	0.0776	0.0023
Cyprus	0.0096	0.0235	0.0633	0.0553	0.0616
Malta	0.0000	0.0000	0.0000	0.0000	0.0000

(*) - data not available.
Source: own study based on EUROSTAT data.

analysis. The value of the composite measure of development was six times lower in 2009 and 2011 and more than 6.5 times lower in 2010 in comparison with the corresponding ranking leaders.

A ranking of the EU Member States was developed based on the corresponding values of the composite measure of development (Table 2). In 2007–2011, France, Germany and Finland were ranking leaders who occupied the first three places in varied sequence. Germany is the unquestioned leader

Table 2

Ranking of the EU Member States based on the composite measure of development

Country	Year				
	2007	2008	2009	2010	2011
France	1	3	2	3	3
Germany	2	1	1	1	1
Finland	3	2	3	2	2
Sweden	4	4	5	4	4
United Kingdom	5	5	4	6	6
Denmark	6	6	6	5	5
Netherlands	7	7	9	10	9
Austria	8	8	7	7	7
Spain	9	9	8	8	8
Belgium	10	10	10	9	10
Italy	11	13	11	11	14
Luxembourg	12	12	12	13	13
Czech Republic	13	11	13	14	15
Slovenia	14	14	14	15	12
Ireland	15	15	16	16	16
Portugal	16	17	15	12	11
Estonia	17	16	17	17	17
Lithuania	18	18	18	19	20
Hungary	19	19	19	18	18
Greece	20	20	21	(*)	(*)
Poland	21	21	20	20	19
Slovakia	22	23	25	22	22
Bulgaria	23	24	26	24	21
Romania	24	25	23	21	24
Latvia	25	22	22	23	25
Cyprus	26	26	24	25	23
Malta	27	27	27	26	26

(*) – data not available.
Source: own study based on EUROSTAT data.

in knowledge creation. It is one of the most developed countries in the world, and the German economy ranks third after the USA and Japan. Its economic growth is strongly rooted in industrial development, mostly motor, mechanical engineering, electrical engineering and chemical sectors. Germany specializes in complex investment products and innovative production technologies. Germany was followed by Finland, which ranked second on three occasions, and France which came third in the course of three years. Finland was transformed

from a largely agrarian economy to a modern economy in the course of several decades. One of the goals of the Finnish industrial policy is to integrate industrial growth with research and development. The above gave rise to integrated industries which are linked by technological, production and R&D ties (STACHOWIAK 2009, p. 129).

Sweden and United Kingdom also play a pivotal role in knowledge creation. Similarly to the top three leaders, they swapped places in successive years of the ranking. The above indicates that ranking leaders continued to be the key creators of knowledge in R&D units throughout the analyzed period. The group of top 10 countries also included Denmark, Netherlands, Austria, Spain and Belgium. In comparison with 2007, the lowest level of knowledge creation was noted in Malta, which occupied the last place in the ranking throughout the surveyed period, followed by Cyprus, Latvia, Romania and Bulgaria. The majority of the weakest performers were the youngest EU Member States. Poland ranked 21st in the first year of the study, and it continued to improve its performance every two years to reach number 19 in 2011. This is not a satisfactory result, and it will hopefully be improved in the future.

The relationship between the values of the composite measure of development in the surveyed years was analyzed with the use of the correlation coefficient. Statistical dependency between variables was determined by Spearman's rank correlation (Table 3).

Both measures point to a very strong correlation between the studied phenomena. For this reason, national policy makers should focus on the creation of knowledge through increased spending on research and development.

Table 3

Correlations between the value of the composite measure of development and position in the ranking of the EU Member States

Coefficient	Year			
	2007/08	2008/09	2009/10	2010/11
Pearson's correlation coefficient	0.9949	0.9947	0.9918	0.9904
Spearman's rank correlation coefficient	0.9915	0.9872	0.9869	0.9829

Source: own study based on EUROSTAT data.

The creation of knowledge through increased spending on research and development should be the key focus of both business managers and national policy makers. The awareness that knowledge creation plays a key role in building and strengthening the competitive advantage of the Member States and the entire EU in the global arena should be translated into action, and this

goal has been addressed by the Europe 2020 strategy. Pro-innovative measures which support knowledge creation are also initiated in Poland. In efforts to strengthen its competitive advantage, Poland should support the development of the high-tech sector and intellectual capital. In the mid 1990s, this path of development was adopted by Finland which had faced similar economic and political challenges as Poland. The pursuit of the above goals requires further reform of the educational system, increased spending on research and development and the introduction of new measures encouraging businesses to invest in innovation, including research commercialization and integration of business and R&D communities by increasing the profitability of innovation investments.

Conclusions

The linear ranking method with a reference standard was used to rank the level of knowledge created by research and development organizations of the EU Member States. The countries that invested most heavily in knowledge creation were France, Germany and Finland. Portugal's ranking continued to improve throughout the analyzed years. The value of its composite measure of development increased from 0.1799 in 2007 to 0.3863 in 2011, and Portugal climbed six notches from the 17th to the 11th place. Austria's performance also improved, but the noted changes were less spectacular than in Portugal. Austria's composite measure of development increased from 0.3979 in 2007 to 0.4964 in 2011. Cyprus and Malta lagged far behind other EU countries, and Malta ranked last throughout the surveyed period.

With the exception of Portugal and Austria, knowledge creation trends remained unchanged in the analyzed years. The best performers continued to remain in the lead, while the countries with average and low levels of knowledge creation occupied the same or insignificantly changed positions in the ranking. Western European and Scandinavian countries emerged as leaders in the area of knowledge generation. The lowest levels of knowledge creation were reported in selected countries of Southern Europe, whereas average and low levels were noted in Central and Eastern Europe.

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FACTORS INFLUENCING THE IMPROVED MARKET STANDING OF INSURANCE COMPANIES

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K e y w o r d s: market standing, market position, relations with clients, ICT systems, marketing communication.

A b s t r a c t

The aim of this article is to identify factors influencing the improvement of the market standing of insurance companies. The following hypothesis was taken into consideration in this elaboration – the market standing of an insurance company is shaped not only by the quality and price of products, but also by the quality of consumer service as well as the company's good name.

The identification of the factors was done on the basis of a self-based study in which survey research was used and the data collection instrument was a self-completed questionnaire. The survey was sent by post or via the Internet to all 63 insurance companies located and run in Poland between 2008-2010. 57 questionnaires were correctly completed and sent back.

CZYNNIKI WPŁYWAJĄCE NA POPRAWĘ POZYCJI RYNKOWEJ FIRMY UBEZPIECZENIOWEJ

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S ł o w a k l u c z o w e: pozycja rynkowa, relacje z klientami, systemy informatyczne, komunikacja marketingowa.

A b s t r a k t

Celem artykułu jest identyfikacja czynników wpływających na poprawę pozycji rynkowej firmy ubezpieczeniowej. W opracowaniu przyjęto następującą hipotezę: pozycja rynkowa firmy ubezpieczeniowej jest kształtowania nie tylko przez jakość i cenę produktów, lecz także przez jakość systemu obsługi klienta i renomę firmy. Czynniki zidentyfikowano na podstawie wyników badań własnych, w których wykorzystano metodę kwestionariusza, a narzędziem badawczym była ankieta pocztowa lub internetowa. Ankiety wysłano do wszystkich 63 zakładów ubezpieczeń mających siedzibę i działających w Polsce w latach 2008–2010. W pełni i prawidłowo zwrócono 57 ankiet.

Introduction

The insurance sector is tightly connected with the developing market economy in Poland and it is a key element of its financial sector. Increasing competition between insurance companies leads to a situation in which companies need to have appropriate sources in order to gain a favorable competitive advantage. Taking into account a competitors' strategy; four strategies can be enumerated:

1. the most competitive prices,
2. the quality of the product,
3. the quality of the service,
4. the company's good name.

In practice, all of these strategies are rarely applied simultaneously. Companies usually choose mixed strategies which are focused either on the quality of the product and the service system; the most competitive prices and product quality; or finally on the quality of the service and the company's good name.

In the case of shaping the market standing, the strategies of the company may be described as follows (KOTLER 1988):

– leader's strategy,
– challenger's strategy,
– follower's strategy,
– market niche seeker.

Leader strategy is that the company maintains the leading position or even bolsters it further. The company that throws down the gauntlet, the challenger, wants to dominate. The imitator is the company which uses those elements of the leader's strategy, which have the most considerable influence on competitive dominance. The seeker of the market niches is the company looking for those market segments which are not apparent to the others. Insurance companies, depending on the market position they occupy, apply the chosen strategy, which, like other strategies, should include a clearly defined system of customer service unequivocally differentiated from the competitors.

The market position of the insurance company

The company's market share is one of the two indicators (apart from the financial situation of the company) which defines its competitive position (PIERŚCIONEK 1996). This means that a high market share and good financial situation of a company indicate the favourable position of the company. However, many insurance companies, especially those entering the market or

those which want to achieve dynamic growth of market share use prices that are almost dumping prices, which means that their competitive position cannot be recognized as sound. Nevertheless, such a strategy is used quite often by many insurance companies, as in this way they can more quickly transfer from a weak competitive position to a more favorable one.

The market position of the company may be determined by various factors, from which the following two can be enumerated as the most important ones:
– service and marketing system,
– company reputation.

Those two factors are in close correlation and should be considered only in reciprocal interactions. The service and marketing system is the result of a company's management system which consists of management abilities, organization, motivation as well as different kinds of information including those from the scope of efficacy and efficiency of managing the relations with the clients. The company's reputation, in turn, is presented in its brand image, which may be shaped by various factors including the clients' belief that the company applies modern management methods ensuring the certainty of compensation payments or at least damage benefits. From this point of view, there are two clear management strategies (PORTER 1980):
1. strategies related to maintaining the value of service to the customers,
2. strategy of having an outstanding reputation.

Strategies related to maintaining the value of services to the customers focus on clients' needs. In the case of insurance companies "a satisfied client acts in favor of the company, not only by purchasing but also by creating a positive image of the insurance company and its offer" (NOWOTARSKA--ROMANIAK 2005). That is why the insurance companies who investigate the level of satisfaction of their clients and do not neglect customer complaints (as far as client satisfaction levels are connected with purchasing or after-sales service are concerned) operate better.

Some of the market research indicates that clients who are not satisfied with a purchase comprise about 25% of all clients; however, only one fifth of them make complaints (GLANZ 1994). This means that if one client makes a complaint, 20 others are dissatisfied clients who do not complain (CHRIS-TOPHER et al. 1994). The reason is either a lack of client knowledge about who they should turn to or the belief that it is not worth bothering and making complaints as they will not be accepted anyway. Meanwhile, the company's willingness and its ability to solve clients' problems is concurrent with building client trust and loyalty which, as a result, influences the future position of the company in the market. It turns out that according to another study as many as 54% of dissatisfied clients, who had made a complaint and whose complaints were accepted, did later make a repeat purchase (LOVELOCK 1991). What is

more, clients who are satisfied with the way their complaint was taken care of tell about their positive experience to approximately 3–6 people (JOHNSTON, HEWA 1997). Consequently, it may be stated that all the complaints should be treated with gratitude as they provide information concerning what clients like in the company's activities. The situation described above, from the point of view of the insurance companies is presented in Table 1.

Table 1

Customers' satisfaction with the way their complaints were taken care of by the insurance companies' workers

Itemization	The number of answers	The percentage of answers
1 – very bad	0	0.0
2 – bad	13	22.8
3 – hard to say	15	26.4
4 – good	19	33.3
5 – very good	10	17.5
Altogether	57	100.0

Source: self study based on the empirical research.

Table 2

The results of the Pearson's chi square test: customers' satisfaction with the way their complaints were dealt with by the insurance companies' workers and – higher market share than competitors

Itemization	Value	p
Pearson's chi-square test	26.65	< 0.01

Source: Self study based on the empirical research.

Table 3

The insurance company has much higher market share than most competitors

Itemization	1 – I completely disagree, 5 – I completely agree				
Customers' satisfaction with the way their complaints were dealt with by the insurance companies' workers	1	2	3	4	5
	percentage of answers				
1 – very bad	0.0	0.0	0.0	0.0	0.0
2 – bad	53.8	20.0	9.5	0.0	30.0
3 – hard to say	30.8	20.0	42.9	0.0	10.0
4 – good	15.4	60.0	33.3	50.0	30.0
5 – very good	0.0	0.0	14.3	50.0	30.0
Altogether	100.0	100.0	100.0	100.0	100.0

Source: Self study based on the empirical research.

Judging from the data included in table 1, over 50% of respondents who were asked about their satisfaction (as far as dealing with their complaints was concerned) graded it as handled very well or well; although quite a large group (22.8%) rated it as bad. In order to determine if there is a correlation between client satisfaction with the contacts from an insurance companies' workers in the last month and dealing with clients' complaints and a favorable market position of the insurance company, Pearson's chi-square was done (Table 2). It turned out that with a statistical significance of 1% it can be stated that such a correlation exists. The above mentioned relation is also confirmed by the research results presented in Table 3.

Taking into consideration the above results, it may be stated that the highest percentage of the respondents (50% and 50%) had chosen "well" and "very well" when defining the level of their satisfaction with the way the insurance companies' workers deal with their complaints when the company's market share was much higher (4 – I agree) than competitors. A high percentage of respondents (30% and 30%) chose "well" and "very well" in the case where the market share was much higher (5 – I completely agree) than competitors. For the insurance companies, which have the lowest market share (1 – I completely disagree) the most frequent indicators were (53.8%) for "bad". Consequently it may be deduced that the higher the insurance company's market share in comparison with most competitors, the higher the clients' satisfaction as far as dealing with their complaints by the insurance companies' workers.

A very significant element of client satisfaction is their grade concerning the politeness and professionalism of the insurance companies' workers they have contact with. That is why trainings connected with enhancing the quality of the workers' assigned job with a focus on contact with clients, among other things, must be adapted to the anticipated changes in the organization and surroundings (POCZTOWSKI 1998), as well as to the challenges connected with the satisfaction of the trained workers, as there is a close relationship between the clients' satisfaction and the workers' satisfaction (GERPORTT, PAUKERT 2011). This relationship results from the theory of transferring emotion, according to which "the emotional state of the worker sends signals, which may be caught in an objectified way and transformed on the customer" (DOHERTY 1997). The results of the research concerning customer satisfaction in the last month of work as far as politeness and professionalism of the insurance companies' workers are concerned are shown in Table 4.

Clients' satisfaction with politeness and professionalism of the insurance companies' workers in the last month of work

Itemization	The number of answers	The percentage of answers
1 – very bad	0	0.0
2 – bad	13	22.8
3 – hard to say	11	19.3
4 – good	29	50.9
5 – very good	4	7.0
Altogether	57	100.0

Source: Self study based on the empirical research.

Almost 58% of the respondents graded their satisfaction as very good or good. In order to establish if there is a relationship between customer satisfaction in the last month of work with the politeness and professionalism of the insurance companies' workers and higher market position of the insurance company, Pearson's chi-square test was done (Table 5). It turned out that with a statistical significance of 1% it may be stated that such a correlation exists. The above mentioned relation is also confirmed with the results of research included in table 6.

Table 5
The results of the Pearson's chi square test: Clients' satisfaction with politeness and professionalism of the insurance companies' workers in the last month of work and – higher market share than most competitors

Itemization	Value	p
Pearson's chi-square test	29.29	< 0.01

Source: Self study based on the empirical research.

Table 6
The insurance company has higher market share than most competitors

Itemization	1 – I completely disagree, 5 – I completely agree				
Clients' satisfaction with politeness and professionalism of the insurance companies' workers in the last month of work	1	2	3	4	5
	percentage of answers				
1 – very bad	0.0	0.0	0.0	0.0	0.0
2 – bad	53.8	0.0	23.8	0.0	10.0
3 – hard to say	23.1	40.0	23.8	0.0	10.0
4 – good	23.1	60.0	47.6	62.5	80.0
5 – very good	0.0	0.0	4.8	37.5	0.0
Altogether	100.0	100.0	100.0	100.0	100.0

Source: Self study based on the empirical research.

Taking into consideration the above results, it may be stated that the highest percentage of respondents (80,0%) graded the level of client satisfaction (as far as politeness and professionalism of the insurance companies' workers in the last month of work are concerned) as good when the company's share in the market was much higher (5 – I completely agree) than competitors. What can be observed with insurance companies which have much lower market share (1 – I completely disagree) is significantly a more frequent choice of "bad" (53.8%). Consequently, a conclusion may be drawn that the higher market share (in comparison with competitors) the higher the clients' satisfaction as far as politeness and professionalism of the insurance companies' workers in the last month of work are concerned. This means that the insurance companies who are the leaders in the insurance market pay much more attention to kind and professional service of their clients by the company's workers.

Managing the relations with clients became one of the most important issues of a companies' strategic thinking which, thanks to information technologies, has been introduced widely since the 1990s. The integration of information systems operating separately on sales, service and marketing enabled the implementation of the relationship marketing conception, which gives a general direction to all the activities connected with clients (BURNETT 2002). It relies on, among other things, strengthening the relations with clients by trustworthy and solid interpersonal contacts and fulfilling the duties to clients in a responsible way. The necessary research was conducted in order to grade the software used by the insurance companies to facilitate relations with clients. The results are presented in Table 7.

Table 7

The insurance company uses software facilitating relations with clients

Itemization	The number of answers	The percentage of answers
Definitely yes	22	38.6
Rather yes	18	31.6
I don't have any opinion	10	17.5
Rather not	7	12.3
Definitely not	0	0.0
Altogether	57	100.0

Source: self study based on the empirical research

In order to determine if there is a relationship between the grade of the software used by the insurance companies to facilitate relations with clients and a higher market position of the insurance company, the Pearson's

chi-square test was done (Table 8). The results show that with a statistical significance of 1% it may be stated that such a relationship exists. The relationship described above is also confirmed by the results included in Table 9.

Table 8

The results of the Pearson's chi square test: the insurance company uses software to facilitate the relationship with clients and – the insurance company has a higher market share than most competitors

Itemization	Value	p
Pearson's chi-square test	26.63	< 0.01

Source: Self study based on the empirical research.

Table 9

The insurance company has a higher market share than most competitors

Itemization	The insurance company is a leader in the insurance industry				
The insurance company uses software to facilitate the relationship with clients	1	2	3	4	5
	percentage of answers				
Definitely yes	30.8	40.0	23.8	87.5	40.0
Rather yes	7.7	40.0	42.9	12.5	50.0
I don't have any opinion	23.1	0.0	28.6	0.0	10.0
Rather not	38.5	20.0	4.8	0.0	0.0
Definitely not	0.0	0.0	0.0	0.0	0.0
Altogether	100.0	100.0	100.0	100.0	100.0

Source: self study based on the empirical research.

Taking into consideration the above results, it may be stated that the highest percentage of the respondents (50%) chose the statement claiming that the insurance company uses software to facilitate the relationship with clients when its market share is higher (4 – I agree) than in the case of the competition. A high percentage of the respondents (40%) confirmed a similar situation in the case of a much higher market share (5 – I completely agree). For the insurance companies which had the lowest market share (1 – I completely disagree), there may be observed a much more frequent choice of the grate "rather not" (38.5%). It all leads to the conclusion that a higher market share of an insurance company (in comparison to the competition) is related to the use of software to facilitate relationships with clients.

Insurance companies need to be image-conscious as customers trust in the Polish insurance market is not high. This image is created by numerous elements. It may be, for example, historical experience (for many years in

Poland there was only one insurance company, it is a typical example of a monopoly together with its negative consequences), or the result of insurance specificity, in which the perception of the insurer is determined mainly by the occurrence of an indemnifiable accident (mostly an unpleasant one). Other factors influencing the image of an insurance company are customer claims related to not paying the insurance money even in a situation where the signed insurance contract did not include the accident that happened. The research also shows that customers perceive as credible those companies from the insurance industry which are large, as it is a common belief that a powerful and wealthy insurer can guarantee payouts of compensations (SZWED-PIES-TRZENIEWICZ 2013). The results of the research presented in Table 10 show how the workers themselves perceive the image of the insurance companies in this aspect.

Table 10

The insurance company is a leader in the insurance industry

Itemization	The number of answers	The number as a percentage
Definitely yes	7	12.3
Rather yes	15	26.3
I don't have any opinion	2	3.5
Rather not	13	22.8
Definitely not	20	35.1
Altogether	57	100.0

Source: self study based on the empirical research.

In order to establish if there is a relationship between the company's image (in comparison to competitors) when leading in the insurance industry and higher market share (in comparison to competitors), the Pearson's chi-square test was done (Table 11). It turned out that with a statistical significance of 1% it may be stated that such a relationship exists. The relation is also confirmed by the research results presented in Table 12.

Table 11

The results of the Pearson's chi square test: The insurance company is a leader in the insurance industry – the insurance company has a higher market share than most competitors

Itemization	Value	p
Pearson's chi-square test	55.59	< 0.01

Source: Self study based on the empirical research.

Table 12

The insurance company has a higher market share than most competitors

Itemization	1 – I completely disagree, 5 – I completely agree				
The insurance company is a leader in the insurance industry	1	2	3	4	5
	percentage of answers				
Definitely yes	0.0	0.0	9.5	25.0	30.0
Rather yes	0.0	0.0	19.0	62.5	60.0
I don't have any opinion	0.0	20.0	4.8	0.0	0.0
Rather not	0.0	40.0	42.9	12.5	10.0
Definitely not	100.0	40.0	23.8	0.0	0.0
Altogether	100.0	100.0	100.0	100.0	100.0

Source: self study based on the empirical research.

On the basis of the research presented above it may be stated that the highest percentage of the respondents (60%) chose the statement that the insurance company is the leader in the insurance industry when the market share was much higher (5 – I completely agree) than the competition. For the insurance companies which have the lowest market share (1 – I completely disagree), it can be observed that the most common indicator is (100%), which means that 100% of the respondents admitted that their insurance company is not the leader in the insurance industry (they chose the option "certainly not"). Therefore, it may be deduced that the higher the market share of the insurance company is, the more important and meaningful it is for the clients that the insurance company is in a leadership position.

One of the ways of strengthening the relationship with the insured is by creating a loyalty club, also called a marketing club. Its members are the clients who were selected on the company's own- initiative in order to assure regular and direct contacts. The members of the club have benefits which are unavailable to other company clients and, as a result, they feel more connected with the company. Membership in the club makes the buyers more willing to make more of their personal and psychographic data available for the company, which as a result enables the creation of an extended data base about the clients. Thanks to that, it is possible to create marketing campaigns which are better customized toward customer preferences and interests based upon previous purchases (SKŁODOWSKA-MICHALSKA 1996). The fact that club members show more commitment and are more willing to recommend the company to others is also of crucial importance (DAY 1990). In order to establish if within insurance companies there are loyalty clubs or other similar forms of the strengthening of bonds with the insured client, the appropriate research was conducted; the results of which are presented in the table below.

Table 13

In the insurance company there is a loyalty club or other similar form of bond strengthening with the insured client

Itemization	The number of answers	The percentage of answers
Yes	38	66.7
No	19	33.3
Altogether	57	100.0

Source: self study based upon the empirical research.

The Pearson's chi-square test was done in order to establish if the correlation between being a member of a loyalty club or similar form of strengthening the relations with the insured and the market position of the insurance company exists (Table 14). It turned out that with a statistical significance of 0,1% it may be stated that such a correlation exists. Such a relationship is also confirmed by the research included in Table 15.

Table 14

The results of the Pearson's chi square test – the insurance company has a loyalty club or other similar form of bond strengthening with the insured client and – higher market share than most competitors

Itemization	Value	p
Pearson's chi-square test	17.97	< 0.001

Source: Self study based on the empirical research.

Table 15

The insurance company has higher market share than most competitors

Itemization	1 – I completely disagree, 5 – I completely agree				
The insurance company has a loyalty club or other similar forms of bond strengthening with the insured client	1	2	3	4	5
	percentage of answers				
Yes	23.1	80.0	66.7	100.0	90.0
No	76.9	20.0	33.3	0.0	10.0
Altogether	100.0	100.0	100.0	100.0	100.0

Source: self study based upon the empirical research.

On the basis of the above results, it may be stated that the highest percentage of respondents (100%) chose the fact of belonging to a loyalty club or other similar form of strengthening relations with the insured in the case where the market share of the insurance company was higher (4 – I agree) than competitors. For the insurance companies whose market share was the highest

(5 – I completely agree) only a few such indicators may be observed (90%). It may be stated that the higher the market share of the insurance company, the higher the importance of loyalty clubs or other similar forms of bond strengthening with the insured.

Summary

If the insurance company wants to compete with other companies in the insurance industry, it must fight with the others for a higher position in the market. This means that an insurance company must apply a winning strategy, i.e. using the best techniques in business, being one step ahead of the competitors and using the synergy effect in their actions. According to the synergy effect, it is possible to gain multiple benefits thanks to connecting many parts into one unity, for example, connecting many employees into a well-knit team. Another important element of the market fight in the era of strong competition is the so called "soft management", for example, the skillful use of the company's reputation. It is a unique set of qualities which distinguishes the company in a positive way from its competitors. The effect of such distinguishing is usually a strong company brand, which creates a strong potential, reinforcing or increasing the company's position in the market or expanding the company's work into new markets, new products and new clients.

The identification of the factors influencing the improvement of the market position of the insurance company conducted in this study indicates that such factors may be, among others, chosen elements of a system of marketing and service, as well as those connected with managing the relations with clients and the company's good name. The strategy of standing out in the system of customer service may concern the clients' satisfaction with the way their complaints were looked into by the insurance company's workers, the politeness and professionalism of those employees in all the stages of the process of communication with clients, the use by the insurance company of ITC systems facilitating contacts with clients and/or creating a loyalty club. A company's good name is expressed in the company's image, which may be shaped by various factors, including leadership in the insurance industry. In this way, the hypothesis which was put forward in this study was positively verified.

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STRATEGIES OF INVESTING IN THE CONSTRUCTION SECTOR BASED ON MARKET ANOMALIES OCCURRING AT WARSAW STOCK EXCHANGE

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K e y   w o r d s: construction sector, market anomalies, market efficiency, investing.

A b s t r a c t

During the last twenty years, the importance of construction sector in the economy of the country was subject to fluctuations a number of times. This is noticeable as the change in the dynamics of construction-assembly production against the background of the GDP. For this study, two objectives were assumed. The main goal was to determine the strategy of investing in the construction sector at the Warsaw Stock Exchange based on market anomalies Identification of those anomalies was the auxiliary objective of the paper. Determination of deviations from the market efficiency will give the average investor the possibility of generating abnormal rates of return atmosphere at the capital markets.

In the paper, the method of literature studies, the method of comparisons and the method of studies on historical material were applied. Indicator analysis was necessary for evaluation of selected fundamental indicators. Profitability of investments was computed by applying the logarithmic rate of return.

Based on the results of studies it can be concluded that higher than average rates of return may be obtained independent of the atmosphere at the capital markets and in the entire economy. Based on the analysed time anomalies, the shares of construction companies should be purchased on Wednesdays and sold on Fridays. Purchasing shares of construction companies at the beginning of the year one should sell them at the end of the first year quarter.

STRATEGIE INWESTOWANIA W SEKTORZE BUDOWLANYM NA PODSTAWIE ANOMALII RYNKOWYCH WYSTĘPUJĄCYCH NA GIEŁDZIE PAPIERÓW WARTOŚCIOWYCH W WARSZAWIE

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S ł o w a   k l u c z o w e: sektor budowlany, anomalie rynkowe, efektywność rynku, inwestowanie.

Abstrakt

W ostatnim dwudziestoleciu zmieniało się znaczenie sektora budowlanego w gospodarce kraju. Jest to zauważalne przy zmianie dynamiki produkcji budowlano-montażowej na tle PKB. W pracy przyjęto dwa cele. Celem głównym jest określenie strategii inwestowania w sektorze budowlanym na GPW w Warszawie na podstawie anomalii rynkowych. Celem pomocniczym jest identyfikacja tych anomalii. Ustalenie odstępstw od efektywności rynku stworzy możliwość przeciętnemu inwestorowi wygenerowania anormalnych stóp zwrotu w warunkach zmiennej koniunktury giełdowej.

W pracy wykorzystano metodę studiów literaturowych, metodę porównań oraz metodę badań na materiałach historycznych. Do oceny wybranych wskaźników fundamentalnych niezbędna była analiza wskaźnikowa. Rentowność inwestycji wyliczono za pomocą logarytmicznej stopy zwrotu.

Na podstawie wyników badań można stwierdzić, że ponadprzeciętne stopy zwrotu można uzyskiwać niezależnie od panujących nastrojów na rynkach kapitałowych i w całej gospodarce. Na podstawie analizowanych anomalii czasowych akcje spółek budowlanych należy kupować w środy, a sprzedawać w piątki. Kupować akcje spółek budowlanych należy na początku roku, a sprzedawać pod koniec pierwszego kwartału.

Introduction

The Stock Exchange represents one of the options for investing cash surplus. Year after year the number of new investors there increases, mainly thanks to the new public offers, the so-called IPO – *Initial Public Offering*. Direct access of investors to various financial instruments that are traded at the stock exchange market results in the increased propensity for saving at households in the entire national economy. The development of stock exchange market with a wide range of financial instruments offered expands the investment opportunities. Investors are searching for various methods to achieve higher than average rates of return from their investments.

The main goal was to determine the strategy of investing in the construction sector at the Warsaw Stock Exchange based on market anomalies. Identification of those anomalies was the auxiliary objective of the paper.

In a well-developed economy, stock exchange fulfils a number of important macroeconomic functions that have positive influence on functioning of the economy. The capital market as one of the financial market segments fulfils the role of the capital distributor applying the mechanisms of price i.e. it acts as intermediary in exchange of capital between the buyers and the sellers. Every rational investor aims at placing his capital in the sector of the economy that allows the highest rate of return on investment. The success on the capital market depends on a number of very important aspects. Undoubtfully, one of these aspects is to maintain an effective investment strategy. It is an art of investing that takes into account the practice and theory of comprising transactions. The strategy should describe the desired rate of return based on a specified time horizon with the acceptable level of risk by the investor. The

addition to the above should be the exact description of all the conditions for the decision to be made. The strategy can be built by implementing technical or fundamental analysis, selection of appropriate rating, oscillators and means, market anomalies, stock and planetary cycles and other elements.

Strategies of investing on a capital market

In the history of the development of world finance there had been many concepts of investment strategies. Most of them are concerning potential means of obtaining the maximum level of return on invested capital (ROIC – Return On Invested Capital) in the given period of time.

The basic and, at the same time, oldest investment strategies are technical and fundamental analyses. There are, of course, other, more complex strategies, for instance wallet analysis developed by Harry Markowitz, the momentum strategy or the contradictory investment strategy (SZYSZKA 2006, p. 38). The selection of a right strategy depends on a couple of factors, such as: time horizon, investment risk, market development level, the knowledge of a particular investor, the information resource (JAJUGA 2009, p. 5). During the last decades investment strategies that are based on a selection of stocks from the regulated markets chosen by an analysis of a couple of fundamental ratings had gained high recognition and popularity. By an idea of a "fundamental rating" one should understand the evaluation of a company's financial attractiveness based on a relation of its price to its real value.

The concept of fundamental ratings in this thesis concerns the ratings that are created on the basis of data published by the companies and the information about the share prices of stock companies. Those ratings are based mainly on the data that provide the opportunity to evaluate the value and the price of the company (P/BV, P/E), as a distinction from other ratings, for example from the family of technical analysis that take into account the changes of share prices in a specific period of time. The aim of those strategies is to maximize the probability to choose a portfolio of companies that are undervalued in a given moment (CZAPIEWSKI 2009, pp. 55–56).

The next allotment of investment strategies unfolds typically on a line that describes the attitude towards risk, which a particular investor is vulnerable to when using this strategy. The basic from this group are aggressive, balanced and defensive strategies. In the thesis there were adopted researches based on aggressive strategies in which the investor accepts a high level of risk. Those strategies belong to the group of strategies that are described as those with a high probability of capital downfall and with an expected return much higher that the so-called risk-free rate of return. Choosing this type of strategies, the

investors are primarily concern with the maximalization of the level of potential return (JACOBS 1999).

Other methods of investing are: constant dollar plan, constant ratio plan. The first is about maintaining the same amount of equity in shares or other risky stocks (for example 10 t PLN). A simple mechanism is being implemented here: if the prices go up the shares are sold starting with the group of stocks that went up the most. The latter strategy means maintaining a stable relation between an active and passive part of the portfolio. The active part concerns stocks with a relatively high volatility. On the other hand, the passive part consists of different kinds of bonds, which prices undergo relatively low hesitation so the risk of a loss is relatively low. The proportion between active and passive parts depend of the preferences of the owner of the portfolio and should be relatively stable (MORGAN, RAYMOND et al. 2010).

Characteristic of the construction sector in Poland

Construction is the third largest sector of Polish economy after industry and trade. The share of construction in generating the GDP in 2011 was 7.9% (105.5 billion PLN) and according to the estimates of the Central Statistical Office (GUS), in 2012 a decrease by 0.5% as compared to the preceding year is possible. Because of its general character, construction is an inseparable component of economic and social activities. Investment activity of economic entities and economic situation of the population are the decisive factors generating demand for construction services and hence development of construction as a sector of the economy (*Polska 2012. Raport o stanie...* 2012, pp. 181–182). In April 2012, employment in the construction sector represented 9% of the total employment in the sector of enterprises. However, in 2012, the sector recorded a high rate of bankruptcies. During the first half of 2012, around 300 construction companies in Poland bankrupted. The average general debt rate for the 8 largest companies from the WIG-BUDOWNICTWO index was ca. 60% of their value (BARANOWSKA-SKIMINA 2012).

The construction sector is among the most unstable sectors of Polish economy. Continual fluctuations of its development indicators such as, e.g. industrial production and investment outlays for development of construction take place. The development of the construction market cycle in Poland indicates clearly the direct correlation between changes in construction sector and fluctuations in the activity of the entire Polish economy.

The data concerning industrial production (industry production sold) is presented in Figure 1. Those data represent the basic measure of economic activities of industrial enterprises and companies.
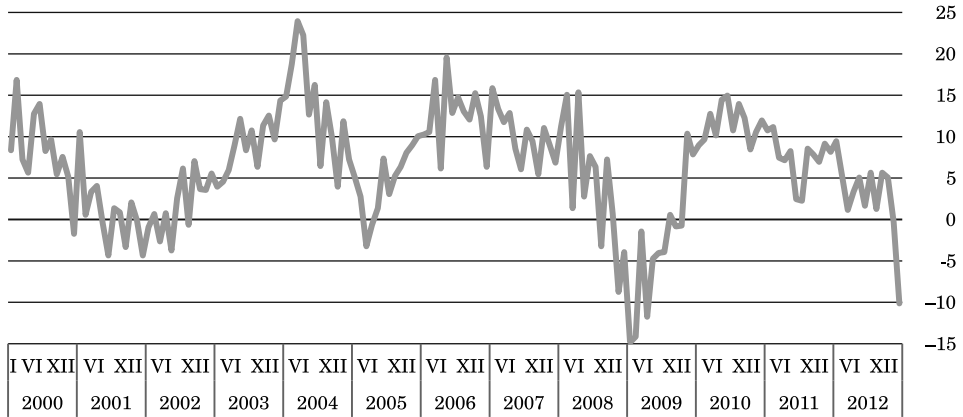
Fig. 1. Change in the value of industrial production in Poland during the years 2000–2012 (y/y) in %
Source: own work based on the data obtained from bankier.pl website (access: 18.01.2013).

The sample of the above indicator includes companies employing more than 9 people. The studies cover, among others, the value of products, semi-finished products, part of own production sold as well as value of works and services provided at a fee. It was noticed that the last data from December 2012 published on 18 January 2013 were much worse that the projections (actual –10.6% as compared to the forecast at –6.9%). In this case we deal with the situation similar to that from the turn of the years 2008–2009, where the industry production indicator decreased to the historical minimum by over –15%.

Together with the data on industrial production, the Central Statistical Office (GUS) publishes data for construction-assembly production. They concern works of investment and refurbishment type completed in Poland by construction enterprises employing more than 9 persons. The data encompass, among others, the works in erection of buildings and structures, construction and covering of roofs, as well as assembly, installation and finishing works, i.e. works involved in construction, reconstruction, extension, rebuilding, refurbishment and conservation of fixed and temporary buildings and structures. Figure 2 presents the dynamics of construction-assembly production against the background of the GDP of Poland.

The dynamics of construction-assembly production increase during the second half of 1990-s generally exceeded the GDP growth rate (in current prices). Then, the slow-down from the beginning of the last decade influenced the sector much more than it influenced the other sectors of the economy. Consequently, in 2001 and 2004 a decrease in construction-assembly production was even recorded while during the years 2002–2003 the sector growth rate was marginal. The situation improved significantly as of 2005, and
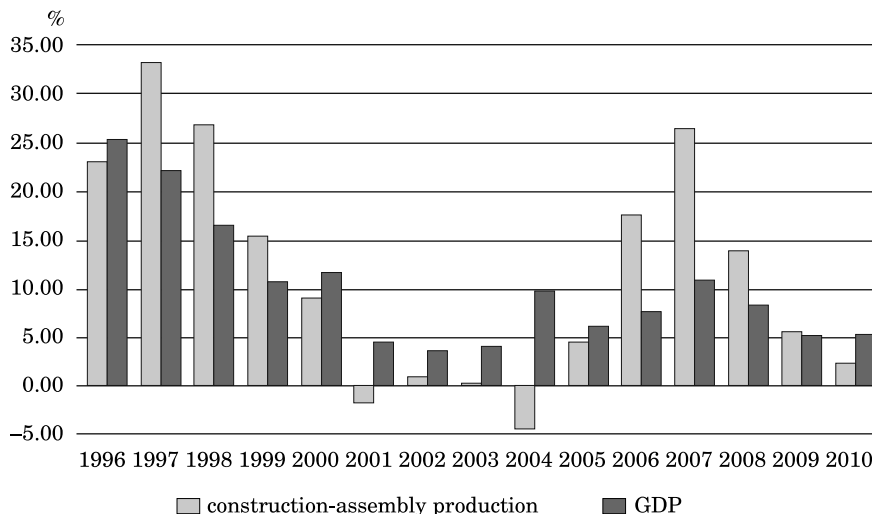
Fig. 2. Dynamics of construction-assembly production against the background of the GDP during the years 1996–2010 (y/y) in %
Source: own work based on http://www.bcc.org.pl/blz/pliki/raporty/BUDOWNICTWO_XI_2011.pdf (access: 18.01.2013).

particularly during the years 2006–2007 when the construction industry growth rate was significantly higher than that of the economy as a whole. Economic revival in the country and rapid increase in the volume of road and infrastructural investment projects resulting from Poland's accession to the European Union were the determinants of that growth. The global economic crisis that started in 2008, slowed-down the rapid development of the construction sector although until 2010 the construction-assembly production growth dynamics was higher than that of the GDP. That situation resulted from the large volume of works in road and engineering construction areas.

The development of the index reflecting the market situation in construction sector companies is presented in Figure 3. The WIG-BUDOWNICTWO index consists of 26 companies of various sizes listed at Warsaw Stock Exchange.

The largest share in the portfolio belongs to three companies with the aggregated share of 59.239% in the whole index (BUDIMEX 24.945%; ELEK-TROBUDOWA 23.574% and POLIMEXMS 10.720%)[1]. Currently, the sectoral index is at the level of ca. 1800 points. It was at that level previously in 2004 and 2000. In 2004, the WIG-BUDOWNICTWO index started increasing systematically and at the turn of 2005 and 2006 the clear trend appeared that led the index to the levels of historical maxima in 2007 (exceeding 12,500 points).

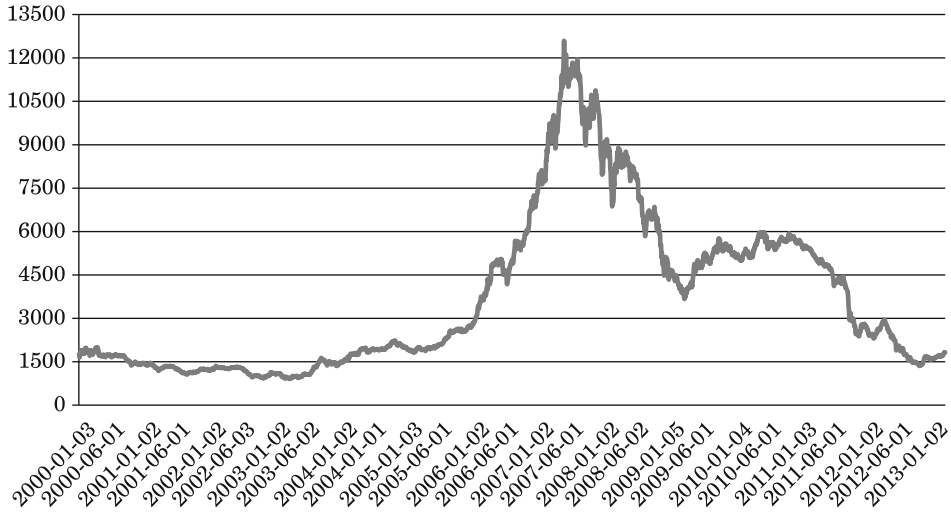[1] According to the data at www.gpw.pl (access: 22.01.2013).

Fig. 3. WIG-BUDOWNICTWO index value during the period from 2000 until 22.01.2013 (according to day closing prices, in points)
Source: own work based on the data obtained from gpwinfostrefa.pl (access: 22.01.2013).

Similar to the indicator of construction-assembly production also the WIG-BUDOWNICTWO index reached its peaks during the years 2006–2007 and then the trend reversed to the decreasing one, which continues.

Methodological assumptions for the studies

Identification of anomalies at Warsaw Stock Exchange in the construction sector and presentation of proposals for investing in the market of construction industry during the periods of bull and bear market is the main objective of the study.

The method of literature studies that aims at explanation and understanding the nature of market efficiency and market anomalies is one of the research methods applied in this paper. The method of comparisons that involves comparing (at least two) variables describing the specific economic parameters (e.g. comparison of the rates of return for indexes WIG20 and WIG-BUDOW-NICTWO) was used for correct interpretation of the results. The method of studies on historical materials was also used for computation of rates of return from selected indexes and companies from the construction sector.

In the work the secondary source materials were used. The data necessary for conducting the studies were obtained from the financial portals of Warsaw Stock Exchange, GPWInfoStrefa, Bankier and from data processed and appro-

priately selected by advanced software for technical analysis MetaStock ver. 11.0 as well as the SDIG system (Stock Exchange Information Distribution System). The financial data of companies concerning the indicators computed in that study were obtained from the above-mentioned Internet portals as well as balance sheets of the individual companies. Next, appropriately standardised data was processed using the Microsoft Excel software.

During determination of profitability, for simplification of computations, the dividends from individual companies were excluded. For investigation of the rates of return on selected companies and market indexes the logarithmic rate of return was used defined in the following way:

$$R_{it} = \ln(P_{it}) - \ln(P_{it-1})$$

where:

R_{it} – rate of return from index i or company i during the period t,

P_{it} – closing price of index i or company i during the period t,

P_{it-1} – closing price of index i or company i during the period t-1 (JAJUGA 2007, pp. 92–93).

Indicator analysis (investing in value) allowing evaluation of selected indicators, i.e. book value to market price (BV/P), market price to net earnings (P/E), was applied for identification of anomalies related to the characteristics of the companies (DOLESZCZAK 2011, pp. 45–48).

Companies and indexes listed at Warsaw Stock Exchange are the subject of study. The investment portfolios and their rates of return developed based on the emergence of selected capital market anomalies are the object of study. The timeframe of the study covers the period from January 2000 until 18 January 2013. The financial data of companies concerning indicators computed in this study were obtained from balance sheets of the individual companies.

Efficiency of the market and selected anomalies

The shape of the current definition of the efficient capital market was influenced by scientific approaches and definitions originating mainly from the 20th c. (e.g. Bachelier, Cootner, Malkiel) (BULSKI, GÓRSKI 2012, pp. 141–143).

The market efficiency theory was developed and expanded mainly to satisfy the needs and in the context of capital markets' analysis. Eugen Fama, who claims that the market is efficient when important current information are available to all participants at almost no cost and where a large number of rational investors acting with the focus on maximisation of profit and attempting at projecting the shares price development compete actively, is considered

the creator of the theory. Competition in the efficient market among rational participants causes that the current price of stocks at each moment reflects the information related to the past and the future events in the market (FAMA 1970, pp. 383–397).

The capital market efficiency is understood differently by practitioners and by theoreticians. The practitioners attempt at foreseeing the changes of prices based on the information concerning their levels during the preceding period while theoreticians prove that variability or prices is unpredictable and caused by factors that are external to minimisation of the shares portfolio management risk. The empirical analysis of markets initially generally confirmed their efficiency within the timeframe considered indicating at the same time the presence of numerous deviations from efficiency, i.e. market anomalies (STARZEŃSKI 2011, p. 49).

"Anomaly" means deviation from the expected result, an exception from the rule. In the capital market context, anomaly is the "technique or strategy that is contrary to the efficient markets theory assumptions" and "the situation allowing achievement of positive, higher than average rates of return" (CZERWONKA, GORLEWSKI 2008, p. 152).

The systematics of anomalies is very extensive. Some authors divide anomalies into three or four groups while others classify a higher number of groups. This paper focuses on time (seasonal) anomalies and those offering the possibility of projecting rates of return based on the characteristics of companies.

Calendar (time) anomalies represent the search for differences between the average rates of return during selected stock exchange sessions or selected time periods (e.g. a week, month). Determination of presence of such differences may be helpful to the investors in achieving higher than average profits on investments, higher than those they could achieve at the efficient market (GORLEWSKI 2003, p. 12).

In this paper the author was searching for anomalies of the seasonal distribution of the rates of return, i.e. the month-of-the-year effect and the day-of-the-week effect in construction industry. The month-of-the-year effect also referred to as the year-end effect or "January effect" is represented by achievement of much higher average rates of return by companies during the first month of the year. In practical terms, the investors have the opportunity of generating higher than average profits on investments initiated at the end of December and closed during the last days of January (SZYSZKA 2007, pp. 141–145).

The day-of-the-week effect is represented mainly by lower prices on Monday and higher on Friday (FRĄCZEK 2006, pp. 268–269). The presence of the day-of-the-week effect was confirmed not only in the American market but

also in Great Britain, Turkey, Australia, Japan, Canada, Czech Republic and
Rumania. In Japan and Australia, lower rates of return were generated not on
Monday but on Tuesday (SZYSZKA 2003, pp. 64–65).

The subject literature contains abundant research indicating significant
correlations between the characteristics of companies and rates of return on
their stocks. An example of anomaly of that type is the indicator of market
price to book value (P/BV). It provides the information on the relation between
the actual price to the book value. The other type of anomaly of fundamental
type is the dependence of changes in the rates of return and the indicator of
price to earnings (P/E). It reflects the amount the investor must pay to buy
a single zloty of the book profit of the company (BUCZEK 2005, pp. 73–80).

Possibilities of investing in the construction sector based on the empirical studies

Making use of the system of rates of return over time represents one of the
methods for generating higher than average rates of return. Figure 4 presents
the average day rates of return on WIG-BUDOWNICTWO index and the
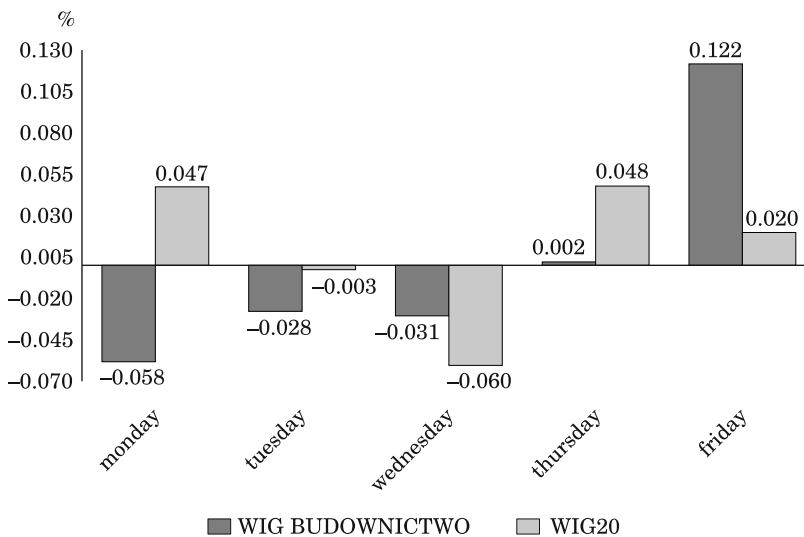benchmark, which in this case WIG20 index is.

Fig. 4. Average day rates of return for individual days of the week on WIG-BUDOWNICTWO and
WIG20 indexes during the period from 2000 until 18.01.2013 (in %)
Source: own work based on the data obtained from the MetaStock software.

Monday and Friday, when the difference between the rates of return from both indexes exceeds 0.1% deserve attention. On Monday, WIG-BUDOW-NICTWO loses in average almost 0.06% (WIG20 gains almost 0.05%) while on Friday it gains over 0.12% (the rate of return on WIG20 index is just 0.02%). The so-called weekend anomaly can be explained by the fact that companies that are components of WIG-BUDOWNICTWO index present the un-favourable information for the public on Friday as at the end of the day. The individual investors pay less attention at that time to the new information coming on Friday to the market as at the end of the session and after the session waiting for the weekend. On Monday they show increased activity in the market discounting the Friday information published by companies, which leads to significant sale-out in the market. This is also the effect of excessively nervous reaction and the so-called snowball effect causes increased supply and decreases in prices of stocks.

Figure 5 was presented for the purpose of comparing the day rates of return from 3 largest in capitalisation companies of the WIG-BUDOWNICTWO index and the index it self. Those companies represent almost 60% share in that index[2] and hence they have significant influence on the development of rates of return in the investigated index.
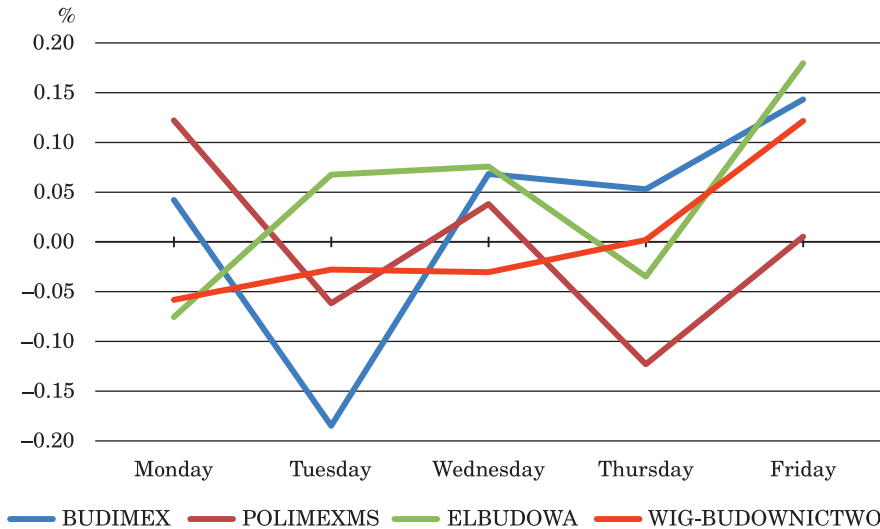

Fig. 5. Average day rate of return on the largest companies of WIG-BUDOWNICTWO index and the industry index during the period from 2000 until 18.01.2013 (in %)
Source: own work based on the data obtained from the MetaStock software.

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[2] data of 22.01.2013.

On Monday, only the ELEKTROBUDOWA company is characterised by the negative rate of return while the other companies are characterised by positive results (POLIMEXMS shows the highest rates of return at the level of 0.12% on Monday). The highest positive rates of return on Friday obtained on the companies ELEKTROBUDOWA and BUDIMEX, 0.18 and 0.14% respectively, have positive influence on the development of WIG-BUDOWNICTWO index on that day.

Development of the average monthly rates of return in case of WIG--BUDOWNICTWO and WIG20 was also analysed, which is presented in Figure 6. The investigations covered the period from 2000 until 18 January 2013. WIG-BUDOWNICTWO index presented higher than average increases during the months of January and March (the average rate of return during those months was ca. 4% per month). During the other months the index is characterised by negative rates of return or minor increases (from 0.1 to 0.47%). For comparison, WIG20 shows the highest rates of return in December (ca. 2.5%), July (1.65%) and October (ca. 1.6%). The practical indicators for the average investor are evident – investing in WIG-BUDOWNICTWO index should commence at the end or at the beginning of the year and finish at the end of the first or beginning of the second year quarter. The rest of the year should be used for investing in other, better behaving indexes of other sectors.
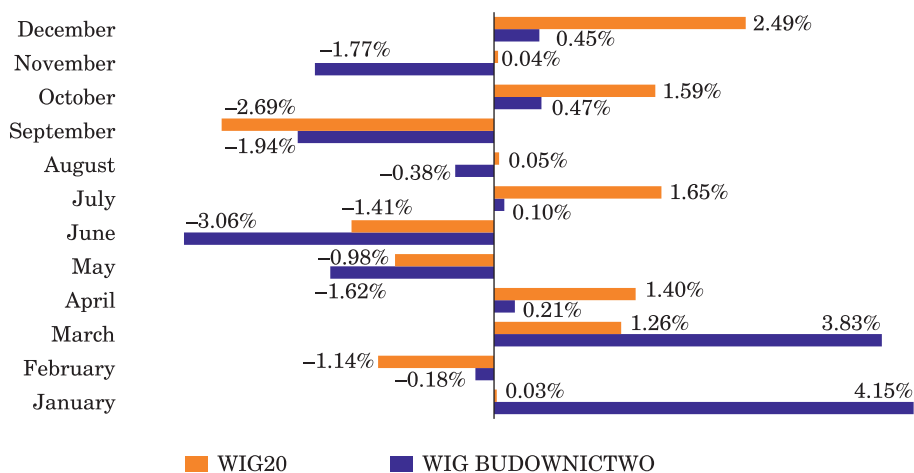

Fig. 6. Average monthly rates of return on indexes WIG-BUDOWNICTWO and WIG20 during the period of from 2000 until 18.01.2013 (in %)
Source: own work based on the data obtained from the MetaStock software.

The studies also covered the largest companies included in the WIG-
-BUDOWNICTWO index in comparison to that index. Figure 7 presents the
results of those studies. Deviations from market efficiency were noticed in
January and March in companies BUDIMEX and ELEKTROBUDOWA where
rates of return were at the level of over 8% a month in case of BUDIMEX and
at the level of over 8% in January and over 4% in March in case of ELEK-
TROBUDOWA. This probably influences high level of the rates of return in
case of the industry index during those months. The behaviour of
POLIMEXMS differs slightly from the other companies. POLIMEXMS pre-
sented results higher than average in July (over 5% profit) and in May (ca. 3%
profit). During those months WIG-BUDOWNICTWO was characterised by
rates of return around 0% (in July) or negative (in May). The rates of return
for those companies closest to the construction industry index are found in
December (from 0.45% to 1.86%) while the other months are characterised by
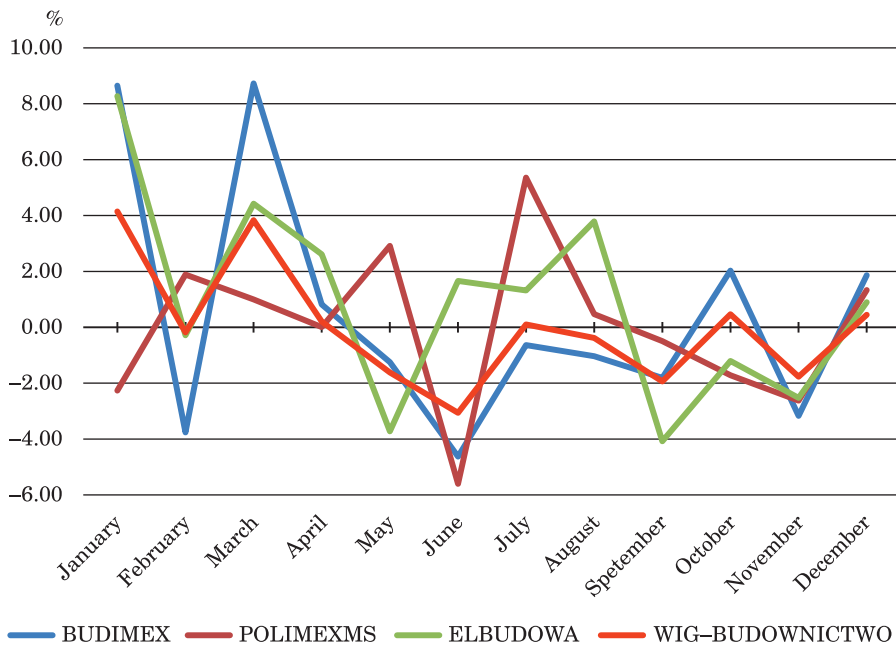larger variability of prices.

Fig. 7. Average monthly rates of return on the largest companies of WIG-BUDOWNICTWO index as
compared to the index during the period of from 2000 until 18.01.2013 (in %)
Source: own work based on the data obtained from the MetaStock software.

In the simulation tests conducted the strategies based on investing in portfolios of construction companies selected according to the level of the fundamental indicators used in practice the most frequently, i.e. the price to book value ratio (P/BV) and price to earnings ratio (P/E) were examined. They were subject of extensive studies worldwide and they are of undoubted importance in investment practice.

The test population consisted of 15 companies included in WIG-BUDOW-NICTWO index listed at Warsaw Stock Exchange during the period of from 2000 until 18.01.2013. The companies were divided into two portfolios (7 and 8 companies in each or 7 in each when the given indicator was not available). For each of them the year average logarithmic rates of return were computed. The results of the conducted studies are presented in Table 1.

Table 1

Rates of return on portfolios sorted according to the indicators P/BV and P/E from15 companies of WIG-BUDOWNICTWO index listed at Warsaw Stock Exchange during the years 2000–2013 (in %)

Indicator	Rate of return on the portfolio with the lowest values of the index	Rate of return on the portfolio with the highest values of the index
P/BV	−11.91	9.98
P/E	−12.23	8.73

Source: own work based on studies.

Simulations of strategies based on the P/BV ratio do not confirm presence of anomaly according to which the companies with the lowest level of the price to book value ratio generate higher than average rates of return, higher than the companies with the highest values of that indicator. Companies characterised by the low level of P/BV ratio generate negative profitability at the level of ca. 12% during the period covered. On the other hand, investing in the portfolio with high values of that indicator will allow the rate of return equal to almost 10%.

Strategies based on the effect of the market price to net earnings ratio (P/E) show a similar trend as the earlier presented P/BV ratio. Share prices of the relatively cheaper companies with low level of the P/E ratio behaved worse than those of companies with high level of that indicator.

The above studies did not confirm presence of anomalies related to P/BV and P/E ratios in the construction sector. Hence, it can be concluded that the construction sector is efficient in the half-strong form. This can also be used in practical terms by selecting companies with the relatively highest indicators from the WIG-BUDOWNICTWO index to achieve abnormal rates of return.

Summary and conclusions

The efficient markets theory, from the very beginning, raised some doubts. Presentation of examples of deviations from that hypothesis, in the literature referred to as anomalies, which in the practical way may be used by the investors to generate a higher than market premiums has been one of the methods used by opponents of that theory to criticise it.

Based on the results of empirical studies conducted at the Polish market of construction sector companies' shares it was possible to achieve the goal of the work and to formulate the following conclusions:

– during the studied period of 2000 – 18.01.2013, in the construction sector, the day-of-the-week anomaly. The strategy that is coming out of this facts is about buying shares on Wednesdays and Fridays. In that scenario we achieve above-average rates of return,

– investment strategy based on monthly anomalies gives the opportunity to achieve above-average profits from shares of construction companies by holding the stock in January and March, when the average monthly rate of return was at the level of 4% (benchmark, i.e. the WIG20 index in January was at the neutral level and in March generates ca. 1.2% profit),

– the strategy created from companies with the potential of value do not offer the opportunity to generate abnormal profits. To the contrary, companies with high P/BV ratio values allow generating higher than average profitability, which is not in contradiction to the efficient markets theory. Similar results can be read from the strategy based on the price/net earnings ratio.

The conducted systematics of the selected anomalies and the studies allow concluding that the main goal of the work has been achieved. In the Polish stock market higher than average rates of return could be generated in the construction sector during the recent years.

Translated by JERZY GOZDEK

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GUIDELINES FOR TEXT PREPARATION FOR THE
"OLSZTYN ECONOMIC JOURNAL"

The "Olsztyn Economic Journal" (ISSN 1897–2721) is a scientific magazine published in English at the Faculty of Economic Sciences of the University of Warmia and Mazury in Olsztyn. During the years 2007–2012 the magazine was published semi-annually and as of 2013 it was transformed into a quarterly. It publishes scientific papers of methodical, review and empirical nature in economic sciences. The Olsztyn Economic Journal is published by the University of Warmia and Mazury in Olsztyn Publishing House. The printed format is the primary form of the magazine. Additionally, all numbers of the magazine are available also in the electronic format on the website: http://www.uwm.edu.pl/wne/oej.php, http://wydawnictwo.uwm.edu.pl (subpage Czytelnia).

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– Papers presented for publication should be written in the Word text editor in Times New Roman font, size 12 points, 1.5 line spacing (A4 page holds 25 text lines, right hand margin 3 cm). The paper length may not exceed 12 pages of typescript).

– Polish authors deliver paper text in Polish and English (the English language version should present the name and surname of the translator). Correction of the English text should take place after receiving the positive review and/or responding to the reviewer's comments.

– Foreign authors provide the entire paper in English with the title, key words and abstract in Polish and make corrections after receiving the review.

– All papers are subject to the initial evaluation by the editor in chief, subject editors, statistical editor and evaluation of contents by reviewers.

– Authors should consider comments by reviewers and comment on them.

After receiving the review, the author shall send to the editor:

1) a copy of the paper with the reviewer's comments,
2) a corrected copy of the paper in English with the title, key words and abstract in Polish (on CD),
3) response to the review,
4) author's statement.

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Tomczyk Z. 1996. *Wynalazczość i racjonalizacja źródłem postępu technicznego*. Gosp. Narod., 6: 21–25.

Unpublished papers: Malicki K. 1990. *Ubój świń*. *Instytut Żywienia Zwierząt ART*, Olsztyn (typewritten text). Kowalski H. 1992. *Wychów cieląt*. *Katedra Hodowli Bydła ART*, Olsztyn (doctoral dissertation).

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