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REGIONAL STRATEGIC GROUPS AS AN INSTRUMENT FOR THE LOCATION'S DECISIONS SUPPORTING ON THE EXAMPLE OF FOOD INDUSTRY

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K e y w o r d s: location, strategic groups, food industry, competition.

A b s t r a c t

Process of planning the location of enterprises still lacks the method allowing for combining spatial analysis with the competitiveness analysis of the industries or their clusters, while taking into account the competitive position and competitive potential. The purpose of the study is to create a new methodical pattern in the location analysis of the company based on regional strategic groups, and to show the possibilities and limitations of the proposed tool's application, supporting location decisions on the example of food industry companies in NUTS 2 level regions in Poland. The study included medium and large enterprises of the food industry in 2013.

This paper contains an attempt of application of a modified McKinsey matrix for spatial analyses, using the investment attractiveness indexation of regions. The suggested modification of McKinsey matrix is a new proposal in this respect, while at the same time being an attempt to solve the problem of the management.

Regional strategic groups analysis allows one to propose possible strategic actions for businesses, which helps to solve the problem of location management of group of companies, including regional clusters. It is worth noting that the proposed instrument also contributes to the actions of the local government units (regions), concerning the adaptation of investment offer to the needs of business entities.

REGIONALNE GRUPY STRATEGICZNE JAKO INSTRUMENT WSPOMAGAJĄCY DECYZJE LOKALIZACYJNE PRZEDSIĘBIORSTW NA PRZYKŁADZIE PRZEMYSŁU SPOŻYWCZEGO

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S ł o w a k l u c z o w e: lokalizacja, grupy strategiczne, przemysł spożywczy, konkurencja.

A b s t r a k t

W planowaniu lokalizacji przedsiębiorstw brakuje metody pozwalającej na łączenie analizy przestrzennej z analizą konkurencyjności sektorów lub ich wiązek, z jednoczesnym uwzględnieniem pozycji konkurencyjnej i potencjału konkurencyjnego. Celem opracowania jest stworzenie nowego wzorca metodycznego w analizie lokalizacji przedsiębiorstwa na podstawie regionalnych grup strategicznych oraz ukazanie możliwości i ograniczeń aplikacyjnych zaproponowanego narzędzia wspomagającego decyzje lokalizacyjne, na przykładzie przedsiębiorstw przemysłu spożywczego w regionach szczebla NUTS 2 w Polsce. Badaniami objęto średnie i duże przedsiębiorstwa przemysłu spożywczego w 2013 roku.

W pracy opisano próbę aplikacji zmodyfikowanej macierzy McKinseya do analiz przestrzennych, z wykorzystaniem waloryzacji atrakcyjności inwestycyjnej regionów. Proponowana modyfikacja macierzy McKinseya stanowi nową propozycję w tym zakresie, będąc jednocześnie próbą rozwiązania problemu zarządczego.

Analiza regionalnych grup strategicznych pozwala na zaproponowanie możliwych działań strategicznych przedsiębiorstwom, co się przyczynia do rozwiązania problemu zarządzania lokalizacją grupy przedsiębiorstw, w tym klastrów regionalnych. Warto zauważyć, że proponowane narzędzie przyczynia się jednocześnie do dostosowania działań jednostek samorządu terytorialnego (regionów) w zakresie kształtowania oferty inwestycyjnej do potrzeb podmiotów gospodarczych.

Introduction

The increasing number of operations and the organisational complexity of the enterprises create new information needs concerning the functioning of entities at different levels of spatial division (from international, through regional to local one), while taking into account the sectoral and cross-sectoral analysis.

Based on the literature and described cases of locating businesses, one can indicate that the choice of location is based on multi-level procedures, which allow to select a location from a set of suitable options.

Various recommendations for the conduction of the location selection procedure are formulated on the basis of these different approaches. The most

general guidelines are related to the strategic approach. The choice of location comes down to the evaluation of different variants of location based on the analysis of location factors of a general nature – regarding the region, and detailed – concerning a specific property. One often uses a gravity method (THAI, GREWAL 2005, p. 3–24), grading point methods (SCHROEDER 1993, KASIEWICZ 2002, p. 187), mesh model allowing modelling of nonlinear transport costs (ASHAYERI, RONGEN 1997, p. 97–109, 188), or more complex models comparing locations in terms of transport and storage costs.

There is still no method to combine spatial analysis with the analysis of the sectors' competitiveness or their clusters, while taking into account the competitive position and competitive potential. Therefore, the purpose of this study is to create a new methodical pattern in the location analysis of the company based on regional strategic groups, and to show the possibilities and limitations of the proposed tool's application, supporting decisions of enterprises' localisation optimisation (optimal choice of location) on the example of food industry companies in the NUTS 2 level regions in Poland.

The authors have chosen the food industry due to the fact that it is very diverse internally. It shows links to other sectors of the economy, especially agriculture. This industry is characterised by strong spatial connections with local and regional markets and, to a lesser extent, with international markets. Currently it is changing, because international ties in the era of globalisation are growing, and competition strategies of food businesses are focused on various forms of internationalisation – nearshoring, offshoring, etc.

This raises the need to improve the location analyses at various spatial scales, including in cross-border and wider – international terms.

The authors make a thesis: „the use of McKinsey matrix may be a useful tool for decision-making in terms of making location decisions in enterprises, allowing to efficiently use the available management information".

Research Methodology

In the literature one recommends various model solutions to identify the optimal location, e.g. using localisation triangle, izodapan model and more sophisticated linear programming methods based on the objective function, usually in the form of minimising the total transport cost (WEBER 1909, PREDÖHL 1925, PALANDER 1935, ISARD 1956, LÖSCH 1961, HOOVER 1962). The companies participating in globalisation need new instruments to compare different regions as potential business locations, including potential partners for the creation of cluster structures. Therefore, the paper shows the possibilities offered by the McKinsey matrix in spatial research using the original

concept of regional strategic groups. Regional groups are the strategic clusters of regions similar to each other in terms of the attractiveness of the sector and position, or competitive potential (GODLEWSKA-MAJKOWSKA, KOMOR 2014, p. 133).

McKinsey matrix (industry's attractiveness matrix, the attractiveness of the product, market's attractiveness, the General Electric matrix) is one of the portfolio analysis methods and so far has been mainly used for the diagnosis of the strategic business unit (SBU) of defined objectives and well-defined products and clients. The matrix was used for the presentation of a diversified enterprise's business activity portfolio, which operates in several sectors. It is a method of measuring and presenting the competitive position of a diversified enterprise based on two variables: the attractiveness of the industry and the competitive position of companies in the sector. According to both analysed variables units can be rated as low, medium and high. According to the matrix's structure, the company should operate in the most attractive sectors and focus on investing in products for which it has a strong competitive position (THOMPSON, STRICKLAND 1987, p. 192, HAX, MAJLUF 1991, GIERSZEWSKA, ROMANOWSKA 2002, p. 222–225).

McKinsey matrix is the basis for the development of strategies recommended for the strategic business units of the company. Figure 1 shows the division of units according to the recommended strategies.

The following recommended strategies for companies depending on their competitive position and attractiveness of the industry can be specified (KOMOR 2014, p. 86–87 on the basis of: PIERŚCIONEK 1998, p. 248–250, OBŁÓJ 2001, p. 278, GIERSZEWSKA, ROMANOWSKA 2002, p. 226):

– „winners" strategic units should use the strategy of investment and growth, and look for the way to dominate the market (area *A* in Fig. 1),

– „winners" units should implement selective growth strategy based on investments in selected segments (area *B* in Fig. 1),

– units called „question marks" – one recommends strategy of selective analysis of the options associated with a specialisation in market niches or taking over companies with significant strategic advantage (area *C* in Fig. 1),

– average business units should implement the strategy of selective options' analysis based on specialisation and selective investments (area *D* in Fig. 1),

– units called „profit producers" – one recommends strategy of the selective analysis of options based on investments that will maintain market share (area *E* in Fig. 1),

– „losers" units should pursue strategies of profit maximisation or divest businesses (area *F* in Fig. 1),

– „losers" strategic units should divest businesses or implement short-term profit maximisation strategies (area *G* in Fig. 1).

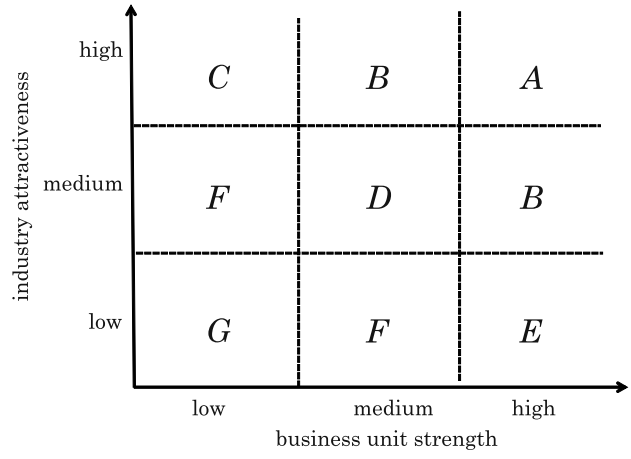

Fig. 1. McKinsey matrix – division of units according to recommended strategies
Source: KOMOR (2014).

The use of industry attractiveness matrix for the needs of spatial analyses was suggested by GODLEWSKA-MAJKOWSKA (2013, p. 129–132). According to the author's concept, an individual enterprise was replaced by a collective enterprise, i.e. a group of companies from the same sector operating in the region, and strategic business units were replaced with different locations (regions).

In place of industry's attractiveness indexation, found on the *OY* axis of the traditional McKinsey matrix, in a regional matrix one can use indicators of investment attractiveness, treated as elements allowing the comparison of location data and assessment of the competitive position of companies in the region. The OX axis can show competitive position of companies in the industry located throughout the region, e.g. measured by the share of a given region in the value of production sold/sales revenues. In case of the absence of statistical data, indirect indicators of the competitive position of the region, or businesses located can also be used there, e.g. the share of a region in a group of all economic entities of the given industry, or in fixed assets' gross value or investments of a reference area (e.g. the European Union for international analyses, or the given country for domestic analyses). Because the matrix is created on the basis of the presentation of the location's three dimensions, hence the third dimension is presented in the matrix in the form of a circle, whose size can show the level of entrepreneurship, determined by the share of the region in the total employment in the sector. This measure also demonstrates the competitive position of the region and shows its intermediate competitiveness. Dividing units according to the above criteria into low, medium and high allows the strategic position analysis and identification of

possible strategies to compete in the sector. McKinsey matrix modified in such a way for the need of spatial analyses consists of nine fields, which include units identified as regional strategic groups. Each group has a set of recommended strategies for entities that are a part of them.

Regional Strategic Groups in Food Industry in Poland

In order to identify and analyse regional strategic groups, data from the financial statements of medium-sized and large food industry companies for 2013 years has been used. The matrix's design was based on two variables – the assessments of the competitive position of the region and the attractiveness of the industry. Competitive position of the region has been determined on the basis of the share of the province in the value of the sold production of the food industry in Poland.

Attractiveness assessment of the sector has been based on the indexation of the potential investment attractiveness for industrial investments (*Atrakcyjność inwestycyjna regionów*... 2012, *Atrakcyjność inwestycyjna a przedsiębiorczość*... 2011, *Innowacyjność jako czynnik*... 2010). This indicator describes the most important areas for industrial investments of a labour intensive character and allows a multi-criteria analysis for the location of the investment, taking into account various factors. The index construction is based on the weight-correlation method (BRZOZOWSKI, POGORZELSKI 1992, p. 42–44) enabling the construction of a synthetic pseudo-one-feature vector expressing the key location factors for the processing industry grouped in the so-called microclimates: labour resources, technical infrastructure, social infrastructure, market, administration, social and innovativeness microclimate (*Atrakcyjność inwestycyjna regionów*... 2012).

Matrix depicting the distribution of regional strategic groups has also another dimension presented as circles of different sizes. It can show the level of entrepreneurship, determined as the region's share in the total employment in the sector on the reference area (in Poland). This measure also demonstrates the competitive position of the food industry enterprises of the region and shows the intermediate competitiveness of the region.

According to the results of the research, it can be said that the Mazowieckie province is a leader in terms of competitive position – measured by a share of the province in the national value of sold production of the food industry in 2013 (cf. Fig. 2), which also has the highest ratings of location advantages for labour-intensive industries included in the PAI 2 indicator. Enterprises in the food industry operating in the analysed area can be described as „winners" strategic units that are suited for the development strategy. They should maximise investments and dominate the market.

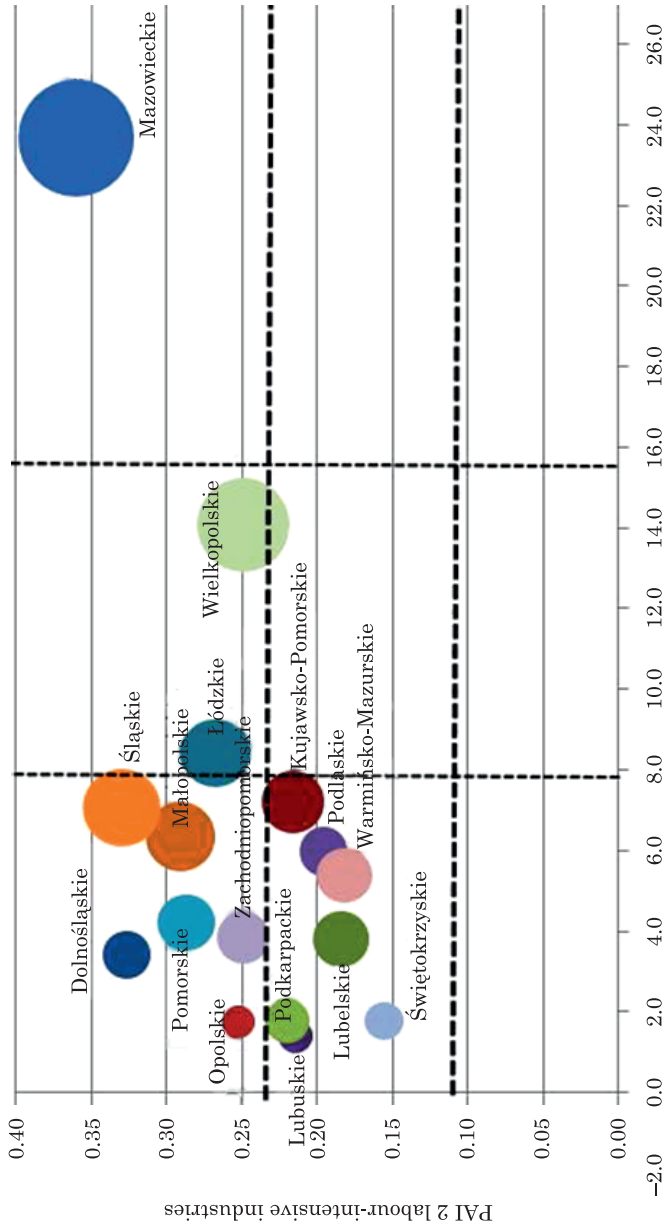

Fig. 2. Regional Strategic Groups in Food Industry in Poland According to Provinces in 2013

Attention: the size of circles corresponds with the share of particular provinces in the number of employed in the food industry in Poland in 2013 (Poland=100%)

Source: own study based on: investment attractiveness indicators (PAI 2) developed in Institute of Enterprise under the academic supervision of H. Godlewska-Majkowska within statutory research of Collegium of Business Administration of Warsaw School of Economics in 2015 and Statistical Bulletins of Provinces.

Wielkopolskie and Łódzkie provinces have worse competitive position than the leader and at the same time, these regions are characterised by the above-average assessments of the location advantages for labour-intensive industries (Fig. 2). Hence, one can recommend in this situation the strategy of selective growth based on investments in selected segments of the market. The provinces can be described as „winners". However, it is worth noting slightly worse competitive position of the Łódzkie province, measured by the share of the region in the value of sold production of the domestic food industry. Enterprises operating in this region should take steps to improve the competitive position through, e.g. taking over firms with a significant strategic advantage. Otherwise, there is a risk of moving to a group of units known as „question marks".

The group of units called „question marks" includes the following provinces: Dolnośląskie, Śląskie, Małopolskie, Pomorskie, Zachodniopomorskie i Opolskie, which are characterised by the high rating of universal location values for labour-intensive industries and the low competitive position in the food industry (Fig. 2). This is due to the historically shaped industrial traditions of the regions concerned and the conditions for the conduction of agricultural production, which is the source of raw materials for the food industry. Food industry enterprises located in these regions are recommended to use the strategy of selective options' analysis based on specialisation, finding market niches, selective investing in the potentially most profitable activities providing good growth prospects, or acquisition of another company in the industry.

Other analysed regions – Lubuskie, Podkarpackie, Lubelskie, Podlaskie, Świętokrzyskie, Warmińsko-Mazurskie and Kujawsko-Pomorskie – may be assumed for „losers" (Fig. 2), for which the most likely strategy is to maximise profit or descent from the market (acquisition of competitors' profit, reducing product range, minimal investments, or alternative sale of a business). It is therefore important to create conditions conducive to keeping investors focused on short, or medium-term profits there.

Summary

In this paper, regional strategic groups in regard to food industry were distinguished, based on the assumption that the companies from a given region can be treated as a collective enterprise in a particular industry.

When using this tool, it was found that Mazowieckie province performs best both in terms of competitive position, as well as competitive potential.

Wielkopolskie and Łódzkie provinces have worse competitive position than the leader, but because of the above-average overall assessment of the location

advantages, can apply selective growth strategy based on investing in selected segments of the market. It applies especially for raw materials industry, as confirmed by the high share of these regions in the value of agriculture's sold production.

The proposed adaptation of the McKinsey marix for the needs of spatial analysis in the form of regional strategic groups brings new benefits to the enterprises, regardless of the analysed industries. They include:

– comparisons of both individual areas (regions), as well as subsets of potential business locations using complex assessments of investment attractiveness of statistical regions,

– monitoring changes in the whole industry and the actions of competing companies with emphasis on the spatial factor,

– identifying potential rivals within an industry's strategic group in a given location,

– the search for partners in building strategic alliances or establishing cooperation based on coopetition – coopetition relies on the simultaneous presence of cooperation and competition in relationships between competitors; competitors cooperate within certain functions of the value chain, while they compete on the other grounds (BENGTSSON, KOCK 2000, p. 411–426, CYGLER 2009).

Analysis of regional strategic groups allows to propose possible strategic actions for enterprises. In this context it contributes to solving the problem of managing companies' locations. It is worth noting that the proposed instrument also contributes to the actions of the local government units (regions), concerning the adaptation of investment offer to the needs of business entities.

Therefore, a research hypothesis assuming that the McKinsey matrix can be a useful tool for enterprises' decision-making processes concerning location, allowing to efficiently use the available management information, has been positively verified.

When making strategic decisions and choosing strategic options one should however bear in mind that all statistical measures are subject to certain structural failure. A special attention should be paid to the fact that the intra-regional scale, i.e. NUTS2, may not reflect the actual interregional relationships taking place within the spatial connections of a network character. In addition, data on entrepreneurship and employment may not correspond to the actual involvement of companies on the individual regional markets due to the fact that part of the turnover is made in non equity form. Also financial reporting is highly corrupted, and does not reflect the location of companies in the region, but rather their head offices.

Validity of the available statistical data and too general character of investment attractiveness indicator used in the construction of the matrix for

the attractiveness of the region assessment are application limitations of the proposed tool. Although the investment attractiveness indicator is created based on a wide range of data, it may not adequately reflect the sector-specific location factors. This effect can be however eliminated, through correcting the indicator by taking into account additional factors included in its composition.

Among the directions of future research on the concept of regional strategic groups one can mention the need for more detailed analyses of individual elements of enterprises' competitive potential. It seems particularly important to conduct in-depth analyses of specific sector's links with elements in the supply and distribution chain. In addition, it is worth making an attempt to apply this concept to the lower levels of aggregation than the industry's sector (which requires more detailed definition of investment attractiveness indicators of regions), the transition from a static to a dynamic approach to determine the direction and strength of shifts in strategic groups. An attempt to transfer other portfolio analyses tools to the mezoeconomic level, which have been used at the microeconomic level so far, may also be an interesting issue.

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THE PENSION PROVISON SCHEME FOR PROFESSIONAL SOLDIERS IN POLAND: THE BACKGROUND, EFFICIENCY AND PROSPECTS

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K e y w o r d s: professional soldier, pension provision scheme for the armed forces, retired soldiers.

A b s t r a c t

Our objective has been to review, analyze and evaluate the pension scheme for professional soldiers and their family members in Poland, including the current legal regulations governing this area.

The unique legal status of the armed forces in Poland has always been associated with the commonly held belief that professional soldiers and their families enjoy a special, privileged position in terms of social security compared with other occupational groups.

However, the unique and more advantageous conditions for the acquisition of health or old-age pension rights drawn up specifically for the armed forces can be seen as compensation for the high psychophysical and intellectual expectations that professional soldiers must satisfy. These expectations include requirements such as constant work availability, willingness to risk one's life and health and, in general, a higher degree of work stress among professional servicemen than among other groups of employees.

SYSTEM ZAOPATRZENIA EMERYTALNEGO ŻOŁNIERZY ZAWODOWYCH – GENEZA, FUNKCJONOWANIE, PERSPEKTYWY

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S ł o w a k l u c z o w e: żołnierz zawodowy, wojskowy system emerytalny, emeryci i renciści wojskowi.

A b s t r a k t

Przedmiotem artykułu jest próba prezentacji, analizy i oceny funkcjonowania zaopatrzeniowego systemu emerytalnego żołnierzy zawodowych i członków ich rodzin w Polsce, z uwzględnieniem aktualnie obowiązujących uwarunkowań prawnych w tym zakresie. Zróżnicowaniu statusu prawnego

wojskowych w naszym kraju zawsze towarzyszyło dość powszechne przeświadczenie społeczeństwa, że w materii praw socjalnych pozycja tej grupy względem innych grup zatrudnionych była szczególnie uprzywilejowana. Odrębne jednak, a zarazem korzystniejsze, zasady nabywania uprawnień emerytalno-rentowych dla tej grupy osób są traktowane jako swego rodzaju rekompensata za wysokie wymagania psychofizyczne i intelektualne: stałą dyspozycyjność, gotowość do narażania życia i zdrowia oraz ogólnie dużą uciążliwość służby wojskowej w porównaniu z warunkami pracy i obowiązków innych grup zatrudnionej ludności.

Introduction

Parallel to two other pension systems – one for farmers and the other for the general population in which future beneficiaries are obliged to participate and in which the capital for pension payments is accumulated from the contributions paid by prospective pensioners during their entire active professional careers – there is another pension scheme providing pensions for the so-called „uniformed forces" (BIS 2011, p. 4).

A distinguishing feature of the latter system is that pensions are paid by the state organs directly from the state budget (WANTOCH-REKOWSKI 2014, p. 60), because no pension contributions are deducted from remunerations received by uniformed servicemen. Professional soldiers and functionaries of other uniformed services, including police or paramilitary forces, are not employees in the light of the Employment Law, but have entered into a service relationship with the state (which is then their work provider and the employing subject)[1].

Each group of the uniformed forces is guaranteed conditions, adjusted to the specific nature of their performed duties that specify the acquisition of pension rights and pension payments. A noteworthy point is that no other group of people with an occupation in Poland has such rights (or privileges) except the uniformed services[2].

However, as A. WIKTOROW (2011, p. 147) rightly observes, the distinctly different character of the scheme of pensions and other social benefits designed for the uniformed forces is maintained in most countries worldwide, and

[1] Pursuant to the judgment of the Constitutional Tribunal of 14 December 1999 (ref. no SK 14/98), the service relationships of professional soldiers are not labor relationships but possess the nature of administrative and legal relationships that are created by appointment, when a person volunteers to enroll in the army. P. SZUSTAKIEWICZ (2012, p. 21) points to three elements that distinguish this type of service relation from the ones typical of the labor law. These are: the duty to sacrifice oneself, unique availability and subordination, and certain unique rights granted to soldiers for their service.

[2] The pension provision scheme for professional soldiers does not encompass civilians employed by the army. In turn, eligible family members of a deceased, disabled or retired soldier are entitled to a family pension – in compliance with the regulations and in the amount determined by the Act on Disability and Old-Age Pensions, payable from the Social Insurance Fund.

therefore the solution is not broadly contested. Controversies and reservations are raised among the general pension scheme participants since they perceive the system as particularly advantageous for servicemen; particularly the preferential rights to benefits, the pensions granted to armed forces, and frequently, the high pensions received by retired soldiers[3].

Nevertheless, the distinctly different and more favorable conditions to acquire rights to invalidity and old-age pensions, as well as the way in which these pensions and their amounts compare to pensions collected from the universal pension scheme, are most often justified by the specific circumstances and characteristics of being on duty in the armed forces.

Thus far, the jurisprudence of the Constitutional Tribunal, and especially the judgment of 24 February 2010 on the rules for calculating the amount of old-age pensions (Ref. no K 6/09, OTK ZU no 2/A/2010, item 15), clarify that „the existence of a separate pension scheme for professional soldiers and functionaries of other uniformed forces which is much more advantageous than the general old-age social security system encompassing all other citizens (except judges and public prosecutors) does not infringe on the principle of equality (Article 32 of the Constitution) or the principle of justice (Article 2 of the Constitution)". The Constitutional Tribunal treats separate pension schemes for professional soldiers and other uniformed functionaries as a permissible differentiation in entitlements, objectively and rationally justified by the particular character of the service performed by these persons for the protection of the state's security, sovereignty and territorial integrity as well as the rights and freedoms of citizens. This is due to the fact that the service involves increased (burdensome) service availability and often the risk of losing one's life or health'.

Considering the statements above, our objective has been to make a closer analysis of the background, efficiency and consequences of having a separate pension provision system for professional soldiers and their family members in Poland. Another purpose has been to assess the economic aspects of the above scheme, including the currently binding legal solutions that are relevant.

[3] A report on the survey conducted by the Public Opinion Research centre in Poland (CBOS) (*Opinie o zmianach w systemie emerytalnym* 2012, p. 3) revealed that most of the respondents (80%) are in favor of the tightening of rights to retire by members of the uniformed forces.

The pension system for professional soldiers and its performance

The background as well as the underlying conditions and developments in the pension provision system for professional soldiers

One of the most numerous – as will be later specified – professional groups benefiting from the old-age pension scheme for uniformed services is composed of professional soldiers who have acquired the right to pension (either because of their years in service or due to the complete loss of ability to serve in the army) and members of their families (in the event of the death of a soldier).

The unique pension rights of professional soldiers in Poland have origins that are historically grounded[4]. In recognition of the role they have played for the state and their exposure to uncommon risks, this social and vocational group has been traditionally granted unique pension provision opportunities, even in pre-war Poland (MUSZALSKI 2004, p. 173).

For instance, the provisions of the Act of 5 August 1922 on the pension system for soldiers and their families, or the Act of 11 December 1923 on the pension system of state functionaries and professional soldiers[5] prove unequivocally that there were separate regulations in the 1920s governing the acquisition of pension rights by soldiers, distinctly different from the rules underlying the universal pension scheme, which relied on the principle of social insurance.

The right to old-age pensions for retired professional soldiers was granted exclusively by the legislator and – instead of being dependent on previously paid contributions[6] – was financed from budgetary means. Thus, the state guaranteed that pensions were paid to the state's soldiers, in the amounts and on the conditions stipulated by the act.

According to M. SZCZUR (2014, p. 6), this is the so-called principle (method) of social security provision, i.e. the rights to certain benefits are granted by the power of law, and not having fulfilled the conditions defined by the regulations;

[4] Systems for providing retired soldiers with financial security already existed in antiquity, for example in Rome veteran soldiers received parcels of land, from which they could derive a profit in their old age.

[5] The original title of the act.

[6] The duty to pay contributions to the so-called pension fund occurred in all systems, but in the universal system the costs of creating and paying contributions were shared by employees and employers, whereas in the provision system, contributions to the pension provision fund for soldiers was paid from the state budget. As underlined by T. ŻYLIŃSKI (1984, p. 132), the amount of a pension paid from the universal system depended on the time period over which contributions were paid, whereas in the pension scheme for soldiers, the period of paying contributions was irrelevant because the amount of a pension depended on the years of service.

allowances are financed from taxation (general); the rules determining the types of allowances and their amounts are specified in the provisions of the relevant legal act.

As noted by R. BABIŃSKA (2008, p. 261), in interwar Poland a special legal status was granted to certain professional groups, counted as the state's servicemen, essentially in an attempt to create a professional military corps which would enable the state to perform its functions. To accomplish the aim of ensuring the military security of the independent state, it was necessary to build and maintain a loyal and, above all, disciplined army that would be ready to defend it. Having imposed special tasks, duties and disciplinary measures on the army, the state was obliged to provide soldiers with unique rights and privileges.

After World War Two, the pension scheme for professional soldiers and their families was, and continues to be, separate from the pension systems established for other social groups in Poland. It has also maintained its character as a pension provision system.

M. GRODZICKI (2012, p. 356) points out that some attempts undertaken prior to 2012 to reform the pension schemes for uniformed forces (including professional soldiers), and especially to extend the period of obligatory military service, failed to lead to any considerable changes.

Actually, it was not until 2012 that Donald Tusk's government managed, for the first time, to raise the pension age limit for uniformed services (including professional soldiers)[7].

However, the higher age limit was mostly obligatory for soldiers (drafted to the army) and functionaries (appointed to services) who entered into service for the first time after 31 December 2012[8].

[7] Pursuant to the Draft Act on Amending the Act on the Pension System for Uniformed Services, the currently binding pension system for uniformed services is perceived as one of the causes of the excessive public debt growth. Consequently, on 1 January 2013 the minimum service period to be entitled to retirement was extended from 15 to 25 years and the minimum retirement age was raised to 55 years, https://bip.ms.gov.pl/pl/projekty-aktow.../download,1614,1.html (accessed on 02.07.2015). According to the Polish Supreme Audit Office (2014, p. 22), the state's expenditure planned in 2013 to finance the state's defense was 28,026,355.6 thousand PLN – which corresponded to less than 2% GNP. In turn, the Ministry of Defense (in the same year) allocated the amount of 6,514,273.9 thousand PLN, i.e. 23.2% of the expenditures from the ministry budget, to the delivery of payable pensions.

[8] The Act of 11 May 2012, on the Amendment of the Act on the Pension Provision for Professional Soldiers and Their Families, Act on the Pension Provision of Officers of the Police, Internal Security Agency, Intelligence Agency, Military Counterintelligence Service, Military Intelligence Service, Central Anti-Corruption Bureau, Border Patrol, Government Protection Bureau, State Fire Brigades and Prison Services and Their Families, and certain other acts.

Types and scope of pension scheme allowances

The range of allowances and the rules defining their acquisition by professional soldiers and their families are regulated by Article 2, items 1–2, of the Act of 10 December 1993 on retirement pension provision for professional soldiers and their families (DzU z 2015 r., poz. 330).

Under the pension provision system, eligible persons are entitled to the following benefits:

– Pecuniary benefits, such as:
  - military pension;
  - military invalidity pension;
  - military family pension;
  - extra allowances in addition to a disability or old-age pension;
  - funeral payments.
– Other benefits and entitlements, such as:
  - social benefits;
  - health benefits;
  - the right to a residence in a home for retired soldiers.

In principle, the basis for calculating a soldier's pension is the remuneration paid to the professional soldier in the last month of performing professional military service, at a 40% replacement rate, and the minimum time period required to be entitled to claim a pension is 15 years of service in the Polish Army[9]. It should be added that the right to a military pension does not depend on the soldier's age. The algorithm for calculating a pension is specified in Article 15 of the aforementioned act (more in SIKORA 2009, p. 44–46). It is noteworthy that the rule mentioned above ensures that soldiers receive relatively high replacement rates[10] for a short period of „employment" and are therefore not motivated to stay in military service longer.

On 1 January 2013, new provisions entered into force amending earlier regulations that governed the acquisition of the right to pensions by soldiers. Now, soldiers are entitled to a pension after 25 years of service in the army and having reached 55 years of age. This means that soldiers will „work" ten years longer than previously before they can retire.

However, the new regulations are binding only for persons who have enrolled in the army following their enforcement, i.e. after 1 January 2015.

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[9] Time periods equivalent to military service in the Polish Army are regulated by Article 13 of the Act of 10 December 1993 on Pension Provision of Professional Soldiers and Their Families.

[10] The replacement rate is the relation of the average amount of a received pension to the average salary received during the occupational career. This is a relative measure (most often expressed as a percentage). The replacement rate should not be equated to the amount of a pension received, which is expressed in a currency, for example in polish zloty, and which – as K. BIS (2011, p. 5) put it – „decides about the actual ability of retired persons to finance consumption".

All other professional soldiers have the right to choose between two options: they can retire in compliance with the previous regulations or according to the new rules. However, the new legal regulations stipulate that in order to be eligible to receive a military pension, a person must simultaneously satisfy two conditions: prove to have been in military service for at least 25 years and finished at least 55 years of age.

In brief, the change in the pension provision system for professional soldiers has extended the time period of active professional life that entitles one to claim a pension. It is thereby an example of an attempt made to significantly reduce pension privileges in the analyzed system.

The fundamental regulations defining the required years in service and the calculation of the basis for an assessment of pensions are summarized in Table 1.

Table 1

Years in service versus amount of pension

Years in service	Amount of pension [%]		Years in service	Amount of pension [%]	
	„old pension"	„new pension"		„old pension"	„new pension"
15	40.0	–	24	63.4	–
16	42.6	–	25	66.0	60.0
17	45.2	–	26	68.6	63.0
18	47.8	–	27	71.2	66.0
19	50.4	–	28	73.8	69.0
20	53.0	–	28.5	**75.0**	70.5
21	55.6	–	**29**	75.0	72.0
22	58.2	–	30	75.0	**75.0**
23	60.8	–	31	75.0	75.0

Source: the authors, based on the Act of 10 December 1993, on Pension Provision of Professional Soldiers and their Families.

The data contained in table 1 explicitly demonstrate that the maximum allowance in „the old system" is obtained by a „uniformed old-age pensioner" having served 28 years and 6 months in the army, whereas in the amended system he will have to serve for 30 years to be entitled to the same, highest pension.

Number and structure of payable pensions from the military

The data gathered in table 2 show that at the end of 2013, the Ministry of National Defense paid 166,455 invalidity and old-age pensions, i.e. almost 4% more than in 2010, when the number of pensions paid was 160,413.

The number of pensioners increased steadily over the analyzed time period, from 105,427 persons in 2010 to 111,756 in 2013 (a 6% increase).

However, in December 2010, there were 17,040 persons registered as collecting military invalidity pensions, while in the subsequent years (2011–2013) the number of such beneficiaries tended to decrease. In 2013, there were just 15,436 ex-servicemen who could confirm that the Army pension office paid them military allowances for disabled soldiers.

It is also worth noticing that the number of beneficiaries collecting military family allowances was on the increase. The data collected in table 2 show a regular increase in the share of such pensions relative to the total number of military pensions paid over the four analyzed years. Hence, in 2010 there were 37,946 persons claiming such benefits, whereas in 2013 the number of persons receiving family pensions rose to 39,263 (an increase of 1,317 „new beneficiaries"). Such a considerable rise in the number of people entitled to military family pensions should be attributed exclusively to the growing number of deaths among persons collecting military old-age and invalidity pensions.

It also needs to be borne in mind that during the analyzed time period, family members of the professional soldiers who died in the aviation catastrophe at Smolensk in a government airplane, as well as other soldiers who were killed or died during foreign missions, were granted the right to military family benefits and received due payments.

Table 2

Number and structure of military invalidity, old-age and family pensions from 2010–2013 (for the month of December)

Year	Type of benefit	Number of benefits
2010	military old-age pension	105,427
	military invalidity pension	17,040
	military family pension	37,946
	total	160,413
2011	military old-age pension	107,635
	military invalidity pension	16,531
	military family pension	38,391
	total	162,557
2012	military old-age pension	110,501
	military invalidity pension	16,007
	military family pension	38,875
	total	165,383
2013	military old-age pension	111,756
	military invalidity pension	15,436
	military family pension	39,263
	total	166,455

Source: the authors, based on records held by the Ministry of Defense covering the years 2010–2013.

Amounts of due and paid pensions for invalidity, old-age and family

The data aggregated in table 3 show that in 2013 the amount of an average pension in the uniformed services was 3,499.72 PLN from the Ministry of Justice (an increase by 5.8% relative to 2010), 3,326.70 PLN from the Ministry of Internal Affairs (an increase by 5.9%), and 3,236.59 (an increase by 4.5%), thus being much higher than the pensions paid by ZUS (the Social Insurance Institution) and by KRUS (the Agricultural Insurance Fund), in which average pensions equaled 1,970.39 PLN (an increase by 5.2%) and 1,153.87 PLN (an increase by 5.1%), respectively.

The highest invalidity pension in 2013 was paid by the Ministry of Defense – 3,051.01 PLN on average. The average amount of an invalidity pension paid by the Health and Old-Age Pension Institution of the Ministry of Internal Affairs equaled 2,733.64 PLN and was higher by 54.43 PLN than the average invalidity pension paid by the Pension Institution of the Penitentiary Service (2,679.21 PLN). In turn, the average invalidity pension paid by ZUS was 1,487.65 PLN, nearly 56% higher than the analogous pension paid by KRUS.

The difference between the highest family pension paid by the Ministry of Defense and by the Agricultural Social Insurance Fund (the KRUS) was almost 1,485 PLN in 2013. The former was 970.79 PLN higher than the average family pension paid by the Social Insurance Fund (ZUS).

Summary

Unquestionably, the pension scheme created for professional soldiers is a form of privilege and its most significant benefit arises from the fact that pension seekers must satisfy more favorable conditions to acquire the right to pension and can receive higher allowances than persons subjected to the universal social insurance system.

By granting certain privileges, the legislator has recognized and appreciated the unique character of a service provided by professional soldiers, during which such circumstances may arise that a soldier's health or life will be at risk, and all professional soldiers before entering into service must swear „to spare not, for my Fatherland in need, my own blood nor my life" (Act on Soldiers' Oath, 3 October 1992, Journal of Law of 1992, no 77, item 386).

It is true, however, that this system is not fully approved of in the current economic and social reality, and that many solutions that have been or are now being implemented in the pension provision system of the armed forces are not quite consistent with the rules of a market economy.

Table 3

Average amounts of invalidity and old-age pensions in 2010–2013 (in PLN) – divided into types of benefits

Year	Type of pension		
	old-age pension	invalidity pension	family pension
Ministry of Defense			
2010	2,857.10	2,789.09	2,410.19
2011	2,986.60	2,879.47	2,500,57
2012	3,096.47	2,951.35	2,579.08
2013	3,236.59	3,051.01	2,688.47
Ministry of Internal Affairs			
2010	2,827.29	2,396.03	2,259.04
2011	2,994.70	2,515.63	2,350.86
2012	3,140.91	2,604.63	2,448.54
2013	3,326.70	2,733.64	2,562.07
Ministry of Justice			
2010	2,961.02	2,359.95	2,414.69
2011	3,160.10	2,459.76	2,496.60
2012	3,308.35	2,538.11	2,551.57
2013	3,499.72	2,679.21	2,640.17
Social Insurance Fund			
2010	1,698.35	1,261.35	1,475.11
2011	1,783.06	1,323.19	1,543.14
2012	1,872.32	1,408.26	1,631.04
2013	1,970.39	1,487.65	1,717.68
Agricultural Social Insurance Fund			
2010	996.18	751.21	1,010.96
2011	1,028.51	777,37	1.054.20
2012	1,097.75	837.16	1,145.64
2013	1,153.87	958.23	1,203.94

Source: the authors. Data from 2010-2013 were obtained from the Central Statistical Office's reports: *Disability and Old-Age Pensions in 2010, 2011, 2012 and 2013* (*Emerytury i renty w 2011 r.* 2012, *Emerytury i renty w 2012 r.* 2013, *Emerytury i renty w 2013 r.* 2014).

The above analysis confirms that the number of beneficiaries collecting allowances funded by the Ministry of Defense has been steadily increasing. Although the highest average health or old-age pension in 2010–2013 was paid by the pension providing institution of the penitentiary service, the levels of average pensions paid by the Ministry of Defense still remain much higher than those of pensions received by other pensioners.

The amendments of the Act on Pensions for „former soldiers" – heralded and initiated by the Polish government (the purpose of which is to rationalize

expenses from the budget of the Ministry of Defense allocated to payments of pensions and other social allowances, and to achieve a higher level of social justice) most distinctly intend to encourage professional soldiers to prolong their stay in the army. The new algorithm proposed for calculating pensions allows one to purposefully raise a salary earned at the last post in the army in order to increase the amount of a pension.

It should also be added that the reforms implemented in 2012, such as the extension of the service time for future beneficiaries of the pension scheme (from 15 to 25 years) and the minimum age to be eligible for a pension (55 years of age) will affect the pension provision expenses, which will decrease in the future.

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ASSESSMENT OF INNOVATION GAP BETWEEN POLAND AND EUROPEAN UNION COUNTRIES

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K e y w o r d s: innovation, innovation gap, innovativeness, Innovation Union Scoreboard, Summary Innovation Index.

A b s t r a c t

This paper aims to estimate the innovation gap between Poland and European Union countries, and evaluate the innovative position of the Polish economy in relation to EU countries. The assessment was conducted on the grounds of the Summary Innovation Index, presented in the Innovation Union Scoreboard and an examination into the indicators describing the index. Results of the analysis show the occurrence of the innovation gap for the most indicators in comparison to innovative leaders in the EU, as well as to the EU countries with a similar level of economic development, i.e., the Czech Republic, Hungary and Slovenia.

OCENA LUKI INNOWACYJNEJ MIĘDZY POLSKĄ A KRAJAMI UNII EUROPEJSKIEJ

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S ł o w a k l u c z o w e: innowacja, luka innowacyjna, innowacyjność, unijna tablica wyników w zakresie innowacji, sumaryczny wskaźnik innowacyjności.

A b s t r a k t

Celem opracowania jest oszacowanie luki innowacyjnej między Polską a krajami Unii Europejskiej i ocena pozycji innowacyjnej polskiej gospodarki na tle krajów UE. Szacunków dokonano na podstawie sumarycznego wskaźnika innowacji, prezentowanego przez Komisję Europejską w unijnej tablicy wyników w zakresie innowacji oraz zmiennych tworzących ten wskaźnik. Wyniki analizy wskazują, że w większości badanych obszarów potencjału innowacyjnego występuje luka między polską gospodarką a innowacyjnymi liderami UE, jak również krajami UE o podobnym poziomie rozwoju gospodarczego, tj. Czechami, Węgrami i Słowenią.

Introduction

The vast majority of countries which in the era of accelerated globalization achieved a high level of economic development, owe this advancement, to the following factors (PAKULSKA 2005, p. 59):

– Developed research potential (in the form of stocks of highly qualified scientific personnel, and physical and financial capital);

– Location of R&D labs of multinational corporations on their territory, most of which are carrying out intensive research (WYSOKIŃSKA 2009, p. 60, 61);

– High propensity of enterprises to absorb innovation in line with the „Innovate or Die" motto;

– Appropriate national innovation policy, resulting from the strategy of economic development, involving promotion and funding by the State of scientific research, personnel training, development of education, investment in research infrastructure, etc.) (DWORAK 2012, p. 214).

Nowadays, the awareness of the positive relationship between enhancing innovation and economic development transcends the borders of developed countries, and is gradually takingroot in the structure of the economies (e.g. in countries such as China, India, and Brazil) which are „catching up" in relation to the world leaders. Under these conditions Poland faces a serious challenge of effective transformation of its economy into an innovative economy, able to compete with the most developed countries.

This paper aims to estimate the innovation gap between Poland and European Union countries, and evaluate the innovative position of the Polish economy in relation to EU countries.

The concept of the innovation gap

The concept of the innovation gap is variously interpreted in the economic literature. S. Kubielas defines the innovation gap as differences in the level of technological advancement between countries and proposes a number of methods to measure its size. He says that it can be measured by the distance between the level of technological activity of the country and the countries at the technological frontier, calculated either as a ratio of the number of patents per capita or the share of research expenditure in value-added or national income (KUBIELAS 2009, p. 137). The literature review shows also indirect measures such as: the share of high-tech products in exports in relation to the similar indicator for the technology frontier, the relation of performance (labour productivity) of a given branch of the country in relation to the country

on the verge of technological frontier or in aggregate terms the relation of GDP per capita to the corresponding indicator of the technological frontier (KUBIELAS 2009, p. 137). The last two approaches identify the technological gap with a productivity gap or income gap. The global technological frontier shall be deemed as the GDP level, which can be achieved by using the given inputs of capital and labour, and the best possible technologies (GROWIEC 2012). This level of GDP is now achieved by the U.S. economy, in which, as stressed by S. Kubielas, the distribution of specializations (between the four Pavitt's sectors) is the standard for a technology leader. The highest competitive advantages are demonstrated by the science-based sector, followed by the specialized suppliers sectors; the consecutive sectors; the scale-intensive, traditional, supplier-dominated sectors are characterized by negative indices of the revealed comparative advantage, of which the traditional is the lowest on the scale of revealed advantages of the U.S. economy (KUBIELAS 2009, p. 153).

In the literature, there is also a concept of the innovation gap, understood as the distance of individual economies to the so-called modern technological frontier, which is identified with the last stage of socio-economic development of economies, i.e., the emergence of a knowledge-based economy (ZACHER 2007, p. 530). To investigate this approach to the innovation gap, one should use a point of reference, which involves initial conditions of building a knowledge--based economy, formulated by J. Kleer. They are as follows (KLEER 2009):

– Economy must achieve a sufficiently high level of income (about $20,000 per capita), and the structure of GDP is characterized by a high share of services in GDP – 70% or more;

– Society is characterized by a high level of education, in which secondary education is widespread, and higher education covers at least half of the economically active population;

– High share of expenditure on R&D (it is generally recognized that the size of the required outlays is about 3% of GDP);

– Innovativeness of the economy manifests itself in minimizing regulations, supporting innovative projects, not only in purely economic areas, but also in high expenditure of the public sector on research promoting directly and indirectly development;

– The economy and society are involved in the exterior exchange, concerning not only the exchange of goods and services, but also the circulation of ideas (for which the information revolution has created enormous opportunities);

– Modern public sector needs to be a mixed model, and not purely liberal.

The United Nations defines the innovation gap slightly generally, as a distance between those who have access to technologies and know how to use them effectively, and those who are not able to do it (KRACIUK 2006). The innovation gap can be considered from the perspective of creating new

technology in the home country, as well as from the perspective of its transfer from other countries and effective adaptation to the needs and national capabilities.

In summary, it can be stated that measuring the innovation gap means to estimate the distance between the economy and the most developed economies of Europe and the world, known today as knowledge-based economies, in many areas, e.g., in the sphere of innovation, education and institutional system.

Rating innovation gap of the Polish economy in the light of Innovation Union Scoreboard 2015

Measuring innovation of economies is a major challenge for economists. Most often measurements are made based on a synthetic index of the level of innovation in the economy. One category, based on the synthetic index of innovation, involves Innovation Union Scoreboard. It is a special research method, developed by the European Commission, whose aim is to assess achievements, trends, strengths, and weaknesses of individual economies in the field of innovation[1]. The last edition of 2015 is an attempt to assess the innovative achievements of European economies based on indicators describing three areas of innovativeness: Enablers, Firm activities, Outputs. Variables belonging to these areas are the basis for calculating the Summary Innovation Index (SII). It is estimated using the weighted value of standardized data, where the highest value in the group of countries under study is 1 and the lowest 0. On the basis of this indicator countries in the European Union are classified into four performance groups: innovation leaders, innovation followers, moderate innovators, and modest innovators. The values of the summary innovation index for the four groups of countries in the years 2007–2014 are shown in Table 1.

According to the data presented in Table 1, the IUS indicator for Poland increased from 0.292 in 2007 to 0.323 in 2011; in 2012 it decreased to 0.303, and then increased to 0.313 in 2014.

Based on the Summary Innovation Index it is possible to assess the level of innovation of the Polish economy and estimate the innovation gap that exists between Poland and EU countries. Table 2 presents detailed picture of Poland's position in terms of innovation compared to the average SII for the EU-28, average SII for each group of countries identified based on this index, and the most advanced Member State.

[1] This is one of a set of indicators developed by the European Commission in order to meet the specific needs of EU economic policy, science, and technology (Niedbalska 2003, p. 185).

Table 1

The values of the Summary Innovation Index for the countries of the European Union in the years 2007–2014

Specification		2007	2008	2009	2010	2011	2012	2013	2014
EU28		0.519	0.519	0.529	0.543	0.545	0.542	0.554	0.555
Sweden	innovation leaders	0.723	0.737	0.742	0.758	0.764	0.766	0.760	0.740
Denmark		0.647	0.659	0.673	0.697	0.696	0.713	0.729	0.736
Finland		0.672	0.672	0.669	0.676	0.682	0.684	0.680	0.676
Germany		0.650	0.655	0.667	0.689	0.685	0.690	0.690	0.676
Netherlands	innovation followers	0.573	0.579	0.583	0.593	0.598	0.642	0.645	0.647
Luxembourg		0.640	0.637	0.643	0.626	0.626	0.644	0.660	0.642
Great Britain		0.565	0.568	0.575	0.607	0.607	0.613	0.625	0.636
Ireland		0.570	0.571	0.591	0.603	0.619	0.611	0.615	0.628
Belgium		0.573	0.580	0.580	0.611	0.616	0.619	0.629	0.619
France		0.544	0.549	0.557	0.573	0.579	0.578	0.586	0.591
Austria		0.557	0.568	0.582	0.556	0.565	0.581	0.597	0.585
Slovenia		0.446	0.468	0.485	0.496	0.519	0.509	0.532	0.534
Estonia	moderate innovators	0.420	0.424	0.466	0.470	0.498	0.503	0.523	0.489
Czech Republic		0.373	0.382	0.387	0.425	0.436	0.421	0.438	0.447
Cyprus		0.449	0.495	0.473	0.491	0.504	0.503	0.489	0.445
Italy		0.393	0.399	0.412	0.427	0.428	0.446	0.448	0.439
Portugal		0.365	0.392	0.403	0.426	0.421	0.396	0.400	0.403
Malta		0.325	0.341	0.348	0.343	0.340	0.311	0.350	0.397
Spain		0.396	0.398	0.403	0.399	0.402	0.411	0.408	0.385
Hungary		0.336	0.345	0.346	0.359	0.366	0.354	0.362	0.369
Greece		0.362	0.374	0.385	0.382	0.380	0.391	0.394	0.365
Slovakia		0.316	0.327	0.334	0.316	0.323	0.373	0.354	0.360
Croatia		0.296	0.305	0.314	0.314	0.318	0.304	0.309	0.313
Poland		0.292	0.302	0.314	0.314	0.323	0.303	0.302	0.313
Lithuania		0.244	0.245	0.254	0.244	0.269	0.281	0.293	0.283
Latvia	modest innovators	0.215	0.225	0.223	0.239	0.260	0.250	0.233	0.272
Bulgaria		0.184	0.201	0.214	0.244	0.249	0.206	0.202	0.229
Romania		0.240	0.250	0.264	0.255	0.275	0.245	0.255	0.204

Source: *Innovation Union Scoreboard 2015*, online: www.proinno-europe.eu/metrics (2015, p. 92).

Table 2

Innovativeness of Polish economy compared to the average SII EU-28, the average SII for different groups of countries classified based on the SII, and the most advanced Member State in 2014

Country/ group of countries	Poland	EU-28	Innovative leaders	Innovation followers	Moderate innovators	Modest innovators	Clear leader (Sweden)
The average value of the SII in 2014	0.313	0.555	0.707	0.610	0.385	0.235	0.740

Source: *Innovation Union Scoreboard 2015*, online: www.proinno-europe.eu/metrics (2015, p. 92).

The analysis of the data presented in Table 2 shows that the level of innovation of the Polish economy, as measured by the Summary Innovation Index, is below the average for the EU-28, the average SII calculated for the group of innovative leaders, as well as below the average index for the innovation followers. It is also lower than the average rate estimated for the group of economies, which includes Poland, i.e., the moderate innovators. The level of innovation of the Polish economy accounts for 56% of the average index for all EU countries, only 44% of the average index for innovative leaders, 51% of the average SII for a group of innovation followers and 81% of the average SII for moderate innovators. Therefore, it can be concluded that Poland's innovative potential gap exists not only in comparison to the most innovative economies of the EU and followers, but also compared to all the moderate innovators with the exception of Lithuania (SII – 0.283).

Table 3
Innovativeness of the Polish economy in comparison to the European Union countries in 2014

Indicator	Poland	Percentage of EU-28 average	EU-28 average	Clear leader
1	2	3	4	5
Human resources				
New doctorate graduate per 1000 population aged 25–34	0.6	33	1.8	Sweden (2.8)
Share [%] of those having completed tertiary education in the 25–34 age group	40.5	109	36.9	Ireland (52.6)
Share [%] of people aged 20–24 having attained at least upper secondary education	89.7	110	81.0	Croatia (95.0)
Research systems				
International scientific co-publications per million inhabitants	237	65	363	Denmark (1916)
Scientific publications among the top 10% most cited publications worldwide as share [%] of total publications of the country	3.8	34	11.0	Netherlands (15.6)
Share [%] of Non-EU doctorate students in the total number of doctorate students	1.9	7	25.5	France (35.4)
Finance and support				
Share [%] of public expenditure on R&D in GDP	0.48	67	0.72	Denmark (1.04)
Share [%] of venture capital investments in GDP	0.036	58	0.062	Great Britain (0.119)

cont. Table 3

1	2	3	4	5
Firm investments				
Share [%] of expenditure on R&D in GDP in the business sector	0.38	29	1.29	Finland (2.29)
Share [%] of Non-R&D investments in turnover	1.04	151	0.69	Estonia (1.55)
Linkages & entrepreneurship				
Share [%] of SMEs innovating in-house in the total number of SMEs	10.1	35	28.7	Netherlands (38.9)
Share [%] of innovative SMEs collaborating with others in the total number of SMEs	3.9	37	10.3	Belgium (22.9)
Public-private co-publications per 1 million inhabitants	4.7	9	50.3	Denmark (193.0)
Intellectual assets				
PCT Patent applications at the European Patent Office per billion GDP	0.42	11	3.78	Sweden (9.16)
PCT patent applications at the EPO in societal challenges per billion GDP (PPS€)	0.09	9	0.98	Denmark (2.76)
Community trademarks per billion GDP (PPS€)	3.61	62	5.83	Malta (30.97)
Community designs per billion GDP (PPS€)	1.62	143	1.13	Luxembourg (2.44)
Innovators				
Share [%] of SMEs with product and process innovations in the total number of SMEs	13.1	43	30.6	Germany (42.4)
Share [%] of SMEs with organizational or marketing innovations in the total number of SMEs	14.2	39	36.2	Luxembourg (52.1)
Share [%] of employment in fast-growing innovative firms in total employment	19.3	108	17.9	Ireland (21.8)
Economic effects				
Employment in knowledge-intensive sectors as % of total employment	9.6	70	13.8	Luxembourg (26.2)
Medium & high-tech product exports as % of total product exports	48.6	92	53.0	Hungary (66.3)
Knowledge-intensive services exports as % of total services exports	33.6	68%	49.5	Ireland (76.1)
Sales of new to market and new to firm innovations as a % of total turnover	6.3	51%	12.4	Denmark (22.1)
License and patent revenues from abroad as % of GDP	0.06	(9%)	0.65	Netherlands (3.75)

Source: Compilation based on: *Innovation Union Scoreboard 2015*, online: www.proinno-europe.eu/metrics (2015, Annexes A–C, p. 88–96).

Relevant information on the innovation gap between the Polish economy and the countries of the EU is provided by the analysis of the variables describing various areas of innovation, underlying the structure of Summary Innovation Index (Tab. 3).

Based on the analysis of the data contained in Table 3 it can be concluded that among the components of the summary indicator of innovation for the Polish economy only five variables are above the EU average: the number of graduates from universities and high schools, Non-R&D innovation expenditures, employment in fast-growing innovative firms and a number of Community industrial designs. In the case of the number of university graduates Poland exceeds the EU average rate by 10%, and in the case of high school graduates by 11%. The Non-R&D innovation expenditures are at a level higher by 50% than the EU average, the number of Community industrial designs is higher by 43%, and employment in innovative firms by 8%. Other indicators show values below the average for the 28 EU countries. The relatively high value in relation to the EU average was recorded in exports of medium-high and high-tech products as % of total export of products (90%). The level of approximately 70% of the average indicator for the 28 EU countries was reached in: employment in knowledge-intensive sectors as % of total employment (70%), knowledge-intensive services exports as % of total services exports (68%), share [%] of public spending on R&D in GDP (67 %), international scientific co-publications per million inhabitants (65%). The following components of the summary innovation indicator are about half the average value of the indicator for the 28 EU countries: share [%] of venture capital investments in GDP (58% of the average), sales of new-to-market and new-to-firm innovations as a percentage of total turnover (51%), share [%] of SMEs with product and process innovations in the total number of SMEs (43%).In contrast, the following indicators are at a significantly low level compared to the EU average: the share [%] of doctorate students from outside the EU in the total number of doctorate students (only 7% of the EU average), license and patent revenues from abroad as percentage of GDP (9% of the EU average) public-private co-publications per million population (9% of the EU average), patent applications at the European Patent Office per billion GDP (11% of the EU average).

The above indices of innovation require a few comments, especially those that point to the existence of the innovation gap between the Polish economy and the EU countries.

Firstly, it is worth noting the relatively high share of medium-high and high-tech product exports in total exports (90% of the EU average). This indicator, however, is an illusory criterion for assessing the level of innovation in the Polish economy, because it results merely from the high innovation of

companies with foreign capital located in Poland which moved here the elements of production, and left research and development centres in the countries of origin of capital (*Competitive Poland: How to advance in world economic league* 2013, p. 27). Owing to foreign capital new industries-Polish--specialties were created: car, home electronics and home appliances assembly plants, manufacturing of components for cars and planes (GROMADA et al. 2015, p. 12). However, in the international chain of creating added value these specialties represent production stage located between the conceptual-research phase and marketing and sales, which means a low return of Polish exports on expenditure incurred. This situation threatens consolidation of economic growth dependent on foreign capital, which has a greater interest in maintaining low labour costs than investing in innovation (GROMADA et al. 2015, p. 12).

Secondly, it is significant that in Poland the indicators on the education system are favourable. This is demonstrated by the data presented in the Innovation Union Scoreboard. However, it must be emphasized that they evidence only a high degree of formal education, not the quality of teaching, which is clearly indicated by the level of innovation in the Polish economy. Polish education system is not conducive to promoting creativity and collaboration capability, it does not encourage building the social capital, understood as a set of informal values and ethical standards common to members of a particular community and enabling them to effectively cooperate.

Thirdly, an insufficient level of development of social capital is demonstrated by the lack of permanent relationship between the actors of the scientific – research sphere and the industry sphere. There is no effective system of cooperation between these spheres in Poland, creating a kind of a „vicious circle" of impossibility in this area. On the one hand, entrepreneurs complain that innovative projects offered by the R&D institutions do not meet their needs and show a passive approach to the commercialization of research results. On the other hand, representatives of the R&D sphere believe that companies are quite poorly interested in using the research results because their strategy is focused primarily on the use of simple reserves of labour productivity growth. In fact, many companies use basic competitive advantages resulting from low manufacturing costs, and not from constant improvement of the quality of products, the power of the created brand or the capital-intensive investments in the development of technology. In turn, those that are interested in innovations, often focus not so much on finding their own solutions (which might require scientists), but on a much simpler purchase of licenses or technologies from outside.

Fourthly, in the absence of incentives to conduct co-operation between scientific-research sphere and businesses it should not be surprising that business expenditures on R&D in Poland are at only 29% of the EU average,

while Non-R&D innovation expenditures exceed the EU average by more than 50%. It is also worth noting that the level of government expenditures on R&D in Poland is among the lowest among the EU and OECD countries and also below the average level observed in the countries of the Visegrad Group. It should be emphasized, however, that increasing public expenditures on R&D is not an action that could significantly affect the growth of innovation in the economy. These expenditures are in fact determined by political decisions, and not, as in the case of the private sector investments, by market mechanisms. Thus, the present situation requires increasing the business expenditure on research and development, rather than increasing government expenditures.

Fifthly, Poland's IUS indicator of patent applications to the European Patent Office accounts for only 11% of the EU average. The research shows that there is a positive relationship between patent activity and the level of development of the country. The culture of innovativeness is a tradition in highly developed countries (e.g., Germany, Anglo-Saxon countries, the countries of the Far East), and patent activity is widespread, while in the countries with a lower level of development there is no sufficiently well-established tradition/institutions in this regard and patent activity is weak (ORŁOWSKI 2013, p. 13). Poland, because of the low level of expenditures on R&D, especially those financed by the private sector, and lack of good of cooperation between universities and industry, is doomed to belong to the second group of countries.

Sixthly, the low number of public-private scientific co-publications results from the above indicators. This indicator for Poland stands at a relatively low level – higher only than those for Bulgaria and Cyprus. It seems that this situation is a result of the shortcomings of social capital, manifested e.g., by the inability to implement tasks jointly and the mistrust and social dislike of public-private actions (*Report on public-private partnership in Poland* 2013).

Seventhly, it is significant that Polish universities also have a low degree of openness to cooperation with foreign countries, as evidenced by the low number of non-EU doctorate students in Polish universities.

Examination of the indicators that describe the level of innovation in the economies of the European Union allows to conclude that only in several respects the innovative position of the Polish economy exceeds the EU average. For most indicators, however, we can talk about the occurrence of the innovation gap in comparison to innovative leaders in the EU, as well as to the EU countries with a similar level of economic development, i.e., the Czech Republic, Hungary, and Slovenia.

Determinants of innovativeness of the Polish economy

In 2015 in the IUS ranking Poland was included in the group of moderate innovators, which means improved position in relation to previous years, however, it is still in the „tail-end" of the group. One should therefore note that the effects of the so far implemented model of supporting innovation in the Polish economy are small. Some of the principles of this model have already been outlined, but it is worth to summarize them:

– Raising the level of innovation in the economy takes place by imitation diffusion, consisting in the almost wholesale import of technology, modern for us, but obsolete in the world, embodied in machinery and equipment (GEODECKI et al., p. 6);

– Technology transfer is done through foreign direct investment, however, transnational corporations invest in Poland elements of the value chain which are associated mainly with the production cycle, and not with research and development activities, they do not therefore increase value added (GROMADA et al. 2015, p. 11).

– Competitive advantages are based on low labour costs, the use of cheap raw materials, and extensive exploitation of the funds raised as a result of the EU allocation,

– The share of expenditure on research and development in GDP is low (0.9%),

– What is necessary is a long-term, coherent and consistent policy of development of science and technology, which would determine the preferred state development directions of scientific research and technology areas in which one could use national potential and achievements of Polish inventors (DWORAK 2012, p. 219).

There is no universal recipe for improving the level of innovation which would be effective in any economy. In search of a strategy for the Polish economy, however, one can refer to the experience of countries which in recent years have advanced to the forefront of the world, e.g., Finland or Ireland. It is thus worth then briefly characterizing these two models of fostering innovation. The Finnish model is based on the achievements of the domestic R&D sector, strong research and innovative potential of domestic companies, as well as on the high expenditure on R&D in relation to GDP (reaching almost 4%), the dominant share of expenditure on R&D (over 70%), incurred by the private sector, and the high growth of spending on education (DWORAK 2012, p. 191). The Irish strategy is on the other hand referred to as an imitation model, based primarily on the use of technological innovations, acquired by transfer from abroad, and a selective approach to foreign direct investments, favouring investors representing industries and services using advanced technologies

and high-quality human capital. The Irish model has in addition a relatively low share of expenditure on R&D in GDP (slightly more than 1.5%).

Taking into account the real possibilities of the Polish economy, it seems that the Irish strategy is more congruent to the Polish conditions. This strategy has to some extent been implemented in Poland – innovation is acquired by means of imitation diffusion – but still regulations are missing which would ensure that foreign companies would locate in Poland, in addition to production cycle, also the elements of the value chain associated with the R&D activities. However, due to the fact that the imitation model in the future may exhaust its possibilities, adopting it as the basis for shaping innovation strategy should not encourage to abandon the thinking about creating and increasing the efficiency of domestic mechanism for generating innovation. It is therefore necessary to make the effort to reconstruct the existing model of supporting the development of innovation in Poland. The success of this project depends on many different factors which affect not only the sphere of economic policy, but also social and cultural conditions.

Firstly, it is important to raise the level of innovation of the Polish economy and bridge the innovation gap in relation to most EU countries and formulate a long-term strategy for socio-economic development. Without such a strategy it is not possible to pursue an internally coherent and consistent policy of development of science and technology, which would designate development directions of scientific research and technology areas preferred by the state, allowing the use of the national potential and achievements of Polish inventors. The existing development strategy of the country, based on the use of knowledge and innovation as the main driving force of this process has a number of shortcomings. The basic weakness of this strategy is the immediate thinking about the economy rather than prospective thinking, which consists in setting long-term development goals. Successive governments, when they come to power, set their own priorities, in isolation from what was already well done or planned by their predecessors. As a result, there is no agreed common strategy setting out the prospects for development of economy and society.

Secondly, a key condition for raising the level of innovation in the economy is to ensure a stable macroeconomic environment, which provides the background for the realization of modernization programmes. Transparent rules of monetary and fiscal policies provide a framework for the activities of economic entities. In this context, of particular importance is the state of public finances, which determines the government's participation in projects supporting development, especially in areas such as education, R&D, supporting firms' innovation (mainly SMEs), and transport or energy infrastructure (*The strategy of innovation and economic efficiency* 2011).

Thirdly, the development of innovation requires a well-functioning institutional system. Qualified human resources and high expenditures on R&D are important drivers of innovation processes, but do not automatically guarantee the effective use (commercialization) of new technologies or accelerate the growth of GDP *per capita* (PŁOWIEC 2010, p. 657). Therefore, it is essential to have an appropriate institutional order which affects the utilization of technological potential of the economy. Empirical studies confirm the existence of a positive, statistically significant correlation between the degree of the development of the economy and the efficiency of the State's systemic activities in developing the institutional order[2]. The institutional environment includes an important element, a widely understood business environment, which facilitates the development of entrepreneurship and innovation. This means, among others, the need to simplify administrative and judicial procedures.

Fourthly, the creation of an effective system for promoting innovation requires increased and adequate allocation of financial outlays on R&D and implementation, coming from the state budget and industry. Changes in this area should consist primarily in increasing industry expenditure on R&D by facilitating access to capital in all phases of the R&D projects. Budgetary outlays on R&D should also be increased, provided that the R&D investments of private enterprises also increase (OKOŃ-HORODYŃSKA 2004, p. 33).

Crucial for financing of firms; innovative projects is the development of the private equity and venture capital market. Existing involvement of private equity funds or venture capital funds in financing this type of activity in Poland is insufficient[3]. The existing important legal acts which could significantly increase the level of innovation in the economy (public procurement, public-private partnership), are also not sufficiently pro-innovative. The development of the public-private partnership system in financing strategic technologies creates opportunities to overcome barriers to the capital, which now discourages, especially small and medium-sized enterprises, to undertake innovation.

Fifthly, to significantly raise the level of innovation in the economy it is necessary to develop permanent links between the entities of R&D sphere and industry. Building a close relationship between R&D institutions and enterprises should focus on the development of projects involving support for:

– The movement of personnel between R&D institutions and the economy, including internships of R&D workers in enterprises and employees of enterprises at universities;

– Cooperation within the clusters, which increase the ability of operators to

[2] The study included the OECD countries in the years 2001–2005 (BALCERZAK 2009, p. 231–241).

[3] Venture capital investments in relation to GDP accounted for 0.043%, and the average rate for the European Union was 0.11%. *Innovation Union Scoreboard 2010* 2010, p. 62.

create, absorb and diffuse innovation; of particular importance in this process are innovation clusters, which consist of research institutes, universities, innovative enterprises, and service providers, mainly in the field of technical, financial, and marketing advice (SKAWIŃSKA, ZALEWSKI 2009, p. 36, *Building the innovative capacity of regions* 2009, p. 36);

– The establishment and development of institutions of innovative companies; environment, such as technological incubators, technology transfer centres, and science and technology parks.

The plan of the new Law on Higher Education, which proposes to give scientists intellectual property rights in the results of their research, creates hope for closer cooperation between the research sector and businesses.

Seventhly, the education system is an important pillar of the strategy for improving innovativeness, which is focusing on developing creativity and ability to work together, life-long learning with a wide range of possibilities to complement the knowledge or even profession and increasing the flexibility of shaping curricula and their internationalization. The efficient use of human capital requires the increase in social capital. The indicators characterizing this capital in Poland are currently the lowest in the European Union. According to a study in the framework of the *Social Diagnosis 2013*, only 14% of Poles trust other people, with an average confidence level of 32% in the European Union (*Social Diagnosis 2013: The conditions and quality of life* 2014, p. 320).

Eighthly, it is necessary to make substantial changes in the system of financial support to undertakings under the Operational Programme Innovative Economy (OPIE). Funds should go to the companies which transform these undertakings into commercial success, and economic effects should be adopted as the measure of success, rather than the pace of spending the funds acquired from the EU. To acquire the financial support it is not enough to fill out correctly a complex application form, it is necessary to arrange a series of meetings between companies and institutions, which the government will set up to assess the companies; research and development potential (panel model).

Conclusions

To sum up the discussion on the level of the innovativeness of the Polish economy it should be emphasized that in terms of the strategic objectives of economic development we cannot accept the opinion that Poland, due to the backwardness in the level of innovation in comparison to the majority of European Union countries, is doomed to be among the economies of peripheral capitalism. The positive experiences of some Asian countries (South Korea,

Taiwan, and Singapore) and Europe (Finland), show that it is possible to change fairly quickly the current place of a given economy on the world map of research and innovation. Nonetheless, it must be clearly understood that there is no universal recipe for increasing the level of innovation strategy, which would work with equal effectiveness in every economy. In search of a strategy for Poland one can, however, call upon the experience of countries which in the last quarter of a century advanced to the group of the most innovative economies in the world. Taking into account the real possibilities of the Polish economy at this stage of its development it should be assumed that Poland in the near future should pursue a strategy based on a specific version of the imitative model. Therefore, it is possible to bridge the gap in in research and innovation by means of the transfer of knowledge and innovation, mainly through foreign direct investments. The necessary condition for the effectiveness of this solution, however, is to introduce regulations that will ensure that foreign companies will locate in Poland, not only the production cycle, but also elements of the value chain related to R&D. It should be added that the transfer of new technologies through direct investments imposes certain obligations on the countries which acquire them. It is therefore necessary for them to have their own R&D facilities and trained engineering and technical staff, as well as financing for the development of imported technologies. It should be emphasized that Poland's imitative strategy is currently implemented in a fairly passive version, but it may exhaust its possibilities in the future. Over time, the access to world-wide well-known technologies and readily available innovation may be constrained and Poland will face the need to increase the efficiency of national mechanisms of generating innovation. The effectiveness of this mechanism is an important condition enabling the Polish economy to absorb foreign innovation and the achievements of world science and technology through indigenous R&D institutions. In the long run the Polish economy should, in selected fields of science and technology in which Poland represents the highest global level, move from the group of „peripheral technology" economies to the group of technology leaders (FIEDOR 2009, p. 281). It would be unrealistic, however, to expect the Polish economy to record spectacular achievements of the Polish economy in the world's major areas of innovation. On the other hand, it is quite possible to find niches in these fields of science and technology which are Polish specialties and have a chance to achieve market success.

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THE INFLUENCE OF ENTERPRISES WITH PARTICIPATION OF FOREIGN CAPITAL ON THE LABOUR MARKET SITUATION IN POLAND

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K e y w o r d s: foreign direct investments (FDI), special economic zones, labour market.

A b s t r a c t

The aim of the article is to present the influence on the labour market of enterprises with participation of foreign capital in special economic zones (SEZ) in Poland. The research utilised selected results of the surveys conducted among enterprises with participation of foreign capital operating in all Polish special economic zones for the scientific project called *Foreign direct investments in the special economic zones of Poland*[*]. These findings are complemented by opinions from management boards of all the zones in Poland concerning the influence of the foreign direct investments (FDI) located in the individual zones on the labour market of the region in which they operate.

WPŁYW PRZEDSIĘBIORSTW Z UDZIAŁEM KAPITAŁU ZAGRANICZNEGO NA SYTUACJĘ NA RYNKU PRACY W POLSCE

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S ł o w a k l u c z o w e: bezpośrednie inwestycje zagraniczne, specjalne strefy ekonomiczne, rynek pracy.

A b s t r a k t

Celem artykułu jest ukazanie wpływu przedsiębiorstw z udziałem kapitału zagranicznego prowadzących działalność gospodarczą w specjalnych strefach ekonomicznych (SSE) na rynek pracy w Polsce. Do realizacji wskazanego celu badawczego wykorzystano wybrane wyniki badań

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przeprowadzonych w przedsiębiorstwach z udziałem kapitału zagranicznego, funkcjonujących we wszystkich polskich strefach, w ramach projektu naukowego *Bezpośrednie inwestycje zagraniczne w specjalnych strefach ekonomicznych Polski*. Uzupełnieniem są opinie zarządów wszystkich stref w Polsce na temat oddziaływania bezpośrednich inwestycji zagranicznych (BIZ) zlokalizowanych w poszczególnych strefach na rynek pracy regionu, w którym funkcjonują.

Introduction

Initiation of extensive works on the establishment of special economic zones (SEZ) within Poland in 1994 was one of important regional policy instruments of the time and resulted from the need for economic intensification of selected regions by directing the flow of investments, in particular foreign ones, into those areas.

From that perspective, the zones represent a manifestation of state interventionism, the assumed outcome of which is to be the decrease of developmental differences between individual regions through actively influencing the economic and social conditions (KAŹMIERSKI 2012, p. 129).

The special economic zone is a separated, unpopulated part of the Republic of Poland within the limits of which business activity may be conducted on preferential terms and conditions defined in the Act on the SEZ (Ustawa z 20 października 1994 r. o specjalnych strefach ekonomicznych, DzU z 2015 r., poz. 282) and in the other legal acts effective in the individual zones[1].

The offer of the zones to Polish and foreign investors for the start-up of business activity there encompasses privileges of an economic and financial nature (e.g. access to technical infrastructure, administrative support, possibilities of direct cooperation with representatives of the same industry operating in the zones) as well as tax privileges (e.g. exemption from the income tax, exemption from the real property tax[2]). The level of public aid granted to entrepreneurs depends on, among other things, the enterprise size, qualified costs, region, type of business and date of obtaining the permit.

Currently, there are fourteen special economic zones in Poland, i.e. Kamienna Góra, Katowice, Kostrzyń and Słubice, Cracow, Legnica, Łódź, Mielec, Pomerania, Słupsk, Starachowice, Suwałki, Wałbrzych and Warmia and Mazury SEZ, which, according to the effective legislation will operate until

[1] For each special economic zone in Poland a separate executive regulation that governs its functioning was developed.

[2] As a consequence of the change in the provisions of the novella of the Act of 1 January 2001 on local taxes and charges, the statutory exemptions from the real property tax were repealed. Currently, individual decisions on that issue are within the competences of communes. They require, however, approval of the European Commission. See: PIĘTA-MINTUS, TRUSKOLAWSKI (2009, p. 20).

the end of 2026[3]. The zones are diversified in location, area and infrastructure as well as their conditions for conducting business within the frameworks of the binding legislation.

According to the information published by the Ministry of Economy, as of the end of 2014 the special economic in Poland covered an area exceeding 18,100 ha situated in 162 towns and 232 communes. Polish and foreign investors employed almost 296,000 employees of which 72.4% were new jobs created by entrepreneurs as the result of implementation of new investment projects after the obtainment date of the permit. The accrued value of investment outlays amounted to almost 102 billion PLN[4], including 19% of Polish capital and 81% of foreign capital[5]. Companies whose capital originating from five particular countries had the largest share in the foreign investments in special economic zones: Germany (17.7%), USA (12.3%), the Netherlands (11.5%), Japan and Italy (6.8% in both cases).

FDI companies are located in all the Polish special economic zones and high concentrations of such companies are notable in the vicinity of large urban agglomerations (Kamienna Góra, Katowice, Kostrzyń-Słubice and Wałbrzych SEZ). Also the Łódź and Pomeranian zones are outstanding in the foreign capital attracted in 2014 (*Informacja...* 2015, p. 7–9, 13–15, 18).

Evaluation of the influence on the labour market of the enterprises with participation of foreign capital operating in special economic zones in Poland was the objective of the studies presented in this article.

Influence of the foreign direct investments on the labour market

Achievement of positive changes in the local labour market as the consequence of foreign direct investments is one of the important expectations related to such investments, particularly in case of developing countries (KARASZEWSKI 2004, p. 77).

The FDI influence on the employment in the receiving country may be considered from the quantitative, qualitative and location perspectives taking into account the primary (direct) outcomes and secondary (indirect) outcomes.

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[3] In 2008, the functioning period of the special economic zones in Poland was extended until 2020 and in 2013 that period was extended by a further 6 years, i.e. until 2026.

[4] The value of outlays on fixed assets incurred by the investors after the obtainment date of the permit.

[5] For determination of the country of origin of the foreign capital, the Ministry of Economy adopted the definition applied by the National Bank of Poland, i.e. country of domicile of a non-resident that is a shareholder in the given enterprise or possessing the branch.

Table 1

Positive and negative outcomes of the FDI influence on the host country's labour market

Influence Area	Direct outcomes		Indirect outcomes	
	positive	negative	positive	negative
Quantity	FDI increase the net capital and create jobs in industries with prospects for the future	FDI accomplished by acquisition of the existing enterprises may lead to employment rationalisation and loss of jobs	FDI create jobs through cooperation links with local enterprises inducing the leverage outcomes in the host country' economy	use of imports as the source of supplies or substituting local enterprises (pressing them out from the market) leads to the loss of jobs
Quality	wages and work productivity are higher in enterprises with foreign participation	foreign investors introduce objectionable practices in employment	transfer and spread of good organisational and work management practices in local enterprises	erosion of wages may occur when local companies start competing with the foreign investors
Location	FDI create new and probably better jobs in the regions characterised by high unemployment rates	FDI contribute to further congestion of urbanised areas increasing the regional unbalance	FDI encourage the cooperating supplier enterprises to move to the areas, offering supplies of labour	FDI press local producers out of the market contributing to regional unemployment in the case of substitution for local production or when imports become the source of supplies for them

Source: *World Investment Report 1994...* (1994), WITKOWSKA (2000, p. 651).

It should be highlighted that the scale of those outcomes depends to a significant extent on the:

– FDI size and the investors' entry method into the host country's market;

– sectorial/industry structure of the foreign investments;

– strategy of the international corporations and the extent dependent on them of substituting the domestic production with production conducted within the framework of the entire corporation as well as the scope of interactions with local enterprises;

– host country's policies concerning the FDI (WYSOKIŃSKA, WITKOWSKA 2004, p. 162).

The most important quantitative outcomes of FDI include the direct creation of new jobs as well as indirect jobs creation by creating additional employment with the local suppliers and in the business services (Tab. 2). Experiences of the countries that have employed that instrument of regional policy show that every job created in the SEZ contributes to the creation of a number of new jobs outside it (GWIAZDA 2002, p. 44). It should be highlighted that development of lasting ties of cooperation between local businesses and the entities with participation of foreign capital represents the condition necessary for creating positive indirect quantitative outcomes for the labour market of the FDI inflow. Establishment of such ties depends not only on the internal policies of the foreign company but also on the capacity of the local entities to establish the cooperative relations. In the countries representing the lowest level of economic development, relatively lower capacity for cooperation with foreign partners is recorded and consequently the indirect outcomes for employment increase are the lowest (KARASZEWSKI 2004, p. 79).

Table 2

Indirect quantitative outcomes of the FDI in the area of creating employment in the host country

Outcome type	Outcome description
Vertical (primary)	employment generated by foreign investors with local suppliers of materials, parts, components and services
Secondary	creating employment with local clients of enterprises with foreign capital participation, e.g. distributors and other agents
Horizontal (narrow)	employment indirectly generated or limited in local companies competing in the industries that are the subject of operation of the enterprises with participation of foreign capital
Wide	creating employment in local companies operating in sectors other than the enterprises with participation of foreign capital
Macroeconomic	employment increase in the entire economy as the outcome of improvement in the purchasing powers of the employees and shareholders of foreign enterprises or limiting it as a consequence of the increased share of imports in production

Source: *World Investment Report 1994...* (1994), GOLEJEWSKA (2008, p. 132).

There is also risk of limiting employment in local enterprises that may be eliminated from the market by foreign competitors. Negative quantitative changes in the labour market are also observed in case of the *brown field* type foreign investments that usually require restructuring of the enterprise acquired and employment reduction as a consequence (GÓRNIEWICZ 2007, p. 110, 111).

The positive qualitative outcomes of the FDI include better work conditions and wages than local enterprises operating in the same industries. Moreover, the employment policies of enterprises with foreign capital participation provide new work patterns that have positive influence on the mentality of employees and allow development of career paths within the frameworks of the international structures of the corporation (KISIEL et al. 2011, p. 31.).

From the perspective of the host country, investment in human capital by foreign corporations, including organisation of training in advanced technologies and management skills are the expected qualitative outcomes (KUSAGO, TZANNATOS 1998, p. 11). Foreign entities may improve qualifications of employees in the host country directly by organisation of training programmes at its own units as well as indirectly as a consequence of the requirements of satisfying specific quality standards imposed on the local suppliers. Improvement of employee qualifications thanks to the FDI may also be the outcome of competitors copying the foreign practices local (the so-called imitation outcome) or by creating, on the initiative of the foreign investors, favourable conditions for central and local entities as well as NGO's to provide training programmes. Moreover, the FDI may be the carrier of the so-called „best practices" in organisation and management, which, indirectly, leads to a productivity increase in the domestic enterprises (GOLEJEWSKA 2008, p. 134, 135). In addition, new foreign investments implemented in the zones support entrepreneurship and economic activity of society through the transfer of new technologies and skilled workers from foreign companies to the national (PASTUSIAK 2007, p. 158, 159).

The outcomes of capital inflow in the form of foreign direct investments should also be considered at the level of the individual regions of the host country. Positioning enterprises with participation of foreign capital in the economically under-developed regions or regions that require structural transformations may support directly closing the development gap of those regions by creating new jobs and thus decreasing the unemployment rate. Positive secondary outcomes in the location aspect are represented by the situation where the domestic entities cooperating with foreign partners follow them and move their operations to the areas characterised by labour surplus.

On the other hand, the foreign entities may contribute to ousting local producers from the market while excessive concentration of foreign capital

mainly in the highly developed urban agglomerations may lead to deepening the developmental disproportions. In that case, negative outcomes in the aspect of the FDI location occur.

In concluding the above considerations, it can be stated that the FDI are of major and multidirectional influence on the labour market of the host country, although the inflow of the investments in itself does not offer the guarantee of success. This results from the divergence of the goals and interests of the foreign investors and the host country. Those earlier ones aim at accomplishment of the highest possible effectiveness of the capital invested while the host countries expect the highest increase in the dynamics of economic development as the result of receiving the external capital (KARASZEWSKI 2004, p. 81–83).

Given the above, it is immensely important to conduct own and well considered policies of attracting the inflow of the FDI coupled with the appropriate direction and absorption in the economically lagging regions by applying special incentives and instruments of the regional policy (GÓRNIEWICZ, SIEMIĄTKOWSKI 2007, p. 383, WITKOWSKA 2000, p. 652). The ultimate goal is to maximise the benefits and limit the possible negative consequences of the inflow of such investments (MICHAŁOWSKI 2006, p. 118).

Methodology and characteristics of the respondents

The article presents selected results of the survey conducted during the years 2012 and 2013 within the frameworks of the scientific research project on the *Foreign direct investments in the special economic zones of Poland*. The survey covered enterprises with participation of foreign capital operating in special economic zones of Poland based on the permit[6]. The survey was conducted by means of mailing and Internet surveys. In total, 46 correctly completed survey questionnaires were received representing 9% of the total population of interest.

The study involved foreign invested companies operating in all SEZs in Poland, with the highest maneuverability received from entities located in Katowice and Kostrzyn – Słubice zone (respectively: 9 and 6 subjects), and also Łódź and Pomorska zone (5 subjects in both cases). The basic activity of the respondents mainly related to production activities (36 subjects), 3 companies perform service activities, while in the case of 7 companies both production and service activities (mainly transport of manufactured goods, services assembly and maintenance, consulting). Most of the surveyed com-

[6] All the enterprises holding the permit for conducting business in the Polish SEZ based on the updated documents *List of enterprises operating in the SEZ as at the end of December 2010* and *Enterprises with participation of foreign capital holding the valid permit for operation in the SEZ as at the end of 2011* made available by the Ministry of Economy were invited to participate in the survey.

panies were large enterprises (45.6%), followed by medium (37%) and small (17.4%). Among the respondents was dominated by companies with German and the Netherlands capital. Moreover, in the majority of cases, investment projects in special economic zones were implemented from scratch (*green field*), while 7 through the acquisition of all or part of the shares/shares of the company (*brown field*).

These findings are complemented by opinions from management boards of all the zones in Poland concerning the influence of the foreign direct investments (FDI) located in the individual zones on the labour market of the region in which they operate.

The obtained survey results are of informative nature and hence the conclusions concerning the analysed phenomenon have been formulated highly conservatively and they may not serve formulation of generalised conclusions.

Results of studies

The statistical data made available by the Ministry of Economy and the information obtained from the conducted empirical survey indicate that enterprises with participation of foreign capital positioned in the Polish SEZ contributed to labour market activation in both quantitative and qualitative aspects.

Analysis of the detailed, unpublished statistical data concerning the FDI in the special economic zones of Poland during the years 2004–2010 obtained from the Ministry of Economy indicates that by the end of 2010 entities operating in the Polish special economic zones established a total of 167,100 jobs. Of that, 74% of those jobs were created in enterprises with participation of foreign capital while 26% were jobs created by enterprises with Polish capital. German and American enterprises were the main contributors to creating new jobs (15% and 10% of the total jobs created respectively). In the majority of cases, foreign investors not only fulfilled the initial declarations concerning employment[7] but even increased the employment further (in average by 35%).

Unfortunately, the annual reports *Informacja o realizacji ustawy o specjalnych strefach ekonomicznych*[8] of the Ministry of Economy do not provide detailed information on the structure of the new jobs created by the enterprises operating in the zones according to the country of origin of the capital.

[7] Particularly noteworthy investors are German and American, who crossed the initial declarations regarding the hiring of new employees by more than 65%, while the German by nearly 87%.

[8] *Information on performance of the Act on special economic zones.*

Only the aggregated data per zone is given. The available data also makes drafting the specification of the initial investment plans and the outcomes impossible.

Given the above limitations and applying highly conservative assumptions, it can be assumed that the current share of jobs created by enterprises positioned in the zones is similar. That would mean that out of the total 213,900 jobs created as at the end of 2014 more than 158,000 were created with involvement of foreign investors (*Informacja*... 2015, p. 14–17).

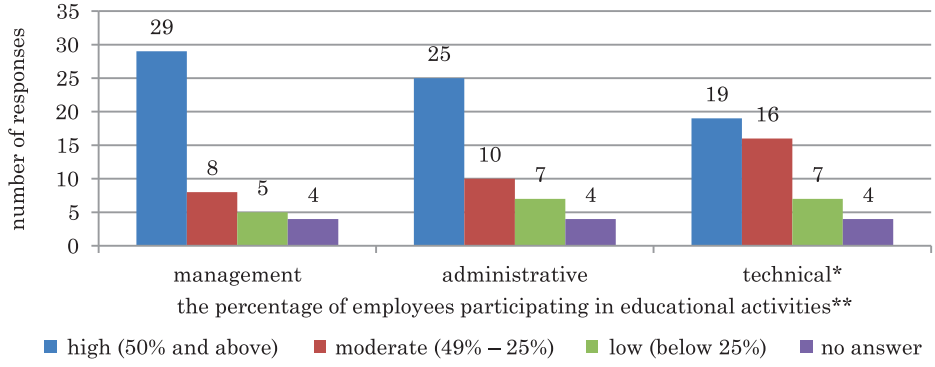
Although the quantitative secondary outcomes in the labour market were not the subject of the conducted empirical survey, it is worth highlighting that the vast majority of the respondents (90.9%) established supply relations with the local and domestic partners, which may contribute indirectly to creating employment in those enterprises. Managers of the special economic zones also formulated similar observations.

Positive consequences of positioning the FDI in the special economic zones of Poland are also visible in the activities focused on quality improvement of the human capital in the region. The survey results showed that the vast majority of the people employed in the whole range of positions, i.e. management, administration and technical, were covered by a programme aiming at the improvement of professional qualifications (Fig. 1). The employers financed such projects to a high extent. According to the respondents, the most important areas in which the professional/vocational qualifications were improved were the command of foreign languages, enterprise management, finance and information technology.

It is worth highlighting that more than a half of the entities participating in the survey offered their employees foreign internships in the parent company and/or the foreign headquarters (Fig. 2). Training programmes abroad were mainly dedicated to employees in managerial, administrative and engineering-technical positions. The lowest participation in foreign internships was recorded in case of production operators (36.4% of the total). It is important, however, that they were not excluded from the opportunities of improving their vocational qualifications in the foreign corporations. Some enterprises offered employees in management positions development of their professional career path in the foreign subsidiaries or branches.

The fact that enterprises participating in the survey expressed willingness to increase or maintain the employment at the current level, as well as the willingness to continue the educational projects, should be evaluated positively. Limitations in those areas are of incidental nature.

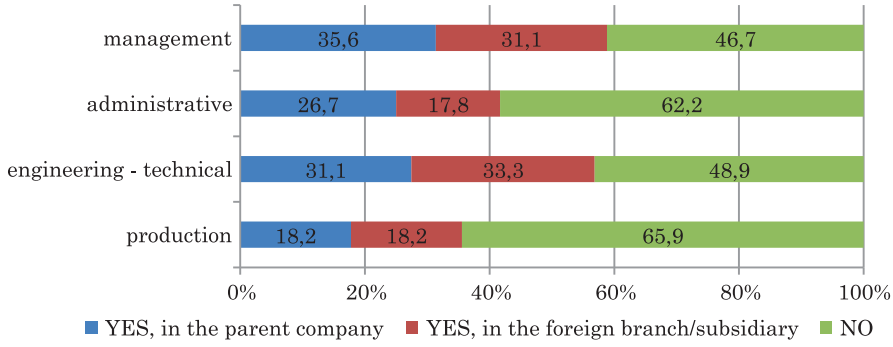
Investments in human capital are conducted by foreign entities not only directly – in their own enterprise, but also indirectly – in the cooperating enterprises. More than 86% of the respondents press special technical, organisational or quality requirements on the local partners. Maintaining



Explanations:
* engineering-technical staff and production operators
** percentage of employees participating in educational activities with regard to their position, eg. high (50% or more) means that in the enterprise at least half of the employees in managerial positions participated in educational activities).

Fig. 1. Educational activities (education and training courses, studies at higher schools, etc.) of employees in enterprises participating in the survey

Source: own work based on the survey results.



Notes: answers do not add up to 100 % because respondents could choose more than one answer.

Fig. 2. Foreign internships of employees in enterprises participating in the survey

Source: own work based on the survey results.

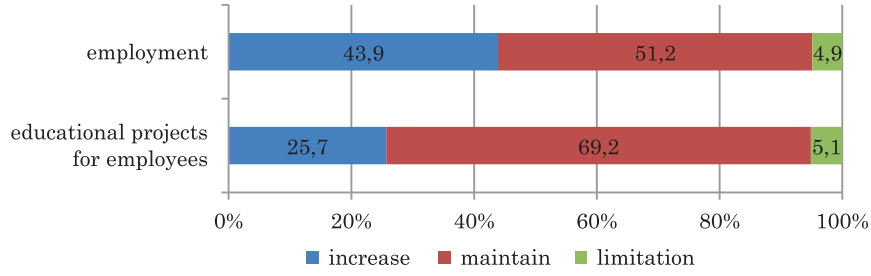


Fig. 3. Planned directions of changes in employment in enterprises participating in the survey for the coming three years

Source: own work based on the survey results.

durable cooperation with a foreign partner stimulates local companies to conduct continual development and to make more effective use of the resources available to them. Furthermore, as many as 55% of the respondent enterprises offer aid to local suppliers in satisfying those requirements. The outcomes of the FDI on the labour market can also be of an unintended nature (see: WITKOWSKA 2000), exemplified by transfer of foreign practices (e.g. human resource management standards) into the host country's enterprises.

Managements of the individual zones expressed positive opinions on the involvement of foreign investors in labour market activation by, among other things, direct and indirect creation of employment and investments in the human capital. Foreign entrepreneurs also establish cooperation with local institutions of vocational and higher educational concerning adjustment of the basic and continual education on offer to the actual needs of the local labour market. This cooperation covers development of curricula for specific specialisations and organisation of vocational and graduate internships.

According to the observations of the managements of the zones, enterprises with participation of foreign capital positioned in special economic zones usually offer higher wages and more favourable working conditions (e.g. extensive social package, transport of employees) as compared to the domestic enterprises in the same industry[9]. Consequently, the foreign enterprises contribute to the increase of purchasing power of the population (the so-called income outcome).

Examples of the phenomenon of „following", represented by attracting foreign investors, usually from the same industry, have been noted in the zones.

Conclusions

Statistics obtained from the Ministry of Economy and the results of the conducted empirical survey show that enterprises with participation of foreign capital located in the Polish SEZ contributed to the activation of the labour market.

The positive quantitative outcomes are represented by the retention of the current jobs and the creation of new ones in enterprises of the direct investment, as well as the creation of employment in cooperating enterprises. Moreover, in the majority of cases, foreign investors not only accomplished the initial plans concerning employment but also ultimately increased the employment. Foreign investors participating in the survey conduct activities focused on human capital quality improvement in the region by providing educational

[9] Although the issue of remuneration in foreign companies and their juxtaposition with salaries in domestic companies was not subject to audit, the author expresses the view that this thread is worth in the future to recognize.

projects aimed at improvement of professional and vocational qualifications of the employees at all levels in the organisation. Some enterprises facilitate professional career path development of managerial staff in foreign subsidiaries or branches. The indirect qualitative benefits from placement of FDI in the zones involve stimulation of the local cooperating companies for continual development and satisfying the special technical, organisational and quality requirements. In addition, the foreign investors frequently offer aid to the local suppliers in satisfying such requirements. The qualitative outcomes of the FDI in the labour market may also be of unintended nature, such as a consequence of transmission of the best practices and imitation of certain solutions by the domestic enterprises.

The fact that enterprises participating in the survey expressed willingness to increase their employment or maintain it at the same level and to continue implementation of educational projects for their employees should be evaluated positively. Reductions in those areas are of incidental nature.

Foreign direct investment enterprises are distributed throughout all the Polish special economic zones. Analysis of the Ministry of Economy statistics indicates the unchanging interest of foreign investors in the zones located predominantly (?) in the vicinity of large urban agglomerations. Observations of managers of the individual zones are similar. They point out that the investors see some zones as more attractive investment locations compared to other zones[10]. Consequently, the FDI may induce some unwanted outcomes and contribute to deepening the developmental disproportions from the regional perspective. Nevertheless, existence of the special economic zones in the so-called „difficult locations", characterised by high unemployment rate (Słupsk, Suwałki zones), and public aid in the form of tax exemptions offers the only chance for finding investors for those zones. This situation may be confirmed by the result of the simulation of the possible unemployment in the counties in which the enterprises located in the SEZ operate in case of absence of that regional policy tool. According to the estimates by the experts from the Ministry of Economy, „without jobs created and maintained as the consequence of investment projects implemented in the special economic zones, the unemployment rate in Poland as at the end of 2011 would be 13.8% instead of the actually recorded 12.5%" (*Informacja*... 2012, p. 38).

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[10] Two Polish SEZ were included in the list of the 25 best economically privileged zones in the world during the years 2010-2011. In that ranking the Łódź zone won the seventh place and Starachowice zone the tenth place. See: *Global Free Zones of the Future 2010/2011 Winners* (2010, p. 22).

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EFFICIENCY OF FOOTBALL CLUBS IN POLAND

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K e y w o r d s: *data envelopment analysis* DEA, technical efficiency, sport clubs.

A b s t r a c t

This article evaluates the diversity in the level of efficiency of football clubs which played matches in the top-level football league in Poland in the 2014/2015 season – the Polish First Division (Ekstraklasa). The efficiency was measured with the use of the non-parametric method of frontier data analysis (*DEA – Data Envelopment Analysis*). The results of the measurement indicate that the efficiency of the Polish First Division is varies widely. More than one-third of clubs (inefficient ones) incur excessively high expenditures (salaries) in relation to the actually produced output. The study found that the technology of efficient clubs is based, first of all, on generating much higher revenues in relation to the players' salary costs. This allows the efficient clubs to more effectively (in comparison to non-efficient clubs) convert their input into output. Identifying the differences in efficiency using established benchmarking factors resulted in determining the optimum input levels for inefficient clubs and indicating the clubs where activities to improve efficiency should be undertaken. The result of the research is an efficiency ranking order for the football clubs covered by the analysis.

EFEKTYWNOŚĆ FUNKCJONOWANIA KLUBÓW PIŁKI NOŻNEJ W POLSCE

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S ł o w a k l u c z o w e: DEA (*data envelopment analysis*), efektywność techniczna, kluby sportowe.

A b s t r a k t

Celem artykułu jest ocena stopnia zróżnicowania poziomu efektywności funkcjonowania klubów piłki nożnej, które w sezonie 2014/2015 rozgrywały mecze na najwyższym poziomie rozgrywek w Polsce – w Ekstraklasie. Efektywność mierzono na podstawie nieparametrycznej metody granicznej analizy danych (*DEA – Data Envelopment Analysis*). Wyniki pomiaru wskazują, że efektywność funkcjonowania klubów z Ekstraklasy jest silnie zróżnicowana. Ponad jedna trzecia klubów (nieefektywnych) ponosi zbyt wysokie nakłady (wynagrodzenia) w stosunku do faktycznie osiągniętych

rezultatów. Z przeprowadzonych badań wynika, że technologia klubów efektywnych opiera się przede wszystkim na generowaniu znacznie wyższych przychodów w stosunku do kosztów wynagrodzeń zawodników. Pozwala to klubom efektywnym na sprawniejsze w porównaniu z nieefektywnymi przekształcenie nakładów w rezultaty. Identyfikując różnice w efektywności na wysokości ustalonych współczynników benchmarkingowych, wyznaczono optymalne wielkości nakładów dla klubów nieefektywnych oraz wskazano, w których z nich powinno się podjąć działania zmierzające do poprawy efektywności ich funkcjonowania. Konsekwencją przeprowadzonych badań jest ustalenie kolejności objętych badaniami klubów piłki nożnej w rankingu efektywności.

Introduction

In the theory of economics, efficiency evaluation and measurement are key issues for each organization, regardless of whether it is a producer of goods and services or a sports organization. In particular, measuring the efficiency of professional sports clubs makes it possible to evaluate their own achievements against other clubs performing in the sports market. It seems important to undertake this subject matter in view of the economic and social importance of sports and the trend towards professionalization and commercialization in Poland. Sports clubs are transforming into enterprises which have to ensure the economic efficiency of their operations. The significance of the issue of efficiency and good financial condition of football clubs is proven by the Financial Fair Play[1]initiative undertaken in 2009 by the Union of European Football Associations (UEFA). Its aim has been to improve financial efficiency of football clubs in Europe. In Polish economic practice, evaluations of football club efficiency most often use methods based on ratio analysis. An evaluation and comparison of clubs from the Polish First Division is performed by two financial institutions, i.e. Deloitte and Ernst & Young (EY). Every year, based on the data concerning the financial situation, sports results, advertising and sponsoring activity and other criteria, financial institutions prepare club rankings. However, it quite often turns out that an efficiency evaluation based on ratios is insufficient. Sports clubs are unique organizations, differing from other enterprises producing various goods and services in their operation, legal form, organizational structure and range of activities. Clubs, particularly operating in the form of companies, must strive towards realization of both sports and economic aims (SZNAJDER 2012). In order to reliably examine the business reality characterizing the operations of sports club, it is necessary to develop and apply new methods to evaluate efficiency, particularly derived from such disciplines as statistics, econometrics and operations research. The Polish literature on the subject lacks analyses and publications which use

[1] UEFA statement on financial fair play, online: http://www.uefa.com/uefa/footballfirst/protectingthegame/financialfairplay/news/newsid=1590370.html (access: 10.03.2015).

quantitative – non-parametric and parametric- methods to evaluate the efficiency of sports organizations. The application of such methods helps to investigate the economic and financial situation, taking into account the multiple dimensions of activities undertaken by a sports club. For instance, the non-parametric DEA (*Data Envelopment Analysis*) method was applied to evaluate the efficiency of clubs playing in the following football leagues in the world: Major League Soccer (HAAS 2003a) and the English (HAAS 2003b) and BARROS and LEACH (2006a), Spanish (GONZALEZ-GOMEZ, PICAZO-TADEO 2010), German (HAAS et al. 2004), French (JARDIN 2009) and Brazilian (BARROS et al. 2010) leagues. The results of research concerning efficiency of sports clubs using parametric methods are also available, e.g. in BARROS and LEACH (2006b) and HOFLER and PAYNE (1997). The researchers determined the efficiency of the English Premier League clubs and the US National Football League (NFL) using a Cobb-Douglas function. On the other hand, DAWSON et al. (2000) and BARROS and GARCIA-DEL-BARRIO (2008) applied a stochastic frontier analysis (*SFA – Stochastic Frontier Approach*) to determine the efficiency of English football clubs.

This article evaluated the degree of diversity in the efficiency level of football clubs whose teams participated in the 2014/2015 season in the top-level football competition in Poland, namely, the Polish First Division (Ekstraklasa). The term efficiency used in the article should be understood as the so-called technical (technological) efficiency, defined as the skill in converting the consumed inputs into economic and sportive output (results).

Research methods, construction and data

In order to evaluate the technical efficiency of football clubs, the following DEA models were applied[2]: with constant returns-to-scale(known as CCR, after the authors' names: Charnes, Cooper, Rhodes) and variable returns-to-scale (known as BCC, after the authors' names: Banker, Charnes, Cooper). Solving a CCR model leads to obtaining over all efficiency, while solving a BCC model results in obtaining the pure technical efficiency of a given unit. Models selected for the analysis are input-oriented, where the aim is to minimize them without affecting the outputs. They were chosen in order to present the possibilities of reducing expenditures incurred by individual football clubs without the need to apply additional means to change the level of the results achieved. In business practice, sport club managers have a higher impact on

[2] A description of the DEA method and the criterion of efficiency evaluation of the examined objects are available, e.g. in the following publications: for CCR model – CHARNES et al. (1978, p. 429–444), BCC – BANKER et al. (1984, p. 1078–1092).

input reduction, mainly regarding the costs of staff (players and coaches) salaries than on an increase in the output obtained, for instance, the number of points awarded for winning or drawing in a football match. Input amounts are basic variables affecting their decisions and their amount can be optimized only in an input-oriented approach.

The DEA methods do not require knowledge of the form of the efficiency function. By applying empirical values of variables in the form of inputs and outputs, we look for weights to maximise their efficiency (for a given DMU – *Decision Making Unit*). Thus, we receive a mathematical programming task, in which the aim is to determine the efficiency of objects in relation to their entire group. A graphic illustration of DEA methods is the efficiency curve (best practice frontier), connecting the most effective decision-making units (Fig. 1).

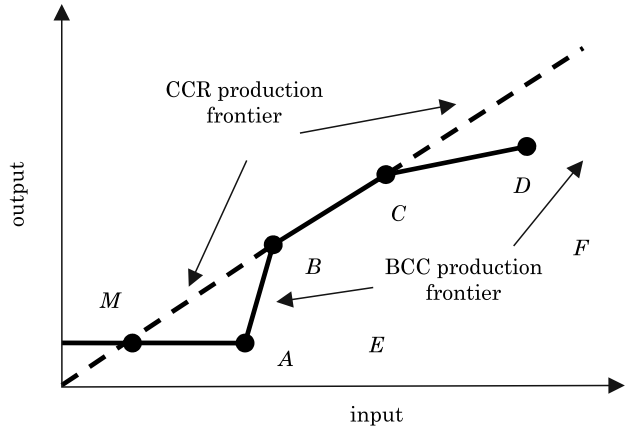

Fig. 1. Overall (CCR) and pure (BCC) technical efficiency curves
Source: on the basis of Cooper et al. (2006).

The efficiency curve is estimated on the basis of empirical data concerning inputs and outputs. The examined objects (in this case football clubs) are presented as decision making units DMU – *A*, B, *C*, *D*, *M* – situated on the efficiency curve, are considered efficient, and their efficiency ratios are equal to 1 (θ_o=1)[3]. On the other hand, units situated below the efficiency curve, with a value of less than one, are considered inefficient (θ_o<1) – these are units *E* and *F*.

The total and pure efficiency ratios are also used to determine the scale efficiency. This provides information on how much less input could be used if

[3] In DEA methods, (Farrell) efficiency is usually symbolizes as θ_o (theta).

the output amount was optimal. With a BCC efficiency ratio equal to one, a given object is efficient in relation to the scale of involved production factors and when the ratio is less than one, it is inefficient in relation to the scale of involved production factors. Solving the CCR or BCC model does not provide the possibility to establish the ranking of objects and, in particular, the ranking of fully efficient objects with an efficiency ratio equal to one. A relevant suggestion to solving this problem was published by Andersen and Petersen (1993) and Tone (2002)[4]. The CCR model with the so-called „super--efficiency" ranking (SE-CCR) they proposed was used to rank the football clubs from the least to the most efficient.

In order to calculate efficiency ratios, categories of inputs and outputs were selected based on a review of literature concerning research on the efficiency

Table 1

Categories of inputs and effects of the First Division clubs

Clubs	Costs of salaries (PLN '000)	Revenue incl. transfer activities (PLN '000)	NC+ audience ('000)	Points	Numbers of spectators in the stadium
Lech Poznań	20,679	65,561	166	70	20,261
Legia Warszawa	22,601	115,146	209	70	16,596
Jagiellonia Białystok	7,614	20,468	130	66	10,755
Śląsk Wrocław	10,094	19,469	126	58	10,963
Lechia Gdańsk	15,905	40,433	141	50	16,608
Wisła Kraków	14,340	32,830	161	50	12,159
Górnik Zabrze	15,121	17,213	115	48	2,961
Pogoń Szczecin	7,281	21,556	119	43	6,101
Cracovia Kraków	10,102	26,976	114	55	6,674
Ruch Chorzów	10,565	17,318	116	47	5,994
Korona Kielce	12,811	12,957	127	48	6,286
Piast Gliwice	8,496	12,662	109	48	4,593
Podbeskidzie Bielsko-Biała	3,334	11,491	101	47	3,958
Górnik Łęczna	6,134	10,974	109	44	4,163
Zawisza Bydgoszcz	7,020	12,554	92	39	2,775
GKS Bełchatów	4,335	16,407	110	37	3,051

Source: Data and own calculations on the basis of the report entitled *Ekstraklasa piłkarskiego biznesu*, online (access: 10.03.2015).

[4] A detailed description of the SE-CCR model methodology is available in publications, e.g. by Andersen, Petersen (1993, p. 1261–1264), Tone (2002, p. 32–41), Guzik (2008, p. 15–29).

of football clubs in the world[5] and the production model for a professional sports club proposed by BARONCELLI and LAGO (2006). One variable determining input category was assumed, i.e. costs of players' salaries[6]. The outputs included four categories of variables: number of points awarded the end of the league season[7], revenues, including revenues from transfer activities, average audience watching matches in NC+ TV channel and average number of spectators present in the stadium during football matches. Input and output categories assumed for the research are presented in Table 1.

A Spearman's rank correlation was applied to determine the correlation between the ratios presenting the share of costs of salaries in revenues and points gained by clubs in league competitions and the technical efficiency ratios calculated with the DEA method. The choice of variables to be analysed was determined by the availability of information concerning football clubs. The data used in the analyses originated from a report prepared and published online by Ernst & Young, entitled *Ekstraklasa piłkarskiego biznesu* (online).

Evaluation and comparison of the efficiency of the Polish First Division clubs and possibilities of its improvement

The ranking of clubs in the Polish First Division in the league table at the end of the 2014/2015 season, values of efficiency ratios and lambda λoj benchmark formulae (coefficients) (calculated for the CCR model)[8] are presented in Table 2.

On the basis of the research conducted, it was found that in the 2014/2015 season of the Polish First Division football competitions, the following clubs were fully efficient(in the CCR model): Legia Warszawa, Jagiellonia Białystok and Podbeskidzie Bielsko-Biała. The value of the efficiency ratio for the above-mentioned clubs is 1 (100%), which means that they are efficient, both in the technology and scale of the output generated. Taking into account the values of overall technical efficiency below one and pure efficiency amounting

[5] For example, HAAS (2003a, p. 2010 and 2003b, p. 406), applying the DEA method to determine Major League Soccer and English Premier League clubs analysed the following types of input categories: wages of players, coaches, coaching staff, population in the town where the club was based, and the following outputs: number of points awarded, total audience in a league season, stadium utilization and revenues of sports clubs.

[6] Costs of wages were calculated on the basis of the amount of costs of players' salaries per each point awarded and the total number of points gathered in a season by the football club.

[7] The number includes all points gained by the club, taking into account the division of points (the so-called ESA 37)

[8] Benchmark formulae for ineffective o^{th} objects are described by optimum coefficients λ_{oj} ($j = 1,.., J$). They provide the multiplicity of the j^{th} object technology that should be assumed when constructing an optimum technology of the o^{th} object.

Table 2
Results of the evaluation of technical efficiency of the Polish First Division clubs in the season 2014/2015

Clubs	Place in ranking	CCR	BCC	Scale efficiency	λ_{oj} (CCR) benchmark formulae
Lech Poznań	1	0.86	1.00	0.86	λ_2=0.32, λ_3=1.39
Legia Warszawa	2	1.00	1.00	1.00	λ_2=1
Jagiellonia Białystok	3	1.00	1.00	1.00	λ_3=1
Śląsk Wrocław	4	0.77	0.78	0.77	λ_3=1.02
Lechia Gdańsk	5	0.81	0.98	0.81	λ_2=0.11, λ_3=1.38
Wisła Kraków	6	0.69	0.94	0.69	λ_2=0.10, λ_3=0.88, λ_{13}=0.25
Górnik Zabrze	7	0.30	0.34	0.30	λ_2=0.05, λ_{13}=1.05
Pogoń Szczecin	8	0.77	0.82	0.77	λ_2=0.10, λ_3=0.88, λ_{13}=0.25
Cracovia Kraków	9	0.65	0.75	0.65	λ_2=0.12, λ_3=0.03, λ_{13}=1.10
Ruch Chorzów	10	0.48	0.51	0.48	λ_2=0.03, λ_3=0.21, λ_{13}=0.81
Korona Kielce	11	0.39	0.56	0.39	λ_3=0.23, λ_{13}=0.96
Piast Gliwice	12	0.45	0.52	0.45	λ_3=0.06, λ_{13}=1.01
Podbeskidzie Bielsko-Biała	13	1.00	1.00	1.00	λ_{13}=1
Górnik Łęczna	14	0.59	0.72	0.59	λ_{13}=1.08
Zawisza Bydgoszcz	15	0.48	0.50	0.50	λ_2=0.02, λ_{13}=0.86
GKS Bełchatów	16	0.99	1.00	0.99	λ_2=0.04, λ_{13}=1.00

Source: own study.

to one, Lech Poznań and GKS Bełchatów are technologically efficient with the assumption of variable returns-to-scale. In view of the situation where the efficiency (or inefficiency) of those clubs (assuming constant and variable effects) is not consistent, scale efficiency was also determined (Tab. 2). This helped to determine how much less input could be used if the amount of output was optimal. The scale efficiency measure had values of less than one, which suggests that those clubs were ineffective in relation to the scale of the resources in volved. The least efficient clubs in the Polish First Division are Górnik Zabrze and Korona Kielce, with overall technical efficiency (CCR) values of only 0.34 and 0.39 (Tab. 2), respectively. This indicates the need to restructure the costs of wages in clubs from Zabrze and Kielce.

The results of the research presented so far helped, first of all, to distinguish efficient and inefficient clubs. However, they do not provide the possibility of specifying the exact ranking of clubs in terms of the efficiency level achieved (in relation to units considered efficient in the group). Such a possibility is provided by applying the SE-CCR model. The obtained values of efficiency ratios calculated on the basis of this model offer a basis to present the ranking of clubs in order from the most efficient to the least efficient, as shown in Figure 2.

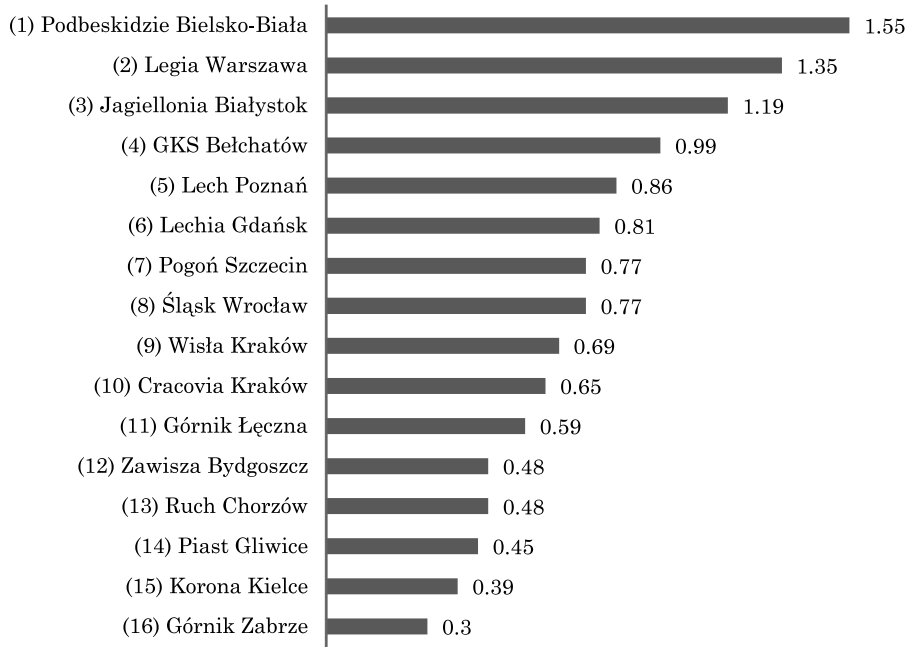

Fig. 2. Ranking of the Polish First Division football clubs in terms of their efficiency (SE-CCR model)
Source: own study.

In the group of 16 clubs of the Polish football First Division, Podbeskidzie Bielsko-Biała proved to be the most efficient club. To achieve its results (revenues, number of points, TV audience and number of spectators in the stadium), the club from Bielsko-Biała needs nearly 1.6 times less input than other clubs using their optimum common technology. Competitors of Jagiellonia (the weakest club among those characterized by 100% efficiency) would have to incur expenditures only 2–6% higher than the input actually made by this club to reach their objectives. Other clubs are not efficient, since their efficiency ratios (ranking coefficients) are below one. The lowest efficiency rankings were found for clubs from Zabrze, Kielce, Gliwice and Bydgoszcz. Competitors of the least effective club of the Polish First Division, Górnik Zabrze, could have had the same results as Górnik Zabrze with using only about 30% of the actual expenditures of this club.

On the basis of the efficiency measurement, it is possible to establish an excess (surplus) of players' salaries in relation to the actual demand that would have ensured the efficient operation of a football club, with the assumption of constant outputs. Taking all of this into consideration, the calculated efficiency measures for individual sports clubs were used for sample determination of the

optimum amount of salaries and, at the same time, for indicating the possibilities for improving the operations of clubs identified as inefficient (Tab. 3).

Table 3

Results of salary cost optimization for inefficient clubs

Clubs	Actual costs of salaries [PLN '000]	Optimum costs of salaries [PLN '000]	Cost reduction percentage [%]
Górnik Zabrze	15,121	4,536	70
Korona Kielce	12,811	4,996	61
Piast Gliwice	8,496	3,823	55
Zawisza Bydgoszcz	7,020	3,370	52
Ruch Chorzów	10,565	5,071	52
Górnik Łęczna	6,134	3,619	41
Cracovia Kraków	10,102	6,566	35
Wisła Kraków	14,340	9,895	31
Śląsk Wrocław	10,094	7,772	23
Pogoń Szczecin	7,281	5,606	23
Lechia Gdańsk	15,905	12,883	19
Lech Poznań	20,679	17,784	14
GKS Bełchatów	4,335	4,292	1

Source: own study.

The results of the least efficient clubs, i.e. Górnik Zabrze, Korona Kielce, Piast Gliwice, Zawisza Bydgoszcz and Ruch Chorzów, suggest the need to reduce the amount of salaries paid by 52% – 70%, taking into account the scale of achieved outputs and the optimal consumption of resources used for that purpose. The clubs whose technologies can be adopted by inefficient clubs (λ_{oj} benchmarking formulae – Tab. 2) include Legia, Jagiellonia and Podbeskidzie. They occur in most formulae for ineffective clubs with the application of the CCR model.

The efficiency of resource allocation can be proven by the high differentiation of players' salaries costs as calculated per each point gained by football clubs in the 2014/2015 season, as shown in Figure 3.

Definitely the lowest cost per one league point was recorded for Podbeskidzie Bielsko-Biała (PLN 71,000). Relatively low costs in comparison to other clubs were also observed for Jagiellonia Białystok (PLN 115,000) and GKS Bełchatów (PLN 117,000). The three above-mentioned clubs can therefore be considered as demonstrating the highest allocation efficiency of the resources owned. The highest costs of salaries per point awarded were clearly observed in three clubs, Legia Warszawa, Lechia Gdańsk and Górnik Zabrze. They amount

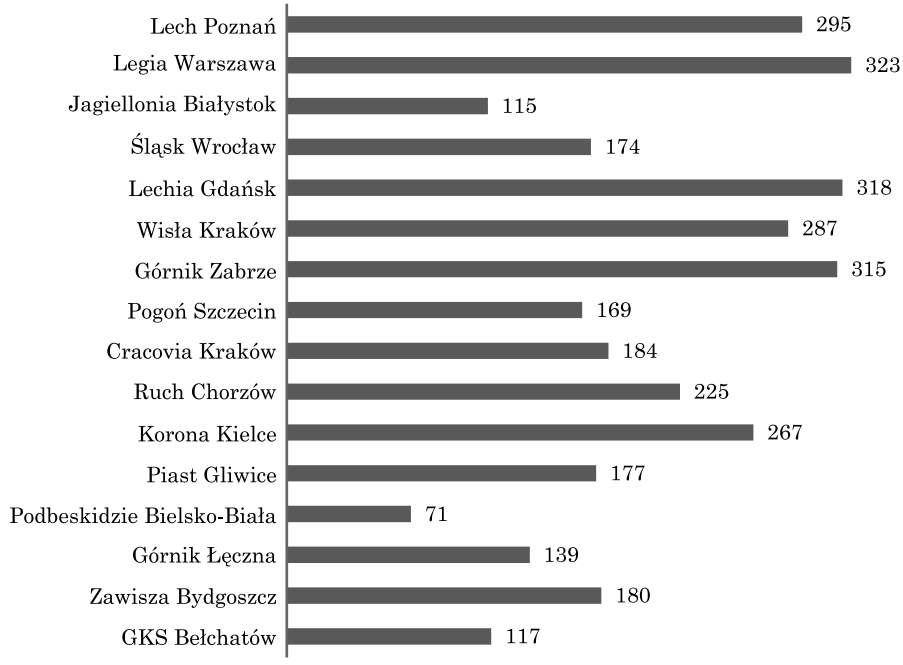

Fig. 3. Costs of players' salaries per each point gained by the Polish First Division clubs (PLN '000/one point)

Source: Own study

to PLN 323,000, PLN 318,000 and PLN 315,000, respectively. For the other clubs, the costs under analysis amounted from 139,000 for Górnik Łęczna to PLN 295,000 for Lech Poznań.

Apart from the cost of a point gained in the league, a significant element of the picture of efficiency of professional sports clubs is a comparison of the relationship between the amount of costs, mainly staff costs (salaries for players and coaching staff) and the revenue generated. According to the idea of Financial Fair Play introduced in 2008 by the Union of European Football Association, the costs of clubs (participating in competitions of European leagues) should not be higher than the revenues achieved. Exceeding this limit is related, first of all, to high expenditures incurred for player transfers and staff salary costs. If sporting or economic results are not achieved, such a situation could contribute to the loss of stability and financial security of the club. Consequently, indicators presenting the relationship between the players' salaries and revenues were calculated for the clubs of the Polish First Division, as presented in Figure 4.

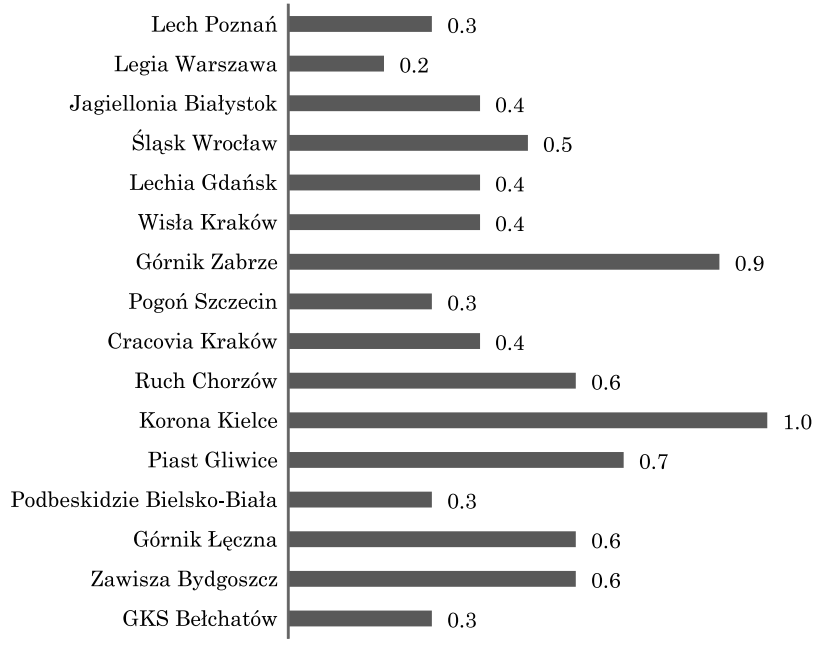

Fig. 4. Value of the salary costs-to-revenues ratio for the Polish First Division clubs
Source: own study.

Among the 16 clubs under analysis, the lowest salary costs in relation to revenues were found for Legia Warszawa. For the club from the capital city, costs are more than five times lower than revenues. A low salary-to-revenues ratio (0.3) was also observed for clubs from Bełchatów, Bielsko-Biała and Poznań. Definitely the highest share of this ratio was found for clubs from Zabrze and Kielce, where salary costs equalled revenues. In view of the fact that, apart from salaries for players, there are also other types of costs (such as salaries for coaching staff and operating costs related to the maintenance of current operations and other costs) it should be assumed that the total amount of costs in the above-mentioned two clubs significantly exceeds the revenues gained.

The observed differentiation in the level of salaries in individual clubs proves that efficiency depends on the number of points gained at the end of the league season and the amount of revenue that is directly related to the number of spectators in the stadium and in front of a TV. In order to determine the relationship between the cost of one league point, the cost-to-revenues ratio and the technical efficiency ratio, the following correlation was determined (Tab. 4).

Table 4
Correlations between salary costs/points and salary costs/revenues ratios and technical efficiency ratios

Specification	CCR	BCC
Salary costs/points ratio	-0.25	-0.17
Salary costs/revenues ratio	-0.93*	-0.90*

* Correlation coefficient is significant at $p<0.05$
Source: own study.

The results of the correlation analysis show a significant correlation ($p<0.05$) between salary costs/points and salary costs/revenues ratios and efficiency ratios. This means that an increase in salary costs in relation to revenue and points involves a decrease in the value of efficiency ratios. However, it should be emphasized that when comparing the values of two indicators with the efficiency of clubs in the Polish First Division, it is not the salary-to-points ratio that has the largest effect on the efficiency level. Although the highest cost per point was observed for Legia, it is an efficient club. Legia achieves good results due to use of technology which generates high revenues in relation to the incurred costs of players' salaries. This effect is also enhanced by other outputs produced in the season under examination: the largest audience watching matches on TV and a high number of spectators at the stadium. The technology of the most efficient club in the Polish First Division (Podbeskidzie) is based on the lowest (in comparison to all other clubs) cost of a league point awarded and a low share of salary costs in relation to revenues. As regards achieving sport results, clubs from Poznań, Warszawa and Białystok occupy the three top positions among all efficient units in the league table at the end of the 2014/2015 season. On the other hand, clubs from Bielsko-Biała and Bełchatów, in spite of being efficient, are ranked in the bottom part of the table. For Górnik Zabrze and Korona Kielce, a high cost of a league point was observed along with a high share of salaries in relation to revenues.

Summary

This study found that the efficiency of clubs varies widely. More than one-third of clubs (ineffective ones) use too high input (salaries) in relation to their achieved output. As the analysis showed, a low share of salaries in relation to revenues is of significant importance for the growth of technical efficiency. This suggests that the technology of efficient clubs is based, first of all, on generating much higher revenues in relation to the costs incurred.

It allows the clubs to convert inputs into outputs more effectively as compared to non-efficient clubs. A high cost per league point affects the diversification of efficiency, but it is not a prerequisite for classifying the club as either effective or ineffective. Despite Legia and Lech having high salaries per point, these clubs are efficient, as they demonstrate higher revenues in comparison to costs. However, it should be emphasized that fully efficient clubs do not always occupy the highest places in the league table. In the Polish league, two clubs, Podbeskidzie and Bełchatów, being efficient teams, are ranked in the bottom of the table. This supports the research of other authors examining other football leagues in the world (KELLER 2008, HAAS 2003a, b, JARDIN 2009, BARROS, LEACH 2006a et al.). Nevertheless, it should be remembered that the research was carried out on a sample of clubs for only one competition season. This is related, first of all, to the availability of information, which clubs in Poland are unwilling to share. Unquestionably, better access to economic and financial data would enrich the analysis of the efficiency of sports clubs in Poland. However, the analysis and observations made in the article can be used as an important signal for sport club managers, as well as for the licensing committee of a sports association issuing a licence for a club to participate in league matches. The data from the ranking prepared with the application of the SE-CCR model could become one of the basic tools for monitoring the financial situation. It is a potential direction of research into the evaluation of sport clubs in the future.

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CONSTRUCTION AND THE PROCESS OF IMPLEMENTING THE MANAGEMENT CONTROL SYSTEM IN A LOCAL SELF-GOVERNMENT UNIT – A PRACTICAL APPROACH

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K e y w o r d s: control, management control, audit, public finance sector, local self-government unit.

A b s t r a c t

Since 1 January 2010, management control has been functioning in the units of the public finance sector as it has replaced the previously applied financial control. The assumption of management control was to support the achievement of the objectives and performance of tasks carried out by public entities in Poland and consequently to facilitate the process of managing them. As practice shows, some entities have failed to develop an adequate system of action that would allow making a good use of this tool.

Thus, the purpose of this article is to present a practical approach to the deployment and implementation of a management control system in a local government unit and indicate substantive gaps that remain. The article presents an exemplary solution of the deployment and implementation of a management control system operating in one of the district offices in Poland. The article also presents implications resulting from the functioning of this system and gives a critical approach to the subject matter, pointing out shortcomings in the functioning of management control in a public entity.

BUDOWA I PROCES WDROŻENIA SYSTEMU KONTROLI ZARZĄDCZEJ W JEDNOSTCE SAMORZĄDU TERYTORIALNEGO – UJĘCIE PRAKTYCZNE

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S ł o w a k l u c z o w e: kontrola, kontrola zarządcza, audyt, sektor finansów publicznych, jednostka samorządu terytorialnego.

Abstrakt

Od 1 stycznia 2010 roku w jednostkach sektora finansów publicznych w Polsce funkcjonuje kontrola zarządcza, która zastąpiła funkcjonującą dotychczas kontrolę finansową. W założeniu kontrola zarządcza miała wspomóc realizację celów i zadań wykonywanych przez podmioty publiczne oraz ułatwić proces zarządzania nimi. Jak się jednak okazało, w niektórych jednostkach w dalszym ciągu nie udało się wypracować odpowiedniego systemu działania, który pozwoliłby na pełne wykorzystanie tego narzędzia.

Celem artykułu jest zaprezentowanie praktycznego podejścia do procesu budowy i wdrożenia systemu kontroli zarządczej w jednostce samorządu terytorialnego oraz wskazanie luk, które należy uzupełnić w tym zakresie. W publikacji przedstawiono przykładowe rozwiązanie w zakresie budowy i implementacji systemu kontroli zarządczej, który funkcjonuje w jednym ze starostw powiatowych w Polsce. Zaprezentowano także implikacje związane z funkcjonowaniem tego systemu oraz krytycznie przeanalizowano, wskazując na pewne niedociągnięcia w funkcjonowaniu kontroli zarządczej w badanym podmiocie.

Introduction

Recently, the evolution of control systems in the units of the public finance sector has become a noticeable and common phenomenon in Poland. Until January 1, 2010 only financial or internal controls were applied in public entities as control measures. In the traditional sense, their main purpose was to verify the tasks completed by the entity's employees thereby ensuring compliance with legal regulations and set procedures.

However, with the enactment of the Act of 27 August 2009 on Public Finance[1] the term „management control" was implemented with state administration bodies[2]. This term has replaced the hitherto existing financial control (see also: *Ustawa o finansach*... 2014, s. 490), while transforming pre-existing control activities of an inspection and revision nature more toward the level of attainment of objectives by the unit.

Since that moment, the term „control" was to mean first of all „to identify risks and implement the process of risk management". As a consequence, it caused a significant increase in the efficiency of public sector entities with minimum involvement of additional financial resources or means.

It should be emphasized that the implementation of the solutions mentioned above is particularly important in the local government sector, which in Poland is formed by three types of entities: municipalities, districts and provinces. Their specific associations and organizational units have been established to carry out public tasks, thus their main task is to satisfy the most

[1] The Act came into force on 1 January 2010.

[2] The term „management control" was introduced with art. 68 of the Act of z 27 August 2009 on Public Finance.

urgent needs of the local community. Therefore, in such units scheduled tasks require effective implementation and monitoring. And that is possible, among other things, due to the efficiently working system of management control.

It is worth mentioning that management control is a critical function in organizations. Management control failures can lead to large financial losses, reputation damage, and possibly even to organization failure (MERCHANT, VAN DER STEDE 2007, p. 3).

Despite the seemingly clear guidelines for the development and implementation of management control, included in the Public Finance Act, some solutions adopted by local governments unfortunately seem to be unsuccessful. Thus, the purpose of this article is to present a practical approach to the deployment and implementation of a management control system in a local government unit and indicate remaining substantive gaps. In order to achieve this objective, the analysis of both legal instruments and subject literature have been applied.

Based on the case study method, an exemplary solution of the deployment and implementation of a management control system operating in one of the district offices in Poland has been illustrated in this study. The article also presents implications resulting from the functioning of this system and gives a critical approach to the subject matter, pointing out shortcomings in the functioning of management control in entity.

The essence of management control and its coordination in local government in the light of the legislation and scientific theories

Management control was already defined by Anthony in 1965 as „the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives" (ANTHONY 1965).

In Poland the management control was introduced to the public finance sector entities with the provisions of the Act of 27 August 2009 on Public Finance, where it was described as „all activities undertaken to ensure that objectives and tasks are realized in compliance with legal regulations, efficiently, economically and punctually" (art. 68 of the Act on Public Finance). The mandatory obligation to observe the rules of management control applies to all public sector entities. This range involves the entities listed in Article 9 of the Act on Public Finance, including local government units. According to the regulations, the purpose of management control is to ensure in particular (art. 68 paragraph 2 of the Public Finance Act):

1) Compliance of activity with law regulations and internal procedures;
2) Effectiveness of taken actions;
3) Reliability of reports;
4) Protection of resources;
5) Respecting and promoting the principles of ethical conduct;
6) Effectiveness of communication and information flow; and
7) Risk management.

The main framework for the functioning of the system of management control in public finance sector units is determined by generally applicable standards of management control. These are defined on the basis of globally-accepted concepts and common standards of internal control (SZCZEPANKIEWICZ et al. 2015, p. 21) and they were divided into the following five groups (Bulletin No. 23 of the Minister of Finance of 16 December 2009):

– Internal environment,
– Objectives and risk management,
– Control measures,
– Information and communication, and
– Monitoring and assessment[3].

Ensuring the efficient, adequate and effective management control at local governments should be the responsibility of their heads:

a) the mayor (vogt, president) in the case of municipalities;
b) chairman of the board in case of the local government units, namely:
– starost for the district office,
– marshal of the province for the marshal's office; and
c) head of another organizational unit of local government.

In addition, the local government manager is obligated to make a statement about the status of management control for the preceding year with respect to the unit led by him. Data sources in this area should include:

– self-assessment of the state of management control, made by the heads of organizational units based on self-assessment questionnaire prepared in co-operation with the Internal Auditor;

– anonymous assessment of management system and control, made by employees of these cells, based on a questionnaire; and

– current monitoring of the level of risk and types of risks.

It should be emphasized that an important aspect of management control is to systematically identify risks that may threaten the objectives and tasks of the unit. In the case of local government units and government administration, this process should also include the objectives and tasks that are carried out by

[3] Due to the volume of this article, its content has been limited to reporting exclusively the major names of specific groups of standards.

the supervised or subordinated units. Each unit should adapt its methodology for risk management to their specific needs and characteristics. There are varieties of techniques to identify risks: checklists, brainstorming, analysis of reports, audit results, risk registers, review of the organization, graphical process analysis, and SWOT analysis.

The surest solution in this regard appears to be the creation of an appropriate position responsible for management control. A person in this position could have a task to chair a team composed of the heads of various departments of the unit/entity who annually would identify risks which threaten achievement of objectives and tasks of the unit. In addition to unit leadership, this process should include the remaining employees of the unit, among which a survey is carried out on risk identification. These survey results are analyzed and used as the basis to implement controls and take steps to minimize risks in future. It should be stressed that the introduction of management control not only transformed the character or nature of control in public sector, but it also changed the approach to internal audit. Figure 1 presents the model of the realization of the process of management control in the public finance sector unit.

The internal audit was established as a tool for monitoring and evaluating management control systems and indicating desired improvements in this area. It has thus become a necessary instrument to implement the appropriate solutions in the control system, in particular to determine the relationship between management control, audit and internal control (KIZIUKIEWICZ 2013, p. 59).

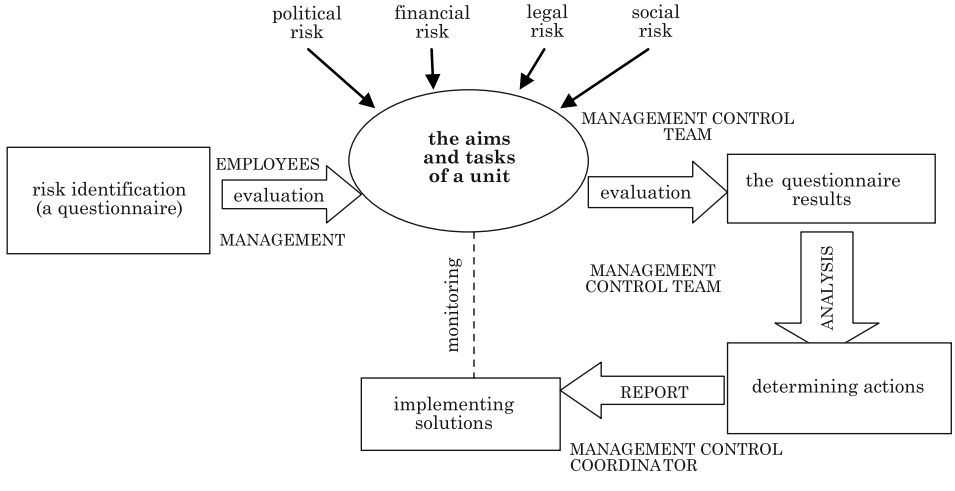

Fig. 1. Model of the realization of management control in the public finance sector unit
Source: own study.

Construction and tasks of management control system at a district office – a case study

In order to demonstrate how management control system was constructed and implemented in a local government unit, an exemplary solution was used, which has been operating since 2011 in one of the county authorities in Poland. For counties, the new concept was to be implemented in the district offices, whose tasks are, among other things, provide assistance to county authorities in carrying out their tasks and bearing responsibilities. For this reason, management control systems in respect of the counties have been implemented and are functioning in these units.

The main internal act governing the operation of management control of the entity is Starost Ordinance on Defining the Rules for the Operation of Management Control in the District Office and its Organizational Units. The rules set out in particular the aims and objectives of management control, as well as the system of management control and organization of management control in the District Office. According to the Ordinance mentioned above, the objectives set for management control are primarily ensuring compliance with applicable laws and procedures, maintaining success rate and efficiency, ensuring credibility of the reports, protecting resources, respecting and promoting the principles of ethical conduct, and ensuring efficient flow of information and risk management.

The organizational structure of the audited entity included an independent position for management control, which reported directly to the Starost of the District. This position was covered by a designated employee of the District Office charged with the coordination of the management control system in the audited entity.

In addition, the heads of County departments as well as employees involved in independent positions were responsible for verifying the correctness of tasks by subordinate employees in the organizational structure. The task of management control in the entity is comparing the actual status quo to the planned one, explaining possible causes of deviations from the implied values, as well as taking actions to eliminate the occurrence of deviations in the future.

The basis for the implementation of management control are rules, instructions, procedures and principles approved by Starost. They consist of the following issues:

– protocols of internal audits conducted by the chief specialist in management control on the first and second level;
– protocols of internal audits conducted by heads of departments;
– cards of internal audits;
– post-audit recommendations; and
– reports on the implementation of audit recommendations.

The system of management control functions in an entity on two levels: Level I, which includes control of district organizational units, and Level II which provides supervision exercised on the county level. Managers of individual units are in charge of the functioning of management control at Level I, whereas management control at Level II is provided by the Starost (or other person authorized by him/her) and the Audit Commission of the District Council. The following activities constitute the management control system:

– systematizing the organization and activities of the district units achieved through the establishment of the statutes and regulations of these units;

– identifying objectives and tasks in accordance with applicable laws;

– setting and enforcing law within local law regulations by the resolutions of the District Council and District Board;

– supervising the operations of units through the organization of internal controls and analysis of the results of external institutional audits;

– organizing information flow and communication with units; and

– financial and task planning, as well as reporting on the implementation of the plans in half-yearly and annual prospect.

The system of management control in the audited entity is composed of four subsystems covering the following elements:

– internal control (IC);

– financial control in the subordinate units (FC);

– ISO quality management (ISO); and

– internal audit (IA).

The management control system in the analyzed unit is illustrated in Figure 2.

Internal control is coordinated by the District Starost. The control is performed by the heads of particular departments of the District Office which verify the work performed by subordinate employees. All organizational units of the District Office are covered by internal control, which is carried out to verify their operations for compliance with applicable law, while financial control is carried out by the main specialist for management control, basing on semi-annual plans approved by the District Starost. The scope of the audit includes verification of the correctness of accounting in organizational units of the County, collection and spending of public funds, public procurement, protection of resources, and the reliability of reports. Another element of management control is the ISO quality management system, headed by a dedicated representative for quality assessment whose role is monitoring the implementation of the objectives that are pre-determined each year by the heads of individual departments and district office staff. On 31 December each

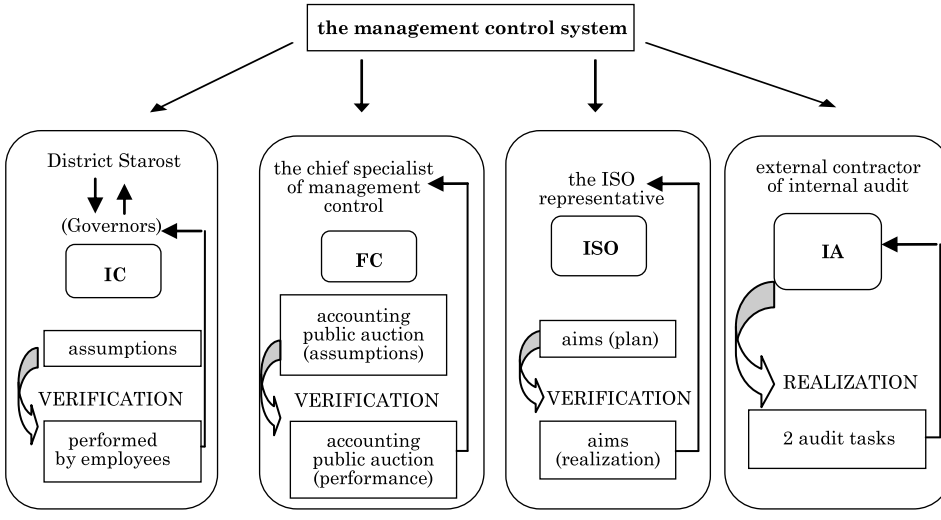

Fig. 2. The management control system in the analyzed unit
Source: own study.

year, they draw up a report on the implementation of these objectives for that year, and then forward them to ISO representative for the analysis. In the entity being the subject of this research, the internal audit is also a part of the management control system. The internal audit is run by an external service provider. Annually, two audits are performed, usually one in the Starost's Office, and the other one in the selected organization unit of the District. Tasks are selected basing on the results of risk analysis performed for the purposes of the audit, the ISO audit results and conclusions resulting from financial audits.

Steps in implementing the management control system in the entity and items to supplement information gaps

The process of implementing management control in the entity was conducted in four phases: I. Preparatory Phase; II. Diagnostic Phase; III. Main Phase; IV. Accounting Phase. The first phase consisted primarily of the appointment of a coordinator to implement the management control in the audited District Office. His role was to organize the process of implementing this tool and then coordinating the work on the functioning of the whole system. The heads of individual departments and the people employed on independent positions were also involved in the process. For the second stage,

the team mentioned above verified the existing status of the entity: the legal, legislative, personnel and financial state of the District Office. In addition, a review of controls, internal environment, information flow and communication was conducted in the entity. The role of the auditor in the process of management control activities was also defined. At the Main Phase the course and rules of management control were developed. The responsibilities of individuals involved in the process were defined. The Starost Ordinance on the operation of management control in the entity and other organizational units of the county came into force. The last Phase (Accounting) summarized the work carried out thus far. Its purpose was, among other things, identification of irregularities and weaknesses of the implemented system. This Phase allowed choice of the right methods to improve the entire system going forward. While analyzing the process of constructing and implementing management control system in the audited entity, it was evident that there were certain information gaps that made the system incomplete. I argue that the most important gap is the missing risk identification and risk analysis for the unit. It is not possible to fully use the management control tool if this information is not available. Risk identification reveals all the areas or weak points that the entity should be protected against. The risk analysis makes it possible to specify potential impact and risk likelihood in the future. If this step is omitted, it is difficult to determine the appropriate response to possible risks, such as tolerating, transferring, withdrawing, or mitigating such risk. It is worth pointing out that this stage requires involvement of not only department management, but also remaining workers who would be able to identify a risk.

A very strong correlation of management control to the internal control and financial control tools seems also to be a shortcoming in the functioning of the system; i.e., in the audited entity the process of control is mainly focused on verifying the correctness of employees' work and its compliance with applicable laws and procedures. The management aspect is missing, which would have improved the level of achievement of the objectives in the audited entity, and thus would have improved the efficiency of all its operations. The realization of aims is evaluated only by the ISO Representative paying special attention to the quality norms. Including the ISO audit in the management control system is not a good solution. The incorporation of internal audit process into the management control system also raises some reservations. According to the provisions of the Act on Public Finance, an audit should lead to an assessment of the functioning of management control in terms of its adequacy, effectiveness and its performance in the unit. Thus, it is definitely contradictory to combine control and audit functions in one system. In the analyzed example the internal audit is built into the system of management control as one of the four elements, which, in this case, appears to be unjustified.

To sum up, it should be stated that dividing the management control system into four separate blocks, without a system coordinator and a management control team, is a bad solution. Consequently, there will be no transfer of information in the system and there will be no feedback between the diagnosed improprieties and the evaluation of the realization of the aims, and the decision-making process. In the analyzed example, the information gets only to the coordinator of given blocks, however, there is no picture of the unit functioning as a whole entity. The management control team should identify and analyze the risk in the unit and then transfer the results to the manager, in this case to the Starost who, on the basis of the information, could estimate the realization of the aims and make decisions about further actions.

Conclusion

The assumption of management control is to support the achievement of objectives and performance of tasks carried out by public entities in Poland and thus to facilitate the process of managing them. However, in order for the system to function, it becomes necessary to appropriately construct and implement it. As practice shows, some entities have failed to develop an adequate system of action that would allow good use of this tool. Perhaps the reason is a too general approach to the functioning of management control (see also: KOWALCZYK 2012, s. 74, 75) in relation to public sector entities. Another reason can be the mistaken understanding of its concepts. And although the introduction of management control to the finance public sector was an important step towards changing the mentality of public administration, many areas in this matter still need some refinement.

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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).

„Olsztyn Economic Journal" is indexed in the following reference databases: BazEcon, BazHum, Index Copernicus Master List (ICV in 2012 5.27 pts, ICV in 2013 5.92 pts), The Central European Journal of Social Sciences and Humanities (CEJSH).

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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.

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1) a copy of the paper with the reviewer's comments,
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In the scientific papers for the "Olsztyn Economic Journal", the following header should be positioned at the top of the page:

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Underneath the **paper title** (in Polish and English), followed by the **name and surname of the author (authors), name of the organizational unit** (institute, faculty, chair, division) and the **school** should be provided**.**

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The units of measurement should be given according to the international SI system. Tables and figures (photographs and graphs) should be numbered with Arabic numbers and provided with the title and source. Mathematic formulas should be written in the WORD editor. Letters of the Greek alphabet, symbols, special signs should be clearly explained in the margin with indication which of them are to be set in ordinary, italics or bold set.

Graphic materials (drawings, diagrams, graphs) should be prepared in the software operating in the Windows environment (e.g. Excel, Corel Draw). Figures prepared in other specialist software should be recorded in the Windows Metafile (*.wmf) format allowing importing them to Corel. In the text references to the figures and tables should be made in the sequence from 1 to n (according to the numbering).

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The literature should be quoted in the paper by providing the author;s name, year and pages in brackets (e.g. Kowalski 1999, p. 23, Kowalski, Nowak 2000, pp. 5–8, Wiśniewski et al. 2003, pp. 34–56) or ... according to Wiśniewski (2000, pp. 11–12).

If the reference in the text concerns a collective paper, instead of the author;s name the **full title of the paper** (Elektronika. 1993) or the abbreviated title (Dbajmy o właściwe suszarnictwo... 1992) should be given.

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Collective papers: Dbajmy o właściwe suszarnictwo ziarna. Red. K. Lewin 1982. T. 1. PWN, Warszawa.

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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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