

# OLSZTYN ECONOMIC JOURNAL

● ● ● ● ● ● ● ● ● ● ● ● 3 (1/2008) ● ●



Wydawnictwo  
Uniwersytetu Warmińsko-Mazurskiego  
w Olsztynie

Program Board

Zbigniew Bochniarz (University of Minnesota), Andrzej Czyżewski (AE Poznań),  
Tomasz Dołęgowski (SGH Warszawa), Danuta Rucińska (UG Gdańsk),  
Marek J. Stankiewicz (UMK Toruń), Jerzy Wilkin (UW Warszawa), Stanisław Urban (AE Wrocław)

Editorial Committee

Szczepan Figiel, Dymitr Kaliszewicz,  
Dariusz Waldziński, Ryszard Walkowiak

Reviewers

Tadeusz Borys, Andrzej Czyżewski, Tomasz Dołęgowski, Dariusz Dziuba, Wacław Jarmołowicz,  
Hanna Karaszewska, Wojciech Kosiedowski, Bogdan Nogalski, Krystyna Poznańska, Wanda Ronka-  
-Chmielowiec, Danuta Rucińska, Henryk Runowski, Eugeniusz Stroński, Stanisław Urban

Executive Editor

Mariola Jezierska

Cover Desing

Maria Fafińska

**PL ISSN 1897-2721**

© Copyright by Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie  
Olsztyn 2008

Wydawnictwo UWM

ul. Jana Heweliusza 14, 10-718 Olsztyn  
tel.: (0-89) 523 36 61, fax (0-89) 523 34 38  
[www.uwm.edu.pl/wydawnictwo/](http://www.uwm.edu.pl/wydawnictwo/)  
e-mail: [wydawca@uwm.edu.pl](mailto:wydawca@uwm.edu.pl)

Ark. wyd. 14,1; ark. druk. 11,5  
Druk – Zakład Poligraficzny UWM w Olsztynie  
zam. nr 297

## TABLE OF CONTENTS

R. WALKOWIAK – <i>New Practices in Human Resource Management</i> .....	1
M. SIEMIŃSKI – <i>The Corporate Culture of Industrial Enterprises</i> .....	10
J. HELLER – <i>The Efficiency of Ownership Transformations in Poland – Macroeconomic Approach</i> .....	20
L. MARKOWSKI, A. RUTKOWSKA-ZIARKO – <i>Rates of Return Distributions Variation – Implications for Portfolio Analysis</i> .....	31
J. ADAMIAK – <i>Importance of Public-Private Partnership in Delivery of Public Services</i> .....	44
M. WITKOWSKA-DĄBROWSKA – <i>Ecologically Valuable Areas Identification Method</i> ..	57
S. PILARSKI – <i>Development of Organic Food Market in Germany</i> .....	69
M. GRZYBOWSKA-BRZEZIŃSKA – <i>Premises for Purchase of Ecological food According to Respondents</i> .....	90
Z. NASALSKI – <i>Structural Gap in the Links Among Agribusiness Enterprises</i> .....	103
B. PAWŁOWSKA – <i>Identyfification of Client Satisfaction Attributes as a Factor of Enterprise Competitive Advantage</i> .....	114
J. DŁUGOSZ, J. SKORWIDER – <i>Management Consulting in the Activity of Small and Medium Enterprises</i> .....	122
M. BOGDAŃSKI – <i>Characteristics of the Urban Settlement Network in Warmia and Mazury</i> .....	134
M. KOWALEWSKI, A. ŚCISŁOWSKA – <i>Financing of Road Projects in Warmia and Mazury Voivodship in the Aspect of Accession of Poland to the European Union</i> .....	145
S. PIEŃKOWSKA-KAMIENIECKA, E. KUCKA – <i>Functioning of Employee Pension Programs in Warmia and Mazury Voivodship</i> .....	157
E. KUCKA, J. WITKOWSKA – <i>Influence of Insurance Education on the Level of Awareness University of Warmia and Mazury Students</i> .....	171

## SPIS TREŚCI

R. WALKOWIAK – <i>Nowe praktyki w zarządzaniu zasobami ludzkimi</i> .....	1
M. SIEMIŃSKI – <i>Kultura organizacyjna przedsiębiorstw przemysłowych</i> .....	10
J. HELLER – <i>Efektywność przekształceń własnościowych w Polsce – ujęcie makroekonomiczne</i> .....	20
L. MARKOWSKI, A. RUTKOWSKA-ZIARKO – <i>Zmienność rozkładów stóp zwrotu – implikacje dla analizy portfelowej</i> .....	31
J. ADAMIAK – <i>Znaczenie partnerstwa publiczno-prywatnego w realizacji usług publicznych</i> .....	44

M. WITKOWSKA-DĄBROWSKA – <i>Metoda wyznaczania obszarów ekologicznie cennych</i>	57
S. PILARSKI – <i>Rozwój rynku żywności ekologicznej w Niemczech</i>	69
M. GRZYBOWSKA-BRZEZIŃSKA – <i>Przesłanki zakupu żywności ekologicznej w opinii respondentów</i>	90
Z. NASALSKI – <i>Luka strukturalna w powiązaniach między przedsiębiorstwami agrobiznesu</i>	103
B. PAWŁOWSKA – <i>Identyfikacja atrybutów satysfakcji klienta czynnikiem przewagi konkurencyjnej przedsiębiorstwa</i>	114
J. DŁUGOSZ, J. SKORWIDER – <i>Konsulting w działalności małych i średnich przedsiębiorstw</i>	122
M. BOGDAŃSKI – <i>Charakterystyka miejskiej sieci osadniczej Warmii i Mazur</i>	134
M. KOWALEWSKI, A. ŚCISŁOWSKA – <i>Finansowanie inwestycji drogowych w województwie warmińsko-mazurskim w aspekcie wstąpienia Polski do Unii Europejskiej</i>	145
S. PIEŃKOWSKA-KAMIENIECKA, E. KUCKA – <i>Funkcjonowanie pracowniczych programów emerytalnych w województwie warmińsko-mazurskim</i>	157
E. KUCKA, J. WITKOWSKA – <i>Wpływ edukacji na poziom świadomości ubezpieczeniowej studentów Uniwersytetu Warmińsko-Mazurskiego</i>	171

## NEW PRACTICES IN HUMAN RESOURCE MANAGEMENT

*Ryszard Walkowiak*

Department of Organization and Management  
University of Warmia and Mazury in Olsztyn

**Key words:** competence management, competence model, managerial effectiveness.

### Abstract

The transformation of the Polish economy forces enterprises to adapt their activities and behavior to give themselves a competitive edge. The skills of all the employees and managers, in particular, increase the chance to become more competitive. The paper focuses on presenting the best practices in human resources management, activities contributing to the increased market value of an enterprise. The following task fields of human resource management have been emphasized: staff-needs planning, staff recruitment and selection, staff training and development, staff valuation and payment based on competence, capability, staff appraisal and remuneration.

## NOWE PRAKTYKI W ZARZĄDZANIU ZASOBAMI LUDZKIMI

*Ryszard Walkowiak*

Katedra Organizacji i Zarządzania  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** zarządzanie kompetencjami, model kompetencji, efektywność menedżerska.

### Abstract

Transformacja polskiej gospodarki wymusza na przedsiębiorstwach zachowania nakierowane na ciągłe doskonalenie swoich działań w celu uzyskania przewagi konkurencyjnej. Szanse na osiągnięcie tej przewagi zwiększają się proporcjonalnie do jakości kompetencji wszystkich zatrudnionych, ale przede wszystkim kadry menedżerskiej.

W artykule ukazano najlepsze praktyki zarządzania zasobami ludzkimi, praktyki przekładające się na zwiększanie wartości rynkowej przedsiębiorstwa. Zaakcentowano konieczność działań w takich obszarach zadaniowych zarządzania zasobami ludzkimi, jak: planowanie potrzeb kadrowych, rekrutacja i selekcja pracowników, szkolenie i doskonalenie zawodowe oraz ocenianie i wynagradzanie pracowników na podstawie ich kompetencji.

## Introduction

In 1989 fundamental changes occurred in both the political and economic systems. In the sphere of business, there has been a transition from centralisation to market economy, where the rules of competition started to apply. In the first decade of the new reality, the businesses competed mainly by:

- better usage of their “hardware”, buildings, machines, finances,
- maintaining their monopolistic positions,
- obtaining licences, permits, etc.,
- decreasing the prices of products and services, mainly by the reduction of work costs.

At present, in the constantly changing environment of the organisation, the above mentioned actions do not apply any more. More and more businesses try to take advantage of the human resources since the employees decide on the effective use of the traditional resources that are at the organisation’s disposal. In order to do so, the human resources need to be treated as a subject not as an object. The very definition of the resource transferred to people means that each worker has at their disposal certain “capital” (potential). Hence the duty of the manager is to undertake such actions to “free” this capital and direct the workers to effectively perform the tasks as well as gain satisfaction from the work done. In this context, we start to make aware of and persuade employers to use good practices in people management through studies, courses and trainings. In this way we show an essential relationship between the market value of the organisation and the competences of all employees (Fig. 1).

The market value of every organisation depends on the material, financial, and intellectual capital. The value of the latter equals the result of the subtraction of the market value minus books value. The intellectual capital comprises structural capital (the value of the organisation logo, patents, customer knowledge, etc.) as well as the human capital determined mainly by competence.

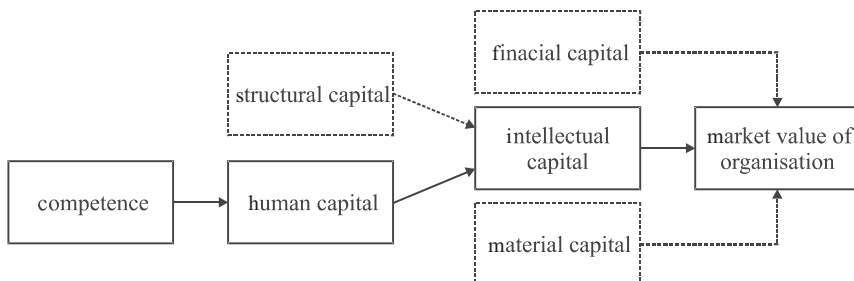


Fig. 1. Competences versus organizational value market

Source: Author's.

## Methodology and assumptions

The article was written due to an invitation to present a paper at an international conference held in 2007 in Olsztyn. It was organized in the frames of Inter FAIR Program with the participation of Equal at Work from Ireland, FAIR plus from Germany, Befogado Budapest from Hungary, Preyecto sur de Madrid from Spain and Partnerstwo Wyrównywania Szans from Poland. This article consists of the material presented at the conference mentioned above.

The research method consisted of studying the literature on the subject. In addition, the results of the author's research, broadly described in *The Competency Model of Managers in Self-Governmental Organizations*, were also incorporated.

## From administrating to managing

Nowadays we may say that many, which does not mean "all", employers have commenced to give up on personal administration and instead manage human resources based on competence (Tab. 1).

Table 1

New model of management

Criterion	Current model of management	Future model of management
1	2	3
Model of management	administration	managing
The horizon of actions	operational	strategic
The direction of actions	inside	outside – for the needs of local communities
Co-operation with the environment	separation	partnership
The aim of actions	maintaining order	initiating changes
The rules of management	imperative	interactive
The subject of analysis	on actions	on processes
Organisation structures	hierarchical, inflexible	diverse, flexible
Managing style	bureaucratic	leadership
Planning and deciding	centralised	non – centralised
Control	control before trust	trust before control
Relationship with the employees	employees as a cost-making factor	employees as a strategic potential

cont. table 1

1	2	3
The scope of thinking	focus on details	consideration of the whole, systematic thinking
Type of orientation	oriented on the resources	orientation on the ideas
Risk-taking tendency	risk avoidance	looking for chances and opportunities, estimating risk
Attitude of the managers and employees	on regulations	pro-market, pro-quality, pro-effect

Source: Author's based on DECKER 1992, CZAPUTOWICZ 2002.

The transition between these two manners of management demanded foremost changes in the competence of the managing board of the Polish businesses. The definition of competence is meant here as a collection of knowledge, skills, personality traits, experience, attitudes and conduct of all workers. So here we speak about the potential stored in people and not about their legal authorisation to make decisions. The research conducted among Polish managers from the 1990s has shown the following competence shortcomings (Tab. 2).

Table 2

Features of Polish managers of the 1990's

M. DABEK, S. JARMUŻ, T. WITKOWSKI (T. LISTWAN 1996)	E. KARPOWICZ, J. SZABAN, B. WAWRZYŃIAK (1998)	G. BARTKOWIAK (2000)	S. CHEŁPA (2000)
<ul style="list-style-type: none"> <li>– Reluctant to take up responsibility</li> <li>– Slow at decision making</li> <li>– Emotional in human interactions</li> <li>– No innovation spirit</li> <li>– Little flexibility in actions</li> <li>– Preference to feeling of security</li> <li>– Rather little effectiveness and efficiency</li> </ul>	<ul style="list-style-type: none"> <li>– enterprising</li> <li>– appreciating specialist knowledge and experience</li> <li>– no respect for competitiveness</li> <li>– in need of managing</li> <li>– declaring strategic attitude to management</li> <li>– individualist</li> <li>– oriented on the local markets</li> <li>– awaiting structure and procedures</li> <li>– demanding toward employees</li> <li>– integrating</li> <li>– diverse, adapting, building a new system of values</li> <li>– having an ambivalent attitude to the trade unions</li> </ul>	<ul style="list-style-type: none"> <li>– responsible</li> <li>– flexible thinking</li> <li>– prepared for non- stop training</li> <li>– taking care of personal culture</li> <li>– action – determined</li> <li>– punctual</li> <li>– reliable</li> <li>– honest</li> <li>– communicative</li> <li>– responsible</li> <li>– unenthusiastic</li> <li>– showing little tendency to risk <ul style="list-style-type: none"> <li>– taking</li> </ul> </li> <li>– has negotiating problems</li> <li>– has problems in combining current and future issues</li> </ul>	<ul style="list-style-type: none"> <li>– emotionally mature</li> <li>– professionalism <ul style="list-style-type: none"> <li>– seeking</li> </ul> </li> <li>– perfecting their own “I”</li> <li>– feels that they influence the organisation reality</li> <li>– prefers a negotiating style of management</li> <li>– shows shortcomings in interpersonal communication</li> <li>– mostly has engineering knowledge</li> </ul>

Source: Author's.



The competence potential of Polish managers from the 1990s shown in the chart highlighted the changes in educational syllabuses at all levels of education in Poland (the attitudes and conduct must be shaped from the early childhood). In the tertiary education syllabuses, subjects dealing with organisation and management have been introduced. Moreover, separate educational profiles in the field of human resources management have been started that are mainly addressed to managing staff and HR specialists. Besides the changes in education, the Polish managing staff has training in organisations not only in Europe but also in America and Japan. Additionally, in Poland there are many international companies which organise at-work training sessions of the highest standard.

### **New practices in staff management**

The combination of the mentioned circumstances brought about new good practices in the domain of HR, which include the following actions:

- the planning of staff needs on the basis of competence,
- the recruitment and selection of employees on the basis of competence,
- the valuation of employees on the basis of competence,
- the payment on the basis of competence,
- the setting of payment rates on the basis of work valuation,
- the pricing of the value of the human resources,
- the introduction of flexible employment forms,
- the outplacements.

#### **The planning, recruitment and selection of employees (Fig. 2)**

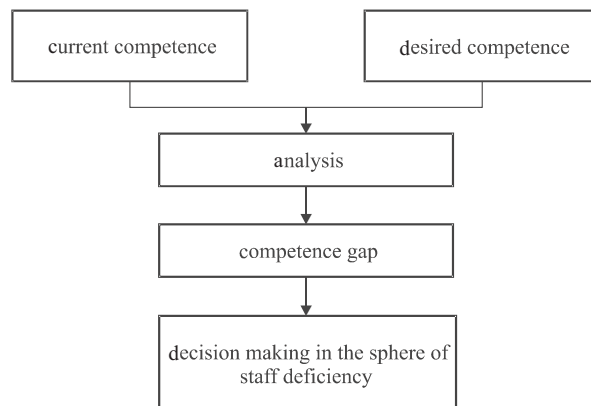


Fig. 2. Using competences in planning, recruitment and selection  
Source: Author's.

In the planning, recruitment and selection of employees, the present level of competence of the already employed and potential competent employees has been compared with the competence asked for according to the work performance standards established in a particular organisation. Comparative analysis of both states allows us to determine the so-called competence gap, which constitutes the basis for more rational personal decisions.

### The evaluation of the employees (Fig. 3)

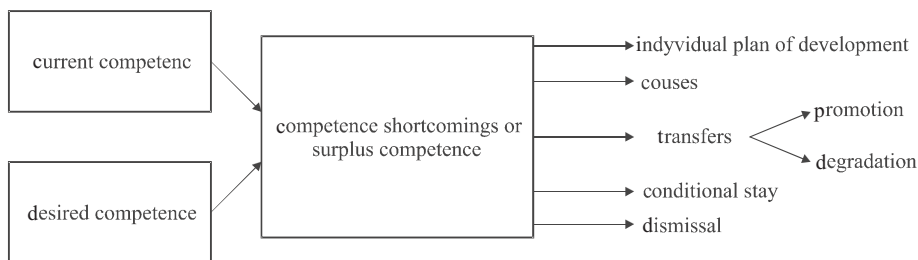


Fig. 3. Staff assessment by competence

Source: Author's.

Comparison of the present states of competence with the ones demanded for a particular position becomes the basis for a periodic evaluation of employees. The diagnosis of an employee's competence shortcomings allows the manager to decide on the ways of their dismissal, promotion or demotion, setting the carrier path, conditional stay in a particular position, or dismissal.

### The payment (Fig. 4)

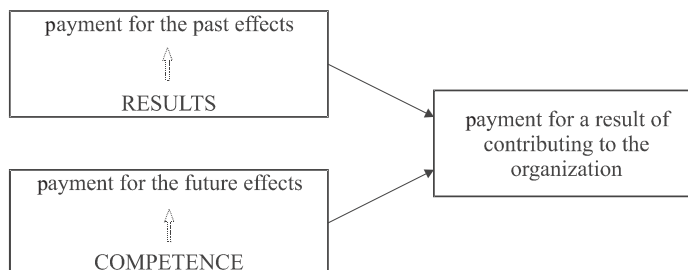


Fig. 4. Remuneration elements as a result of contribution to the organization

Source: POCHTOWSKI 2003 based on BROWN, ARMSTRONG 1999.

Modern payment for employees results not only from paying for the past results, but also for the future ones, which are based on the competence of the employee. This innovatory way of payment is not a common practice, not only in Polish businesses.

### **The payment on the basis of work valuation**

The essence of payment based on work valuation is to bind the quantity and quality of work with payment amount. This relationship is necessary to enhance the employees; motivation and, at the same time, gain greater efficiency at work.

### **The pricing of the value of the human resources**

It is to be noticed that among Polish employers there is a certain reluctance to price the value of human resources. The source of this reluctance is caused by the following facts:

- traditional financial booking omits the standards describing human resources,
- managers expect ready solutions (prescriptions),
- it is hard to prove that the particular situation of a business is caused directly by the accomplishment of personnel.

The pricing of the value of the human resources should be done on the basis of such standards:

- the indicator of employee turnover,
- the indicator of employees; absences,
- the indicator of employees; satisfaction level,
- the values and cultural norms (the culture of the organization),
- the competence maps,
- the surplus value of the human capital (how much income depends on an employee),
- the return of investment on human capital (how much return does the employer from every financial unit invested in an employee receive),
- the productivity of human resources (how much profit does every employee generate).

### **Flexible forms of employment**

The actions in this domain comprise such things as:

- temporary employment,
- employment through the work agency,
- home employment (teleworking),
- outsourcing.

### **Outplacement**

The actions comprise the help given to a dismissed employee such as:

- career advice,
- gaining new qualifications,
- financial support.

### **Conclusion**

The issues considered in the paper allow us to present to the following conclusions.

1. The intensity of the listed practices dealing with human resources varies:
  - the commonly practised:
    - the planning of staff needs on the basis of competence,
    - the recruitment and selection of employees on the basis of competence,
    - the pricing of employees on the basis of competence,
  - sometimes practised:
    - the setting of payment rates on the basis of work valuation,
    - the introduction of flexible employment forms,
    - the outplacements,
  - rarely practised:
    - the payment on the basis of competence,
    - the valuation of employees on the basis of competence.
2. Despite using a different degree of good HR practices:
  - the work market in Poland is characterised by one of the highest levels of unemployment in Europe,
  - the unemployment rate in Poland results from:
    - the lack of stability of legal regulations concerning work ( tax, insurance),
    - still insufficient competence level of the managers,
    - lack of political stability resulting in different standpoints on economy, EU membership or military organisations.

3. The improvement in the competitiveness of the Polish economy is possible through:
- the elimination of the shortcomings listed in point two of the conclusion,
  - supporting continual improvement of the quality of education,
  - popularization of good HR practices,
  - broader co-operation of international partners in HR programs such as EQUAL.

Translated by JEFFREY TAYLOR

Accepted for print 4.01.2008 r.

## References

- BARTKOWIAK G. 2000. *Cechy i umiejętności menedżera, stan faktyczny a postulowany*. W: *Ewolucja pracy kierowniczej w warunkach integracji europejskiej*. Red. K. KRZAKIEWICZ. Akademia Ekonomiczna, Poznań, ss. 175-186.
- BROWN D., ARMSTRONG M. 1999. *Paying for Contribution*. Kogan Page, London, p. 137.
- CHELPA S. 2000. *Kwalifikacje kierowników w świetle współczesnych wyzwań*. W: *Ewolucja pracy kierowniczej w warunkach integracji europejskiej*. Red. K. KRZAKIEWICZ. Akademia Ekonomiczna, Poznań, ss. 281-293.
- CZAPUTOWICZ J. 2002. *Implikacje integracji z Unią Europejską dla polskiej służby cywilnej*. W: *Rozwój kadr administracji publicznej*. Red. B. KUDRYCKA. Wyższa Szkoła Administracji Publicznej, Białystok, s. 53.
- DECKER F. 1992. *Effizientes Management für Soziale Institutionen*. Moderne Industrie, Landsberg/Lech, ss. 15-31.
- KARPOWICZ E., SZABAN J., WAWRZYŃIAK B. 1998. *Polski kierownik lat dziewięćdziesiątych*. W: *Raport o zarządzaniu. Polskie przedsiębiorstwa i menedżerowie wobec wyzwań XXI wieku*. Red. B. WAWRZYŃIAK. Wyższa Szkoła Przedsiębiorczości i Zarządzania im. Leona Koźmińskiego, Warszawa, ss. 218-252.
- LISTWAN T. 1996. *Polski menedżer w perspektywie międzynarodowej*. W: *Psychologiczne czynniki sukcesu w zarządzaniu*. Red. S. WITKOWSKI. Uniwersytet Wrocławski, Wrocław, ss. 233-244.
- POCZTOWSKI A. 2003. *Zarządzanie zasobami ludzkimi*. PWE, Warszawa, s. 370.
- WALKOWIAK R. 2004. *Model kompetencji menedżerów organizacji samorządowych*. Uniwersytet Warmińsko-Mazurski, Olsztyn.

## THE CORPORATE CULTURE OF INDUSTRIAL ENTERPRISES

***Marek Siemiński***

Department of Organization and Management  
University of Warmia and Mazury in Olsztyn

**Key words:** corporate culture, culture of high and low uncertainty, typology of R. Harrison and Ch. Handy.

### Abstract

In the article the problems of corporate culture were shown. Using a questionnaire especially prepared for this study, original documents from the companies and literature, the main culture types of Warmian-Mazurian enterprises were characterized. On the basis of achieved results it was confirmed that the behaviour typical for a power culture dominates in the surveyed companies. The level of uncertainty tolerance were described as medium.

## KULTURA ORGANIZACYJNA PRZEDSIĘBIORSTW PRZEMYSŁOWYCH

***Marek Siemiński***

Katedra Organizacji i Zarządzania  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** kultura organizacji, kultura wysokiej-niskiej tolerancji niepewności, typologia R. Harrisona i Ch. Handy'ego.

### Abstrakt

W artykule przedstawiono problematykę kultury organizacyjnej. Wykorzystując kwestionariusz ankiety własnego opracowania, dokumenty źródłowe z badanych przedsiębiorstw oraz dokonując krytycznej analizy literatury, scharakteryzowano typy kulturowe dużych przedsiębiorstw produkcyjnych Warmii i Mazur. Na podstawie uzyskanych wyników stwierdzono, że w badanych przedsiębiorstwach dominują zachowania charakterystyczne dla kultury władzy. Poziom tolerancji niepewności określono na poziomie średnim.

## **Introduction**

At the beginning of XXI century, globalization has been the main feature of conditions in which companies operate. Trade has so far been associated with only service to the local markets, both supply and demand, but is opening to international markets. Obtaining a permanent competitive advantage is becoming the key issue to the success of enterprises, and corporate culture is increasingly becoming an important tool to achieve it. E.H Schein (PIMPICKI, <http://oin.uwm.edu.pl>) wrote, "It is likely that the only important thing which managers should do is the creation and maintenance of proper corporate culture". Schein (Bjerke B., 2004, s. 60) also claimed that, "A specific form of leadership apart from "administer" and "controlling" is the creation and management of culture".

The first research on corporate culture was conducted by Hawthorne E. Mayo from 1924 to 1933. E. Jaques first presented the idea of corporate culture in his classic book entitled "The Changing Culture of a Factory" in 1951, but a boom in research did not occur until the beginning of the 1980's. The dynamic increased interest in corporate culture was caused by the search for sources of success which took place in the Japanese economy. This interest was caused by the search for the origins of the crisis which took place in western European countries and the United States in the late 1970's.

Comparison analysis has shown that the main factor which differs among the above-mentioned countries was the way of managing people. Exceptional care and value hierarchy were noticed to be the main reason for Japan's success. It was the time when the meaning of culture was noticed and underlined (CZERSKA 2003, s. 10-11, KOŹMIŃSKI, PIOTROWSKI 1999, s. 297-298). According to T. Peters and R. Waterman (PETERS, WATERMAN 1982, s. 75-76), a strong and coherent culture is an essential part of a perfect company.

Anthropology, psychology and management are the main scientific fields engaged in understanding corporate culture. Due to the various opinions on causes, there is no one commonly accepted model and definition of corporate culture. L. Smircich (JEMIELNIAK, [www.hrm.pl](http://www.hrm.pl)) in 1983 distinguished two basic approaches to understanding corporate culture: either as a basic metaphor in the organization or as a variable. Treating corporate culture as a basic metaphor shifts the emphasis from physical analogies to the sphere of intellectual conception and avoids, at least theoretically, the dangers of simplification caused by the unaware acceptance of machine metaphor or organism.

In the concept of corporate culture comprehended as a metaphor, the events which take place in the organization are described with references and analogies to other social organisms, for example tribes and families. The organization is perceived as a subjective phenomenon, and the aim of the

research is to recognize behaviour patterns, symbols and beliefs. The corporate culture understood as a variable leads to another division: as an independent variable or as a dependent variable. The culture perceived as an independent variable is expressed first of all as nationality factor, and as a dependant variable is considered to be one element of the organizational system.

### **The methodology of the research**

The main objective of the research was the identification of profiles and types of corporate culture in Warmian-Mazurian industrial enterprises. The article shows only a small part of the research undertaken in the study entitled, "The Social Potential of Enterprises and Local Government Units" by the Department of Organization and Management.

The article presents the empirical results concerning the theoretical aspects of corporate culture. Furthermore, it explains the important role of norms and values in the process of management and the awareness of managers in the proper handling of culture.

The corporate culture is treated in this article as a dependent variable to shape some of the elements. Corporate culture is defined as a set of sensible rules of behaviour, established and developed by the group, used to cope with the problems of internal integration and external adaptation, which thanks to good cooperation shows the new members of the group the way of thinking and feeling in aspect of problems mentioned above (SCHEIN 1997, p. 22).

The research was conducted on nineteen large industrial companies (section D, according to the European Classification of Activity). A large company was defined as an enterprise which employs more than 250 workers. The research embraced more than 40% of the population of large companies in the region. The research tool was the author's own questionnaire which comprised the following: diagnosis of culture profile; evaluation of value influence and attitudes connected with the socialist system inflicted on employees; identification of norms, values and key attitudes towards company success; and identification and evaluation of tools and techniques which shape the corporate culture. Primary source materials were also used such as the salary statute, behaviour codes and good practice codes. Most of the researched companies employ no more than 499 employees (68,4%), while only a few companies employ more than 1000 employees (10,5%).



## **The results of the research**

In the literature we distinguished a large number of criteria which differ in the classification of corporate culture. The most common classification which we found was proposed by R. Harrison and Ch. Handy (ANISZEWSKA, GIELNICKA 1999, p. 40-41), which identifies:

- The authority culture (the club culture)- Zeus is the patron god, and the symbol is a spider web;
- The role culture (the function culture)- Apollo is the patron god, and the symbol is a Greek temple, representing the strength of the organization which resides in its pillars. It resembles a strong and stable structure in which each pillar fulfils its mission;
- The task culture (the intention culture)- Athena is the patron god, and the symbol is a task web;
- The personal culture (oriented to the individual, the existential culture)
  - Dionysus is the patron god, and the symbol is a bunch of grapes.

A matrix was used to present the profile of the corporate culture of surveyed companies according to the rules of R. Harrison and Ch. Handy. The scale for the level of centralization was from 1 to 5 – 1 meant a high level of centralization, and 5 meant a high level of decentralization (axis X). The scale on the Y axis described the level of organization formalization, 1 meaning a low level and 5 meaning a high level.

Based on the conducted research it was established that in the surveyed enterprises the authority culture was dominant. The level of centralization for the whole population was a 2.8, and the level of formalization 2.9 (Fig. 1).

The results indicate the advantage of authority culture, but with only a small margin. So, analysing the results, we find answers typical for other types of corporate culture. We must remember that pure forms of specific types of culture were not observed in the research, because they were only theoretical assumptions. In practice we can only say that some of the values and norms have an advantage over the other types of profiles.

The managers of the surveyed companies present the key role of the management unit in achieving the companies' goals. According to the managers, the minor employee is powerless, so they should be totally subordinate to the higher authority. One reply in the research described the authority culture by explaining that, "the role of employee is to carry out managers' decisions, execute their commands, and above all avoid active participation in the decision process". Active participation is something unnatural, and the decision process is assigned to the upper managers. In the culture of authority the managers are obliged to have full knowledge in all aspects of management, and employees must be submissive and follow orders. The managers are ready

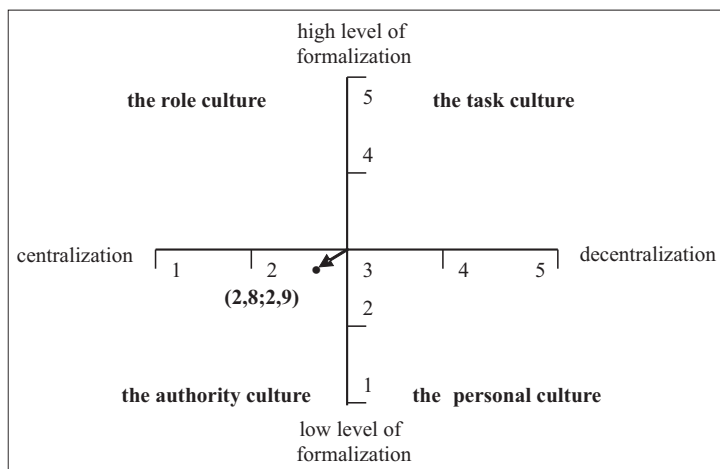


Fig. 1. The profile of corporate culture according to the R. Harrison and Ch. Handy typology

to listen to the employees' problems and find the best solution. However, managers believe that the employees should propose new ideas, which would not be blocked even if there were no good conditions to implement them. Such a reply causes some dissonance because on one hand employees must only follow orders, but on the other hand they should initiate new ideas in the work place. The author thinks that the challenge of market attitude and managers' aspiration to keep control are key factors in a company's success.

The next feature typical for authority culture is constant fighting for the highest place in the company hierarchy to achieve the dominant position in the branch. In the authority culture each employee should aim to the highest level of influence, and remember not to surrender to other people's influence. Satisfying one's own interests is the basis of survival and development of an organization. Managers feel that their behaviour influences the position of the enterprise, despite intense competition in the market. According to the surveyed companies, showing emotion, particularly by the manager, is inadvisable partly because it is considered to be a sign of incompetence. Changes are not generally considered to be a threat. In the authority culture, the position of the employee and their decision abilities depend upon their position in the organizational hierarchy. In the surveyed companies, much emphasis is put on the independent decisions made by upper management. This kind of behaviour is typical for the authority culture, because the source of authority in the organization is access to restricted resources, mainly information.

The next factor which indicates the authority culture is concentration on the tasks, not individuals. Authority culture is designed to focus on solving

problems and not care for people. The employees are treated as instruments, elements in the realization of company goals. Often in literature the authority culture is a symbol of unethical behaviour of the managers.

To sum up, the majority of researched companies an advantage have an authority culture, but only with small margin. In the next few years we can expect the cultural norms to slowly evolve in Polish companies. On one hand, it could be caused by the process of globalization; companies in these surroundings have to compete in hostile markets. On the other hand the conscience of managers is also changing, proved by a study entitled, "The Head Manager Surveys – CEO challenge 2006" (WACH 2005, p. 8-15). According to the surveyed managers, in 2002 human resource management was the least important problem in the companies, mostly restricted to dismissal of employees caused by reductions in costs. In 2006 for many head managers employees' loyalty, commitment as well as satisfaction played key roles in the company. The authors indicate opening of the European labour markets and wage emigration of many young and experienced employees as some of the most important reasons for the changing the attitude.

In the study, also the typology presented by Cz. SIKORSKI (1999, p. 17) was used, which concentrates on the uncertainty level evaluation. Organizations with a high tolerance to uncertainty are characterised by the ability to be effective when there is a lack of information. They are designed not to avoid risk and are for changes. This kind of organization is more flexible. The rapid changes in the surroundings are treated as a source of potential market opportunities, and the incomplete information is treated as a natural state. The culture of high tolerance to uncertainty is connected with increasing emancipation among employees, and finding support and stabilization in their knowledge, abilities and professional experience.

The culture of a low level of uncertainty tolerance was formed in Polish enterprises due to a long, collective experience with a centralised economy. Past ways of operating were impossible to carry out in current social-economic situations, thus causing an intensification of conformist behaviour (STACHOWICZ, MACHULIK 2001, s. 148-208, SIKORSKI 2006, p. 84-121). The worsening financial results and growing competition from new enterprises indicated the need for obvious changes. It was also obvious that companies need the verification of existing value systems.

To conduct the identification of culture in the surveyed companies, according to the typology mentioned above, a combination of marks was used, which describe the most important elements of organizational behaviour. According to the M. CZERSKA (2003, p. 32-34) the following factors was used:

- 1) Attitude towards changes and experiment.
- 2) Right to risk.

- 3) Ways of solving problems.
- 4) Relations between superior and subordinates.
- 5) Relation between surroundings and organization.
- 6) The employees' attitude towards the organization.
- 7) Applied evaluation criteria.

Point ranged between 1 and 5, indicating the degree of potential absorption of changes which occurred in the organizational environment. The high level of this factor means higher potential level of uncertainty tolerance.

1) The attitude towards changes and experiments – the first criteria is the objective of perfection in making constant, recurrent tasks, according to the common rules, and also openness to the experiments and the search for the market expectations. On one hand changes are suspected as disturbances in the daily activities, inducing reluctance and resistance. On the other hand, changes are perceived as an opportunity and challenge for the organization, which employees accept and actively participate in finding solutions. In the surveyed companies, the right to submit new ideas is not restricted only to the higher managers and implementation of new things do not cause disturbances in daily activities. The respondents disagree with the claim that changes lead to worse operating conditions. The resolute rejection of the belief that new ideas are useless and not worthy of implementation because they will be blocked indicates a culture of uncertainty tolerance. The results suggest that in company politics the element of searching for new solutions plays an important role. Answers concerning the role of line workers in the process of management suggest that in most companies the search for new solutions and avoidance of schematic behaviour is reserved the head managers. The average mark for the first criteria was 3.5.

2) The right to risk is the second factor which defines the cultural level of uncertainty tolerance. In a culture of high uncertainty tolerance the employees participate in the decision-making process. In the culture of low uncertainty tolerance each decision is made by higher managers, leading to much pressure for the directors and intense control. According to the managers, the line employee is passive and should submit to the higher authority, fulfilling the orders of the managers and not participating in the decision-making process. Active participation is something unnatural, as decision making is reserved for the higher authorities. The opinion mentioned above does not favour employees taking the initiative. In most cases they are perceived by the head managers as individuals incapable of independent activities. Employees are expected in case of "troubles" to report to the managers, who show them the right solution. The employee cannot demonstrate independent thinking, even in the extent of their own duties. To sum up, the managers in the surveyed companies are not prone to risk transferring their rights to their subordinates. The total result for the second criteria achieved a mark of 2.6.

3) The next factor helpful in culture diagnosis is the way of finding solutions for organizational problems. In an organization of high uncertainty tolerance, team methods for finding solutions are used. These types of activities are aimed to increase the level of quality in making decisions and facilitation in implementation. Also of importance are the greater degree of employee satisfaction, the level of self-evaluation and identification with the company as a result of being self-responsible for its future. The managers of the surveyed companies insensibly approach to the idea that decisions made by team effort are worse than that made individually, but they do not associate aspiration with cooperation as a weakness. The average mark achieved was 3.7.

4) The forth criteria, which was involved in the analysis was the relations between superiors and subordinates. In a culture of low uncertainty tolerance tight hierarchical and formalized relationships are typical. The subordinate has no possibility to discuss orders with the manager. The interest of the employee in the decision-making process is worthless. The former criteria mentioned above indicate that in the opinion of the managers, the superiors should make most decisions. However, the respondents do not agree with the opinion that in the company only formal relations should occur between workers. Because the factors for the role of head managers in the decision-making process were considered earlier, only the evaluation of the degree of relationship between manager-subordinate was involved. The average mark for the formalization criteria was 3.0.

5) The next criteria appealed to relationship with the environment. The perception of the organization as a open unit, operating in a changing environment is typical for the culture of high uncertainty tolerance. The organization plays a game where there are no losers. The managers have no doubts that their company operates in competitive and rather attractive markets. Another important fact according to the surveyed managers is that initiatives made by companies are significant, despite the great influence of the environment, but on the other hand they carefully evaluate their possibilities to influence the environment. Besides, the environment was evaluated as a dangerous, and each false step may cause many problems. The average influence of the criteria was 2.9.

6) The last but one criteria was the evaluation of the employees; attitude towards the company and place in the value hierarchy. In an organization which characterises low uncertainty tolerance, the typical situation is lack of loyalty and feeling of alienation of employees, which could incline them to realize their own expectations, which may not be identical to the company's interests. The labour in that kind of situation is most often treated as an unpleasant ailment, a duty which must be fulfilled. The managers do not agree with the statement that no personal engagement in realization of the duties

should be demonstrated, because it could be used against the employee. It could testify the identification of one's own success with success of organization as a whole. On the other hand, the ground for survival and development of the company is, according to the surveyed managers, the realization of their own interests. The average mark was 3.2.

7) The last factor, which was analysed, and which influences the level of organization openness to changes is evaluation of the employees, teams and organization as a whole. In the culture of low uncertainty tolerance, accordance with the defined rules and procedures is most important, however in the culture of high uncertainty tolerance the basic criteria of the evaluation is effectiveness of activities. In the opinion of the managers it is difficult to indicate the synonymous sources of the evaluation. Most often it is an indirect system, between a reward for the keeping procedures and achieving the specific results. The comparatively low emancipation of employees and participation in company activities do not favour more pronounced rewarding results. The average mark was 3.0.

To sum up, the level of uncertainty tolerance was diagnosed as a mark of 3.1 in the range between 1 and 5. The results mean that the surveyed companies characterise medium level of uncertainty tolerance.

## **Conclusions**

The corporate culture determines the behaviour of the employees in the company. Without consciousness of its role, managers are not able to fully take advantage of the possibilities residing in the employees and organization. The implementation of a restructurization programme and new strategies and the concept of total quality depend on an organizational value and norm system. Without culture support, achieving objectives effectively way will not be possible. The conducted surveys indicate the low consciousness of culture among the head managers. It may lead to a weakening of the competitive potential of the surveyed enterprises.

On the basis of empirical studies and conducted analysis, the large industrial companies was diagnosed as having an authority culture. This type of the culture is most often connected with the autocratic style of management, applying numerous rewards and punishments, centralised structure in the shape of the pyramid or spider web. The most important value is the desire of authority, domination and control over other members of the organization and environment. The structure and decision process are perfect for decisions made in an environment of high risk, however the level of participation of employees is slight. Often employees are treated as instruments, only fulfilling

orders, and not interpreting them. The indication on this type of culture was slight, which means that we could expect other types of behaviour typical for other cultures.

Identification of the level of uncertainty tolerance among surveyed companies was established with the use of the key differential criteria. The indicator of the uncertainty tolerance level achieved a mark of 3.1, which means the average level of acceptance for new occurrences.

The respondents are not fully aware of the culture influence on the daily functioning of the organization. They declare the knowledge of the implication as a result of the organizational value and norm system, but in most cases it does not reflect daily practice. The internal cohesion of the strategy and culture is the key factor to being competitive and achieving success in business, which nowadays is characterised by competitiveness and globalization. The lack of ability to consciously shape cultural patterns may prevent the realization of the company objectives or in the extreme case become a reason of bankruptcy.

Translated by JEFFREY TAYLOR

Accepted for print 18.11.2007 r.

## References

- ANISZEWSKA G., GIELNICKA I. 1999. *Firma to ja, firma to my. Poradnik kultury organizacyjnej firmy*. Ośrodek Doradztwa i Doskonalenia Kadr, Gdańsk.
- BJERKE B. 2003. *Kultura a style przywództwa*. Oficyna Ekonomiczna, Kraków.
- CZERSKA M. 2003. *Zmiana kulturowa w organizacji. Wyzwanie dla współczesnego menedżera*. Difin, Warszawa.
- JEMIELNIAK D. *Kultura a organizacja* ([www.hrm.pl](http://www.hrm.pl)).
- KOŹMIŃSKI A.K., PIOTROWSKI W. 1999. *Zarządzanie. Teoria i praktyka*. PWN, Warszawa.
- PETERS T., WATERMAN R. 1982. *In Search of Excellence: Lessons from America's Best-Run Companies*. Harper & Row, New York.
- PIMPICKI K. *Kulturotwórcza rola przywódcy* (<http://oin.uwm.edu.pl>).
- SCHEIN E.H. 2004. *Organizational Culture and Leadership*. Jossey-Bass Publishers, San Francisco.
- SIKORSKI Cz. 1999. *Kultura organizacyjna wysokiej tolerancji niepewności*. Organizacja i Kierowanie, 1.
- SIKORSKI Cz. 2006. *Organizacje bez wodzów. Od przywództwa emocjonalnego do koordynacji demokratycznej*. Wydawnictwo C.H. Beck, Warszawa.
- STACHOWICZ J., MACHULIK J. 2001. *Kultura organizacyjna przedsiębiorstw przemysłowych. Studium kształtowania się postaw i zachowań menedżerów w procesach restrukturyzacji*. Wydawnictwo Zumacher, Kielce.
- WACH S. 2005. *Śmiały krok w nowy rok*. Personel, 12.

## **THE EFFICIENCY OF OWNERSHIP TRANSFORMATIONS IN POLAND – MACROECONOMIC APPROACH**

***Janusz Heller***

Department of Macroeconomics  
University of Warmia and Mazury in Olsztyn

**Key words:** efficiency, public ownership, private ownership, productivity, gross production output.

### **A b s t r a c t**

The efficiency of the private sector in Poland is higher than that of publicly-owned enterprises. During the years covered by the study (1995-2004), the gap grew steadily and in 2004 the productivity in the private sector was nearly twice higher. Almost 80% of the national gross production is the result of the activity of only about 65% of the employed population.

The private sector and the whole Polish economy with it, will develop through a combination of two ways: improvement of the economic efficiency and an absolute increase in financial outlays – mainly investment – on the existing enterprises and on setting up new ones. It is therefore an intensive path of development which should predominate over the earlier, extensive model.

The privatisation process should be continued and should include most businesses which operate according to market principles and whose main activities include material production or intangible services. Special attention should be paid to so-called “difficult” branches, such as coal mining and railways.

## **EFEKTYWNOŚĆ PRZEKSZTAŁCEN WŁASNOŚCIOWYCH W POLSCE – UJĘCIE MAKROEKONOMICZNE**

***Janusz Heller***

Katedra Makroekonomii  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** efektywność, własność publiczna, prywatna, wydajność pracy, produkcja globalna.

### **A b s t r a k t**

Efektywność sektora prywatnego jest w Polsce wyższa od publicznej formy gospodarowania. Dystans ten, w latach objętych badaniami (1995-2004), wyraźnie się powiększał i w roku 2004



wydajność pracy w sektorze prywatnym była już prawie dwukrotnie wyższa. Prawie 80% krajowej produkcji globalnej powstaje w wyniku aktywności zawodowej jedynie ok. 65% pracujących.

Sektor prywatny, a tym samym cała polska gospodarka, będzie się rozwijać głównie dzięki kombinacji poprawy efektywności ekonomicznej oraz bezwzględnego wzrostu nakładów – głównie inwestycyjnych – kierowanych do przedsiębiorstw już istniejących, a także przeznaczonych na tworzenie nowych podmiotów. Jest to więc intensywna droga rozwoju, która powinna zdominować wcześniejszy model ekstensywny.

Proces prywatyzacji powinien być kontynuowany i obejmować większość podmiotów, które funkcjonują na podstawie zasad rynkowych, a przedmiotem ich działalności jest produkcja materialna lub usługi o charakterze niematerialnym. Szczególną uwagę należy tu zwrócić na tzw. trudne branże i podmioty, np. górnictwo i PKP.

## **Introduction**

Ownership transformations in Poland are one of the major steps in approaching an efficient market economy system. One of its inherent attributes is the distinct predomination of private ownership. However, the condition is not ideological but purely economic. Not only literature, but also practical observations, provide many examples of the higher efficiency of privately owned enterprises as compared with those owned by public entities. The factors underlying the predominance of private enterprises vary, but they all make private enterprises more competitive, and thanks to the higher efficiency of utilisation of the means of production we have better opportunities for efficient participation in the gross economy.

On the other hand, however, the process of ownership transformations and the accompanying private sector development face numerous obstacles and hindrances. Without detailed analysis of the reasons of those tendencies it should be noted that a discussion on the subject does not always touch the main issue, i.e. the economic efficiency of one or another form of ownership. This assumption does not stem from the will to omit other arguments which justify the nearly complete (in the years 2006 and 2007) halt of the privatisation process but from a desire to base the discussion on rational arguments.

Poland is clearly retarded in terms of its economic development. The retardation is most comprehensively described by the disparity between Poland and the 15 countries of so called “old European Union”. The Gross Domestic Product per capita does not reach half of the average value of those countries. Therefore, it is a kind of the reference point, which sets the goal for our economy. However, it is not a sporting competition, but the basic condition of improving the standard of living in Poland. Our membership in the European Union and the opening of our borders with the EU have opened totally new opportunities. If the pace of the improvement of living standards in Poland proves too slow, the rate of emigration to the West will increase. If we fail to take efficient actions resulting in faster improvement of living stan-

dards, it should be expected that in the nearest future the rate of emigration, especially among young people, who are the most courageous and resourceful, will increase dramatically.

The discussion should deal mainly with seeking ways of improving economic efficiency, which can, in consequence, result in acceleration of the economic development in Poland. One of the important aspects of such discussions is the tempo and scope of economic transformations. If two sectors exist in the economy, it is natural to assess their economic efficiency.

**The efficiency of ownership transformations in Poland in a macro-economic approach is understood – in this study – to denote a comparative assessment of the publicly- and privately-owned sectors against the background of the economy as a whole.** The assessment is based on an analysis of productivity. It does not take into account the disproportions and conditions existing in the sectors, nor does it evaluate the ownership transformations in the economy. Therefore, it is a general fragment of a description of the economy which only deals with the relations between two sectors: public and private. It can also be the starting point for more detailed studies.

### **Methodical assumptions, subject and scope of the study**

This macroeconomic analysis is based on a general approach to the issue of the efficiency of macroeconomic transformations in the Polish economy. In this general approach only two sectors, public and private, have been separated. The first one includes enterprises owned by the state and by local government units and also numerous state-owned businesses whose activities are based on the principles of efficiency, i.e. those which are self-financing. The group also includes non-profit entities, e.g. local government property, state agencies and other budgetary entities. The private sector is equally varied and has very different origin. It includes privatised enterprises, i.e. those that used to be owned by the state. There is a sizable group of businesses which have been privately-owned since the beginning of their existence. Bałtowski calls them “always private” (BAŁTOWSKI 2002, s. 21). Both the group of privatised businesses and those that have always been private include businesses owned by Polish and foreign nationals. Various forms of cooperative ownership account for a considerable portion of the enterprises from the group. The private sector includes also non-profit entities; these are various foundations, associations, etc.

Such a general approach and separation of only two groups of subjects of study, each of which is internally varied (and some of their elements do not

gain profit), considerably restricts the level of detail of the analysis. **On the other hand, however, a macroeconomic approach allows for drawing conclusions related to the social efficiency of the public and private sector. If their efficiency varies, a discussion could be initiated concerning their quantitative interrelations and the areas of activity which should be included in a pro-efficiency model of enterprises whose goal is profit-gaining.**

The analysis includes a general assessment of productivity. It is based on the value of gross production output per 1 person employed in 1995 and in the years 2000-2004. The value of the gross production output has been calculated in comparable prices from 2004 based on price indexes, and more precisely – on the gross production output in 1995-2004 (*Rocznik Statystyczny* 2005, p. 437).

The work efficiency (productivity) is defined as the ratio of the effects obtained ( $P$  – gross production output) to the work outlay ( $N$  – number of employed). This relation is expressed by the formula:  $w = P : N$  and determines the whole of relations between the effects and outlay of work in consecutive years of the study.

Assuming that productivity is the main area of the study, a significant methodological problem was encountered – agriculture. The dominant part of the gross production output in agriculture comes from the private sector (over 90%). However, the number of people employed in the sector, which provided the basis for the assessment, decreased in 2002 by over 2 million people as compared to 2001 and previous years. The change was brought about by estimates based on the National Population and Housing Census of 2002. The data differ by over two million from the estimates based on the results of the Agricultural Census of 1995 (*Rocznik Statystyczny* 2003, p. 135). Consequently, if the denominator is reduced from over 4 million people employed in agriculture (in 1995-2001) to about 2 million (in 2002-2004) only due to different estimates, no other decision could be made but to exclude this branch of economic activities from the study.

### Scale and scope of ownership transformations

Ownership transformations can be described in a variety of manners. These include a detailed analysis which takes into account all the forms of transformations, while at the same time including a description of quantitative changes and presenting the economic efficiency of the processes. This approach can help to prepare a specific monograph of the issue (BAŁTOWSKI 1998). It can have the form of an interesting essay, retaining a scientific character and presenting the issue in an interesting literary form (WILCZYŃSKI 2005). The

problem can be presented in an original form taking into account its regional aspects (KAWIECKA 2005). Ownership transformations are accompanied by specific macroeconomic trends; such a descriptive form can also be used to presented the problem discussed here (HELLER et al. 2003, p. 71-114).

Such vast possibilities of presenting a scientific approach to the problem of ownership transformations show the diversity of the problem. The fragment presented here adopts the classification, applied by the Central Statistical Office, into the public and private sectors. The relationships between those sectors is expressed by means of an analysis in absolute numbers. In this manner, the gross production output (Tab. 1) and the number of employed people (Tab. 2) is presented, while the portion of the gross output and that of the number of people employed in the private sector is shown in relation to the corresponding numbers for the whole country (Tab. 3).

The data presented in Table 1 indicate that during the period under study, the value of gross production output (without agriculture, hunting and forestry) increased in Poland, in comparable prices, from PLN 1104 billion to about PLN 1745 billion, i.e. by over 58%. During the same period, the production output in the public sector decreased from about PLN 455 billion to about PLN 374 billion, i.e. by nearly 18%. At the same time, an increase by over 111% was recorded in the private sector.

Table 1

Gross production output by ownership sector, without agriculture, forestry and hunting  
(years 1995-2004 in millions PLN, comparable prices from 2004)

Item	1995	2000	2001	2002	2003	2004
Total gross production output without agriculture, forestry and hunting	1 104.404	1 548.412	1 566.114	1 588.294	1 653.952	1 745.208
Gross production output in the public sector without agriculture, forestry and hunting	455.163	412.253	373.749	371.136	379.492	374.418
Gross production output in the private sector without agriculture, forestry and hunting	649.241	1 136.159	1 192.365	1 217.158	1 274.460	1 370.790

Source: *Rocznik Statystyczny Rzeczypospolitej Polskiej*. 2003, p. 347, table 1; 2005, p. 437, table 1, p. 676, table 5, p. 681, table 11. Presentation of data and calculations by the author.

The information resulting from such presentation of data is very general – that the role of the public sector in Poland is diminishing, but the process is relatively slow. It is also interesting that an especially large reduction of the gross production output in the public sector was observed only in 1995-2000 and in 2001, whereas in 2002-2004 the decrease was

relatively small, and in 2003 even a slight increase of 2.2% was recorded in relation to the previous year. The value of gross production output in the private sector, in absolute numbers and in comparable prices, increases much faster. The increase was not just a replacement of the dwindling public property, but resulted from the absolute growth of the production capacity in the private sector.

One of the important elements of production capacity is the number of people employed. During the whole period, the number (without agriculture, hunting and forestry) decreased in Poland from about 11.3 million to about 10.6 million people, i.e. by about 6.3% (Table 2). A much larger reduction was observed in the public sector where the number of people employed decreased by over 37.5%. But, as with the gross production output, a greater reduction rate was observed in the initial period of the study, that is, from 1995 to 2000 and in 2001. The conclusion that can be drawn is that 2002 was the first year when the process of ownership transformations in Poland slowed down. The two subsequent years (2003 and 2004) corroborate the observation.

Table 2

The employed population by ownership sector in Poland  
(without agriculture, hunting and forestry, years 1995-2004, thousands)

Item	1995	2000	2001	2002	2003	2004
Total employed population without agriculture, hunting and forestry	11 292.2	11 184.2	10 705.9	10 642.2	10 502.4	10 580.7
The public sector without the people employed in agriculture, hunting and forestry	5 852.5	4 261.3	3 977.5	3 860.2	3 739.9	3 656.6
The private sector without the people employed in agriculture, hunting and forestry	5 439.8	6 922.9	6 730.4	6 782.0	6 762.5	6 924.1

Source: *Rocznik Statystyczny Rzeczypospolitej Polskiej*. 2003, p. 147, tab. 8; 2005, p. 234, tab. 5. Presentation of data and calculations by the author.

In the private sector an increase in the size of the employed population by over 27.3% was recorded (Tab. 2). However, Table 2 indicates that the statement does not fully reflect the changes that took place in the sector. The main increase in the number of the employed took place before 2000 – about 27.3% in relation to 1995. In the subsequent year (2001), a drop by about 2.8% was recorded, whereas in 2002 there was a slight increase by about 0.8%. The year 2003 was another year with employment decreasing by about 0.3%; in 2004 an increase by about 2.4% was observed. 2001-2004 were actually the years of stabilisation of the number of the number of people employed in the private sector. This may

have been caused by the slow-down in the transformations of state-owned companies into private businesses, by reducing the inflow of direct foreign investments into new private enterprises and by an improvement in the work efficiency.

Table 3

The share of the private sector in Poland (1995-2004, percent)

Item	1995	2000	2001	2002	2003	2004
The share of the private sector without agriculture, hunting and forestry in the gross production output, comparable prices from 2004	58.8	73.4	76.1	76.6	77.1	78.5
The share of the employed in the private sector in the total number of employed, without agriculture, hunting and forestry	48.2	61.9	62.9	63.7	64.4	65.4

Source: *Rocznik Statystyczny Rzeczypospolitej Polskiej*. 2003, p. 147, tab. 8, p. 347, tab. 1; 2005, p. 234, tab. 5, p. 437, tab. 1, p. 676, tab. 5, 681, tab. 11. Presentation of data and the calculations by the author.

The data presented in Table 3 show that the role of the private sector was increasing significantly until 2001 when its share in the gross production output exceeded 76%, and reached almost 63% in terms of the employed population. Although subsequent years saw an increase in the private sector, it was much slower than the previous period covered by the study, i.e. 1995-2000 and 2001.

Of the three factors which have been behind the development of the private sector in Poland, the changes in the direct foreign investment rate seem the most remarkable. In the years 1995-1999, about 5.4 billion USD on average was invested annually, with an increase in each year in relation to the previous one, from about 3.7 billion USD in 1995 to 7.3 billion USD in 1999. The following year, 2000, saw the highest level of foreign investment in Poland – about 9.3 billion USD. In each consecutive year a considerable decrease in the investment level was recorded – 5.7 billion USD in 2001, 4.1 in 2002 and 4.6 in 2003 (KARASZEWSKI 2005). However, the statement seems to be contradicted by the 2004 data: the foreign investment in that year amounted to over 12.6 billion USD (*Rocznik Statystyczny* 2005, s. 603). However, it is only an apparent contradiction, as the outcome of the investment will become manifest only in future.

A more detailed explanation of the reason of the ownership transformation process has been offered by W. Kawiecka. In her opinion, the first reason is a considerably weaker economic growth rate, followed by a decrease in investment demand and the need to implement restructuring actions in the

privatised assets. Privatisation of difficult and sensitive infrastructural sectors (mining, metallurgical industries) as well as intangible services in the public utility area (health care), also seem an important argument. Another important reason are complicated, costly and time-consuming privatisation procedures (KAWIECKA 2005, p. 119-139).

The slowing of the privatisation processes, resulting in a smaller increase in the role of the private sector, can therefore be explained by slower inflow of foreign capital, but it is also an outcome of administrative decisions, which do not always have the form of legal acts, but result from the general political climate surrounding the privatisation processes.

### **Productivity in the public and private sector**

The development of the private sector in an economy which is undergoing ownership transformations follows three paths. The first one, termed extensive, includes transformation of state-owned into privately-owned companies. The second one involves an absolute increase in financial outlays (mainly for investment) in the private sector, that is, in the existing or newly-established enterprises. The third path is an improvement of economic efficiency in the whole private sector, from both the macro- and micro-economic perspective, i.e. an increase in productivity and an improvement of the efficiency of the utilisation of investment expenditures.

As the public assets for privatisation are near exhaustion, the extensive path of the private sector development will be gradually replaced with its intensive variant. An absolute increase in capital outlays is, without doubt, an important source of development, as it can contribute to a more intensive expansion of the national economy, but only in combination with an improvement of the economic efficiency. Development, which has its sources in an improved efficiency of work and capital utilisation, is a more rational way for two reasons. Firstly, the private sector, including its particular entities, is more competitive against other participants of the market. Secondly – the resources involved in this sector are more rationally utilised, so smaller outlays can ensure the same volume of production and services or the same level of outlays can yield a greater value. The characteristics of the private sector therefore include low outlay consumption or a high productivity of the production means.

The data presented in Table 4 and in Figure 1 show that productivity measured as the value of the gross production output in comparable prices from 2004 increased in the whole economy by over 68%. The private sector recorded an increase of 66%, while the public sector only of 32%. The conclusion is that the productivity growth rate in private enterprises was more

than twice as high as in the public entities. Considering that in 1995 the index for the private sector was higher by 53% than the corresponding value for the public sector, the 2004 gap of over 93% is no longer surprising. Therefore, the efficiency of utilisation of the human factor in 2004 in the private sector is nearly twice as high as in the public sector.

Table 4  
Productivity, total employed population, the number of employees in the public and private sectors without agriculture, hunting and forestry (value of gross production output in PLN per 1 employee in comparable prices from 2004)

Item	1995	2000	2001	2002	2003	2004
Total employed population without agriculture, hunting and forestry	97 802	138 446	146 285	149 245	157 483	164 943
Public sector without agriculture, hunting and forestry	77 772	96 743	93 966	96 144	101 471	102 395
Private sector without agriculture, hunting and forestry	119 350	164 116	177 161	179 469	188 460	197 974

Source: *Rocznik Statystyczny Rzeczypospolitej Polskiej*. 2003, p. 147, tab. 8, p. 347, tab. 1; 2005, p. 234, tab. 5, p. 437, tab. 1, p. 676, tab. 5, 681, tab. 11. Presentation of data and the calculations.

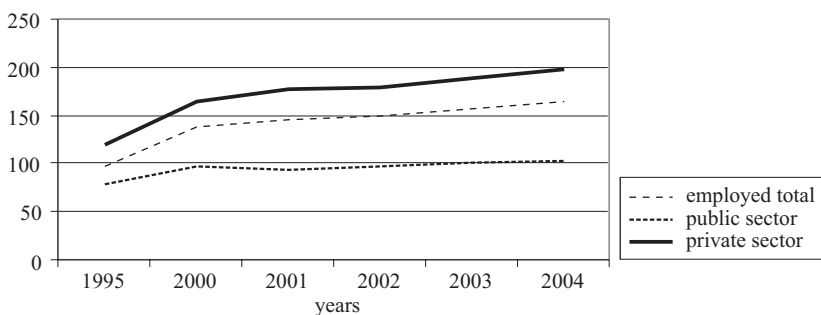


Fig. 1. Global production value in thousands PLN per 1 employed

Source: *Rocznik Statystyczny Rzeczypospolitej Polskiej*. 2003, p. 147, tab. 8, p. 347, tab. 1; 2005, p. 234, tab. 5, p. 437, tab. 1, p. 676, tab. 5, 681, tab. 11. Presentation of data and the calculations by the author.

Such a considerable difference in productivity may indicate that the results achieved by the private sector account for most of the national economic growth. Since 2000 the public sector has been recording stagnation in terms of the efficiency of work utilisation, while for the private sector it has been a period of growth. As a result, the diagram for the relations in the whole economy is nearly parallel to that describing the private sector, while for the public sector it is nearly horizontal.



## **Summary and conclusions**

The study has shown that the efficiency of the private enterprises in Poland is distinctly higher than that of the public sector. During the period covered by the study the disparity was growing and in 2004 the productivity in the private sector was nearly twice as high as the efficiency of work utilisation in the public sector. Together with the fact that nearly 80% of the national gross production output is the result of the activity of only about 65% of the employed population, this raises questions whether such a high share of the public sector in Poland is justified.

If the efficiency of the private sector in Poland is so much higher, the present lack of political will to continue ownership transformations should not restrict the criticism related to the presence of public ownership in the economy. A question arises to what extent some of the state-owned companies are only a form of social protection for their employees and how indispensable they are for the national economy? The predominance of social functions over the economic results, which was – at least in the socialist economy – the justification of the existence of some enterprises, was one of the reasons of the collapse of the whole system. Hence, putting forward such arguments again in relation, e.g. to mining, postal service or railways, is unacceptable. A serious discussion should be started about how best to utilise the higher economic efficiency which, due to its value, has gained a social dimension and cannot be reduced to the efficiency of one or another company.

1. The processes of creation and development of the private sector in Poland have so far been dependent on two factors. The first of them was transformation of state-owned companies into private enterprises, the other – establishing new businesses. Both of them require capital to function. Limited size of the national sources of funds make foreign capital a fundamental factor. The significant slow-down of the tempo and scope of the ownership transformations in Poland, especially since 2002, has had two main reasons. One of them was stopping the privatisation of the state-owned companies by administrative means and the other – a lower inflow of foreign capital to the Polish economy.

2. The period covered by the study can be divided into two phases. One is the time of progressive ownership transformations. They had its source in the inflow of direct investment capital, a relatively high growth rate and a growing significance of the private sector. The second phase began in 2001/2002 when the amount of foreign capital coming to Poland was significantly reduced, the economic growth rate decreased and the state owned enterprises offered for privatisation were such whose transformation faced considerable obstacles. The effect was the slow-down of the private sector development caused by administrative decisions.

3. Regardless of the reasons of the slow-down of the tempo of ownership transformations in Poland, it is now known that dependence of the further development of the private sector, and in consequence the whole economy, on the tempo of privatisation, will be gradually reduced. The lack of political will to continue the process, and the small number of attractive objects of privatisation require another path of development. The private sector, and the whole economy with it, will develop by combination of two complementary ways – improvement of the economic efficiency and an absolute increase of investment outlays in the existing companies as well as establishing new businesses. This is therefore an intensive path of growth, which should dominate over the previous extensive model.

4. Undoubtedly, the privatisation process will remain a source of the private sector development. It should embrace most enterprises whose activities are based on market principles and which deal with material production or intangible services. Special attention should be paid to sensitive branches and entities, such as mining and state railways.

5. A totally new path of ownership transformations should include – preceded by profound studies and discussion – applying market principles to, which also means privatisation of, public utility areas, such as education, culture, healthcare, environment protection or communal services. Such decisions should be based on more detailed studies which would not only produce simple assessment of their economic efficiency, but would also cover other, more detailed aspects.

Translated by JOANNA JENSEN

Accepted for print 5.02.2008 r.

## References

- BAŁTOWSKI M. 1998. *Prywatyzacja przedsiębiorstw państwowych. Przebieg i ocena*. Wydawnictwo Naukowe PWN, Warszawa.
- Bezpośrednie inwestycje zagraniczne w województwie kujawsko-pomorskim. 2005. Red. W. KARASZEWSKI, Wydawnictwo Uniwersytetu Mikołaja Kopernika, Toruń.
- HELLER J., KAWIECKA W., KOTLIŃSKI K., WARŻAŁA R. 2005. *Makroekonomiczne aspekty procesów przekształceń własnościowych. Raport o przekształceniach własnościowych w 2004 roku*. Ministerstwo Skarbu Państwa, Warszawa, s. 71-114.
- KAWIECKA W. 2005. *Przekształcenia własnościowe w Polsce*. Zagadnienia Ekonomiczne, 2: 119-139.
- KAWIECKA W. 2005. *Przekształcenia własnościowe w Polsce w ujęciu regionalnym*. Studia Regionalne i Lokalne, Centrum Europejskich Studiów Regionalnych i Lokalnych, Uniwersytet Warszawski, 4(22): 91-106.
- Przedsiębiorstwa sprywatyzowane w gospodarce polskiej*. 2002. Red. M. BAŁTOWSKI. Wydawnictwo Naukowe PWN, Warszawa 2002, wydanie drugie.
- Roczniki Statystyczne Rzeczypospolitej Polskiej z lat: 2003 i 2005*. GUS, Warszawa.
- WILCZYŃSKI W. 2005. *Polski przełom ustrojowy 1989-2005 ekonomia epoki transformacji*. Wydawnictwo Wyższej Szkoły Bankowej w Poznaniu.

## **RATES OF RETURN DISTRIBUTIONS VARIATION – IMPLICATIONS FOR PORTFOLIO ANALYSIS**

***Lesław Markowski, Anna Rutkowska-Ziarko***

Department of Quantitative Methods  
University of Warmia and Mazury in Olsztyn

Key words: portfolio analysis, semi-variance, time series stationarity.

### **A b s t r a c t**

The paper presents the properties of the rates of return distributions for Markowitz models and models with minimum semivariance. The special focus was placed on investigating the variation over time of the rates of return distributions for the studied portfolios. Non-parametric Kolmogorov-Smirnov tests and augmented Dickey-Fuller test were used for analysis of distributions over time.

The studies showed that the distributions of rates of return for portfolios developed, particularly for high assumed rates of return were characterized by high variation. Considering selected distribution parameters SEM portfolios were more favorable than Markowitz portfolios although they showed a higher variation of distributions over time.

## **ZMIENNOŚĆ ROZKŁADÓW STÓP ZWROTU – IMPLIKACJE DLA ANALIZY PORTFELOWEJ**

***Lesław Markowski, Anna Rutkowska-Ziarko***

Katedra Metod Ilościowych  
Uniwersytet Warmińsko-Mazurski w Olsztynie

Słowa kluczowe: analiza portfelowa, semiwariancja, stacjonarność szeregów czasowych.

### **A b s t r a k t**

W artykule zaprezentowano porównanie właściwości rozkładów stóp zwrotu modeli Markowitza i modeli o minimalnej semiwariancji. Szczególnie badano zmienność w czasie rozkładów stóp zwrotu badanych portfeli. Do analizy rozkładów w czasie wykorzystano nieparametryczne testy Kołmogorowa-Smirnowa i test stacjonarności szeregu Dickey'a-Fullera z augmentacją.

Badania wykazały, że rozkłady stóp zwrotu zbudowanych portfeli, zwłaszcza dla wysokich założonych stóp zwrotu, charakteryzowały się dużą zmiennością. Biorąc pod uwagę wybrane parametry rozkładu, portfele SEM były korzystniejsze od portfeli Markowitza, natomiast wykazywały one większą zmienność rozkładów w czasie.

## **Introduction**

The theory of modern finance is based on the assumption that the investor operates under the risk conditions, i.e. that the distributions of the rates of return for individual shares are known. In reality we very often deal with the conditions of uncertainty because we do not know the probability of occurrence of a specific rate of return. That probability is estimated on the basis of historical data (KRZEMIENOWSKI, OGRYCZAK 2002). If the distribution is not constant over time then the estimation of probability, and as a consequence the characteristic of the distribution can change in an unpredictable way. The fundamental problem then is the variation of the distributions of the rates of return.

The aim of this paper is to compare the properties of the distributions of rates of return for Markowitz models and models with minimum semivariance. The special focus was placed on investigating the variation over time of the rates of return distributions for the studied portfolios. The studies carried out according to the dynamic approach showed that the discussed models do not always work in practice (RUTKOWSKA-ZIARKO 2004; WDOWIŃSKI, WRZESIŃSKI 2003). That phenomenon can be caused by the variation of the rates of return (RUTKOWSKA-ZIARKO, MARKOWSKI 2005, RUTKOWSKA-ZIARKO, MARKOWSKI 2006).

## **Models applied**

The paper reviews two alternative models of stocks portfolio choice. The first of them is the classical Markowitz model (MARKOWITZ 1952), in which the risk is measured by the variance of portfolio rates of return. The other one is the SEM model (MARKOWITZ 1959), in which the semivariance from the assumed rate of return ( $\gamma$ - semivariance) is the measure of risk. In the classical Markowitz model (MARKOWITZ 1952), the risk is measured by the variance of rates of return. The weakness of variance as a measure of risk is the identical treatment of negative and positive deviations from the expected rate of return. In reality the negative deviations are undesirable while the positive ones create opportunities for a higher income. Aiming at measurement of negative deviations only Markowitz defined semivariance (MARKOWITZ 1959). The most important characteristic of semivariance is that it measures only the deviations below a certain specified level. The supporters of applying semivariance as the measure of risk stress that it is better in describing the actual preferences of investors than the variance (HOGAN, WARREN 1974, OGRYCZAK, RUSZCZYŃSKI 2001, SORTINO, SATCHELL 2001).

The problem of determining the shares of stocks in Markowitz model comes down to solution of the following optimization problem:  
to minimize the variance of portfolio rates of return:

$$s_p^2 = \sum_{i=1}^k \sum_{j=1}^k x_i x_j k_{ij} \quad (1)$$

with the expectations:

$$\sum_{i=1}^k x_i = 1 \quad (2)$$

$$\sum_{i=1}^k x_i \bar{z}_i \geq \gamma \quad (3)$$

$$x_i \geq 0 \quad i = 1, \dots, n \quad (4)$$

where:

$s_p^2$  – variance of stocks portfolio rate of return;  $\gamma$  – rate of return defined in advance for the entire portfolio assuming that  $\gamma \leq \max \bar{z}_i$ ;  $\bar{z}_i$  – average rate of return of  $i$  stock;  $x_i$  – value share of  $i$  stock in the portfolio;  $k_{ij}$  – covariance of the rate of return for stocks  $i$  and  $j$ .

SEM portfolio choice model is similar to the classical Markowitz model. The difference, however, is that another measure of risk  $\gamma$  – semivariance of stocks portfolio rate of return ( $ds_p^2(\gamma)$ ) is minimized. In Markowitz model a deviation both below the average rate of return and above the average rate of return is considered risky. In SEM model the risk is linked only to appearance of rates of return lower than the rate of return ( $\gamma$ ) assumed by the investor. The problem of determining the shares of stocks in the SEM model comes down to solving the following optimization problem:  
to minimize the  $\gamma$ -semivariance:

$$ds_p^2(\gamma) = \sum_{i=1}^k \sum_{j=1}^k x_i x_j d_{ij}(\gamma) \quad (5)$$

with limitations (2-4),

where:

$$d_{ij}(\gamma) = \frac{1}{m-1} \sum_{t=1}^m d_{ijt}(\gamma) \quad (6)$$

$$d_{ijt}(\gamma) = \begin{cases} 0 & \text{for } z_{pt} \geq \gamma \\ (z_{it} - \gamma)(z_{jt} - \gamma) & \text{for } z_{pt} < \gamma \end{cases} \quad (7)$$

$d_{ij}(\gamma)$  – semicovariance for the assumed rate of return;  $m$  – number of time units, in which stocks rates of return are registered  $z_{it}$ ,  $t = 1, 2, \dots, m$ ;  $z_{pt}$  – portfolio rate of return at moment  $t$ . The issue of SEM portfolio design was described in detail in the papers (RUTKOWSKA-ZIARKO, OLESINKIEWICZ 2002, RUTKOWSKA-ZIARKO 2005).

### Rates of return distributions variation testing

Absence of variation in the distributions of the rates of return is the condition of persistency over time of the parameters of those models. Those parameters are estimated on the basis of the time runs of rates of return where it is assumed that the phenomenon develops similarly over the entire period studied and that it will not change during the future period, i.e. between portfolio purchase and sale. Presence of distribution variation causes that the portfolio effective during one period does not have to be effective during the next period.

The time run of rates of return can be treated as a part of stochastic process realization. For each time period  $t$  there is a certain random variable  $X_t$  possessing a specific probability distribution. The process, that is the run of the portfolio rates of return is strictly stationary if the combined distributions of variables  $X_{t1}, X_{t2}, \dots, X_{tk}$ , are the same as the combined distributions of variables  $X_{t1+\tau}, X_{t2+\tau}, \dots, X_{tk+\tau}$  where  $\tau$  is any integer, that is they do not depend on shift in time (GRUSZCZYŃSKI, PODGÓRSKA 2000). Usually the stationarity according to moments, i.e. the so-called weak stationarity is the subject of studies. It assumes that the expected value and the variance are finite and independent of the time while the covariance between observations from two periods depends only on the distance between those observations. Distributions are considered identical and the process stationary if the average and the variance do not change dismissing other properties of the distribution such as, e.g. asymmetry, concentration or presence of thicker tails.

The issue of stationarity of a time run for variable  $y_t$  can be tested using the stationarity test (process integration) such as DF test (Dickey-Fuller test). In this test the equation having the following format is analyzed (CHAREMZA, DEADMAN 1997):

$$\Delta y_t = \delta y_{t-1} + \xi_t \quad (t = 1, \dots, n) \quad (8)$$

where the hypotheses are:  $H_0 : \delta = 0$ ,  $H_1 : \delta < 0$ . Rejection of the zero hypothesis in favor of an alternative one means absence of the so-called unilateral elements. That process is the integrated zero degree process  $I(0)$ , i.e. it is stationary. This procedure allows testing the so-called weak stationarity only. In case of self-correlation of the random component resulting in ineffectiveness of MNK estimators the ADF test (Augmented Dickey-Fuller test) is applied. In the regression equation the delayed increase of the dependent variable is additionally included, that is:

$$\Delta y_t = \delta y_{t-1} + \sum_{i=1}^k \delta_i \Delta y_{t-i} + \xi_t \quad (t = 1, \dots, n) \quad (9)$$

The testing method is identical as in the DF test. It should be pointed out that in both tests testing equations with a free expression or a trend can occur.

Variability of the time run can also be tested by applying statistical, non-parametric consistency tests such as, e.g. Kolmogorov-Smirnov test (K-S). That test serves verification of the hypothesis that two populations have the same distribution [ $H_0 : F_1(x) = F_2(x)$ ] against the alternative hypothesis that two samples come from two different populations [ $H_1 : F_1(x) \neq F_2(x)$ ]. The test statistic has the format of (SOBCZYK 2000):

$$\lambda = D_{n_1 n_2} \sqrt{\frac{n_1 n_2}{n_1 + n_2}} = \sup |F_{n_1}(x) - F_{n_2}(x)| \sqrt{\frac{n_1 n_2}{n_1 + n_2}} \quad (10)$$

where:

$F_{n_1}(x) - F_{n_2}(x)$  represent the distribution function of a characteristic in the first and the second sample respectively. As opposed to stationarity tests, the K-S test verifies the conformity of the distribution “shape” in the analyzed samples. As a consequence it detects all differences in asymmetry, concentration and other characteristics of the distribution.

## Results

The studies covered 70 largest and most liquid companies continuously listed at Warsaw Stock Exchange during the covered period of two years, i.e. from January 1, 2004 until December 31, 2005. The portfolio analysis, because

of time required for computations and low flexibility as well as liquidity of the portfolio generally applies to long-term analyses (TARCZYŃSKI 2002). For that reason use of quarterly rates of return for the covered securities and building portfolios of them was proposed. To simplify the analyses, dividends were disregarded in computation of the rates of return. Rates of return were computed as relative increases in prices of stocks according to the formula:

$$z_{it} = \frac{n_{i,t+s} - n_{it}}{n_{it}} 100\% \quad (11)$$

where:

$s$  – length of the investment process expressed in days,  $n_{it}$  – listed value of  $i$  asset at the moment  $t$ ,  $n_{i,t+s}$  – listed value of  $i$  asset after  $s$  days of investing started at moment  $t$ .

The number of time units ( $m$ ), for which rates of return are registered depends on the number of listings and length of the investment period:

$$m = n - s \quad (12)$$

where:

$n$  is the number of listings.

During the analyzed time period the highest average rate of return for an individual company was 34,54%. The analysis considered seven assumed rates of return ( $\gamma = 1, 5, 10, 15, 20, 25, 30\%$ ). The study period was divided into two yearlong samples (2004 and 2005), where each of them contained 221 quarterly rates of return. On their bases the significance of changes in the distributions of the rates of return for the considered portfolios was analyzed. For that purpose the K-S test was applied for two samples and the ADF test, for which the empirical format is:

$$\Delta R_{t\gamma} = \mu + \alpha t + \delta_0 R_{t-1,\gamma} + \xi_t \quad (t = 1, \dots, 442); \quad (\gamma = 1, 5, 10, 15, 20, 25, 30) \quad (13)$$

where:

$\Delta R_{t\gamma}$  – represents the increase of the rate of return for the portfolio determined for the assumed rate  $\gamma$  during the period  $t$ . The results of application of the above tests are presented in table 1. For low assumed rates of return the variance of the distribution of the rates of return for SEM portfolios was higher than for Markowitz portfolios. This is indicated by high K-S test values and low absolute values of ADF test.



Table 1  
Kolmogorov-Smirnov test of the significance of differences between rates of return distributions test and the test of unit root for the effective portfolios designed on the basis of minimizing variances and covariances during the period of 2004-2005

$\gamma$	Portfolio type	K-S test statistics value	ADF Test version with constant
1 1	Markowitz SEM	0.798 ( $p > 0.1$ ) 6.083 ( $p < 0.001$ )	-6.282 <sup>a</sup> -1.913
5 5	Markowitz SEM	<b>0.756</b> ( $p > 0.1$ ) 2.943 ( $p < 0.001$ )	-6.348 <sup>a</sup> -2.601 <sup>c</sup>
10 10	Markowitz SEM	2.091 ( $p < 0.001$ ) 4.509 ( $p < 0.001$ )	-4.759 <sup>a</sup> -1.826
15 15	Markowitz SEM	3.511 ( $p < 0.001$ ) 4.992 ( $p < 0.001$ )	-3.199 <sup>b</sup> -1.978
20 20	Markowitz SEM	6.895 ( $p < 0.001$ ) 6.181 ( $p < 0.001$ )	-1.916 -1.540
25 25	Markowitz SEM	7.316 ( $p < 0.001$ ) 7.316 ( $p < 0.001$ )	-1.614 -1.547
30 30	Markowitz SEM	7.610 ( $p < 0.001$ ) 7.410 ( $p < 0.001$ )	-1.470 -1.439

Source: own computations.

a, b, c – process integrated I(0) at the significance level equal to:  $\alpha = 0.01$ ;  $\alpha = 0.05$ ;  $\alpha = 0.1$  respectively.

SEM portfolios, with one exception for the assumed rate  $\gamma = 5\%$ , are characterized by non-stationarity of the rates of return distributions. In case of high rates of return assumed, distributions of both Markowitz portfolios and SEM portfolios change over time statistically significantly. A particularly higher stability of the rates of return distribution for Markowitz portfolios as compared to SEM portfolios becomes visible for the assumed rate of return  $\gamma = 1\%$ . Graphically that situation is presented in figures 1-4.

Variability of the distributions for the analyzed portfolios over time shows that portfolios effective during one period will not be effective during the following period. Construction of portfolios on the basis of the proposed models is justified making the assumption that the investor acts under conditions of risk, i.e. that the investors know the distributions of the rates of return. Variability of the distribution over time causes that the investor operates under conditions closer to the conditions of uncertainty than conditions of risk.

Tests applied in the study, in case of portfolios minimizing variance for the rates of return at 10% and 15% gave ambivalent results as concerns variation of the distributions of the rates of return for those portfolios. Those differences result from treatment of time run stationarity in the ADF test in the narrow sense only, i.e. testing the differences concerning the basic parameters of the

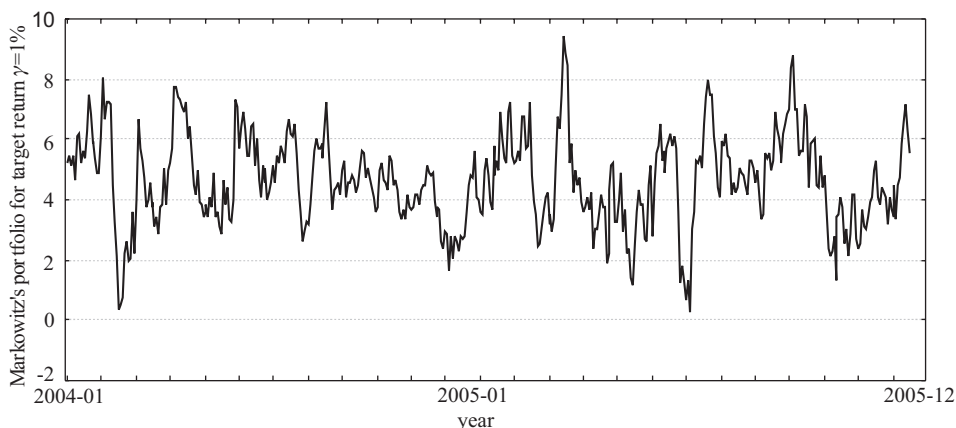


Fig. 1. Rates of return for the portfolio minimizing variance (Markowitz portfolio), for the assumed rate of return  $\gamma = 1\%$  during the period of 2004-2005

Source: Own work.

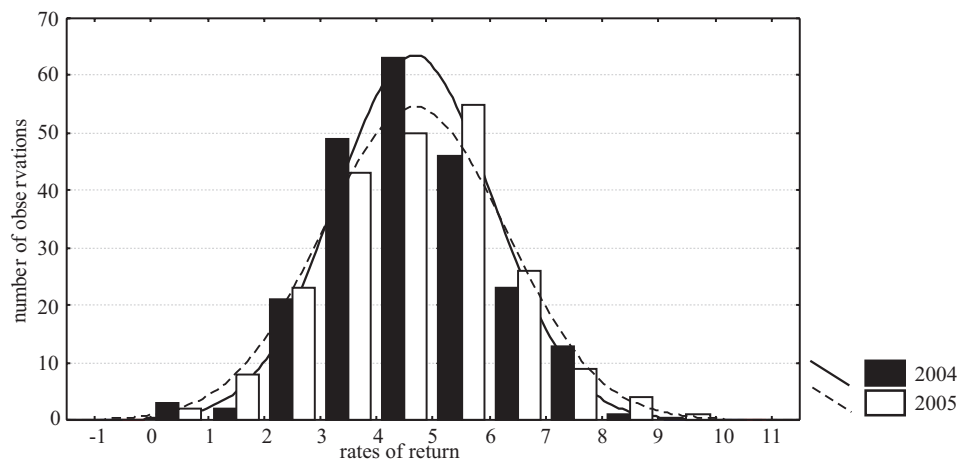


Fig. 2. Distributions of the rates of return for Markowitz portfolios for 1% during 2004 and 2005

Source: Own work.

distribution. The above test does not consider the issue of the distribution shape, and in particular its consistency with the normal distribution. The K-S test applied for two samples tests all the differences between distribution functions of the distributions compared. Figure 5 presenting the histogram of the rates of return for Markowitz portfolios at  $\gamma = 10\%$  represents the graphic expression of that situation. It shows major differences in the distribution density functions for two samples although the ADF test gave grounds to reject the zero hypothesis and in favor of the alternative hypothesis indicating

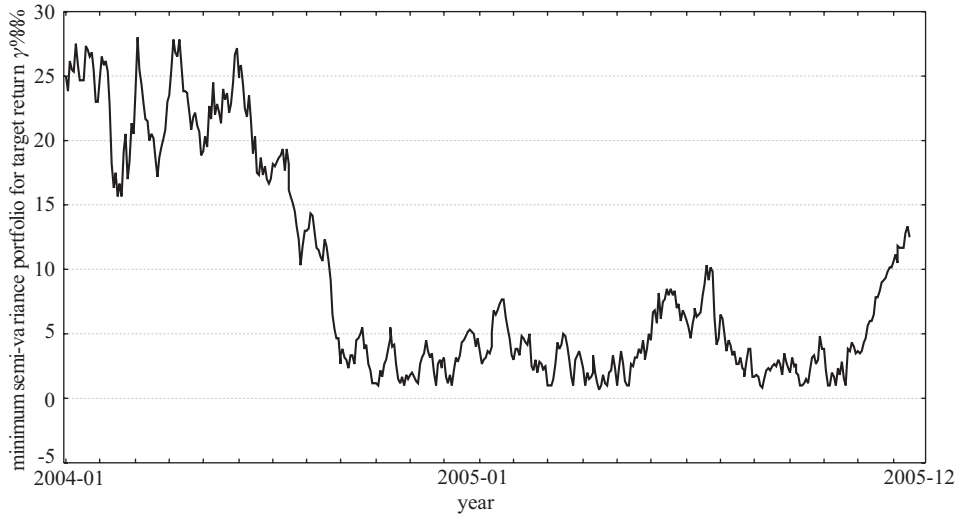


Fig. 3. Rates of return for the portfolio minimizing semivariance for the assumed rate of return  $\gamma = 1\%$  during 2004-2005

Source: Own work.

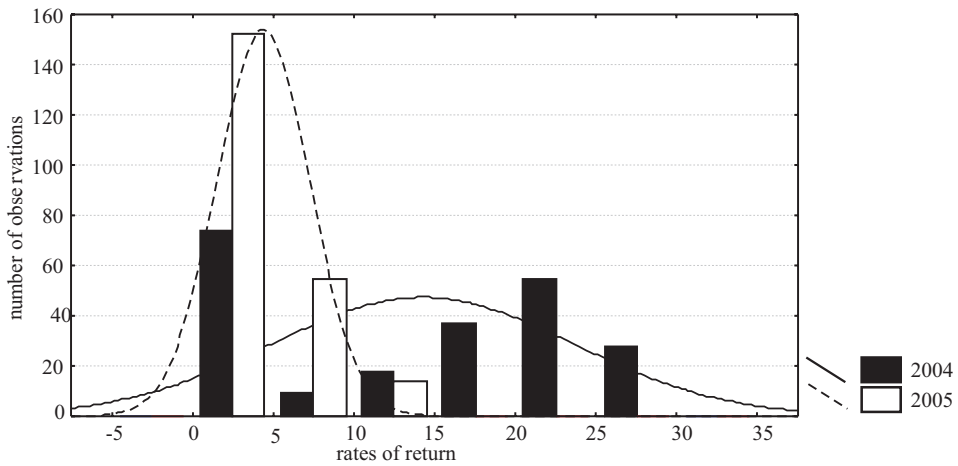


Figure 4. Distributions of rates of return for SEM portfolios for 1% during 2004 and 2005  
Source: Own work.

stationarity of the rates of return run for that portfolio over time. In 2004 the distribution of the rates of return for that portfolio did not differ significantly from the normal distribution, however, in 2005 that difference was significant because of, e.g. double modality of the distribution visible in the figure.

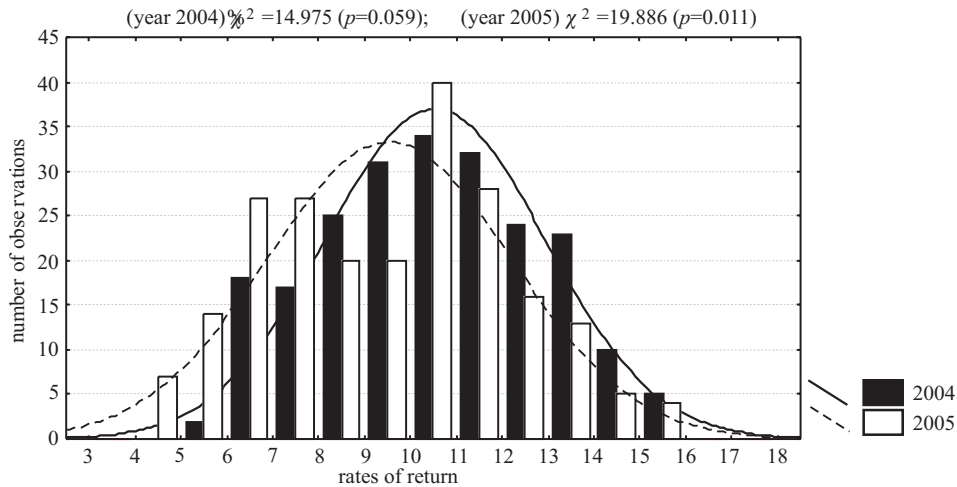


Fig. 5. Distributions of rates of return for Markowitz portfolios for the assumed rate of 10% during 2004 and 2005

Source: Own work.

Detailed analysis of the distributions obtained for both the entire sample and the two sub-samples was the next step of the studies. The basic characteristics of the distributions and the decision of consistency test  $\chi^2$ , verifying consistency of the distribution tested with the normal distribution, are presented in table 2.

The average rates of return ( $\bar{z}_p$ ), minimum and maximum for all portfolios are higher in the first sub-sample than in the second one. Those differences increase with the increase of the assumed rate of return  $\gamma$  and achieve higher values for the SEM portfolios than for the Markowitz portfolios. At the same time SEM portfolios have higher average rates of return, minima and maxima than the Markowitz portfolios. Because of those parameters of the distribution SEM portfolios should be considered superior to Markowitz portfolios.

Because of semivariance SEM portfolios are safer than Markowitz portfolios. Only because of the variance Markowitz portfolios are better than SEM portfolios. Those results mean that in SEM portfolios, as compared to Markowitz portfolios the dispersion of the rate of return around the average is larger while the diversions below the assumed rate of return are smaller and those above it are larger. For those reasons SEM portfolios should be considered superior for the investors because at a lower risk of obtaining the rate of return lower than assumed they create the opportunity for high rates of return.

The majority of the portfolios had the right sided skew distributions. Few examples of left sided asymmetrical distributions are characterized by a relatively low strength of asymmetry (asymmetry coefficient from -0,22 to -0,03).

Table 2  
Selected characteristics of the rates of return distributions for portfolios during the years 2004-2005

$\gamma$	Portfolio	Year	$\bar{z}_p$	Min.	Max	$s_p^2$	$ds_p^2(\gamma)$	A	Consistency test $\chi^2$
1	M	<b>2004-05</b>	<b>4.64</b>	<b>0.29</b>	<b>9.42</b>	<b>2.27</b>	<b>0.0029</b>	<b>0.03</b>	Normal
		2004	4.63	0.38	8.03	1.93	0.0031	-0.06	Normal
		2005	4.64	0.29	9.42	2.61	0.0027	0.09	Normal
1	SEM	<b>2004-05</b>	<b>9.23</b>	<b>0.74</b>	<b>27.95</b>	<b>71.44</b>	<b>0.0002</b>	<b>0.88</b>	Not consistent with n.
		2004	14.14	1.00	27.95	86.65	0.0001	-0.14	Not consistent with n.
		2005	4.33	0.74	13.25	8.19	0.0004	1.05	Not consistent with n.
5	M	<b>2004-05</b>	<b>5.00</b>	<b>0.72</b>	<b>9.75</b>	<b>2.28</b>	<b>1.11</b>	<b>0.07</b>	Normal
		2004	5.00	0.94	8.35	1.87	0.92	-0.03	Normal
		2005	5.00	0.72	9.75	2.71	1.32	0.12	Normal
5	SEM	<b>2004-05</b>	<b>10.47</b>	<b>4.81</b>	<b>20.76</b>	<b>16.13</b>	<b>0.0002</b>	<b>0.51</b>	Not consistent with n.
		2004	11.48	4.99	20.76	19.25	0.0001	0.29	Not consistent with n.
		2005	9.45	4.81	19.95	11.03	0.0005	0.45	Not consistent with n.
10	M	<b>2004-05</b>	<b>10.00</b>	<b>4.34</b>	<b>15.88</b>	<b>6.58</b>	<b>3.34</b>	<b>-0.02</b>	Not consistent with n.
		2004	10.49	5.28	15.88	5.68	2.03	-0.05	Normal
		2005	9.51	4.34	15.74	7.02	4.67	0.10	Not consistent with n.
10	SEM	<b>2004-05</b>	<b>16.73</b>	<b>5.81</b>	<b>47.16</b>	<b>92.24</b>	<b>0.51</b>	<b>1.56</b>	Not consistent with n.
		2004	21.14	5.81	47.16	136.53	0.33	0.67	Not consistent with n.
		2005	12.33	6.45	20.79	9.37	0.69	0.42	Normal
15	M	<b>2004-05</b>	<b>15.00</b>	<b>2.80</b>	<b>25.75</b>	<b>26.59</b>	<b>13.37</b>	<b>-0.03</b>	Not consistent with n.
		2004	16.87	6.01	25.75	24.74	6.85	-0.22	Not consistent with n.
		2005	13.13	2.80	23.76	21.49	19.95	0.01	Not consistent with n.
15	SEM	<b>2004-05</b>	<b>17.08</b>	<b>5.13</b>	<b>45.75</b>	<b>81.14</b>	<b>10.55</b>	<b>1.41</b>	Not consistent with n.
		2004	21.73	6.23	45.75	108.85	5.27	0.60	Not consistent with n.
		2005	12.43	5.13	20.13	10.33	15.88	-0.03	Normal
20	M	<b>2004-05</b>	<b>20.00</b>	<b>-2.44</b>	<b>49.73</b>	<b>137.52</b>	<b>58.36</b>	<b>0.43</b>	Not consistent with n.
		2004	27.95	10.00	49.73	100.52	7.23	0.15	Not consistent with n.
		2005	12.05	-2.44	29.35	48.05	109.81	-0.09	Not consistent with n.
20	SEM	<b>2004-05</b>	<b>20.00</b>	<b>3.33</b>	<b>53.63</b>	<b>166.95</b>	<b>49.45</b>	<b>1.12</b>	Not consistent with n.
		2004	27.73	5.48	53.63	196.44	21.15	0.25	Not consistent with n.
		2005	12.27	3.33	23.47	18.09	77.99	-0.03	Not consistent with n.
25	M	<b>2004-05</b>	<b>25.00</b>	<b>-3.45</b>	<b>83.01</b>	<b>426.56</b>	<b>147.62</b>	<b>0.90</b>	Not consistent with n.
		2004	38.84	5.39	83.01	406.59	40.07	0.20	Not consistent with n.
		2005	11.16	-3.45	28.57	63.63	255.85	0.08	Not consistent with n.
25	SEM	<b>2004-05</b>	<b>25.00</b>	<b>-0.56</b>	<b>83.91</b>	<b>448.32</b>	<b>143.80</b>	<b>1.02</b>	Not consistent with n.
		2004	39.15	3.23	83.91	454.78	45.49	0.18	Not consistent with n.
		2005	10.85	-0.56	26.36	41.65	242.76	0.20	Not consistent with n.
30	M	<b>2004-05</b>	<b>30.00</b>	<b>-13.73</b>	<b>131.96</b>	<b>1135.18</b>	<b>337.72</b>	<b>1.25</b>	Not consistent with n.
		2004	52.24	0.30	131.96	1184.76	83.11	0.56	Not consistent with n.
		2005	7.76	-13.73	31.50	97.02	593.87	0.24	Normal
<b>30</b>	<b>SEM</b>	<b>2004-05</b>	<b>30.00</b>	<b>-13.66</b>	<b>133.19</b>	<b>1140.46</b>	<b>337.19</b>	<b>1.27</b>	Not consistent with n.
		2004	52.01	-0.72	133.19	1210.82	87.51	0.57	Not consistent with n.
		2005	7.99	-13.66	32.38	101.59	588.40	0.29	Normal

Source: Own computations.

In the majority of cases SEM portfolios are more right sided skew than Markowitz portfolios. Right-sided asymmetry is demanded by the investors (JAJUGA, JAJUGA 1998), so they will prefer SEM portfolios.

The rates of return distributions for low values of the assumed rate of return (1% and 5%) are consistent with normal distribution in case of Markowitz portfolios only, as opposed to SEM portfolios. For the higher rates of return assumed, with few exceptions, the distributions of all portfolios differed statistically significantly from the normal distribution. It should be pointed out that because of the differences in the level of distributions asymmetry, deviation from normal distribution is larger for SEM portfolios than for Markowitz portfolios, which is confirmed by not presented, detailed results of the consistency test.

## Conclusion

Studies on variability of rates of return distributions over time based on the ADF run integration test and K-S consistency test showed that rates of return distributions for the designed portfolios, in particular for high assumed rates of return, were characterized by high variation. The phenomenons of variation of distributions over time as concerns both the distribution parameters and shape are unfavorable for the investor as effective portfolios structured on the basis of historical data can loose their properties in the future (between purchase and sale). In case of analyzed portfolios, the K-S test proved to be a more stringent method of verification of persistence of the rates of return distributions over time than the ADF test.

Considering the selected distribution parameters, SEM portfolios were superior to Markowitz portfolios but they showed a higher variation of distributions over time.

Translated by JERZY GOZDEK

Accepted for print 10.01.2008 r.

## References

- CHAREMZA W., DEADMAN D. 1997. *Nowa ekonometria*, PWE, Warszawa.
- Ekonometria. 2000. Red. M. GRUSZCZYŃSKI, M. PODGÓRSKA. Wydawnictwo SGH, Warszawa, s. 182.
- HOGAN W., WARREN J. 1974. *Toward the development of an equilibrium capital-market module based on semivariance*. Journal of Finance and Quantitative Analysis, January.
- JAJUGA K., JAJUGA T. 1998. *Inwestycje*. Wydawnictwo Naukowe PWN, Warszawa.
- KRZEMIENOWSKI A., OGRYCZAK W. 2002. *Warunkowa wartość zagrożona jako miara ryzyka w optymalizacji portfela inwestycyjnego*. Cz. I. Model programowania liniowego. Rynek Terminowy, 4: 117-122.

- MARKOWITZ H. 1952. *Portfolio selection*, J. Finance 7: 77-91.
- MARKOWITZ H. 1959. *Portfolio selection: efficient diversification of investments*. John Wiley and Sons, New York.
- OGRYCZAK W., RUSZCZYŃSKI A. 2001. *On consistency of stochastic dominance and mean-semideviation models*. Mathematical Programming, Ser. B vol. 89, Springer Verlag KG, pp. 217-232.
- RUTKOWSKA-ZIARKO A. 2004. *Ocena przydatności modelu wyboru portfela w oparciu o semiwariancję w porównaniu z klasycznym modelem Markowitza*. Przegląd Statystyczny, 3.
- RUTKOWSKA-ZIARKO A. 2005. *Metody znajdowania portfela efektywnego dla semiwariancji*. Badania Operacyjne i Decyzje, 3-4: 63-83.
- RUTKOWSKA-ZIARKO A., MARKOWSKI L. 2005. *Analiza portfelowa a problem stacjonarności stóp zwrotu na przykładzie spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie*. Prace Naukowe AE we Wrocławiu, Inwestycje finansowe i ubezpieczenia – tendencje światowe a polski rynek, Wrocław, ss. 209-217.
- RUTKOWSKA-ZIARKO A., MARKOWSKI L. 2006. *Zmienność rozkładów stóp zwrotu portfeli Markowitza w porównaniu z portfelami o minimalnej semiwariancji*. Prace Naukowe AE we Wrocławiu, Inwestycje finansowe i ubezpieczenia – tendencje światowe a polski rynek, Wrocław, ss. 446-451.
- RUTKOWSKA-ZIARKO A., OLESINKIEWICZ J. 2002. *Wykorzystanie semiwariancji do budowy portfela akcji*. Przegląd Statystyczny, 4.
- SOBCZYK M. 2000. *Statystyka, Podstawy teoretyczne, przykłady-zadania*. Wydawnictwo UMCK w Lublinie, Lublin.
- SORTINO F., SATCHELL S. 2001. *Managing downside risk in financial markets: theory, practice and implementation*. Butterworth – Heinemann Oxford.
- TARCZYŃSKI W. 2002. *Fundamentalny portfel papierów wartościowych*. PWE, Warszawa.
- WDOWIŃSKI P., WRZESIŃSKI D. 2003. *Analiza dynamiczna portfeli akcji*. Acta Universitatis Lodziensis Folia Oeconomica, 166.

## **IMPORTANCE OF PUBLIC-PRIVATE PARTNERSHIP IN DELIVERY OF PUBLIC SERVICES**

***Jan Adamiak***

Chair of European Integration and Regional Studies  
Nicholas Copernicus University in Toruń

**Key words:** public-private partnership, public services, public sector, private sector, local development, regional development, territorial government, municipal infrastructure development.

### **A b s t r a c t**

The paper analyzes the concept of joint delivery of public services by the public and private sector within the frameworks of the Public-Private Partnership model (PPP). The key of the partnership (according to the Act in effect) is long-term involvement and collaboration (based on a contract) between a public entity and a private entity for implementation of capital-intensive investment projects. The analyses conducted show that thanks to the specific division of tasks, responsibility and risk, the PPP formula allows more economically effective development of transport infrastructure and supply of public services. The paper shows the influence of PPP on development of municipal infrastructure and supply of public services describing also the major barriers to and benefits from implementation of that formula.

## **ZNACZENIE PARTNERSTWA PUBLICZNO-PRYWATNEGO W REALIZACJI USŁUG PUBLICZNYCH**

***Jan Adamiak***

Katedra Integracji Europejskiej i Studiów Regionalnych  
Uniwersytet Mikołaja Kopernika w Toruniu

**Słowa kluczowe:** partnerstwo publiczno-prywatne, usługi publiczne, sektor publiczny, sektor prywatny, rozwój lokalny, rozwój regionalny, samorząd terytorialny, rozwój infrastruktury komunalnej.

### **A b s t r a k t**

W artykule przeanalizowano koncepcję wspólnego realizowania usług publicznych przez sektor publiczny i prywatny w ramach modelu partnerstwa publiczno-prywatnego (PPP). Istota partnerstwa (zgodnie z obowiązującą ustawą) polega na długotrwałym zaangażowaniu oraz współpracy



(opartej na umowie) podmiotu publicznego z podmiotem prywatnym podczas realizacji kapitałochłonnych przedsięwzięć inwestycyjnych. Z analizy wynika, że dzięki specyficznemu podziałowi zadań, odpowiedzialności i ryzyka formuła PPP umożliwia bardziej efektywne ekonomicznie tworzenie infrastruktury komunalnej i dostarczanie usług publicznych. Ukazano wpływ PPP na rozwój infrastruktury komunalnej i dostarczanie usług publicznych oraz opisano ważniejsze bariery i korzyści związane z realizacją tej formuły.

## Introduction

Provision of public services<sup>1</sup> for the citizens is an important element in functioning of State administration and territorial governments. While the catalogue of public services to be provided is a long one, the public finance budget capacity is limited. That gap between the public needs in the area of public services and the possibilities of financing them is characteristic for economies of many countries indifferent of the level of their development. In Poland this is particularly well visible as compared to the countries of the “old” Union. That civilization gap manifests particularly strongly in the still immense infrastructural gap between them and Poland. The increasing shortage of budget funds for implementation of public tasks in our country should support the search for other, alternative to the traditional budgetary forms, mechanisms of public services financing aiming at better, more effective and cheaper provision of them. A certain opportunity for the public authorities at national and territorial government level could be offered by tighter collaboration with the private sector according to the private-public partnership formula (PPP). In the western world that mechanism is quite well known and described in literature as well as applied widely in business-investment practice<sup>2</sup>.

This paper aims at presenting the fundamental principles for that type of collaboration and the possibilities it creates for the public partners (mainly

---

<sup>1</sup> Subject literature presents different definition of the “public services” notion; the fundamental issues of contradictions are the scope and method of implementation of such services (see, e.g. Dziarski, Kłosowski 2003, pp. 8-9, Filipiak 2006, pp.116-119, Sochacka-Krysiak, Małkowska 2005, pp.339-344). In the following discussion we will not be interested in services related to the national defense, functioning of administration and the judiciary. We will deal only with the classic’ municipal services and health protection services. Public funds are the basic source of financing for such services.

<sup>2</sup> Polish bibliography concerning PPP is relatively limited. There are just a few significant, concise publications while the others are minor and scattered contributions. The first group includes, first of all: K. Brzozowska, *Partnerstwo publiczno-prywatne. Przestanki, możliwości, bariery*, CeDeWu, Warszawa 2006; M. Moszoro, *Partnerstwo publiczno-prywatne w monopolach naturalnych w sferze użyteczności publicznej*, Szkoła Główna Handlowa w Warszawie, Warszawa 2005, J. Zysnarski, *Partnerstwo publiczno-prywatne. Teoria i praktyka*, ODiDK, Gdańsk 2003, J. Zysnarski, *Partnerstwo publiczno-prywatne w sferze usług komunalnych*, ODiDK, Gdańsk 2007 and the special volume of „Finanse Komunalne” (volume 2/2003 – Ekstra: *Partnerstwo Publiczno-Prywatne*), as well as Z. Jerzmanowski (editor), *Partnerstwo publiczno-prywatne a prywatyzacja*, Business Expert, Poznań 2005.

territorial governments) in obtaining new, other than budget, funds for acceleration of investment processes and improvement of effectiveness in providing public services. The paper is based on the analysis of literature, generally available sources (as press articles and Public Information Bulletin) and long years of territorial government experience of the author.

### **The nature and areas of public-private partnership implementation**

The collaboration of public and private sector for more effective implementation of a project or service traditionally carried out by the public sector is the foundation of public-private partnership. The literature stresses that the institution of public-private partnership cannot be described precisely in a single definition; specific patterns for solutions in that area also cannot be readily presented. Each application should result from local and regional conditions as well as the specifics of the problem that is being solved. Usually the implemented project aims mainly at obtaining the necessary funds, decreasing the costs of providing the services, obtaining access to new technologies and limiting the risk (JANOWSKA 2002, pp. 126-136, MOSZORO 2000, pp. 10-17, ZYSNARSKI 2003, pp. 9-14). The PPP methodology is applied most frequently for infrastructural projects requiring, as a consequence of a large number of participants, high level of complexity and significant value, significant capital outlays and involvement of experts possessing the knowledge of *know-how*, which is generally not available in the public sector (LISTKIEWICZ, NIEDZIÓŁKA, SZYMCZAK 2004, p. 94). The PPP formula is expected to improve the indicators of benefits by using the competences and experience of private sector and allocation of risk to the party that has the capacity of managing it.

From the legal point of view the PPP means entrusting the public tasks to a private sector while the public-legal responsibility for performance of those tasks is retained by the public sector. The principles and modes of collaboration between the public entity and the private partner in Poland are governed by the Act<sup>3</sup>. According to that Act, based on the European Commission guidelines, the partnership is based on long-term involvement and collaboration of a public entity with a private entity for implementation and financing of expensive and long-term investment projects. The contracts made within the frameworks of public private partnership should be written in such a way that the partners mutually complement each other dealing in the partnership with

---

<sup>3</sup> Ustawa z dnia 28 lipca 2005 r. o partnerstwie publiczno-prywatnym (DzU nr 169, poz. 1420), weszła w życie 1 stycznia 2006 r.

that part of the common investment project part, which they can do better. Thanks to the division of tasks, responsibility and risk the PPP formula is to facilitate more economically effective development of municipal infrastructure and provision of public services while each of the parties should obtain from that collaboration benefit proportional to its involvement.

As a consequence, the institution of public-private partnership is a collective notion covering a wide range of various relations between the public and the private sectors. Those relations are characterized by the varied scope of private sector share in providing services traditionally provided by the public sector and the different level of economic risk assumed and division of responsibility for the quality of services rendered (ZYSNARSKI 2007, pp. 12-14, GORZAŁCZYŃSKA-KOCZKODAJ 2005, pp. 268-269).

The following goals are implemented within the frameworks of public-private partnership most frequently:

- transformation of public sector from provider of public objects to provider of services,
- increase of technical and technological innovation in the area of public services,
- distribution of investment risk,
- acceleration of infrastructure development,
- increase of infrastructural services providing effectiveness (BRZOZOWSKA 2006, p. 23).

Many different PPP models in municipal infrastructure financing have been developed in Europe and worldwide but none of them is ideal. Application of a specific type of collaboration is conditioned mainly by whether the activities undertaken are to serve services rendering effectiveness improvement or improvement of their quality. That is why it is impossible to impose any universal PPP model; on the other hand identification of individual elements of collaboration is possible. Those elements define the tasks of each partner and the method of performance of the assumed responsibilities. The diversity of solutions, depending on socio-economic conditions of the project and the wish of contract partners is the advantage of the PPP concept. In practical terms, the combinations of contract subject (areas of activity) with its contents, i.e. the division of rights and responsibilities are many (CENKIER 2006, pp. 90-91).

The PPP concept found wide application in many European Union countries as well as the United States, Canada and Japan. Examples of projects implemented there show that the PPP formula can be applied to development of infrastructure and delivery of public services mainly in such areas as transport, health services, education, penitentiary infrastructure, water and sewage management and waste management. Private capital involved in such

projects and undertakings that traditionally are within the domain of public authorities does not exempt them from the duty of satisfying the public needs and the related responsibility.

### **Polish experience in delivery of public services by the PPP against the background of other countries**

In Poland, compared to solutions applied in other countries, the PPP formula in rendering public services has not been applied widely, although examples of applying it for rendering municipal services for the local community can be presented. In most cases those are tasks concerning road infrastructure, public transport, supplying the residents with water, heating, removal and utilization of waste, wastewater treatment, management of market halls, construction of schools and public utility buildings, etc. The better-known examples of successful collaboration in those areas include, among others, water and sewage management in Gdańsk<sup>4</sup>, Bielsko-Biała and Tarnowskie Góry, revitalization of the Old Town in Wieliczka, construction of underground parking and renovation of Półwiejska Street in Poznań or finally the immense municipal project in Warsaw – construction of another underground line (JERZMANOWSKI 2005, p. 6). The completed project of city lighting system modernization in Kraków<sup>5</sup> is another interesting example of private sector involvement in performance of public tasks.

Regional railway transport and health service sector can become promising areas for collaboration based on the PPP formula. In case of railway transport the possible public-private collaboration area could cover financing of rolling stock purchases and its operation. Increasingly frequent local initiatives appearing in that area (e.g. in Jelenia Góra, Hajnówka county as well as

---

<sup>4</sup> Takeover, in 1992, of management and operation of Gdańsk water supply company by Saur Neptun Gdańsk S.A., with 51% shareholding of the French company SAUR, and 49% shareholding by the city, is generally considered one of the major achievements of Gdańsk territorial government. The contract signed by Saur Neptun Gdańsk S.A. and the city for the period of 30 years the detailed scope of responsibility by both partners was defined. The City of Gdańsk as the owner of infrastructure leased the property to the Company, which undertook to manage the water and sewers system on commercial bases. The City is responsible for conducting general overhaul and investments and has the right to control activities of the Company (for more information see: Brzozowska 2006, pp. 186-188, Zysnarski 2007, pp. 114-116).

<sup>5</sup> The project was initiated at the end of 1997 according to the Energy Service Company (ESCO) system that is with participation of a private financing entity, the so-called energy saving entity. The private entity assumed financing of lighting modernization. The project was implemented by ELEKTRIM – another private entity identified through a public tender procedure; the public entity, i.e. the municipality of Kraków committed itself to allocate the reserve resulting from electricity savings for financing the costs incurred by the investor. The project was completed successfully in 2004. For more information see: W. Grzybowski, „Przegląd Komunalny” 2005, No. 3, p. 37.

Tuchola and Bytów) are interesting, particularly in view of railway lines closure by the Polish Railways – PKP. Financing of such projects should take place considering the necessary state budget subsidies. Projects of that type are, however, very complicated, as they require difficult negotiations between territorial governments and the PKP (ZYSNARSKI 2003, pp.43-46).

The area of medical services is particularly suitable for application of the PPP idea, mainly because of permanent underinvestment. That formula can be a reasonable solution for capitalization of it coupled with achievement of commercial goals of the non-public partner. The practice of applying PPP in health protection sector, as compared to other industries, such as water and sewage or transport) has been relatively short. In the western countries it has been developing for around twenty years while in other areas it has had around forty years of application. The current scope of its application in different European Union countries varies; the leaders in those applications are France, the United Kingdom and Germany. The most frequent PPP formula applied involves the design, construction and operation of hospitals as well as managing them by private entities. France has the highest (ca. 40%) share of private hospital beds in Europe. They are situated mainly in small hospitals owned by doctors working there. Public and private hospitals are included in that country in a system available to all the insured. The citizens, as a consequence, enjoy the possibility of choosing between them. In this case the idea of solidarism has been combined with the freedom of choice and coexistence of the public and the private sectors. The majority of hospitals cannot make their own pricing and they are required to apply the centrally determined rates for medical services so that the patient could have the right to reimbursement. In reality there are exceptions from that practice. Around 30% of doctors at various times and according to different procedures obtain exemption from the duty to apply set prices' and propose the community also the free market prices. This generally applies to famous doctors or doctors, who do not benefit from tax exemptions (*Prywatny sektor w medycynie. Raport*. 2006, p. 17).

During early 1980s, provision of medical services in the United Kingdom was ranked the worst in the entire European Union. There was no adequately large financial capital available for health services (similarly to the current situation in Poland). The State budget was unable to finance capital-intensive investment projects on its own; the authorities were also looking for forms of management more effective than just simple administration. Skillful application of PPP formula that was supported by consecutive British governments contributed to successful overcoming that situation of collapse and crisis. The United Kingdom has become the leader among the European Union countries in reaching for private funds to improve medical infrastructure. Numerous PPP contracts for construction or modernization of hospitals and clinics

showed that the effects could be achieved much cheaper (by ca. 20%) than in the traditional system i.e. implemented by public administration only. With time it was found out that this was amplified by other benefits for the community, doctors and local authorities resulting from better management of medical facilities.

In case of PPP application in health service sector the issue of private investors taking over the management of hospitals caused the most vivid public discussion in the United Kingdom as there were fears of a significant increase in prices of services, limitation of access to health services and exclusion of certain social groups. The fears and concerns proved to be groundless. Public-private partnership guarantees continuation of public supervision over hospitals and fulfillment of medical services tasks according to public needs (*Prywatny sektor w medycynie. Raport. 2006*, pp. 17-19).

As of early 1990 a quite significant increase in the number of non-public hospitals has been recorded in Germany. This is linked to the process of transferring management of public hospitals to private entities within the frameworks of the PPP. The territorial government retains ownership of land and walls but passes hospital buildings for long-term lease to the entity established by a private company. That company employs staff becomes the owner of mobile property and negotiates contracts for health services with the health insurance entities. The private hospital sector in that country operates currently around 23% of hospital beds (*Prywatny sektor w medycynie. Raport. 2006*, p. 17).

In Poland wider application of the PPP formula in financing of medical services is becoming increasingly real and even necessary. Several positive examples of symbiosis between a public entity and a private one in that area can already be presented, e.g. in the Upper Silesia Mother and Child Health Center in Katowice a private partner was involved in opening a highly specialist diagnostic laboratory. The public hospital found a private partner that installed and commissioned modern MR device for magnetic resonance examinations in exchange for securing a share in the contract with the hospital and the National Health Fund. In that way that Silesian hospital became one of the few pediatric hospitals in Eastern European countries with MR device representing such a high technology available. Another example of successful application of PPP elements in rendering medical services is the hospital in Nowy Sącz where private companies operate invasive cardiology and artificial kidney departments. Without private partner involvement that hospital would not be able to finance the project so important for the residents of the town (*Prywatny sektor w medycynie. Raport. 2006*, pp. 12-14).

It should be realized that performance and financing of public tasks and services under contemporary Polish conditions of public finance repair pro-

gram is not easy. Spreading in Poland the implementation of public projects with participation of private capital, as it happened in other European Union countries, should lead to a more vivid sector of investments in public services. However, because of the conditions existing in our country the risk accompanying involvement in collaboration on the PPP bases is generally seen by potential investors, both public and private, as high, which causes that the number of public-private partnership contracts number is still small.

The formula of public-private partnership can find in our country special application in rendering municipal services through creating possibilities for infrastructure development at the level of territorial government units. Budget allocation funds and funds of municipal enterprises usually operating as commercial companies are the basic sources for financing territorial government investment projects. As the current revenues usually do not suffice for financing continually increasing investment tasks, territorial governments reach out for funds in the form of credit and loans as well as, particularly after accession of our country to the European Union, increasingly often the EU funds. It should be stated here, however, that although the possibilities of territorial governments using those funds more extensively opened the problem is full and effective absorption of those funds. Inability to secure the own financial contribution by territorial government units necessary in case of projects co-financed by the European funds is becoming particularly painful (ADAMIAK 2005, pp. 284-286). Aiming at effective obtaining the European Union funds for financing capital-intensive infrastructural projects one should search for new forms of collaboration involving a certain combination of the activities of territorial government with, where possible, influences of the market and private sector activities. Implementation of municipal investments with wider involvement of various forms of public-private partnership is one of the possible forms of such collaboration. It seems that it still is an insufficiently exploited instrument, alternative to the traditional forms, through which territorial governments could finance infrastructural projects. Using private capital they could obtain funds for development or improvement of technical as well as social infrastructure and as a consequence improve the quality of municipal services provided.

It should be assumed that the experiences of over three years presence of Poland in the European Union will have a positive influence on the intensity of public sector collaboration with the private sector. The most important thing is to roll over the good, verified examples and assuming the Union solutions based on long years of practice. However, at the present time implementation and financing of municipal projects as public-private partnership is not easy and may involve certain difficulties and, as a consequence, can cause justified doubts. It cannot be hidden that building the partnership is a complex

operation in social as well as financial and legal-organizational aspects. The group of partners in such an operation is numerous: in addition to the units of territorial governments and private partners it also requires participation of banks, insurance institutions, organizational-legal advisors and financial experts. As a consequence it seems that creating the situation in which this form of collaboration could effectively develop and cause no social tensions in Poland would require satisfying numerous conditions. They include mainly the healthy financial standing of the territorial government unit and the private partner, transparency of contract related processes and financially well calculated projects. It should also be remembered that implementation of PPP solutions in our country is also difficult because of the established ways of thinking in many territorial government communities, especially among the council members who consider retaining permanent and full control of municipal assets their major mission and prefer not to enter a deal with a partner characterized by low transparency and implementation difficulties. The argument that in most cases the investment-financial situation of territorial government unit requires solutions of that type has low persuasive force for those people. This comment applies in particular to territorial governments of voivodships, which have the statutory responsibility for obtaining and combining funds, public and private, for implementation of public utility tasks. Absence of the market for services of that type in our country is a barrier hindering implementation of the PPP formula. Private enterprises offering the possibility of implementation of projects according to the public-private partnership formula are either at the stage of gathering their own experience or represent foreign entities that are not always able to find their place within Polish formal and legal frameworks. This hinders building confidence that should link the partners and focuses the collaboration on short-term commercial benefits. Foreign experience shows that the private sector gets involved most frequently in those PPP projects that generate large revenues and have strong political support. The outlays incurred must be compensated by the possibility of introducing charges related to the use of developed municipal infrastructure by the private partner (e.g. fee for water or city transport). As a consequence, it should be realized that the prices for services determined by the private investor will be based on the account of actually incurred costs, which in practical terms will result in a kind of bringing those prices to realistic levels. This situation requires the territorial government authorities to establish effective mechanisms of preventing excessive increase of prices for the public, which is also consistent with the direction of applicable European Union recommendations (ZAGOŹDŻON 2004, pp. 45-46). Fear of territorial government bodies of the accusations by the opposition that they conduct activities contrary to the best interest of the local or regional community and



stressing, without any reasonable justification, that this type of collaboration offers benefits to the private partners only is the additional cause of reluctance in treatment of the PPP in Poland. This can apply in particular to long-term contracts when the difficulties with financing municipal investments that were the base for application of that solution are forgotten with time while the only thing that is noticed are, frequently exaggerated, revenues and profits of the private partner.

As a consequence of new possibilities for municipal investments financing a change in the mentality of public officers and approach of territorial government authorities to the methods of preparation of projects must take place. Adequate funds for preparation of development projects should be reserved in the budgets of territorial governments. Those territorial government entities that so far used to act as investors should accept a change in their role in the projects where their function is limited to control and regulatory activities within the contract made with a private partner. To achieve appropriate implementation of the PPP formula, appropriate care should be taken for transparency of the subject contracts that should clearly specify the division of roles of the participating parties in the planned undertaking. This would facilitate significantly assessment of the risk that is the immanent characteristic of all investment activities. Each of the partners should also assume that part of the risk that he is better suited to cope with. The private partner, as a general rule, is ready to bear the project implementation risk on condition that the risk is predictable and, on the other hand, that he will be compensated with a higher rate of return. On the other hand, the public partner is willing to transfer the risk on the private party frequently offering little in exchange. This is the cause of quite numerous unsuccessful tenders in Poland where not even a single bid was filed. It seems that within the frameworks of managing the risk occurring in case of the PPP projects many risk factors could be minimized by appropriate selection of the private partner and specific formulation of partnership contract provisions<sup>6</sup>.

In territorial government practice including a private entity in municipal infrastructure construction and operation process the limitations, including those resulting from the traditional method of thinking about municipal asset

---

<sup>6</sup> The issue of appropriate assessment as well as distribution and allocation of risk factors is of key importance for success of a PPP project and subject literature deals with it widely (Brzozowska 2006, pp. 62-27, Moszoro 2005, pp. 68-70, Zysnarski 2007, pp. 12-14). The issue of risks involved in implementation of such projects is also considered in the "Executive regulations to the Act" by the Minister of Economy and the Minister of Finance of mid-2006 (Dz. U. of 2006, No. 125, item 868). Those regulations, mutually interrelated, specify also the scope and method of conducting the risk analyses. The long list of risk types included in the regulation seems, however, as unanimously perceived by experts, to be a rather chaotic summary while the grouping of individual risk factors is of quite random nature (Zysnarski 2007, pp. 87-98).

administration should be considered. The necessity of selecting the optimal form of public private partnership and the appropriate partner as mentioned earlier is also obvious. Success of the project depends on the appropriate implementation of the selected solution and on whether the selected option of private sector participation is adjusted to the local conditions and whether its implementation will result in confidence of the local community. So far, under the conditions of the Polish system for financing and delivery of municipal services the involvement of the PPP mechanism is used mainly in the most commercial areas, that is the areas in which involvement of private companies is natural while the contracts between the public partner and the private one are relatively simple. Those contracts become increasingly complex when the collaboration is to cover the areas normally associated with activities other than commercial, containing elements of social aid. In such cases the accusation of antisocial (because market driven) behavior of business entities and corruption are formulated sometimes. Such opinions can quite easily block various economically and financially rational projects, even those well-advanced ones, in territorial government bodies. To avoid similar problems the residents should be informed in advance about the intent of implementing a public-private partnership in the system of municipal investments presenting clearly the principles and highlighting the advantages from that financing method for better delivery of services.

Development of appropriate confidence between partners is also important for development of PPP in the area of public services delivery. Development of formal-legal and institutional mechanisms securing smooth transition of the public authority from the position of the direct provider of the specific type of services to the position of the manager of the PPP process, independent supervisor monitoring the delivery of such services by the private sector is also important.

## **Conclusion**

The above considerations indicate that wider application of the public-private partnership formula for delivery of public services in Poland would be recommended, particularly after accession to the European Union structure. Acceptance of private partners advantage in the area of financing capacity and management skills is the condition for successful application of the PPP formula; at the same time the public partner as responsible for delivery of services to the public would have the right to and responsibility for supervision and control. At the same time the roles of the parties should be clearly defined, financial responsibility for liabilities resulting from projects implementation

should be adequately split and decision which of the partners manages the project should be taken. Additionally, under Polish circumstances it should be remembered that the institution of public-private partnership is seen not only in the context of economic effectiveness and organizational-legal issues but that it also has the social and political dimension. On one hand, the increasing awareness of the investment needs coupled with continuous shortage of public funds on one hand acts to the advantage of that model, on the other hand, however, everything that is associated with the private sector and, to a certain extent, privatization processes represents the activity of the highest risk for the authorities. Institutionalization of PPP in our country should allow removing psychological and social barriers that cause that projects implemented by means of that method are seen by quite wide circles of the society as corruptive. As a consequence, development of appropriate climate of confidence between partners would be immensely important for development of that form of collaboration.

Finally, it should be noticed that in the context of development of collaboration between the sector of public authorities and private sector in delivery of public services, accession of our country to the European Union, which definitely prefers the public-private partnership model (for instance conditioning allocation of certain forms of financial aid on using it in the PPP formula projects) was of special importance. It can be expected that in the nearest years the share of funds obtained within the frameworks of that model for financing of public tasks will increase. Participation of private sector in investment projects, mainly those of territorial government units, can contribute to intensification of municipal investments and as a consequence to more complete satisfaction of the needs of local communities in the area of public services.

Scientific work financed from the funds for science for the years 2005-2007 as a research project of the Ministry of Education and Science No. 1H02C08829.

Translated by JERZY GOZDEK

Accepted for print 17.09.2007 r.

## References

- ADAMIAK J. 2005. *Finansowanie inwestycji komunalnych i zadłużenie samorządów terytorialnych*. In: *Samorząd terytorialny w procesie rozwoju terytorialnego i lokalnego*. Red. W. Kosiedowski, TNOiK, Toruń.
- BRZOZOWSKA K. 2006. *Partnerstwo publiczno-prywatne. Przestanki, możliwości, bariery*. CeDeWu, Warszawa.
- CENKIER A. 2006. *Próba oceny warunków dla rozwoju partnerstwa publiczno-prywatnego w Polsce*. Studia i Prace Kolegium Zarządzania i Finansów. Zeszyt Naukowy SGH 65, Warszawa.

- DZIARSKI G., KŁOSOWSKI W. 2003. *Usługi publiczne, w tym komunalne*. FRDL, Agencja Wydawniczo-Reklamowa MT, Warszawa.
- FILIPIAK B. 2006. *Kierunki ewolucji realizacji usług publicznych w Polsce*. Samorząd terytorialny w zintegrowanej Europie, v. I, Uniwersytet Szczeciński, Zeszyty Naukowe 426, Szczecin.
- GORZĄLCZYŃSKA-KOCZKODAJ M. 2005. *Wykorzystanie partnerstwa publiczno-prywatnego we wspieraniu rozwoju lokalnego*. II Forum Samorządowe. Samorząd terytorialny w zintegrowanej Europie. Uniwersytet Szczeciński, Zeszyty Naukowe 401.
- JANOWSKA H. 2002. *Strategie finansowania gminnych inwestycji infrastrukturalnych w Polsce*. Wydawnictwo Naukowe, Uniwersytet Szczeciński.
- LISTKIEWICZ J., LISTKIEWICZ S., NIEDZIÓŁKA P., SZYMCZAK P. 2004. *Metody realizacji projektów inwestycyjnych. Planowanie, finansowanie, ocena*. ODiDK, Gdańsk.
- MOSZORO M. 2005. *Partnerstwo publiczno-prywatne w monopolach naturalnych w sferze użyteczności publicznej*. Szkoła Główna Handlowa, Warszawa.
- Partnerstwo publiczno-prywatne a prywatyzacja*. 2006. Red. Z. Jerzmanowski, Business Expert, Poznań.
- Prywatny sektor w medycynie. Raport*. 2006. Rynek Zdrowia, 2.
- SOCHACKA-KRYSIAK H., MAŁKOWSKA R. 2005. *Usługi społeczne w jednostkach samorządu terytorialnego*. W: *Nowe zarządzanie publiczne w polskim samorządzie terytorialnym*. Red. A. Zalewski, Szkoła Główna Handlowa, Warszawa.
- Ustawa z dnia 28 lipca 2005 r. o partnerstwie publiczno-prawnym. DzU nr 169, poz. 1420.
- ZAGOŹDŻON B. 2004. *Partnerstwo publiczno-prywatne jako zalecany przez UE system finansowania inwestycji*. Samorząd Terytorialny, 9.
- ZYSNARSKI J. 2003. *Partnerstwo publiczno-prywatne. Teoria i praktyka*. ODiKK, Gdańsk.
- ZYSNARSKI J. 2007. *Partnerstwo publiczno-prywatne w sferze usług komunalnych*. ODiDK, Gdańsk.

## **ECOLOGICALLY VALUABLE AREAS IDENTIFICATION METHOD**

***Mirosława Witkowska-Dąbrowska***

Department of Spatial and Environmental Economics  
University of Warmia and Mazury in Olsztyn

**Key words:** ecological value, ecologically valuable areas, ecological power, environment status, degree of natural environment elements' preservation, assessment, indicators.

### **A b s t r a c t**

The purpose of this paper is to present a method for identification of ecologically valuable areas and its verification. Identification of ecologically valuable areas can be based on three parameters: ecological power, environment status and degree of natural environment elements' preservation. The paper also presents a case study.

## **METODA WYZNACZANIA OBSZARÓW EKOLOGICZNIE CENNYCH**

***Mirosława Witkowska-Dąbrowska***

Katedra Ekonomiki Przestrzennej i Środowiskowej  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** cennaść ekologiczna, obszary ekologicznie cenne, moc ekologiczna, stan środowiska, stopień zachowania naturalnych elementów środowiska, ocena, wskaźniki.

### **A b s t r a k t**

Celem artykułu jest przedstawienie metody służącej wyodrębnianiu obszarów cennych ekologicznie oraz jej weryfikacja. Wyodrębnienie obszarów ekologicznie cennych można uzależnić od trzech parametrów: mocy ekologicznej, stanu środowiska, stopnia zachowania naturalnych elementów środowiska. W artykule zaprezentowano również studium przypadku.

## **Introduction**

Ecologically valuable areas are forests, waters, areas of rich relief, areas protected by law (national and landscape parks, nature reserves, protected landscape areas) and recreation areas, that is the natural resources representing primary material properties and related methods of use. Their identification can be based on three parameters: ecological power of the form of use, environment status and degree of natural environment elements' preservation. The ecological power of the form of use depends on the type of land use. It should be understood as the area urbanization level (the lower the anthropopressure the higher the ecological power of the area). The environment status is determined by characterizing environment pollutions and degree of degradation of its individual components: air, water, soil, radiation and noise. Finally, the degree of natural environment elements' preservation is measured by the quantity or volume of environment elements protected by law (BAJEROWSKI et al. 1997, pp. 75-89).

There is a strong correlation between the ecological power of the form of use, environment status and degree of natural environment elements' preservation. High levels of pollution and urbanization cause a decrease in the degree of natural environment elements' preservation. In areas protected by law that represent natural elements of the environment bans and orders are implemented that aim at minimizing the level of pollution while economic use of the environment is limited. As a consequence the forms of use characteristic for non-urbanized areas (agriculture, forestry) are mainly applied.

The purpose of the paper is to present a method for assessment of ecological value of areas, which could serve identification of ecologically valuable areas and determining the level of their value. This is an updated and slightly modified (as a consequence of changes in legal regulations) method proposed by BAJEROWSKI et al. (1997) for the purpose of valuation of the environment.

## **The method for determination of the level of ecological value**

Assessment of ecological value can be conducted for real properties, municipalities, counties or other delimited areas. The procedure for identification of ecologically valuable areas can be carried out according to the proposed methodology.

### **Assessment of ecological power of the form of use**

The point score of "ecological power" for the covered area should be computed according to formula 1 (BAJEROWSKI et al. 1997, s. 77).

$$W = \frac{P_1m_1 + P_2m_2 + \dots}{\Sigma P} \quad (1)$$

where:

$W$  – “ecological power” of the form of use,

$P$  – area of the given land use,

$m$  – point score of “ecological power” of a given form of land use.

The area of individual forms of land use in the assessed area should be assumed as the weight (Tab. 1).

Table 1

Determination of “ecological power” of the form of land use

Characteristic: type of land use	Point score of “ecological power” – $m$ [points]
Old forest	10
Young forest	8
Forest on post-agricultural land	7
Tree-coverage	6
Meadows	5
Pastures	4
Orchards	3
Arable land	1
Hardened surface roads	0
Dirt roads	0
Other transportation areas	0
Built-up areas	0
Greenery	5
Natural wastelands	5
Degraded areas	0
Quarry type workings	0
Waters	
– standing	5
– flowing	5
– ditches	3

Source: BAJEROWSKI et al. 1997, p. 89.

Depending on the points scored it is proposed to establish four levels of area “ecological power” (Tab. 2).

Table 2

Assessment of the form of use of the area

Point score	Level of “ecological power”	Assessment of the form of use
7 – 10	I	high
5 – 6	II	medium
3 – 4	III	low
0 – 2	IV	very low

Source: BAJEROWSKI et al. 1997, p. 89.

Assessment of the form of use shows the level of ecological power that represents the anthropogenous transformations and the area urbanization status.

### Environment status assessment

Environment status is assessed on the basis of its pollution. Environment pollution is an emission that is harmful for human health or environment condition, causes damages in material property, deteriorates the esthetic values of the environment or collides with other, justified ways of using the

Table 3

Level of environment pollution

Item	Points			
	0	1	2	3
Level of air pollution (heating systems applied in the covered area)	traditional (coal, coke) individual heating	traditional (coal, coke) collective heating	individual heating using ecological fuels (natural gas, straw, willow) and alternative energy sources (solar, geothermal)	collective heating using ecological fuels (natural gas, straw, willow) and alternative energy sources (solar, geothermal)
Level of waters pollutions (ratio of connections to sewers to connections to water supply network)	ratio ranging from 0 to 0.25	ratio ranging from 0.26 to 0.50	ratio ranging from 0.60 to 0.75	ratio ranging from 0.76 to 1
Noise (compliance with standards in measurement points)	presence of arduous objects exceeding day and night limits	presence of arduous objects exceeding night limits	presence of arduous objects exceeding day limits	no objects exceeding limits
Electromagnetic non-ionizing radiation (compliance with standards in measurement points)	limit exceeded by 0.51%-100%	limit exceeded by 0.50%-26%	limit exceeded by 25%-1%	within limits
Waste (ratio of waste disposed at landfills to waste produced during a year)	ratio ranging from 0 to 0.25	ratio ranging from 0.26 to 0.50	ratio ranging from 0.60 to 0.75	ratio ranging from 0.76 to 1
Soils pollution	national roads	voivodship roads	county roads	municipal roads

Source: Own work based on BAJEROWSKI et al. (1997, p. 88).



environment<sup>1</sup>. It is proposed to complete the overall environment pollution assessment according to the points scoring system covering six elements specified in table 3 awarding points (from 0 to 3) depending on the level of pollution of individual environment elements.

The air pollution level in case of a municipality or a town or village can be determined on the basis of the heating system (collective or individual) and energy sources used for heating (alternative or traditional) that is on the basis of the so-called low emission. The presence of installations particularly arduous for the environment as concerns emission of pollutions to the atmosphere is not insignificant. In assessing a municipality we should consider the waste management system – recovery and disposal of waste. Presence or absence of a landfill as well as its type (landfill of inert or industrial waste) can be considered. Also the presence of illegal landfills seems to be important. In determining the level of waters pollution within a municipality the area equipment with sewers system and liquid waste treatment plant should be considered. In case of electromagnetic non-ionizing radiation using the number of radiation emitting objects and compliance with the standards in measurement control points is proposed. Similarly, while analyzing noise presence or absence of objects particularly arduous and exceeding day or night noise emission standards can be used. In assessment of soil pollution the presence of roads and traffic density within a given area are currently used. The Overall environment status assessment result is obtained by summing up the individual scores and classifying the pollutions as very low, low, medium and high and very high (Tab.4).

Table 4

Overall assessment of the environment status

Point score (sum of points for individual elements in table 3)	Environment status	
	Pollution level:	Result:
12 – 18	I	very low
9 – 12	II	Low
5 – 9	III	Medium
0 – 5	IV	high and very high

Source: BAJEROWSKI et al. (1997, p. 88).

<sup>1</sup> Act Environment Protection Law of 27 April 2001 (DzU of 2001 No 62, item 627 as amended Art. 3 point 49).

### Assessment of the degree of natural environment elements' preservation

Assessment of the degree of natural environment elements' preservation within the area of a town or village or a municipality could be conducted according to the methodology proposed by BAJEROWSKI et al. (1997 p. 89) modified for changes in the Act of 16 April 2004 on nature protection (DzU of 2004 No 92, item 880 as amended, art. 6), which specifies new forms of nature protection resulting from Poland's accession to the European Union (Tab. 5).

Table 5

Degree of natural environment elements' preservation

Elements of environment protected by law within the area of a given municipality	Number [pieces per 1000 ha] or [%] municipality area	Points score
Monuments of nature	– over 5/ 10 000 ha	3
	– 5/ 10 000 ha	2
	– 1-5/ 10 000 ha	1
	– none	0
National parks, nature reserves, landscape parks, Natura 2000 areas	– over 50.1% of municipality area	4
	– 25.1 – 50% of municipality area	3
	– 10.1 – 25% of municipality area	2
	– 1 – 10 % of municipality area	1
	– none	0
Areas of protected landscape, natural-landscape complexes, ecological land use areas, documentation locations, refuges of protected animals	– over 0.21% of municipality area	3
	– 0.11 – 0.2% of municipality area	2
	– up to 0.1% of municipality area	1
	– none	0

Source: Based on BAJEROWSKI et al. (1997, p. 80).

Depending on points scored the degree of natural environment elements' preservation is assessed (Tab. 6) as: high, medium, low or very low (BAJEROWSKI et al. 1997, p. 80).

Table 6

Assessment of the degree of natural environment elements' preservation

Points score	Natural elements of the environment	
	Level of preservation:	Preservation level:
7 – 10	I	High
5 – 6	II	Medium
3 – 4	III	Low
0 – 2	IV	very low

Source: BAJEROWSKI et al. (1997, p. 80).

### Overall assessment of ecological value

Three factors: form of use, environment status and degree of natural environment elements' preservation have the same weight. The levels awarded for those factors should be converted to points allocating to them the appropriate points of ecological value: level I – 4 points, level II – 3 points, level III – 2 points and level IV 1 point. Next the points should be summed up. The result obtained allows determining the level of ecological value according to the scale in Table 7.

Table 7

Level of ecological value

Points score	Level of ecological value
3 – 5	areas not ecologically valuable
6 – 7	areas of low ecological value
8 – 9	areas of medium ecological value
10 – 12	areas of high ecological value

Source: BAJEROWSKI et al. (1997, p. 89).

The range of 3 to 5 points indicates areas that are not ecologically valuable. The scores from 6 points up indicate ecologically valuable areas at different value level: low, medium and high ecological value.

In assessment of areas, the population density should additionally be considered as a measure of anthropopressure. The score of the value level should be adjusted by that measure (by deducting the allocated points (BAJEROWSKI et al. 1997, p. 90). This is presented in Table 8.

Table 8

Measure of human changes in the area

Population (persons/km <sup>2</sup> )	Points score
0 – 10	0
11 – 20	1
21 – 40	2
41 – 80	3
> 80	4

Source: BAJEROWSKI et al. (1997, p. 90).

The presented method of ecological value assessment for areas (real properties, villages, municipalities) represents just a proposal of a certain outline that could be modified or supplemented with other information.

## Case study

### Characteristics of the covered area

The study covered the area of planned landscape park and its protection zone. It consists of municipalities situated in three counties: Olsztyn, Nidzica and Szczętno (Fig. 1).

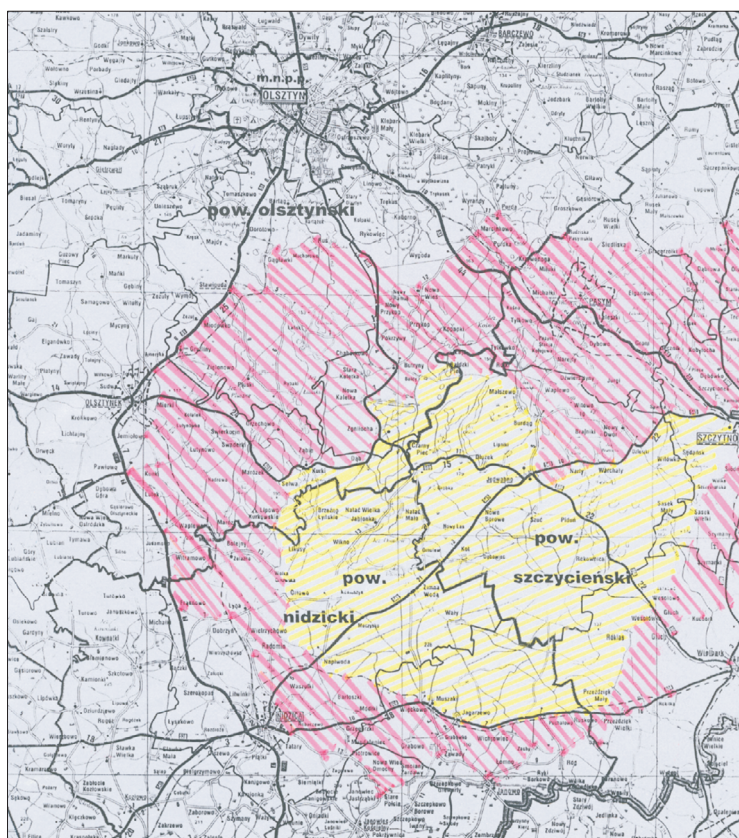


Fig. 1. Location and extent of the projected landscape park and its protection zone  
Source: JANKOWSKI (2004, pp. 61-69).

That area belongs to the Green Lungs of Poland. It has many natural values as a consequence of which it is already covered by many forms of nature protection. All three counties belong to Warmia and Mazury voivodship. The specification of municipalities in which the park and its protection zone are planned are presented in Table 9.

Table 9

Municipalities involved in the projected landscape park and its protection zone

Park	Protection zone
Municipalities covered entirely or partly by the projected park	municipalities covered entirely or partly by the projected protection zone
Jedwabno	Dźwierzuty
Nidzica	Pasym
Janowo	Purda
Szczytno	Stawiguda
Wielbark	Town of Szczytno
Olsztyniek	
Purda	

Source: JANKOWSKI (2004, pp. 61-69).

### Assessment of ecological power of the form of use

As the area of studies related to the projected park and its protection zone does not match the borders of municipalities, detailed data on land use in the separate parts of municipalities is not available. Knowing that agricultural use in the park and protection zone occupy 27.9% of the area, the scores of ecological power awarded for meadows, pastures, orchards and arable land were averaged. Similar averaging was done in case of waters that represent 6.1% of land in the projected park and protection zone making no division into standing and flowing waters. As around 65% of the projected park area is covered by forests of old standing timber, the maximum score was assumed. This is one of the strongest arguments for those supporting establishment of the landscape park. The area of individual land use types was calculated on the basis of land use structure (Tab. 10).

Table 10

Land use in the area of projected park and its protection zone

Type of land use	Area (ha)	Points score	Product
Total forests	119 200	10	1 192 000
Standing and flowing waters	11 300	5	56 500
Agricultural use (arable and green use)	51 600	3,25	167 700
Built-up areas	2900	0	0
Total	185 000	x	1 416 200

Source: own study based on JANKOWSKI (2004 pp. 61-69).

$$W = \frac{1\ 416\ 200}{185\ 000} = 7.66$$

The projected landscape park and its protection zone was classified as level I of “ecological power” and as a consequence the land use form was graded as good, highest of the possible ones.

### Environment status assessment

Environment status assessment was completed by analyzing the level of air pollution, waters pollution, noise, electromagnetic non-ionizing radiation, waste management and soil pollution (Tab. 11).

Table 11

Environment pollution level

Item	Description	Score
Air pollution level	traditional individual heating, sometimes collective heating or individual heating using alternative energy sources	1.5
Waters pollution level	ratio of sewers connections to water system connections – 0.33	1
Noise	absence of objects exceeding allowed limits	3
Electromagnetic non-ionizing radiation	within limits at measurement points	3
Waste	ratio of waste disposed at landfill to waste produced – 0.81	3
Soil pollution	roads of low rank: county and municipal	2
Total		13.5

Source: Own work based on own studies.

The score is 13.5 points and the overall level is level I of environment pollution, which means very low pollution level.

### Assessment of the degree of natural environment elements' preservation

The study covered three groups of environment elements protected by law. The score for the degree of natural environment elements' preservation is presented in Table 12.

Table 12

## Degree of natural environment elements' preservation

Environment elements protected by law within the municipality	Number or % share in the area of the projected landscape park	Score
Monuments of nature	122 (6.6 / 10 000 ha)	3
Nature reserves, Natura 2000	11 reserves (1.96% of area) Napiwoda-Ramuki Forest (63% of area)	4
Ecological land use, refuges of protected animals	8 ecological land use areas (0.14% of area) and numerous refuges of protected animals	1
Total		8

Source: Own work based on own studies.

It was established that the area of the projected landscape park belongs to level I and as a consequence possesses well-preserved elements of natural environment.

### Summary of the ecological value assessment

Assessment of ecological value level was done on the basis of studies on the ecological power of the use form depending on the land use type and measured by the percentage share of individual land use types, environment status and the level of degradation of individual environment components as well as the degree of natural environment elements' preservation measured by the number or area of environment elements protected by law. The levels allocated for those three parameters were converted to points of ecological value. All the three components were rated level I and as a consequence the score was 12 points (Tab. 13)

Table 13

## Assessment of ecological value

Item	Score	Level	Grade	Score
Ecological power	7,66	I	high	4
Environment status	13,5	I	very low	4
Degree of natural environment elements' preservation	8	I	high	4
Measure of anthropological changes				2
Total				12-2=10

Source: Own work based on own studies.

The final score was adjusted by the measure of anthropological transformations within the area of the projected park expressed by population density within the range of 21-30 people/km<sup>2</sup>. As a consequence the total score was 10 points and the area should be classified as area of high ecological value.

## Conclusion

The ecologically valuable areas identification method can be applied for assessment of villages, municipalities, counties or other limited areas. It facilitates determining the directions of sustainable development at all levels of decision taking and can be a useful tool in physical planning as well as a component in appraisal of real properties valuable for natural reasons. The advantage of the method is that it is universal, although it requires diligent studies of the areas to avoid errors resulting from superficiality.

Translated by JERZY GOZDEK

Accepted for print 28.08.2007 r.

## References

- BAJEROWSKI T., CYMERMAN R., NOWAK A., SUCHTA J., SZCZEPAŃSKA A., TURKOWSKI K. 1997. *Wycena i gospodarowanie nieruchomościami na obszarach cennych ekologicznie*. Zachodnie Centrum Organizacji, Olsztyn-Zielona Góra, pp. 75-90.
- GIORDANO K. 2005. *Ocena udziału polskich regionów (województw) w procesie wdrażania zrównoważonego rozwoju*. W: *Wybrane aspekty równoważenia rozwoju*. Ekonomia i Środowisko, pp. 66-78.
- JANKOWSKI P. 2004. *Wybrane uwarunkowania przyrodnicze i demograficzno-społeczne do utworzenia parku krajobrazowego*. Katedra Ekonomiki Nieruchomości UWM w Olsztynie (master theses), pp. 61-69.



## DEVELOPMENT OF ORGANIC FOOD MARKET IN GERMANY

*Stanisław Pilarski*

Department of Market Analysis and Marketing  
University of Warmia and Mazury in Olsztyn

**Key words:** food quality, organic food market, market infrastructure, trade in organic products, factors of market success.

### Abstract

The paper is a study of the development achieved so far and current status of organic food market in Germany as the country in which it is no longer a niche market and where it has become an important segment of the food market. The main focus of the study was placed on the trade aspects of the German market for that group of food products and factors determining it.

Eco-food possesses an important position in the German market of food. The turnover in it reached € 4.5 billion and is still growing. As a consequence, it still is a market with development potential. The achieved level of sales and continuing dynamics of growth of the market for organic food are consequences of building high ecological awareness among consumers matched by an extensive range of products and their common availability in different forms of sales outlets including networks of trade in such food involving not only the specialist shops but also supermarkets and a very well developed system of communication throughout the entire marketing chain of the market flow of such food products.

## ROZWÓJ RYNKU ŻYWNOŚCI EKOLOGICZNEJ W NIEMCZACH

*Stanisław Pilarski*

Katedra Analizy Rynku i Marketingu  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** jakość żywności, rynek żywności ekologicznej, infrastruktura rynku, handel produktami ekologicznymi, czynniki sukcesu rynkowego.

### Abstract

Opracowanie jest studium dotychczasowego rozwoju i aktualnego stanu rynku żywności ekologicznej w Niemczech, kraju, w którym wyszła ona już z niszy i stała się znaczącym segmentem rynku żywności. W badaniach skupiono się głównie na handlowych aspektach niemieckiego rynku tej grupy żywności oraz czynnikach go kształtujących.

ekożywność ma znaczącą pozycję na niemieckim rynku żywności. Obroty nią osiągnęły poziom 4,5 mld euro i nadal wzrastają. Jest to zatem rynek rozwojowy. Osiągnięty poziom sprzedaży i utrzymująca się dynamika wzrostu rynku tej żywności jest konsekwencją rozbudzenia wysokiej ekologicznej świadomości konsumenckiej, dla której zaoferowano bogaty asortyment i jego powszechną dostępnością w różnych formach handlu, włączenia do sieci handlu tą żywnością – oprócz sklepów specjalistycznych – supermarketów, a także bardzo dobrze rozwiniętego systemu komunikacji w całym łańcuchu marketingowym rynkowego przepływu tej żywności.

## Introduction

Supple development of organic food market is the phenomenon that could be observed during the recent years. This type of food is appreciated all over the world because of its high nutritional value and it is treated as an element of public health preventive measures. The model of industrial agriculture, which in the effort for mass production of food and decrease of its price was assumed by our civilization, has long been criticized by ecologists and naturalists. "Quality instead of quantity" – that simple statement is core of increasingly frequently presented objections against consequences of applying biotechnology and biochemistry in production of conventional food and increasingly clearly expressed expectations of consumers in that area. Those expectations start heading towards food frequently called the health food. Products of organic agriculture are one of the groups of foods that satisfy those expectations.

Organic farming aims at obtaining healthy food by applying modern means of production without harm to the environment and without application of artificial fertilizers and pesticides. Social costs related to consumption of food such as treatment of diseases caused by undesirable substances in food products and those penetrating into the environment as a consequence of production processes should also be considered here (RUNOWSKI 1999). The increasing demand for healthy food has been the driving force of organic agriculture for the last twenty-five years. It was established and developed without access to privileges. Subsidies for organic farmers have been introduced only during 1990s and they contributed significantly to the increase of interest in that technique among farmers. Where subsidies for agriculture were accompanied by consumer information campaign we can talk about establishment of the market of eco-products.

Eco-food, frequently understood as organic food, can be classified as functional food or wider the new generation of food (GAWEŃCKI 2002). It is the alternative for the consumer in implementation of the important nutritional needs. The organic and economic character of that group of food products and the benefits offered cause that its future can develop according to various scenarios. In extreme case continuous and long-term market growth (expan-

sion) until becoming an important food market segment could be projected for it. On the other hand, considering its holistic perception by the consumers, the future of eco-food the future might also bring fast saturation of the market or even a decline in its production.

### **Goal and methodology of study**

In view of the above it is interesting to conduct a study allowing review and assessment of the development of the market for products of such food up to date in Germany as a country in which it has already stopped being a group of niche products and became an important segment of food market, which is the goal of this paper. The results of conducted studies and analyses can be used for determining the place and prospects for that group of food products in the Polish market. The applicability value of the results also results from the fact that the Polish market of such food products is only at the initial stage of the increasing trend and, as a consequence, it is rather difficult to build the effective strategy for its development and project its opportunities in confrontation with other trends in nutrition on the basis of own experiences.

Certified organic food compliant with the Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs is the object of the study.

During the recent years the consumers in the European Union clearly developed interest in safety of foods consumed, particularly the additives marked by “E” codes and other process residues) and genetically modified organisms. Safe food is food that does not harm health and life if it is prepared and consumed in line with its intended use. Another justified definition says that it is food that is free from biological (microbiological, chemical and physical hazards and agents.

It is worth highlighting that the issue of food safety is treated more widely in organic agriculture than in the conventional one. This is presented in Table 1. The above indicates that better health and sensor quality as well as higher nutritional value should be expected from organic products. Consumption of organic food offers benefits, not only for health but also for the natural environment.

The paper uses mainly the secondary sources of data as well as results of own studies and studies by other authors. The empirical part was based on the data obtained mainly from information portals (reports and databases) of German organizations dealing with market studies and marketing and in particular the excellent resources of the Ecology and Agriculture Foundation

and Market and Price Information Center (ZMP – Zentrale Markt- und Preisberichtsstelle).

As concerns the contents, the paper focuses on the volumes, structure and changes taking place in the trade in food eco-products frequently also called the bio-products. Particular attention was focused on the commercial aspects of the German market in such food and major factors determining it.

Table 1

Food safety understanding terminology

Product safety	Safety of agricultural-food system
<ul style="list-style-type: none"> <li>– No food toxicity</li> <li>– Safe-nutritional food</li> <li>– Safety of declaration (all product components are declared)</li> <li>– Label safety (eco-food is really organic)</li> </ul>	<ul style="list-style-type: none"> <li>– Safety of supplies</li> <li>– Safety of distribution</li> <li>– Safety of transparency and neighborhood</li> <li>– Safety of consumer influence on food production</li> <li>– Safety of information concerning all links and stages in the food production process (e.g. through application of labels)</li> <li>– Safety – absence of negative influence of production practice on people and live organisms, environment and climate</li> </ul>

Source: HANSEN (2005).

The detailed analysis, both horizontal and vertical, allowed formulating a synthetic outline of the perspective for development of the market for eco-products from the perspective of production and consumption.

## Results of studies

### Organic agriculture in global food economy

Organic agriculture has developed very dynamically during the last several years and nowadays it is practiced in 120 countries of the world. The number of farms and area cultivated according to that system increases continually. According to the latest studies by the International Federation of Organic Agriculture Movements – IFOAM (WILLER, YUSSEFI 2006), more than 31 million ha of agricultural land globally is used and managed according to the organic agriculture system at 623,174 farms. In 2006, a significant increase in sales of organic food was observed in Asia. That was caused by the avian flu epidemic. The population of that continent, in fear of the disease, tends to purchase safe food and organic food is such.

The market of organic products increases continually not only in Europe and North America (that are the “driving engines”) but also in many other developing countries (SAHOTA 2006). The largest area of organic farming was recorded in Australia (12.1 M ha), China (3.5 M ha) and Argentina (2.8 M ha). This, however, does not mean that those countries have the best-developed markets of organic agriculture.

As indicated by the data of the International Federation of Organic Agriculture Movements (IFOAM), the global organic food market is developing very dynamically and in 2006 exceeded the value of USD 40 billion, of which European market is worth USD 31 billion (WILLER, YUSSEFI 2007). This indicates that organic food has achieved the most important place in Europe. Among the European countries the German market is the most promising one where the highest value of sales of such food was achieved. In 2006, it exceeded € 4.5 billion (DOSCH, GERBER 2007). It should be stressed that the German market of organic food is outstanding globally and in Europe not only as concerns the overall value of organic food consumption but also in the categories of high production and consumption development dynamics. This allows seeing Germany as the current and the future leader in development of the market for that group of food products.

### **Main stages of organic agriculture development in Germany**

The beginnings of organic agriculture were linked to the social movement taking place during the late 19<sup>th</sup> c. as the answer to the progressing urbanization and industrialization. It promoted return to lifestyle consistent with the nature meaning, among others vegetarianism and change in nutritional habits, care for the body, keeping garden lots and protection of animals, the nature and the homeland. From that movement, during the 1920s and 1930 the system of “natural agriculture” developed that was supported by the “Bebauet die Erde” magazine established in 1925 by Walter Rudolph. It presented lectures, advise and answers to questions asked by farmers (HACCIUS, LÜNZER 2000).

During 1920s, next to the natural agriculture, another agricultural system, i.e. biodynamic agriculture established by Rudolf Steiner (1924) developed. Its assumptions were based not only on the natural sciences but also encompassed the spiritual aspect of the man. The bases of those sciences are also present today. A farm is considered a specific type of an organism that has also immaterial influences. Those influences understood as dynamic influence or forces result, for example, from the biodynamic preparations or strengthen their operation. Those preparations are extracts from herbs added in small quantities to fertilizers.

Organic-biological farming initiated in Switzerland during 1950s by Hans Müller and his wife Mary, who dealt mainly with implementation of the methods developed by her husband in the home garden was another system. The theoretical foundations for the theory by the Müllers were provided by a German doctor and microbiologist Hans Peter Rusch, who in his book "Bodenfruchtbarkeit" wrote about the important influence of soil microbiology on the yield of agricultural crops.

During 1960s people in Germany started noticing the increasing ecological threats for the environment and people. That contributed to focusing more attention on the agriculture and methods applied in it. The year 1962 was important in activities of ecology-oriented movements as during that year the organization called the Ecology and Agriculture Foundation (Stiftung Ökologie & Landbau SÖL), dealing in particular with exchange of knowledge and experiences concerning factors with negative influence on the natural environment was established. In 1971, the association of producers of organic products BIOLAND was established. From its establishment it supported establishment of the IFOAM (International Federation of Organic Agriculture Movements – established in 1972). That period, i.e. years 1968-1988 is treated in Germany as *the first phase of organic development*.

In 1988, on the initiative of the Stiftung Ökologie & Landbau, the Working Community of Organic Agriculture (ArbeitsGemeinschaft Ökologischer Landbau – AGÖL) was established. That community was the supreme association of organizations, which, in 1984, established the first common guidelines for organic agriculture in Germany. As of that moment the development of organic agriculture progressed as the speed of a lightning. This also happened as a result of support for those activities provided by the national government within the frameworks of the extensive program of the European Community approved in 1989 and next, as of 1994, thanks to the Commission Regulation 208/92 and Council Regulation 1257/1999 of 2000. After unification of Germany the area of organic farms increased but market development in the area of former Eastern Germany was extremely difficult because of the absence of knowledge on organic products. In 1999, on the initiative of the AGÖL the trademark awarded to organic products that satisfied the European Union criteria was created. However, the AGÖL decided that was insufficient and the national identification of products Bio-Siegel was introduced. After implementation of the national trademark the use of the European Union mark was abandoned. That period represented *the second phase of organic agriculture development*.

*The third stage* of development started in 2001 and still continues. It is highly favorable for that market as it created a real boom for organic products. In 2001 the area of organically cultivated land increased by 9.8% as compared

to the preceding year while the number of farms increased by 924 (i.e. 6.3%). Also in 2003 an increase in area and number of ecological enterprises in Germany by 5.3% as compared to the preceding year was recorded. By the end of 2004, the area of German organic farms reached the total of 767891 hectares (4.5% of the total farmland area) while the number of farms reached 16603 representing 3.9% of total number of farms (www.soel.de of 09.12.2005). Around 800 000 hectares, i.e. 4.7% of agricultural land in 2005 were organically cultivated farms while almost 17000 farms were organic (4% of all farms). This represents the increase in area by 4% as compared to the preceding year (*Bio-Markt Kompakt* 2006, p.3, www.ekolandbau.de).

### Trade in organic products and its forms

During 1970s that is with appearance of the demand of organic products in Germany the first shops with natural food were established. During 1980s the demand already exceeded the supply and during the second half of 1990s retail trade developed offering also organic products. The demand increased together with the supply.

Figures 1 and 2 present respectively the turnover on organic products and the share of that turnover in the total turnover on food products in Germany.

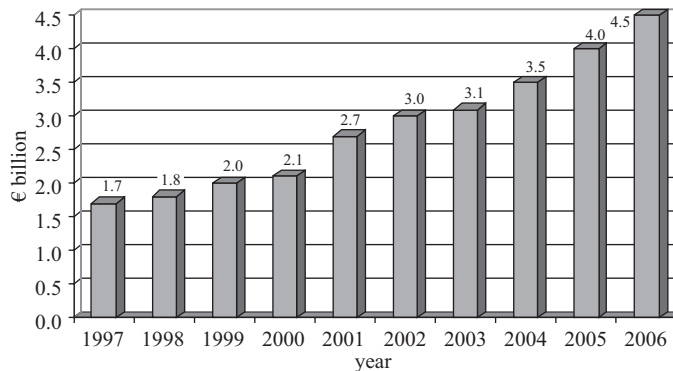


Fig. 1. Turnover on organic products in Germany (in € billions)

Source: www.oekolandbau.de of 9.12.2005; data for years 2004, 2005 from projections of Ökomarkt Jahrbuch 2006. pp. 10-11; data for 2006 from www.soel.de of 06.04.2007.

Year 2001 is considered the beginning of the boom for products of natural origin in Germany. This is linked to numerous scandals concerning food such as, e.g. the. BSE. During that year the market of bio-products in Germany

recorded growth by 35% to around € 2.7 billion representing around 2.1% of the total volume of trade in the foods markets.

Stagnation of 2003 was just a break before another increase in trade to € 3.5 billions in 2004. Year 2005 brought another increase in the volume of trade by 15% to around € 4 billion while in 2006 the volume of trade reached € 4.5 billion.

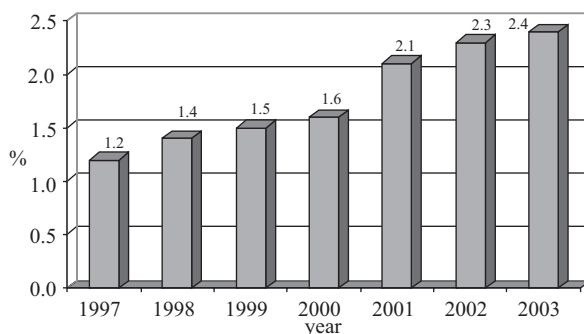


Fig. 2. Share of organic products in the volume of trade in food products in Germany (in%)  
Source: [www.oekolandbau.de](http://www.oekolandbau.de) of 9.12.2005.

RIPPIN (2006b) afforded even a statement that the situation was a signal that in the German market the organic products are leaving the niche. That is confirmed by the initial data for the first half of 2006 indicating a 35% increase as compared to the same period of the preceding year.

Specialist shops (e.g. healthy food shops – Reformhaus and natural food shops) were of fundamental importance in trade in organic food in Germany during the first period of intensive growth of the market for it. During the recent years the role of traditional retail trade also increased clearly as indicated by the data presented in Figures 3 and 4 representing the market size and share of individual forms of trade in the volume of trade in organic food. During the period of 1997-2006 the volume of trade in organic products in all forms of sales increased. The largest increase was recorded by retail shops while the smallest by the health food shops (Reformhaus) and crafts.

The structure of shares gradually changed. The share of direct sales by producers and the share of healthy food and natural food shops decreased slightly. The increase in the volume of sales was recorded, similar to the volume of trade, by retail shops offering a wide range of eco-products next to the conventional foods.

The retail trade including a wide range of organic products in its offer in 2006, as compared to 2001, doubled its volume of trade in organic food (to



€ 2 billion) reaching over 40% share in sales of organic products. A relatively high increase in the sales of organic foods was also recorded by specialist shops with natural food and pharmacies (included in the category “other”), which in 2006 reached almost 10% share in the market.

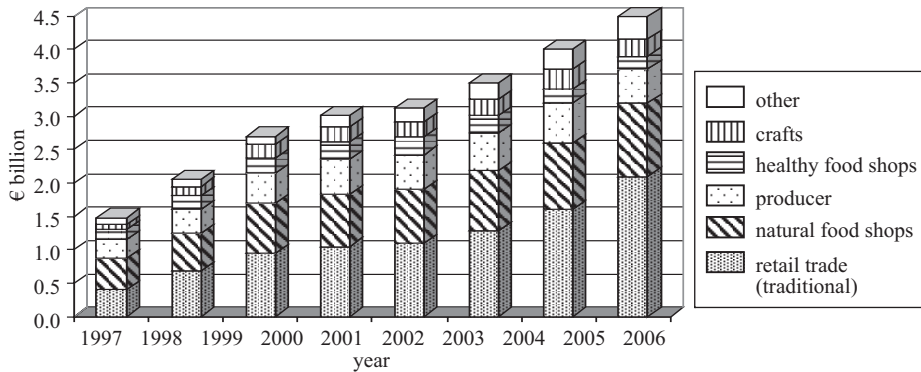


Fig. 3. Value of organic products sales by sales channel

Source: Own work based on [www.soel.de](http://www.soel.de) of 21.11.2005.

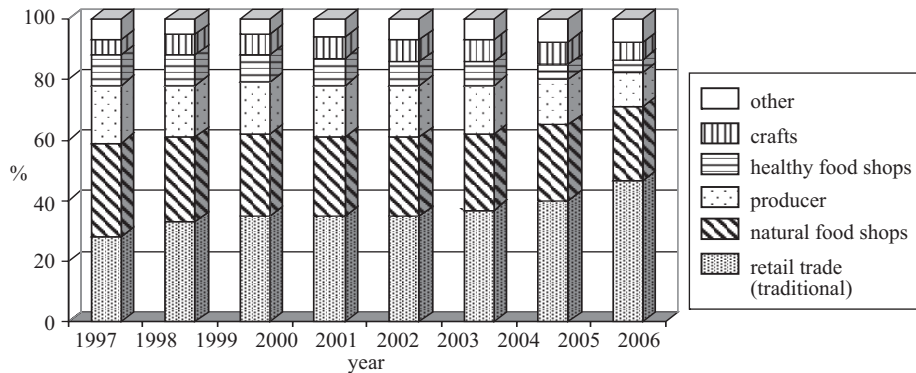


Fig. 4. Structure of organic products sales according to the sales channel

Source: Own work based on [www.soel.de](http://www.soel.de) of 21.11.2005.

The health food shops (Reformhaus) are at the stage of a kind of stagnation. Agricultural producers, although they increased their turnovers, somehow start decreasing their relative share in the market of those products ([www.soel.de](http://www.soel.de) of 21.11.2005). The largest increase in spendings of the households on bio-products in 2005 was recorded for fruit (by 42%). Dairy products and fresh vegetables also recorded a strong position in that respect (RIPPIN 2006a).

### **Ways in which trade obtains benefits from the demand for bio-products**

Fruit or vegetables are most frequently the first organic products that bio-consumer gets in touch with. If the consumer is satisfied with the first bio-products purchased, he will most probably go for further products of that kind. From that relation the main guidelines for effective, particularly retail trade, were drawn in Germany, which is presented in Table 2. Special attention should be paid among them to factors of presentation (positioning), development of the range of products and prices.

Table 2

Characteristic of effectiveness of trade in organic products

Characteristic	Ineffective trade	Effective trade
Success parameter	Potential of turnover not exhausted	Potential of turnover exhausted
Range/ Seasonality	Long shelf life bio-products only	Long shelf life and seasonal bio-products
Range/Choice	Narrow range	Wide range
Range	Promotion of conventional and bio-products	At compatible prices, offering bio-products only
Prices	Preferred large price difference between bio- and conventional products ca. 50%	The same pricing principles for bio- and conventional products
Regional products	Absence of regional products in the offer	Sales of bio-products from the region
Packaging	Sale of packaged bio-products	Open sale of bio-products
Positioning	Among other products without a special concept, unfavorable placement as compared to conventional products	Positioning of bio-products in a favorable among products or in a special place, or combination of both methods
Share of products in shop area	Small area for bio-products	At least 2-3 special stands for bio-products

Source: Own work based on [www.oekolandbau.de](http://www.oekolandbau.de) of 21.02.2006.

Presentation of fruit and vegetables has a major determining influence on whether offering them for sale will be a success. The decision concerning purchase of vegetables and fruit is generally made at the place of purchase; that is why it is so important that organic products must be adequately presented. They should be positioned on shelves in front of conventional products or in separate blocks. In case of other solutions the turnover decreases. Market tests show that organic products that are not positioned in blocks with conventional products reach a higher level of success (RIPPIN

2005). In such a case interest in eco-products among occasional consumers of healthy food and the number of spontaneous purchases also increase. Although there are no universal rules concerning positioning of products, it is assumed that achievement of satisfying turnovers and revenues requires preparing the minimum of 2-3 sets of shelves in various points of the shop.

Range of products – fearing possible losses the sellers generally offer a small range of fresh or seasonal bio-products. That is why they generally focus on products with longer shelf life such as carrots, onions or potatoes. The offer is rather constant and as a consequence unattractive for the consumer. Additionally the offer of, e.g. apples is generally limited to a single cultivar while conventional apples are offered as a rich spectrum of cultivars.

Prices- the pricing method for bio-products should be the same as in case of conventional products. That allows avoiding sometimes astronomical differences between prices. The high prices of health food are indicated by clients as evidence of overstating their value. Also in pricing bio-products the principle of taking the competitive situation into account is applicable. Aiming at obtaining profits on sales the sellers must match the prices of bio-products with prices of conventional products or focus their offer on organic products only. It is also possible to offer organic food at prices below that resulting from standard calculations and traditional products above that price. Consumer studies indicate that there is little knowledge of the prices of fruit and vegetables and as a consequence there are no fixed marginal prices acceptable to the consumers.

The increase in importance of traditional retail trade in trade in organic products can have negative consequences from the perspective of the specialist sellers. There are concerns that specialist sales channels will be pushed out off the market and more important supermarkets will offer the farmers very low prices for their products. Particularly high increase in turnovers is recorded in case of sellers' brands while the turnovers on producers' brands remain at unchanged levels (RIPPIN 2005).

### **Market infrastructure and its integration**

Efficient operation of producers, processors or traders alone will not secure efficient functioning of the market. Well-developed market infrastructure and favorable organizational environment are necessary. The efficient information system, which streamlines and increases competitiveness of the market, is one of the most important elements of market environment. A wide range of systematically gathered information on both the supply and the demand allowed, on the basis of long-term observation and analysis, determining the

most important factors for development of the market for that group of foods in Germany. Specification of those factors with indication of their rank and synthetic characteristics is presented in table 3. That specification, in addition to the classic division of them into demand related and supply related ones also exposes the factors of interest in such food in the distribution sector and, in particular retail sector.

The most complete information, including the statistics, concerning organic farming and farming in Germany (and the entire Europe) is provided by the ZMP- Zentrale Markt- und Preisberichtsstelle, which monitors all segments of agriculture on current bases. The special focus is fixed on studies of prices and trends in the market. The producers, processors and traders provide the compulsory scope of information.

Organic farming as a special segment of agriculture requires separate legal regulations. Currently in Germany there are 8 certifying organizations (Biokreis, Bioland, Biopark, Demeter, Ecovin, Gaa, Naturland and Okosiegel) and 24 control entities the responsibilities of which are specified in the law on organic agriculture and the EEC Regulation 2092/91.

The majority of organic farmers and processors in Germany are associated in unions or associations. Many of those organizations possess their own protected trademarks. In 2001, the uniform logo for organic products, Bio-Siegel (Siegel – “Seal” in German), was established. It can be used by producers and traders who subjected their operations to control of compliance with the standards set by the EEC Regulation 2092/91. Marking of organic products with other logos is also allowed, which is a quite common practice, particularly in supermarkets and specialist retail trade.

There are 43 institutions dealing with professional advisory services for production by organic methods. They are government entities of federal and country level, producer associations and private organizations. 79 research institutes work on the issues of organic agriculture and products of it; a significant proportion of them are bodies of university level schools ([www.soel.de](http://www.soel.de) of 28.05.2006). In Germany six tertiary schools offer education in organic agriculture.

### **Range of products**

The market of organic food in Germany offers the consumers a wide range of products. The majority of conventional food product groups have organic equivalents. The number of substitutes depends on the degree of processing and the possibility of production without use of agents forbidden in organic agriculture. The range of product continually expands.

Table 3

Organic food success factors in German market

Factor	Strength of influence	Characteristics
1	2	3
Factors of consumer demand		
Consumer's system of values	+++	Ecology oriented attitudes as expression of self-fulfillment; care for the environment, feeling of community; even low incomes do not stop purchasing of eco-products
Knowledge and beliefs	++	Belief and confidence gained through credible information on attributes of products; emotional advertisements concerning defects of foods
Prices	++	Eco-products seen as expensive, increasing importance of cheap discount shops in food purchasing
Quality	+++	Strongly linked to characteristics of purchase in addition to price and quantity; aware bio-consumer focuses on the value for own health; external values of quality are important for occasional consumer
Presentation in trade	+++	The first contact of consumer with eco-products takes place the most often at the point of sale; it is difficult to expose visually their core characteristics, that is why their positioning and presentation are important
Availability	++	Wide and deep range
Attractiveness and brand	+++	Increasingly often offered under trade brand, which weakens the brand strength, however, competition forces that strategy
Social environment	++	The more positive the attitude of the local environment of the consumer to the eco-products the more of a chance that many such consumers would buy such products – at least for a test
Factors of interest by trade		
Availability	+++	Developed range, quality, continuity of sales
Quality	++	Necessity of satisfying high consumer requirements; when external quality is not high convincing information is required
Competition	+++	Strong competition, particularly in retail trade, forces initially low prices; on the other hand exposing health values and elements related to care for the environment can support obtaining higher prices
Personal beliefs of traders	+++	Supportive to expanding the trade range and presentation
Government programs	+	Should support not only production but also distribution; the basic forms include: seminars, presentations, training for traders and sellers, uniform marking of products increasing attractiveness and trade acceptance

cont. table 3

1	2	3
		Supply factors
Legal regulations and government programs	+++	An important role is played by direct subsidies; they can form the incentive or a barrier to eco-production, they can influence market shortage or surplus. Directives and other regulations excessively restrictive (e.g. licenses for production and processing) can limit the offer
Price information	+++	Subsidies contribute to economic stabilization but can also limit the freedom of enterprise
Local market structure	+++	Local infrastructure is necessary for trade in eco-products in the areas of purchasing and distribution
Personal beliefs	++	A farmer possessing authentic high ecological sensitivity does not make decisions to strongly dependent on economic factors
Imports	+	Strong competition from low production cost countries
Public opinion	+	Eco-products gain in value through scandals with harmful substances presence in food presented in the media

Source: Own work based on [www.oekolandbau.de](http://www.oekolandbau.de) of 16.01.2006.

Table 4

Number of Bio-Siegel marked products in product groups (groups consisting of over 1000 products, status as at 31.03.2006)

Product group	Number of products in the group	Share (%)
Hot beverages (tea, coffee, cocoa)	4058	12.8
Bread and bakery products	3751	11.8
Herbs and spices	3305	10.4
Meat and cured meat products	3006	9.5
Cereals, flour, leguminous plants	1794	5.7
Vegetables, shoots	1630	5.1
Sweets and cheeps type products	1525	4.8
Ready made products	1430	4.5
Beverages (non-alcoholic)	1316	4.1
Spreads, honey and sauces	1270	4.0
Milk and dairy products	1154	3.6
Dried fruit and nuts	1112	3.5
Total	<b>25351</b>	<b>79.9</b>

Source: Marktimplementierung des Bio-Siegels. Monatsbericht März 2006. p. 9. at [www.bio-siegel.de](http://www.bio-siegel.de) of 28.05.2006.

The information portal Ökoinform in 2005 contained the data on 5418 bio-products while in 2006 the list expanded to 22108 items. Even more products are listed in its reports by the major certifying unit, i.e. Bio-Siegel. At the beginning of 2006 already 31718 products were marked with that logo, and 1589 enterprises had the right to mark their products with it. The list presenting the number of Bio-Siegel marked products in product groups including more than 1000 products is presented in Table 4.

Three product groups represent 1/3 of the entire range of organic products: hot beverages, bread and bakery products as well as herbs and spices. Processed products dominate. Fresh vegetables and fruit are at the end of the list, which results from the difficulties with storage of such products and the ban on application of substances retaining freshness as well as the shelf life. Those factors limit the supply of those goods, particularly during winter and spring.

### German organic food consumer

The average German household consists of 2.2 persons. Statistically, in 2003, it spent slightly more than € 84 for organic products (Fig. 5). The amount of over € 80 corresponds to around 1/3 to 2/3 of a supermarket trolley filled with food products per year (*Bio-Markt Kompakt* 2005, pp. 8-17).

Year 2005 brought an increase of spendings on organic food in Germany to the level of € 49 per person, which represents an increase by over € 28 as compared to such expenditures per person in 1997. Those are the amounts spent per year so they are not high. However, achievement of over twofold increase of expenditures on such food during a period of eight years only (1997-2005), could be considered an important progress.

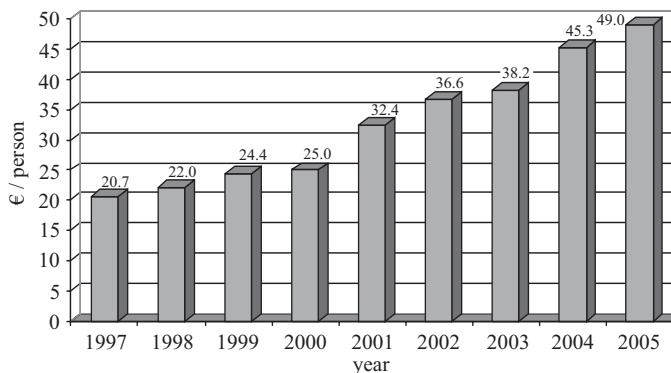


Fig. 5. Dynamics of spendings on organic food in Germany (in € /person)

Source: [www.oekolandbau.de](http://www.oekolandbau.de) of 09.12.2005.

In 2003, a panel study concerning the most frequently purchased organic products according to the point of sale was conducted in Germany covering 2133 households. As presented in Table 5, consumers of organic products most willingly purchase primary organic products, i.e. bread, eggs, cheese, potatoes and fresh milk.

This might be the consequence of availability of those products from ordinary retail shops that are the most frequent place of shopping for organic products. Bio-consumers purchase processed products such as bread, cheese, yogurt or sausage most frequently from natural food shops while unprocessed products such as meat, vegetables and fruit, potatoes and eggs are bought mainly directly from the producer, i.e. farms, butchers or bazaars. Organic juices, cereal products and dried fruit are most popular products purchased from health food shops.

Products purchased from pharmacies are generally characterized by higher prices and special use; generally they are not products purchased daily. This can also be noticed while analyzing the organic products most frequently purchased in such shops, i.e. child food, sweets and snacks, musli, tea and hot bread spreads.

Participants in the German organic products market have many possibilities of communicating. First of all, there is an efficient information system addressed directly to the consumers using numerous Internet portals. Information con-

Table 5

10 organic products most frequently purchased in Germany according to place of sale

Overall market	Retail trade	Natural food shops	Direct sales	Healthy food shops (Reformhaus)	Pharmacies
Bread	eggs	bread	beef/veal	fruit juices	child food
Eggs	fresh milk	cheese	vegetables and fruit	bread	sweets and snacks
Cheese	potatoes	yogurt	potatoes	cereal products	musli
Potatoes	cheese	sausages	eggs	dried fruit	tea
Fresh milk	yogurt	fresh milk	vegetables	vegetable juices	hot bread spreads
Beef/veal	musli	eggs	apples	soy milk	nuts, sprouts
Sausage	carrots	fruit juices	cheese	tofu	fruit juices
Yogurt	butte	potatoes	cereal products	cheese	pastries
Apples	child food	apples	lettuce	vegetable oils and fats	cereal products
Wine	bread	pastries	fresh milk	sweets and snacks	vegetable oils and fats

Source: [www.zmp.de](http://www.zmp.de) of 08.03.2006.



cerning bio-products and organic agriculture, range of products, place of sale, prices, methods of preparing dishes and other is available there. The majority of producers have also their own web sites.

Purchase of products directly from a farm or at a bazaar becomes a unique opportunity for dialogue between the producer and the consumer. Also all types of fairs, exhibitions and presentation offer opportunities for direct meetings. Some of organic farms owners operate also agrotourist farms promoting their own products.

Promotional and information activities are organized by associations of producers, processors, traders and marketing entities, which facilitates communication with consumers. Those activities are also joined by organizations of local, regional and national character as well as the Ministry of Agriculture. Promotional projects are large scale ones. Advertisements on television and Internet are just standard things. All that translates into a very high level of organic awareness in German society and the level of knowledge of the products.

Point of Sale communication is an important form of communication with the consumers. If the consumer is satisfied with the first bio-products purchased, he will most probably purchase other products of that type. That relation forms the base for guidelines of effective trade. WENDT et al. (1999) divided consumers of bio-products according to the place of purchase and described their socio-demographic characteristics. Clients of supermarkets buy the least of the eco-products although consumption among them increases. They are characterized by medium level of education and income. Clients of natural food shops (Naturkostladen) consume almost twice more healthy products as compared to the former group of consumers. They possess a relatively higher level of education but their incomes can be either high or low. It is probable that consumption in that group will be increasing at more than average rate in the near future. A typical client of an eco-farm or bazaar possesses the highest income and the volume of his consumption is almost equal to that of the clients of natural food shops. The income of healthy food shop (Reformhaus) client is slightly higher than average and the volume of purchases is the second smallest while his education is below the average. In case of customers of eco-farms, bazaars and healthy food shops the expected increase in consumption is minor. Fewer than a half of those customers declare willingness to increase the purchases.

In Germany systematic studies on the demand for organic products are conducted. Below some results from those studies are presented (BRUHN 2003). The level of knowledge on organic products is very high as it exceeds 90%. The number of people declaring at least a one-time purchase of an organic product increases continually and in 2002 it was higher by 31% than in 1984.

The largest places of organic products purchases are bazaars, supermarkets and organic food shops (Tab. 6). The share of turnovers in those points of sale increases at the expense of the healthy food shops, which had a dominating share in such purchases in 1984.

Table 6

Point of purchase of organic products (in % of answers\*)

Item	1984	1989	1994	1999	2001	2002
Bazaar	33	37	57	60	73	57
Supermarket	15	26	27	34	49	52
Organic food shops	39	50	43	47	47	43
Healthy food shops	60	46	51	41	33	41
Direct sales	20	27	36	43	36	37
Specialist shops	17	23	25	27	27	25

\* indicating more than one point of purchase was possible

Source: BRUHN et al. (2003).

Vegetables, fruit, bread and potatoes are the most willingly purchased organic products. The noticeable increase in importance of bazaars and retail shops and decrease in importance of healthy food shops is surely a consequence of the increase in the range of organic products offered at traditional retail shops as a result of which the consumers are not any more forced to search for special shops offering bio-products.

## Conclusion

German organic agriculture and the market for its products are among the best developed ones in Europe. Organic farms occupy already 5% of the total area of agricultural land in the country. The number of organic farms and food processing plants also increases systematically. The dynamics of that growth since the year 2000 until now has been high. The German agricultural-environmental plan assumed an ambitious plan of dynamic development in organic agriculture, which by the year 2010 is to occupy 20% of the agricultural land in the country. Implementation of that plan requires increasing that area by 28% every year.

The turnover on that group of food products also increases dynamically. In 2006 it amounted to € 4.5 billion, which was considered to represent the beginning of the process by which the German market of organic products started leaving the niche and established itself as a segment of general market.

The growth of that market in Germany is supported by development in the range of products of organic agriculture, which matches increasingly closely the needs of the consumers. The current structure of the range of bio-products is developed so far that it does not differ significantly from the structure of conventional products range.

Also the availability is increasing, mainly as a result of including products of organic farms into the offer of conventional retail trade. A well developed network of healthy and natural food still operates in Germany. Organic discount shops offering lower prices for the products have also appeared in the market. To the increasing extent the price set by the seller is influenced by the pricing policies of the competitors.

Germany has a well-developed system of communication with the client. There are many Internet portals containing information specially intended for the consumers while ecological organizations and organizations of organic agriculture conduct continuous information and promotional campaigns. That translates into the level of ecological awareness and knowledge of organic products in the society, which exceeds 90%. The basic motivation for purchase is the health considerations; the care for the natural environment is positioned further in that ranking.

The development so far and the status achieved allow projecting that the organic products market in Germany will still be growing in a stable way. The demand will still depend to a certain degree on the economic situation. As in case of small, dynamically developing segments of the market, a production surplus linked to changes in prices can occur. It is hard to determine precisely, which of the factors will have the largest influence on the development of that market. It is the fact that an increasing number of bio-supermarkets are established. Also a large proportion of traditional grocery shops take the decision to expand the product range by organic products. It is probable that government information programs focusing on the issues of ecology and health contributed to the increase of the demand. The trends observed among young, affluent people also seem to be important. Those people care a lot for the quality of food consumed.

In view of the conducted studies and analyses it can be concluded that Polish organic agriculture is facing both opportunities and threats<sup>1</sup>. Relatively low industrialization of agricultural production and processing can become not a barrier but a major strength. Our agriculture can be much easier and faster adjusted to the requirements of organic technologies than is the case in the

---

<sup>1</sup> Germany is ranked 10<sup>th</sup> in the world in the number of organic farms while Poland is ranked 39<sup>th</sup>. In area of ecological crops Germany is ranked 7<sup>th</sup> while Poland is ranked 37<sup>th</sup>. Germany is ranked 13<sup>th</sup> in the world in the share of the area of organic farms in the total area of agricultural land in the country while Poland is ranked 50<sup>th</sup> in that category.

majority of European Union countries. However, a whole range of integrated activities is necessary for the Polish market of organic products to develop. Stimulating the demand is the primary and very important task. Achievement of that requires starting from building the ecological awareness of the society. Development of market infrastructure through establishment of better market information systems for the entrepreneurs, initiating advisory activities, development of distribution channels and improvement of the organization of trade also seem highly important. Coordinated marketing activities are also necessary.

Interest in products of organic farms in Poland might fail to achieve the same high level as in Western Europe also because of the relatively high values of agricultural products from conventional farms. Conditions for organic forms of agriculture in Poland differ significantly from the situation in Western Europe; we are facing factors that are favorable as well as specific difficulties. As the European Union Member State we are required to implement the program of agriculture ecologization within the frameworks of the Common Agricultural Policy (CAP). The means allocated for that purpose in the Union are immense. The established European funds, however, are not and will not be available for production development or organic food markets directly but through support with funds of agricultural-environmental programs. Austria, which after accession to the European Union in 1995 was able to discount quickly the ecological values of the environment and the demand for safe food has achieved that. It can be assumed that effectiveness of those activities will condition the development of organic market in Poland, which probably possesses a so far unexploited potential.

Translated by JERZY GOZDEK

Accepted for print 7.12.2007 r.

## References

- BRUHN M. 2003. *Die Entwicklung der Nachfrage nach Bioprodukten unter Besonderer Berücksichtigung des Nitrofen-Geschehens und der Einfuhrung des Staatlichen Biosiegels*. Institut für Agrarökonomie der Universität Kiel, Kiel, Arbeitsbericht, 2: 20.
- DOSCH T., GERBER A. 2007. *Die Ökologische Lebensmittelwirtschaft in Deutschland 2006*. [www.soel.de](http://www.soel.de) of 06.04.2007, p. 1.
- GAWĘCKI J. 2002. *Żywność nowej generacji a racjonalne żywienie*. *Żywność : technologia : jakość*, 4 (33), rok 9. Polskie Towarzystwo Technologów Żywności, Kraków.
- HACCIUS M., LÜNZER I. 2000. *Organic Agriculture in Germany*. Stiftung Ökologie & Landbau (SÖL), Bad Dürkheim, Germany.
- HANSEN B., ALROE H.F., KRISTENSEN E.S., WIER M. 2005. *Assessment of food safety in organic farming*. DARCOF Working Papers, 52.
- RIPPIN M. 2005. *Stagnation oder Trendwende am Ökomarkt in 2004?* Ökomarkt Forum, ZMP.

- 
- RIPPIN M. 2006a. *Ökomarkt Jahrbuch 2006 – Verkaufspreise im ökologischen Landbau*. Zentrale Markt- und Preisberichtsstelle GmbH, Bonn.
- RIPPIN M. 2006b. *Bio-Markt mit starken Zuwäxsen*. Ökomarkt Forum, ZMP, März, 12, 24: pp. 2-3.
- RUNOWSKI H. 1999. *Organizacyjno-ekonomiczne aspekty rolnictwa ekologicznego*. SGGW, Warszawa, p.14.
- SAHOTA A. 2006. *The World of Organic Agriculture Statistic & Emerging Trends 2006*. IFOAM & FIBL.
- WENDT H., DI LEO M. CH., JÜRGENSEN M., WILLHÖFT C. 1999. *Der Markt für Ökologische Produkten in Deutschland und Ausgewählten Europäischen Ländern*. Derzeitiger Kenntnisstand und Möglichkeiten Künftiger Verbesserungen der Marktinformation. Publisher: Landwirtschaftsverlag GmbH, Münster, p. 31.
- WILLER H., YUSSEFI M., 2006. *The World of Organic Agriculture*. Statistics and Emerging Trends. IFOAM.
- WILLER H., YUSSEFI M. 2007. *The World of Organic Agriculture*. Statistics and Emerging Trends. IFOAM.

## **PREMISES FOR PURCHASE OF ECOLOGICAL FOOD ACCORDING TO RESPONDENTS**

***Mariola Grzybowska-Brzezińska***

Department of Market Analysis and Marketing  
University of Warmia and Mazury in Olsztyn

**Key words:** ecological food, consumer behaviors, ecological food consumer.

### **A b s t r a c t**

The study encompassed households situated in different parts of the country, in particular those of them, in which ecological food is consumed. The subject of the study was, first of all, consumption of certified ecological food. The analysis considered some factors such as the source of information on ecological products, frequency of ecological food purchases, reactions to change in price that influence consumer behaviors in ecological food market. Among the factors that cause the situation where consumers do not reach for products of that type the respondents listed most often the limited number of outlets where they could be purchased and the high price.

## **PRZESŁANKI ZAKUPU ŻYWNOSCI EKOLOGICZNEJ W OPINII RESPONDENTÓW**

***Mariola Grzybowska-Brzezińska***

Katedra Analizy Rynku i Marketingu  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** żywność ekologiczna, zachowania konsumenta, konsument żywności ekologicznej.

### **A b s t r a k t**

Badaniami objęto gospodarstwa domowe znajdujące się w różnych częściach kraju, a zwłaszcza te, w których konsumuje się żywność ekologiczną. Przedmiotem badań było przede wszystkim spożycie certyfikowanej żywności ekologicznej. W analizie uwzględniono niektóre czynniki (źródła informacji o produktach ekologicznych, częstość zakupu żywności ekologicznej, reakcję na zmianę ceny) mające wpływ na zachowania konsumentów na rynku żywności ekologicznej. Wśród czynników, które powodują, że konsumenci nie sięgają po tego rodzaju produkty, respondenci najczęściej wymieniali ograniczoną liczbę miejsc ich nabycia oraz zbyt wysoką cenę.

## **Introduction**

Knowledge of the principles of consumer behaviors in the market is becoming the key issue in the market economy. Extensive development of studies on consumer behaviors became necessary because of the fast rate of floating new products to the market, shortening of product life cycle, increased interest in consumer protection and increased public awareness concerning the necessity of environment protection.

The choice of food is determined by characteristics of the product such as looks, taste, flavor or texture as well as the characteristics of the consumer, his individual preferences, psychological stimuli and external factors such as economic, social and cultural conditions.

KOS and SZWACKA-SALMONOWICZ (1997) present another group of factors determining the demand for food encompassing mainly economic conditions, biological conditions (climate, ecology, nutrition standards), demographic factors (age, gender, size of household, etc.), social factors (tradition, customs, fashion, etc.) and social-professional factors (education, occupation, professional activity of women, etc.).

When buying a specific food product, Polish consumers take into account its price. Its quality, however, is also important for them. To the increasing extent the choice of food products is determined by factors such as freshness, nutritional value, dietetic properties, health influence, ecological requirements, high quality and convenience of use as well as content of chemical substances added.

A large part of the society shows interest in “healthy” food. In this case, according to URBAN (1999) preferences concerning a decreased fat content and increased protein content are formulated. Such food should originate from ecological production, contain more vitamins and have a higher nutritional value.

As a consequence of dynamically developing needs and expectations of customers acquiring knowledge on the ecological food consumer and factors determining his behaviors in the market has become necessary.

The studies represented an attempt at verification of the assumption that lack of ecological food promotion, low number of shops offering such products and their high price influence limited interest of consumers in products of that type. The characteristic that is valued the most in ecological food is its health aspect. The value to health is one of the main reasons motivating consumption of such products.

## **Methodology of study**

The study covered households situated in different parts of the country, particularly those of them, which consume ecological food. Consumption of certified ecological food was the main subject of the study. During the studies and analyses it was compared to conventional food. The list of goods offered by Polish ecological farms during the periods covered by the study was the base for choosing the products range of that food covered by the study.

The empirical study concerning ecological food consumption was conducted in three selected geographic areas of Poland differing in the environment quality: 1) southern Poland: Kraków, Katowice and surroundings, 2) central Poland – Warsaw and surroundings, and 3) north Poland – Tricity, Olsztyn, Łomża and surroundings. Those geographic areas were selected for the study, as they are the main areas of ecological food consumption in Poland as indicated in the studies by GRYKIEN (1997) and ZYSNARSKA (1997).

The studies were conducted in supermarkets, food stores and commercial centers offering in their range of products certified ecological food. Because of low interest of the above outlets in such foods the study was also carried out in specialty shops specializing in ecological food.

The source materials were collected through direct standardized interviews using a detailed interview questionnaire. The interviews were conducted mainly with people purchasing food for the family. Every 10<sup>th</sup> person leaving the shop after making a purchase was interviewed. In total 352 interviews were conducted in 2005.

Three modules were separated in the questionnaire design. The first one allowed identification of people who declared that they had not encountered the term “ecological food” or understood the term wrongly as it was considered that as a consequence they were not aware of existence of such food. The second module allowed identification of people able to identify ecological food but did not consume it or stopped consuming it. This allowed identifying cases when such food was not consumed.

The widest interviews covered the respondents who stated that they were not only aware of what ecological food was but also were consumers of such food. They were the targets of the extensive third module of the questionnaire. The scope of questions in that, basic part of the questionnaire concerned extensive information on type and quantity of ecological food consumed, methods of its identification, places and frequencies of purchase, valued attributes (health, nutritive, organoleptic, commercial, environment protection) and price perception of such products. That last aspect is important, as ecological food is clearly more expensive comparing to conventional food.

The studies were conducted in November 2005. The analysis finally covered 332 households including 142 consuming ecological food.



## **Results of studies**

### **Some factors determining consumer choices concerning ecological food**

The covered consumers of ecological food were mainly young people representing the largest group of buyers. People under 30 represented 37% among the respondents while the average respondent age was 39,8 years. The level of education of the respondents should be also pointed at, as the most numerous group were people with tertiary education representing 47% of the respondents while the average income was PLN 1838 per capita per month.

Comparing that group of consumers covered with studies by GRZYBOWKA and PILARSKI (2002) shows that in their case the respondents represented a compatible profile, as the average age in that group was 42,7 years. And again, the people aged 20-39 representing 53% of the respondents were the most numerous segment among ecological food consumers. Around 51% of the respondents declared tertiary education. On the other hand the consumers of ecological food covered by the study in 2000 achieved income lower by over 100% that were at the level of PLN 987 per capita per month. The persons covered by both studies were not the same, although the places where studies were conducted were, however, considering the economic development of the country it can be concluded that the average consumer income increased, including the income of ecological food consumers.

As concerns the characteristics of respondents the interesting approach represented by ŻAKOWSKA-BIEMAS and GUTOWSKA (2003) is worth mentioning. They indicated that in case of consumer behaviors in ecological food market traditional consumer segregation criteria such as age, gender, level of education and professional activity could increasingly frequently be substituted by measures such as lifestyle and ecological awareness. The consumers who “take care of their health and health of the family” and “prefer the so-called healthy lifestyle”, as shown by those authors, will show clearer propensity to purchase foods satisfying the criteria of ecological production.

The above is also confirmed by the conducted studies indicating that the respondents extensively applied the principles of ecology in their lives. In 2005 the most frequent answer given by 51% of the respondents was that they applied the principles of ecology to a moderate extent while 18% of respondents declared application of those principles to a very high and high extent. Also more than 80% of respondents valued healthy lifestyle while 38% of them were active in sports.

In the already presented studies by PILARSKI and GRZYBOWSKA (2002) conducted in 2000 more than 80% of the respondents valued healthy lifestyle.

The ecological food consumers implemented active, sporty lifestyles (60%) while 50% of them declared that they definitely based their decisions on principles of ecology.

Ecological food consumers possess only the basic information on such food and frequently that information is limited. The majority of consumers, unfortunately, do not know who is authorized to award certificates of ecological food although they are able to define the ecological food correctly. The consumers do not identify the marking of that group of food products, which is also confirmed in studies by PILARSKI (2003), who shows serious consequences of that in market behaviors of those buyers as the can purchase and consume food that in fact has nothing to do with ecological food.

That issue was presented by RUNOWSKI, JASKA and METER (1998) already ten years ago. In the analysis of lack of interest in ecological food those authors pointed at insufficient information and promotion of ecological food as the major causes of the situation.

In view of those issues it is extremely important to determine, as an aspect of the characteristics of behaviors of consumers relative to products of ecological agriculture, whether the consumers are able to identify ecological food among other food products. In case of ecological food the information presented on the package fulfills a very important function, as it is the only element allowing informed differentiation of ecological products from other products in the market. The certificate mark (Ekoland, PTRE) on the basis of which 40% of the respondents identified such products (Tab. 1) was the most important marking facilitating identification of ecological food.

In 2006, a campaign promoting the new logo of food produced by methods of ecological agriculture was initiated. The logo is uniform for all products of that type, which undoubtedly is an important aspect influencing correct identification of ecological products. A significant group of respondents uses the information on the label and they are encouraged to purchase products designated by terms “bio” or “natural”. That answer was given by 37% of the

Table 1  
Criteria of ecological products identification by respondents (in %)

Item	Percentage of the respondents (in %)
Information on the label (health food, natural product, bio)	37
Certificate mark (Ekoland, PTRE) on product package	40
Sold in a special outlet	17
Information from the seller	6
Other, what	0

Source: Own work based on studies.

respondents. Unfortunately, this indicates that food of ecological agriculture is still seen as equivalent of the so-called “healthy food” – the name created by marketing.

Low level of knowledge of ecological food marking method causes that the consumers are unable to make the right choice of their food and that what they declare as purchases of ecological food in fact represent purchases of food that has nothing to do with ecological methods of production and processing.

During taking purchase decisions, as indicated by ŻAKOWSKA-BIEMAS and GUTOWSKA (2003), consumers base their choices on information from personal sources (family, friends), commercial sources (advertising, sales personnel, package, presentation in the shop) public sources (media, consumer organizations) and own experience (testing, using the products).

In case of ecological food, magazines were the most important sources of information on ecological agriculture products for 28% of the consumers covered while for 27% the advertising materials at the point of sale. The respondents also considered the issues presented on television – 15% of the respondents while information from family and friends were used by 20% of the respondents.

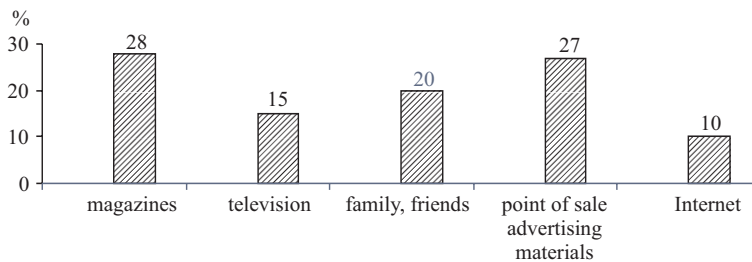


Fig. 1. Sources of information on ecological agriculture products according to respondents (%)  
Source: Own work based on studies.

ŻAKOWSKA-BIEMANS and GUTKOWSKA (2003), in their studies on consumers living in Warsaw obtained results indicating that the main sources of information on ecological agriculture products were television programs (67.4% of respondents) and press and radio (49.7% of respondents).

BAJER and JANISZEWSKA (1997) who carried their studies roughly ten years ago indicated that ecological food required advertising and promotion. At that time the respondents indicated that radio and television advertising was the most effective. According to the respondents daily press was an equally effective means of communication while they pointed at advertising posters and specialist press as means of communication offering lower effectiveness.

Among other forms of advertising exhibitions, fairs, promotions and testing, attractive packaging and special shelves with ecological food in ordinary shops were also mentioned.

Market information on ecological agriculture products continues to be insufficient. A large proportion of consumers are unable to differentiate ecological from conventional food correctly. That in most cases results from insufficient knowledge about such products. To stimulate the consumer to purchase ecological food an extensive campaign promoting the characteristics of such food, the possibility of identifying it, places of purchase and also explaining the ideas of ecological agriculture is necessary.

The motivations for purchase or choosing consumption are a process of matching the specific characteristics of the product with expectations of individual buyers. Consumers select a specific offer, the range of the most attractive characteristics that are included in a given product and which offer them complete satisfaction. That is why attributes of a given product will represent a specific value to the individual consumer or a segment of consumers, whose behaviors are similar.

It is worth noticing that, according to BAADE (1987), support to ecological agriculture ranks second among motivations of German consumers of ecological products. Purchasing ecological food they prevent "extinction" of ecological farms and, as a consequence, of ecological farmers as a social group that fulfills an important role from the perspective of environment protection, preservation of natural rural landscape, etc. The belief is spreading that not only the producer but also the consumer is responsible for environment protection because their mutual relation has increasingly become the feedback relation. While such beliefs are well established in societies of highly developed countries, in Polish reality they are only at the neonatal stage.

WIER and CALVERLEY (2002) present that consumer give benefits for themselves and the family, benefits for the environment and taste as the main motivations encouraging consumption of ecological food. For the majority of consumers the specificity of products that gives them direct benefits is the motivation for purchase of ecological food. The motivations vary between different segments of consumers. Consumers most frequently purchasing ecological food are motivated by concern for the natural environment. Those consumers, however, represent just a small percentage of the buyers. The group of consumers who consider care for their own health when buying ecological food make the purchases of that type of food less frequently but they represent a larger percentage of buyers. In the segment of consumers interested in health the demand for this type of food increases.

In their striving towards the higher quality of living assign the fundamental importance to health as the value that is particularly threatened. That is

why the criteria of health play a very important role in taking purchase decisions. Among products possessing the qualities that are sought related to influence on health ecological food possesses a special position. Interest in ecological food is caused not only by contamination of conventional food but it is also the expression of developing new preferences related to the higher quality of living, to decreasing role of the quantity consumed and the increasing role of quality of consumption.

PILARSKI (2003) indicates that ecological food consumers appreciate the taste of such food. It is definitely better than that of conventional food. It contains less chemical contaminations and preservatives, stabilizers or colors but more vitamins and other nutrients.

The study included assessment of ecological food characteristics where the respondents indicated the most valuable attributes of that type of products (Fig. 2).

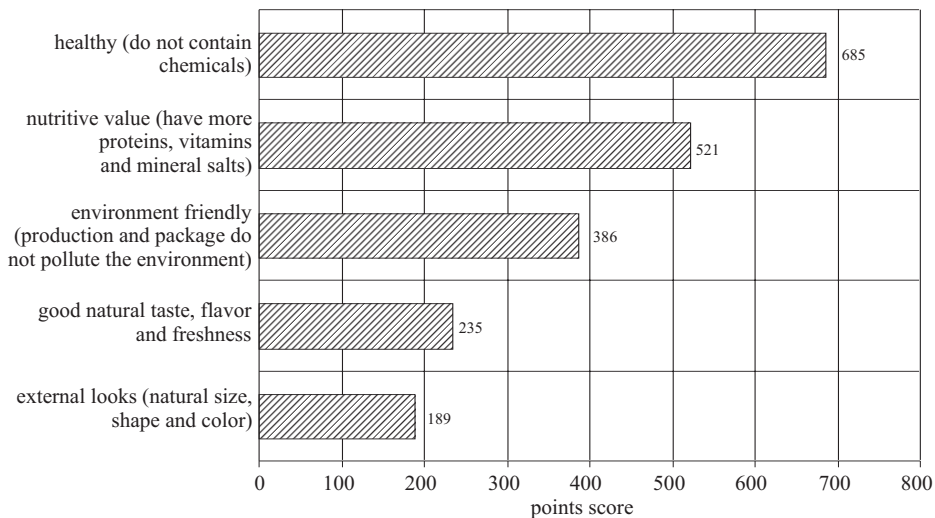


Fig. 2. Assessment of ecological food attributes (max 710 points)

Source: Own work based on studies.

The basic attributes assigned to ecological food by the respondents were health, that scored the highest and nutrition qualities.

An interesting observation was that among the attributes of ecological food the respondents awarded fewer points to taste values (good natural taste and flavor, freshness) even though that aspect plays an important role in buying behaviors in food market. It should be noticed that the respondent valued friendliness to the natural environment higher than the looks or good taste. The consumers definitely appreciate the characteristics indicating health

safety of those products and expect personal benefits for which they are able to pay a higher price.

Determining how often consumers purchase specified products is important for identification of market behaviors. As a consequence of a wider range of products of vegetable origin 63% of respondents purchased such products a few times per week and 34% a few times a month (Tab. 2).

Table 2  
Frequency of ecological food purchase declared by respondents (%)

Purchase frequency	Percentage of respondents (%)	
	vegetable products	animal products
A few times a week	63	20
A few times a month	34	14
Incidentally (less than a few times a month)	3	23
I do not buy, do not eat	0	43

Source: Own work based on studies.

The lower frequency of animal products purchasing as compared to vegetable products could indicate shortages of such products in the products range and that it cannot fully match the range of products of animal origin in the market of conventional food.

Price level is one of the key elements for development of demand for ecological food. Those prices are higher than prices of conventional food products. The degree of acceptance for the ecological food price levels as compared to its values was assessed and 54% of respondents indicated that prices for products from ecological farms were too high for their values. The prices were accepted by 31% of the respondents while the others had no opinion concerning that issue.

Price still is a rather important factor limiting the interest in products of ecological agriculture. A large number of consumers say that the level of prices, as compared to the values of ecological food is too high. In the society where the share of expenditures on food in total expenditures is quite high the price of products has a key influence on purchasing decisions. As a consequence the higher quality of ecological foods as compared with conventional foods should be exposed and customers should be made aware that own and family health as well as care for the environment are so precious that it is worth to pay a higher price for food possessing those values.

Economic acceptance of ecological food is a rather complex issue. From that point of view the consumer assesses that food mainly in the categories of price and supply, i.e. accepts the food at relatively low price and the diversified supply offer. In case of ecological food, when the prices are relatively high, their

level should be assessed not only in comparison to prices of conventional food but also relative to the defined volume and structure of consumption as it is not without influence on the level of interest in it. That is why one of the important tasks in the study was to identify how the consumers see the level of ecological food prices as compared to its values and how they would react to the possible increase of those prices.

The analysis identified the threshold of sensitivity of the respondents to the increase of ecological products; prices. Over 40% of the respondents declared that they were ready to pay the price higher by 10% for ecological food. Only 5% of the respondents declared readiness to pay the price higher by 25% (Tab. 3).

Table 3  
Declared level of higher price of ecological products the respondents were ready to accept (%)

Level	Percentage of respondents (%)
0	3
5	40
10	40
15	6
20	6
Over 20	5

Source: Own work based on studies.

Consumers are ready to pay a higher price for ecological food than for conventional food so the price is not the major barrier limiting the demand for that type of food. The accepted threshold for the respondents was the price higher by up to 10% than the price for conventional food.

ŻAKOWSKA-BIEMAS and GUTOWSKA (2003) indicate that in Poland the level of prices for ecological agriculture is highly diversified. According to those authors ecological farmers declare that they set prices for their products at the level of wholesale prices for conventional products or 10% higher. During the recent years the situation concerning pricing of ecological products has not changed. The level of prices for ecological agriculture products depends on the conventional products price level and is subject to regulation by trade margins.

RUNOWSKI in 1996 showed that the majority of consumers were ready to pay a price only slightly higher for ecological products than for conventional products. He projected that the situation could change in the future when the belief in the diversified values of ecological food increases. He pointed at

advertising in the media as the supporting tool. Ten years later the situation has not changed dramatically as concerns both the perception of price for ecological products and promotional activities related to those products.

Limitations existing in the ecological food market are a serious barrier to its development. ŻAKOWSKA-BIEMAS and GUTOWSKA (2003) indicate two groups of factors among hindrances to purchase of ecological food. One is related to the product and includes the looks, taste, availability, range of products and the price level. The other concerns communication and encompasses information, confidence and customs.

The conducted studies show that high price of ecological products is not the only hindrance to development of ecological food market, although an important one. Limited number of outlets where such products could be purchased is equally important. A narrow range of products was indicated as a barrier by 23% of the respondents (Tab. 4). The major weaknesses of ecological food given by the respondents included high price, small number of shops offering this type of food and the narrow range of products offered. Increasing interest in purchasing ecological food would surely be stimulated by a lower price and wider information on shops offering food produced by ecological agriculture. The range of products of that type available in the market should also be expanded.

Table 4

## Barriers to purchase of ecological products

Item	Percentage of respondents (%)
Price too high	35
Limited number of sales outlets	32
Narrow range of products	23
My low income	3
Unwillingness of the family to consume such products	6
They are hard to identify	0

Source: Own work based on studies.

Similar results of studies are also presented by ZANOLI and NASPETTI (2002) who indicated that lower price and better distribution could help increasing the demand for ecological food. The potential ecological food consumer, as they reported, expects as much a good taste of the product as easy and fast preparation. Good results could be achieved through information placed on packages concerning the food as consumers expect better information to make knowledge-based choices. Certificates and appropriate labels represent the starting point facilitating differentiation of ecological from conventional food.



## Summary and Conclusion

Interest in ecological agriculture products among numerous and diversified groups of clients results from changes in lifestyles of both western European and Polish societies. The share of ecological products in the Polish market is small representing just 0.06% of the area under crops. Still some certified products are sold as conventional while owners of shops are searching for continual supplies of diversified products such as fresh vegetables and fruit, dairy products and bread.

Specific characteristics of products that offer the consumers direct benefits motivate the majority of consumers to purchase ecological food.

The studies conducted allow formulation of the following conclusions:

1. Ecological food requires a much wider promotion. The most important source of information on ecological agriculture products was, according to the respondents, the magazines. The respondents also pointed at television as an effective medium for proliferation of information concerning ecological products. Internet was also indicated quite frequently as a new source of information on ecological food. Among other forms of advertising courses, exhibitions, fairs, promotions and testing, attractive packages and special shelves with ecological food were also mentioned frequently.

2. Determining whether the consumer is able to identify ecological food among other food products represents an immensely important aspect of consumer behavior characteristics related to products of ecological agriculture. In case of ecological food a very important role is played by the information on the package because it is the only element allowing conscious differentiation of ecological products from other products available in the market.

3. The technological and nutritive values were ranked the highest in the perception of the respondents of ecological food. Organoleptic characteristics were ranked lower while the attributes related to trade attractiveness were ranked the lowest. According to the respondents the value of ecological food is concentrated in its values to health. The respondent consumers appreciated highly the characteristics concerning health safety of those products and they expected personal benefits for which they were able to pay a higher price.

4. Limitations present in ecological food market represent a serious barrier to its development. The factors that cause that consumers do not reach for products of ecological agriculture and processing most frequently indicated by the respondents were the limited number of sales outlets and excessively high price.

### References

- BAADE E. 1987. *Verhaltensweisen und Werthaltungen bei Kaufen alternativ erzeugter Lebensmittel*. AID.
- BAJER B., JANISZEWSKA M. 1997. *Warszawscy konsumenci żywności ekologicznej*, EKOLAND, 8.
- GRYKIEŃ S. 1997. *Konsumenci Produktów ekologicznych*. Zagadnienia Doradztwa Rolniczego, 4.
- GRZYBOWSKA M., PILARSKI S. 2002. *Stan i uwarunkowana popytu na żywność ekologiczną*. Roczniki Nauk Rolniczych. SGGW w Warszawie – Ekonomiczno-Rolniczy. Seria G, T, 89, 2,
- RUNOWSKI H., JASKA E., METERA D. 1998. *Wybór żywności ekologicznej*. EKOLAND, 9.
- RUNOWSKI H. 1998. *Oczami klientów supermarketów*. EKOLAND, 10.
- URBAN S. 1999. *Marketing produktów spożywczych*. Akademia Ekonomiczna im. Oskara Langego, Wrocław.
- WIER M., CALVERLEY C. 2002. *Market potential for organic foods in Europe*. British Food Journal, United Kingdom.
- ZANOLI R., NASPETTI S. 2002. *Consumer motivations in the purchase of organic food*. British Food Journal, IV, United Kingdom.
- ZYSNARSKA E. 1997. *Ekonomiczne uwarunkowania rozwoju produkcji żywności wytwarzanej metodami ekologicznymi*. Wydawnictwo Uniwersytetu Mikołaja Kopernika, Toruń.
- ŻAKOWSKA-BIEMANS S., GUTKOWSKA K. 2003. *Rynek żywności ekologicznej w Polsce i krajach Unii Europejskiej*. SGGW, Warszawa.
- Żywność ekologiczna w percepcji absolwentów rolniczo-ekologicznego Uniwersytetu Otwartego. 2003. W: *Decyzje konsumentów i ich determinanty*. Red. S. Pilarski. Uniwersytet Warmińsko-Mazurski, Olsztyn.

## **STRUCTURAL GAP IN THE LINKS AMONG AGRIBUSINESS ENTERPRISES**

***Zbigniew Nasalski***

Department of Enterprise Economics  
University of Warmia and Mazury in Olsztyn

**Key words:** economic links, agribusiness, structural gap.

### **A b s t r a c t**

Partnership cooperation of food economy sector (farms, processing enterprises, distribution) can form an important element of strategic activities facilitating development of competitive advantage also in the context of participation of Polish agribusiness in the international food trade. Currently activities focused on cooperation within food products distribution channels is missing. The weak market position of farms is the basic barrier to changes in economic relations between agribusiness entities. Agricultural producers show low activity in the area of horizontal integration. By the end of June 2007 46 groups of pigs producers and 5 groups of cattle producers were registered in Poland. In total they integrated 2,700 farms. The farms covered by the study indicated the clear domination of food processing enterprises in regulation of the principles of cooperation. Farmers most often indicated pricing, quality standardization, classification of products and system of financial settlements as the elements with the highest domination of meat industry. Only few farms (12.0% of pigs producers and 8.3% of cattle producers covered) defined cooperation with processing enterprises as based on full partnership.

## **LUKA STRUKTURALNA W POWIĄZANIACH MIĘDZY PRZEDSIĘBIORSTWAMI AGROBIZNESU**

***Zbigniew Nasalski***

Katedra Ekonomiki Przedsiębiorstw  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** powiązania gospodarcze, agrobiznes, luka strukturalna.

### **A b s t r a k t**

Partnerska współpraca przedsiębiorstw gospodarki żywnościowej (gospodarstw rolniczych, przedsiębiorstw przetwórczych, dystrybucji) może stanowić istotny element działań strategicznych ułatwiających budowanie przewagi konkurencyjnej również w kontekście udziału polskiego agro-

biznesu w międzynarodowym handlu żywnością. Aktualnie brakuje działań ukierunkowanych na współpracę w ramach kanałów dystrybucji produktów żywnościowych. Podstawową barierą zmian relacji gospodarczych między podmiotami agrobiznesu pozostaje słaba pozycja rynkowa gospodarstw rolniczych. Producenci rolni wykazują małą aktywność w zakresie integracji poziomej. Do końca czerwca 2007 r. w Polsce zarejestrowano 46 grup producentów trzody chlewnej i 5 grup producentów bydła. Łącznie integrowały one 2,7 tys. gospodarstw rolniczych. Badane gospodarstwa rolnicze wskazywały na wyraźną dominację przedsiębiorstw przetwórstwa spożywczego w zakresie regulowania zasad współpracy. Jako elementy najbardziej zdominowane przez przemysł mięsny rolnicy wskazywali najczęściej: kształtowanie cen, normowanie jakości, klasyfikację produktów, systemy rozliczeń finansowych. Nieliczne gospodarstwa (12,0% badanych producentów trzody chlewnej i 8,3% producentów bydła) określiły współpracę z przedsiębiorstwami przetwórczymi jako w pełni partnerską.

## **Introduction**

Competition in global economy can increasingly rarely be based on the strength of an individual business entity; it frequently requires considering the possibilities of building wider economic structures. Transformations in the agricultural and food market determine intensification of strategic adjustments also in agribusiness enterprises, particularly because many entities in that sector are entities with a relatively small scale of operation.

Development of food economy is possible if all its segments participate simultaneously in that process. The institutional relations continue to be very important. Appropriateness of those relations forms the basic condition for stimulating the development of individual participants in agribusiness activities (KUJACZYŃSKI 2007). The fear concerning the forms of regulation of operation of business entities remains a threat to the efficient system of links in food economy. That fear applies in particular to efficiency and durability of management and administrative forms of control within the frameworks of the economic links established. From the focus on the direct client the activities can shift towards the concentration on the system of mutual dependences within the networks of links (BRYŁA 2007).

Durable mechanisms of reaction to market changes remain very important. Such a mechanism can be efficient if all the participants of the integration assimilate equally quickly the knowledge needed to maintain high efficiency of the system and quickly pass the information between individual links in the chain. Skilful sharing of knowledge within the information flow remains very important. All those elements lead to better coordination of activities combined into such a chain of agribusiness entities (BRYŁA 2007, KULAWIK 1996, MAŁYSZ 1998, MILEWSKI 2003).

The concept of supply chains can be classified as one of the more important management systems in agribusiness. The chains can have the integrated and non-integrated form. The basic advantage of the integrated chains is the lower

level of transaction costs and higher functional synergy. The so-called “self-learning supply chains” are pointed at as a form of organizational development; their characteristics include, *inter alia*, the ability to notice market changes and fast adaptation to new conditions.

The combat of individual enterprises for market share can be transformed into combat of entire supply chains for consumer spendings on food. Engagement in that concept has specific consequences for, e.g. investment processes in individual enterprises. Maybe the border between the market of agricultural raw materials and, e.g. the market of short-term contracts will be destabilized slightly. Undoubtedly, the price risk as well as issues of quality and volume of sales become more stable while a financial risk develops which not always can be low in case of participation in a strategy set in that way. The limitations concerning the free choice of the supplier – in the situation when some of them are participants in activities of that type – will be another important binder in the design of agribusiness chain. The increasing level of mutual dependence can lead to a more just distribution of profits from sales of food (BRYŁA 2007).

Integration processes also possess a macroeconomic dimension – they create better exports opportunities through better quality of food. In the nearest future implementation of a strategy of that type will, nevertheless, be difficult, particularly for farms, mainly because of the required social and financial potential necessary for organization and coordination of complex integration activities.

The goal of this study was identification of the most important conditions for creating integrated associations of business entities operating in agribusiness and the prospective determination of potential for implementation of those processes resulting from the current structure of agriculture and food economy. The paper focuses on the example of production of live pigs and cattle and red meat processing.

## **Methodology of study**

Selected factors determining strategic adjustment processes in agribusiness enterprises to the increasing importance of economic links in the process of competition were the subject of the study. In Poland, the current status of agribusiness structure was shaped by long-term economic, political and social processes. During the recent years transformations in agriculture and food economy have been intensified mainly as a consequence of the influence of European Union common agricultural policy. The market of some agricultural raw materials and food products in Poland is characterized by a significant number of business entities and periodic overproduction coupled with the

increasing liberalization of the trade principles in global scale. Entities of food sector (particularly farms), focusing their attention on modern mechanisms of competing must at the same time consider many administrative limitations concerning the size and quality of production, environment protection, etc.

The paper used, among others, the statistical materials of the Main Statistical Office, Institute of Agriculture and Food Economy Economics, Agriculture Restructuring and Modernization Agency and own studies. The analysis was focused on the subject potential of agribusiness (based on the example of red meat production and processing). That example was chosen because of a significant advancement of some integration processes (as compared to other sectors).

Own studies were conducted on selected for the purpose group of 60 high market farms situated within the area of Warmia and Mazury. The farms differed in area from 30 ha to over 500 ha (43.5% were farms of up to 100 ha, 33.9% farms from 100 to 500 ha and 22.6% farms exceeding 500 ha). The questionnaire-based study was carried out on entities with domination of animal production (pigs and cattle) in the structure of market production. The subject of the study was the opinion of agricultural producers on the current relations between the raw materials sphere and food processing.

### **Structure of agribusiness based on the example of meat production**

The structure of food economy (agribusiness) consists of three basic links – supplies for agriculture and food industry, agriculture and food processing (DAVIS, GOLDBERG 1957). Within those links business entities operate which differ significantly in their potential and organization (farms, processing plants, trade entities and other). Important functional interrelations exist between individual links. Agriculture – the raw material segment, is characterized by a large number of business entities of, in most cases, small scale of operations characterized by low flexibility as concerns alternative use of their human potential and assets. Many small and medium farms are determined to keep to agricultural activity mainly because of absence of possibilities for generating income from alternative (non-agricultural) sources.

Animal production, which is a high added value potential activity depends to a significant extent on the area of agricultural land available. That dependence is typical particularly in case of cattle rearing where high demand for farm fodders exists, but it is also confirmed in case of production of pigs where large scale of live animals production is carried out in farms possessing a large area of agricultural land (Tab. 1).

Table 1  
Individual farms according to the heads of pigs produced and groups of agricultural land area

Area groups (ha)	Farms possessing a number of pigs									
	1	2	3-4	5-9	10-19	20-49	50-99	100-199	200-499	over 500
	as percentage according to area groups									
Up to 1	10.7	6.3	5.4	3.2	0.8	0.7	0.6	0.0	0.1	0.3
1-5	57.1	52.9	44.7	25.2	20.1	9.6	1.2	0.4	0.3	0.8
5-10	16.0	24.5	28.0	38.4	38.5	28.7	15.7	4.0	2.3	1.3
10-20	12.2	14.0	16.9	26.6	31.6	47.0	51.2	41.1	19.0	10.1
20-50	3.4	2.0	4.6	6.0	8.5	12.6	28.0	44.7	51.9	30.8
Over 50	0.6	0.3	0.4	0.6	0.5	1.4	3.3	9.8	26.4	56.7

Source: Rocznik... 2005.

Linking high market production of pigs with farms of larger area limits the necessity of using external supplies of fodders, which has an important influence on production costs (fodders represent ca. 50-70% of total costs). Over 78.0% of herds consisting of from 200 to 500 heads is maintained in farms exceeding 20 ha in area while 56.7% of herds exceeding 500 heads of pigs is owned by farmers possessing more than 50 ha of land. From the perspective of farmer farms the rank of structural links with supply enterprises is much lower as a consequence.

For market reasons links with processing industry enterprises are of much more importance for farms. Food industry in Poland is at the stage of adjustment to operation within formal conditions resulting from European Union regulations and additionally it continually combats a significant level of competition. The structure of food industry in Poland is also dominated

Table 2  
Structure of red meat slaughterhouses and processing plants in Poland

Plant type	Slaughterhouses and slaughter departments				Processing plants and department			
	number of plants	%	slaughter (K tons)	%	number of plants	%	slaughter (K tons)	%
Industrial large	18	0.7	350	17.3	27	1.0	350	29.3
Medium	213	7.6	410	20.2	320	12.1	370	31.0
Small	400	14.3	220	10.8	525	19.8	225	18.8
Local	2165	77.4	1050	51.7	1777	67.1	250	20.9
Total	2796	100.0	2030	100.0	2649	100.0	1195	100.0

Source: Own work based on KOZERA, GOŁAŚ (2005).

(similar to agriculture) by enterprises of relatively small scale of operations. Particular difficulties resulting from that situation are experienced in meat enterprises (Tab. 2).

In general, the structure of slaughterhouses and red meat processing plants in Poland indicates a very important role of small local plants that slaughter a half of the animals. In meat processing a slightly more important role is played by medium and large enterprises. In case of a small scale and local character of operations it is difficult for such enterprises to carry out all the functions of the strategic integrator of agribusiness in a given region.

According to the IERiGŻ (*Stan...* 2006) a clear change in sales channels applies to only certain products of agriculture. In case of animal products (Tab. 3) it can be concluded that during the recent years the structure of pigs sales channels have been changing while changes concerning sales of cattle have had a limited scope. Farmers resign direct sales of pigs and increasingly frequently they sell to medium and large purchasing entities (almost 60.0% of market production).

Table 3

Structure of pigs and cattle sales channels (in % of market production)

Item	Pigs		Cattle	
	2003	2006	2003	2006
Direct sales	18	11	10	10
Purchases by small companies	33	30	42	42
Purchases by large and medium entities covered by operational reporting	49	59	48	48

Source: Own work based on *Stan...* 2006.

Considering the changes in demand for food products it can be assumed that diversification of the offer of food products will be favorable for integration; strengthening the integration is the basic condition for better quality and fast flow of raw material. With the increasing capital strength of potential agribusiness channels integrators capital integration downstream, e.g. own distribution in case of processing, own processing and distribution in case of strong groups of agricultural producers, remains an open issue. Implementation of that type of activities, however, is still limited.



## **Structural links in agribusiness and limitations to them**

Structural links get increasing economic importance because of the common influence on, e.g. product quality, and as a consequence satisfaction of food products consumers. Functional interdependencies within agribusiness include, among others, the following influences:

- farms determine the quality of raw materials that are processed by, e.g. meat industry. The processing industry can stimulate the raw material quality level by supplying the farms with knowledge, genetic material, fodders, veterinary services, etc.;
- farms represent the link preceding the food industry in sanitary-hygienic correctness. The food industry is anxious to maintain high standards in that area;
- possibilities of raw materials sales outside farms depend on the market effectiveness of processing enterprises. Market success of processing enterprises depends on the ability to retain the markets by securing systematic supplies dependent on rhythmical deliveries of raw materials;
- perception of food producers is increasingly frequently done in the categories of the region from which raw materials are obtained and the production system at supplying farms (e.g. ecological);
- during the times of globalization and competition in international market the needs develop for, e.g. joint presentation at food exhibitions (MAŁYSZ 1998, MILEWSKI 2003).

In practice, functioning of that type of links is not commonly considered in practical activities of enterprises. There are many barriers that do not allow rational building of the competitive potential on the basis of full use of functional interdependencies. The confirmation of that unfavorable phenomenon is, e.g. the limited number of horizontal links between farms (producer groups) and still unexploited potential of vertical integration taking into account common interests of farms and food processing enterprises.

In case of a small scale of operations, effective integration of farms into producer groups jointly implementing the production and marketing processes represents one of the methods for improvement of the competitive position. Rationally organized and efficiently managed producer groups that can use the financial support of public funds represent one of the fundamental plateaus for improvement of agribusiness structure, particularly in the operationally difficult markets of agricultural products (e.g. pigs).

Economic benefits of membership in a producers group can be achieved by farms independent of their scale of operation. Even farms with effective scale of operations and high levels of sales can in that way expand the benefits as compared to the situation of operating outside the group. Smaller farms gain

the opportunity of benefiting from bonuses and rebates not usually available to them even to a minimum extent as small sellers of products and buyers of the means of productions. Some studies prove that the economic effects in the categories of value increase with the increase in the scale of sales while smaller farms obtain much higher benefits per unit of product sold (FLORCZYK, NASALSKI 2003). In spite of numerous programs supporting organization and financing of producers groups that are available there are few such groups operating in Poland. Farms producing pigs associate in groups much more frequently than the farms producing cattle (Fig. 1).

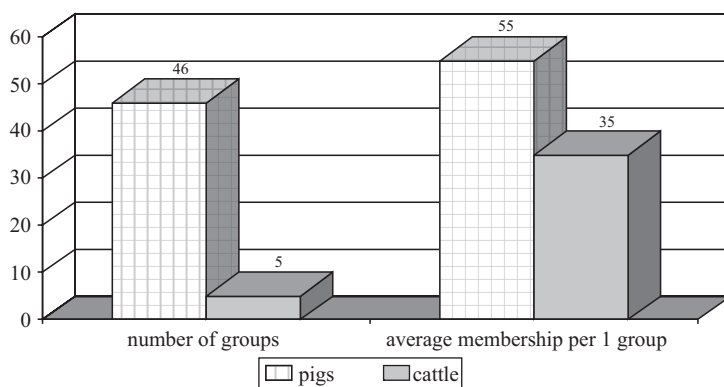


Fig. 1. Number of registered groups and membership in pigs and cattle producers; groups in Poland (June 2007)

Source: Own work based on MIŁOŚLAWSKA-KOZAK (2007).

The low level of horizontal integration dynamics has not been increased significantly by the government program of support to agricultural producers groups. The system for financing of establishment and operation of agricultural producers groups set up to adjust the production to market requirement, joint marketing of goods for trade by group members (including preparation for sales and delivery to wholesale buyers as well as establishing common principles of information on production with particular focus on the yield levels and availability of products) has been implemented within the frameworks of the Rural Development Program for 2007-2013 (it was similar in case of the RDP 2004-2006). The support offered is accrued on the basis of net year value of revenues from sales of products or groups of products that were produced on farms of group members and it amounts:

- 5,0%, 5,0%, 4,0%, 3,0% and 2,0% of the value of production sold representing the PLN equivalent of up to € 1 million during the first, second, third, fourth and fifth year of operation respectively, or

- 2,5%, 2,5%, 2,0%, 1,5% and 1,5% of the value of production sold representing the PLN equivalent of above € 1 million during the first, second, third, fourth and fifth year of operation respectively,
- the amount of support for a given year cannot exceed: during the first and second year € 100,000, during the third year € 80,000, during the fourth year € 60,000 and during the fifth year € 50,000 (*Grupy...* 2007).

There are still numerous barriers to cooperation between farms and the processing industry. The most important among them include the evident domination of food industry enterprises as concerns regulation of cooperation. Minor influence of farms on important parameters of cooperation limits the propensity to expand it. As concerns the assessment of cooperation between farms and meat enterprises, the owners of pig farms covered indicated that within the frameworks of that cooperation regulations concerning product price, product classification and financial settlements methods were clearly dominated by the buyers of livestock (Fig. 2).

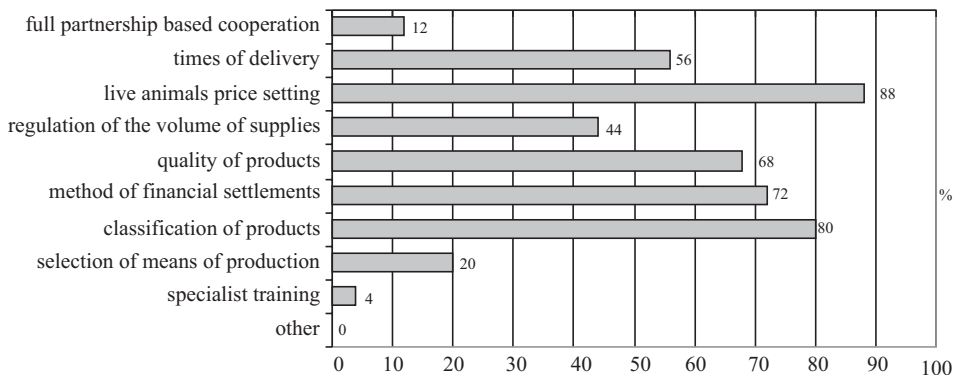


Fig. 2. Areas of cooperation of farms (pig) with meat industry enterprises according to the opinion of farmers excessively dominated by the processing industry (% of answers)

Source: Own studies.

In the study on cooperation with purchasing entities owners of cattle farms covered indicated limited possibilities of farmers to influence the price and the necessity of strict observation of the defined product quality. The issues of the “imposed” method of financial settlements for sales transactions and classification of products were also indicated (Fig. 3).

The abovementioned factors limit the determination for establishing the organizational links between agribusiness entities significantly. To a certain extent this also points out at the destructive domination of processing enterprises in mutual production-market relations with farms. Only 12.0% of the

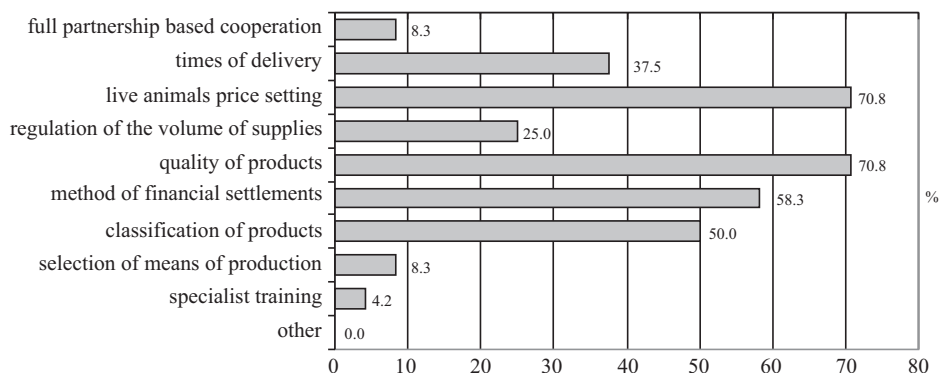


Fig. 3. Areas of cooperation of farms (cattle) with meat industry enterprises according to the opinion of farmers excessively dominated by the processing industry (% of answers)

Source: Own studies.

pig farms owners and 8.3% of cattle farm owners assessed the cooperation with meat industry as fully partnership based.

Service institutions dealing with commercial transaction services (transport companies, banks, insurance companies, entities conducting marketing studies, consulting companies, etc.) stabilizing the relations between the raw materials sector and processing sector of agribusiness should take more active part in marketing chains. Participation of those entities can streamline organization of those links, form their profile and secure rational system of financing and protection against various types of risk factors.

## Conclusion

Integration processes do not represent currently an important element in the development strategies of the majority of agribusiness companies independent of their position in the food chain. That situation is the consequence of, among others, limited possibilities of influence of entities possessing a relatively small share in the market. The farms covered by the study, commenting on the cooperation with food processors indicated price determination, quality standardization, products classification and financial settlements systems as the elements characterized by the highest domination of food industry enterprises. With the existing structural gap in agribusiness the possibilities of quality control and easy identification of the food source of origin are limited while it is much more difficult, particularly in case of small farms, to coordinate the volume of production and rationalize the market risk. The

plateau of partnership cooperation in agribusiness should be expanded systematically and faster development of integration between farms will be one of the conditions for effectiveness of that process.

Translated by JERZY GOZDEK

Accepted for print 10.12.2007 r.

## References

- BRYŁA P. 2007. *Korzyści wynikające z integracji kanału rynku w branży rolno-spożywczej*. Marketig i Rynek, 1.
- DAVIS J.H., GOLDBERG R.A. 1957. *A concept of agribusiness*. Harvard University, Boston.
- FLORCZYK W., NASALSKI Z. 2003. *Ekonomiczna efektywność działania w grupach producenckich trzody chlewnej*. Biuletyn Naukowy UWM, 21.
- Grupy producentów rolnych 2007r.* ARiMR. – [www.arimr.gov.pl](http://www.arimr.gov.pl) (October 2007).
- KOZERA M., GOŁAŚ Z. 2006. *Procesy koncentracji w rolnictwie na przykładzie produkcji trzody chlewnej*. Roczniki Naukowe SERiA, t. VIII z. 2. Warszawa – Poznań.
- KUJACZYŃSKI T. 2005. *Związki sieciowe w gospodarce żywnościowej*. W: *Zachowania decyzyjne podmiotów gospodarczych*. Ed. D. Kopycińska. Printgroup, Szczecin.
- KULAWIK J. 1996. *Formy pionowej koordynacji w sektorze żywnościowym*. Zagadnienia Ekonomiki Rolnej, 2-3.
- MAŁYSZ J. 1998. *Procesy integracyjne w agrobiznesie*. Wieś i Rolnictwo, 2.
- MILEWSKI L. 2003. *Powiązania ekonomiczne i marketingowe rolnictwa z przemysłem mięsnym w Polsce na przykładzie rynku żywca wieprzowego*. SGGW, Warszawa.
- MIŁOŚLAWSKA-KOZAK M. 2007. *Stan organizacji grup producentów rolnych*. Materiały konferencji „Promocja tworzenia grup producentów rolnych”. MRiRW, Warszawa.
- Rocznik Statystyczny Rolnictwa i Obszarów Wiejskich*. 2005. GUS, Warszawa.
- Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej*. 2006. Red. R. Urban. IERiGŻ, Warszawa.

## **IDENTIFICATION OF CLIENT SATISFACTION ATTRIBUTES AS A FACTOR OF ENTERPRISE COMPETITIVE ADVANTAGE**

***Bożena Pawłowska***

Department of Enterprise Economics  
University of Warmia and Mazury in Olsztyn

**Key words:** client satisfaction, client satisfaction attributes.

### **A b s t r a c t**

The paper presents the results of won studies on identification and assessment of client satisfaction attributes that can influence the level of client satisfaction with a food product in studied Polish food industry enterprises.

Client satisfaction study currently forms the base for specifying and determining the product satisfaction attributes important for the client that become an important factor for achieving a competitive advantage by the enterprise. Knowledge of client satisfaction attributes allows effecting targeting of the internal processes in the enterprise to achieve effective client focus.

## **IDENTYFIKACJA ATRYBUTÓW SATYSFAKCJI KLIENTA CZYNNIKIEM PRZEWAGI KONKURENCYJNEJ PRZEDSIĘBIORSTWA**

***Bożena Pawłowska***

Katedra Ekonomiki Przedsiębiorstw  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** satysfakcja klienta, atrybuty satysfakcji klienta.

### **A b s t r a k t**

W artykule zaprezentowano wyniki badań własnych dotyczących zagadnienia rozpoznania i oceny atrybutów satysfakcji klienta z produktu, w polskich przedsiębiorstwach przemysłu spożywczego.

Badanie satysfakcji klienta jest aktualnie podstawą sprecyzowania i ustalenia istotnych dla klienta atrybutów satysfakcji z produktu, które stają się ważną przesłanką zdobycia przewagi konkurencyjnej przedsiębiorstwa. Znajomość atrybutów satysfakcji klienta z produktu pozwala ukierunkować własne wewnętrzne procesy przedsiębiorstwa, w celu skuteczniejszej jego orientacji na klienta.

## **Introduction and goal of the study**

In contemporary business processes we deal with increasingly aware and demanding clients. Enterprises are forced to supply products of quality not only satisfying but even exciting the clients. High quality of products is treated as an important competitive strength of every enterprise. As a consequence, Polish food industry enterprises realized relatively quickly that they should include quality systems in their management structures to effectively and efficiently implement their production functions and assure quality of product. Those systems, through their requirements, force the organizations implementing them to apply approaches taking into account the issues of client satisfaction measurement.

Client satisfaction study is a tool allowing acquisition of precious information the enterprises are frequently unable to obtain otherwise (DEREK 2004). That information is the base for specification and determination of product satisfaction attributes important for the client, which becomes an important message for the enterprise in maintaining the attributes indicated by the client at the level highly satisfying to the client and to the degree higher than the potential competitors. Knowledge of client satisfaction attributes allows effective targeting of internal processes in the enterprise to achieve efficient client focus.

This paper, as a consequence of the above, presents, on the basis of the results of own studies, the results of identification and assessment of client satisfaction attributes that can influence the level of client satisfaction with a food product in Polish food industry enterprises covered.

## **Methodology**

55 enterprises that declared conducting client satisfaction measurement participated in the study. The organizations covered operate in the food industry sector and possess certified quality systems. According to the European Classification of Activities in force as of January 1, 2001, the study covered enterprises classified in section D – industrial enterprises, subsection DA, division 15 – manufacturing of food products and beverages from the area of entire Poland according to that classification (based on employment) classified as medium and large enterprises<sup>1</sup>. The organizations covered operate mainly in the regional and national market.

---

<sup>1</sup> According to the European Classification enterprises employing over 250 employees are large and those with 50 to 250 employees are medium enterprises.

The study was conducted according to the postal questionnaire methodology. Plenipotentiaries for the quality system from the enterprises covered presented their opinions by completing the questionnaire.

The assessment of activities conducted in the area of client satisfaction attributes identification was scored by the management according to the scale from 0 to 5 where 0 represented absence of such activities, 1- presence but to a very limited extent, 2 – presence to a limited extent, 3 – presence to a medium extent, 4 – presence to a large extent and 5 – presence that was highly extensive.

The respondents ranked the individual client satisfaction attributes according to the scale from 1 to 5 where 1 represented no importance of a given attribute, 2 – low importance of it, 3 – moderate importance, 4 – meant that it was important and 5 that it was very important.

The resulting scores obtained from individual enterprises were averaged to the format of arithmetic average.

### **Identification of client satisfaction attributes**

Client satisfaction measurement is currently becoming an excellent tool allowing accurate identification of characteristics of products for which the clients will be willing to pay and which ones are less important for them. A contemporary enterprise is facing the necessity of determining in the most accurate ways the product attributes satisfying the clients more than those offered by the competitors.

Satisfaction generation models were developed for full understanding of the mechanism generating the feeling of satisfaction or its lack in a client in a specific situation. One of such models is the one developed by Dr. Noriaki Kano, who looked at the issue from product point of view, i.e. the role of certain attributes of goods and services and their influence on the generation of consumer satisfaction (Fig. 1). He simply determined to what extent those characteristics are able to fulfill clients' expectations in a satisfying way. That model helps immensely in identification of the more and less important attributes of client satisfaction (HERMAN, HUBER 2000).

The author of that model identified three categories of attributes or otherwise needs of the clients related to product:

- expected or basic attributes (*the must be, basic needs*); those are the elements of service or product that are necessary to secure fundamental benefits from purchasing of a given item. They are obvious for the client and do not require any further identification. The characteristic feature is that when those attributes are present and the related expectations are fulfilled,



consumers do not notice them. Their absence, on the other hand, causes immediate disappointment of the client.

- characteristic or qualitative attributes (*performance needs*); they focus on the quality aspect of product and form the linear relation between the level of satisfying them and the satisfaction with their presence. If those attributes are present, satisfaction appears; the stronger it is the higher dose of the attribute is supplied. Lack of satisfaction of those expectations results in appearance of lack of satisfaction or, in drastic cases disappointment.

- entrancing attributes (*the attractive, excitement needs*); very often not realized by the clients. Consumers are not focused on satisfying them because very often they are unaware of the possibilities of satisfying such expectations. When they are not satisfied the situation does not result in any negative consequences, however, supplying attributes that unveil and satisfy those needs can result not only in satisfaction but also entrancement.

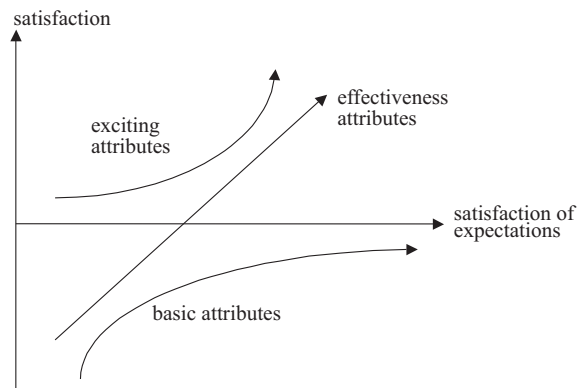


Fig. 1. Konsumer satisfaction model by Kano

Source: Based on EWANS, LINDSAY (1989, p. 149), ZALEWSKI, 2002, p. 32.

Practical applicability of that model includes, among others, the possibility of determining which product characteristics are of key importance in development of positive client perceptions. This offers the possibility of effective product competition. The important aspect of that model is that it considers variability of characteristics over time. The characteristics that, e.g. yesterday represented a major achievement today are quite obvious. On the other hand, certain limitations exist (ZALEWSKI 2002). The model does not answer the question of what guides the consumers in identification of importance of attributes; why they are important for them and what are their purchasing aims. In further analysis other client satisfaction models and methods of study

should be applied as correctness of that type of study requires complementarity of the measurement; also, the participation of individual qualitative parameters and other factors in purchase decision taken by the client depends on the product type.

The *theory of three client satisfaction factors* (i.e. Kano Model) inspired conducting the study to identify and assess the attributes of client satisfaction with a food product.

### **Assessment of attributes of client satisfaction with a product – results of study**

The results obtained from the conducted study indicate that the analyzed enterprises identified the basic client satisfaction attributes for their products at a medium level (average score 3.28). The individual scores per activity are summarized in Table 1.

Table 1

Assessment of activities in identification of client satisfaction attributes

Identified activities	Average score
Management identifies new trends concerning client needs and satisfaction	4.29
Management is convinced about the importance of client satisfaction measurement	3.99
Complaints database is maintained	3.59
Through satisfaction measurement clients are involved in development of new products and processes	2.95
Suggestions by clients are used in improving the client focus	3.38
Client satisfaction is a component of enterprise strategy	3.90
All employees know attributes of optimal client satisfaction	2.98
Attributes of optimal client satisfaction are known	3.28

*Source:* own work based on the questionnaire-based study results.

Employees of enterprises covered had low knowledge of client satisfaction attributes (average score 2.98), which must be considered a rather difficult situation that requires urgent change as client personalization possible through higher involvement of employees in the process of winning and retaining clients is a very important factor influencing satisfaction of client expectations.

Scores of individual client satisfaction attributes are summarized in Table 2. Enterprises covered considered hygienic-nutritive values (average score 4.39), followed by sensor values (average score 3.95), commercial values (average

Table 2  
Summary of scores of the identified client satisfaction attributes in enterprises covered

Client satisfaction attributes (product value determinants)	Average attribute score in enterprises covered	Average attribute score as compared to the strongest competitor
<b>A. General product presentation</b>	<b>3,67</b>	<b>4,03</b>
Color	4.17	4.50
Shape	3.57	4.36
Surface presentation	3.74	4.17
Product unit size	3.54	3.50
Cross section looks	3.20	3.11
<b>B. Sensor values</b>	<b>3.95</b>	<b>3.81</b>
Taste	4.71	4.67
Flavor	4.49	4.25
Tenderness	3.69	3.10
Sweetness	3.79	3.50
Sourness	3.58	2.89
Saltiness	3.41	3.00
Bitterness	3.53	2.89
Humidity	3.80	3.44
Aroma	4.15	3.90
Hardness	3.57	3.44
<b>C. Hygienic-nutritive values</b>	<b>4.39</b>	<b>4.37</b>
Microbiological safety of product	4.91	4.75
Chemical safety of product	4.94	4.83
Nutritive value	4.03	3.83
Raw material	4.06	4.25
Additions	4.0	4.18
<b>D. Commercial values</b>	<b>3.78</b>	<b>3.96</b>
Price	4.24	4.45
Product quality	4.32	4.75
Product brand	3.91	4.25
Package type	3.82	3.91
Package functionality	3.71	3.75
Product shelf life	3.88	4.08
Ease of storage	3.74	3.92
Ease of preparation for consumption	3.27	3.27
Multiplicity of applications	3.15	2.75

Source: Own work based on the questionnaire-based study results.

score 3.78), and general product looks (average score 3.67) to be the most important client satisfaction attributes.

In the group of hygienic-nutritive values, all values were considered important. In the group of sensor values the taste and flavor were considered the important client satisfaction attributes. Among the commercial values product price and its quality were considered important for client satisfaction. Among the factors representing the general looks of the product only the color was considered an important indicator of product value.

Comparing the product value scores with the same attributes of product by the strongest competitor the enterprises were definitely afraid of competition in general looks of the product and its commercial values. Among the commercial values the threat noticed by the enterprises covered was the brand of a strong competitor.

As a result of the conducted study actions were defined that enterprises covered declared to implement to increase client satisfaction with their products (Fig. 2.).

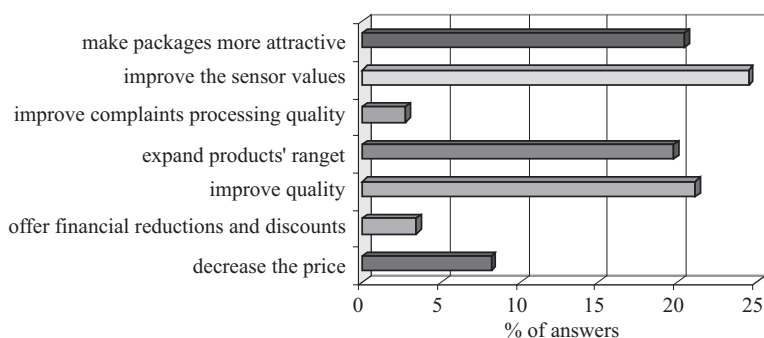


Fig.2. Indication of activities aimed at increasing client satisfaction

Source: Own work based on the study results.

Improving the sensor values (24.49% of answers), product quality improvement (21.09% of answers), making the package more attractive (20.41% of answers) and expanding the products; range (19.73% of answers) were indicated as the most important actions to be taken.

## Conclusion

Recapitulating the above study it should be pointed out that client satisfaction studies are currently becoming an important instrument allowing effective identification of important client satisfaction attributes. Knowledge of

those attributes allows enterprises focusing of efforts on achievement of product characteristics in highest demand among the clients. Accurate determination of client satisfaction attributes results in market success of the entire enterprise. The enterprises covered indicated expanding sensor and hygienic-nutritive values as well as product quality improvement as the most important elements of competitive advantage determining to the highest extent the level of client satisfaction. Polish food industry enterprises should aim in particular at good identification of client satisfaction attributes to match the increasingly strong competition in the market of food products.

Translated by JERZY GOZDEK

Accepted for print 14.11.2007 r.

### References

- BARYŁO-PIKIELNA N. 1975. *Zarys analizy sensorycznej żywności*. WNT, Warszawa.
- DEREK ALLEN R. 2004. *Customer Satisfaction Research Management*. ASQ Quality Press Milwaukee, Wisconsin.
- EWANS J.K., LINDSAY W.M. 1989. *The Management and Control of Quality*. West Publishing Co, Minneapolis, StPaul, MN.
- HERMAN A, HUBER F. 2000. *Determinanten des Erfolgs von quality function deployment – Projekten*. ZtB – Zeitschrift für Betriebswirtschaft 70 Jg., 1.
- ZALEWSKI R.I. 2002. *Zarządzanie jakością w produkcji żywności*. Akademia Ekonomiczna, Poznań.

## MANAGEMENT CONSULTING IN THE ACTIVITY OF SMALL AND MEDIUM ENTERPRISES

*Joanna Długosz, Jarosław Skorwider*

Department of Finance and Banking  
University of Warmia and Mazury in Olsztyn

**Key words:** consulting, management consulting office, small and medium enterprise.

### Abstract

The paper presents the role of consultancy and areas of consulting applications in the activities of enterprises. In Poland, small and medium enterprises have looked for external management consulting because of frequent changes in the environment and lack of financial means. A cost-free system of consulting service was created, which has been in operation within the National System of Services for Small and Medium Enterprises since 2005, next to financial advisory services offered by financial institution. Free but professional management consulting should lead to decreasing differences between small and large enterprises and improvement in competitiveness of those companies.

## KONSULTING W DZIAŁALNOŚCI MAŁYCH I ŚREDNICH PRZEDSIĘBIORSTW

*Joanna Długosz, Jarosław Skorwider*

Katedra Finansów i Bankowości  
Uniwersytet Wamińsko-Mazurski w Olsztynie

**Słowa kluczowe:** konsulting, punkt konsultacyjny, małe i średnie przedsiębiorstwa.

### Abstract

W artykule przedstawiono znaczenie konsultingu w działalności przedsiębiorstw, a także wskazano obszar jego zastosowań. Ze względu na częste zmiany otoczenia i brak środków finansowych małe i średnie przedsiębiorstwa w Polsce szukają doradztwa na zewnątrz. Oprócz dotychczas oferowanych usług doradczych instytucji finansowych, od 2005 r. w ramach sieci Krajowego Systemu Usług dla Małych i Średnich Przedsiębiorstw funkcjonuje system bezpłatnych usług konsultingowych dla małych i średnich firm. Bezpłatne, profesjonalne usługi doradcze mają prowadzić do zmniejszenia różnic między małymi i dużymi przedsiębiorstwami i do poprawy konkurencyjności tych ostatnich.

## **Introduction**

Management consulting is the service increasingly frequently used in activities of enterprises. It is the activity involving specialist advice or issuance of opinion on important issues that is to facilitate taking a rational decision. An individual issue as well as a package of issues (e.g. related to an investment project) can be the subject of consulting.

The demand for consulting increases; it results from organizational changes in enterprises as well as excessively frequent legal and market changes and new possibilities of access to capital. All those factors cause that consulting will assume progressively more organized forms. Economic consulting gains special importance during good market situation when many enterprises get involved in investment projects requiring project development including assessment of its economic effectiveness. As the sector of small and medium enterprises represents almost 99% of existing enterprises the studies on consulting encompass that group of business entities.

## **Goal, scope and methodology of study**

Determination of types and scope of consulting services provided for small and medium enterprises by consultation points organized by the National System of Services for Small and Medium Enterprises and banks, with which those entities cooperate is the main goal of the conducted studies. This paper focuses on the nature of consulting, its types and application in Polish enterprises, particularly in Warmia and Mazury voivodship. The following thesis was assumed for the study: Consulting develops dynamically and in the future it will assume diversified forms.

Reports obtained from Polish and Warmia and Mazury Agency for Regional Development formed the basic source of data. In addition, interviews were conducted with 16 employees of consultation points providing free consulting services for enterprises belonging to the covered sector of enterprises. Independent of those sources interviews were conducted with a group of 50 entrepreneurs who used the services of advisors employed at the consultation points and bank advisors. The study was treated as a pilot; the further studies will be conducted systematically on a large group of entities conducting business activity in Warmia and Mazury voivodship.

## **Definitions of modern consulting**

According to common understanding consulting means the activity of providing specialist advice or issuance of opinions on very important issues that create certain doubts and, as a consequence, are source of risk to the operation (DĘBNIĘWSKA 2005, p. 12). F. W. Taylor who noticed the important role of consultants in building an efficient organization was first to point out the importance of consulting.

Fritz Steele defines consulting as a form of providing help concerning the contents, process and structure of a task or a series of tasks in case of which the consultant is not responsible for performance of any specific task but helps those who bear such responsibility. According to Block the role of a consultant is fulfilled by anybody who tries changing or improving the situation while having no direct control of it. L. Greiner and R. Metzger define business consulting as contracted advisory services provided to enterprises by qualified and trained persons who support the client in an objective and independent way in identification and analysis of business problems recommending specific problem solutions and help, according to client's demand in the process of implementation of such solutions (DOROZIK et al. 2005, p. 24).

Consulting is based on offering knowledge and skills applicable in practical management and in solving business related problems. A person becomes a consultant through acquiring practical experience and knowledge on a specific subject. Consulting can be seen as professional services or as a method of securing advice and practical help. During present times consulting has developed as a specific sector of professional activity providing help to enterprises and their managements in the process of improving business and trade practices as well as activities concerning the entire enterprise. Narrowly, consulting can be understood as a form of help by one party to another party; widely it can be understood as activity providing, in addition to the help mentioned above, also education, training, research and development work for systems and projects as well as technical support for developing businesses (BOBIŃSKA 2004, p. 8).

The above definitions highlight the role of the consultant providing such services. Development of modern consulting in Europe caused branding those practicing in that profession with attributes such as professionalism, confidentiality, objectivism, neutrality in analysis and strong motivation to develop the optimum solution. Consultants should be independent and objectively recommend the customer the line of activities. They receive remuneration for services but they should not obtain benefits from activities undertaken by the client on the basis of recommendations given. In case of issuing opinions on more complex issues knowledge of specifics and goals of the given enterprise,



deep functional knowledge of the industry, methods of conducting business, technique of work, development trends and competition are necessary.

### **Subject of consulting**

Consulting is the activity in which at least two parties participate: the buyer and the contractor. The following areas of consulting have been identified: provision of specialist information and advice, data analysis e.g. financial-economic analysis, diagnostic activities, i.e. preparation of reports and analyses, explanation of the nature and status of the subject matter (e.g. discussion and interpretation of legal acts, nature of various economic phenomena) and assistance to the client in interpretation of opinions (e.g. audit report issued by the auditor).

The subject of consulting can be an individual issue and then we call it the individual issue consulting; in case of a larger group of issues we deal with comprehensive or global consulting.

According to consulting beneficiary, consulting can be provided to: corporations, small and medium enterprises, semi-banking and non-banking institutions, territorial government institutions and households (FLEJTERSKI, WAHL 2003, p. 58).

According to the provider of consulting services internal and external consulting has been identified. Internal consulting is done by a unit especially established for that purpose and operating within the structure of the given entity. External consulting takes place when the service is commissioned to an external consulting entity, which, because of its knowledge, gives the opportunity of taking a rational decision by the same limiting the risk.

As concerns area of services consulting is divided into legal, economic, financial, investment, personal, tax, money market, securities, banking, insurance and other (STECKI 1997).

### **System of consulting services for small and medium enterprises**

Small and medium enterprises, despite short history, have the decisive influence on economic development of individual regions. That is evidenced by the share of that sector in generated GDP, number of enterprises and employment as well as its share in international trade. SMEs represent around 99% of registered enterprises in both Poland and the European Union.

It should be highlighted, however, that despite dynamic development small and medium enterprises in Poland encounter numerous diversified barriers hindering conduct and development of business activity and frequently even making it impossible. Those are barriers resulting from the policy of the State in areas such as fiscal policy, labor market, frequent changes in legal regulations, lack of capacity of the judiciary system and bureaucracy of Polish officers. Large companies have the entire staff of employees specialized in given areas to solve the problems. Small companies are looking for external consulting. Unfortunately some of them do not have funds to use professional advice. That is why, for many years now, both practitioners and scientists have been justifying the need for organization and development of a system of free consulting services for small companies. Free and at the same time highly professional consulting services are to lead to closing the gap between the large and small enterprises and improvement of competitiveness of those later ones.

As of 1996, the National System of Services for Small and Medium Enterprises (KSU) has been in operation in Poland. Currently it is coordinated by the Polish Agency for Enterprise Development (PARP). As of 2005 the consulting activities by KSU centers have been financed by the jest PARP within the currently operating network of consultation points. Their operation is based on the Act of November 9, 2000 on establishment of the Polish Agency for Enterprise Development (DzU nr 109, poz. 1158, z późn. zm.) and the Regulation by the Minister of Economy and Labor of August 17, 2004 on providing financial assistance not related to the operational programs by the Polish Agency for Enterprise Development (DzU nr 181, poz. 1877, z późn. zm.).

All organizations providing consulting services are verified on the basis of the following criteria:

- adequate technical and economic capacity necessary for independent provision of specified services,
- securing provision of services by people possessing necessary qualifications,
- service quality assurance system,
- observation of the principles of professional ethics in activities conducted.

Consultation points (PK) function as first contact institutions for small and medium entrepreneurs. There are almost 200 such points countrywide. The basic support provided by the PK is free off charge as the operational costs are covered by the European Union from the European Regional Development Fund funds (sub-measure 1.1.1 “Support to business environment institutions associated in the KSU network”). Consulting of innovation focused character or of a wide scope is provided at a partial fee. Service price is calculated by individual PKs (there are no uniform standards for pricing). The basic (free off charge) consulting services cover the following areas:

- law, marketing, finance, taxes, etc.,
- available aid programs financed from the State budget, structural funds and other available in the market and principles of application for subsidies,
- offer of external financing by banks (credit/loan origination terms and conditions, interest rates, maturity, intended use, types of securities) and other financial institutions, e.g. leasing companies, loan funds, loan guaranty funds and capital funds,
- detailed issues requiring longer preparation or even specialist consultation.

### **Consulting services provided to the SMEs sector by the banks**

Banks are the partners with which entrepreneurs cooperate the most often. The banks also notice the specific needs of the SME sector customers, which is reflected in development of special product offers for that group of entities. Those financial institutions offer comprehensive services to enterprises expanding their offer by consulting services. Those services are mainly the financial consulting. Results of studies carried out among entrepreneurs and concerning the scope of financial consulting services offered to them by banks they collaborate with are presented in Figure 1.

As shown in Figure 1, financial consulting services cover the basic issues concerning non-cash settlements and placement of cash surplus. They are offered within the frameworks of a standard bank products by only around

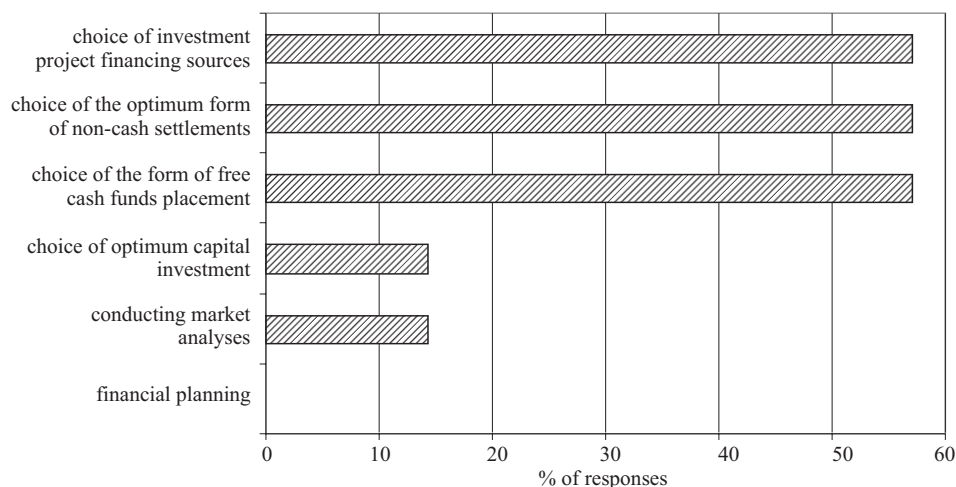


Fig. 1. Scope of financial consulting services provided by banks

Source: Own work based on studies.

60% of banks collaborating with the respondent entrepreneurs. Few entities can obtain more specialized services such as plans of capital investments or preparation of market analyses however such products do not include the consulting services in financial planning, investment optimum parameters analysis or preparation of marketing strategies. In the majority of cases the offer does not single out the specific needs of smaller entities – micro and small enterprises, and frequently they are treated in the same way as individual clients.

Within the frameworks of their products banks offer entrepreneurs a very limited range of consulting services that are included in the price of the current collaboration of the bank with the entrepreneur. It is delivered through bank employees and it covers products offered by the given financial institution only. For those reasons we cannot talk here about modern consulting services but just financial consulting services.

Entrepreneurs indicate that banks also try to expand their package of consulting services on use of the European Union aid funds developing the so-called “Union offer”, however, the focus mainly on standard financial-settlement and lending services (Fig. 2).

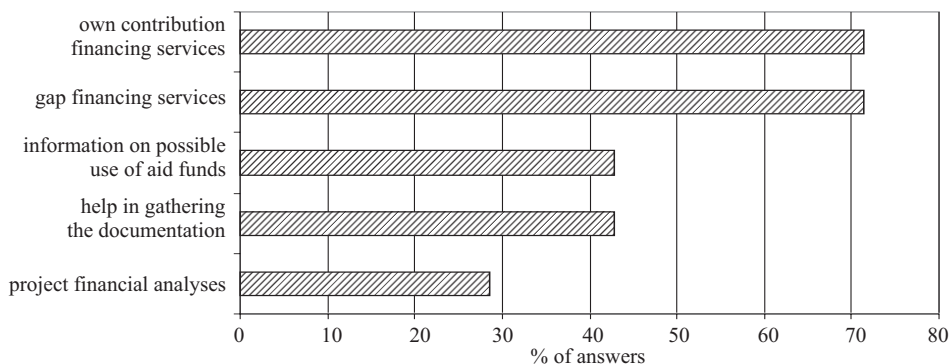


Fig. 2. Services offered by banks as concerns financing of projects covered by European Union subsidies

Source: Own work based on studies.

Entrepreneurs expect an offer extending beyond financial services and as a consequence they search for them in the market of professional consulting services. In this case the basic barrier is the limited financial capacity; as a consequence the offer of free services provided by various government agencies, foundations and associations is more attractive for them.

### Free consulting services for enterprises in Warmia and Mazury voivodship

Consulting services provided within the system of consultation points are increasingly popular among owners of small and medium enterprises. The number of consultation points in Warmia and Mazury voivodship during the years 2005-2007 is presented in Table 1.

Table 1  
Number of consultation points in Warmia and Mazury voivodship and in Poland during the years 2005-2007

Area	Year		
	2005	2006	2007
Warmia and Mazury voivodship	10	12	11
Poland	145	202	192

Source: Own work based on PARP reports for the years 2005-2007.

The largest number of consultation points operated in Poland in 2006 when their number as compared to the preceding year increased by 39.31%. As at March 31, 2007, in this voivodship as well as other regions consultation points not satisfying the technical requirements, which made appropriate provision of services, were liquidated.

In 2007 there were 11 consultation points in Warmia and Mazury voivodship located in the following towns:

- Olsztyn (3 points) – Association of Private Trade and Services, Warmia and Mazury Agency for Regional Development (functions as the regional point), Foundation for Support and Promotion of Enterprise in Warmia and Mazury;
- Pasłęk – Economic Development Society “Pasłęka”;
- Nidzica - “Nida” Foundation;
- Iława – Iława Chamber of Economy;
- Łukta – Regional Development Foundation “Łukta”;
- Braniewo – Elbląg Chamber of Industry and Commerce;
- Działdowo – Działdowo Development Agency;
- Mrągowo – Chamber of Various Trades;
- Elbląg – Elbląg Chamber of Industry and Commerce<sup>1</sup>.

Consultation points situated in Warmia and Mazury voivodship were established on various dates. The initial ones started operation during the

<sup>1</sup> [www.wmarr.gov.pl](http://www.wmarr.gov.pl) (21.03.2007).

third year quarter of 2005. In 2006 the Polish Agency for Enterprise Development conducted the next round of competitions as a result of which new points were established. The information and promotion activities caused that an increasing number of entrepreneurs used free consulting services nationwide and in Warmia and Mazury voivodship. The numbers of clients and services provided to them by consultation points in Warmia and Mazury voivodship are presented in Table 2.

Table 2  
Numbers of consultation points; clients and number of consulting services provided to them in Warmia and Mazury voivodship during the years 2005-2006

Consultation point*	Year			
	2005**		2006	
	clients	services	clients	services
Regional in Olsztyn	73	83	143	272
Local in Pasłęk	22	29	79	123
Local in Iława	68	285	145	521
Local in Działdowo	34	72	51	73
Local in Nidzica	12	13	43	76
Local in Olsztyn	104	119	223	272
Local in Mragowo	75	115	152	226
Local in Elbląg***	–	–	112	228
Total	388	716	948	1791

\* The other points started operation as of January 1, 2007

\*\* Consultation points operate as of the third quarter of 2005

\*\*\* Point started operation during the third quarter of 2006

Source: Own work based on PARP data

During the period from the third quarter of 2005 through the fourth quarter of 2006, 1336 entrepreneurs used consulting services in Warmia and Mazury voivodship and in 2006 that number was almost 2.5 times higher than during the preceding year. In total 2179 consultations were provided, 1791 of them in 2006. During the entire presented period owners (employees) of micro enterprises dominated among the users of the consultation points; offer (Fig. 3).

The structure of covered enterprises using consulting services was dominated by micro and small enterprises; they were young businesses operating no longer than 3 years. The number of enterprises covered according to the duration of business operation is presented in Figure 4.

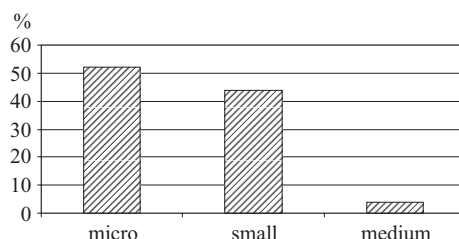


Fig. 3. Structure of enterprises using the services of consultation points in Warmia and Mazury voivodship by size

Source: Own work based on PARP data.

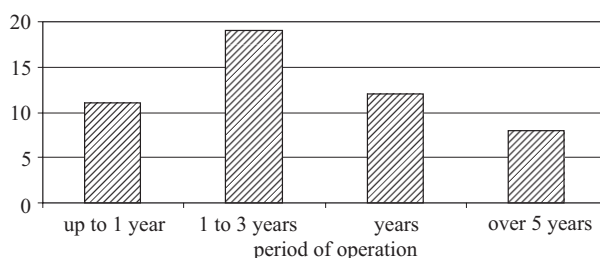


Fig. 4. Number of enterprises using consultation points in Warmia and Mazury voivodship by duration of business activity

Source: Own work based on studies.

Enterprises needed free information in various areas, as they did not have sufficient funds to employ a qualified employee or hire an appropriate specialist. Micro-enterprises operating in business for no longer than 3 years were in most cases characterized by poor financial standing and lack of financial capital for investment activities and in some cases even for the current operation. They required mainly the information on non-reimbursable funding for business operation to stay in the market. Such possibilities of supporting investment projects were initially offered from preaccession funds and then from structural funds. Those funds were most frequently used by entities with stable market position oriented for further development of activities embarking on modern investment projects.

Entrepreneurs reported the need for services focused on solving specific problems and not acquiring new skills in business management and development. The conducted pilot studies clearly indicate that the entrepreneurs reported the highest demand for professional information services of financial and tax nature (Fig. 5).

Entrepreneurs were interested the most frequently in obtaining information on current and investment activities financing sources (the best credit and

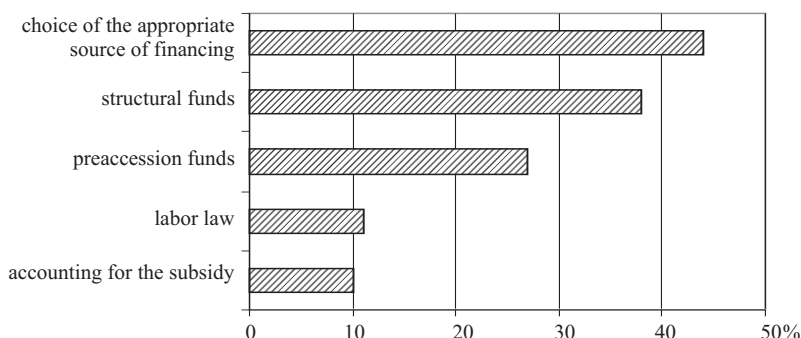


Fig. 5. Problems for consultation most frequently reported by entrepreneurs

Source: Own work based on studies.

loan offers, subsidies from preaccession and structural funds). Consultants provided the entrepreneurs with guidance on the principles of preparing applications for financial support (in most cases from programs PHARE, SPO WKP and IROP Measure 3.4 Micro-enterprises), choice of the appropriate program as the source of financing for the planned project, principles for selection of accredited contractor (in particular for conducting the offers comparison procedure) and accounting for the subsidies.

The majority of respondent entrepreneurs ranked quality of services provided by consultation points, particularly those concerning sources of financing, high. Some of them indicated excessively long waiting time for solution of the problem presented. This applied most often to legal, tax and accounting issues as specialists in those areas were in most cases external contractors not always available to provide assistance to the interested entrepreneurs. Additionally the specifics of the presented issues in those areas caused that the specialists were required to conduct very detailed analyses of the problems, legal acts and executive regulations as well as consultations with other consultants or officers.

The conditions of providing the services were also subject to assessment. That element was ranked average in the consulting activities; the respondents indicated, e.g. the lack of a separate room for consultations.

The interviews with entrepreneurs indicate that most frequently they obtained information on the possibilities of obtaining free consultations from radio and press advertisements, promotional articles and from people who earlier used such services.



## Conclusion

The need for diversified consulting is increasing as a consequence of legal, organizational and market changes as well as internal changes in the individual business entities. Many difficulties of organizational, legal and financial nature are encountered by entrepreneurs in their investment activities, which require consulting assistance by specialists in various areas. Not always small entrepreneurs are able to obtain that assistance (because of low number of specialists, lack of funds for the purpose and for other reasons).

The conducted pilot studies indicate that free consulting services are provided for an increasing number of entrepreneurs, mainly micro and small ones. Consulting services encompassing an expanding spectrum of issues, starting from start-up of a business through legal and other issues related to the labor law to the sources of financial capital for supplementing own funds for current activities.

Translated by JERZY GOZDEK

Accepted for print 4.01.2008 r.

## References

- BOBIŃSKA M. 2004. *Wsparcie płynności*. Finansista, 9 (22).
- DĘBNIEWSKA M. 2005. *Obszary zastosowań konsultingu finansowego – stan i perspektywy rozwoju*. W: *Konsulting finansowy w strategii rozwoju przedsiębiorstw i instytucji finansowych*. Red. M. Dębniewska. Wydawnictwo UWM, Olsztyn.
- DOROZIK S., FLEJTERSKI S., ROZENBERG L. 2005. *Natura i dylematy współczesnego konsultingu finansowego – próba syntezy*. W: *Konsulting finansowy w strategii rozwoju przedsiębiorstw i instytucji finansowych*. Red. M. Dębniewska. Wydawnictwo UWM, Olsztyn.
- FLEJTERSKI S., WAHL P.T. 2003. *Ekonomia globalna*. Difin, Warszawa.
- STECKI L. 1997. *Consulting*. T. 1 i 2. TNOiK Dom Organizatora, Toruń.
- Ustawa z 9 listopada 2000 r. o utworzeniu Polskiej Agencji Rozwoju Przedsiębiorczości (DzU nr 109, poz. 1158 z późn. zm.).
- Rozporządzenie Ministra Gospodarki i Pracy z 17 sierpnia 2004 r. w sprawie udzielania przez Polską Agencję Rozwoju Przedsiębiorczości pomocy finansowej niezwiązanej z programami operacyjnymi (DzU nr 181, poz. 1877, z późn. zm.).
- www.bankier.pl z 25.03.2007 r.
- www.money.pl z 23.04.2007 r.
- www.parp.gov.pl z 21.03.2007 r.
- www.wmarr.gov.pl z 21.03.2007 r.

## CHARACTERISTICS OF THE URBAN SETTLEMENT NETWORK IN WARMIA AND MAZURY

***Marcin Bogdański***

Department of Macroeconomics  
University of Warmia and Mazury

**Key words:** urbanisation processes, urban centres network, urban population growth rate, urban development rate.

### Abstract

This study is based on the assumption that a developed network of large and medium-sized urban centres is an important factor which determines the economic potential of a region, with urban development – through a system of feedbacks with the surrounding area – driving the growth of the whole region. Based on this notion, an analysis of the urban dynamic processes was conducted and the urban centres network in the province of Warmia and Mazury was characterised. The aim of the analysis was to answer the question of whether the relatively lower level of socio-economic development of Warmia and Mazury, which has been observed for the past several decades, can be attributed to inadequate development of the urban settlement network and is disadvantageous – from the developmental point of view – for town size structure.

The research conducted for the study supports the proposed hypothesis. The network of large and medium-sized urban centres in Warmia and Mazury is poorly developed, with a considerable disparity between it and, not only better urbanised areas, but also the national average. When the data is juxtaposed with the regional differentiation of the economic development in Poland, a significant positive correlation between those two factors appears.

## CHARAKTERYSTYKA MIEJSKIEJ SIECI OSADNICZEJ WARMII I MAZUR

***Marcin Bogdański***

Wydział Nauk Ekonomicznych  
Uniwersytet Warmińsko-Mazurski

**Słowa kluczowe:** rozwój regionalny, procesy urbanizacyjne, sieć ośrodków miejskich, dynamika rozwoju miast.

### Abstract

Przyjęto założenie, że istotnym czynnikiem determinującym potencjał gospodarczy regionu jest rozwinięta sieć dużych i średnich ośrodków miejskich. Rozwój miast przez system sprzężeń zwrot-

nych z otoczeniem pełni funkcję „lokomotywy wzrostu” całego regionu. Przeanalizowano dynamikę procesów urbanizacyjnych oraz przedstawiono charakterystykę sieci ośrodków miejskich w regionie warmińsko-mazurskim. Celem analizy jest odpowiedź na pytanie, czy relatywnie niższy poziom rozwoju gospodarczo-społecznego Warmii i Mazur obserwowany przez ostatnie kilkadziesiąt lat może być wytłumaczony niedostatecznym rozwojem miejskiej sieci osadniczej oraz niekorzystną z punktu widzenia możliwości kreowania rozwoju gospodarczego strukturą wielkości miast. Wyniki badań zdają się potwierdzić przyjętą hipotezę. Województwo warmińsko-mazurskie należy do najsłabiej zurbanizowanych regionów naszego kraju o względnie dużej dominacji miast małych i małym stopie wzrostu liczby ich mieszkańców.

## **Introduction**

Towns play an important role in creating and stimulating economic growth. Towns have always been places where factors positively affecting economic growth have accumulated – large resources of free capital, labour force, intellectual potential, technical innovations, unsatisfied market demand (GORZELAK, SMĘTKOWSKI 2005, p. 13). Hence, development of towns can effectively stimulate the economic condition of the surrounding region.

Similar conclusions can be drawn from the analyses conducted by the European Commission, whose report on cohesion policy and the role of towns in ensuring its effective implementation states that development of a region is interdependent with the development of the towns situated in it<sup>1</sup>. Treating towns as potential sources of growth is coherent with the top-down development theory – one of the major theories of growth poles by F. Perroux (BENKO 1993, p. 42).

According to this idea, economic development is not evenly distributed in an area, but concentrates in several points of higher growth rate. Such points, called growth poles, are usually large and medium sized towns or industrial centres, hence, growth differentiation can be geographic or sectoral (PIOTROWSKI 2004, p. 23-24). On the other hand, however, one cannot ignore the fact that the level of a town's economic development is related to the economic condition of the region. There is a distinct feedback – the higher the development level of a region, the higher the growth rate of the towns situated in it.

These assumptions provide the starting point for the analysis of the demographic processes dynamics in the towns of Warmia and Mazury during the past thirty years, and an assessment of the urban settlement network development in the area. Comparison of the data with other regions of the country will provide an answer to the question of whether the relatively low level of socio-economic development of the Warmia and Mazury region can be attributed to the low development rate of towns.

---

<sup>1</sup> “Cohesion policy and cities: the urban contribution to growth and jobs in the regions”, Commission staff working paper, Commission of The European Communities, Brussels 2005, p. 2.

## **Objectives, subject, scope and methods of research**

The region of Warmia and Mazury is one of the most poorly developed areas in Poland. One of the reasons might be the inadequate development of the network of large and medium-sized urban centres, which could play the role of regional and local growth poles. This study presents fluctuations of the population sizes of selected towns in Warmia and Mazury in relation to the data for the whole country and identifies those centres which during the period under study met the criteria of regional growth poles and which could stimulate the regional development in future.

According to the concept of growth poles, the centres which could play the role include only those towns in which the population growth rate during the period under study was higher than the regional average (SOBALA-GWOSDZ 2007).

Two hypotheses have been adopted in the study. According to the first one, during the period under study there was a positive correlation between the size of a given urban centre (measured by the size of its population) and its population growth rate. Therefore, the bigger the urban centre, the higher its population growth rate. According to the other hypothesis, the more large towns with a high population growth rate there are in the region, the more favourable are the conditions of development and the more competitive the region is. Therefore, the foundations of permanent development of a region include good structure and size of an urban settlement network.

Leaving aside the level of socio-economic development, an increase in a town's population is, in this study, considered equivalent with its development; hence, the term "development" or "regression" of a town is used to describe the demographic processes that take place in it.

In order to verify the proposed hypotheses, the set of towns of the former Province of Olsztyn (within its boundaries of 1975) was enlarged by several urban centres from the neighbouring regions and divided into four groups, depending on their size.

Group A included those towns which after the reform of 1975 retained or gained the status of a provincial capital. As there are only two such towns in the present-day Province of Warmia and Mazury – Olsztyn and Elbląg – in order to make the group bigger, similar towns from the neighbouring regions – Ciechanów, Ostrołęka, Elk and Suwałki – were taken for analysis. Although Elk has never been a province capital, it was included in group A due to the size of its population, which is bigger than in Suwałki, Ostrołęka and Ciechanów. On 31 December 1973, the average population of the analysed towns was about 52 thousand people, with the biggest of them – Olsztyn – inhabited by 105.6 thousand people and the smallest – Ostrołęka – by 25.1 thousand.

Group B included 6 towns with the population (31 December 1973) ranging from 17.1 thousand (Bartoszyce) to 22.6 thousand (Ostróda), with the average population of 19.4 thousand. Another group – C – included 10 towns with populations ranging from 13.6 thousand to 9.2 thousand and the average of 11.5 thousand. The last group comprised 14 smallest towns, with an average population of 5.2 thousand people as of the end of 1973. The largest of them – Pasłęk – had a population of nearly 7.9 thousand, and the smallest – Bisztynek – merely 2.2 thousand. Altogether, 36 towns were included in the analysis.

A comparative method was used in the assessment of town size, with the average size calculated as the arithmetical average of the populations within the groups in consecutive years. This gave the town development rate in particular groups. The results were compared in consecutive three-year periods. The results obtained were used to calculate the average growth rate (in three-year periods) of the average population in each of the groups. The structure of the town sizes and the provincial area per town were, in turn, used as the basis for an analysis of the urban centres network in the Warmia and Mazury region.

The time period of the analysis covered the years 1973-2005. The period was divided into two sub-periods – from 1973 to 1990 and from 1990 to 2005. The year 1990 can be regarded as a turning point. That was the year when, after over a decade of dynamic growth, there was a significant slow-down in the population growth, both in Warmia and Mazury, and all over the country. Hence, in order to show the discussed processes better, 1990 was taken as the transition point.

### **The size of an urban centre and its development rate**

Of the total number of 36 urban centres, most are small and medium-sized towns. Together, they account for over 85% of the analysed units. A group of larger towns comprises only 6 towns from group A. However, those are towns that even in Poland are difficult to be regarded as large, as only cities with over 200 thousand inhabitants can be included in this group.

Table 1 shows the average population size in towns in Warmia and Mazury in the period between 1973 and 1990. The highest growth rate was recorded for the towns in Group A. During the analysed 17 years, their average population increased by nearly 60%. Considering the dynamics of the change during the relatively short period, the development rate must be regarded as high. The corresponding values for Group B – the towns with the average population of nearly 20 thousand – were only slightly lower. Relatively small towns – groups B and C – developed quickly, but much more slowly than the largest ones.

Table 1

The population and change rate in the towns of the Warmia and Mazury region in the years 1973-1990 (31 December)

Group	Number of towns	1973	1990		
		Average population, thousands	Average population, thousands	Growth rate (1973=100)	Average growth rate in three year periods (%)
Group A	6	51.8	82.9	159.3	8.1
Group B	6	19.4	29.6	154.7	7.6
Group C	10	11.5	16.6	144.5	6.3
Group D	14	5.2	6.9	132.9	4.8
Total	36	22.0	34.0	147.4	6.7

*Source: Statistical yearbooks for the Provinces of Olsztyn, Ciechanów, Elbląg, WUS, 1974, 1976, 1979, 1982, 1985, 1988, 1991. Presentation of data and calculations by the author.*

The data presented in Table 1 indicate clearly that the growth of the population of towns in Warmia and Mazury in the period 1973-1990 was accompanied by faster development. The rate of changes and the average (for three years) growth rate indicate a distinct relationship between a town size and its capacity for development. This proves the existence of a positive relationship between the size of a town and its development growth. Therefore, initial analyses corroborate the assumptions formulated in the hypothesis.

The most characteristic feature in the period covering the years 1990-2005 was a considerable drop in the growth rate for the analysed towns, even with regression observed in some groups. A positive relationship between the size of a town and its development rate can still be observed, but it is not as distinct as before 1990. The growth of the largest towns was still the fastest, with their population increasing by nearly 6%. In the other towns, the growth rate ranged from -1.6% for Group B to 0.7% for Group C.

The average population growth rate in the largest towns dropped in relation to the previous period and was equal to only 1.2% for three-year periods. Compared to the years 1975-1990, this is a considerable decrease in the growth rate and if the tendency persists, it can negatively affect the capacity for development, both of the towns and of the regions as a whole. For the other towns, the value decreased even more and ranged from -0.3% and 0.8%.

Usually, a 100% growth of a town's population during a so-called "economic planning perspective", i.e. during the period of 20 years (PONIATOWICZ 1998, p. 46) is regarded as determinant of dynamic growth.

Table 2

The number of inhabitants and rate of changes in the towns of the Province of Warmia and Mazury in the period 1990-2005 (as of 31 XII)

Group	1990	2005				
	Average population (thousands)	Average population (thousands)	Growth rate (years 1999=100)	Average growth rate 1990-2005 (%)	Growth rate (years 1973=100)	Average growth rate 1973-2005 (%)
Group A	82.9	87.8	105.9	1.2	169.3	5.0
Group B	29.6	29.1	98.4	-0.3	149.8	3.9
Group C	16.6	16.7	100.7	0.8	145.5	3.8
Group D	6.9	6.9	100.5	0.1	133.6	2.7
Total	34.0	35.2	101.4	0.5	149.6	3.9

Source: Statistical yearbooks for the Provinces of Olsztyn, Ciechanów, Elbląg, WUS, 1991, 1994, 1997. Presentation of data and calculations by the author.

\* data for the years 1999-2005: GUS, [http://www.stat.gov.pl/cgi-bin/demografia/xrap?woj=28&table=web-lsa&\\*rok=2005&gmina=3090&mw=2,30.01.2007,22.00hrs](http://www.stat.gov.pl/cgi-bin/demografia/xrap?woj=28&table=web-lsa&*rok=2005&gmina=3090&mw=2,30.01.2007,22.00hrs).

Taking even a 30-year period of analysis, the population growth rate for the towns of Warmia and Mazury was lower. The average value for the whole set of towns for the period between 1973 and 2005 was merely 49.6%, with the value for the biggest towns close to only 70%. Consequently, assuming further that the regional development level depends on the development of towns in the region, this can provide an explanation of the poorer socio-economic development of this part of Poland.

One of the characteristic features of the population changes in Warmia and Mazury in the period 1990-2005 was a considerable decrease in the growth rate. This reflects a more general phenomenon which can be observed around the country, where negative tendencies in demographic processes have been observed since the early 1990s. The average population size in 1973-1990 in all the towns in Warmia in Mazury increased by 6.7% in three-year periods, whereas after 1990 the index dropped to the level of 0.5%. However, it should be noted that its value is significantly affected by a relatively high growth rate in the largest towns, which during the period reached 1.2%. In 1990-2005, the small and medium-sized towns recorded a very low (and even negative in group B) average population growth rate.

The stagnation observed in small and medium-sized centres and the high growth rate observed in large towns at the time makes the latter the potential regional growth poles. During the period under study only they recorded steady and stable growth which was higher than the average for the region, which according to the adopted assumptions is a necessary condition to stimulate the development of the local and regional surroundings.

## Characteristics of the network of urban centres

As economic practice has shown, particularly favourable conditions for creating processes of regional development exist in highly urbanised areas, with large and well developed network of big urban centres, and in areas directly influenced by large cities. In such a settlement network, the stimuli for development can propagate faster and more effectively, affecting the economic growth of the region (HARAŃCZYK 1998, p. 67).

In 2004, there were 49 municipalities in Warmia and Mazury (in this case, the set under study includes the towns situated in the present-day province of Warmia and Mazury). Taking into account the overall number of towns in Poland, they account for 5.5% of the number. At the end of 2004 they were inhabited by 858.8 thousand people, with the inhabitants of the two largest towns of the region – Olsztyn and Elbląg – accounting for nearly 1/3 of the urban dwellers in the region. Altogether, the inhabitants of all the towns in the region account for 60.1% of the provincial population, which is close to the national average, where the proportion of urban inhabitants is equal to 61.5%. For particular provinces, a higher urbanisation index is observed in the provinces of Silesia (78.8%), Lower Silesia (71%), West Pomerania (69.3%), Pomerania (67.5%), Mazovia (64.7%), Łódź (64.7%), Lubuskie (64.2%) and Kujawy-Pomerania (61.7%).

Table 3  
The size of urban centres in the province of Warmia and Mazury in 2004 (as of 31.12)

Province	Population			
	Below 50,000	50,000-100,000	100,000-200,000	Over 200,000
Warmia and Mazury	46	1	2	0
Warmia and Mazury (%)	93.9	2.0	4.1	0.0
Poland	798	49	21	18
Poland (w %)	90.9	5.5	2.4	2.1

Source: *Miasta w liczbach 2003-2004*, GUS, <http://www.stat.gov.pl/opracowania-zbiorcze/index.htm>, 10.01.2007, 12.00 hrs. Presentation of data and calculations by the author.

Considering the structure of the urban centres situated in the province of Warmia and Mazury, it is also close to that typical of the whole country. Small cities, below 50 thousand inhabitants, are a majority; in Warmia and Mazury they account for 90% of the total number. However, the absence of urban centres over 200 thousand is disadvantageous for the region;s potential for development. And those are the urban centres which are more than other able to accumulate and generate economic impulses which can stimulate the



regional economy. A study conducted by American researchers has shown that for an urban centre to effectively influence the surrounding region and stimulate its growth, it has to be inhabited by at least 250 thousand people (HANSEN 2001, p. 25). Similar conclusions can be drawn from the findings of a study by A. Potrykowska. She claims that in Poland only cities of at least 200 thousand are able to provide sufficient stimuli to drive a region's development (KOŁODZIEJSKI, STASIAK 1986, p. 61). The region under study has only two cities (Olsztyn and Elbląg) with a population ranging from 100 to 200 thousand and one (Ełk) inhabited by close to 55 thousand people.

When the average size of an urban centre in the Province is considered, which at the end of 2004 in the province under study was equal to 17.5 thousand inhabitants, only two other provinces in the country – Lubuskie and Opolskie – had towns with a lower average population size. These were, respectively, 15.4 thousand and 15.8 thousand.

The domination of small towns in the urban centre network does not result in the domination of the population of such towns in the population of the province. In this case, the population of the largest towns, with populations over 50 thousand, dominates. In the area under study there are only three such towns, yet their population accounts for more than 40% of the urban dwellers in the region.

Table 4

Urban population by city size (as of 31.12.2004)

Province	Population in city, by the city size			
	Below 50,000	50,000-100,000	100,000-200,000	Over 200,000
Warmia and Mazury	58.4	6.5	35.1	–
Poland	38.7	14.2	12.2	34.9

Source: *Miasta w liczbach 2003-2004*, GUS, <http://www.stat.gov.pl/opracowania-zbiorcze/index.htm>, 10.01.2007, 12.00 hrs. Presentation of data and calculations by the author.

Therefore, on the one hand there are three relatively large urban centres inhabited by the largest portion of the population of all the towns in the province, on the other – there are 46 smaller entities (of which those under 10 thousand inhabitants account for over half of the total number of towns), which are inhabited by the remaining population of Warmia and Mazury. This indicates not only a considerable distribution of the municipal population between big and small towns, but primarily their underdevelopment as compared to the bigger towns.

Compared to the data for the whole country, the structure of the population of the biggest towns in the Province is also disadvantageous. The majority share of the national average are the populations of big towns, exceeding

200 thousand, i.e. the centres which can effectively influence the surrounding region. The largest portion of the population of the province of Warmia and Mazury are inhabitants of towns with the medium-sized (as compared to the rest of the country) population; this is also too small (according to the results of the previously mentioned studies) to effectively influence the economy of the region.

Another factor which reveals the level of development of an urban network is the urban centre density index, calculated as the ratio of the region's area and the number of towns situated there. The values of the index are presented in Table 5. For the sake of comparison, such data are also presented for the provinces where the urban network development level is the highest and for the whole country.

Compared to the whole country, the province of Warmia and Mazury has one of the most poorly developed urban settlement networks, with one town per nearly 500 square kilometres of the area. It is one of the highest values in Poland which, together with a relatively small size of an average town in the region, shows the gap between Warmia and Mazury and not only the most highly urbanised provinces, but also the national average.

Table 5

Urban density index in 2004

Province	Number of towns	Province area (km <sup>2</sup> ) per 1 town
Warmia and Mazury	49	494
Lubelskie	41	613
Silesia	71	178
Poland (total)	886	352.9

Source: *Miasta w liczbach 2003-2004*, GUS, <http://www.stat.gov.pl/opracowania-zbiorcze/index.htm>, 10.01.2007, 12.00 hrs. Presentation of data and the calculations by the author.

Significantly, the most poorly urbanised areas also include the Provinces of Podlasie and Lublin, that is those situated in the eastern, most poorly developed macroregion of Poland with the lowest level of socio-economic development. On the other hand, the regions with the most highly developed urban network, i.e. the provinces of Lower Silesia and Małopolska are those with the highest level of economic development (*Miasta w liczbach 2003-2004*). The disproportions manifest themselves in considerable differences between the per capita GDP, the size and structure of the added value or the level of the economic and social activity of the population (GORZELAK 2004, p. 37-59). A comparison of the values clearly shows the significant differences between

the levels of economic development of the regions depending on the development of the urban network, which is what the second hypothesis claims. (GORZELAK 2004, p. 37-59)

## **Conclusions**

The analysis of the network of urban centres in the Province of Warmia and Mazury and their development rate has produced the following conclusions:

1. The years 1973-1990 were periods of dynamic development of the towns of Warmia and Mazury. During the period, their population increased by nearly 47% on average, with the mean growth rate (for three-year periods) calculated as 6.7%. In the process, a significant positive relationship between the size of towns under study and their development rate was found. The growth rate for large towns, comprising Group A, was nearly twice as high (8.2%) as the smaller ones (4.9%). The values for the towns from groups B and C were 7.3% and 6.3%, respectively. The data positively verify the first hypothesis.

2. The other of the analysed periods, the years 1990-2005, saw a distinct and progressive decrease in the tempo of positive demographic processes in the towns of the region. The trend was particularly visible in small towns, whose population at the end of 1973 did not exceed 20 thousand. The year 1990 was a breaking point which marked the beginning of a period of stagnation and, in some cases, even of regression in terms of the population sizes in towns. A lower population growth rate was also typical of larger towns, although it was higher than in other towns. The conclusion that can be drawn is that only those urban centres could influence their surroundings, playing the role of regional growth poles. There are three such towns in Warmia and Mazury – Olsztyn, Elbląg and Ełk – and it is them (small as they are in comparison with other towns in Poland) that should be regarded as potential centres stimulating the development of the region.

3. A comparison of the condition and structure of the urban network in Warmia and Mazury with the area of Poland reveals considerable differentiation. A typical feature of the province of Warmia and Mazury is the domination of small urban centres with the population not exceeding 10 thousand inhabitants. The structure of urban population is dominated by inhabitants of the biggest towns, which are, in turn, the least numerous. Additionally, the density of urban centres is by nearly 40% lower than the national average, which means that a relatively small part of the province is situated within the sphere of influence of towns.

4. Taking the assumption of the dominating role of towns in creating regional development, which is claimed by F. Perroux's theory of growth poles, a lower level of socio-economic development of Warmia and Mazury can be attributed to an insufficiently developed network of urban centres. The most rapidly developing provinces in Poland include the provinces of Wielkopolska and Lower Silesia, whereas the most economically backward regions include the provinces of Warmia and Mazury, Podlasie, Lublin and Podkarpackie. The urban centres networks in the former, unlike those in the latter, are well developed, with a relatively high proportion of big towns. Therefore it can be concluded that the disparities in the development of various areas of Poland can be largely attributed to the size of towns and their distribution. This fact positively verifies the second hypothesis.

5. Two factors can be observed in Warmia and Mazury which make the situation of the region much less advantageous than other provinces. Both the structure of town sizes and their distribution are permanent features and it is difficult to even think of a change. Therefore, if two factors have a permanent negative effect (compared with other provinces) on the region's development, it is almost certain that the existing disparities will persist for a long time.

Translated by JOANNA JENSEN

Accepted for print 5.02.2008

## Reference

- BENKO G. 1993. *Geografia technopolii*. Wydawnictwo Naukowe PWN, Warszawa.
- GORZELAK G. 2004. *Polska polityka regionalna wobec zróżnicowań polskiej przestrzeni*. Studia regionalne i lokalne: 4(18).
- GORZELAK G., SMĘTKOWSKI M. 2005. *Metropolia i jej region w gospodarce informacyjnej*. Wydawnictwo Naukowe SCHOLAR, Warszawa.
- HANSEN N.M. 2001. *How regional policy can benefit from economic theory*. Growth and change, 1(1).
- HARAŃCZYK A. 1998. *Miasta polskie w procesie globalizacji gospodarki*. Wydawnictwo Naukowe PWN, Warszawa.
- KOŁODZIEJSKI J., STASIAK A. 1986. *Koncepcja podziału dwustopniowego- wariant podstawowy*. W: *Podział administracyjny kraju. Studia, materiały, dyskusje*, Biuletyn, Zeszyt 128, PAN Komitet Przestrzennego Zagospodarowania Kraju, Państwowe Wydawnictwo Naukowe, Warszawa.
- PIOTROWSKI D. 2004. *Rozwój peryferyjnego ośrodka o znaczeniu regionalnym a zmiany struktur funkcjonalno-przestrzennych na przykładzie Suwałk*. Wyższa Szkoła Rozwoju Lokalnego, Żyrardów.
- PONIATOWICZ M. 1998. *Procesy urbanizacyjne na obszarze Polski północno-wschodniej*. Wydawnictwo Uniwersytetu w Białymstoku, Białystok.
- Cohesion policy and cities: the urban contribution to growth and jobs in the regions*. 2005. Commissions Staff Working Paper, Commission of The European Communities, Brussels.
- A. Sobala-Gwosdz, *Obszary wzrostu i stagnacji w województwie podkarpackim*. <http://www.geo.uj.edu.pl/zaklady/zrr/publikacje/books/pdf/ASG%20wstep.pdf>.
- Miasta w liczbach 2003-2004*, GUS, <http://www.stat.gov.pl/opracowania-zbiorcze/index.htm>.

## **FINANCING OF ROAD PROJECTS IN WARMIA AND MAZURY VOIVODSHIP IN THE ASPECT OF ACCESSION OF POLAND TO THE EUROPEAN UNION**

***Miroslaw Kowalewski, Agnieszka Ściśłowska***

Unit of Accountancy  
University of Warmia and Mazury in Olsztyn

**Key words:** road projects, European Union funds, financing of projects.

### **A b s t r a c t**

The paper aims at determining the influence of the accession of Poland to the European Union on financing and scope of road projects in Warmia and Mazury voivodship. The material for the study was obtained from the Voivodship Roads Management (VRM) in Olsztyn, which is responsible for administration, maintenance and development of the roads network in Warmia and Mazury voivodship. The paper presents the current sources for road projects financing in Poland. On the basis of the study it was established that the accession of Poland to the European Union had a positive influence on road infrastructure development in Warmia and Mazury voivodship mainly through increasing the number of sources of financing. After gaining the status of a European Union member by Poland the share of funds allocated for current maintenance of roads in the structure of expenditures of the Voivodship Roads Management in Olsztyn decreased while the share of funds for new road projects increased.

## **FINANSOWANIE INWESTYCJI DROGOWYCH W WOJEWÓDZTWIE WARMIŃSKO- -MAZURSKIM W ASPEKCIE WSTĄPIENIA POLSKI DO UNII EUROPEJSKIEJ**

***Miroslaw Kowalewski, Agnieszka Ściśłowska***

Zakład Rachunkowości  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** inwestycje drogowe, fundusze Unii Europejskiej, finansowanie inwestycji.

### **A b s t r a k t**

Artykuł ma na celu określenie wpływu, jaki wywarło wstąpienie Polski do UE na finansowanie i zakres inwestycji drogowych w województwie warmińsko-mazurskim. Materiał badawczy pozyskano

z Zarządu Dróg Wojewódzkich w Olsztynie, który zajmuje się administrowaniem, utrzymaniem i rozwojem sieci drogowej w województwie warmińsko-mazurskim. Przedstawiono aktualne źródła finansowania inwestycji drogowych w Polsce. Na podstawie przeprowadzonych badań stwierdzono, że wstąpienie Polski do UE pozytywnie wpłynęło na rozwój infrastruktury drogowej w województwie warmińsko-mazurskim, przede wszystkim dzięki zwiększeniu liczby źródeł jej finansowania. Po uzyskaniu przez Polskę statusu członka UE w strukturze wydatków Zarządu Dróg Wojewódzkich w Olsztynie zmniejszył się udział środków przeznaczonych na bieżące utrzymanie dróg, wyraźnie wzrósł natomiast udział środków przeznaczonych na nowe inwestycje drogowe.

## Introduction

Poor level of development and technical condition of transport infrastructure in Poland are among the fundamental barriers to economic growth and modernization of the country hindering the processes of economic transformation and full integration of Poland with the European Union in the field of transport policy, mainly access to the network and market (*Infrastruktura*. 2004). Accession of Poland together with other countries of Central and Eastern Europe to the European Union creates the need for adjusting the internal transport infrastructure to the standards of European networks, which allow free movement of people and goods that is of fundamental importance for establishing the expanded free market.

Transport infrastructure development in Poland, including the network of public roads and motorways was characterized by many inappropriate developments occurring since 1950s. They resulted mainly from excessively low outlays on investment projects, changing programs and lack of consistency in implementation of projects as well as scattering of outlays. The outlays for investment projects not only did not allow the development of transport infrastructure ahead of the current needs but also made preventing decapitalization of the assets impossible (WOJEWÓDZKA-KRÓL 2003).

The network of national roads in Poland has many defects that cause that their standard is much lower than in the European Union countries. The share of collision-free roads (motorways and express roads) in the entire network of public roads in Poland is relatively low (ca. 3,6%). The majority of main roads are generally accessible, which results in collisions between individual types of traffic (freight, passenger) and also between the function of servicing the traffic and the function of servicing the road environment. According to experts, geometric parameters of Polish roads are not matching the requirements of current traffic; first of all their strength in frequent cases does not satisfy the general European Union standard requirement of 115 kN/axis. Also the technical status of the surface on Polish roads and bridges is far from the desired quality. Increased traffic congestion is observed on the roads, which

leads to, among others, an increase in the number of traffic accidents and other external transport costs (KOWALEWSKI 2005). Absence of roads representing appropriate standards is the major barrier to development of the country that limits the potential for using the potential of Polish economy such as geographic position and market size. Additionally, the status of roads in Poland hinders international exchange with the EU and other neighboring countries and limits the possibilities for attracting foreign capital and mobility of workforce. Those factors decrease competitiveness of Polish economy and, as a consequence, form a barrier to development and innovation processes in the country (ROLLA 2004).

### **Goal, scope and methodology of studies**

The goal of the study is to determine the effects of the accession of Poland to the European Union on the example of road projects in Warmia and Mazury voivodship.

Achievement of that goal requires answering the following research questions:

1) What funds are allocated for road network maintenance and development in Warmia and Mazury voivodship after Poland's accession to the European Union as compared to the preaccession period?

2) For what purpose are the road funds used in Warmia and Mazury voivodship?

3) What is the level of absorption of road funds allocated for road projects in Warmia and Mazury voivodship?

The research material was gathered using the documentation method. Thanks to its application the secondary data was obtained from the Voivodship Roads Management in Olsztyn, which deals with administration and maintenance of road network in Warmia and Mazury voivodship. The methods of analyses and comparisons were used for processing the data collected. The conducted analysis of the data allowed computing the appropriate measures of economic parameters, e.g. the measures of structure and measures of relations between components. The paper also applies the vertical and horizontal comparisons with the plans.

### **Financing of road projects**

Both maintenance and development of the road network in Poland are currently financed from the following sources:

- State Treasury (ST),
- local government,
- National Road Fund (NRF),
- credit and loans contracted by the State Treasury, local government and Bank Gospodarstwa Krajowego (BGK) for the NRF,
- European Union funds,
- business entities when traffic load caused by their activities exceeds 20% of the total traffic load on the road,
- revenues from sales of bonds issued by local government as well as Bank Gospodarstwa Krajowego (for the NRF) (TALUNAS 2006).

In 2003, the last year before accession of Poland to the European Union, the excise tax on fuels collected by the State (1772 M PLN) was the main source of roads financing at the Generalna Dyrekcja Dróg Krajowych i Autostrad (General Directorate for National Roads and Motorways) (GDDKiA) while the smallest amount was planned to be obtained from the State budget – 94 M PLN (SUWARA 2003).

The domestic public contribution included funds from:

- the State budget,
- the units of local government,
- other domestic public funds, i.e. dedicated funds, budgets of State-owned legal entities, contributions of beneficiaries from outside the public finance sector applying for co-financing of projects aimed at public benefits.

Currently, the National Road Fund is another important source of roads funding in Poland. It was established at the Bank Gospodarstwa Krajowego on the basis of the Act of 27.10.1994 on toll motorways and the National Road Fund (DzU 2004 nr 256, poz. 2571 ze zm.). The NRF started operating as of 1.01.2004. It supports implementation of the Government Program of Construction of Roads and Motorways in Poland through accumulating funds for preparation, construction, reconstruction, rehabilitation and maintenance as well as protection of motorways, express roads and other national roads.

The basic sources supplying funds to the NRF are:

- current revenues from the fuel charge on engine fuels and gas for vehicles (80% of the revenues supply the NRF and 20% the Railway Fund),
- funds transferred by the GDDKiA as fees paid by operators of toll motorways and fees for tender documents,
- interest on NRF funds on account with the BGK and bank deposits,
- other revenues from road fees (fees and penalties collected on the basis of the Act on road transport and the Act on public roads).

The additional sources of funds include:

- liabilities contracted by the BGK to supply the NRF in the form of credit and loans as well as issuance of bonds,



- revenues for motorways in case where the collection of fees is done by the GDDKiA,
- funds from foreign sources that are not reimbursable, grants, donations and other revenues.

The NRF as an important source of roads funding should, first of all, finance projects implemented using the European Union aid funds. The financial support from the EU for implementation of programs as well as infrastructural projects increases the demand for domestic funds, which is mainly the consequence of the necessity to co-finance specific projects as well as the requirement to pre-finance the amounts allocated from the European Union funds<sup>1</sup>.

Amendment of the regulations concerning the toll motorways and the National Road Fund (starting with the last quarter of 2005) charged the NRF with the duty to disburse, in the form of monthly compensations to all operators of toll motorways, the compensation for resignation from collecting tolls for heavy goods vehicles. Those disbursements are to be financed from revenues from sales of the passage payment cards (vignettes) that are collected by the GDDKiA on the basis of the regulations on road transport<sup>2</sup>.

The budget subsidy, until 2004 the most important source of funding for road projects, also has an important share in funding of road projects. The budget subsidy comes from the allocation from the excise tax included in fuel price (*Drogi i mosty...* 2004).

The state budget reserves can be used for subsidizing projects on county and voivodship roads as well as projects on county, voivodship and national roads within the limits of towns that possess the status of a county<sup>3</sup>. Additionally, road projects are also financed from dedicated reserve of the State. Absorption of funds from the EU budget requires possessing significant funds by the public finance sector units. Funds allocated for the purpose in specific budget segments by individual disposers of those segments, i.e. line ministries should be the main source of co-financing of tasks involving EU funding. As a consequence the EU funds should be treated as a supplement to domestic outlays made by individual beneficiaries.

State budget funds cannot be the only source for co-financing of programs and projects implemented with participation of the EU funds. As a consequence it is necessary to use the funds of State dedicated funds such as the Labor Fund, Environment Protection Fund and other<sup>4</sup>.

---

<sup>1</sup> [www.transport.projekt.pl](http://www.transport.projekt.pl) (21.11.2006).

<sup>2</sup> [www.bgk.pl/fundusze/kfd.jsp](http://www.bgk.pl/fundusze/kfd.jsp) (28.02.2007).

<sup>3</sup> [www.kongresdrogowy.pl](http://www.kongresdrogowy.pl) (28.02.2007).

<sup>4</sup> [www.infor.pl](http://www.infor.pl) (27.02.2007).

It should be highlighted that the possibility of obtaining funds from the EU Funds for financing, e.g. infrastructural projects in the transport sector forces the local government authorities and competent Government agencies (mainly the GDDKiA) to change the approach to road projects planning and implementation. The positive aspect of Polish preparations to absorption of aid funds from the referenced funds was that excessive centralization of funds distribution was avoided (BURNEWICZ 2004).

### **Financing of voivodship roads network maintenance and development in Warmia and Mazury voivodship during the years 2003-2005 – plans and performance**

The Voivodship Roads Management in Olsztyn administers the network of voivodship roads with the total length of 1870,25 km and encompasses with its activities the area of Warmia and Mazury voivodship excluding the towns possessing the status of counties (Olsztyn and Elbląg). According to the agreement between the Mayor of Kętrzyn County and the Voivodship Management Board, the VRM also manages over 438 km of county roads. It also performs the function of the body managing the traffic on voivodship roads. Table 1 presents the limits of funds available to the VRM in Olsztyn for road and bridge projects during the period covered by the study.

In 2003, the planned limit of funds was 7 458 013 PLN, in 2004 that limit was significantly higher as compared to the preceding year amounting 29 740 311 PLN, while in 2005 it amounted 33 365 716,00 PLN. Out of the above amounts the actually spent amounts were: 7 293 148,48 PLN, 29 646 319,52 PLN and 31 344 652,50 PLN respectively.

In 2003, the budget plan for the VRM was very modest as compared to the following years. The largest outlays were planned for current maintenance of roads and bridges. The relatively small number of planned investment projects on roads and bridges resulted from limited funds (lack of sufficient number of projects financing sources and their limited accessibility).

A major increase of total planned funds occurred in 2004; the number of new sources of funding for road projects and non-reimbursable subsidies increased as a consequence of Poland's accession to the European Union, which gave the VRM in Olsztyn wider potential for implementing new road projects. More funds were allocated for new projects and less for current maintenance of road infrastructure.

Very high operational expenditures of the VRM in 2004 and 2005 are cause of concerns. Those expenditures are linked to investments in volume structures, investment purchases, current operation of the organization as well as

Table 1  
Performance of the VRM in Olsztyn during the years 2003-2005

Item	Budget of outlays for years (in PLN)			Budget outlays performance (in PLN)		
	2003	2004	2005	2003	2004	2005
Outlays for roads and bridges	18 704 335,00	43 027 053,00	55 968 025,00	18 539 470,36	42 933 061,82	53 946 961,23
a) investment projects on roads and bridges	7 458 013,00	29 740 311,00	33 365 716,00	7 293 148,48	29 646 319,52	31 344 652,50
– projects implemented within the budget year	1 241 126,00	26 597 173,00	6 834 395,00	1 076 726,54	26 503 188,76	6 834 391,17
– long-term investment projects	6 216 887,00	3 143 138,00	26 531 321,00	6 216 421,94	3 143 130,76	24 510 261,33
b) current maintenance of roads and bridges	11 246 322,00	13 286 742,00	22 602 309,00	11 246 321,88	13 286 742,30	22 602 308,73
Operational costs of the entity	7 034 986,00	49 981 466,00	63 219 700,00	7 034 917,69	49 886 602,47	61 193 447,73
County roads in Kętrzyn County	3 041 172,00	3 044 759,00	2 060 236,00	2 526 968,83	3 033 638,94	2 059 523,38
Total	28 780 493,00	53 026 225,00	65 279 936,00	28 101 356,88	52 920 241,00	63 256 961,11

Source: Own work based on the data of the VRM in Olsztyn.

employees payroll and the payroll derivatives. It is surprising that they are higher than investment outlays on roads and bridges.

The current maintenance of roads encompasses winter maintenance, road surface renovation, rehabilitation of sidewalks and breaks, partial rehabilitation and other current maintenance works. In 2003, the amount of 11 246 322 PLN, of which 11 246 321,88 PLN representing 100,00% of the allocated amount was spent, was allocated for current maintenance of roads and bridges. In 2004, the amount of 13 286 742 PLN, of which 13 286 742,30 PLN representing 100,00% of planned expenditures was spent, was planned for that purpose. The significant increase of funds planned for maintenance of roads and bridges occurred in 2005. The increase in the number of sources of funds for financing road projects and non-reimbursable subsidies for development of road infrastructure allowed embarking on projects that could not be implemented before accession of Poland to the European Union.

The structure of performance of the VRM expenditures plan for the years 2003-2005 is presented in Table 2.

In 2005, the amount of 22 602 309 PLN, of which 22 602 308,73 PLN representing 100,00% of the plan was spent, was allocated on current maintenance of roads and bridges.

The data presented in Table 2 indicates that in none of the years covered the plan of expenditures was performed 100%. The differences between the amounts planned and actual expenditures resulted, among others, from lower projects implementation costs, differences between the offered price and implementation costs, the necessity of making less horizontal signage than initially planned (during modernization of junctions). Nevertheless, the performance of the plan should be treated as satisfactory as in the majority of cases it exceeded 95%.

Table 2  
Structure of the VRM in Olsztyn outlays plan performance during the years 2003-2005

Item	Plan performance (in %) during the year		
	2003	2004	2005
Outlays for roads and bridges	99,12	99,78	96,39
a) investment projects on roads and bridges	97,79	99,68	93,94
– projects implemented within the budget year	86,75	99,65	100,00
– long-term investment projects	99,99	100,00	92,38
b) current maintenance of roads and bridges	100,00	100,00	100,00
Operational costs of the entity	100,00	99,81	96,79
County roads in Kętrzyn County	83,10	99,63	99,96
Total	97,64	99,80	96,90

Source: Own work based on the data from the VRM in Olsztyn.

Road projects are capex intensive. Own funds of units managing the roads and bridges are insufficient compared to the need. Poland as the European Union Member State gained not only the additional possibilities of using numerous earlier unavailable sources of funding for road projects but it also received an opportunity to match the countries that are leaders in road infrastructure development.

In 2003, the VRM in Olsztyn allocated the relatively highest proportion of funds to current maintenance of roads and bridges because of the limited financial capacity (no State budget subsidy). In 2005, it allocated the relatively highest amount of funds for long-term projects. The highest amount of funds for projects involving roads and bridges (26 597 173 PLN) was allocated in 2004 (Tab. 3).

As concerns investment projects on roads and bridges implemented by the VRM in Olsztyn during individual budget years, it can be found that in 2003 those projects were financed entirely from the VRM funds. During the years 2004 and 2005 the VRM also received subsidies from the State budget (Tab. 3).

Long-term projects require higher financial outlays than one-year projects as the projects that require many years are more complex. Additionally, the extended implementation period results in the increase of expenditures for, e.g. payroll of employees performing specific project tasks.

Table 3

Road and bridge projects (one year) of the VRM in Olsztyn – total projects implemented during budget years 2003-2005

Year	Planned VRM projects (in PLN)			Performance as at the last day of the year (in PLN)		
	total outlays	including		total outlays	including	
		VRM funds	state budget subsidy		VRM funds	state budget subsidy
2003	1 241 126	1 241 126	0	1 076 726,54	1 076 726,54	0
2004	26 597 173	7 185 015	19 412 158	26 503 188,76	7 091 101,76	19 412 087
2005	6 834 395	2 800 064	4 034 331	6 834 391,17	2 800 060,17	4 034 331

Source: Own work based on the data from the VRM in Olsztyn.

Within the frameworks of the voivodship contract for Warmia and Mazury voivodship for the years 2001-2003, the VRM in Olsztyn planned allocating the amount of 6 216 887 PLN for investment projects. The contribution of own funds of the VRM was 1 392 191 PLN (22,39%), while the remaining part, i.e. 4 824 696 PLN (77,61%) were the State budget funds. In 2003 the VRM

received no State budget subsidy for one-year projects (Tab. 3). The VRM performed 99,99% of the investment expenditures plan using the budget subsidy to the same extent.

Performance of the investment projects plan by the VRM in Olsztyn as at the end of 2003 was 6 216 421,94 PLN (99,99%). Performance of the plan of expenditures funded from own funds amounted 1 392 190,17 PLN and the State budget funds – 4 824 231,77 PLN.

The long-term road and bridge investment projects implemented by the VRM in Olsztyn on the basis of the long-term investment program were financed in 2004 from own funds of the VRM, the structural (EU) funds as well as territorial government and other funds. Within the frameworks of long-term investment plan the VRM in Olsztyn planned for 2004 the road and bridge investment projects amounting 3 143 138 PLN, of which around 100,00% i.e. 3 143 130,76 PLN was spent. The total outlays within the frameworks of that program amount to 325 674 076 PLN. The part of that amount not used in 2004 was used in the consecutive years depending on the timeframe of the individual projects. As Poland acceded the European Union in 2004 all the subsidies from the structural funds were visibly reflected in the following years mainly.

In 2005, the road and bridge investment projects of the VRM in Olsztyn included in the long-term investment program were financed mainly from own funds of the VRM and the subsidy from the European Regional Development Fund (ERDF) as well as the State budget (fig. 1). The performance of the plan for long-term investment plan reached 24 510 261,33 PLN, representing 92,38% of the outlays planned. The own funds had the highest share in that amount at 11 989 639,14 PLN, while the share of the ERDF was the smallest at 3 457 894,19 PLN.

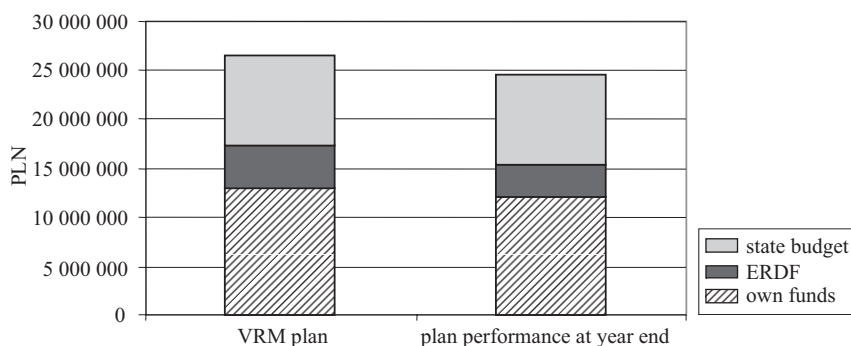


Fig. 1. Road and bridge investment projects of the VRM in Olsztyn in 2005 resulting from the long-term investment program

Source: Own work based on the data from the VRM in Olsztyn.

The total financial outlays on investment projects on roads and bridges in 2005 amounted 352 312 078 PLN. During that year 6,96% of the total outlays according to the long-term investment program were made. Some of the expenditures on investment projects on roads and bridges were qualified as funds rolled-over for 2006.

Warmia and Mazury voivodship as indicated by the data obtained from the VRM in Olsztyn uses the opportunity of developing road projects offered by the accession of Poland to the European structures. The positive influence of accession to the EU on the number and scope of road investment projects in Warmia and Mazury is visible while the increased potential of funding those projects creates the opportunity for fast improvement of road infrastructure in the region.

## **Conclusion**

The conducted studies on road investment projects financing allowed achievement of the goal of the study, i.e. determination of the effects of the accession of Poland to the European Union based on the example of road projects in Warmia and Mazury voivodship implemented by the Voivodship Roads Management in Olsztyn. The following conclusions were formulated on the basis of the results obtained:

1. Accession of Poland to the European Union caused an evident increase in both the value and number of funds that can be used for financing road investment projects at both the national level and the level of individual voivodships. The European Union funds offer a particularly valuable source for road projects financing because that are non-reimbursable as opposed to the funds of international financial institutions. As a consequence they also have a positive influence of transport infrastructure development.

2. Following obtaining by Poland of the status of the European Union Member State clearly visible changes took place in both the value (evident increase) and the structure of expenditures of the Voivodship Roads Management in Olsztyn. First of all, the share of funds allocated for current roads maintenance decreased while the share of funds allocated for new road investment projects increased.

## References

- BURNEWICZ J. 2004. *Pomoc finansowa Unii Europejskiej w zakresie rozwoju polskiej infrastruktury transportowej – warunki i efekty*. Zeszyty Naukowe WE UG, 27: 57-70.
- Drogi i mosty – poradnik praktyka. Część 7. Metody finansowania inwestycji*. 2004. Red. L. RAFALSKI. Published by Erlang Dashöfer sp. z o.o., Warszawa.
- Finansowanie infrastruktury transportowej*. Red. S. MIECZNIKOWSKI. 1996. Wydawnictwo Gdańskie, Gdańsk.
- Infrastruktura*. 2004. Red. Z. Brodecki. LexisNexis, Warszawa.
- KOWALEWSKI M. 2005. *Koszty i korzyści inwestycji drogowych*. Wydawnictwo UWM, Olsztyn.
- ROLLA M. 2004. *Drogi w IV Europejskim Korytarzu Transportowym*. Drogownictwo, 8: 261-264.
- SUWARA T. 2003. *Polityka drogowa w kontekście przystąpienia Polski do UE*. Polskie Drogi – Informator Polskiego Stowarzyszenia Wykonawców Nawierzchni Asfaltowych, 7: 11-12.
- TALUNAS E. 2006. *Historia finansowania drogownictwa polskiego*. Drogownictwo, 2: 71-83.
- Ustawa z dnia 21 marca 1985 roku o drogach publicznych. DzU 2004 r., nr 204, poz. 2086.
- Ustawa z 27 października 1994 r. o autostradach płatnych i KFD. DzU 2004 r., nr 256, poz. 2571 z późn. zm.
- WOJEWÓDZKA-KRÓL K. 2003. *Autostrada A1 przykładem aktualnych problemów rozwoju infrastruktury w Polsce*. Zeszyty Naukowe WE UG, 25: 99-109.

## Internet services and portals

- [www.bgk.pl/fundusze/kfd.jsp](http://www.bgk.pl/fundusze/kfd.jsp) 28.02.2007.
- [www.infor.pl](http://www.infor.pl) 27.02.2007.
- [www.kongresdrogowy.pl](http://www.kongresdrogowy.pl) 28.02.2007.
- [www.transport.projekt.pl](http://www.transport.projekt.pl) 21.11.2006



## FUNCTIONING OF EMPLOYEE PENSION PROGRAMS IN WARMIA AND MAZURY VOIVODSHIP

*Sylvia Pieńkowska-Kamieniecka, Elżbieta Kucka*

Chair of Insurance  
University of Warmia and Mazury in Olsztyn

**Key words:** pension protection system, employee pension program, employee, employer, premium.

### A b s t r a c t

The paper presents the market of employee pension programs (EPP) in Poland during the years 1999-2005, discusses the premises for participation in the program and presents qualitative assessment of insurance based employee pension programs functioning in Warmia and Mazury voivodship. The analysis was carried out on the basis of unrestricted interviews with employers operating employee pension programs, employees participating in them and representatives of insurance companies involved in establishment and servicing the EPPs as well as indirect questionnaire based interviews (using two questionnaire formats).

The conducted studies indicate that the insufficient level of pension benefits from social insurance is the main motivation for joining the EPP. Participation in the program is also determined by the fact that the basic premium is financed by the employer.

## FUNKCJONOWANIE PRACOWNICZYCH PROGRAMÓW EMERYTALNYCH W WOJEWÓDZTWIE WARMIŃSKO-MAZURSKIM

*Sylvia Pieńkowska-Kamieniecka, Elżbieta Kucka*

Katedra Ubezpieczeń  
Uniwersytet Warmińsko-Mazurski w Olsztynie

**Słowa kluczowe:** system zabezpieczenia emerytalnego, pracowniczy program emerytalny, pracownik, pracodawca, składka.

### A b s t r a k t

W pracy przedstawiono rynek pracowniczych programów emerytalnych (PPE) w Polsce w latach 1999-2005, omówiono przesłanki uczestnictwa w programie oraz dokonano jakościowej oceny funkcjonujących w województwie warmińsko-mazurskim pracowniczych programów emerytalnych

w formie ubezpieczeniowej. Analizy dokonano na podstawie wywiadów swobodnych z pracodawcami prowadzącymi pracowniczy program emerytalny, pracownikami w nich uczestniczącymi i przedstawicielami zakładów ubezpieczeń zajmujących się tworzeniem i obsługą PPE oraz na podstawie pośrednich wywiadów ankietowych (z wykorzystaniem dwóch kwestionariuszy ankiety).

Z przeprowadzonych badań wynika, że niedostateczny poziom świadczeń emerytalnych z ubezpieczenia społecznego jest najważniejszą motywacją przystąpienia do programu. Uczestnictwo w programie jest również zdeterminowane faktem, że składka podstawowa jest finansowana przez pracodawcę.

## **Introduction and goal of study**

The Polish pension system consists of three pillars, which according to the slogan accompanying the pension system reform, “Security through diversity”, are to secure satisfactory level of pension benefit in the future. The basic assumption of the system is security and stability, which results from the fact that ultimately all pensioners will receive the pensions from at least two sources, i.e. the Social Insurance Fund (FUS) and the funds accrued in open pension programs (OFE) that represent the two initial pillars of the pension system characterized by compulsory membership and repartition-capital financing (STROIŃSKI 2003, pp. 465-466). People born up to the 31<sup>st</sup> of December 1948 and between the 1<sup>st</sup> of January 1949 and the 31<sup>st</sup> of December 1968 who did not join the open pension funds will receive their pension from the FUS only. In view of the projections that the pension from the first and second pillar will not suffice to secure the current material standard after retirement from professional activities the third pillar (based on capital financing) gains on importance. It is characterized by voluntary participation in the market of employee pension programs (EPP) or individual pension accounts (IKE) (Ustawa o Indywidualnych Kontach Emerytalnych z 20.04.2004 r.).

When the term “third pillar” is used it can be understood and used in two meanings. According to the “wide” meaning it includes all voluntary forms of saving for retirement (e.g. investments in securities, life insurance with capital fund) that do not benefit from any statutory privileges and not subjected to limitations, which in turn occur in case of supplementary pension products understood in the “narrow” meaning of the term. For instance the funds accrued on the individual pension account or at the employee pension program cannot be managed by the program member before reaching the age specified in the legal regulations and they cannot be borrowed for a specific time. The premium for participation in an employee pension program are not included in the base for calculation of the social insurance contributions while the funds accrued on individual account up to the amount specified in the Act are exempt from the capital gains tax (RUBEL 2006, pp. 199-200).

This paper aims at presenting the market of employee pension programs, characteristics of employers establishing an employee pension program in the form of insurance as the organizational and legal format, type of business and number of employees as well as showing the motivations for establishing and joining the employee pension program.

### **Methodology of study**

Considering the nature of employee pension programs the task of which is accrual of funds by employers for the future pension of the employee the study covered both the members of the program and the program organizers (employers). The study covered all employers from Warmia and Mazury voivodship operating employee pension programs in the form of group life insurance with the insurance capital fund and the employees participating in those programs.

The study was carried out at 23 enterprises out of 27 (85,19%) operating employee pension programs in the insurance format<sup>1</sup> in the subject voivodship encompassing 396 employees participating in them (i.e. 0,36% of the EPP market in the form of the group life insurance with the insurance capital fund nationwide). The basic research method for data collection was questionnaire based interviews and unrestricted interviews with employers operating employee pension programs, employees participating in them and representatives of insurance companies involved in establishment and servicing the EPS that served development of two questionnaires. The questionnaire targeted at employees was filled by participants in 23 programs while the questionnaire targeted at the employers was returned by 22 employers.

### **Situation in the employee pension programs market**

Any employer can organize and operate the employee pension program. Accumulation of savings within the EPP has been possible as of the 1<sup>st</sup> of April 1999 when the Ustawa o pracowniczych programach emerytalnych z 22.08.1997 r. (uniform text in DzU z 2001, nr 60, poz. 623 as amended) became effective. As of the 1<sup>st</sup> of June 2004 that Act was substituted by the Ustawa o pracowniczych programach emerytalnych z 20.04.2004 r. (DzU nr 116, poz. 1207 as amended). The development rate of employee pension

---

<sup>1</sup> The full name of that form of program is: "The Contract of group life insurance of employees in the form of group life insurance with the insurance capital fund".

programs as concerns the number of operating programs, their membership, value of premiums paid and the assets value accrued as at the end of the year in individual forms of employee pension programs (excluding foreign managed ones, i.e. the form that in practical terms does not function at all) is presented in Table 1.

Table 1  
Selected data characterizing the market of employee pension programs during the years 1999-2005

Item	1999	2000	2001	2002	2003	2004	2005
Number of operating EPPs, including those in the form of:	3	29	150	182	207	342	906
– insurance	–	3	17	33	82	202	707
– contract with investment fund	3	25	56	70	74	94	174
– employee pension fund	–	1	77	79	51	46	25
Membership in EPPs ('000) including those in the form of:	0,03	5,39	55,27	81,22	96,48	129,09	260,25
– Insurance	–	0,41	6,07	8,22	13,63	26,06	109,82
– contract with investment fund	0,03	4,05	19,30	23,70	29,46	51,49	88,77
– employee pension fund	–	0,93	29,90	49,30	53,38	51,53	61,66
Value of premiums paid (in PLN million) including:	0,03	4,55	70,70	202,44	223,27	267,61	413,63
– basic premiums	0,03	4,50	68,68	195,93	211,08	255,95	397,80
– complementary premiums	–	0,05	2,02	6,51	12,19	11,66	15,83
Value of assets accrued by EPPs as at year end (in PLN million)	0,03	4,73	71,23	279,83	526,97	919,45	1695,47

Source: *Rynek pracowniczych programów emerytalnych (ppe) w 2005 roku*, 2006, p. 3.

As at the end of 2005, there were 906 employee pension programs, mainly in the insurance format (78,04%). The funds accrued were managed by 27 financial institutions of which 48,15% were investment fund companies, 33,33% – life insurance companies and 18,52% – employee pension companies (*Rynek pracowniczych*. 2006, p. 4). The increased interest in establishing employee pension programs as compared to the preceding years (increase by 164,91% as compared to 2004 and by 337,68% as compared to 2003) was influenced mainly by the required conversion of existing non-statutory forms of group saving for retirement into the EPPs because of the possibility of retaining the deduction from the contribution for the Social Insurance Fund in case of the basic premium. The basic premium is not included in the base amount for determination of the compulsory contributions to the social insurance. Initially, employers could file applications for conversion of saving plans into employee pension programs with the Supervision Commission by the end of 2004, however, the amendment of the Ustawa o pracowniczych

programach emerytalnych (Ustawa z 01.07.2005 r. o zmianie ustawy o organizacji i funkcjonowaniu funduszy emerytalnych oraz niektórych innych ustaw), effective as of the 17<sup>th</sup> of August 2005 extended that deadline until the end of 2005.

With the increase in number of functioning programs also the number of members in them increased to reach as at the end of 2005 260,250 (increase by 101,60% as compared to 2004). The largest number of employees was covered by programs in the form of the contract of group life insurance with insurance capital fund (42,20%) and in the form of contracts with investment funds (23,69%), while the lowest membership was recorded in programs of employee pension fund type (23,69%). On the other hand, in 2005 the largest share in PLN 413,63 million of premiums was that of the investment funds (42,34%), and the lowest that to life insurance companies (27,14%). Additionally, those were mainly the basic premiums, i.e. paid by the employer (96,17%) for 231,320 active members in employee pension programs (*Rynek pracowniczych...* 2006, pp. 3-4). The complementary premiums paid by employees the amount of which cannot exceed in a given year threefold the year limits of payments to the individual pension accounts (IKE) represented just 3,83% of the total value of premiums paid to the employee pension programs while only 19,000 people decided to pay them. As concerns the participation index that is the relation of employees for whom the basic premiums are paid to the overall employment by employers operating the employee pension programs, as at the end of 2005 it was 70,40% (73,57% in 2004), which means that in average seven out of ten employees who have such a possibility participate in the program. The highest level of participation index was achieved in case of membership in employee pension funds (81,95%), while in the other forms of employee pension programs it was 75,28% in case of the contract for payment by the employer of premiums for employees to investment funds and 63,97% in those in the form of insurance (*Rynek pracowniczych...* 2006, p. 6).

### **Characteristics of employers operating employee pension programs in the insurance form in Warmia and Mazury voivodship<sup>2</sup>**

As at the 31<sup>st</sup> of December 2005 employee pension programs in Warmia and Mazury voivodship were operated by 29 employers<sup>3</sup> (i.e. 0,03% of entities of

---

<sup>2</sup> Warmia and Mazury voivodship is situated in the northeastern part of Poland and has the area of 24 173 km<sup>2</sup> (i.e. 7,7% of the area of the country). It is populated by 1 428 601 people representing 3,7% of the national population. According to the data as at the end of 2005 the number of working people was 396,900 and the average month remuneration gross was PLN 2,015.99.

national economy operating in the analyzed voivodship) out of which 27 had the form of the contract of group life insurance with insurance capital fund and as a consequence that form of the EPP was the subject of studies conducted between June and December 2005. The largest number of programs was operated in Olsztyn county (9 EPPs) and Elbląg county (8 EPPs) while the smallest in Bartoszyce and Mrągowo counties (1 EPP in each). In 12 out of 19 counties of Warmia and Mazury voivodship not a single employee pension program was in operation.

Among the employee pension programs in the form of the contract of group life insurance with the insurance capital fund covered by the study programs established by capital companies that operated the total of 17 employee pension programs dominated. The division of employers according to their organizational-legal form is presented in Table 2.

Table 2

Entities of national economy and organizational-legal forms of entities operating EPPs in the insurance form in Warmia and Mazury voivodship in 2005

	Number of entities	Number of entities operating EPPs	Number of entities covered
Joint stock companies	147	7	6
Limited liability companies	4 174	14	12
Partnerships	719	3	2
Cooperatives	735	1	1
Foundations	174	1	1
Individuals operating business activity	82 447	1	1
Total	88 396	27	23*

\* In case of one of the 23 enterprises in Warmia and Mazury voivodship covered that operate EPPs in the insurance form the questionnaire was completed by employees only and as a consequence the further presentations of characteristics of employers operating employee pension programs will cover just 22 enterprises.

Source: Own work based on *Zmiany strukturalne grup podmiotów w gospodarce narodowej w województwie warmińsko-mazurskim w 2005 r.*, (2006) and own studies.

<sup>3</sup> In Warmia and Mazury voivodship only 3.06% of the total number of the EPPs in the Polish market was operated. The largest number of programs was operated in Mazowieckie (16.05%), Wielkopolskie (14.04%) and Silesian (12.99%) voivodships while the lowest numbers in Świętokrzyskie (1.80%) and Zachodniopomorskie (2.32%) voivodships. Such big differences in the number of registered programs between voivodships indicate a tight link between the situation in the local labor market and organization of the EPPs. The voivodships with the largest numbers of programs were characterized by much lower unemployment as compared to the other regions of Poland. In Mazowieckie voivodship the registered unemployment rate as at the end of 2005 was 13.8%, while in Warmia and Mazury voivodship it was 27.2% (150,900 registered unemployed).

As concerns the type of business, employee pension programs were established most frequently by enterprises producing and supplying electricity, gas and water (Tab. 3).

Table 3

Division of employers by type of business activity\*

Section according to PKD	Item	Number of EPPs
E	production and supply of electricity, gas and water	8
G	wholesale and retail trade, repairs of automotive vehicles, motorcycles and personal and household goods	4
A	agriculture, hunting and forestry	2
D	industrial processing	2
F	Construction	1
J	financial services	1
Total**		18

\* Based on the Rozporządzenie Rady Ministrów z 20.01.2004 r. w Sprawie Polskiej Klasyfikacji Działalności (PKD), (Dz.U. z 2004 Nr 33, poz. 289)

\*\* Four employers did not define their business according to the PKD classification but they were employers providing plumbing services, scientific and technical advisory services related to engineering, laboratory services and environment protection.

Source: Own work based on own studies.

Characteristics of employers operating employee pension programs are also presented according to the employment level (Tab. 4).

Table 4

Division of employers operating EPPs according to employment

Enterprise size	Number of EPPs
Micro- (up to 10 employees)	1
Small (from 11 to 50 employees)	7
Medium (from 51 to 250 employees)	7
Large (over 250 employees)	7
Total	22

Source: Own work based on own studies.

The studies conducted indicate that establishment of employee pension program in the insurance form is chosen equally by small, medium and large enterprises. They are created the least frequently by micro-enterprises, i.e. enterprises employing no more than 10 employees, which is linked to high rotation of employees in them.

## **Analysis of motivations conditioning participation in the market of employee pension programs**

Employee pension program s characterized by voluntary nature of establishment and membership and freedom of form choice as well as the conditions of operation. The initiative of establishing a program is exclusively on the employer, which means that it is his sole decision whether the program is established in the enterprise or not. Establishment of employee pension program involves three stages: making a company or inter-company contract (in case a number of employers want to establish the program on identical terms and conditions); making the contract with a financial institution or establishing an employee company and the pension fund; registration of the program with the Financial Supervision Commission. Accession of an employee to the EPP takes place by filing the so-called declaration of participation, which contains, among others, the data concerning the amount of basic premium declared by the employer and possible complementary premium paid by the employee, the option of premium investing scheme and the decision concerning disposal of funds in case of death of the member.

Employers, who were required to finance the so-called basic premium amounting no more than 7% of the gross remuneration of the employee are the main sponsors of employee pension programs. The premium can be defined as a percent or as the amount or as a percent with the premium cup (art. 24 section 1-3 of the *Ustawa o pracowniczych programach emerytalnych*). The employee can on the other hand make a voluntary declaration of payment of the so-called complementary premium. Its amount is defined as a percent or as the amount on the basis of the net remuneration of the employee, however, it cannot exceed 450% of the average month remuneration in national economy during a calendar year (art. 25 section 4 of the *Ustawa o pracowniczych programach emerytalnych*).

Each employer, indifferent of the number of employees and duration of operation can establish an EPP. EPPs are established by employers mainly because of their willingness to provide financial security for their employees during old age using the possibility of classifying the costs of operating the program for costs of obtaining revenues and not including the basic premium in the basic amount for calculation of the basic amount of social insurance contributions. According to art. 22 section 1b of the *Ustawa o podatku dochodowym od osób fizycznych* 26<sup>th</sup> of July 1991 (DzU nr 80, poz. 350 as amended) and art. 15 section 1d of the *Ustawa o podatku dochodowym od osób prawnych* of the 15<sup>th</sup> of February 1992 (DzU nr 2, poz. 86 as amended), the costs of generating revenues include expenditures incurred by the employer for assuring appropriate performance of employee pension program. The basic



premium, which is not included in the base for calculation of compulsory contributions to social insurance represents on the other hand the taxable income of the employee (art. 9 section 1 Ustawy o podatku dochodowym od osób fizycznych), meaning that the employee must pay tax on amounts paid for him to the program (JĘDRASIK-JANKOWSKA 2001, p. 325). Additionally the program is established for effective motivation of employees and encouraging the best of them to establish ties with the enterprise.

Results of the questionnaire study conducted also showed that accession to the employee pension program was motivated by various needs. The motivation indicated most frequently as the reason for joining the program was the fear of decreasing incomes after retirement from professional activity and the need for complementing the pension obtained from social insurance.

Analyzing the motivations for accession to employee pension programs certain differences can be noticed dependent on such demographic variables as member's gender and age (Tab. 5).

Table 5  
Motivations for accession to employee pension programs depending on gender and age of the respondents\* (%)

Item	Gender		Age (years)			
	K n = 202	M n = 191	up to 25 n = 9	26-35 n = 100	36-45 n = 143	over 45** n = 141
Fear of decreased income after retirement from professional activity	51,49	46,60	22,22	42,00	54,55	50,35
Need to complement pension benefits from the social insurance	38,61	48,17	22,22	33,00	47,55	47,52
Need to secure the material position of the family in case of death	31,19	45,03	44,44	44,00	34,27	36,88
Need to secure the period of inability to work in case of a disease, accident or disability	29,21	36,65	33,33	35,00	32,87	31,21
Obtaining insurance protection	22,77	27,23	55,56	20,00	26,57	24,82
Possibility of investing coupled with insurance protection in case of unfavorable events in life	11,88	10,47	11,11	14,00	10,49	9,93
Willingness to tighten the bonds with the employer	4,95	7,33	11,11	4,00	9,09	4,26
Hard to say	7,43	8,38	0,00	12,00	5,59	7,80
Other	0,00	0,52	0,00	0,00	0,70	0,00

\* As only one member in the employee pension program was over 60 years old the respondents were grouped into age ranges of: 46-60 years and 61-70 lat, creating the group of respondents aged over 45 years

\*\* The results do not add to 100% because a number of answers could be chosen.

Source: own work based on own studies.

The conclusions concerning differences or similarities should be drawn from the ranking of motivations chosen by the respondents. Accession to the employee pension program was motivated mainly by the fear of decrease in income on retirement from professional activities and disappointment with the level of pension benefits from social insurance. Family considerations, i.e. the need to secure the material standing of the family in case of death of program member, the need to secure the period of disability to work in case of a disease, accident or disability and the need of obtaining insurance coverage were chosen as motivation more frequently by men. Additionally it was noticed that both women and men have a similar level of appreciation for the capital aspect of the insurance format of the EPPs that is the possibility of investing coupled with insurance protection in case of unfavorable life events. Indifferent of the gender the respondents showed minor perception of the employee pension program as the instrument that served strengthening the bonds with the employer.

Analyzing the respondents' age it should be noticed that people aged up to 25 years appreciated mainly the insurance coverage while the other age groups motivated accession to the employee pension program by the decrease of income during retirement period. Respondents aged up to 25 years, although mainly single and possessing no children, stressed also that in accession to the program they considered the need to secure the material status of the future family in case of their death, which indicates increasing awareness of the insurance and pension benefits among the young participants in the EPPs market.

Motivations for accession to employee pension programs were also determined by the level of education and net income generated. Undoubtedly awareness of retirement increases with age, which means that employees with tertiary education more frequently than other respondents motivated their participation in the program by the fear of limited income after retirement from professional career and the need of supplementing the pension benefits from social insurance. The situation is similar in case of net income, which is linked to the fact that a very significant dependence between education and net income of the respondents ( $\chi^2 = 56.171, p = 0.000$ ) was confirmed meaning that best educated people generated the highest incomes.

The studies conducted also indicate (Fig. 1) that in addition to accumulation of funds for the future pension the employees considered the fact that the basic premium is paid by the employer was also important (57.58%). The studies conducted, however, indicate that the amount of basic premium in itself was important for 7.32% of the respondents meaning that satisfactory motivation for accession to the program is provided by the possibility of obtaining even small amounts of additional funds for the future pension, even

for the best educated employees (61,69%) and the highest income employees, which was indicated by 65.00% of respondents generating net income exceeding PLN 3,000.

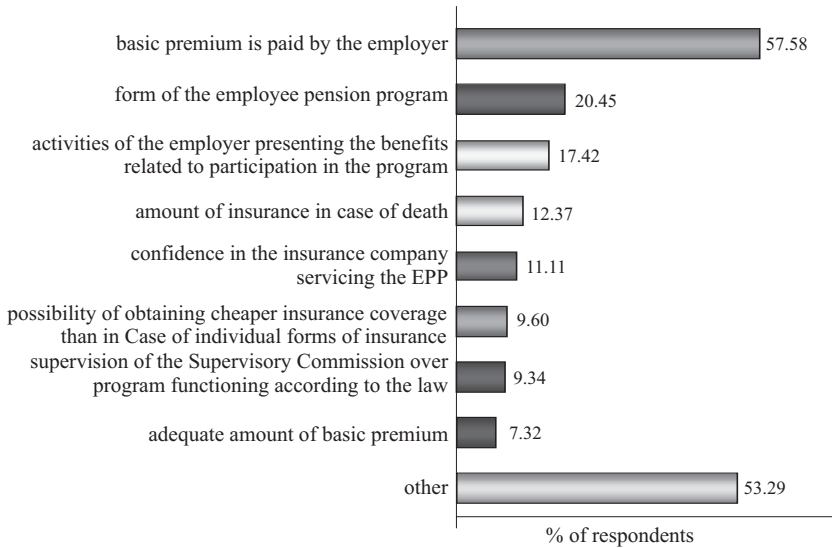


Fig. 1. Factors determining participation in employee pension programs (%)

Source: Own work based on own studies.

Analysis of the results of studies also showed that employees who decided to participate in the employee pension program initiated and financed by the employer in their majority rank it good (64,90%) and very good (16,67%). Only every eighth employee ranked the program as satisfactory and every eighteenth as poor or unsatisfactory. The  $\chi$ -square test, however, did not confirm existence of a significant relation between the demographic characteristics of the respondent and the opinion on the implemented program. Certain differences between them, nevertheless, can be noticed (Tab. 6).

The data in table 6 shows that women ranked the employee pension program in their enterprise slightly higher than men and less frequently presented negative opinions on it. Also young people have a higher opinion on the program they participate in which is indicated by the fact that the percentage of people aged up to 25 years ranking it as very good was 33.33% while among the consecutive age groups it was, in average, twice lower. Considering the number of children we can notice that the programs are ranked the highest by respondents having no children.

Table 6

Respondents' opinions on the employee pension program they participated in depending on the gender, age or number of children (%)

Rank	Gender		Age				Number of children			
	F <i>n</i> =204	M <i>n</i> =192	up to 25 <i>n</i> =9	26-35 <i>n</i> =101	36-45 <i>n</i> =144	over 45 <i>n</i> =142	none <i>n</i> =82	one <i>n</i> =120	two <i>n</i> =166	three and more <i>n</i> =28
Very good	19,61	13,54	33,33	13,86	18,06	16,20	23,17	14,17	15,66	14,29
Good	63,73	66,15	55,56	68,32	62,50	65,49	62,20	61,67	68,67	64,29
Satisfactory	12,74	13,01	11,11	11,88	13,89	12,68	10,98	16,66	11,46	10,71
Poor	2,94	4,17	0,00	3,96	3,47	3,52	3,65	5,00	3,01	0,00
Unsatisfactory	0,98	3,13	0,00	1,98	2,08	2,11	0,00	2,50	1,20	10,71
	$\chi^2=5,063$ , $p=0,281$		$\chi^2=3,569$ , $p=0,990$				$\chi^2=17,013$ , $p=0,149$			

Source: Own work based on own studies.

The studies also aimed at verifying whether employees participating in the program were willing to continue participation in that form of group saving of funds for the future pension. That willingness was expressed by 94.70% of the respondents and only 5.30% declared that they did not wish to participate in the program motivating their decisions mainly by limited knowledge on saving for the old age within the frameworks of the EPPs and the fact that premiums paid by the employers were too low to be sufficient for securing decent life during retirement.

## Conclusion

Employee pension programs serve accumulation of funds for the period of limited incomes after retirement from professional activity. Fear of the decrease of income after reaching the retirement age and the need for supplementing the pension benefits from social insurance were the major motivations for accession to the employee pension program. According to the respondents they are a favorable and good form of saving for the times of the future retirement.

The fact that the basic premium is financed fully by the employer proved the factor determining participation in the program, next to the function of accruing funds for the future retirement although the amount of premium was of much less importance. Also the form of the employee pension program as the contract of group life insurance with the insurance capital fund is an important factor determining accession to the program. The insurance needs are, in view

of that, strongly felt by the employees, particularly the young ones for whom coverage within the program with life insurance and in many cases additional insurance coverage represented the determining motivations for accession to the program. A large role in the development of employee pension programs is also played by the employer, as the employee decision concerning participation in the program is strongly dependent on the employer's initiatives in promoting saving for the retirement within the frameworks of the EPP. The least importance was assigned by the employees to the number and types of capital funds offered by the insurer and the costs deducted from the basic premium, i.e. the cost of insurance coverage (the cost of the risk of death and the additional risks) and the costs of the insurance company.

The studies conducted indicate also that since the beginning of operation of the employee pension programs market no level of interest in establishing them matching the expectations at the time of implementation of the pension system reform has been met. This is confirmed by the fact that as at the end of 2005, i.e. over six years after creating the institution of employee pension program only 906 programs were operational with the membership of ca. 260,000 of employees. As concerns the individual pension accounts, during the period from the 1<sup>st</sup> of September 2004 until the end of 2005, their number reached over 425,000 of which over 62% was operated by insurance companies. As a consequence, the role of employee pension programs in providing financial security for future pensioners plays only a marginal role currently. The major reasons include insufficient tax motivations (the applied tax model tax-exemption-exemption in which the employee pays the income tax on the benefit that he is nor receiving directly), long and complex procedure for establishing the program, high unemployment level as well as insufficient educational and promotional activities concerning the EPP. Intensified information campaigns as well as changes in the tax and economic policies of the State are as a consequence necessary to increase the awareness of pension in the society and encourage saving for old age within the frameworks of employee pension programs. This is justified in particular by the fact that 68.43% of the respondents stated that employee pension programs were a good form of group saving for old age period. They motivated the opinion mainly by the possibility of accruing funds for the future pension, the fact that the basic premium was paid by the employer, exemption from the income tax of the revenues generated through the program and the possibility of continuation of saving in case of a change of the employer.

## References

- JĘDRASIK-JANKOWSKA I. 2001. *Ubezpieczenia emerytalne. Trzy filary*. PWN, Warszawa.
- RUBEL K. 2006. *Pracownicze programy emerytalne i indywidualne konta emerytalne*. W: *System ubezpieczeń społecznych. Zagadnienia podstawowe*. Wydawnictwo Prawnicze LexisNexis, Warszawa.
- Rynek pracowniczych programów emerytalnych (ppe) w 2005 roku*. 2006. Department of Pension Funds Supervision UKNUIFE, Warszawa.
- STROIŃSKI E. 2003. *Ubezpieczenia na życie. Teoria i praktyka*. Poltext, Warszawa.
- Zmiany strukturalne grup podmiotów w gospodarce narodowej w województwie warmińsko-mazurskim w 2005 r.* Urząd Statystyczny w Olsztynie, Olsztyn 2006.
- Ustawa o podatku dochodowym od osób fizycznych z 26.07.1991 r. (DzU nr 80, poz. 350 ze zm.).
- Ustawa o podatku dochodowym od osób prawnych z 15.02.1992 r. (DzU Nr 21, poz. 86 ze zm.).
- Ustawa o pracowniczych programach emerytalnych z 22.08.1997 r. (DzU z 2001, nr 60, poz. 623 ze zm.).
- Rozporządzenie Rady Ministrów z 20.01.2004 r. of w sprawie Polskiej Klasyfikacji Działalności (PKD) (DzU no. 33, poz. 289).
- Ustawa o Indywidualnych Kontach Emerytalnych z 20.04.2004 r. (DzU nr 116, poz. 1205 ze zm.).
- Ustawa o pracowniczych programach emerytalnych z 20.04.2004 r. (DzU nr 116, poz. 1207 ze zm.).

## **INFLUENCE OF INSURANCE EDUCATION ON THE LEVEL OF INSURANCE AWARENESS OF UNIVERSITY OF WARMIA AND MAZURY STUDENTS**

***Elżbieta Kucka, Justyna Witkowska***

Department of Insurance  
University of Warmia and Mazury

**Key words:** insurance, insurance education, insurance awareness.

### **A b s t r a c t**

Insurance education concerning both life and property insurance is very important but the consequences of decisions taken today in that field could be assessed after many years from now only.

Clients must learn the interpretation of insurance regulations, general insurance conditions, the skills of comparing and drawing conclusions from insurance offers. The subject knowledge on insurance and pension funds is required for efficient functioning in the European society.

The Ombudsman of the Insured and the Insurance and Risk Management Chamber of Commerce states that insurance education should be targeted first of all to the youth. The paper presents the results of the study on the level of insurance awareness among the last year students at the University of Warmia and Mazury. The studies showed that more than a half of the respondents assessed the level insurance awareness as low. To improve that situation the educational activities of insurance companies should be expanded.

## **WPLYW EDUKACJI NA POZIOM ŚWIADOMOŚCI UBEZPIECZENIOWEJ STUDENTÓW UNIWERSYTETU WARMIŃSKO-MAZURSKIEGO**

***Elżbieta Kucka, Justyna Witkowska***

Katedra Ubezpieczeń  
Uniwersytet Warmińsko-Mazurski

**Słowa kluczowe:** ubezpieczenia, edukacja ubezpieczeniowa, świadomość ubezpieczeniowa.

### **A b s t r a k t**

Edukacja ubezpieczeniowa, zarówno w zakresie ubezpieczeń na życie, jak i majątkowych, jest bardzo ważna, a skutki decyzji podjętych dziś w tym zakresie będzie można ocenić dopiero po wielu latach.

Klienci muszą nauczyć się interpretowania przepisów ubezpieczeniowych, ogólnych warunków ubezpieczenia, umiejętności porównywania i wyciągania wniosków z ofert ubezpieczeniowych. Merytoryczna wiedza z zakresu ubezpieczeń oraz funduszy emerytalnych jest potrzebna do sprawnego funkcjonowania w społeczeństwie europejskim.

Rzecznik Ubezpieczonych oraz Izba Gospodarcza Ubezpieczeń i Obsługi Ryzyka podaje, że edukację ubezpieczeniową należy prowadzić przede wszystkim wśród młodzieży. W artykule zbadano poziom świadomości ubezpieczeniowej studentów ostatniego roku Uniwersytetu Warmińsko-Mazurskiego. Badania wykazały, że ponad połowa ankietowanych oceniła poziom świadomości ubezpieczeniowej jako niski. W celu poprawy tej sytuacji należy zwiększyć działalność edukacyjną zakładów ubezpieczeń.

## Introduction

The majority of people deal with insurance. They insure their life, health or property. Some of those insurances are compulsory. An increasing number of insurance contracts, however, are those belonging to the group of voluntary insurances. The insurance practice of Western countries indicates that the majority of citizens possess insurance. With age the number of insurances increases creating the “protective belt” of the client.

With development of market economy in Poland the insurance market also changed. The Act on insurance activity of July 28, 1990 changed the rules of operation for insurance companies. It introduced, among others, demonopolization of the insurance market, divided insurances into two segments – segment I – life insurance and segment II – other personal insurances and property insurances. That Act has been amended on numerous occasions.

During seventeen years the insurance market has also changed as concerns the number of insurance companies in operation (in 1991 – 24 companies, in 2006 – 67 companies) that offer a diversified package of insurance adjusted to the needs of the potential client.

Understanding of basis principles governing insurance will influence satisfaction with services of individual insurance companies. According to Stanisław Nowak, President of the Management Board of the Insurance and Risk Management Chamber of Commerce (IGUiOR), taking efforts aiming at building a coherent insurance education program is necessary.

In Poland we deal with low insurance awareness. That situation, however, is improving. We can see the reasons for that situation in the insufficient level of professional knowledge among employees of insurance companies and agents. The blame can be put on the insurance companies that pay too little attention to training as well as poor quality of insurance service in case of disbursement of damages and benefits.

The report “Knowledge of the Poles on insurance” prepared by the Polish Insurance and Risk Management Chamber of Commerce indicates that 43% of



citizens know very little about insurance. Another 30% declare possessing general knowledge but they would have problems with selecting the offer appropriate for them (BARAŃSKA 2004). Buyers of insurance services consider the insurance agent the main source of information about insurances and rank the insurance company second as the source of information.

According to the participants of the conference "Insurance in the Polish area of the European market" that took place in Warsaw on April 25, 2003, the educational program should be targeted mainly at the youth. A multi-step program should be established in secondary and tertiary schools. Further, the attention should be focused on households.

Insurance education is one of the functions to be carried out by all consumer organizations and the Office of the Ombudsman of the Insured. One of the tasks of the Ombudsman of the Insured (art. 20.6 of the Act) is to initiate and organize educational and information activities in the area of protection of the insurers, insureds and beneficiaries. The Ombudsman shall carry out his tasks through the Office of the Ombudsman (art. 21.1). The Foundation of Insurance Education established on May 18, 1999, and aims at organization and support of activities in increasing the insurance knowledge of the people operates as a partner of the Office of the Ombudsman.

Accession of Poland to the European Union increased competition in the Polish insurance market and is a stimulating factor. The insurance awareness of a Polish consumer is far from that of the citizens of, e.g. Hungary or Czech Republic. Czech not to mention the Germans of the British (POŁCZYŃSKA 1998, pp. 5-7).

Aiming at unification of insurance activities within the entire European Union a number of directives effective in all Member States have been developed. European Community Directive of September 30, 2002, details the minimum requirements in the area of knowledge and professional skills of insurance intermediaries. The consumer of insurance service should be sure that he deals only with intermediaries who are competent and possess appropriate qualifications. The Directive recommends that the intermediary should complete the educational program of minimum 300 hours of education during a period not shorter than 18 months. The program should end with the examination. Aiming at securing appropriate protection of consumer interests it is important that the intermediaries should participate in continuous training. The professional knowledge must be updated continually. In Poland the number of training hours was reduced to 150 on the simultaneously applicable condition that the intermediary should possess minimum three years of professional experience (MINTOF-CZYŻ 2003, pp. 5-7).

The majority of clients complain about too complicated General Insurance Conditions. In view of the above while "designing the general insurance

conditions one should remember that they play an immense educational and informational role for the insurer” (KOWALEWSKI 2004, pp. 24-30) and, as a consequence, they should be written in the easy language understandable for general Polish society. It is possible through avoiding specialist legal terminology in the General Insurance Conditions while attempting at describing the scope of insurance in functional terms. It is necessary to establish insurance databases related to the accession to the EU containing regulations, directives, notions and also language terms.

The basic characteristic on which the insurance activity is based is the trust of insuring person in the insurance company. If the insurance company loses client's trust once, it will have to devote many years to rebuild it. The insured expects that in case of a specific event the insurance company will disburse to him, according to the agreement conditions, the due damages. Honest information is necessary to build the trust.

Another, according to some the most important, issue is that the majority of people has limited funds available and they treat insurance expenditures as secondary expenditures made after satisfying the basic life needs and, eventually, compulsory insurance.

Problems with enforcement of rights from the so-called endowment policies the value of which depreciated immensely, number of resignations from life insurance and bankruptcies of some insurance companies (Westa, Polisa, Hestia of Poznań) have negative influence on decisions concerning insurance.

For people entering an insurance contract the process requires time and attention; for 74% of Poles that act is considered very important while only 18% believe that the insurance procedure should be completed as fast as possible (FIGLARZ-GŁUSZYŃSKA, GŁUSZYŃSKI 2004).

In Poland, during the recent years, sponsoring has become an increasingly frequent tool for communication of companies with the environment. In case of insurance companies sponsoring, in most cases, has the form of cash benefits or providing free insurance coverage service.

The level of sponsoring expenditures in Poland is not known. It is estimated that insurance companies allocate several millions of dollars for that purpose per year (MAŁEK, RODZINKA 2003, pp. 36-39). The largest insurance companies: PZU, Warta, Commercial Union, Amplico Life, Allianz or Ergo Hestia are the most frequent sponsors of different types of activities. They finance, among others, culture and arts 21.1%, material aid for children and children organizations 14%, science and education 12.7%, improvement of public safety 10.4% professional sports 8.7% and health improvement 8.7%. Insurance companies should remember that sponsoring not only builds the image of the company in the market but also translates into financial and marketing results.

Journalists and mass media play an important role in insurance education. On January 26, 2004, a seminar took place on "Safe insured, safe insurers". It was organized for press, radio and television journalists by the Minister of Finance. It was devoted to discussing the new regulations in business insurances (ZIELIŃSKI 2004, pp. 5-8).

Polish market lacks appropriate educational books written in a clear and simple way, combined with questions or games that could provide real education.

Whether the client is satisfied with services or products is the resultant of two forces: the product or service quality level and customer expectations. Insurance companies should opt for more care for the already won clients. The agents, jointly with policyholders, should analyze whether the insurance the client has would fully satisfy the client's needs. Such consultations would also aim at education and increasing the insurance awareness of over 4 million clients that are holders of individual insurance products (WALCERZ 2003, p. 12).

Concluding, educational programs should be delivered by the Foundation of Insurance Education operating in collaboration with the Ombudsman, the Insurance and Risk Management Chamber of Commerce, The Chamber of Insurance Brokers and other associations representing the views of the insurance community.

## **Methodology and results of studies**

This study aimed at investigating the level of insurance awareness among students. The studies were carried out at the turn of 2005 and 2006 on a group of students of the University of Warmia and Mazury in Olsztyn. The research tool was the specifically developed questionnaire consisting of 23 questions – 10 of them open and 13 closed. The respondents were last year students of the University in Olsztyn representing seven faculties: Faculty of Economic Sciences, Faculty of Law and Administration, Faculty of Food Sciences, Faculty of Environment Development and Agriculture, Faculty of Veterinary Medicine, Faculty of Technical Sciences and Faculty of Geodesy and Spatial Management. The selection of faculties was targeted. In total the study covered 472 students of the fourth, fifth and sixth year of full time studies.

At 14 faculties of the University of Warmia and Mazury there are 2865 full time students of the last year of studies (IV, V or VI). The study involved 111 students of the Faculty of Economic Sciences (NE), 96 of the Faculty of Food Sciences (NoŻ), 66 of the Faculty of Law and Administration (PiA), 56 of the Faculty of Technical Sciences (NT), 51 of the Faculty of Geodesy and Spatial Management (GiGP), 50 of the Faculty of Environment Development

and Agriculture (KŚiR), and 42 of the Faculty of Veterinary Medicine (MW), representing 16.5% of the entire population of last year full time students and 32.7% of students at the seven faculties covered.

Women represented 65.7% of the test population and men 34.3%. Among the respondents people aged 22-23 years dominated – 71.4% followed by those 24-25 years old – 25.2% and 3.4% of the respondents aged over 25 years. The majority of the respondents came from towns of up to 100.000 residents (27.1%), and towns of from 100.000 to 200.000 residents (25.4%). The next group was students living in rural areas 23.7% and the smallest group were residents in cities with more than 200.000 residents (6.6%).

The conducted studies indicated that the notion of insurance was known to 81.6% of students who were able to explain it. The highest knowledge of the definition of insurance (fig. 1) was encountered among students of the Faculty of Economic Sciences (98.2%), and the lowest among the students of the Faculty of Environment Development and Agriculture (66.6%). The definition of insurance given most frequently was that of a means for securing the future – 30.5%, followed by the one that insurance is a contract made between the insurer and the client – 11.9% while 10.6% of the students associate the insurance with a guaranty given by the insurance company in case of accidents' occurrence.

82.2% of all the respondents had an insurance policy. In most cases – 61.0% that insurance was accident insurance, 9.3% – life insurance. 4.4% – civil liability insurance for owners of mechanical vehicles and 2.1% – full coverage

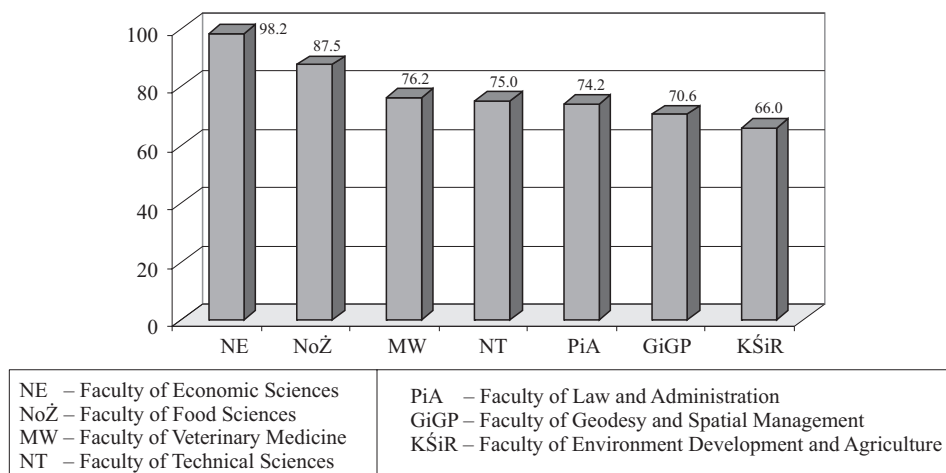


Fig. 1. Knowledge of the definition of insurance among students of the University of Warmia and Mazury

Source: Own work based on studies conducted.

motor vehicle owner insurance – autocasco. 61.2% of students were insured with the PZU and for 84.3% the insurance is associated with the PZU. Warta ranks second in that respect – 6%.

Only 6.6% of students in the studied population had families that worked for an insurance company or dealt with insurance. The question “What does your family insure” was answered that motor vehicles, that is the civil liability insurance for owners of mechanical vehicles and full coverage motor vehicle owner insurance – autocasco by 36.9% of students while 34.9% insured apartments, houses and property while 28.2% were active in life insurance.

In the insurance business it is important to differentiate between the notions of the insurer – that is the insurance company, the insuring – that is the person making the insurance contract with the insurance company and taking the responsibility for payment of premiums and the insured – that is the person whose health, life and ability to work are the object of the insurance. 93.6% of students were able to adequately differentiate the above notions.

In case of insurance an important role is played by the general insurance conditions (GIC) that govern the entire scope of the insurance agreement, responsibilities and rights of the insurer as well as those of the insuring party. Only 27.8% of the students, however, can properly explain the abbreviation “GIC” – in case of the students of the Faculty of Economic Sciences that term was familiar to 83.3% of the students while none of the students of the Faculty of Technical Sciences, Faculty of Geodesy and Spatial Management and Faculty of Veterinary Medicine knew the notion of the general insurance conditions.

As at the end of 2006, 67 insurance companies operated at the Polish insurance market. 23.3% of the respondents gave the correct number answering the question concerning the number of insurance companies while 11.4% of the respondents did not know the number of companies selling insurance in Poland.

The trust of the clients in the insurance company is of major importance for the company. For 43.4% of the respondent students of the University the insurance companies were trustworthy. The highest level of trust for the insurers was recorded among students of the Faculty of Geodesy and Spatial Management (58.8%) while that trust was the lowest among the respondents from the Faculty of Veterinary Medicine (23.8%).

The respondents obtained their knowledge on the insurances from television programs (26.5%), press (19.1%), friends (17.2%), the Internet (13.2%), the classes at the University (12.9%) and from the insurance companies (11.1%).

More than a half of the respondents ranked the level of insurance awareness in Polish society as low (55.7%) or average (44.3%). As concerns individual Faculties, the largest number of the respondents from the Faculty of Law and Administration ranked the level of insurance awareness in Polish society as low (63.6%) and average (36.4%). The situation was different among the students of

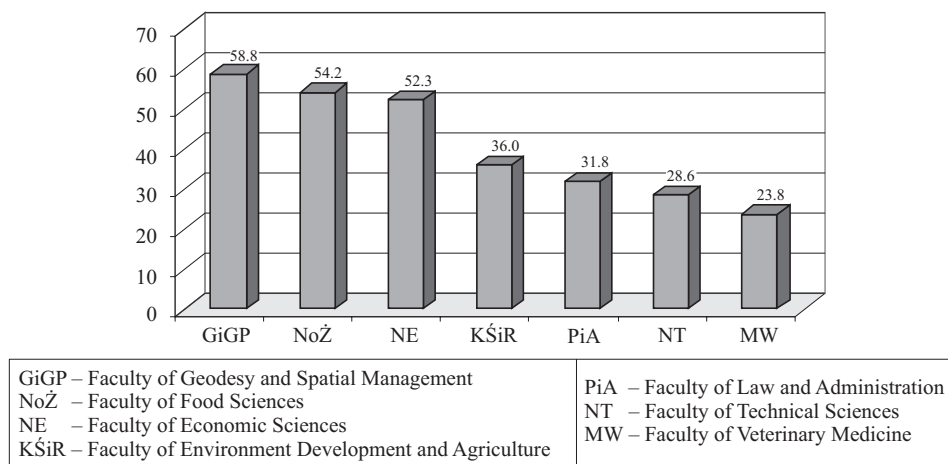


Fig. 2. Trust of University of Warmia and Mazury students in insurance companies  
Source: Own work based on studies conducted.

the Faculty of Environment Development and Agriculture who believed that insurance awareness in Polish society as was average (52.0%) and low (48.0%).

Students believe, that improving the insurance awareness of the Poles would require application of the following instruments: increasing educational activities of the insurance companies – 45.9%, introducing more television programs – 28.0%, introducing dedicated classes at the tertiary schools – 24.4% and publish more books on insurance – 1.7%.

More than a half of the students (55.1%) say that sponsoring activities of insurance companies influence the increase of insurance awareness in the Polish society.

37.1% of the respondents, including: 98.2% of students of the Faculty of Economic Sciences, 63.6% of students of the Faculty of Law and Administration and 24.0% of students of the Faculty of Food Sciences had a subject of insurance during their course of studies while the other Faculties did not offer education on insurance in their curricula. The need for such education was reported by 85.6% of the respondents.

It can be concluded that students of three Faculties that offered the subject on insurance during the course of studies possessed a higher (by 14.7%) insurance awareness than the students of the other four Faculties covered as concerns the knowledge of the definition of insurance. As concerns the knowledge on types of insurance they were awareness was better by 62.4% than students of the other Faculties.

## Conclusion

Attention should be brought to the fact that economic growth in itself, without increase in insurance awareness will not influence an increase in sales of insurance products. The studies showed that students obtain their information on insurance the least frequently from insurance companies (11.1%) and that they point at the necessity of expanding the education activities of insurance companies (45.9%).

The data obtained from the dean's offices of individual Faculties indicated that 92% of students purchased accident insurance but only 61% of the students covered realized possession of that insurance.

Every 8<sup>th</sup> student can boast knowing the types of life and property insurances but only 4 out of 100 respondents were able to identify the compulsory insurance types (other than the compulsory civil liability insurance of motor vehicles' owners).

Following the accession of Poland to the European Union the issue of increasing the knowledge and professional skills of participants in the insurance market, both clients of insurance companies, the youth, the journalists and the media as well as education of insurance intermediaries and staff of insurance companies is very important. The expected economic growth and increase of insurance awareness should lead to achievement of the role of insurance at the level similar to that in the developed countries.

Translated by JERZY GOZDEK

Accepted for print 31.10.2007 r.

## References

- BARAŃSKA J. 2004. *Nie stać nas na polisy*. Gazeta Prawna, 26 (06.02.2004).
- FIGLARZ-GŁUSZYŃSKA A., GŁUSZYŃSKI J. 2004. *Kilka uwag z zakresu socjologii ubezpieczeń (relacje ubezpieczyciele – ubezpieczani)*. Materiał z konferencji „Problemy i kierunki unormowań rozwoju rynku ubezpieczeniowego w Polsce;;.
- KOWALEWSKI E. 2004. *Jak powinny wyglądać nowe OWU?* PUR, 1 (85): s. 24-30.
- MAŁEK R., RODZINKA J. 2003. *Sponsoring polskich ubezpieczycieli*. Nasz Rynek Kapitałowy, 9 (153): 36-39.
- MINTOF-CZYŻ T. 2003. *Ochrona konsumenta usług ubezpieczeniowych i wyrównanie płaszczyzny dla konkurencji*. Dyrektywa Unii Europejskiej z 30 września 2002 r. Pismo Rzecznika Ubezpieczeniowych, s. 5-7.
- POŁCZYŃSKA E. 1998. *Konsument a ubezpieczenia*. Monitor Ubezpieczeniowy, 1: 5-7.
- Ustawa z dnia 22.05.2003 r. o nadzorze ubezpieczeniowym i emerytalnym oraz Rzeczniku Ubezpieczonych (DzU nr 124, poz. 1152).
- WAŁCERZ D. 2003. *Ponadczasowa misja ubezpieczycieli*. Gazeta Ubezpieczeniowa, 8: 12.
- ZIELIŃSKI J. 2004. *Dostosowanie prawa ubezpieczeniowego do UE*. Gazeta Ubezpieczeniowa, 7 (254): 5-8.