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There has been the eleventh year of the Acta Scientiarum Polonorum Oeconomia publishing. The Acta is the periodical including several thematic series with uniform graphics and similar format. The publication was set up by group of enthusiasts – employees of agricultural universities and has been published under the patronage of rectors of these universities. Current involvement of academic society in increasing substantive and editorial level of the series, with efforts of the authors, the Programming Board and the Scientific Boards, has contributed to placing the Acta Scientiarum Polonorum (and our Oeconomia series) on the noticeable position in academic research society. Articles can be prepared in Polish with English titles, abstract and keywords. Moreover, we publish also issues in English only. The Scientific Board of the Oeconomia series, concerning the publication range, focus their attention both on substantive content and precision of the form. The articles are revised in “double-blind review” process. All issues of the Acta Scientiarum Polonorum Oeconomia are available in electronic version on the following website http://acta_oeconomia.sggw.pl and abstracts on <http://www.acta.media.pl>. We are glad to inform that Acta Scientiarum Polonorum Oeconomia are included in EBSCO's library database.

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THE ROLE OF INSTITUTIONS AND EXTENSION IN ENTERPRISE DEVELOPMENT IN RURAL AREAS IN POLAND

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Abstract. The objective of the survey was to recognize institution and their role in enterprises development in rural areas. The research was carried out in northern and eastern parts of Poland. Particular attention was given to organisational and legal forms of rural enterprises, and the role of institutions in the process of enterprise development. At the outset, entrepreneurs indicated the territorial range of the activities being carried out. Respondents were asked to indicate institutions which had helped them run their enterprises and agricultural holdings. Moreover, entrepreneurs indicated the areas in which they wished to broaden their knowledge. Furthermore, entrepreneurs assessed the advice as well as the role of institutions as a source of entrepreneurship development. The research shows that rural entrepreneurs had been co-operating with more than 70 institutions, which indicates a wide range of advisory needs. The highest rating among respondents achieved the ARiMR (4 pts) and ODRs (3.2 pts). The advisory needs mainly included: profitability calculations (9.9%), identification of markets (8.4%), book-keeping (7.6%), and identification of contracting parties (2.2%). Most respondents assessed the advice as complete and good.

Key words: entrepreneurship, institutions, rural areas

INTRODUCTION

In the process of multi-functional development of rural areas, the important thing is the rural area inhabitants' entrepreneurship. This term embodies the specific characteristics

of rural inhabitants that help improve their income situation on the one hand, while entrepreneurship also is a process associated with business activity and running an enterprise [Sikorska-Wolak 2007]. Among the most frequently mentioned non-agricultural forms of activity in rural areas, Józwiak [2004] distinguishes the following: slaughterhouse activity, meat processing, fishery trade, running travel agencies, and providing transport services. In 2002, the proportion of farms whose owners operated a non-agricultural business was approximately 13%.

Institutions are described as “the humanly devised constraints that structure political, economic and social interaction” [North 1991]. Institution is defined as regulated system and the way of needs fulfillment of particular social group. North [1990] claims that institutions aim is to reduce uncertainty in human life. Moreover, they determine the costs of transaction. According to North [1994] “institutions create incentive structure of society and political and economic institutions are determinants of economic performance”. They are divided into two groups: informal constraints (customs and traditions) and formal rules (constitutions, laws). Extension is included in public, private and semi-public institutions and provides agricultural services [Alex et al. 2004].

On the other hand organization is defined as group of people who co-operates in achieving aims [Griffin, 1996]. Ministry and agencies create organizations “governance structures” [North 1994].

Enterprises operating in rural areas in Poland are assisted by numerous institutions, the most important of them being the MRiRW (Ministry of Agriculture and Rural Development), ARiMR (The Agency for Restructuring and Modernisation of Agriculture), ARR (Agricultural Market Agency) and others.

Within institution sector, many barriers to development are encountered, and the main reason for its fragility is technological and organisational backwardness [Lechwar 2006]. It is therefore important that entrepreneurs should be members of various institutions, which would facilitate their access to information on new development opportunities.

Agriculture operates within the institutional system, whose task is to enhance competitiveness thereof. Agriculture faces constant changes due to a series of challenges, including lack of limited competition and difficulties generating the value expected by the customer. Co-operation between entrepreneurs and institutions should help eliminate some of the adverse effects of changes within the environment. The most important benefits arising from the co-operation between farmers and the environment are primarily as follows [Zajac 2009, Czudec et al. 2008]:

- reduction of transaction costs related to the sales of products and purchase of various agricultural inputs;
- reduction of risks associated with changes in the marketplace;
- acquisition of knowledge and information on the benefits offered by the Common Agricultural Policy (CAP), and the opportunities provided by the Internal Market – farmers’ participation in the transfer payments associated with the CAP delivery;
- implementation of solutions contributing to market development.

According to the research conducted by Zajac [2009], the farms that co-operate more frequently with institutions are both more economically robust and larger. Their owners also more often conduct non-agricultural business.

Other factors that determine the development of agriculture, rural areas and business activities conducted are regulations, rules and others, which are counted among institutions. The most important standards, regulations and rules that influence the agricultural market are, according to Grzelak [2003], as follows:

- regulations concerning operation of institutions such as the ARR, ARiMR, ANR (Agricultural Property Agency) and others;
- regulations concerning stabilisation of agricultural markets;
- laws concerning, *inter alia*, the agrarian system, commodity exchanges, agricultural chambers and others;
- standards related to operation of agencies responsible for issues regarding agriculture and the environment.

Institutions operating in rural areas should contribute to the development of non-agricultural functions, including tourism, as well as prepare the population for entrepreneurial activities and facilitate the start-up thereof [Wiatrak 2009].

Institutions operating in rural areas serve numerous functions, including [Wilkin 2002]:

- educational – which represent the need to gain supplemental education and constantly acquire knowledge in order to better adapt an enterprise to the changing conditions within the environment;
- efficiency-enhancing – which fosters the improvement of management efficiency and improves the competitiveness of enterprises;
- stimulating – which encourage rural inhabitants to undertake new forms of activity;
- distributional – which are conducive to satisfying needs and eliminating problems related to inadequate of products and resources.

The use of the nature and other resources agriculture would be reduced without the participation of institutions. According to Czyżewski and Matuszczak [2009], institutions are favourable for the implementation of innovative solutions in agriculture. Moreover, farmers' participation in numerous institutions results in acceleration of the horizontal and vertical integration processes, which leads to reduction of transaction costs including transport and processing of agricultural products. Therefore, the authors consider it important to get to know the institutions which favour for the development of enterprises operating in rural areas, as well as their owners' opinions on these institutions. Running an enterprise is regarded by the majority of scientific community to be a main source of alternative income for agricultural holdings.

THE PURPOSE AND METHODOLOGY OF THE RESEARCH

The purpose of the research was to assess the operation of enterprises in rural areas. The research focused on the types of institutions co-operating with enterprises operating in rural areas. The research covered 1598 enterprises located in the following provinces of Poland: warmińsko-mazurskie, podlaskie, pomorskie, zachodnio-pomorskie, lubuskie, mazowieckie, lubelskie and łódzkie. The owners of 1194 rural enterprises were non-agricultural inhabitants, while the remaining 404 business entities were run by farmers. The research was carried out in 2008, and the main interviewers were the ODR (Agricultural

Advisory Centre) employees. The research was conducted as a part of a stationary research project executed at the Department of Agribusiness and Environmental Economics at the University of Warmia and Mazury in Olsztyn, Poland.

The subject of the research included the organisational and legal forms of business entities as well as the territorial range of their activities. Respondents were also asked to indicate the institutions co-operating with their enterprises, and to assess the activity of these institutions. Moreover, the enterprise owners were asked to indicate the areas in which they wished to broaden their knowledge, specify the demand for advising, and assess the advice obtained. We used the method of point's evaluation of the advice given. Farmers were asked to assess the advice in points from 1 to 5, where 5 was the best. During the research, the "face-to-face" interview method was used, as well as a survey questionnaire which included both open-ended and closed-ended questions.

THE RESEARCH RESULTS

Most enterprises surveyed were sole proprietorships. Such a situation indicates a small scale of the business activities conducted. Enterprises operating as a sole proprietorship are small business entities where only one person works, sometimes with assistance from family members; less frequently, other workers are employed. This very common form of business activity in rural areas generates alternative income for agricultural holdings. Such enterprises are very flexible, and their owners make their own decisions as to what and how to produce, and where to sell their products.

As follows from the data provided in Table 1, the proportion of firms operating as a private partnership (10.2%) or a limited-liability company (6.8%) was also relatively high. Limited-liability companies are distinguished by the liability limited to the amount of share capital invested by the shareholders, which at present amounts to PLN 50,000.

The enterprises under research may be included in the sector of Small and Medium sized enterprises (SME) i.e. business entities giving employment to up to 50 workers.

Table 1. Organisational and legal form of enterprises surveyed in 2008
Tabela 1. Forma organizacyjno-prawna przedsiębiorstw badanych w 2008

Specification	n	% of respondents
Sole proprietor	1244	77.8
Private partnership	163	10.2
Limited liability company	108	6.8
Other form:		
Registered partnership	55	3.4
Co-operative	18	1.1
Joint-stock company	9	0.6
Professional partnership	1	0.1
Total	1598	100.0

Source: calculations based on own research

Źródło: obliczenia na podstawie badań własnych

These enterprises generate the GDP to the greatest extent. According to Żołnierski and Zadura-Lichota [2008], in 2007 firms which employed up to 10 workers generated 31% of the GDP; small business entities which employed from 10 to 49 workers generated 7.4% of the GDP; and medium enterprises which employed from 50 to 249 workers generated 9.3% of the GDP in Poland. In 2009 micro-enterprises generated 30.4% of GDP, small business generated 7.9%, medium enterprises generated 10.1% and large generated 23.9% [Łapiński 2011]. The proportion of the SME sector in generating the GDP, as organised according to the PKD (Polish Classification of Activity) groups, was investigated by Ratajczak [2009]. Based on the GUS (Central Statistical Office) data and reports on the SME's development status, the above mentioned author concluded that in 2006, in the Trade and Repairs section, the SME sector generated more than 90% of the Gross Value Added. As for the groups of Construction Entities and Real Estate Management, the SME sector generated more than 87% of the GDP. On the other hand, the lowest contribution to GDP was observed in the sector of industrial enterprises.

The research also investigated the range of the business activity conducted. The research shows that the highest percentage of enterprises operated within a commune or several communes (Table 2). Moreover, a significant percentage of them operated throughout the country and province. The research demonstrates that enterprises developed quite rapidly. Every year, the percentage of business entities operating in other countries increases. It should also be noted that such chances were provided due to the process of Poland's integration with the EU, and entrepreneurs should make better use of such a probably unique opportunity.

According to the research conducted by Kłodziński [2009], micro-enterprises that operate in rural areas are flexible as regards both the adaptation to changes, and the scale of business activities. However, these are not very ambitious entities, since their owners neither invest in development nor take bank loans, which – during the period of turbulently changing environment and financial crisis – may be their strong point.

The enterprises that come out definitely worse in terms of development are those operating in the regions of eastern Poland (the so-called Eastern Wall), namely in the

Table 2. Territorial range of enterprises
Tabela 2. Zasięg terytorialny przedsiębiorstw

Specification	n	% of respondents
Village	161	10.0
Several villages	94	5.9
Commune	340	21.3
Several communes	331	20.7
Province	152	9.5
Several provinces	116	7.3
Countrywide	265	16.6
Countrywide & Foreign countries	137	8.6
Only foreign countries	2	0.1
Total	1598	100.0

Source: calculations based on own research

Źródło: obliczenia na podstawie badań własnych

following provinces: podlaskie, warmińsko-mazurskie and lubelskie. A lower level of regional development adversely affects operating conditions for micro-enterprises [Kłodziński 2010]. In the regions distinguished by better conditions for development, more enterprises get established. Business entities have better access to the assistance offered by service-providing institutions, and the road infrastructure encourages investors to invest capital in these regions. Unfortunately, enterprises in Poland have varied development opportunities, which often depend on determinants with a long history.

INSTITUTIONS CONTRIBUTING TO THE DEVELOPMENT OF SURVEYED ENTERPRISES

Respondents indicated as many as 71 institutions which had helped them run their businesses. The most frequently mentioned ones were banks and commune offices. ODRs and accounting firms were equally often mentioned (Table 3). Such a high number of institutions indicated by entrepreneurs demonstrate both a wide range of business activities conducted by the entities under research, and the development of the services market.

Banks play an important role in the development of enterprises, for they offer business loans to enterprise owners. On the other hand, a large proportion of communes and self-governments indicated by respondents results from the fact that these institutions shape the organisational climate. However, employees of these institutions are often not at all interested in the fate of rural enterprises [Kłodziński, Fedyszak-Radziejowska 2002].

Institutions that are significant for the development of agribusiness enterprises include ODRs, ARiMR and others. According to Czyżewski and Matuszczak [2009], these institutions are helpful in obtaining information necessary to manage a farm, implementing innovative solutions or making use of the CAP instruments.

In Kłodziński's view [2009], the development of enterprises is determined by the legal and regulatory environment. However, practices are frequently encountered based on a significant latitude enjoyed by the employees of these institutions to interpret legal provisions, which has even resulted in collapse of a few business enterprises.

An alarming fact is that almost 21% of enterprise owners reported not having co-operated with any institution (Table 3). Such a situation indicates the so-called institutional isolation.

The proportion of remaining institutions was over 60%. These included 49 institutions, primarily the following: the University of Warmia and Mazury in Olsztyn, sector organisations, State Fund for Rehabilitation of Disabled Persons (PFRON), warehouses, ARR, the police and others.

As for the entrepreneurship development, non-profit institutions are important; these include regional development agencies, State Fund for Rehabilitation of Disabled Persons, business incubators, technology parks and training centres, which provide services free of charge [Kogut-Jaworska 2007]. Help from these institutions may provide opportunities for access to office premises, accounting services or telecommunications infrastructure. Unfortunately, such forms of business activity are rare in rural areas.

Information is a decisive factor for economic development. Without information and knowledge, entrepreneurs will not be able to make decisions. Scientific, technological or

Table 3. Institutions contributing to the development of an enterprise and agricultural farm
 Tabela 3. Instytucje przyczyniające się do rozwoju przedsiębiorstwa i gospodarstwa rolnego

Specification	n	% of respondents*
None	341	21.3
Bank	169	10.6
Commune Office	83	5.2
ODR (Agricultural Advisory Centre), WODR (Provincial Agricultural Advisory Centre)	68	4.3
Accounting firm	29	1.8
Regional Business Support Centre	24	1.5
Employment Office	19	1.2
Tax consulting office	16	1.0
ARiMR	15	0.9
ANR	10	0.6
Sundry Crafts Guild	10	0.6
Private consulting firms	9	0.6
Handicrafts Co-Operative	8	0.5
SHiUZ (Animal Breeding and Insemination Centre)	7	0.4
Machinery producers	6	0.4
Feed and seed manufacturing firms	5	0.3
Similar points of sale	5	0.3
Consulting office	5	0.3
Leasing companies	5	0.3
Independent advisors	5	0.3
Co-operating firms	4	0.3
Dairy processing firms	4	0.3
Other	883	60.5
Total	1730	113.5

* Respondents could choose more than one option

* Respondenci mogli wskazać więcej niż jedną odpowiedź

Source: calculations based on own research

Zródło: obliczenia na podstawie badań własnych

organisational factors not only influence the broadly defined development, but also people's prosperity. Information is of great importance in all sectors and segments of economy. It demonstrates its major significance for tourism, since information is necessary for both tourists and the entrepreneurs creating a tourist service. It is also very important for the development of agribusiness enterprises, since a large number thereof are engaged in tourism and agritourism.

Development of the knowledge-based economy has led to an ongoing increase in the significance of intangible asset including the human capital. It is composed of knowledge, skills, competences, health condition, and an ability to use a computer or available information [Bagieńska 2008]. According to Bagieńska, human capital influences the creation of economic growth. Moreover, a high level of human capital

influences both the creation of innovative solutions and developing new technologies. Entrepreneurs, due to the fact that they operate in a changing environment, need to raise the level of knowledge – their own as well as of their employees. This is why employers more and more frequently employ workers who not only have professional experience but also qualifications. On the other hand, many employers are apprehensive about well-educated workers and are not willing to employ people with higher education. However, the size of such employers' group has been steadily declining in favour of people who are more development-oriented and receptive to new workers. As regards the development of human capital, training and raising qualifications by both enterprise owners and workers is of great importance. A great opportunity for training free of charge is provided by the EU programmes, which, under the domestic conditions, are more and more frequently used by employers and employees alike.

All the firms studied were in rural areas, and a significant percentage of their owners (25.3%) were also engaged in running an agricultural farm. The research demonstrates that most entrepreneurs wished to supplement their knowledge in the field of agricultural production, the EU issues and new technologies (Table 4). Demand for knowledge in these fields is a result of Poland's membership in the European Union, better access to markets in other countries and freedom of movement for manpower and capital.

A relatively large proportion of entrepreneurs were interested in management and marketing. Knowledge in these fields is necessary for rural entrepreneurs not only to manage the enterprise and workers, but also to identify the market and make contacts with customers (Table 4). Farmers' participation in a variety of trainings contributes to the development of firms and creation of positive attitudes. Under the conditions of knowledge-based economy, it is the qualifications, knowledge and the way they are made use of that will determine the market success. Better educated entrepreneurs operating in rural areas adapt their firms to the changing operating conditions more rapidly, and influence the development of rural economy to a greater extent.

The most frequently mentioned institutions were rated using a point-based grading scale (1 – the least important; 5 – the most important). The ones which received the highest rating were the ARiMR (4 pts) and ODRs (3.2 pts). Local authorities, the ANR, banks and the Euroregion authorities were rated significantly worse. However, the ones with the decidedly lowest rating were Agricultural Chambers, Regional Labour Employment Offices and other institutions (Table 5).

The research results demonstrate that the employees of business-related institutions should change their attitudes towards the owners of agricultural farms and enterprises. Therefore, there is an urgent need to organise trainings for employees of institutions in order to improve the process of customer support. Entrepreneurs are often treated in an unfriendly manner, and complain about the service provided in numerous offices.

In helping to foster the development of rural areas, a leader, i.e. commune head or mayor, is very important. Proper attitudes of local leaders, as manifested by the ability to think strategically and engage people to take actions, are a reason why the rural population wishes to take part in the development of a commune. The local community is therefore a factor determining not only the survival of enterprises but also their development. Contacts of an enterprise with the environment incline their owners to offer better products or to execute more profitable transactions [Kłodziński 2010].

Table 4. The areas of knowledge which entrepreneurs wish to supplement
Tabela 4. Rodzaje wiedzy, które przedsiębiorcy chcieliby uzupełnić

Specification	n	% of respondents
Animal production	53	3.3
Agriculture	41	2.6
EU issues	28	1.8
Modern technologies	26	1.6
Plant production	22	1.4
Modern processing lines	20	1.3
Agricultural accounting	16	1.0
Management	15	0.9
New trends in plant production	14	0.9
Marketing	14	0.9
Book-keeping	12	0.8
Economics	10	0.6
Administrative law	9	0.6
Advances in a farm organisation	8	0.5
Animal feeding	7	0.4
Searching for markets	7	0.4
My knowledge is sufficient	6	0.4
Plant protection products	5	0.3
Veterinary medicine	5	0.3
Advising	5	0.3
Organic production	5	0.3
None	5	0.3
Other	36	2.3
No demand for training and/or enhancing knowledge	1229	76.9
Total	1598	100.0

Source: calculations based on own research

Źródło: obliczenia na podstawie badań własnych

Table 5. Assessment of institutions as regards the development of an enterprise
Tabela 5. Ocena instytucji w rozwoju przedsiębiorstwa

Specification	On average	Minimum	Maximum
ARiMR	4.0	4	4
Local authorities	2.9	1	5
ANR	2.6	1	5
Banks	3.0	1	5
ODRs	3.2	1	5
Euroregion authorities	2.0	1	5
Other institutions:			
Regional Employment Office	1.0	1	1
Agricultural Chamber	1.0	1	1
Other	1.9	1	4

Source: calculations based on own research

Źródło: obliczenia na podstawie badań własnych

EXTENSION SERVICES NECESSARY IN THE DEVELOPMENT OF SURVEYED ENTERPRISES

Another factor that plays an important role in the development of enterprises operating in rural areas is extension. Entrepreneurs operating in rural areas, who make use of advisory services, are able to prepare better applications for investment financing and others programs. Generally, advising, which offers services for agriculture, has a wide range and includes: agriculture; new production technologies; law; and marketing. An entrepreneur's advisory need depends on the situation of the enterprise, and the problem to be solved by an enterprise owner. However, a tendency is observed more and more often, which consists in a change of direction of demand for advisory services from agriculture towards technology, marketing or law. This indicates a shift in the agricultural entrepreneurs' orientation towards the market, which is associated with problems in identifying its operating conditions.

Entrepreneurs also indicated advisory needs. They considered the following to be most needful: profitability calculations (9.9%), identification of markets (8.4%), book-keeping (7.6%), and identification of contracting parties (2.2%). However, a large number of indications concerned the issues related to a farm and advising related to the production carried out in an agricultural farm (Table 6). A large percentage of indications mentioning the demand for performance-enhancing forms of advising suggest that non-agricultural business activity in rural areas encounters significant difficulties. Therefore, there is a need to consolidate the activities of institutions, and to facilitate entrepreneurs in making use of these services free of charge. However, more than 60% of the entrepreneurs surveyed did not indicate demand for advising. Under the domestic conditions, private advisory services in the field of finances, book-keeping or marketing are provided for payment, and many entrepreneurs cannot afford using services provided by other private entities. This is why a low demand for advising should be a signal for decision makers, which indicates a need to provide entrepreneurs with a better access to consulting services.

Therefore, the research demonstrates that an efficiently operating enterprise also needs institutions providing services for agriculture and enterprises. It means that there is a market niche for enterprises whose owners wish to take up advisory activities while offering services at prices competitive to the prices of the State institutions.

Legal counselling is of significant interest to entrepreneurs, which results from their insecurity and ignorance of the law. Moreover, provisions concerning operation of enterprises are frequently amended and the owners themselves are not able to keep abreast of the changes, and this is why they hire other firms to perform book-keeping or other matters.

High quality of advisory services is a factor which facilitates entrepreneurs in operating in a changing environment. Poland's accession to the European Union resulted in the emergence of new problems to solve. The employees of institutions such as the ODRs are helpful in such cases. This is why a high and content-related level of the ODR employees' preparation for work is important. An advisor, upon establishing a contact with them, learns of a given farmer's family situation, problems and advisory needs. The ODR employees should therefore maintain a moral and open attitude, and show understanding of the farmer and his/her advisory needs.

Co-operation with institutions is an important factor influencing the competitiveness of agricultural farms. High quality of the intellectual capital contributes to both

Table 6. Types of extension necessary in the development of an enterprise
Tabela 6. Rodzaje doradztwa potrzebnego w rozwoju przedsiębiorstwa

Specification	n	% of respondents
Book-keeping	122	7.6
Profitability calculations	159	9.9
Identification of markets	135	8.4
Identification of contracting parties	32	2.0
Technology-related advising, including:	87	5.4
– plant cultivation	36	2.3
– breeding	11	0.7
– animal feeding	8	0.5
– milk production	6	0.3
– other	26	1.6
Legal counselling	77	4.8
Other:		
Acquisition of EU funds	4	0.3
Finding unconventional production trends	2	0.1
Other	5	0.3
No demand for advising	975	61.2
Total	1598	100.0

Source: calculations based on own research

Źródło: obliczenia na podstawie badań własnych

establishing co-operation between farmers and institutions, and the innovativeness of farms [Kołodziejczyk 2009]. During the recent period, farmers' contacts with institutions have mainly been driven by the opportunity to acquire EU funds.

Entrepreneurs were asked to assess the advice they had made use of (Table 7). Generally, most entrepreneurs described their advisors as competent and professional (10.8%). This result reflects well on the prevailing group of business entities that provide services at a high level of expertise to enterprises operating in rural areas.

Table 7. Assessment of advice obtained, according to entrepreneurs' opinions
Tabela 7. Ocena uzyskanej porady w opinii przedsiębiorców

Specification	n	% of respondents
– competent and professional	173	10.8
– I was directed to another place	13	0.8
– vague	73	4.6
– no one was able to give me advice	22	1.4
– unhelpful	9	0.6
– difficult to say	1308	80.0

Source: calculations based on own research

Źródło: obliczenia na podstawie badań własnych

However, nearly 80% of respondents did not assess any advice. Therefore, the research indicates that in a significant number of cases such advice was difficult to assess. It can also mean that the advice poorly assessed by entrepreneurs was sometimes not important and occasionally used. It is a result of the need for better preparation of institution employees for work.

SUMMARY AND CONCLUSIONS

The research performed demonstrates the role of institutions in the development of enterprises operating in rural areas. The fact that respondents mentioned as many as 71 institutions indicates actual relationships between business activities and institutions. As regards the significance of institutions, the results of our research indicate the ARiMR and ODRs are the most significant. This follows from the fact that these are institutions that distribute money or provide publicly funded services to the greatest extent. Other most important institutions include banks granting loans and local authorities which shape the organisational climate. However, an improvement of enterprise operating conditions requires that institution employees should offer more comprehensive services, and provide their customers with better support.

As for advisory needs, entrepreneurs demonstrated considerable interest in agriculture, and in other areas such as: taxes, economics, finances, the EU or management. This is therefore a sector which will be supported in the future by numerous advisory and consulting institutions, and this is the reason why employees of these institutions should assist agricultural entrepreneurs in a professional manner.

The entrepreneurs' active attitude with regard to advisory needs and co-operation with institutions is a result of Poland's membership in the EU. New operating conditions for enterprises, related to activities pursued under the PROW (Rural Development Programme), are a reason why entrepreneurs are often not able to prepare applications on their own, and therefore need help from the employees of institutions. Moreover, implementation of numerous new projects, in both an enterprise and an agricultural farm, requires an owner's contribution of 50%, which compels entrepreneurs to establish co-operation with financial institutions in order to take credits or loans.

The development of rural areas and non-agricultural business activities requires that the institutions responsible for its development should co-operate with each other. This will facilitate a better flow of information, enable entrepreneurs in rural areas to acquire necessary information, and contribute to a better use of resources. To this end, support is also needed from the State authorities and the Union institutions.

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ROLA INSTYTUCJI I DORADZTWA W ROZWOJU PRZEDSIĘBIORSTW NA OBSZARACH WIEJSKICH W POLSCE

Streszczenie. Celem badań było poznanie instytucji i ich roli w rozwoju przedsiębiorstw na obszarach wiejskich. Badania przeprowadzono na terenie północnej i wschodniej Polski. Główną uwagę zwrócono na formy organizacyjne i prawne wiejskich przedsiębiorstw oraz rolę instytucji w procesie ich rozwoju. Na samym początku przedsiębiorcy wskazali na zasięg terytorialny prowadzonych działań. Respondentów poproszono o wskazanie instytucji, które pomogły im w prowadzeniu przedsiębiorstwa i gospodarstwa rolnego. Ponadto przedsiębiorcy wskazali na dziedziny, z których chcieliby uzupełnić swoją wiedzę. Przedsiębiorcy dokonali również oceny porady, jak również roli instytucji, jako źródła rozwoju przedsiębiorczości. Z badań wynika, że przedsiębiorcy rolni współpracowali z ponad 70 instytucjami, co wskazuje na duży zakres potrzeb doradczych. Najwyższą ocenę wśród respondentów uzyskały ARiMR (4 punkty) i ODR (3,2 punkty). Potrzeby doradcze dotyczyły głównie kalkulacji opłacalności (9,9%), identyfikacji rynków (8,4%), księgowości (7,7%) i innych. Najwięcej respondentów oceniło poradę, jako kompletną i dobrą.

Słowa kluczowe: przedsiębiorczość, instytucje, obszary wiejskie

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SUSTAINABLE TOURISM DEVELOPMENT – CASE OF THE WOLIN REGION

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Abstract. The aim of the research was to present the most important factors for sustainable tourism development, and analyze the Wolin community' involvement to the principles of sustainable development. The research assumes that knowledge about sustainable development among residents of Wolin region has a big influence on their involvement in tourism development and environmental protection. Source materials on the opinion of residents were obtained from tests performed in 2010. The study involved 100 residents; the data collection questionnaire method was used. Material collected in conjunction with the source material was prepared in the form of summary tables for the presentation of the issues discussed. For study relationships between the selected features were used the coefficient correlation, V-Cramer's based on χ^2 statistics.

Key words: tourism, sustainable development, ecology

INTRODUCTION

Tourism is one of non-agricultural activities type in rural areas with great possibilities of the development. However, in most rural communities and regions in the progress of it's development is not sufficient and does not visibly affect their functional structure. Multiple benefits of tourism development of rural residents reached tourist services, as well as easing the local community at least part of the problems facing the country, to call for the dynamic of this process while not harming the natural environment. The development of tourism is seen as one of the effects of a significant improvement in the quality of life of different societies. In the life of societies, the following trends are observed: striving for a healthy lifestyle through proper nutrition, rejecting habits, active lifestyle, care for mental health and well-being, avoiding stress, develop interests and contact with nature.

The first aim of the research was to present an analyze of the Wolin community' involvement to the principles of sustainable development. The research assumes that knowledge about sustainable development among residents, of Wolin region, has a big influence on local residents' involvement in tourism development and environmental protection.

The second aim of the research was to present the conceptualization of sustainable development.

SUSTAINABLE DEVELOPMENT – CONCEPTUALIZATION OF DEFINITION

In recent years, more and more tourists are looking for charming places in a clean, unpolluted environment. Valuable natural areas created additional jobs, and in effect is an increase in income for local communities, development of infrastructure in the region. But from the other hand, tourist's expansion entails many risks for the environment. To preserve valuable natural areas and landscapes for future generations, it is necessary to maintain a sustainable tourism economy in these areas.

Sustainable development is translated into Polish literature differently [Poskrobko and Oleńska 2001, Zaręba 2000]. The result is that the concept itself is understood differently by the economist, ecologist or sociologist. However the idea of sustainable development grew from numerous environmental in earlier decades and was defined in 1987 by the World Commission on Environment and Development (WCED Report "Our Common Future" 1987)¹ as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". So-called the Brundtland Report argued that the vast and complex issue of environmental deterioration should be integrated with the equally vast and complex issue of human development and poverty, clearly suggesting that both challenges needed to be resolved simultaneously and in a mutually reinforcing way [Robinson 2004]. Sustainable development is a contested concept even when the fundamentals are clear: maintaining the integrity of biophysical systems and reducing poverty and risks. From a governance perspective such disagreement is an essential part of sustainable development, but one that makes operationalization difficult [Farrell et al. 2005]:

- Different ideas exist regarding sustainable development for factors in various sectors (e.g., energy, transportation, agriculture, food systems, waste management).
- Existing solutions tend to be sustainable within these sectors rather than across the whole of society.
- New developments bring new risks that cannot be anticipated.
- Sustainable development is a long-term, open-ended project that precedes and supersedes limited term, democratically elected governments.
- Sustainable development involves making choices, and perhaps trade-off decisions, on highly contested issues (which is to say that in some cases the notion of a "trade-off" might prove to be no more than a euphemism for fundamental irresolvable dilemmas).

¹ www.un-documents.net/our-common-future.pdf

Sustainable development derives from social consensus on what we consider to be unsustainable and what constitutes progress, perspectives that will differ across nations and localities. The substantial content of sustainable development cannot be scientifically determined as “objective knowledge” but will always incorporate normative valuations that only become ascertained in the process of social interaction [Voss and Kemp 2006]. This situation calls for a different type of science, one able to deal with ambiguity, complexity, and uncertainty [Brand and Karvonen 2007].

Principles of sustainable development are the specific codes for practical action. They are accepted by countries as a legally sanctioned way of functioning of their economies. The sustainable development of the Polish legislation was elevated to the rank of constitutional principle. Adherence to the principles of sustainable development, it is considered as a mandatory obligation, therefore, both the community and decision makers. The need for their implementation affects all sectors of the economy and social processes and tourism in particular.

In the literature on the subject encounters different, sometimes conflicting views on the concept of sustainable tourism. Sustainable tourism is treated either as a tool for implementing sustainable development, or as a tool for the development of tourism. According to the definition of the Federation of National Parks and Nature Reserves in Europe, sustainable tourist is “any form of tourism development, management and tourism activity that sustains the ecological, social and economic integrity of the land and also retains intact the natural and cultural resources of these areas” [Zaręba 2000]. Sustainable tourism “refers to the broader concept of eco-friendly tourism development in rural regions and cities, in small and big tourist centers of entertainment and recreation centers, etc., a concept that applies to all known types of tourism after adequate their greening” [Zaręba 2000].

However sustainable development in tourism is often identified only with economical management of environmental resources. However, the level of development of certain segments of the tourism, many factors determines the nature of both economic and non-economic [Kizielewicz 2001]. According to Iwicki [2000], Zaręba [2000], Wiatrak [1996], Drzewiecki [1995], sustainable tourism should promote healthy and productive life in harmony with nature; should bring together people of different nationalities, create open content and tolerance. Tourism activities should be adapted to the environment and the country. The development of tourism is to contribute to the conservation of natural resources and restore areas to their original character. The development of tourism is to contribute to the protection of indigenous cultural communities.

OBJECTIVE AND SCOPE OF THE PAPER

The fundamental objective of the research is to present the most important factors for sustainable tourism development, and analyze the Wolin community’ involvement to the principles of sustainable development. The research assumes that knowledge about sustainable development among residents of Wolin region, has a big influence on local residents involvement in tourism development and environmental protection. Source materials on the opinion of residents were obtained from tests performed in

2010. The study involved 100 residents; the data collection questionnaire method was used. Material collected in conjunction with the source material was prepared in the form of summary tables for the presentation of the issues discussed. For study relationships between the selected features were used the coefficient correlation – V-Cramer’s based on χ^2 statistics.

RESULTS AND DISCUSSION

The respondents were mainly people over 45 years of age with high school education. There was also a significant number of respondents with secondary education, mostly women (8% more than men) (Table 1). Respondents with higher education accounted for 24% of the population, while those with primary education only 3%. As the main source of income usually was the wage work (53%), while income of self-employed 32%, a non-profit sources of income 15%.

Table 1. Age, sex, education and source of income of inhabitants (%)
Tabela 1. Wiek, płeć, wykształcenie i źródła dochodów mieszkańców (%)

Sex	Female	Male		
	54.0	46.0		
Age group	18–25	26–35	36–45	45 and more
	16.0	22.0	22.0	40.0
Education	basic	secondary	high school	higher
	3.0	31.0	42.0	24.0
Source of income	self employed	employee	retired	
	32.0	53.0	15.0	

Source: own studies
Źródło: badania własne

The attractiveness of the community for the residents was assessed in terms of several factors. Respondents evaluated the community very well because of the tourist and recreational areas attractive (56%), good purity was assessed by the natural environment (51%). Most people believe that the municipality is not attractive to them and the main reason is lack of opportunity for professional development (76%) and low salaries (74%). The reason of negative assessment of the community in economic terms is high unemployment, with whom the community is still struggling. There is a lack of jobs but the development of tourism can contribute the reduction of unemployment and increase residents satisfaction.

In order to indicate the strength of the relationship between age, background, source of income and the changing attitudes of residents to tourists, the material has been developing statistically using of factor V-Cramer’s based on χ^2 statistics (Table 2).

Research shows that the age of the respondents had no impact on the positive or negative attitude of residents to tourists relationship. Share responses developed at approximately the same level. Studies have also shown that respondents with work contract were more positive attitude to tourists (66.4% response). Increase in the level of education

Table 2. The attitudes of the inhabitants of Wolin community for the tourists and the age, education, and the source of income of the respondents (%)

Tabela 2. Postrzeganie turystów przez mieszkańców gminy Wolin a wiek, wykształcenie i źródła dochodów respondentów (%)

Specification	The attitudes of the inhabitants of Wolin community for the tourists	
	V-Cramer's	χ^2
Age	0.12	2.21
Education	0.21	6.19
Source of income	0.18	4.07

Source: own studies

Źródło: badania własne

affects the positive attitude to the tourists visiting the Wolin region. Most respondents replied with the secondary and higher education, 43.7% and 34.4%.

Wolin commune residents believe that tourism is an important factor in the development (38%), 36% of respondents classified it into the key factor in development, 22% of the population believes that the impact on development it is not very important. The smallest percentage of residents (4%) indicated that tourism slightly affects the development of tourism in the region. It can be seen that the older of the respondent the more often indicated that tourism is an important factor in the development of the region. Tourism attractions are both a component and factor of tourist supply. They usually define the location of other components, i.e. infrastructure and tourist service.

The development of mass tourism entails serious negative consequences in tourist areas. Resident's assessment of tourism impact on the natural village environment is negative and focuses on the increasing degradation of the environment in 27.4%. As the negative effects of tourism development in the region, respondents administered as an invasion of privacy (25.6%), social conflicts in the community (17.7%), disparities in per capita income (15%) and increased crime (14.1%) (Fig.1).

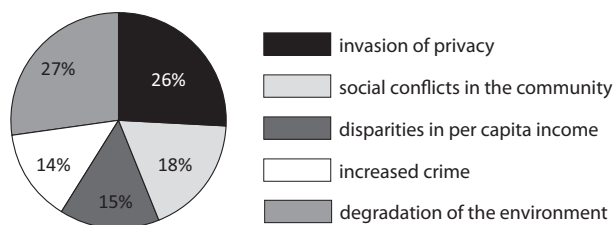


Fig. 1. Negative effects of tourism development

Rys. 1. Negatywne efekty rozwoju turystyki

Source: own studies

Źródło: badania własne

As the most important objective of sustainable development the respondents considered environmental protection (27.2%), social development (21.2%) and increased the quality of life (19.3%). Despite the fact that most people have not met with the concept of

sustainable development, but almost half of them believe that they care about the environment (48.6%). The population is also more than 28% group of people who are indifferent to the needs of the environment. A small part of the respondents declared very committed attitude in regard to its participation in the implementation of the concept of sustainable development, which manifests itself in popularizing the principles of sustainable development and learning to recruit others and search for new knowledge about how to reduce the negative impact on the environment at the municipal level (Table 3).

Table 3. Meaning of the sustainable development
Tabela 3. Znaczenie zrównoważonego rozwoju

Specification	% of respondents
Necessary action to improve the living condition	25.23
Very important to me and my family's future	32.43
Very important but does not directly concern me	9.00
It is other people problem	2.70
I don't have an opinion	30.64

Source: own studies
Źródło: badania własne

The results show that most residents of the community is focused on saving resources, disposal of sewage, reduce waste creation and participation in recycling (Table 4).

Table 4. Activities of Wolin commune residents in the protection of the environment
Tabela 4. Działania mieszkańców gminy Wolin w zakresie ochrony środowiska

Specification	Yes	No
Segregation/Reducing waste	17.1%	12.50%
Reducing water consumption	22.5%	4.82%
Reducing energy consumption of harmful substances	23.8%	3.66%
Sewage disposal	10.7%	6.78%

Source: own studies
Źródło: badania własne

As the main cause of the involvement of citizens in environmental protection, respondents considered economic factors, the lower water, electricity and gas bills (45.5%). Second in order of factors determining the behavior of the studied population are law regulations. Only 16.2% of residents have knowledge about the environment and are aware that improving the environment depends on them and lead them to engage in environmental protection. Environment pressure and fashion are not a sufficient incentive to behave in accordance with the needs of social and natural environment.

As a result of increasing the negative effects of uncontrolled development of tourism, recognized need to stop environmental degradation and the need to protect tourism values. "Thanks to the people involved in nature conservation proposal have been put forward to the prevalence of such forms of tourism and tourism development such that

would allow the reduction of adverse environmental changes” [Kurek 2008]. Sustainable tourism was one of the environmentally friendly tourism. As mentioned earlier in this paper, sustainable tourism is based on the idea of sustainable development. Sustainable development is a process of integrating all the political, economic and social opportunities, in order to balance the access of successive generations, different groups and local and regional communities of interest to environmental resources while maintaining the sustainability of natural processes. So the main idea of sustainable tourism, based on the idea of sustainable development, is to achieve harmony between the needs of tourism, the environment and local communities, which directly involved the development of sustainable tourism.

CONCLUSIONS

The results indicate that residents of the Wolin municipality are increasingly aware of their responsibility for the natural environment and they realize that success in achieving sustainable development depends on their attitude and commitment. Although most of them did not meet with the term sustainable development, but they care for the environment and actively participate in the implementation of that concept. As the most important objective of sustainable development the respondents considered environmental protection (27.2%), social development (21.2%) and increased the quality of life (19.3%).

Increase of inhabitant’s environmental awareness could help to improve the quality of their lives and gain additional income from tourism. This justifies the need for broad education, not only residents but also the community of all Poles. The role of environmental education is very significant. There is a need to conduct, because it allows understanding of the fundamental problems of environmental protection, nature, the problems of sustainable development, rational management and the environment and other fields. Research showed that cause of the involvement of citizens in environmental protection respondents considered economic factors: the lower water (22.5%), electricity and gas bills (45.5%). Second in order of factors determining the behavior of the studied population are law regulations. Only 16.2% of residents have knowledge about the environment and is aware that improving the environment depends on them and lead them to engage in environmental protection.

Sustainable tourism is an important and constantly growing in importance of all of the tourist market segments. It evokes a variety of effects that can significantly contribute to the favorable development processes initiated in the areas of human life as the environment, social or economic. Therefore should be monitored, tested and reasonably controlled in order to enhance its positive effects and neutralization of its negative impacts, particularly in ecologically sensitive regions. Wolin municipality is an area with high tourist potential and has high quality tourist attractions to be protected. To preserve the naturalness of these values should be continuously monitored the development of tourism in the area. Resident’s assessment of tourism impact on the natural village environment is negative and focuses on the increasing degradation of the environment in 27.4%. As the negative effects of tourism development in the region, respondents administered as an

invasion of privacy (25.6%), social conflicts in the community (17.7%), disparities in per capita income (15%) and increased crime (14.1%).

Monitoring requires appropriate institutional support which can provide a national tourist organizations cooperating with local civil society organizations (NGOs), especially those that deal with environmental issues and education, especially organic, properly rooted in local communities. That well-educated and active local community can most effectively contribute to sustainable tourism development in Wolin commune. There is nothing else but to accept and implement the principles of sustainable development, because that's the only way you can achieve a balance between environmental, social and economic governance.

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ZRÓWNOWAŻONY ROZWÓJ TURYSTYKI NA PRZYKŁADZIE REGIONU WOLIŃSKIEGO

Streszczenie. W pracy poddano analizie zaangażowanie społeczności gminy Wolin w realizację zasad zrównoważonego rozwoju. Materiały źródłowe dotyczące opinii mieszkańców uzyskano w wyniku badań przeprowadzonych w 2010 roku. Badaniami objęto 100 mieszkańców; przy zbieraniu danych posłużono się metodą ankietową. Badania ankietowe zrealizowano w postaci wywiadów, przeprowadzonych samodzielnie przez ankietera wśród

respondentów badanej populacji. Zebrany materiał w połączeniu z materiałem źródłowym przygotowywano w formie zestawień tabelarycznych w celu prezentacji omawianych zagadnień. Do badania siły zależności pomiędzy wybranymi cechami wykorzystano współczynnik korelacji V-Cramera, oparty na statystyce χ^2 .

Słowa kluczowe: turystyka, zrównoważony rozwój, ekologia

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WOMEN IN AGRICULTURE TRAINING PROGRAMS: THE USA-STATE OF SOUTH DAKOTA “SASSY” PROJECT

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Abstract. Women’s involvement in agriculture and agribusiness is increasingly recognized as an important component of success in farm and ranch production and management. Women have unique information needs to help them more fully participate in agricultural decision-making. This has resulted in the development and implementation of agricultural training projects and programs specifically targeting rural women. Although there has been anecdotal evidence that these programs have benefitted women in agriculture, there had been no formal evaluation of the efficacy of agricultural training programs in South Dakota. The purpose of this paper is to report the findings of an assessment and evaluation study of the agricultural training program Sustainable Annie’s Systems in South Dakota for Years to Come (SASSY). The research was conducted to provide empirical evidence as to the degree that this program had a positive impact on the participants. This article shares those results.

Key words: rural women, women in agriculture, agriculture training programs, evaluation of agriculture training programs

INTRODUCTION

Women’s involvement in agriculture and agribusiness is increasingly recognized as an important component of success in farm and ranch production and management. The South Dakota State University Cooperative Extension Service (SDSU-CES) has implemented projects and programs targeted for women in agriculture. The primary objectives are to empower farm and ranch women in the state and help prepare them for increased participation in agricultural decision-making and management. According to SDSU-CES, more than 200 women have participated in Annie’s Project and its successor, Sustainable Annie’s Systems in South Dakota for Years to Come (SASSY)

training programs. Although there has been anecdotal evidence that these programs have benefitted women in agriculture, a recent assessment and evaluation study of SASSY was conducted to provide empirical evidence as to the degree that this program had a positive impact. This article shares those results.

CHARACTERISTICS OF WOMEN IN AGRICULTURE

The extent of women's role in the agricultural industry has been increasingly documented in recent years. According to the Women's Agricultural Community Web Resource¹, women across the world are involved in agriculture either directly or indirectly as farmers, ranchers, innovators or subsistence farmers. Hoppe et al. [2007] reported that past surveys did not adequately provide for the exact number and role of women in agriculture since the data collection tended to focus on one primary operator, even when the women operated the farm or ranch business with their husbands. Women are involved in livestock and crop farming as owners, co-owners with their spouses and children, and as partners in leasehold and corporate operations.

The number of women in agriculture in the United States has increased and reflects the changing diversity in farm characteristics [U.S. Department of Agriculture 2009]. According to the USDA Report "2007 Census of Agriculture", the number of women operators in the U.S. increased by 19 percent from 847,832 in 2002 to 1,008,943 in 2007; during the same period the number of women operators in South Dakota increased by 9.58 percent from 10,494 to 11,499. The number of women principal operators in U.S. increased from 237,819 in 2002 to 306,209 in 2007 (28.8 percent), and in South Dakota from 2,184 in 2002 to 2,394 in 2007 (9.62% increase) [U.S. Department of Agriculture 2009]. The term "woman operator" refers to all women involved in agricultural operations. The census statistics also shows an increase in the hectares² operated by women in the U.S. by 8.2 percent from 24,031,672 hec in 2002 to 26,006,947 hec in 2007, and in South Dakota from 738,876 hec in 2002 to 768,075 hec in 2007 (3.95% increase).

The average age of women operators increased from 53.6 to 55.3 years (three percent), and 55.7 to 57.1 (five percent) years in South Dakota and the U.S. respectively. The average years on the farm increased by eight percent in South Dakota from 23.8 to 25.7 years and four percent from 20.7 to 21.6 years in the U.S. [U.S. Department of Agriculture 2009].

The 2007 Census was the first census to report separately the number of farms and hectares with a woman operator or with a woman principal operator. In South Dakota, 11,144 women operated 5,679,793 hectares of land on 10,823 farms. In the U.S. there were 985,192 women at 942,035 farms operating 120,600,343 hectares of land [U.S. Department of Agriculture 2009].

¹ "Who are Women in Agriculture?" (Accessed 06/23/2009, <http://www.safs.msu.edu/womenag/index.htm>).

² Although the U.S. Census of Agriculture reports land holdings in acres, for the purposes of this manuscript, acres have been converted to hectares.

A study by Laffery [1991] surveyed 1000 farm women to understand their participation in farm activities in South Dakota. The findings indicated that apart from spending most of their time in meeting household responsibilities, women participated more in livestock-related tasks than in crop-related tasks. In decision-making, Laffery found that women were involved in joint decision-making in future farm planning, family spending, retirement planning, and in important decisions such as buying, selling, renting or leasing land.

In a study of farm families and changes in farm organization and structure, Janssen, Stover, and Clark [1993] concluded that interrelationships between farm business and farm household decisions and activities is an important element of farm structure. The study explored the work roles of farm couples, decision-making roles of farm couples, farm management and farm financial position, family functioning (satisfaction, coherence, stress and agreement) in relation to farm financial position, and the farm couple's goals concerning continuation of the farm operation and farming lifestyle. The research findings indicated that an intermix of technology, economic and gender roles changes in American society has influenced work roles of farm couples. Farm families increasingly rely on off-farm employment and greater participation of farm women in the farm operation. Family life research findings indicate that successful families are much more likely to use shared decision-making (group collaborative) styles than other family decision-making styles [Janssen et al. 1993].

UNDERSTANDING THE NEEDS OF WOMEN IN AGRICULTURE

As farm and ranch operations become more complex, agricultural women face a more challenging environment. Samanta [1995] concludes that women farmers have unique financial, marketing, risk, production and family needs as self-employees, owners or partners in their farms. Women in agriculture make important decisions on a daily basis including household, family, and the farm/ranch operation [Samanta 1995]. Women are involved in the decision-making process both as a responsibility and as a management practice in choosing a course of action among several alternatives. According to Wasnik's [2006] study of women in agriculture's strategy for socio-economic empowerment, women face economic vulnerability due to market, operation and natural risks related to agricultural production which is beyond their control. Another challenge is that the improved agricultural technology accompanied by partial mechanization affects women from all socio-economic backgrounds; women in farm and/or ranch businesses need to adapt to embrace better operation practices [Wasnik 2006].

Anderson [2004] documented fourteen experiences and stories by women involved in sustainable agriculture. Anderson arranged the stories into four parts: spring beginnings (traditional agriculture), summer abundance (pioneering agriculture), autumn reaping (industrial agriculture) and winter's return (sustainable agriculture). In all four parts of the interview, each interviewee shared their roles on the farm and their contribution to it. Anderson's main objective was to speak with women and understand how women have been adapting to changes in agriculture in the recent past. The participants were drawn not only from farms and ranches, but also from agricultural professions that included agribusiness and research and public policy. Anderson found that women worked

to educate others about what is really happening on the land through sharing their experiences and challenges. Apart from sustainability, the participants also focused on social justice and economic viability of women farmers. Anderson concluded that women in agriculture understood the challenges in the agricultural industry and positioned themselves through adaption of new techniques, skills and practices in order to meet these challenges [Anderson 2004].

ENTREPRENEURIAL NATURE OF WOMEN

According to Tanner [1999], self-employment has offered greater job flexibility by accommodating flexible working hours, which allowed women to continue to meet their family responsibilities.

Cuervo, Ribeiro and Roig [2007] define entrepreneurship as discovery and exploitation of opportunities. In search of theoretical approaches to the study of entrepreneurship, Cuervo et al. stated that there is no one theory of entrepreneurship but rather many. The authors outlined three levels of analysis as approaches to understanding entrepreneurship. They include: a) individual and corporate entrepreneurship; b) small and medium size entrepreneurship; and c) family business.

Social-cultural or institutional approaches towards entrepreneurship are built on network theory which is based on the idea that the entrepreneurial function exists and develops in a network of social relations as outlined by Cuervo et al. [2007]. The creation of new enterprise needs is favored or constrained by a complex span of relationships between the future entrepreneur, resources and opportunities. They linked entrepreneurship to the interaction within networks identified as communication content (the passing of information), exchange content (the exchange of goods and services), and/or normative content (the generation of expectations which people have of one another because of special characteristics or attributes).

EMPOWERMENT OF WOMEN

In the context of gender and development, Rowlands [1997] defines empowerment as a process or processes rather than an end product that brings people outside the decision-making process into it. In an economic context, it is the ability to maximize the opportunities available by participating in economic decision-making. Empowerment has also been defined as the process of enhancing an individual's or group's capacity to make purposive choices, and to transform the same choices into desired actions [Alsop, Bertelsen and Holland 2006].

Empowerment is dynamic, changing, and varies widely according to circumstances. Rowlands [1997] focused particularly on implied power that empowerment has to be generative and productive. Generative empowerment is concerned with the processes by which people become aware of their interests and how those relate to the interests of others in order for both to participate from a position of greater strength in decision-making and actually influence such decisions.

While discussing a feminist perspective, Rowlands [1997] views empowerment to be more than participation in decision-making and must include the processes that lead people to perceive themselves as able and entitled to make decisions. Accordingly, empowerment operates within three dimensions: personal, relational, and collective (refer to Figure 1).

- Personal: developing a sense of self and individual confidence and capacity, and undoing the effect of internalized oppression.
- Relational: developing the ability to negotiate and influence the nature of a relationship and decisions made within it.
- Collective: where individuals work together to achieve a more extensive impact than each could have done alone.

Rowlands contends that empowerment is organizing and planning development interventions in a way that ensures that the needs of women are met. Empowerment has to recognize the efforts of organizing and increasing self-reliance and independence to make choices and control resources.

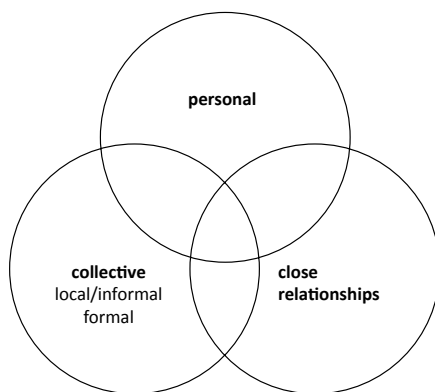


Fig. 1. The Three Dimensions of Empowerment

Rys. 1. Trzy wymiary umocowania

Source: Rowlands, 2007

Źródło: Rowlands, 2007

MEASURING EMPOWERMENT

Understanding and measuring empowerment presents challenges due to an individual's own varying assets that enable interaction [Alsop and Heinsohn 2005]. According to Alsop and Heinsohn [2005] individuals and group "endowment of a single asset, such as ownership of land, can affect a person's ability to make meaningful choices" (p. 8). While measuring empowerment, the indicators of empowerment will vary among individuals and can affect the endowment of another asset. Alsop et al. [2006] provides an example of education (asset) which often gives an individual or group of individuals greater access to information (asset) and at times improves an individual's capacity to envision alternative options (a psychological asset).

EVALUATION OF TRAINING PROGRAMS

In both public and private sectors, evaluation of training programs is important for stakeholders to know if the funded and/or implemented programs achieved the intended objectives. According to Chen [2005], program evaluation is the “application of evaluation approaches, techniques, and knowledge to systematically assess and improve the planning, implementation and effectiveness of programs” (p. 3). Chen suggests that for a program to be effective, it must ensure smooth transformation of inputs into desirable outputs, and continuously interact with its environment in order to obtain the necessary resources and support.

The effectiveness of a training program depends on its successful implementation. Evaluation can be carried out at the initial implementation stage of a program, or at the end of the program. Chen [2005] uses “process evaluation” for evaluation carried out at the end of a training program. Assessment-oriented process evaluation is used by evaluators to assess how well the program was implemented. Stakeholders, funding agencies, decision-makers, program managers, implementers, and the general public rely on outcome evaluation to determine the impact of a program. Outcome evaluation can be divided into efficacy and effectiveness evaluation. Efficacy evaluation is used to assess the effect of a program under controlled and standardized conditions, whereas effectiveness evaluation assesses the effect of a program in practical conditions [Chen 2005].

Kirkpatrick [1998] agrees that evaluation is important in order to determine the effectiveness of a training program, and identifies evaluation as the last step when planning and implementing effective training programs. Two specific reasons for evaluating training programs are to decide whether to continue or discontinue the training programs, or to acquire information on how to improve future programs.

AGRICULTURAL EDUCATION TRAINING PROGRAMS

Agricultural training is classified as either universal or subset education. Universal education is provided to the agricultural community in general in order to increase productivity of a large population. Ugbomeh [2001] defined subset agricultural education as concerned with teaching better practices and adopting improved agricultural practices, as well as changing the outlook of target farmers to increase their informed judgment as a way of improving their agricultural business operation. Based on the above classifications, the SASSY training program can be categorized as subset agricultural education, with the interest of improving women participation in agricultural operations in South Dakota.

In the past, agricultural extension services were biased regarding working with women. According to Young [1993] women had access to home economics extension services and selective training as agricultural advisors and extension service workers. Lack of access to extension services on agricultural business management limited women’s access to resources and information on farm management.

Lack of training in the past was based on the perception that work done by women on the farm or ranch did not require formal training; on-the-job training would contribute

to learning while women carried out operations [Young 1993]. Young recognizes the assumption that young women farmers are perceived to be already equipped to handle farm or ranch operation through some training or socialization into womanhood. Most women have therefore learned farm or ranch operations by observing their spouses or male family members.

Agricultural extension services have been a critical agent for providing information to women. There are new approaches and strategies being developed to increase women's access to information. However, according to Trauger et al. [2008], women's agricultural educational needs are often not adequately met by current agricultural extension efforts in the United States. Agricultural training organizations have allowed unequal access to agricultural education for men and women. Women's educational needs vary based on the agricultural topics and it is therefore difficult to identify a specific curriculum to ensure efficiency [Trauger et al. 2008]. Women were assumed to prefer traditionally gendered farm tasks such as book-keeping or domestic work on the farm, with a tendency to trust other women farmers. The goal of gender agricultural training is to empower women to be part of an agency through knowledge acquisition. Trauger et al. [2008] suggests networking for women farmers and ranchers as a means of providing continuous opportunity to build trust, share information, and build agency.

Wisner [2008] recognized the important role played by the Cooperative Extension Service of land-grant universities and by commodity exchange markets. With different producer characteristics, Wisner [2008] emphasized that not every producer subscribes to market advisory services. Educational materials, programs, and workshops organized and conducted by the Cooperative Extension Service provide avenues for farmers and ranchers to upgrade their marketing skills.

Annie's Project

Annie's Project is an agricultural business course program for women based on the life of Annette Fleck, a farm woman from the state of Illinois. The project objective is to empower farm women to become better partners through networking, learning management, and organization of important information related to farm business and operation [Annie's Project 2008]. While working on farm business management and marketing education at the University of Illinois, Ruth Hambleton developed Annie's Project based on the life story of her mother Annette Fleck [Annie's Project 2008]. Through observation of the challenges faced by Annie as a farm woman, and through experience, Hambleton identified the need to develop a program to meet women's diverse needs, resulting in increased quality of their participation in farm and ranch operations. Hambleton [2006] recognized that just like any other farm wife, her mother raised a family, supported her husband in running the farm business, and faced the challenges of low profitability in the farm enterprise.

From its inception in Illinois with a class of ten women in February of 2003, Annie's Project has grown to reach more than 2,000 women and has expanded into more than twenty states. The demographic characteristics vary from women married to farmers, to women who inherit their farm from their spouses without prior direct knowledge of the farm operation.

Annie's Project brings together women from different backgrounds, such as varying marital status, educational level, business and management skills, occupation, and type of farming operation [Annie's Project 2008]. According to Hambleton [2006], mentorship and sharing opportunities among women are possible with older women who have farm experience and younger women with computer and technology skills, resulting in a common ground to exchange and learn from each other. The training sessions encourage interaction and networking by maintaining a small class size of between ten and twelve women.

Each Annie's Project training is organized into six sessions, with topics of discussion varying across states depending on the women's unique and diverse information needs. The session topics include: financial skills on how to handle money and understanding financial tools such as the balance sheet, cash flow, and income statement; risk management information on crop or animal insurance; marketing information on understanding crop or livestock marketing; business organization information to understand lease agreements, the importance of financial record-keeping, planning and goal-setting, and estate planning; and human resource training on managing human resources in the farm/ranch business.

South Dakota Annie's Project

Annie's Project training was introduced to South Dakota in 2006 in Dewey and Harding Counties with collaboration between North Dakota State University's Cooperative Extension Service (NDSU-CES), and South Dakota State University's Cooperative Extension Service (SDSU-CES), and Annie's Project coordinator [Stacy Hadrick, personal communication 2008].

South Dakota women farmers and ranchers received training in tracking expenses and income for business and family operations, land rental agreements, retirement planning, farm transfer and estate planning, grain and livestock marketing, crop and livestock insurance, human resource management, with a last session open to address the participants' topic of choice.

Sustainable Annie's Systems in South Dakota for Years to Come (SASSY)

According to SDSU-CES's Annie's Project Summary³, the training enabled women to be more effective business partners, create sustainability in their operation, and realized the importance of empowering women involved in farming and ranching. Upon completion of Annie's Project, the participants expressed the desire for more in-depth information on risk management, how to be more effective business partners and how to create sustainability in their operation. In response to this request, in fall 2008, SDSU-CES developed a follow-up SASSY training program unique to South Dakota⁴. This training

³ The Ag Risk Education Library (Accessed 11/06/2010, <http://www.agrisk.umn.edu/verification/vrregister.dll/publicresults?ProjectNumber=RME-D4K02431>).

⁴ SASSY Project Summary (Accessed 11/06/2010, <http://www.agrisk.umn.edu/VerificationSearch/DisplayProposal.aspx?PN=RME-DF202638>).

was offered fall 2009 and spring 2010 with the primary goals of sustaining learning and promoting the best identified practices learned through Annie's Project. SASSY training was offered over six sessions in ten counties in South Dakota.

SASSY training participants were required to pay a registration fee of \$50 US, and this amount included the cost of meals for each class. Appendix A includes an example of a SASSY training agenda for Brookings County. The six session topics were: finding balance for you and the farm or ranch; planning for the future; sustainability; marketing mechanics; 'cuz it's about the money; and celebrating women in agriculture/planning for the future.

SASSY training occurred in the same counties as the Annie's Project. "Initial training locations were chosen because of interest by the educators in that region to have (continued) programming focused on women. After our initial Annie's sessions, there was a strong interest to offer SASSY at the original locations" [Robin Salverson, personal communication 2010]. SASSY training targeted 160 women farmers and ranchers in ten counties.

Assessment and Evaluation of SASSY

Prior to the formal assessment of the SASSY program, evaluation of women in agriculture training programs in South Dakota were limited to feedback notes and informal comments from end-of-class assignments and home assignments. A formal post-training survey was developed and distributed in order to better understand what is important when designing and implementing training programs; identifying short term and long term program relevance, effectiveness, and compatibility; and providing feedback information to improve future training programs and increase participation of women in agriculture. The survey, developed by South Dakota State University Economics Department researchers, was distributed to SASSY participants during the last session of training. Of 120 total participants, 60 returned surveys, resulting in a 50 percent response rate.

SURVEY RESULTS

High interest in SASSY training was demonstrated in that eighty-one percent of the participants attended four or more of the six sessions. Over half of the participants were 45 years or older, and 88 percent were married. The participants consisted of 37 percent college graduates, 29 percent with some college level education, and 14 percent with post graduate education. Forty-six percent of the participants had been involved in agricultural operations for over 30 years, and 16 percent 20–29 years. Seventy-one percent of participants were able to attend a training center within 64 kilometers of their home.

The most common form of farm/ranch ownership was sole proprietorship (56%), followed by partnership (24%). Fifty-six percent of the participants were involved in both livestock and crop production, with 30 percent involving 405–2023 hectares, and 37 percent 2024–4047 hectares. Annual farm gross income for 43 percent of the participants was below \$100,000 US; followed by 26 percent between \$100,000 and \$200,000 US.

Table 1. Importance of Topics Covered by SASSY Training (%)
 Tabela 1. Ważność tematów podejmowanych przez szkolenia SASSY (%)

Importance of topics covered by SASSY Training	Very important	Important	Somewhat important	Least important	Not important	Didn't receive information	Mean average
	5 %	4 %	3 %	2 %	1 %	0 %	
Financial records	66.7	19.3	10.5	1.7	–	1.7	4.46
Marketing strategies and plans	59.7	26.3	10.5	3.5	–	–	4.42
Production records	54.4	31.6	10.5	1.7	–	1.7	4.33
Other	66.7	–	33.3	–	–	–	4.33
Livestock production	58.9	25.0	3.6	5.3	5.3	1.8	4.21
Goal-setting	46.6	31.0	15.5	5.2	1.7	–	4.16
Communication skills	52.6	21.1	19.3	3.5	–	3.5	4.12
Health and well-being	41.4	32.7	19.0	5.2	–	1.7	4.05
Relationships	48.3	25.6	17.2	3.5	–	5.2	4.03
Natural resources	25.0	37.5	25.0	10.7	–	1.8	3.71
Crop insurance	26.8	32.1	19.6	12.5	–	8.9	3.46
Niche marketing	26.4	28.3	26.4	9.4	1.9	7.6	3.45
Crop production	26.8	26.8	26.8	5.4	7.1	7.1	3.39
Animal insurance	25.0	26.8	17.9	5.4	8.9	16.0	3.05

Source: SASSY Training Survey, 2010

Źródło: ankieta szkolenia SASSY, 2010

SASSY participants were asked to respond to questions based upon their experiences in the SASSY training program. Nine out of fourteen SASSY training topics (see Table 1) had a mean average of four and above (somewhat to very important), and the remaining five topics had a mean average of at least three (somewhat important).

Learning how to balance farm and ranch life was a central subset of SASSY training. Table 2 indicates that getting organized, focusing on priorities, being flexible, living simply, and building networks and focusing on personal time all had high mean averages, indicating their importance to the survey respondents.

In relation to goal-setting, the highest percentage of goal-setting occurred in relation to family/personal and financial goals, with the lowest percentage in relation to their communities (refer to Table 3). Nearly all the survey respondents (95%) said they will share their goals with their spouse and/or other and family members.

The survey also asked farm and ranch women to indicate what barriers they faced in relation to accomplishing their goals (refer to Table 4). Interestingly, although nearly all

Table 2. Ways of Finding Balance in Farm and Ranch Life (%)
 Tabela 2. Sposoby osiągnięcia równowagi w życiu w gospodarstwie (%)

Specification	Very important	Important	Somewhat important	Least important	Not important	Mean Average
	5	4	3	2	1	
	%	%	%	%	%	
Getting organized	62.0	25.4	8.5	3.4	–	4.47
Focusing on priorities	50.9	28.1	15.8	5.2	–	4.25
Being flexibility	37.9	41.4	17.2	3.5	–	4.14
Simplifying life	40.4	31.6	26.3	1.7	–	4.11
Building networks	43.9	21.0	26.3	8.8	–	4.00
Personal time	39.0	27.1	25.4	5.1	3.4	3.93

Source: SASSY Training Survey, 2010
 Źródło: ankieta szkolenia SASSY, 2010

Table 3. Goals and Time Frame (%)
 Tabela 3. Cele i ich rozkład w czasie (%)

Specification	Goals		Time Frame		
	Yes	No	Short-term	Mid-term	Long-term
	%	%	%	%	%
Family/Personal	83	17	40	23	37
Finance	81	19	29	33	38
Operation	79	21	32	37	31
Production	77	23	41	40	19
Marketing	64	36	67	22	11
Community	48	52	53	30	17

Source: SASSY Training Survey, 2010
 Źródło: ankieta szkolenia SASSY, 2010

Table 4. Barriers to Goal Accomplishment
 Tabela 4. Bariery ograniczające osiągnięcie celów

Barrier	No. of responses	% of total responses
Complicated family situation	36	33.0
Lack of funds to support plan	30	27.5
Too busy	22	20.2
Other	12	11.1
Hard to put ideas into words	9	8.2
Total	109	100

Source: SASSY Training Survey, 2010
 Źródło: ankieta szkolenia SASSY, 2010

the respondents had indicated that they would share their goals with their spouse and/or other family members, the most frequently identified barrier to goal accomplishment was a complicated family situation.

SASSY participants received training in record-keeping and financial planning. Record-keeping in relation to tax returns and financial statement preparation, monitoring agricultural production and business progress, tracking deductibles, identifying receipts, and a decision-making tool for making production decisions were all discussed, with the respondents identifying all these areas as important to very important. Forty-two percent of the participants still had difficulty in calculating commodity prices and evaluating financial ratios post-training.

Finally, survey respondents were asked how quickly they would apply what they had learned from the SASSY sessions. Sixty-seven percent of the respondents indicated that they would try it out right away, with the remainder concluding that they would wait until an approach was proven or used by other famers/ranchers first.

CONCLUSION

The SASSY training program was agricultural training program based on needs identified by in which the farm and ranch women who had participated in the initial Annie's Project. The primary objective of this research was to assess whether the SASSY program met the needs of those farm and ranch women. SASSY participants were satisfied with the training program as seen from both the high level of interest in the topics and the high level of importance assigned to those topics. Impact on personal development and knowledge transfer was also evident from the participants' responses. SASSY training improved the role of women in agriculture, planning, decision-making, communication, and organization.

SASSY participants who responded to the survey agreed with the trainers regarding the importance of the topics covered. Focusing on priorities and being organized ranked as very important ways of finding balance. SASSY participants valued more family/personal, financial, and operation goals and most women would share their goals with their spouse and family members. Marketing goals represented the least important area of goal setting and more women set short-term rather than mid- or long-term marketing goals. Despite sharing goals with their spouses and family members, a complicated family situation was the leading barrier to goal accomplishment. Lack of funds and busy schedules were other common barriers to accomplishing goals.

Survey results indicated an increased understanding of the importance of record-keeping in production, monitoring production and monitoring business progress. These three areas of record-keeping are associated with the decision-making process. This suggests that, post-training, women felt more knowledgeable and empowered to participate in the decision-making processes on their farm/ranch.

This study had some limitations. The first challenge was lack of researcher control over the original training process, training objectives, and personal contact with the participants. The planning of SASSY evaluation was carried out after the SASSY training goals, objectives, choice of training location, and training program schedule were in place.

Ideally, the evaluation would have been developed in conjunction with the objectives and expected outcomes. Nonetheless, the survey instruments were successfully constructed to assess the outcomes of the major goals and objectives of SASSY training.

The selection of the SASSY training program participants was based on informed knowledge of farm/ranch women who wanted more information and were willing to attend the training sessions, which may have resulted in a non-representational sample. This selection process did not allow for random selection of women in agriculture.

The primary goal of the SASSY training program was to identify the best learning systems and practices to be sustained to assist in increased empowerment of farm and ranch women in South Dakota. The training program, however, did not clearly define goals of sustainability, monitor and measure empowerment, or indicate how to identify empowered farm and ranch women. To overcome this study limitation, the researchers identified the areas related to decision-making. These areas included goal setting, use of records to assist in production decisions, monitor production, and monitor agricultural business progress. In regards to empowerment, the study identified some management areas and evaluated the level of women's participation in these areas. These areas included planning, record-keeping and financial analysis, marketing tools and techniques used, and goals and goals prioritization. Although the findings contribute to understanding empowerment as related to this study, there is not sufficient information to generalize the empowerment impact of training programs beyond SASSY.

RECOMMENDATIONS

Further research is recommended to expand on the findings of this study. For example, an empowerment model, such as Rowlands' Three Dimensions of Empowerment [1997] could be developed that monitors empowerment progress in the short-term and long-term. To facilitate impact analysis of future training programs, future research could develop more elaborate training need analysis to better understand women in agriculture training needs. Participation of more farm and ranch women in training programs should be encouraged so as to have greater representation of women in agriculture. Women indicated interest in learning new technology, so further research could be carried out on the effect of new technology and learning systems.

While designing future training programs, the stakeholder and project coordinators should understand the barriers and challenges facing women in accomplishing the new acquired skills and knowledge. Because complicated family situations was identified as the primary barrier to goal success, further research on the role farm/ranch spouses and other family members could be informative.

Based on this study, the authors conclude that the SASSY training program achieved many positive results. The high response rate of 50 percent for the survey, and 81 percent attendance of four or more training sessions indicated the interest in the program. That nine out of fourteen SASSY training topics had a mean average of four and above (somewhat to very important), and the remaining five topics had a mean average of at least three (somewhat important) supports the assertion that farm and ranch women find SASSY training to be of value.

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For further reading on Women in Agriculture Training Programs:

Annie's Project: <http://www.extension.iastate.edu/annie>

North Central Risk Management Education Center: http://www.ncrme.org/Grants/documents/SouthDakota_000.pdf

The Ag Risk Education Library. Annie's Project Summary: <http://www.agrisk.umn.edu/verification/vrregister.dll/publicresults?ProjectNumber=RME-D4K02431>

The Ag Risk Education Library. SASSY Project Summary: <http://www.agrisk.umn.edu/VerificationSearch/DisplayProposal.aspx?PN=RME-DF202638>

**PROGRAMY SZKOLENIOWE DLA KOBIET W ROLNICTWIE: STANOWY
PROJEKT „SASSY” W POŁUDNIOWEJ DAKOCIE, USA**

Streszczenie. Zaangażowanie kobiet w rolnictwie i agrobiznesie jest coraz częściej postrzegane jako składnik sukcesu w produkcji i zarządzaniu w gospodarstwie. Kobiety mają unikalne potrzeby informacyjne, które mają pozwolić im na pełne uczestnictwo w procesie podejmowania decyzji. Efektem tego jest rozwój i wdrożenie rolniczych projektów szkoleniowych skierowanych do kobiet wiejskich. Pomimo tego, iż można znaleźć przykłady tego, iż z niniejszych programów korzystały kobiety związane z rolnictwem, to jednak brak jest formalnej ewaluacji rolniczych programów szkoleniowych w Południowej Dakocie. Celem niniejszej pracy jest zaprezentowanie wniosków z przeprowadzonej oceny i studium ewaluacyjnego rolniczych programu szkoleniowego: Sustainable Annie's Systems in South Dakota for Years to Come (SASSY). Celem prowadzonych badań było dostarczenie przykładów empirycznych, które potwierdziłyby pozytywny wpływ niniejszego programu na jego uczestników. Niniejszy artykuł prezentuje te wyniki.

Słowa kluczowe: kobiety wiejskie, kobiety w rolnictwie, rolnicze programy szkoleniowe, ewaluacja rolniczych programów szkoleniowych

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APPENDIX A

Sassy Training Agenda, Brookings County (Participants Agenda)

First Session – Finding balance for you and the farm/ranch

Goal – Use these tools to take care of yourself and build your business

- Picture Icebreaker
- Balance Wheel
- Setting Goals for Personal and Business
- Expectations for SASSY and Community of Learning
- Families Eating Smart & Moving More

Second Session – Planning for the future

Goal – Look to the future to plan for ways to make your business successful

- Record Keeping for Production Records
- Goals Review
- Sustaining SASSY

Third Session – Sustainability

Goal – Learn more about how marketing can help you be sustainable

- Marketing Plans

Fourth Session – Marketing Mechanics

Goal – Utilize these new tools to change the way you look at your business

- Building Marketing Plans
- Optional Section
- Building Budgets
- Using Technology for Your Business

Fifth Session – ‘Cuz it’s about the money

Goal – Finding balance with money for the business and family

- Balance Sheet Challenge
- Families Easting Smart/Moving More

Sixth Session – Celebrating Women in Agriculture/Planning for the Future

Goal – Creating ideas for how to make changes

- Record Keeping Report
- Sustainable SASSY
- Optional Section
- Marketing Experts Round Table

ALTRUISM IN BIOLOGY REGARDING DISINTERESTED FORMS OF ACTION IN ECONOMY (SELECTED ASPECTS)

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Abstract. The purpose of this paper is to analyse and seek equivalents of behaviours which in respect of living organisms are defined as altruistic, i.e. consisting of certain activities aimed at drawing advantages by other individuals, with simultaneous resignation of own advantage by one of the participants of the so-called altruistic act. Altruistic acts, as a negation of egoism, are often observed among numerous living creatures, but also within the whole human communities with their complex cultural and economic structures. The forms and mechanisms of such behaviours are interesting, as they are typically not aimed at satisfying the needs of specific individuals, ready to share their resources with other individuals, as a consequence of which they themselves may lose. In biology, altruistic behaviours are typically associated with organisms closely related to each other. Such acts are reasonable in the context of revolutionary considerations, as helping one's own relatives increases the chance of spreading one's genes. Description of such behaviours is different in economic lives of societies, where altruistic behaviours can be observed as well, whether in the form of sponsoring, or of welfare state, i.e. targeted at completely strange individuals as well. Explanation of the reason behind such behaviours seems to get us closer to understanding of certain patterns of activity in biology as well as in social and economic behaviours, which consist of acting in a manner that brings advantage to others. However, altruism of such activities depends on complex factors and is therefore complicated and oftentimes also apparent, leading to more comprehensive achievement of one's own egoistic agenda in the long-term.

Key words: biological altruism, sponsoring, welfare state

INTRODUCTION

Explanation of altruistic social behaviours among animals is an important issue to understand the mechanisms of struggle for existence, which are present in the world of living creatures and which are researched by such fields of science as sociobiology, or evolutionary biology. They analyse and describe interactions between individuals, including the functioning of individuals within groups abiding by certain rules. All discussion on co-existence of organisms is based on the natural selection theory, as all living organisms have such properties and exist in such world which makes this selection unavoidable. The most important issue here is the maximisation of probability of survival and number of offspring [Lomnicki 1991]. The fact that offspring are similar to their parents but not identical is due to variability, at least in terms of certain features. Therefore, individuals having various features may differ by the probability of survival or number of offspring in certain circumstances [Kozłowski 1991]. For this reason, focus on “oneself and one’s own success” is more important than caring of the well-being of other representatives of one’s species. However, this is not always the case. A multitude of behaviours can be observed in nature which can be described as altruistic, i.e. not only those which would assure one’s own adaptation, or life in a given moment or in a short term, but also those improving adaptation among other representatives of one’s species, living in the closest surroundings, particularly among one’s relatives. Despite that sharing, e.g. food or living space, is relatively rare, for instance among primates, this is one of the strongest social features in humans. This is also why humans are the only species to create economy, which is a science dealing with management of limited resources they have or may have at their disposal. Their advanced intelligence and symbolic thinking capacity allowed for true exchange of goods and services [Wilson 2000]. However, humans try to consider and promote the need to be generous and to obey altruistic rules, somehow in order to conceal their true nature, which prefers being egoistic. It would be difficult to learn altruism in the world of animals, as this feature may be genetically programmed. The matter is becoming even more complicated with human beings, being the only species dominated by culture which may impose further rules of conduct and indicate a purpose of certain behaviours. In other living organisms, altruism and egoism is not intentional but purely behavioural. An altruistic act in the world of living creatures is an act which, even to the slightest extent, increases the chances of the altruist’s death and the chances of survival for the recipient of such act. Thus, exhibiting altruistic qualities may be seemingly counter-adaptive and make an impression of self-dedication [Maynard Smith 1992]. However, these are often fake altruistic deeds in the world of nature, which effectively turn out to be hidden egoism [Dawkins 2006]. This will probably also often refer to acting in the realm of economic behaviours of the human population, particularly with regard to various forms of conducted business activities and behaviours related to sharing of goods.

PURPOSE AND SCOPE

The purpose of this discussion is to critically analyse various aspects determining altruistic behaviours in the surrounding world, considering purely biological factors con-

tributing to such behaviours as well as conscious human actions integrated in the canon of reasoning in economic terms. Furthermore, an attempt has been made to compare various relationships formed through evolution in the animated world to those occurring in the sphere of economy. The initial assumption is that nature has obviously been an inexhaustible source of observation and inspiration for formation and subsequent implementation of certain rules in the lives of human individuals and of whole complex societies.

Altruistic behaviours in biology were analysed on the basis of several example types, including:

- apparently altruistic behaviours which in reality served the purpose of securing one's safety or improving accessibility of certain resources;
- kin altruism in eusocial animals, such as bees or ants where relations of kin are slightly different than in other organisms;
- fair play behaviours, which are not expressly altruistic but may nevertheless cause harm to the individual exercising them in favour of another individual;
- altruism as a kind of symbiosis where both parties draw advantages from cooperation;
- reciprocal altruism – behaviours involving reciprocal rendering of services to each other, most commonly by individuals of species which are capable of recognising each other.

Altruistic behaviours in the economy were studied on the basis of two example forms of behaviours and transaction mechanisms, namely:

- sponsoring, or augmentation of assets, albeit for a consideration (i.e. remuneration), but frequently non-equivalent, at least for the party enriched through such support;
- activities of the so-called welfare state, consisting of multifaceted undertakings to secure the existence of selected individuals in human societies. Such activities generally consist of protecting individuals against various risks occurring in life, such as sickness, unemployment, accidents.

Analogies were also sought between altruistic behaviours present in the animal world and altruism in the realm of economy.

RELATIONSHIPS BETWEEN SPECIES IN THE NATURAL SELECTION THEORY VS. BIOLOGICAL ALTRUISM

Today, we are able to observe a multitude of diversity of plant and animal species, which exploded around 600 million years ago. It is estimated that there are millions of species living on the Earth – an enormous number within an equally broad range, between 5 and 50 million [Weiner 1999]. In natural science, in order to grasp the complex interactions of such diverse organisms as separate species, it is a matter of key importance to understand Darwin's theory. This is a still valid philosophy of scientific thinking, a foundation for research on cooperation and variability of living organisms, plants and animals [Falińska 2010]. Its origins are perceived in a voyage Charles Darwin took as a young man on board of *Beagle*, as the "royal naturalist". An unexpected result of that journey was a theory of evolution through natural selection, revolutionary for its times, which has become an inspiration for reflection on the issues of origin and co-existence of various

species [Piekietko-Zemanek 1983, Szafer 1959]. Darwinism has quite soon become not only a popular biological theory but also a tool for explaining various common social phenomena. This theory was slowly and arduously transposed to incomparably broader discussions, which would often refer to the level of human individuals' ethics realising in specific tasks and relations referred to entire social groups [Mirek 2010]. Nature is practically an inexhaustible source of inspiration in this respect, as there are various adaptations serving various organisms to survive in specific ecological niches. Animals, as organisms endowed with highly developed nervous systems and often with the ability to move, have developed a multitude of various living strategies, also relating to their existence on the social level, which is regulated by a number of individual behaviours. The world of plants, perceived by many as incomparably simpler in terms of ways of life and so-called social interactions, treated in terms of social behaviours, is determined by lack of nervous system, typical of animals. But plants also compete with each other in various ways, e.g. for accessibility of light, water or organic substances, which makes them ultimately egoistic creatures. An interesting example of certain plants' co-existence with their surroundings is the development of so-called carnivorousness in certain species. They are able to attract, retain, kill and digest their prey, typically insects, thus supplying themselves with useful substances from the victim's body [Płachno 2010]. They are not therefore only passive observers of the interactions surrounding them, between animal species, but are able to actively participate in the struggle for existence, realising their purely egoistic causes, deceiving the insects through attracting them with a promised profit from a visit, to then never let them out of their bodies.

A multitude of evolutionary strategies applied by various animals are associated with the Darwinian concept of natural selection. One of such strategies is the phenomenon of so-called altruism, whether between individuals of the same or of different species. This may show in various types of cooperation between individuals, but also with low virulence of parasites and diseases [Krzanowska et al. 1997]. Highly diverse altruistic or pseudo-altruistic behaviours are observed in the animal world. Particularly for species living in herds or flocks, such behaviours are strongly developed through the natural selection process, and their purpose is to improve the chances of survival and leaving offspring by individuals. Generally, in order to understand the phenomenon of biological altruism, one should be aware of the fact that the outcome of such act, when assessed in somehow economic terms, will show that the altruist's losses will be lower than the gains of the neighbour-recipient. In such discussions, gains and losses are always measured by the ability to survive and the number of offspring. A theory of such implementation of natural selection, which is known as kin selection, was formulated in 1964 by W.D. Hamilton. It explains numerous phenomena of animals' social life, including evolution of bee or ant communities [Łomnicki 1991].

There is also a multitude of behaviours in nature which only seem to be altruistic. One can mention, for instance, female lions who not only feed their cubs but also other cubs in their pride. However, male lions would kill all the cubs after taking over a new pride from other males, while females do not even try to intervene. This is because the males taking over the pride are not related to the females, or even less to the cubs, while females feeding their neighbours' cubs are often closely related to each other. There is another example of a seemingly altruistic behaviour among certain antelopes which, when they

notice they are being attacked, for instance by hyenas, will not escape but will first make a series of jumps. Such a behaviour may be perceived from outside as aiming at other animals' good, as antelopes live in herds and therefore are expected to warn their compatriots of an approaching predator. In fact, this is an extremely egoistic behaviour, as the jumping antelopes send signals to convince the predator of their own strength, which shows in the high jumps; the jumps also prove the animal's health, which will make it more difficult to catch. These signals are also comprehensible for the predators themselves, who have learned that it is harder to catch a high-jumping prey [Kozłowski 1996]. Another example can be a situation of social behaviours in the animal world that has straightforward equivalents in the realm of human behaviours, occurring for example in numerous bird species. Offspring of many bird species, e.g. wild pigeons, will not always grow independent or leave their parents at an adult age, but will rather help raising their siblings for a few years. This is the case in areas with scarce food resources or those which are difficult to settle, where there is little chance to build one's own nest but there is a chance of taking over a nest after deceased parents [Kozłowski 1998].

Another aspect of altruism shows in eusocial animals, including Hymenoptera, such as bees, wasps or ants, but also African naked mole rats, classified as mammals. Altruism in Hymenoptera is supported by unique sex determination. Here, males hatch from unfertilised eggs and have 50% less genetic material; sisters from fertilised eggs are 75% related while mothers and daughters are only 50% related. Therefore, these insects have evolved a behaviour consisting of abandonment of reproduction among the so-called workers, in favour of taking care of their sisters, as this is the way for them to contribute stronger to propagation of their own genes [Łomnicki 1991].

Another form of biological altruism are the so-called fair play behaviours, numerous in the world of nature. An example can be genus *Nucifraga* birds which, despite that they know their neighbours' hiding places for food, they will not steal that food. However, they will soon manage the resources after these individuals die [Kozłowski 1996].

Altruism may also appear in the form of symbiosis, where both parties draw advantages from cooperation. It can be observed, for example, in certain New World ant species which "discovered" much earlier than humans that farming food can be more efficient than hunting or gathering [Dawkins 2006]. Such "home-bred animals" for ants are aphids, specialising in sucking on plant juices. As they release more fluid than they actually need for their metabolism, it can be intercepted by ants, which somehow "milk" the aphids and provide themselves with highly nutritional substance. Aphids draw advantage from this cooperation in the form of defence against natural enemies.

Reciprocal altruism, which is important for the references in the realm of economy, describes the relationships existing when two unrelated individuals cooperate. Here, an individual may reduce its chance of survival in favour of its partner as well as achieve something from that partner. An example of this type of strategy is sharing food by vampire bats. An individual that succeeded on a given night has gathered resources he will not be able to wholly utilise. Through sharing some of these resources with a peer that did not have a successful hunt that night, he may share the latter's life. Such altruism as presented by Trivers (1985) may form through natural selection if the individuals know each other, and their contact must be recurrent so that there is a chance of exchange of services [Krzanowska et al. 1997].

SPONSORING AND WELFARE STATE AS THE MAIN FORMS OF ALTRUISM IN THE ECONOMY

Humans as representatives of primates exhibit a whole range of features referring to their animal relatives. One of these features is living in groups, which involves numerous advantages but often also certain costs, arising from continuous need for cooperation [Lewin 2002]. Social and cultural realities often require being altruistic to one's compatriots, although it sometimes seems to be unprofitable. In human societies, including the advanced and modern ones, behaviours similar to those which in biology are identified as natural selection can be observed, particularly one of the crucial aspects of natural selection, namely struggle for existence. These are frequently unconscious behaviours, driven by animal instincts, as humans are animals as well. However, it is important for humans as creatures endowed with consciousness and intelligence to abide by certain moral and cultural rules, which are perceived as acts of altruism towards other individuals. Darwin already believed that the moral code of humans has its origin in their social instincts. Accordingly, every human fights an internal struggle between desiring material conveniences for himself and the sense of obligation towards people from his surroundings, e.g. his relatives, acquaintances, colleagues, workers or subordinates. This can be perceived as a remnant of the struggle between egoistic instincts of the "former man" and the social instincts of "man created by the society" [Timiriasev 1952]. It is an open question whether such moral and social evolution of humans is true. For economic science, but perhaps for social science as well, it is important to seek an answer to the question whether we as a species have developed towards satisfying the needs of our surroundings and expanding our altruism. Or, perhaps, on the contrary – with the growth of complex civil structures and highly organised societies, a matter of importance was a concealed pursuit of one's own advantage under false pretences of care of others.

Altruism, particularly when perceived as sponsoring, is a continuously valid object of analysis for economic sciences, particularly marketing, but it is also within the realm of interest of the so-called behavioural economy. Adam Smith was its distinguished founder, also known as the father of traditional scientific economy, and considered in the past to be an outstanding ethicist, psychologist and sociologist. Thus, he would base his scientific studies, largely philosophical in nature, on extensive and diversified scientific grounds. He was also the author of a less known and later forgotten work entitled *The Theory of Moral Sentiments* (1985) [Smith 1989]. In this work, he not only mentioned the issue of egoistic behaviours, which are somehow naturally associated with economy, but also the "love the neighbour" phenomenon and the essence of altruism. Later questioning of this work and finally oblivion was caused by popularisation of the concepts by Walras and Pareto in economy. These have eliminated the hardly measurable or at times even metaphysical psychology and moral philosophy introduced to the discussion of economic development of humans. Elimination of such assessments in the economy is called the Pareto revolution [Wojtyła 2008]. It has been proven on the basis of Pareto's optimum that neither hostility nor kindness ever emerges within a given system. Smith in his work emphasized the human being as a living creature and the most socially developed representative of the animal world [Polowczyk 2010]. Assuming that the general moral rules derive from divine laws, he believed that religion supported the innate sense of duty. Also in the first

half of the 19th century, J.M. Keynes and J. Fisher would explain many economic behaviours of humans through applying social, including psychological, assessments in their research. Such “purification” of economy from the humanities does not seem to have made economy more scientific and the science more certain, even taking account of the current global economic crisis, which probably has ordinary greed and egoism among its reasons. However, as emphasized by Kowalski [2001], human behaviours and decisions strongly deviate from the activity pattern of *homo oeconomicus* as assumed by traditional economy. Nevertheless, almost the whole structure of contemporary economy is based on a model of human nature describing reason as a pursuit of maximising one’s own advantage, i.e. behaviours which are essentially egoistic and leading to gaining maximum material wealth. Without questioning these generally accepted human behaviours and their repeatability, leading to certain regularities [Fukuyama 1997] also perceives certain actions which may be considered unreasonable from the viewpoint of one’s own advantage. This is clearly visible in the so-called cost-benefit economy and therefore disregarding them would lead to a probably incomplete model of human economic behaviours. However, Thaler foresees that *homo oeconomicus* will evaluate towards *homo sapiens*, “to lose his high IQ and to become more emotional” [quoted by Polowczyk 2010].

In his work entitled *The Theory of Moral Sentiments* [1989], Smith points out that man, despite his innate egoism, is still capable of being selfless. According to the author, “Nature, it seems, when she loaded us with our own sorrows, thought that they were enough, and therefore did not command us to take any further share in those of others, than what was necessary to prompt us to relieve them”. Also in the neoclassical theory of utility, egoism is the natural, pragmatic and verified attitude of human beings in their life behaviours, including economic behaviours. Here, egoism not only means the strive to survive but also to maximise one’s utility for the society, drawing benefits and satisfaction therefrom. However, Simon [2005] believes that one of the forms of altruism, typically neutral and therefore disregarded in economists’ discussions, can be considered reasonable, namely the reciprocal altruism known from the animal world, which in fact constitutes far-sighted (deferred) egoism. According to that author, altruism interpreted as sacrificing oneself for others is fully compliant with the assumptions of neo-Darwinism and the theory of evolution based on natural selection. This unique parable is explained here by reference and analysis of behaviours of people functioning as members of large economic or business organisations, e.g. corporations. In this case, learning social behaviours and relations is important, like in gregarious animals. Reasonableness of individual behaviours is a matter of secondary importance, or utterly negligible.

When analysing analogies of altruistic behaviours in biology or eco-sociology of animals and in human behaviours, one should again refer to A. Smith, the classic of economy [1989]. He made a distinction between two types of sentiments, i.e. “sentiments that are common to people and animals”, “having their origin in the human organism” and the “sentiment through which nature joins the two sexes”. The second group of sentiments include generosity, politeness, mutual respect, friendship, social sentiments, including kindness. These are the emotions that determine those human behaviours which are altruistic by nature. He would also emphasize that “a man can only exist in a community”. However, for a community to emerge, there must be mutual trust and cooperation between the individuals forming the community, as well as mutual support, which can be

referenced to the relationships existing, for instance, in case of sponsoring. When the concept of sponsoring is analysed from the perspective of economic science, one should pay attention to the semantic field of this word, which is frequently too broad. It is most often identified with supporting various types of activities and projects to build one's own trustworthy image and in this way gaining public sympathy [Kujawa, Polakowska-Kujawa 1994]. Its historical and social roots are probably in patronage, which is today a strongly distinguished concept. The difference between sponsoring and patronage relies both on the intentions and the relationships between the partners. Patronage is predominantly (or even exclusively) based on altruism, i.e. actions where donations are given in a selfless way. Altruism is therefore targeted at achievement of diverse goals, none of which are personal. It is typically the care of other people's well-being, which can be achieved almost immediately or postponed. An altruistic behaviour is thus typically pro-social and consists in waiver of certain personal rights and benefits which are transferred to other people. Sponsoring, although it is quite commonly identified with aid targeted at various entities and areas of life which will draw benefits from this in an easier way than if they take other equally demanding actions, but it is not an activity without consideration or gratification. The goal of sponsoring is to obtain measurable benefits from such cooperation, not only by the sponsored party but by the sponsor as well. This is an arrangement between the sponsor and the sponsored party, in which one party (the sponsor) grants certain funds, goods or services to the other party. However, both parties benefit from the arrangement, as the sponsored party agrees to render certain reciprocal services envisaged (in the arrangement). Such benefits may include social recognition of the sponsor, or facilitated communication with new groups of recipients. Thus, it has economic reasons and is therefore within the realm of interest of economy as science. Patronage, on the other hand, as there is no expectation of an equivalent service and therefore it is an entirely altruistic deed, is somehow outside the scope of interest of economy, or at least mainstream economy. It is not targeted at managing goods in order to draw benefits, or even reducing one's own goods [Perlak 2010]. Patronage can be inspired by various attitudes of the party reducing its assets. Usually it has idealistic motivations and it is based on humanist and social motives of action, while at the same time carrying the message of charity, or generosity. While sponsoring is based on the principle "I give so that you give, too", patronage emphasizes the approach "I give you so that you can be" [Datko 2012]. For economy and related sciences, altruistic pursuits realised through patronage have certain features which clearly distinguish them from undertakings classified as sponsoring. In the case of altruism, these features include disinterested aid, typically anonymous (although not necessarily), aid transferred through donations (and not under commercial contracts). Another characteristic features is that benefits are one-sided and typically highly valued in ethical terms, but not usually in economic terms [Breczko 2011].

Another instance of altruistic activity can be the idea of welfare state. In this context, it can be considered the largest altruistic system with respect to its citizens. This shows, for example, in financially supporting families with many children so that they are able to raise their offspring more easily and when the children become adults, they will work for the development of the state which has "fed" them. Does welfare state actually follow the rules of complete altruism, or is this rather an expression of transient sponsoring, or a form of loan which will more than pay for itself in the future. Generally, what reciprocal

altruism is for the animal world, in the name of the rule “a service for a service”, is the money as the medium of deferred altruism for human societies [Dawkins 2006].

Money is the one, although not the only, carrier of values and ability to function in the society, including its economic life. The historically formed welfare state was expected to protect citizens, through the ever-expanding area of protective intervention, against basic risks of life, such as, for instance, disability, inability to work, homelessness. State support today is typically a transfer, i.e. the state itself, without producing any goods (such production is a domain of communist states) determines the rules of taxation in the legislative process (from those who are capable of paying the taxes) and of transferring these money to those groups for which they are indispensable to survive or to live to a standard assumed as socially acceptable. This is a so-called milling state, in which the strength of the parties' interests is also essential, including the strength of taxpayers, of the state (often of politicians), of recipients of the transfers, but also of the bureaucracy then formed. Therefore, one may conclude that the welfare state functions are rooted in own interests of at least some of the stakeholders. Transfer payments, or transfer of rights to consumption, selection from one person to others, typically have the form of various state-funded social aid programmes and may also apply to social security, with contributions being inadequate to benefits gained by the insured [Stiglitz 2004].

Welfare state can also be perceived as a unique egoistic product, serving the purpose of expansion policy and creation of global demand, meaning that the business cycles are reduced or eliminated, at least in theory. Budgetary transfers are therefore not only aimed at supporting those in needs but also at ensuring growth of businesses, sales, and long-term profits. However, realisation of the concept of welfare state contributes at the same time to lower discipline among employees, their availability, and provides good grounds for formation of politically driven business cycles [Acocella 2002].

When making a comparison to altruistic behaviours in the animal world, one may conclude that the welfare state is a certain combination of several types of altruism. These include both pseudo-altruistic behaviours, i.e. acts by decision-makers or business influence groups to maintain their own economic and physical safety. One may seek here certain legal behaviours comparable to quasi-kin altruism, i.e. taking care of one's own vocational group's interests through syndicate organisations representing the given community and willing to support that group with their own resources, preferably at the expense of others, believing that such support will cover themselves in the future. Fair play altruistic behaviours show in a very extensive range of behaviours in the society and has a rather limited reference to welfare state. Perhaps an extreme example of these can be quick management by state-owned insurance organisations of funds unpaid but due and payable, gathered in pension accounts, in the event of the insured's early death. This is at least a partial realisation of the ideal of social solidarity (here: of the insured).

High level of caution or even apparent quality of altruistic behaviours of the welfare states is probably determined by multiple factors and conditions, of which the most important ones seem to be outside the realm of economy, related to social behaviours, including egoism and social calculation. This is particularly visible during a period of recession or crisis when the rich seem to defend their economic interests very strongly and they are not willing to share at least part of their incomes with the poor if they are not expressly forced to do so.

SUMMARY

It is possible to refer various forms of biological altruism to similar behaviours in the realm of economy through an attempt at establishing their mutual relations. Sponsoring in economic terms may be referenced to biology, for example as a seemingly altruistic behaviour which is in fact guided by egoistic causes. On the other hand, it can be perceived as a type of symbiosis, i.e. provision of resources and options without losing anything by oneself. An interesting form of sponsoring could be noted in kin altruism. This is the case because supporting one's kin may contribute to propagation of one's genes, which is therefore also a kind of investment. An important form of reciprocated altruism with reference to the economic perspective can be the institution of welfare state which helps citizens from egoistic reasons, knowing that the invested resources will pay back in the future. So-called fair play attitude of the state towards the society may also be included here, as the state – even without offering specific help – often remains neutral without causing any harm or loss to individuals. Welfare state typically combines in its actions multiple types of behaviours defined as altruistic, which can be encountered in biology and which have been developed through long-term evolutionary processes.

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ALTRUIZM W BIOLOGII A BEZINTERESOWNE FORMY DZIAŁANIA W EKONOMII – WYBRANE ASPEKTY

Streszczenie. Celem opracowania jest analiza i poszukiwanie analogii zachowań w świecie ożywionym określanych jako altruistyczne, czyli polegających na wykazywaniu działań mających na celu odniesienie korzyści przez inne jednostki, przy jednoczesnej rezygnacji z własnych korzyści przez jednego z uczestników tzw. aktu altruistycznego. Działania altruistyczne, jako zaprzeczenie egoizmu, obserwowane są wśród organizmów żywych, w tym również w skomplikowanych kulturowo i ekonomicznie społecznościach ludzkich. Interesujące są formy i mechanizmy takich zachowań, które z reguły nie dążą do zaspokojenia potrzeb konkretnych jednostek, które są gotowe dzielić się swymi zasobami z innymi jednostkami, w wyniku czego same mogą tracić. W biologii zachowania altruistyczne przypisywane są zwłaszcza organizmom blisko spokrewnionym. Tego typu działania mają sens w aspekcie rozważań ewolucyjnych, gdyż pomaganie własnym krewnym zwiększa szansę na dalsze rozprzestrzenienie swoich genów. Inaczej kształtuje się opis takich zachowań w życiu ekonomicznym społeczeństw, gdzie również obserwowane są zachowania altruistyczne, występujące w formie sponsoringu, czy koncepcji państwa opiekuńczego, to znaczy skierowane również w stosunku do jednostek zupełnie obcych. Wyjaśnienie sensu tego typu zachowania wydaje się przybliżać zrozumienie pewnych schematów działalności w biologii oraz w zachowaniach społecznych i ekonomicznych, polegających na postępowaniu przynoszącym korzyść innym. Jednakże bezinteresowność tego typu poczynań jest kwestią warunkowaną w złożony sposób a przez to skomplikowaną, a także często pozorną, pozwalającą na pełniejsze osiągnięcie w długim okresie własnych, egoistycznych celów.

Słowa kluczowe: altruizm biologiczny, sponsoring, państwo opiekuńcze

THE REFORM OF THE COMMON AGRICULTURAL POLICY AFTER 2013 – ADJUSTING THE INSTRUMENTS TO THE STRATEGIC PLAN FOR AGRICULTURE AND RURAL DEVELOPMENT

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Abstract. The article deals with the issue of the reform of the Common Agricultural Policy (CAP) after 2013, especially with its relation with the strategic development plan of the European Union. The first part of the study presents an overview of the objectives of the CAP in the new financial perspective. The objectives are supposed to be a response to emerging new challenges. Then there is a presentation of the reform scenarios considered by the European Commission. They provide for the adjustment of the policy tools to the long-term development plan. This was the starting point for the exegesis of the strategic objective of the CAP. The conclusion states that designing the policy tools focused on the long-term goal of the CAP requires balancing the objectives related to the efficiency of agriculture in the production of market goods with the objectives related to the efficiency of this sector in delivering public goods.

Key words: “Europe 2020” strategy, objectives of the Common Agricultural Policy, Common Agricultural Policy reform, efficiency in resource management in agriculture

INTRODUCTION

The vision of the European Union development presented in the “Europe 2020” Strategy and the elements of strategic analysis comprising the diagnosis of the current state of the European agriculture, identification of the circumstances favouring the development of this sector and recognition of the tasks it faces, which were included in the Communication “The CAP towards 2020...”, were the starting point for the European Commission to define the long-term goal of the Common Agricultural Policy (CAP) in another finan-

cial perspective and to break it down into detailed objectives. The strategic goal indicated by the CAP is to increase the effectiveness of the use of resources in agriculture. In order to achieve the goal the instruments of both pillars of the CAP need to be appropriately adjusted.

The study is an overview of the aims of the reformed CAP developed by the European Commission as part of strategic planning. Then there is a presentation of the optional paths of the CAP evolution proposed by the Commission and the conclusions the Commission drew from the analysis of the consequences of the application of individual variants of the reform. The analysis enabled ex-ante assessment of their effectiveness in the achievement of the assumed goals. The considerations led to conclusions concerning the interpretation of the effectiveness categories with reference to the strategic goal of the CAP.

THE ROLE OF THE CAP IN THE ACHIEVEMENT OF THE “EUROPE 2020” STRATEGY

There are three interrelated priorities underlying the “Europe 2020” strategy: intelligent development (i.e. based on knowledge and innovation), balanced development (i.e. based on effective use of resources, environment-friendly and leading to reinforcement of the competitive position of the economy) and the development favouring social integration (i.e. guaranteeing high employment rate and economic, social and territorial consistency).

According to the assumptions, the actions leading the European Union to the new path of faster and steady increase should be taken both at the EU level and the level of individual member states. The agricultural and rural policy should be used especially to counteract climatic changes, which is part of the project “Resource Efficient Europe”. The aim of the project is to support changes leading to low-emission and resource-efficient society.

According to the European Commission, the transformation to low-emission and more resource-efficient economy, which is resistant to climatic changes, favours retaining biodiversity and contributes to increased global food security, requires structural and technological changes, which may stimulate appropriately adjusted instruments of the economic policy concerning agriculture and rural areas. This means that the CAP tools should be redesigned so that agriculture and rural areas will contribute to realisation of the vision of the development of the European Union specified in the “Europe 2020” strategy.

According to Czyżewski and Kułyk [2011], the imperfections of market allocation and absence of automatic guaranteeing of compensation for supplying socially wanted public goods create a perspective for agricultural policy solutions. The European Commission listed the methods to achieve the priorities of the “Europe 2020” strategy by means of the CAP, which are shown in Table 1. They point to the fact that the Commission treats the CAP as a remedy to the defects of the market mechanisms. Simultaneously, they can see the high potential of the CAP to achieve the priorities of the long-term European Union development plan.

Table 1. The CAP vs the “Europe 2020” strategy priorities according to the European Commission

Tabela 1. WPR a priorytety Strategii „Europa 2020” według Komisji Europejskiej

Priority	Means to achieve them with the CAP
Intelligent development	– improvement in effective resource management and competitiveness thanks to technological know-how and innovations
	– development of high quality products and products with high value added
	– development of environment-friendly technologies
	– introduction of information and communication technologies
	– professional development investments
Balanced development	– encouraging social innovations in rural areas
	– improvement in practical use of scientific research results
	– retaining the essentials of production of food, feeds and renewable sources of energy
	– ensuring balanced land management
	– providing environmental public goods
	– counteracting loss of biodiversity
	– promoting renewable sources of energy
– supporting plant and animal health	
Development favouring social integration	– improvement in effective resource management through technological development and use of scientific research results
	– reduced emission of greenhouse gases
	– liberating the economic potential of rural areas
	– development of local markets and stimulating employment growth
	– supporting agriculture restructuring and supporting farmers’ income

Source: author’s compilation based on Communication “The CAP towards 2020...”

Zródło: opracowanie własne na podstawie Komunikatu „WPR do 2020 r. ...”

A SWOT ANALYSIS OF THE EUROPEAN AGRICULTURE AND THE AIMS OF THE REFORMED CAP

Before presentation of the variants of adjustment of the CAP instruments to the vision of the European Union development specified in the “Europe 2020” Strategy, the Communication “The CAP towards 2020...” evaluated the current state of European agriculture (its strong and weak points). It also recognised the future phenomena which will determine changes in agriculture, favouring the development of this sector or making the development more difficult. Table 2 presents an ordered form of arrangements concerning this issue (written in the form of a 2×2 matrix according to SWOT analysis).

In supplement to the analysis of the present state the European Commission indicates positive processes taking place in agriculture (rapid growth of efficiency in new member

Table 2. European agriculture SWOT analysis
Tabela 2. Analiza SWOT rolnictwa europejskiego

Present state	
Strengths	Weaknesses
– high quality of supplied products	– low production income
– territorial and environmental balance	– farmers' weak bargaining power in relations with contractors (especially the asymmetry of bargaining power within the food chain)
– diversified farm structure	
– heterogeneity of production systems	
Expected future phenomena	
Opportunities	Threats
– increasing world demand for food	– climatic changes
	– increasing uncertainty and considerable changeability of agricultural markets
	– progressive trade liberalisation

Source: author's compilation based on Communication "The CAP towards 2020..."

Źródło: opracowanie własne na podstawie Komunikatu „WPR do 2020 r. ...”

states) and negative tendencies (increasing costs of production, decreasing share in the generation of value added).

The expected future phenomena indicated in the second part of the matrix, which, according to the Commission, will determine the development of agriculture, are in fact processes, i.e. sequences of phenomena. The circumstances listed in the "threats" quarter and the circumstances identified as "opportunities" after appropriate conversion¹ can be defined as challenges faced by the European agriculture.

Czyżewski and Poczta-Wajda [2011] note similar challenges faced by the agri-food sector, which enforce further evolution of the CAP. In particular, the following elements are included: liberalisation of trade in agri-food products, dynamic growth of demand for food and changes in the consumption structure, increasing instability of agricultural prices and supply fluctuations, increasing costs of production (in consequence of such factors as increasing prices of energy) and changes in the natural environment and climate.

Upon analysis the European Commission indicated the chief goals of the reformed CAP and broke it down into detailed objectives (which were simultaneously the means to achieve superior goals), allowing for the present state of the agricultural sector and expected changes in its surroundings. The three general goals of the reformed CAP which were indicated in the Communication "The CAP towards 2020..." and the detailed objectives distinguished as part of the goals are as follows:

I. Profitable food production:

- 1) Supporting the income of farms and decreasing their changeability,
- 2) Improving the competitiveness of the agricultural sector and increasing its significance as a link of the food chain in generating the value added,

¹ The result of this conversion is the expression "contributing to satisfying the increasing world demand for food".

- 3) Compensating for the difficulties related with production in areas with special natural limitations;
- II. Balanced management of natural resources and pro-climate actions:
 - 1) Guaranteeing balanced production and securing the supply of environmental public goods,
 - 2) Promoting ecological growth through innovations,
 - 3) Mitigation of climate change consequences and adaptation to those changes;
- III. Balanced territorial development:
 - 1) Supporting employment and aiding retention of social structures in rural areas,
 - 2) Improvement of rural management and promotion of activity diversification,
 - 3) Retaining the structural diversity of agricultural systems, improvement of the condition of small farms and development of local markets.

As results from the assumed goals, according to the Commission, the CAP should act both on the production sector (e.g. compensating for the difficulties related with production in areas with special natural limitations) and the social product division (e.g. supporting farmers' income). Apart from the market mechanism correction (affecting resource allocation, mitigation of the disparity of agricultural income, as compared with the income in other sectors of the economy) it should supplement its activity, managing some market-unregulated areas (especially, stimulate the production of environmental public goods).

REFORM SCENARIOS VS CAP STRATEGIC GOALS ACCORDING TO THE EUROPEAN COMMISSION

The CAP is a policy with high capacity to adapt to new global challenges, which more and more intensely contributes to balanced development of the entire European Union and which enables achievement of the goals of the reformed development strategy [Puślecki, Kmiecik and Walkowski 2010]. The Communication "The CAP towards 2020..." indicates three general scenarios of the CAP reform as alternative variants of adjustment of the applied instruments to the new challenges it faces. The Communication stresses that the individual paths of the reform have different potential to achieve the goals of the "Europe 2020" strategy and the objectives of the reformed CAP, which derive from them. Table 3 shows an outline of the concept of the reform, with reference to the individual CAP instruments and division into the scenarios.

The first scenario of the reform (the adjustment variant) in principle provides for continuation of the current policy with the introduction of only a slight modification of currently applied instruments. The most important changes would concern the direct support system and they would consist in correction of the method of allocation of the means for direct payments to the member states. It would consist in slow convergence towards a flat rate and in introduction of the obligation to switch to the regional model. This would mean a change in the method of support allocation to farms in the countries which have applied other payment models so far.

According to the European Commission, this scenario would ensure relative stability of the solutions currently applied within the CAP with the introduction of limited but sig-

Table 3. The concept of adjustment of the CAP instruments in individual reform scenarios
 Tabela 3. Koncepcja dostosowania instrumentów WPR w poszczególnych scenariuszach reformy

Instruments \ Reform scenario	Market instruments	Direct support instruments	Instruments supporting rural development
Adjustment variant	<ul style="list-style-type: none"> – improvement and simplification of existing instruments – improvement of farmer cooperation with rules of competitiveness 	<ul style="list-style-type: none"> – correction of allocation rules – extended cross compliance 	<ul style="list-style-type: none"> – using moderately increased budget to increase competitive capacity and innovativeness or environment protection
Integration variant	<ul style="list-style-type: none"> – improvement and simplification of applied instruments – concentration on food chain and increasing farmers' bargaining power 	<ul style="list-style-type: none"> – correction of allocation rules – new structure of direct payments – ecologisation – extended cross compliance – small agricultural producer programme – young farmer programme 	<ul style="list-style-type: none"> – redistribution of means between member states – innovativeness, counteracting climate changes and environment protection as guiding principles – stronger long-term orientation and joint strategic framework with other EU funds
Reorientation variant	<ul style="list-style-type: none"> – in principle lifting (with possibility of application in case of serious crises) 	<ul style="list-style-type: none"> – gradual withdrawal 	<ul style="list-style-type: none"> – considerable budget increase – emphasis on counteracting climate changes and environment protection

Source: author's compilation based on the document of the Commission "Executive summary of the Impact Assessment – Common Agricultural Policy towards 2020"

Źródło: opracowanie własne na podstawie dokumentu Komisji „Streszczenie oceny skutków – Wspólna polityka rolna do roku 2020”

nificant improvements in view of the need to increase the competitiveness of agriculture and environmental effectiveness of the CAP tools. As the Commission states, the variant would introduce more effective and fair protection of farmers from excessive fluctuations of income by means of direct payments. Simultaneously, the Commission points to high likelihood that the variant would cause increased economic pressure on intensification of production in the most fertile regions and decreased importance of agriculture in the generation of the social product as well as the reduced role of this sector in providing employment and stimulation of growth in rural areas. Furthermore, the Commission notes that the variant has a low potential to face the challenges related with the climate and environment changes and thus to support long-term balanced development of agriculture.

According to the assumptions of the second option (the integration variant) the criteria of allocation of the means for direct support to the member states would have to be changed. It would also be necessary to make the application of the regional model

widespread (like in the adjustment variant), increase the role of direct payments in compensating farmers for providing public goods, redistribute the means of the second pillar to the member states and to provide better coordination of the rural development policy with the EU policies in other branches.

As the Commission assesses, the variant would mean stronger support of balanced development of agriculture and rural areas, especially more balanced, effective and fair distribution of aid within direct payments. The reorientation of direct payments (channeling the aid stream only to active farmers, stronger support to small farmers, farmers in regions with natural limitations, particularly endangered sectors and new entities on the market) and promoting basic environmental practices by means of the ecological component are supposed to ensure higher effectiveness of this instrument as a tool supporting farmers' income and its higher effectiveness in the stimulation of production of public goods.

The third path of the reform (the reorientation variant) provides for considerable limitation of the possibility to apply intervention instruments, gradual withdrawal of direct payments, reorientation of the support to compensate pro-environment actions and the costs of business activity in the areas with particular natural limitations and concentration of the second pillar tools on the purposes of environment protection and counteraction of climate changes.

As the Commission states, the reform of the CAP according to the reorientation variant would accelerate structural adjustments in agriculture. However, they would entail considerable social costs (reduced income in less cost-effective areas and in the least profitable sectors) and environmental costs (production concentration). Besides, due to the limitation of the range of market intervention the agricultural sector would be exposed to higher risk. This would aggravate difficulties maintaining the viability of rural areas.

The solutions proposed by the European Commission in the package of bills of regulations concerning the form of the CAP 2013 are in accordance with the integration scenario. According to the Commission, it gives a possibility to keep the biggest balance in gradual adjustment of the CAP to the strategic goals of the European Union. In particular, it provides strong bases to ensure long-term profitability of food production and guarantees maintenance of balanced agriculture in the entire European Union. At the same time, it brings up vital international issues (such as climate change) and increases solidarity between the member states. According to the Commission, the achievement of these goals is less likely with the adjustment variant and the least likely with the reorientation variant.

INTERPRETATION OF THE CAP LONG-TERM GOAL

The primary goal of the CAP is to increase the living standard of the European Union residents. The assumption is that the CAP brings more benefit to the European community than the loss of welfare resulting from the decrease in the European residents' income, which is necessary to finance it. The general goal of the CAP in the new financial perspective, i.e. increased effectiveness of resource management in agriculture, which is consistent with the "Europe 2020" strategy, is subordinated to that superior goal.

In general, effectiveness is the effect – outlay ratio. Thus, the formal formula of the general CAP goal looks as follows:

$$\frac{\text{effect}}{\text{outlay}} \uparrow$$

The effect of agricultural activity is broadly understood, i.e. it does not boil down only to the production of food and agricultural products, which are raw materials for the industry (the non-commercial function of agriculture)². However, like in every business activity, factors of production are the outlay in agricultural activity:

$$\frac{\text{effect}}{\text{outlay}} = \frac{\text{private goods} + \text{public goods}}{\text{factors of production}}$$

This approach to the effects of the agricultural activity means that it is possible to achieve the effect increase not only due to higher supply of private goods and/or improvement in their quality but also through increased production and/or improvement in the quality of public goods. The aims indicated in the Communication “The CAP towards 2020...” prove the fact that the instruments of the reformed CAP are supposed to stimulate both categories of the effects of agricultural activity.

The analysis of the proposed direction of the CAP reform in the light of its influence in the involvement of factors of production leads to the conclusion that it is supposed to counteract the abandonment of agricultural activity (a drop in the involvement of the “land” factor), which is the threat especially in the areas with particular natural limitations, and a drop in employment in agriculture (a drop in the involvement of the “work” factor). It is supposed chiefly to support investment enterprises within the second pillar and to increase the involvement of the “capital” factor:

$$(\text{land} \rightarrow) \wedge (\text{work} \rightarrow) \wedge (\text{capital} \uparrow)^3$$

The assumed general goal, i.e. increased effectiveness of resource management in agriculture, can be achieved when the rate of effect growth measured with the value of produced goods (private and public) is greater than the rate of growth of involvement of factors of production.

The non-commercial functions of agriculture are usually related with its productive functions. This phenomenon is defined as the inseparability of the two types of functions [Wilkin 2010]. Thus, on the one hand, the production of private goods in agriculture is inseparably linked with the production of public goods. However, on the other hand, the

² This approach is compatible with the multifunctional agriculture concept, which is the theoretical basis for the proposal of the European Commission concerning the form of the CAP after 2013. See [Sadłowski 2011].

³ Increased capital involvement with the constant work involvement would mean increased technical equipment of work. Thus, the work efficiency would increase, i.e. the product per work outlay unit:

$$(\text{work} \rightarrow) \wedge (\text{capital} \uparrow) \Rightarrow \frac{\text{capital}}{\text{work}} \uparrow \Rightarrow \frac{\text{product}}{\text{work}} \uparrow$$

excessive intensification of agricultural activity leads to a higher increase in the negative rather than positive external effects accompanying the activity. This means that only in a certain range of the increase in the effectiveness of agriculture in the production of market goods there are more positive external effects than negative ones. When it exceeds a certain limit, the net effect is negative, so the benefits resulting from the positive external effects do not compensate for the loss resulting from the intensification of negative external effects. The instruments of agricultural policy are supposed to ensure maximisation of welfare, which is measured with the joint production of private and public goods, by such actions as the introduction of mechanisms weakening the market pressure on boosting economic effectiveness through intensified production and the application of mechanisms stimulating the production of public goods.

CONCLUSIONS

The general goals of the reformed CAP were specified and broken down into detailed objectives in the Communication “The CAP towards 2020...”, allowing for the vision of the development of the European Union outlined in the “Europe 2020” Strategy.

All the three scenarios of the CAP reform presented by the European Commission were designed so that its instruments could be adjusted to the “Europe 2020” Strategy, especially as far as the issue of effective resource management is concerned. However, as the Commission assessed, the instruments adjusted according to the integration variant guarantee the highest effectiveness in the achievement of strategic goals. The variant assumes simplification of market instruments, moderate use of direct payments as the instrument supporting farmers’ income, developing the mechanisms stimulating the production of public goods and establishing joint strategic framework of the fund for support of rural development and other EU funds.

The long-term goal of the CAP is to make favourable changes in the relation between the effects of agricultural activity (which consist of private goods and public goods) and the outlay (the factors of production involved in the activity). The adjustment of the CAP tools to its strategic goal requires balance between the goals that refer to the effectiveness of agriculture in the production of market goods and the goals that refer to the effectiveness of this sector in the production of public goods. Then it is necessary to adopt the institutional solutions which guarantee bases for the growth of effectiveness of farms in the production of market goods and simultaneously to apply the mechanisms favouring the increase in the effectiveness of agriculture in the production of public goods.

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REFORMA WSPÓLNEJ POLITYKI ROLNEJ PO 2013 ROKU – DOSTOSOWANIE INSTRUMENTARIUM DO STRATEGICZNEGO PLANU ROZWOJU ROLNICTWA I OBSZARÓW WIEJSKICH

Streszczenie. W artykule podjęto tematykę reformy Wspólnej polityki rolnej (WPR) po 2013 r., w szczególności jej związku ze strategicznym planem rozwoju Unii Europejskiej. W pierwszej części pracy dokonano przeglądu celów WPR w nowej perspektywie finansowej, które mają stanowić odpowiedź na pojawiające się przed nią nowe wyzwania. Następnie przedstawiono rozważane przez Komisję Europejską scenariusze reformy WPR, przewidujące dostosowanie narzędzi tej polityki do celów określonych w długookresowym planie rozwoju. Stanowiło to punkt wyjścia dla egzegezy strategicznego celu WPR. W konkluzji stwierdzono, że zaprojektowanie instrumentarium podporządkowanego długookresowemu celowi WPR wymaga wyważenia celów odnoszących się do efektywności rolnictwa w produkcji dóbr rynkowych z celami odnoszącymi się do efektywności tego sektora w dostarczaniu dóbr publicznych.

Słowa kluczowe: strategia rozwoju Unii Europejskiej, cele Wspólnej polityki rolnej, reforma Wspólnej polityki rolnej, efektywność wykorzystania zasobów w rolnictwie

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FACTORS OF SUCCESS IN RAISING EUROPEAN FUNDS BY SELECTED COMMUNES IN THE EASTERN PART OF POLAND

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Abstract. The goal of the article is to determine the main factors of success in raising European funds by selected communes in eastern Poland. On the basis of performed in-depth studies in municipalities it was noted that the factors that made the studied communes effectively apply for EU funds were similar in all municipalities, regardless of type, level and location of development. It was, first of all, organizational efficiency of the offices, competence and knowledge of their workers and high-quality strategic planning. Everywhere special positions or teams of employees involved in the acquisition of EU funds were created. All municipalities have created current development strategies and current land use plans and on the basis of these documents the application for EU funds was performed. Also important is the strong engagement and consistency of employees and local leaders, including the mayors. An important factor of effectiveness is also the stability of management and climate of cooperation between the commune council and the mayor or president.

Key words: EU structural funds, fundraising, local development, communes, success factors

INTRODUCTION

Since accession to the European Union in 2004, Poland received from the EU budget about 35 billion euros by implementation of the Cohesion Policy [Ministry of Finance 2011], which aims to support specific areas of the member countries and enhance their competitiveness. It also supports the convergence process, which in turn improves the quality of life of residents and contributes to the development in regional and local scale. Since special attention on spending the structural funds is directed to less developed re-

gions, most of which are rural in nature, the author focuses on the peripheral provinces located in the eastern part of Poland. Communes were selected to analysis as they were the most numerous group of project promoters among territorial self-government units, which were the largest EU funds beneficiary group, having used 44% of EU funding by the end of 2007 [Ministry of Regional Development 2007].

After completion in 2009 of the first EU aid programming period (2004–2006), the author decided to identify key success factors of selected municipalities in applying for EU funds, which is the main goal of the article. Also the amount of completed projects and their main domains were analyzed. Identification of success factors in the studied municipalities and local governments should allow to create recommendations how to effectively attract EU funding for authorities of these municipalities, where so far the use of EU assistance was low. The main hypothesis of the article states that high level of EU funds absorption occurs in well-managed communities, characterized by stability of local authorities and a high level of strategic planning.

MATERIAL AND METHODS

The article presents the use of the EU Structural Funds and The Cohesion Fund available in the period 2004–2009 (financial perspective 2004–2006) implemented through the Operational Programmes and Community Initiatives by municipalities. Measuring the absorption of European funds to determine most successful communes in raising European funds was based on a database of the Ministry of Regional Development providing information on the use of EU funds at the financial perspective 2004–2006 (according to state as of June 2009). Of the approximately 85 thousand projects available in the database only those implemented by the municipalities were selected. The rate of EU funds utilization was calculated by using partial indicators: number of projects, the total value of projects, the value of projects completed per 1 inhabitant in PLN, the number of types of projects completed.

In order to verify the hypothesis, in intentionally selected local government units in the third quarter of 2009 empirical research was performed. Individual in-depth interviews (IDI) were conducted with the staff offices of the municipalities who were responsible for development, investment or acquisition of funds. Strategic documents, the stability of local government, the role of local leadership and community management system were analyzed in order to identify key success factors in attracting external funds. The empirical material is based both on subjective opinions of municipalities' employees and objective expert assessment. The study was conducted in a small group of 5 cities and rural municipalities with high levels of use of EU funds, so the results can not be generalized and refer to the whole country. The information gathered, however, present success factors of several local authorities that are leaders in raising external funds, and organizational solutions used by them are dissemination worth.

Municipalities were chosen for analysis by expert selection, so that they represent both urban and rural areas, were located in different provinces, and where possible differed in indicators of the level and dynamics of development. All selected units had to be active in acquiring EU funds – each of the selected municipalities belongs to a group

of 75 units with the highest number of projects funded under the National Development Programme 2004–2006. Based on selected criteria the in-depth study was conducted in three rural communes: Strzegowo, Biskupiec and Brańsk and in two cities: Puławy and Stalowa Wola. Their main characteristics are shown in Table 1.

Table 1. Overview of key indicators for the studied municipalities
Tabela 1. Przegląd podstawowych danych o badanych gminach

Commune	Province	Type	Population (in thousands)	Area [sq. km]	Total revenue [mln PLN]	Total revenue per capita [PLN]
Biskupiec	warmińsko- -mazurskie	rural	9,8	241,3	26,8	2735
Brańsk	podlaskie	rural	6,4	227,3	13,0	2031
Strzegowo	mazowieckie	rural	7,9	214,0	21,6	2734
Stalowa Wola	podkarpackie	urban	65,5	82,5	156,9	2395
Puławy	lubelskie	urban	49,1	50,5	135,65	2762

Source: Regional Data Bank by Central Statistical Office 2009

Źródło: Bank Danych Regionalnych GUS 2009

All selected communes were located in 5 different provinces: warmińsko-mazurskie, podlaskie, mazowieckie, lubelskie and podkarpackie, they represent two different types of rural and urban areas.

RESULTS

All municipalities have actively absorbed European funds, having completed 9–18 projects co-financed by structural funds, while the average Polish commune has completed only 3,2 projects in the period 2004–2009.

Rural communes with the help of EU funds built or reconstructed technical infrastructure: sidewalks, roads, water supply systems and developed sewage systems. Most

Table 2. Overview of key indicators of EU funds use for the studied municipalities
Tabela 2. Wykorzystanie funduszy UE w badanych gminach

Commune	Number of projects	Total value of projects [PLN]	Total value of projects per capita [PLN]
Biskupiec	10	8 468 208,50	886,35
Brańsk	9	3 167 828,13	497,30
Strzegowo	15	11 135 674,59	1409,50
Stalowa Wola	18	115 990 336,45	1784,80
Puławy	12	21 433 788,49	434,01
Average in Poland	3,2	13 275 760,36	862,32

Source: author's calculations based on Ministry of Regional Development database

Źródło: obliczenia własne autora na podstawie bazy danych Ministerstwa Rozwoju Regionalnego

of the studied communes invested also in social infrastructure: they repaired and built community cultural centers or schools. The cities have also constructed roads, paid scholarships for students and pupils and reconstructed social infrastructure. Puławy are ranked 11th and Strzegowo 15th position in ranking of number of projects completed by municipalities in the whole country [Stawicki 2009].

Identification of key success factors of local authorities being leaders in raising external funds was divided into the following parts: the role and characteristics of the mayor, role of development planning, management in the offices and organization of fundraising in the studied communes. The role of own financial measures was not analyzed as it was subject to many studies and was identified as the most common factor that influence the acquisition of the EU funds [Standar 2010]. The main characteristics of the studied communes identified on the basis of performed individual in-depth interviews are presented in Table 3.

Table 3. Management and fundraising in the studied communes

Tabela 3. Zarządzanie gminą i pozyskiwanie funduszy zewnętrznych w badanych jednostkach

Mayor (time in office)	Biskupiec 5 terms	Brańsk 4 terms	Strzegowo 5 terms	Puławy 3 terms	Stalowa Wola 2 terms
Mayor's characteristics (description by employees)	social worker, open to collaboration, involved in community life, has clearly defined objectives, high creativity	assertive, responsible, hardworking and committed to the affairs of the municipality and residents	hardworking, open to the people, involved in community life	competent, cares about the interests of the city, encourages employees to intensive applying for EU funds	involved in community life, has clear objectives, able to convince people
Strategic planning	development strategy – 2007 (1 update); Social Pro- blem Solving Strategy	development strategy – 2001; Development Plan 2003	development strategy, updated for the purpose of raising funds; Social Problem Solving Strategy; Local Deve- lopment Plan	development strategy; two reports on the state of the strategy	development strategy – 2007; Local Development Plan (PRL)
Land use plan (% of area)	yes, 1% (plans under construction)	yes, 100%	yes, 3%	yes, 34%	yes, 21%
Organization of fundraising	position since 2007	position since 2004	team since 2004 (4 employees)	Project Management Office (4 employees)	fundraising team since 2007 (4 employees)

Source: in-depth interviews, data of Central Statistical Office 2009

Źródło: wywiady pogłębione IDI, dane GUS 2009

As we clearly see, the stability of leadership is an important success factor as it allows to treat local development as a long-term process, which can be realized only in a few terms. In Biskupiec the main factors were organizational efficiency of the commune office, competence and knowledge of its workers and high quality strategic planning by current development strategy, on the basis of which the community applied for EU funds. Also important is the strong engagement and consistency of the mayor and employees. Among the success factors in Brańsk one can also indicate organizational efficiency of the office and the competence and knowledge of workers. Also important was the involvement in development activities of the municipality mayor, whose persistence in the pursuit of purpose and well-prepared proposal teamwork were the base of success. Puławy as a cause of success indicates primarily on the commitment of authorities, also knowledge and skills and faith in the sense of action of the municipal office employees. An important role plays the involvement of local leadership, which focuses on the absorption of EU funds by the city. According to the respondents careful development planning and implementation of targets is important success factor. Among the success factors Stalowa Wola indicated the existence of the vision of city development and organizational efficiency of the office. The city has a current strategy for the development and current land use plans, on the basis of these documents application for EU funds was performed. Factors that resulted in effective application for EU funds in all studied communities were similar, regardless of their type, level of development or location. All the main factors are presented in Table 4.

Table 4. Main factors for the effectiveness in applying for EU funds
Tabela 4. Główne czynniki wpływające na skuteczność w aplikowaniu o środki UE

Commune	Main factors for the effectiveness in applying for EU funds
Biskupiec	organizational efficiency competence and knowledge workers high-quality strategic planning
Brańsk	office organizational efficiency competence and knowledge of the workers exchange of experiences with neighboring communities that successfully raise external funds
Strzegowo	creation of the team for raising EU funds organizational efficiency competence and knowledge workers high-quality strategic planning
Puławy	organizational efficiency of the City Puławy skills and knowledge of workers and their strong commitment to fundraising high quality strategic planning in the city significant local leadership approach
Stalowa Wola	structure of the City Office organizational efficiency competence and knowledge of the workers knowledge of experience in raising funds by other municipalities

Source: in-depth interviews
Źródło: wywiady pogłębione IDI

Selection of projects for implementation is mainly due to the strategic targets or current needs of the communities, although sometimes projects are tailored to announced call for proposals. The originators of grant applications are often office workers or the mayors. The factors of success in obtaining community resources can also include a well-marked out directions and priorities for development and a strong engagement and self-denial of the leader, who is not discouraged by initial failures. Some projects are created as an attempt to solve problems reported by residents involved in community life, what is strictly connected with the level of social capital in the community.

In all investigated communities the cooperation between commune council and the mayor is progressing well, and the board feels concern for the welfare of the city and residents. Thus, development projects are not blocked just for political reasons. It is also worth mentioning that for some projects were created with external partners, what was made due to the possibility of obtaining more points when assessing applications, as well as the possibility of enrichment of the request to make the project more valuable. An example of such cooperation may be two projects related to road infrastructure implemented in cooperation with neighbouring counties (Biskupiec) or forming a Local Action Group (LGD) in Strzegowo in order to invest with the aim to increase tourist attractiveness of the area located by the Wkra River. The ability to join networks and use their experience was identified as important factor also by Dziemianowicz and Nowicka in their research at 778 communes [2007].

It seems that clear objectives and the establishment of a separate team, which deals only with administration and management of projects financed by EU funds significantly contributed to the current use of EU funds by the municipalities. In each of the surveyed municipalities isolated position (mainly in rural areas) or team (in the cities) for the EU funds and projects was created, what significantly contributed to successful applying for funds in accordance with the strategic aims. The teams (or single jobs) consist of people whose duty is to examine the possibility of raising funds, applying, coordination and accountability of projects implemented and co-financed by the European Union. People employed in the teams have the necessary skills and knowledge of applying for EU funds as they participate in numerous trainings in this subject. The staff team of European funding works in collaboration with the office staff when preparing proposals and the necessary attachments associated with applying for EU funds. The only exception is the feasibility study, which implementation is usually outsourced to advisory and consulting businesses. This is partly because the costs of a feasibility study elaboration can be included in the application. In addition, sometimes applying for EU funds requires special competence, economic or legal expertise, which are not known to the commune office employees.

CONCLUSIONS

The in-depth study was carried out in five municipalities of different nature and ways of spending of structural funds. Rural communes with the help of EU funds mainly satisfied their inner needs. They built or reconstructed technical infrastructure: sidewalks, roads, water supply systems and developed sewage systems. In most of the studied communes it was invested in social infrastructure: repaired and built community cultural centers or

schools. The cities have also taken steps to increase their attractiveness, paid scholarships for students and pupils. In rural communities the use of EU funds has contributed to raising the standard of living by investing in technical and social infrastructure. Representatives of some communities observe the increase their competitiveness in relation to external investors, what was caused by development of infrastructure. In addition, activity in the area of obtaining EU funds contribute to promotion of municipalities as a result of the insertion of the rankings, press articles, what can increase the interest of investors to make business in a specific location. Improving technical and tourism infrastructure could also have a positive impact on intensity of tourist traffic in rural areas and thus on development of services.

Factors that made the studied communes so effectively apply for EU support measures were similar in all located in different regions rural and urban municipalities. This was primarily organizational efficiency of the offices, competence and knowledge of the workers and high-quality strategic planning. Everywhere positions or teams of employees involved in the acquisition of EU funds were created. All municipalities have had current development strategies and current land use plans, on the basis of which they applied for EU funds. Also important was the strong engagement and consistency of employees and local leaders and mayors. The stability of leadership allowed to treat local development as a long-term process, which can be realized only in a few terms. The hypothesis claiming that high level of EU funds absorption occurs in well-managed communities, characterized by stability of local authorities and a high level of strategic planning was therefore fully confirmed.

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CZYNNIKI SUKCESU W POZYSKIWANIU FUNDUSZY EUROPEJSKICH NA PRZYKŁADZIE WYBRANYCH GMIN WSCHODNIEJ CZĘŚCI POLSKI

Streszczenie. Celem artykułu jest określenie głównych czynników sukcesu w pozyskiwaniu funduszy europejskich przez wybrane gminy leżące we wschodniej części Polski. Na podstawie przeprowadzonych szczegółowych badań w gminach odkryto, że czynniki, które pozwoliły badanym gminom skutecznie ubiegać się o środki UE były podobne we wszystkich gminach, bez względu na ich rodzaj, stopień rozwoju i lokalizację. Był to przede wszystkim wynik sprawności organizacyjnej urzędów, kompetencji i wiedzy ich

pracowników i wysokiej jakości planowania strategicznego. Wszędzie powołano specjalne stanowiska lub zespoły pracowników do spraw pozyskiwania środków unijnych. Wszystkie badane gminy posiadały aktualne strategie rozwoju i aktualne plany zagospodarowania przestrzennego, na podstawie tych dokumentów wnioskowano o fundusze UE. Istotne znaczenie miała również silne zaangażowanie i konsekwencja w działaniu lokalnych liderów oraz pracowników. Ważnym czynnikiem była stabilność władzy i atmosfera współpracy między radą gminy a wójtem, burmistrzem lub prezydentem.

Słowa kluczowe: fundusze strukturalne UE, pozyskiwanie funduszy, rozwój lokalny, gminy, czynniki sukcesu

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ESTIMATION OF OUTPUT GAP IN POLISH ECONOMY USING STRUCTURAL VAR MODELS

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Abstract. The paper presents a method of estimating the output gap for Poland, advised by Blanchard and Quah [1989]. This method stems from the traditional Keynesian and neo-classical synthesis, with identifies potential output with the aggregate supply capacity of the economy and cyclical fluctuations with changes in aggregate demand. There were made an estimation and verification of vector autoregression model VAR(2) for the growth rate of Gross Domestic Product (GDP) and unemployment rate, than of its structuring. Determination of the reaction function of demand and supply, in particular the reaction function of GDP growth on the demand-side disorder, allowed the estimation of the size of output gap. Potential output can be described as following a random walk if production impulse evolve as a stochastic trend, for example, if productivity growth depends on the stochastic arrival of new technologies.

Key words: output gap, structural vector autoregression models, impulse response function, supply and demand shocks

INTRODUCTION

Output gap is defined as a difference between the actual and the potential GDP, based on non-observable production potential. Potential product is circumscribed in the literature as the maximum GDP possible to creation in economy of the country under conditions of full employment, which do not cause inflationary pressures. This unemployment rate is defined as NAIRU (*Non-Accelerating Inflation Rate of Unemployment*). In turn the New-Keynesian Dynamic Stochastic General Equilibrium Models

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(DSGE) with sticky prices [Clarida, Gali and Gertler 2000] indicates the potential product as a possible to achieve in an economy with perfectly flexible prices and wages [Gradzewicz and Kolasa 2004].

Since the dimension of potential GDP is not observable, determination of its size is difficult, often ambiguous. Methods for estimating the output gap based on the definition of Okun [1962] usually use non-linear character of the Cobb-Douglas production function. In turn the New-Keynesian theory assumes that potential GDP is achieved in the economy in the long run in the absence of stiffness. To this refers the approach based on the decomposition of GDP on durable and cyclical component, where potential is identified with long-term growth path.

In this thesis there will be presented a method for estimating the output gap for Poland based on product decomposition (*Permanent-Transitory Decomposition*) by restriction imposed on vector autoregression model, proposed by Blanchard and Quah [1989].

OBJECTIVE AND METHOD OF RESEARCH

The aim of this revision is to present the results of studies concerning the formation of output gap in Polish economy in the years 1996–2011. To estimate the output gap there were used a vector autoregression model (VAR) and its structural form (SVAR).

For n -dimensional vector of macroeconomic variables $Y_t = [Y_{1t}, Y_{2t}, \dots, Y_{Nt}]'$, which forms the tested structure and between which there is a relationship defined by economic theory, VAR(P) model can be presented [Lütkepohl, 1990] as:

$$Y_t = A_0 + A_1 y_{t-1} + A_2 y_{t-2} + \dots + A_p y_{t-p} + \varepsilon_t, \quad (1)$$

where ε_t is n -dimensional white noise process with expected value equal to 0 and covariance matrix Σ , matrix A_0 contains free words for individual equations, and matrices A_p : $p = 1, 2, \dots, P$ represents an impact of P -ties depended variable lag on its current value. Desirable features of VAR(P) model are its stationarity and reversibility. System stationarity can be described as the impact expiration of a ε_t shock on the vector of variables expounded:

$$\lim_{k \rightarrow \infty} \frac{\partial Y_{t+k}}{\partial \varepsilon_t} = 0. \quad (2)$$

The only source of shock in the VAR(P) model is the random components, which makes the condition of stationarity equivalent to the existence of long-term value for Y_t , to which the process returns. The pace of this return is determinate by the roots of the characteristic equation:

$$|A(z)| = 0. \quad (3)$$

Vector autoregression model parameters can be estimated by OLS, separately for each of the equations, which arise from the fact that the explanatory variables are settled in advance variables independent to random component. From the VAR(P) model specifi-

cation viewpoint it is important to determinate the range of p lags. Since the economic theory does not provide information on the dynamic relationship between variables, to their determination there will be used information criteria: AIC, HQ, SC and FPE [Hamilton 1994]. Guideline in selecting the maximum lag can also be further lags significance test of VAR models. Verification of the null hypothesis: $H_0 : A_p = 0$ is made on the test of quotient of the likelihood function, whose statistics is determined by the formula:

$$LR = T(\ln |\hat{\Sigma}_{re}| - \ln |\hat{\Sigma}_{ur}|), \tag{4}$$

where $\hat{\Sigma}_{re}$ and $\hat{\Sigma}_{ur}$ are covariance matrices for the random components for the model with restrictions and without restrictions. With truthfulness of null hypothesis the LR statistic has asymptotic distribution $\chi(N^2)$, where N^2 is equal to the number of parameters, for which the restriction was imposed to zero. Improper model specification based on too low selection of lags to VAR model may cause the phenomenon of residual autocorrelation, an in further consequence the covariance matrix estimator is loaded. Autocorrelation can be detected [Lütkepohl and Kratzig 2004] using multivariate Breusch-Godfrey test also determined as *adjusted Portmanteau Test*. Covariance matrix for the n -dimensional stationary process Y_t is presented with following formula:

$$\Gamma_s = \text{cov}(Y_t; Y_{t-s}). \tag{5}$$

The estimator of this matrix for the test (attempt) is:

$$\hat{\Gamma}_s = \frac{1}{T} \sum_{t=s+1}^T Y_t Y_{t-s}'. \tag{6}$$

Multivariate Ljung-Box test statistics is presented with the following formula:

$$LB = T^2 \sum_{j=1}^J \frac{1}{T-j} \text{tr}(\hat{\Gamma}_j' \hat{\Gamma}_0^{-1} \hat{\Gamma}_j \hat{\Gamma}_0^{-1}), \tag{7}$$

and with the truthfulness of the null hypothesis it has resolution χ^2 with $N^2(J-P)$ degrees of freedom.

Giving an economic interpretation of VAR models is done by their structuring. Structural vector autoregression model (SVAR) can be written as:

$$Ay_t = C_0 + C_1 y_{t-a} + C_2 y_{t-2} + \dots + C_p y_{t-p} + B\eta_t, \tag{8}$$

where the random components of the individual equations have normal distribution and are mutually orthogonal $\eta_t \sim N(0; I_N)$. Since the random components are independent relative to each other, they are interpreted economically as a structural shocks, i.e. the demand, supply, monetary or exchange rate shock. The reaction of endogenous variables on stimuli in the form of structural shocks is described by the impulse response function (*impulse-response function*, IRF), and its value after k -periods shows the relationship:

$$IRF_{k(i,j)} = \frac{\partial Y_{i,t+k}}{\partial \eta_{jt}}. \tag{9}$$

As the number of parameters for SVAR model is larger than for VAR model by $N^2 + \frac{N(N-1)}{2}$, in order to obtain a parameters for SVAR model it should be imposed by the exact number of restrictions. Identification conditions are mostly the consequence of the selection of variables for model and economic knowledge about the modeled phenomenon. Because in SVAR model used to calculate an output gap are shocks exerting long-term impact on the selected endogenous variables included in vector Y_t , identification was carried out using the long-term identifying restrictions proposed by Blanchard and Quah [1989]. Restrictions are imposed on matrix ψ , which describes the impact of long-term, cumulative structural shocks η_t on variables of SVAR model [Hamilton 1994]:

$$\Psi = \lim_{k \rightarrow \infty} AIRF_k = (I - A_1 - A_2 - \dots - A_p)^{-1} A^{-1} B. \quad (10)$$

Long-term structuring assumes imposition of $\frac{N(N-1)}{2}$ zero restrictions on matrix Ψ and restrictions on matrix \mathbf{A} , so that $\mathbf{A} = \mathbf{I}$ (identity matrix). Restriction $\Psi_{ij} = 0$ means that the impact of accumulated j -th structural shock η_{jt} on i -th endogenous variable Y_{it} is zero. Blanchard and Quah [1989] found that dynamics of unemployment rate and GDP growth are determined by supply and demand structural shocks, but the long-term impact of demand shock on GDP is zero. Theoretical model justifying the introduction of these restrictions is the system of equations:

$$\begin{aligned} y_t &= m_t - p_t + a\theta_t, \\ y_t &= n_t + \theta_t, \\ p_t &= w_t + \theta_t, \\ w_t &= w \mid E_{t-1} n_t = \bar{n}, \end{aligned} \quad (11)$$

where: y_t – GDP logarithm, n_t – employment logarithm, θ_t – performance logarithm. Full employment is defined as \bar{n} , and p_t , w_t and m_t are logarithms accordingly of the level of prices, minimum wage and money supply. The first model equation (11) represents the aggregate demand, which is a function of real money supply and productivity, the second describes the function of supply based on employment and productivity understood as a technology.

Another concerns the pricing mechanism in the economy, which is a resultant of nominal wage and productivity. Wages are determined in the previous period so that it is possible to achieve in the current period the expected full employment. For the analytical solution of system (11) it is assumed that m_t and θ_t are generated by random walk processes:

$$\begin{aligned} m_t &= m_{t-1} + \varepsilon_{Dt}, \\ \theta_t &= \theta_{t-1} + \varepsilon_{St}, \end{aligned} \quad (12)$$

where ε_{Dt} and ε_{St} are uncorrelated in time and orthogonal to each other disorders on the part of demand and supply side accordingly. For the above system there can be also defined an unemployment rate as the deviation from the state of full employment $\bar{n} - n_t$,

which leads to solving the model for product and unemployment growth as a function of supply and demand shocks:

$$\begin{aligned} \Delta y_t &= \varepsilon_{Dt} - \varepsilon_{D(t-1)} + \lambda(\varepsilon_{Dt} - \varepsilon_{D(t-1)}) + \varepsilon_{St}, \\ u_t &= -\varepsilon_{Dt} - \lambda\varepsilon_{St}. \end{aligned} \tag{13}$$

In the short term both the demand and supply disruption have impact on the GDP growth, as well as unemployment rate. In the long term model (11) is characterized by a lack of impetus to the demand impact on product growth. Only ε_{St} impacts on long-term on Δy_t . The method proposed by Blanchard and Quah [1989] is an estimation of VAR model, in which the GDP dynamics and unemployment rate is termed by the above-described system in reduced form.

MODEL ESTIMATION, VERIFICATION AND STRUCTURING

There has been analyzed quarterly data concerning GDP growth pace (logarithmic increases) as well as the unemployment rate from I quarter of 1998 to IV quarter of 2011. Figure 1 shows the processes that generate realization of GDP and unemployment rate.

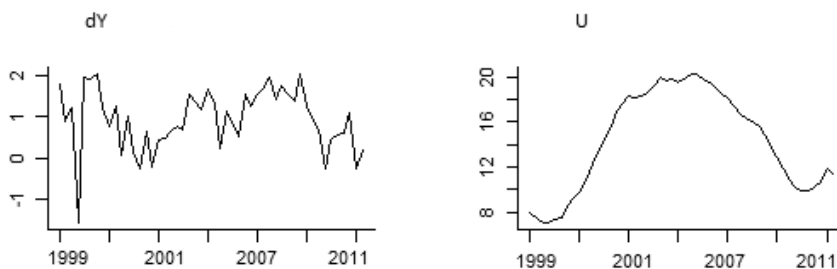


Fig. 1. Chart of time series for the product of GDP and the unemployment rate

Rys. 1. Wykres szeregu czasowego dla PKB oraz stopy bezrobocia

Source: own work

Źródło: opracowanie własne

In the first step, using the information criteria, there have been established a lag range for model VAR(p).

Table 1. Information criteria for VAR model

Tabela 1. Kryteria informacyjne dla modelu VAR

Lag	AIC	HQ	SC	FPE
1	-1.669	-1.580	-1.431	0.188
2	-2.455	-2.306	-2.058	0.085
3	-2.454	-2.245	-1.897	0.086
4	-2.349	-2.081	-1.634	0.096

Source: own work

Źródło: opracowanie własne

All the information criteria clearly show on maximum lag $P = 2$. A guideline in selecting the maximum lag for described VAR model is also a significant test 3 lag. The likelihood ratio test statistics (4) for VAR(3) equal to $LR = 8.37$ with the empirical significance level equal to 0.0788 indicates that on significance level of 5% for analysis there should be selected model VAR(2).

Estimation of VAR(2) model was performed in program **R**. Below there is presented a print fragment from the package for the estimation of model parameters.

```
VAR Estimation Results:
Endogenous variables: dY, U          Deterministic variables:
const
Sample size: 54                      Log Likelihood: -73.882
Roots of the characteristic polynomial: 0.882 0.882 0.547 0.376
```

```
Estimation results for equation dY:
dY = dY.l1 + U.l1 + dY.l2 + U.l2 + const
      Estimate   Std. Error      t value   Pr(>|t|)
dY.l1    0.173      0.152      1.14      0.26
U.l1     -0.111     0.167     -0.67     0.51
dY.l2    0.209     0.153     1.37     0.18
U.l2     0.137     0.165     0.83     0.41
const    0.200     0.402     0.50     0.62
Residual standard error: 0.716 on 43 degrees of freedom
Multiple R-Squared: 0.166,      Adjusted R-squared: 0.0881
```

```
Estimation results for equation U:
U = dY.l1 + U.l1 + dY.l2 + U.l2 + const
      Estimate   Std. Error      t value   Pr(>|t|)
dY.l1    0.0170     0.0911     0.19     0.853
U.l1     1.7468     0.1000    17.47    < 2e-16
dY.l2   -0.0168     0.0918    -0.18     0.856
U.l2    -0.7759     0.0987    -7.86    7.5e-10
const    0.4441     0.2411     1.84     0.072 .
Residual standard error: 0.43 on 43 degrees of freedom
Multiple R-Squared: 0.991,      Adjusted R-squared: 0.99
```

Model specification also requires examination of the phenomenon of residual autocorrelation, which may be a result of too low selection of maximum lag P . The value of the Ljung-Box (*adjusted Portmanteau Test*) test statistics equal to $LB = 11.9$ with $p\text{-value} = 0.7497$ indicates that in the VAR(2) model on the significance level of 5% the problem of autocorrelation residuals does not occur. From the perspective of predictive ability of VAR(2) system an important aspect is a fact of model stability. For this purpose, there was a CUMSUM statistic graph constructed for the system describing a GDP dynamics and the unemployment rate in Poland (Fig. 2).

Based on the chart in Figure 2 we can assume that the VAR(2) model is stable.

The next step was to build a SVAR model based on the VAR(2) model as well as a Blanchard and Quah assumptions. In two-dimensional structural model of vector autoregression the dynamics of unemployment rate and product growth is associated with supply and demand structural shocks. In order to identify them, on the VAR model there were imposed restrictions, that the long-term impact of the demand disturbances on GDP is zero. SVAR model was estimated also using the **R** package [Kleiber and Zeileis 2008].

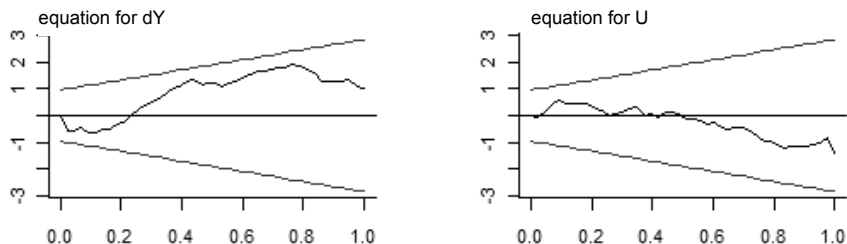


Fig. 2. Chart of CUMSUM statistics for the GDP product and the unemployment rate

Rys. 2. Wykres statystyk CUMSUM dla PKB oraz stopy bezrobocia

Source: own work

Źródło: opracowanie własne

SVAR Estimation Results:

Estimated contemporaneous impact matrix **B**:

	dY	U
dY	0.625	-0.348
U	0.156	0.400

Estimated identified long run impact matrix **ψ**:

	dY	U
dY	1.23	0.0
U	5.36	13.7

Supply shock causes an immediate increase of GDP of 0.625% and unemployment rate of 0.156% points. Occurrence of the demand disturbance leads to a fall of GDP by 0.384% and an increase of unemployment rate of 0.4% points. Structuring results also indicates that long-term impact of supply disturbance on GDP is 1.23%, and a demand shock 0 – according to the imposed restrictions. The economic interpretation is not given on long-term impact of shocks on the unemployment rate. For presenting the dynamics of change of GDP growth and the unemployment rate in response to structural shocks there were used an impulse response functions, which are shown in Figure 3 and Figure 4. A positive supply shock affects the growth of GDP while increase of unemployment rate.

As a result of a negative demand shock according to economy theory there comes after a domestic product decrease and an increase of unemployment (Fig. 4).

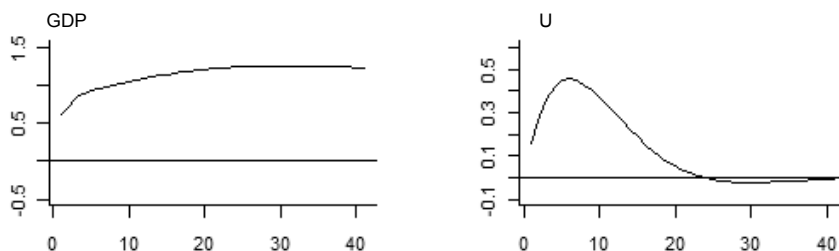


Fig. 3. Chart of impulse response functions on supply impulse

Rys. 3. Wykres funkcji reakcji na impuls dla szoku podażowego

Source: own work

Źródło: opracowanie własne

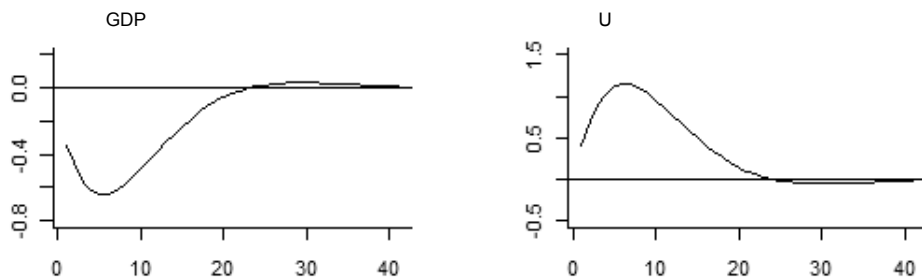


Fig. 4. Chart of impulse response functions on demand impulse

Rys. 4. Wykres funkcji reakcji na impuls dla szoku popytowego

Source: own work

Źródło: opracowanie własne

An output gap can be defined as a part of GDP that results from the presence of past and current demand-side disturbances. In turn a potential product achievable in the economy is the sum of deterministic trend and supply shocks that impact on the GDP. In order to determinate an output gap there have been set VAR(2) model rests, which were used to calculate the realization of structural shocks ($\hat{\eta}_t = B^{-1}e_t$). Since the reaction function of GDP growth on the demand impulse η_t^D is equal to IRF_k^D , then for each period it is possible to determinate the impact of current and past demand shocks $\hat{\eta}_t^D$ on GDP growth, which is equal to

$$\Delta y_{t(D)} = \sum_{k=0}^h IRF_k^D \hat{\eta}_{t-k}^D.$$

The value of output gap can be finally defined as:

$$y_t^{GAP} = \sum_{i=1}^t \Delta y_{i(D)}. \quad (14)$$

Figure 5 shows the estimates of output gap for the Polish economy on the basis of a VAR(2) model.

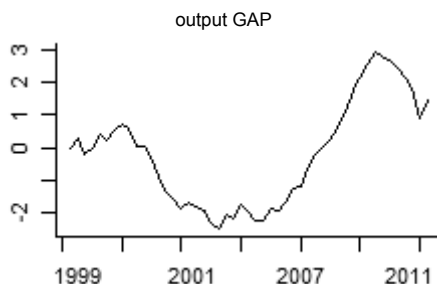


Fig. 5. Chart of estimates of the output gap for the Polish economy

Rys. 5. Wykres luki popytowej dla polskiej gospodarki

Source: own work

Źródło: opracowanie własne

It should be noted that the result is consistent with the economic knowledge of economic processes in Poland. Analyzing chart in Figure 5 it should be noted that from 1998 to IV quarter of 1999 output gap remained close to zero, which indicates that the economy during this period grew at the level of its potential. Since the III quarter of 2000 an output gap fell well below zero level to achieve an amount of around 2% below the GDP potential from I quarter of 2002. From II quarter of 2005 level of the output gap had a positive trend to reach the level of 3% of potential GDP in III quarter of 2008. In 2010 the output gap gaped decreased to 1%, but in the second quarter of 2011 it began to grow again.

SUMMARY

This paper has presented new estimates of trend output and the output gap for Poland according to vector autoregression model advised by Blanchard and Quah [1989]. The result was to estimate VAR(2) model and its structural form, which allowed calculation of the level of output gap. A positive supply shock affects the growth of GDP (an immediate increase of 0.625%) while increase of unemployment rate and as a result of a negative demand shock according to economy theory there comes after a domestic product decrease and an increase of unemployment. Its course shown in Figure 5 corresponds to the behavior of real economy and investments processes in the 90's and the beginning of the new century. This paper is a first step to review a different methods (the Hodric-Prescott filter, the Beveridge-Nelson decomposition, system of potential output and the NAIRU) that can be used to estimate potential output and output gap, what is useful to help identify the scope of sustainable noninflationary growth to and to allow an assessment of the stance of macroeconomic policies.

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ESTYMACJA LUKI POPYTOWEJ W POLSKIEJ GOSPODARCE Z WYKORZYSTANIEM MODELU WEKTOROWEJ AUTOREGRESJI (VAR)

Streszczenie. W pracy przedstawiono metodę szacowania luki popytowej dla Polski, zaprezentowaną przez Blancharda i Quah [1989]. Metoda ta wywodzi się z tradycyjnej syntezy keynesizmu oraz syntezy neoklasycznej, identyfikuje potencjalny poziom produkcji z łączną zdolnością podażową gospodarki i wahań cyklicznych ze zmianami zagregowanego popytu. W celu oszacowania luki popytowej przeprowadzono estymację i weryfikację modelu wektorowej autoregresji VAR(2) dla tempa wzrostu Produktu Krajowego Brutto (PKB) i stopy bezrobocia oraz jego strukturalizację. Określenie funkcji reakcji popytu i podaży, w szczególności funkcji reakcji wzrostu PKB w wyniku zaburzeń popytu, pozwoliły oszacować wielkość luki popytowej. Potencjalną produkcję można opisać jako następstwo błędzenia losowego, jeśli impuls produkcyjny rozwija się jako stochastyczny trend, na przykład jeśli tempo wzrostu wydajności zależy od stochastycznego przyrostu nowych technologii.

Słowa kluczowe: luka popytowa, strukturalne modele wektorowej autoregresji, funkcja reakcji na impuls, szok popytowy i podażowy

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CONTENTS SPIS TREŚCI

Piotr Bórawski, James W. Dunn

The role of institutions and extension in enterprise development in rural areas
in Poland 5

Agnieszka Brelik

Sustainable tourism development – case of the Wolin Region 19

Carol J. Cumber, Barnabas Sugutt

Women in agriculture training programs:
the USA-State of South Dakota “SASSY” Project 29

Wiesław Musiał, Kamila Musiał

Altruism in biology regarding disinterested forms of action in economy
(selected aspects) 45

Adrian Sadłowski

The reform of the Common Agricultural Policy after 2013 – adjusting
the instruments to the strategic plan for agriculture and rural development 57

Maciej Stawicki

Factors of success in raising european funds by selected communes
in the eastern part of Poland 67

Adam Waszkowski, Katarzyna Czech

Estimation of output gap in Polish economy using structural VAR Models 75

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