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DETERMINANTS OF CHANGES IN THE REMUNERATION OF THE LABOUR FACTOR

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Abstract. The publication addresses the issue and the mechanism of remuneration of the labour factor in agriculture. An analytical approach with empirical examples was used, the reasoning is carried out in the microeconomic convention. Basing on analytical formulas the relationships between (a) proportion of food in consumer's expenditure, (b) supply and demand for factors of production and the prices thereof, (c) prices of agri-food goods and remuneration of factors of production, in particular labour factor, were examined in the paper. That constitutes the mechanism of remuneration of labour factor and its level (level of farm incomes).

Key words: labour factor, agriculture, income of agricultural producer

INTRODUCTION

These considerations are aimed at illustrating the relations that define the remuneration of the factors of production, in particular labour factor which generates the income of producers. The aim of the paper was to shown the relationships between (a) proportion of food in consumer's expenditure, (b) supply and demand for factors of production and the prices thereof, (c) prices of agri-food goods and remuneration of factors of production. Through a theoretical analysis, on the basis of the assumptions of the neoclassical economy theory, we document the thesis that the remuneration of the factors of production of agricultural producers, just like in the case of other producers, is defined by the marginal productivity of such factors of production. An effective demand for factors of production results from such conditions and the applied production technology is defined. It is ultimately the basis of income.

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The considerations have a primarily theoretical and cognitive message, where we extend the object of theoretical analysis over its conventional microeconomic scope. The presented analytical formulas can represent a certain point of reference against the actual changes taking place at agricultural producers' in the field of production, production efficiency, demand for factors of production, policy support, which is ultimately reflected in the income. In addition, the presented reasoning has some predictive properties, notably in the area of forecast of changes in the relations of factors of production, and hence in the remuneration thereof and in consequence in the income in agriculture.

This publication was prepared in the Department of Mathematics Application in Agricultural Economics (Institute of Agricultural and Food Economics – National Research Institute) as a contribution to the research conducted within the Multi-Annual Programme 2011–2014 on "Application of economic modelling in the analysis of the premises of competitive development of the agri-food sector" within the framework of the research task "Equilibrium of the growth of the national agri-food sector and its competitiveness in the EU and global dimensions".

MATERIAL AND METHODS

The generality rule is maintained, which means the reflections refer to the most important relationships and determinants, in particular those of measurable character. The analytical model can be arrived at in various ways. In this publication, the deductive and speculative approach was adopted, resulting from literature search and the analysis of the state of the matter, additionally, simple algebra was employed. The majority of formulas serving as basis for the line of thought were derived in this way. The result is a rather complex model of thinking.

The deductive method is also named as analytical, abstract or prior method. The deductive method consists in deriving conclusions from general truths, takes few general principles and applies them draw conclusions. The classical and neo-classical school of economists notably, Ricardo, Senior, Cairnes, Mill, Malthus, Marshall, Pigou, applied the deductive method in their economic investigations.

Without prejudice to the general character of the analysis, some more specific relationships and connections with reference to agricultural producers and agriculture are highlighted. The methodology of theoretical analysis presented in this paper is also a certain alternative or complementation of a traditional verbal reasoning in agricultural economics. Such approaches prevail in the current literature on microeconomics, just as in modern agricultural economics, in particular among American scientists. The presented considerations are placed in the framework of microeconomics – in the so-called modern current – and at the same time they contribute to the economics of agriculture. Under this presupposition on the status of agricultural economics, Schultz and Heady attempted to combine empirical inductivism with *a priori* deductivism to produce a scientific method of agricultural economics. The new methodological frame provided by the works of Schultz and Heady has provided a fundamental change in agricultural economist's perspective of their scientific discipline [Hamdar 2012].

In the paper we stayed with the assumptions arising from the adoption of a homogenous production function as the analysis basis and with the assumption that the revenue from production is divided into the remunerations of the factors of production. Basing on analytical formulas the relationships between (a) proportion of food in consumer's expenditure, (b) supply and demand for factors of production and the prices thereof, (c) prices of agri-food goods and remuneration of factors of production, in particular labour factor, were shown in the paper.

ANALYSIS OF THE MECHANISM OF REMUNERATION OF THE LABOUR FACTOR IN AGRICULTURE

Proportion of food in consumer's expenditure

It can be demonstrated that just like in the case of other fields, also in the agriculture as a sum of agricultural producers, the final remuneration of the factors of production depends on the proportion of such products in the consumers' expenditure, where such factors were employed for the production of such products. In other words, the remuneration of a given factor of production is in fact a relevant part of consumers' expenditure, or differently – the remuneration of a given factor of production is financed from that source, i.e. from a given part of consumer's expenditure on those products.

We indicate the issue because it illustrates the essence of market regulation and the importance of the producer consumer relationship where the consumer determines the conditions of the manufacturer and not *vice versa*. This issue is often misunderstood or forgotten in the work of the scientific and practical agricultural policy. No one sees that the ultimate payer covering the effects of changes in pricing policy is the consumer and that the consumer income opportunities and its willingness to buy agri-food products are not indifferent to the remuneration of the factors of production on farms.

Here, the basic relationships are only signaled, showing how part of the remuneration of the consumer determines the remuneration of the factors of production in agriculture. We have the following relation

$$C_N = \frac{\alpha \cdot \dot{Z}}{N} \tag{1}$$

and

$$\frac{\Delta C_N}{C_N} = \frac{\Delta\alpha}{\alpha} + \frac{\Delta\dot{Z}}{\dot{Z}} - \frac{\Delta N}{N} \tag{2}$$

where: C_N – prices of factors of production;
α – $N/\dot{Z}$ – share of factors of production in consumers' expenditure on food;
$\dot{Z}$ – consumers' expenditures on food;
N – factors of production used in the production of agricultural raw materials which are part of food products;
$\Delta\dot{Z}/\dot{Z}$ – growth rate of expenditure on food.

From the formula it can be seen that at a given share of agricultural products in consumer spending on food, remuneration of the factors of production in agriculture is the smaller the greater their supply and the smaller their share of the value of food products (in consumer spending on food). Here is shown the impact of both the consumer and his purchases on the final remuneration of factors of production.

On the basis of a equation (2) one can visualize the dependencies between changes in wages and changes in the factors of production like: the share of agricultural products in spending on food; changes in demand for food and changes in the supply of factors of production. The options to increase the share of agricultural products as food raw materials in the consumers' expenditure on the final food products are limited. It is connected, among other things, with the decreasing proportion of the agricultural raw material in the food product and the Engel's law. Hence, the opportunities to increase the remuneration of the factors of production, including in particular the remuneration of the labour factor that is a residual value in the agriculture. The opportunities of increasing the growth rate of the demand (expenditure) for food at a rate that makes it possible to increase the remuneration of those factors, i.e. mainly increase in the income of agricultural producers, are also limited.

On the basis of equation (2), the positive relation between the loss of employment of factors of production in the agriculture is also confirmed – it applies mainly to the relative reduction in the employment of labour factor (effective substitution of labour resources by the capital factor) and the growth of remuneration of the factors (mainly remuneration of the labour factor)[1]. As a result of increase in labour productivity, as it is expressed by the reduction of employment of a labour factor in the value of supplied value in use, more falls to this factor from this value meaning that it get a better remuneration.

Supply and demand for factors of production and the prices thereof

In the part of paper we have focused on supply and demand for factors of production and the prices thereof in relation to the remuneration of the labour factor.

It can be assumed that the price of a given factor of production is shaped primarily by its supply. Let's conduct the reasoning on the scale of the entire agriculture as a sum of single agricultural producers[2]. If we assume that the prices of factors of production (C_N) are formulated by the balance between the supply and demand for factors of production in the entire agriculture and that we have to do with a state of balance between the demand for factors of production ($n \cdot R$) and their supply (N), we get[3]:

[1] Meredyk [1994, pp. 32–35] writes: "the growth rate of labour productivity equals more or less the employment decrease rate and the productivity growth rate is negatively correlated to the growth rate of employment and the growth rate of expenditure".

[2] The reasoning for a single producer was made in Rembisz, Bezat-Jarzębowska [2013a].

[3] For calculation needs, instead of the cognitive ones, to the left of this equation, there should be multiplication of the matrix of expenditure of the factors of production per product unit by the agricultural production vector, and to the right, the vector of supply of factors of production by the vector of prices of factors of production.

$$N = n \cdot R \tag{3}$$

where: R – output (production) of agricultural producer,
n – use of resources.

When introducing the prices of factors of production (C_N), assuming fixed product prices (solely in the aggregative function, therefore we disregard them here), we obtain

$$C_N \cdot N = n \cdot R \tag{4}$$

and

$$N = \frac{n \cdot R}{C_N} \tag{5}$$

and also

$$C_N = \frac{n \cdot R}{N} \tag{6}$$

As can be seen, the demand for the factors of production is enhanced by expenditure--intensity ($n = N/R$) and production volume, and it is reduced by the amount of prices of the factors (the higher the price, the lower the demand).

As a result of transformations of the absolute values found in the equations (5) and (6) in the relative relations (of the growth rate), we obtain the following equation that defines the formulation of prices of factors of production depending on the supply with a given demand for them

$$\frac{\Delta N}{N} = \frac{\Delta n}{n} + \frac{\Delta R}{R} - \frac{\Delta C_N}{C_N} \tag{7}$$

and

$$\frac{\Delta C_N}{C_N} = \frac{\Delta n}{n} + \frac{\Delta R}{R} - \frac{\Delta N}{N} \tag{8}$$

Increasing supply of factors of production with a given demand for them, defined by the production volume and unit expenditure-intensity index may lead to a decrease in their price. A decrease in supply according to this formulas leads to an increase in factor prices, also an increase in the unit expenditure-intensity indicator with fixed prices of products as adopted in the assumption lead to a decrease in the prices of factors of production.

It applies to the labour factor as well. After decomposition of the above equation and isolation of the labour factor and its price, we obtain

$$\frac{\Delta C_L}{C_L} = \frac{\Delta n}{n} + \left(\frac{\Delta R}{R} - \frac{\Delta L}{L}\right) \tag{9}$$

As can be seen in the case of *ceteris paribus*[4], a decrease in employment leads to an increase in the remuneration of the labour factor (increase in the income of agricultural producers). The source of this increase in the remuneration of the labour factor obviously results from an increase in labour productivity, which illustrates the difference between the last indicators to the right of the above equation. This reasoning was conducted on the scale of the entire agriculture and not on the scale of an agricultural producer. The same system is adopted in the further reasoning.

Prices of agri-food goods and remuneration of factors of production

We make a hypothesis here that the remuneration of factors of production depends for a given marginal productivity – which was addressed in the comment in the first point of considerations – on the price of goods for the production of which those factors are used. Next, we assume that under competitive conditions, i.e. zero-profit conditions, the average production cost for a given good equals its price. To put it synthetically, we simply assume that the remuneration of factors of production in agricultural holdings depends on the price of agricultural goods and the production technology [Bartosik 2004]. What results from it and is very important is that an agricultural producer is a "price-taker" rather than "price-maker".

For the above-mentioned proof for the dependency of remuneration of the labour factor on product prices with a given labour productivity, it will suffice to show that in the quoted conditions of equal competition, the remuneration of factors of production, including the payment of the labour factor, meaning the farmer's income from work in an agricultural holding, actually depends on the price of final goods (agri-food goods) formed on the market. It is because the average production cost for a given good under the conditions of perfect competition should equal its price. Therefore, the remuneration of factors of production, including the remuneration of the labour factor depends directly on the price of agricultural products and relevant technologies.

Therefore, we have the following analytical formula for the theoretical and cognitive objectives[5]

$$C_R \cdot R = N \cdot C_N \tag{10}$$

and

$$C_R = \frac{N}{R} \cdot C_N \tag{11}$$

and also

$$C_N = E \cdot C_R \tag{12}$$

[4] The *ceteris paribus* condition refers mainly to expenditure-intensity mainly labour-intensity of production.

[5] The matrix calculus was shown in Bartosik [2004, p. 239].

where: C_N – prices of the factors of production as a weighted sum of C_L and C_K;
C_R – prices of the final agricultural products;
$\frac{N}{R} = \frac{K + L}{R}$ – expenditure of the factors of production, material assets and labour per production unit;
$E = \frac{1}{R}$ – labour productivity (the reverse of expenditure-intensity of production).

An obvious relationship between the prices of the agricultural products and the prices of factors of production results from the above equations. The direction of that relationship is determined by the basis of the price formulation system (whether a market or cost formula).

If we choose equal competition as the basis, where the prices obtained (product prices) C_R are an exogenous parameter for the producers, then the prices of factors of production C_N should result – in case of a given technology, i.e. in fact a given productivity of those factors – directly from the prices of agricultural products.

On the other hand, if we choose cost formulas as the price formulation basis or assume absence of equal competition, then we have an opposite situation. It is the product prices that will result from or adjust to the remuneration of factors of production and the resultant production costs in case of a given technology (they do not change as there is no such necessity).

Let's specify the reasoning on the basis of equations (11) and (12) with reference to the remuneration of the labour factor. Assuming that the level of farmers' income is established exogenously, for instance politically, on the basis of the income parity in relation to other professional groups, then, in the absence of change in the technology (productivity), one has to adjust agricultural product prices to this level. Hence, product prices will result from the prices of the factors of production, in this case from the assumed amount of income (as the price of the labour factor). What is more, the adjustment of the increase in the prices of agricultural products as a source of financing of the assumed increase in the agricultural income will not force a change in the technology and the production technology that lead to improvement in the productivity, including in particular an increase in labour productivity[6].

The issue of intrinsic substitution between an increase in the remuneration of factors of production, including the remuneration of the labour factor, or on the account of improvement in productivity or on the account of increased prices of products for the production of which they were used, is illustrated by the below formula. With[7]

[6] Many other ascertainments important for the agricultural policy and agricultural producers also result from the above-mentioned equations. Those equations directly prove the veracity of the foregoing, i.e. of the dependency of agricultural income on the prices of agricultural products. The most important one is the one that under the conditions of equal competition, i.e. when the options of increase in the prices of agricultural products are nearly zero or precisely zero ($\Delta C_R \approx 0$), then to achieve an increase in the payment of labour, it is necessary to improve the productivity ($\Delta E > 0$).
[7] The substantive and formal contents of the indicator $\Delta E/E$ arising from the production function is discussed in Rembisz [1990, p. 200].

$$\frac{\Delta E}{E} = \frac{\Delta R}{R} - \frac{\Delta N}{N} \tag{13}$$

we obtain, basing on equation (12),

$$\frac{\Delta C_N}{C_N} = \left(\frac{\Delta R}{R} - \frac{\Delta N}{N}\right) + \frac{\Delta C_R}{C_R} \tag{14}$$

The formula (14) shows that an increase in the remuneration of factors of production, including in particular the remuneration of the labour factor, may be a result of improved productivity and increased prices of agricultural products, jointly or alternatively. We can assume in simpler terms (choosing a linear function as the basis) that the structure of changes in the remuneration of factors of production is specified by $\frac{\Delta C_N}{C_N} = \frac{\Delta C_L}{C_L} + \frac{\Delta C_K}{C_K}$. This means that the growth rate for prices of the factors of production is the sum of the growth of prices of the capital factor and the growth rate of the remuneration of the labour factor (producers' income growth rate).

Back to the formula (14), we point out that since an assumption of equal competition was made, the price growth rate should amount to zero or almost zero percent[8]. This, on the other hand, forces the improvement of the productivity as the only sustainable source of increased remuneration of the labour factor, assuming that the prices of the capital factor remain unchanged. It is not possible then to transfer the cost effects of the possible increase in the remuneration of labour and the actual increase in the price of the prices of the capital factor onto the price of agricultural products (received prices)[9]. This issue is illustrated better by the following transformation of formula (14)

$$\frac{\Delta C_R}{C_R} - \frac{\Delta C_N}{C_N} = \frac{\Delta N}{N} - \frac{\Delta R}{R} \tag{15}$$

or

$$\frac{\Delta R}{R} - \frac{\Delta N}{N} = \frac{\Delta C_N}{C_N} - \frac{\Delta C_R}{C_R} \tag{16}$$

Leaving a broader discussion of the implications of the relations arising from the above-mentioned formulas for another occasion, let's note the following scenarios. If an increase in the prices of factors of production ($\Delta C_N/C_N$) is not compensated (balanced) by an increase of product prices ($\Delta C_R/C_R$) – as an assumption of equal competition was

[8] Anyway, an increase in product prices as the main source of growth of the remuneration of the labour factor would be possible solely with a zero price elasticity of demand for food and with deficits. Irrespective of that, it would not be possible in a longer perspective as it would give rise to even greater supply – and hence a decrease of the prices of those products – as a result of the fact that the value of the price elasticity of supply in the agriculture is usually positive.

[9] As a side note, it *implicite* proves also that the growth rate for the remuneration of the labour factor (the income of agricultural producers) is residual and results from improved productivity.

made – then, it is necessary to improve labour productivity or the reverse thereof, it is necessary to decrease (reduce) the expenditure on a production unit (the minimum cost principle $\Rightarrow$ max profits), which is included in those formulas by the relations of production and expenditure growth rates. If the increase in the prices of the factors of production, in particular increase in income, is compensated or exceeded by increasing prices of agricultural products, then there is no pressure to improve the productivity. An increase in agricultural income lead to inflationary effects, which, in case of a relatively high share of food in the expenditure of consumers, it not only of economic importance, but also of social ones, and it has effects on the demand.

Let's point out as well that according to formula (14), it does matter how the labour productivity is improved. If it takes place as a result of increase in the production volume ($\Delta R/R$), then it has to have impact on the conditions of equal competition and negative price elasticity of demand[10] for food products for an increase in product prices ($\Delta C_R/C_R$) when considered on the scale of the entire agriculture. On the other hand, there is no such negative relationship when the attention is focused on a single agricultural holding, but only in case when it is assumed that the number of agricultural holdings will be decreasing. It has to be accompanied by an increased share of a single agricultural holding in the market, which is based on the concentration of production and capital, and by associated structural changes[11].

CONCLUSIONS

In the paper the relationships between (a) proportion of food in consumer's expenditure, (b) supply and demand for factors of production and the prices thereof, (c) prices of agri-food goods and remuneration of factors of production were shown. Basing on the undertaken analysis some conclusions can be made.

Firstly, in the case of *ceteris paribus*, a decrease in employment leads to an increase in the remuneration of the labour factor (increase in the income of agricultural producers). The source of this increase in the remuneration of the labour factor obviously is driven from an increase in labour productivity.

Secondly, from the own developed formulas it can be seen that at a given share of agricultural products in consumer spending on food, remuneration of the factors of production in agriculture is the smaller, the greater their supply and their share of the value of food products (in consumer spending on food). Here is shown the impact of both the consumer and his purchases on the final remuneration of factors of production.

[10] Perhaps one of the most significant developments in the history of agricultural economics during the 1920s and the 1930s was the development of statistical analysis. Initial emphasis was on making empirical estimates of elasticity of demand, elasticity of supply, and prices of farm products based upon the neoclassical economic theory. Some of the leading contributors to the analysis of demand and price during this period were Mordecai Ezekiel, Henry Schultz, and Frederick V. Waugh [see Hamdar 2012].

[11] More in Meredyk [1994] and Rembisz [2005].

Thirdly, an increase in the remuneration of factors of production may be a result of improved productivity and increased prices of agricultural products, jointly or alternatively.

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UWARUNKOWANIA ZMIAN W WYNAGRADZANIU CZYNNIKA PRACY

Streszczenie. W publikacji podjęto zagadnienie i problem mechanizmu wynagrodzenia czynnika pracy w rolnictwie. Wykorzystano podejście analityczne z przykładami empirycznymi, rozumowanie było prowadzone w konwencji mikroekonomii. Opierając się na analitycznych zależnościach, ocenie poddano relacje między (a) udziałem żywności w wydatkach konsumenta, (b) podażą i popytem na czynniki produkcji i ich cenami, (c) cenami towarów rolno-spożywczych a wynagrodzeniem czynników produkcji, w szczególności czynnika pracy. Stanowi to o mechanizmie wynagradzania czynnika pracy i jego poziomie (poziomie dochodów gospodarstw rolnych).

Słowa kluczowe: czynnik pracy, rolnictwo, dochody producentów rolnych

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IS SUSTAINABLE CONSUMPTION POSSIBLE IN POLAND? AN EXAMINATION OF CONSUMERS' ATTITUDES TOWARD DECONSUMPTION PRACTICES

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Abstract. Deconsumption remains an inherent part of sustainable consumption. Here we argue that collaborative consumption (CC), a new model of satisfying consumers' needs, may also be treated as a symptom of deconsumption. Hence, the goal of this article is twofold: to characterize consumers' attitudes towards deconsumption and CC and to discuss possibility of such changes in Polish consumers' behaviors that would result in their more sustainable approach to consumption. Data used in the paper comes from two studies – qualitative (in-depth interviews among 15 consumers) and quantitative one (survey among 400 consumers). The results suggest that there is a chance that collaborative consumption will play a significant role in the process of converting Polish consumers' behaviors. On the one hand it may represent the only form of deconsumption accepted by some Poles. On the other hand, CC may be perceived as a first step to broader adoption of deconsumption practices and to more sustainable consumption.

Key words: sustainable consumption, consumption reduction, collaborative consumption, consumer behavior

INTRODUCTION

The negative environmental and social impact of consumption-focused behaviors is already noticed all over the world, but the most visible consequences of overconsumption occur in the developed countries. Therefore one shouldn't be surprised that the idea to slow down the pace of life as well as resources transformation gains growing support in the most affluent societies [Kostecka 2013]. It is where the concept of sustainable consumption was introduced in opposition to overconsumption processes. Although the term "sustainability" is being defined in different ways, there is a worldwide consent that

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it connotes three dimensions: economic, environmental and social. Accordingly, sustainability understood as a business goal has been recognized as a "triple bottom line" responsibility [Sheth et al. 2011]. These three aspects of sustainability are also reflected in a definition of sustainable consumption that was adopted by United Nations Commission on Sustainable Development (CSD). It claims that sustainable consumption means "the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations" [Fuchs and Lorek 2004]. The relevant implications for the advancement of sustainable consumption derive from achieving a balance between consumption and deconsumption practices. The essence of sustainability lies not only in consumers' preference for environmentally friendly choices but also in non-consumption [Cherrier et al. 2011].

Deconsumption can be described as a conscious limitation of consumption to the reasonable size, i.e. an amount of consumed products that results from natural, individual, physical and psychological characteristics of a consumer [Bywalec and Rudnicki 2002]. There are many products deconsumption of which would benefit both the environment and the society, but reducing their consumption brings consumers personal benefits perceived as only secondary ones because they are associated with the distant future and/or highly intangible [Sodhi 2011]. Furthermore, from the individual point of view adopting the rules of deconsumption in everyday life requires certain change of behaviors or even the whole lifestyle transformation. These changes are costly, may be seen as a sacrifice and need a high level of self-control. So despite the fact that consumers want to depict themselves as "all caring" in surveys, they continue to ignore social and ecological problems and they repeat their traditional product preferences and purchases [Devinney et al. 2006]. Also in historical perspective limiting consumption was commonly associated with economic constraints, and not with an aware, free consumer's choice. Therefore, in spite of many objective reasons for introducing deconsumption, consumers are not very eager to do this. This pessimistic view was also expressed by Izberk-Bilgin [2010] who noted that despite consumers say they want to change the marketplace through their behaviors, they are ultimately blinded by the seduction of consumer goods.

An acceptance of deconsumption practices seems to be particularly challenging for Polish consumers. A part of them can still remember shortage economy and has comparatively modest experiences of functioning in free market conditions. As a consequence, although the level of Poles' environmental awareness is still rising [Bołtromiuk 2010, Zrałek 2013] and a worldwide critique of consumption-oriented lifestyle doesn't omit our country, for Polish consumers it is particularly difficult to give up an overconsumption pattern before they really benefited from it.

Nowadays a significant role in the process of shaping consumers' attitudes towards deconsumption and their actual propensity to decrease consumption is played by the economic crisis. For some consumers it is the time of economic hardship so they perceive the recession as a negative factor forcing them to limit their consumption, lower their level of living and give up some pleasures they were accustomed to. But one could take a different perspective and state that it is exactly the crisis that have made consumers to think over their consumption practices and search for alternative, more rational ways to satisfy their needs. One of such alternatives is offered by collaborative consumption concept which became popular in the US as the crisis consequences got harder.

Botsman and Rogers [2010] define this term as an economic model based on sharing, swapping, trading, borrowing or renting products and services, mostly between individual consumers who connect via specialized websites. Individuals practicing CC not necessarily need to buy certain assets as they prefer an access to a product than its ownership. That is why they would rather borrow/rent things (especially expensive and durable ones) or share them with others than buy them for their exclusive use. In this way instead of responsibility and costs connected with owning things, collaborative consumers may reap benefits of the temporary but still satisfying usage of lent or shared products. CC manifests also through resale/purchase and cashless exchange of things which represent a burden or excess to one person while can still be useful to others. Some other manifestations of CC include carpooling (ride-sharing), fractional ownership and crowdfunding [Bauwens et al. 2012].

It is clear that CC allows consumers to avoid waste and use their resources more efficiently. In global scale it can lead to lower production and more reasonable consumption of natural resources. These features closely tie collaborative consumption with the sustainable consumption and deconsumption ideas. But this model represents a very specific, one could say "light" version of deconsumption as consumers engaging in CC don't need to suffer from limitations in satisfying their needs. On the contrary, CC solutions help consumers in meeting their individual needs, goals and aspirations but in more sustainable way.

The above statements arouse a question whether collaborative consumption may indicate a way to sustainability in case of Polish consumers. Trying to find an answer we decided to refer to the theory of planned behavior[1] (TPB) [Ajzen 1991] and focus on consumers' attitudes towards deconsumption and CC. According to TPB an attitude affects an intention[2] to perform an action which in turn directly affects the behavior itself. When consumers have a favorable attitude toward a given behavior, they will have a higher intention to engage in it [Ajzen 1991]. From this perspective a consumer's attitude toward a particular behavior not only represents a crucial determinant of this consumer's behavior but it is also an important basis for predicting the behavior.

In this study we assume that a favorable attitude towards collaborative consumption increases consumer's intention to perform certain behaviors representing collaborative consumption (or more broadly deconsumption) practices. Hence such a positive attitude is a key factor stimulating wider adoption of deconsumption and therefore determining the chances that Polish consumers will use more sustainable ways of needs satisfaction. Accordingly, the first goal of this article is to characterize consumers' attitudes towards deconsumption and CC. In the latter case we try to assess consumers' attitudes towards these behaviors which are the most representative for the CC concept. We call them "collaborative consumption behaviors" (CCBs). On this basis we aim to discuss possibility of

[1] We believe that TPB may be useful in explaining consumers' behaviors engaging in CC. It is not our purpose, however, to examine here the full model of TPB.

[2] An intention is the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior [Bagozzi et al. 1998].

such changes in Polish consumers' behaviors that would result in their more sustainable approach to consumption which represents the second goal of this study.

MATERIAL AND METHODS

This study contains the outcomes of two independent research projects conducted in autumn 2013. They differed in scope of goals and methodology. The first one had qualitative character and focused on consumers' attitudes towards deconsumption. The second, quantitative in nature, concerned the problem of collaborative consumption. In both projects respondents were inhabitants of the Upper Silesia region in Poland.

In order to achieve information about attitudes towards deconsumption the total of 15 individual in-depth interviews were carried out. Each discussion was recorded and fully transcribed. Respondents were aged between 21 and 77 and represented comparatively wealthy households (only one person declared monthly household income per capita below 1000 PLN). A detailed characteristic of informants is presented in Table 1.

Table 1. Qualitative sample characteristics

Gender	Age	Education level	Household size (number of members)	Income (subjectively assessed)
Female	24	high	2	average
Female	31	secondary	3	slightly below average
Female	38	secondary	4	definitely above average
Female	41	high	4	slightly above average
Female	44	high	4	average
Female	51	secondary	2	definitely above average
Female	51	high	4	average
Female	72	secondary	2	definitely above average
Male	21	secondary	6	slightly below average
Male	22	secondary	3	average
Male	29	secondary	4	slightly above average
Male	40	high	3	slightly above average
Male	48	high	4	slightly above average
Male	64	high	2	slightly above average
Male	77	high	2	definitely above average

Source: Own calculation on the basis of primary research results.

Third-person and word association tests were used during in-depth interviews. In the first test, based on a description of a consumer deconsumption behavior (presented by the researcher) participants had to exhaustively characterize the person who undertakes such activities – his/her appearance, features of character, personality etc. The second test concerned the associations with word "deconsumption". The obtained information was analyzed descriptively.

To estimate and characterize consumers' attitudes towards CCBs the data were collected from 400 adult respondents using self-administered structured questionnaires. A convenience-based sampling procedure was used and the questionnaires were distributed by various routes: 300 were distributed by trained pollsters, who handed them out to shoppers in several shopping centers. The other 100 questionnaires were distributed among students at the University of Economics in Katowice. Details of respondents' demographics are presented in Table 2.

Table 2. Quantitative sample characteristics

Percentage	(N = 400)	Percentage	(N = 400)
Gender		**Professional status**	
Male	39.2	Working	66.8
Female	60.8	Studying/learning	20.5
Age		Retiree, pensioner	7.5
19–29 years	27.3	Neither working nor studying	5.3
30–39 years	18.5		
40–49 years	32.5	**Monthly income per capita**	
50–59 years	17.5	Less than 500 PLN	2.8
60 years or more	4.3	501–1000 PLN	20.8
Education level		1001–1500 PLN	28.5
Primary and vocational	16.8	1501–2500 PLN	22.5
Secondary	61.2	More than 2500 PLN	10.3
Higher	22.0	Missing Data	15.3

Source: Own calculation on the basis of primary research results.

The attitudes toward CCBs were measured on a 5-point bipolar scale with end points described as 1 – "very negative" and 5 – "very positive". The data were analyzed using descriptive statistics, cross tables and correlation coefficients.

RESULTS AND DISCUSSION

In order to express their attitudes toward deconsumption consumers taking part in in-depth interviews were asked to characterize and evaluate a person who undertakes deconsumption activities in his/her everyday life. These practices were described in a short story that had two versions – male respondents were asked to take into account male hero called Mr X and accordingly female respondents were discussing the case of a female hero called Mrs X. Although both characters were behaving in completely the same way and the only purpose of introducing to the story gender differences was to encourage respondents to better identify with the hero, the descriptions made by male and female respondents differ enough that we decided to analyze them separately.

Both male and female respondents had a friendly attitude toward Mr/Mrs X. They described him/her as a nice, intelligent person, well educated and rather wealthy, a white-

-collar rather than blue-collar worker. He/she was perceived as a mature person in terms of environmental awareness and a propensity to engage in environmental issues. All the respondents emphasized hero's enormous knowledge on sustainable consumption and stated that he/she lives "close to the nature". Researched consumers judged Mr/Mrs X as a person who lives actively, so he/she is rather slim and attractive. His/her physical appearance was perceived in two ways. On the one hand he/she may represent elegant but modest style of dressing. On the other he/she looks like any other person and doesn't stand out.

Taking into account the insights disclosed by male respondents we have to notice that they assigned Mr X their own features in a more direct way than women. Some of them even declared that they had "a lot of common views" with the hero. They didn't determine the exact age of Mr X and stated that "he doesn't need to be old to represent maturity in terms of self and environment consciousness". They were admiring his rationality and the fact that by undertaking deconsumption activities Mr X constantly follows the rules he had once adopted. Although the overall judgment of the hero was positive, the male respondents had some critical remarks. They noticed that the idealism, which characterizes the hero, has also its "dark side". Mr X may be so devoted to the idea of sustainable consumption that he loses the linkage with the real life. Even if he is perceived as a friendly person, it makes him an outsider in society. This point of view is represented by the statements: "He may have some troubles with reality. It means that he is so absentminded that may not be able to remember about the minor issues of everyday life like paying bills. From this point of view it is hard to deal with him, it makes him a 'difficult' person"; "He is idealistic but sometimes it is not good because for his own ideals he forgets about the other people".

Slightly different portrait of a consumer who consciously restricts his/her consumption was derived from information provided by female respondents. They were able to precisely define the age of Mrs X (about 40 years) and were admiring the hero mostly for her resourcefulness. Female informants were convinced that Mrs X is a wife and a mother and she can perfectly deal with all her obligations derived from these roles. She was perceived as a good housekeeper who is able to manage without wasting the food or other resources. Contrary to the males' opinions none of female informants suggested possible negative features of Mrs X. Instead of absentminded solitary person they saw her as "full of fantasy and life curious woman" or a "restless being". It goes hand in hand with the statement that Mrs X probably works as a freelancer.

An existence of above-mentioned negative insights concerning deconsumption practices was also confirmed by the outcomes of word association test carried out during the in-depth interview. The first thing that came to respondents' minds after hearing the word "deconsumption" was not always connected with rationality and environmental awareness. Researched consumers gave a lot of words related to economic constraint like "crisis, poverty, insufficient salaries" and associations regarding negatively judged consumer's features and behaviors like "asceticism, excessive control, someone who goes against the flow".

Summing up the results of qualitative study we can say that consumers' opinions about deconsumption are complex and rather ambiguous. Some of them are highly positive, indicating favorable attitude towards this concept. But deeper associations revealed by the second test are not so positive and suggest that consumers may not be ready to limit their consumption since they perceive such a behavior as too demanding and austere.

Moving on to the results of quantitative research regarding more specifically collaborative consumption we see that the collected data clearly indicate that respondents' opinion about different CC initiatives is generally positive (see Table 3). In case of seven out of ten analyzed CCBs the percentage of people with positive or very positive attitude exceeds other indications, while only in two cases the number of negative ratings is higher than the number of positive and neutral opinions. These two cases include two initiatives that can be considered as the most problematic and difficult to adopt, i.e. renting a private car to others (52% of negative ratings) and renting spare space in a private home (approximately 38% of negative ratings).

Definitely the most favorable is consumers' attitude toward the practice of donating unnecessary things to other people. Nearly nine out of ten respondents considered this behavior as positive or very positive. Scores for mutual borrowing things between friends, relatives or neighbors are only slightly lower (81% of positive ratings). For both of these activities mean values of ratings exceed 4. Also the purchase and resale of used items and carpooling activities are approved by the respondents (71 and 66% of positive ratings respectively), however almost every fourth respondent was not able to express their attitude towards these actions and carpooling was one of the initiatives for which consumers' attitudes were the most diversified.

Table 3. Respondents' attitudes towards some chosen collaborative consumption behaviors – descriptive statistics and frequencies[a]

Collaborative consumption behaviors	Mean	Mode	SD	% of answers "positive" and "very positive"
Donating unnecessary things to others	4.4	5	0.758	88.0
Borrowing/lending things between friends, relatives, neighbors	4.2	4	0.857	81.0
Selling/purchasing second-hand goods	3.9	4	0.822	71.0
Carpooling	3.7	4	1.011	66.0
Renting products from companies	3.6	4	0.832	54.3
Goods swapping	3.5	4	0.886	55.3
Renting products from private persons	3.1	3	0.913	34.3
Buying for fractional ownership	2.9	3	0.934	23.3
Renting spare space in private home (e.g. couchsurfing)	2.8	3	1.038	25.5
Renting/lending private car to others	2.5	2	0.978	15.5

[a]Items were measured on a 5-point bipolar scale where 1 – very negative, 5 – very positive.

Source: Own calculation on the basis of primary research results.

Approximately half of the respondents have positive attitude toward renting necessary products in specialized firms and toward exchanging (swapping) things with other consumers. At the same time one third of the respondents were not able to clarify their opinion about these behaviors (hence mean values reached 3.5). The concepts of renting needed items from private individuals and fractional ownership of expensive things seem to raise more concerns. The number of negative and positive ratings is almost equal but the largest groups of respondents were unable to opt for one of two sides, which resulted in mean values reaching approximately 3 for these two CCBs.

To synthesize the above results we calculated a cumulative measure of respondents' attitude towards all analyzed CCBs[3] and on this basis we divided them into three groups characterized by positive, neutral or negative attitude[4]. Although the detailed ratings presented above were relatively optimistic, this more general perspective reveals that consumers' favorable attitude towards CCBs is not so widespread. Only 36% of respondents declared positive attitude towards all or majority of the deconsumption practices and as many as 61% of respondents were either neutral or positive about some behaviors while negative about others. What seems the most advantageous result is the fact that only 3% of respondents continually expressed negative attitude towards all analyzed behaviors.

Analysis of contingency tables, results of chi-squared tests and Cramer's V coefficients revealed that the general attitude towards CCBs is weakly but significantly associated with the respondents' education level[5] and with their age[6]. It occurred that the youngest respondents (below 30 years of age) tend to be more positive about CCBs than the others (almost 46% of them had positive attitude *vs* 36% in the sample). At the same time respondents with primary or vocational education were less positive and more neutral – only 18% of them declared positive attitude towards CCBs and 76% declared neutral one. Other attributes (gender, income, professional status, size of a household) were not related to researched consumers' attitude toward CCBs.

As it was mentioned, we assumed that positive attitude toward CC increases consumer's intention to perform certain behaviors representing the idea of CC. To verify this assumption we calculated Spearman's correlation coefficients measuring relationships between respondents' attitude toward the whole set of CCBs and their behavioral intention to undertake certain actions representing CC concept. The latter (consumers' intention) was measured by asking respondents to estimate the chances that in six specified situations they would undertake certain actions. These actions were used as representatives of different CCBs. The chances were estimated using the ratio scale with ends anchored as follows: 0% – "not a chance I'll do it" to 100% – "I'll certainly do it"[7] (see Table 4).

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[3] This measure was calculated as the total of points granted by a respondent to all 10 CCB presented in the scale. The score ranged from 10 to 50 (10 items estimated on a scale 1–5) with higher number indicating more positive attitude.

[4] Respondents who obtained 10–23 points were classified as having negative attitude towards CCB; 24–36 points were neutral and those who reached 37–50 points were described as having positive attitude towards CCB.

[5] Cramer's $V = 0.15$, $p < 0.001$.

[6] Cramer's $V = 0.14$, $p < 0.001$.

[7] Ajzen [1991] measures intentions as self-predictions or expectations that one will act and uses "very unlikely" and "very likely" bipolar items. Our approach was similar but our scale was more precise.

Table 4. Spearman's correlations between estimation of consumers' attitude towards collaborative consumption behaviors and their intention to engage in such behaviors

Behavioral intention to	Attitude towards collaborative consumption behaviors
Lend a car to a friend (for a small fee)	.346[a]
Participate in a swap party organized by a friend	.331[a]
Rent a house (flat) to a friend's foreign family coming to Poland	.301[a]
Share a car with a neighbor commuting to work in the same direction	.248[a]
Lend a drill to a neighbor	.139[a]
Give unnecessary furniture to a neighbor arranging an apartment for his daughter	.100[b]

[a]significant at $p < 0.01$ (2-tailed); [b]significant at $p < 0.05$ (2-tailed).

Source: Own calculation on the basis of primary research results.

In all cases correlation coefficients are positive and statistically significant, though not very high, indicating rather weak relationships. Nevertheless they confirm that favorable attitude towards collaborative consumption is positively correlated with consumer intention to engage in a specific behavior that represents this model. This is particularly evident in the case of readiness to lend a car to a friend, to participate in a swap party and to rent a house, for which the coefficients are the highest. Interestingly, these initiatives are the most "problematic" ones since they need effort and are perceived as risky. This leads to a conclusion that a positive attitude is in fact especially influential (and needed) when it comes to performing a behavior which raises many concerns.

CONCLUSIONS

Taking into account the outcomes of qualitative research we conclude that though the overall attitudes toward deconsumption were positive, we identified certain crucial inconveniences and negative associations related to the idea of consumption reduction. They seem to result from consumers' fears because there are not many individuals who want to be perceived as poor, weirdo, eco-fanatic or as someone spurned by others due to behaviors that go against social norms. These fears may constitute an essential barrier in adopting deconsumption rules in Poles' everyday life. Simultaneously a kind of admiration for a person who reduces his/her consumption that we observed during the interviews proves that consumers perceive and appreciate deconsumption as a way of consumption rationalization and a move in a good direction.

The aspiration to make one's consumption more rational without so many sacrifices seems to be perfectly mirrored in collaborative consumption researched by us with the use of quantitative method. The collected data are rather optimistic revealing respondents' positive attitudes towards different CCBs. This is clear if we consider the fact that CC is not associated with poverty, but rather with reason and smartness. It also requires cooperation between consumers rather than standing aside which dispels fears listed above and may encourage Polish consumers to engage in such behaviors.

Our outcomes suggest also that favorable attitude towards some practices increases the chances that consumers will adopt them in their own lives. From this perspective a positive attitude represents an important prerequisite for a consumer's involvement in any activity within the CC as well as deconsumption in general. It concerns especially these practices which require some additional effort and/or taking additional risk. Accordingly only the changes in Polish consumers' attitudes towards more favorable ones will allow for wider adoption of all discussed activities, which may lead to more sustainable life.

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CZY ZRÓWNOWAŻONA KONSUMPCJA JEST MOŻLIWA W POLSCE? ANALIZA POSTAW KONSUMENTÓW WOBEC PRAKTYK DEKONSUMPCYJNYCH

Streszczenie. Dekonsumpcja pozostaje nieodłącznym elementem konsumpcji zrównoważonej i może być reprezentowana przez konsumpcję wspólną, która stanowi nowy model zaspokajania potrzeb konsumentów. Celem artykułu jest charakterystyka postaw konsumentów wobec dekonsumpcji i konsumpcji wspólnej, a na tym tle wskazanie szans na zaistnienie takich zmian w zachowaniach polskich konsumentów, które będą skutkować ich bardziej zrównoważonym podejściem do konsumpcji. Informacje prowadzące do osiągnięcia tego celu pochodzą z dwóch projektów badawczych – jakościowego (indywidualne wywiady pogłębione wśród 15 konsumentów) i ilościowego (ankieta wśród 400 osób). Przeprowadzone badania wykazały, że konsumpcja wspólna ma szansę odegrać znaczącą rolę w procesie przekształcania zachowań polskich konsumentów. Z jednej strony może się ona okazać jedyną formą dekonsumpcji, jaką Polacy są skłonni zaakceptować. Z drugiej, można ją traktować jako pierwszy krok do podejmowania szerzej rozumianych działań dekonsumpcyjnych i realizowania zasad zrównoważonej konsumpcji.

Słowa kluczowe: zrównoważona konsumpcja, ograniczanie konsumpcji, konsumpcja wspólna, zachowania konsumentów

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MULTIFACETED ANALYSIS OF THE PROCESS OF PRICE DEVELOPMENTS ON THE LOCAL REAL ESTATE MARKET BY MEANS OF THE REGRESSION TREES METHOD (C&RT)

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Abstract. Attention of rational purchaser or seller of real estate is focused on the prices and properties of similar real estates. In the light of the theory of valuation, differentiation in prices on the local market is explained by variation in a few most important properties of marketed real estate. Thus, in the practice of valuation, a important issue is to decide which of many possible attributes are significant and what is their individual contribution to the market price that can be achieved. In this paper, this problem has been solved using the model of regression trees (C&RT). The study covered undeveloped land designed in local plans for single-family housing development, situated on the northern outskirts of Krakow. A regression tree permitted a simple assessment of the impact of the different attributes on real estate prices. This method enables prediction of the market value, but it requires knowledge of at least several tens, or preferably many hundreds, of transactions relating to similar real estates. For that reason, it is predestined for mass valuations.

Key words: real estate market, regression trees C&RT

INTRODUCTION

Initiated in 1989, radical changes in the functioning of the Polish economy connected with the shift from the centrally planned economy to the market system, gave rise to a dynamic development of the Polish real estate market. Already in 1990, over 220 thousand market transactions were entered into in the Polish real estate sector. Compared to 1980, their number grew by 37%, which confirmed that in the new economic reality the Polish real estate market entered a phase of a spectacular boom. Over the following five

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years, turnover increased twice: in 1995 nearly 446 thousand of real estate purchase/sales transactions were entered into in Poland.

In 1999, the reform changing Poland's administrative division introduced a three--level structure of territorial division. With that, new actors appeared on the local real estate markets. These were local governments, which had legal personality and own real estate resources. These actors (in particular nearly 2.5 thousand gminas) became important participants of the real estate market, not only in the sphere of building land supply. In the institutional sphere, they were also entrusted with a range of important functions in the area of real estate management. For local governments, the question about the price and market value became one of the most important questions connected with real estate – especially that it appeared not only in the situation of purchase/sale, but also during calculating betterment taxes and planning fees, granting the right of perpetual *usufruct* and establishing permanent management. Valuation was also required in new expropriation procedures, as the property right could be deprived only against just compensation (monetary or in the form of replacement real estate). According to the provisions of the real estate management act, the amount of such compensation (equal to the market value of the deprived property right) should be clearly established at the stage of an administrative trial and paid to the owner within 14 days from the validation of the decision about expropriation[1].

Summing up, it should be highlighted that every time rights to fixed property are transferred or granted, knowledge of their value is a fundamental issue. It is also needed when immovable property is divided, contributed to enterprises being created or used to secure a bank's claim.

The question about real estate value may take on an unprecedented scale in our country with the tax system reform. The possibility of replacing the existing real property tax with an *ad valorem* ("according to value") tax has been speculated about for over 20 years. The methodical, technical and organisational aspects of its implementation were tested in pilot projects conducted, among other things, in Kraków, Łódź, Pabianice, Szczecin, Olsztyn and Ostróda [Kuryj 2001]. However, this huge project raises serious concerns and leads to social resistance. Making the amount of this tax dependent on the value of real estate would certainly significantly influence prices and sales on the local markets until new levels of market prices were established (and the first transactions taking them into account). Many owners of real estate situated in centres and other attractive spheres of large cities (with high *ad valorem* value) would be subject to many times higher tax assessment than under the existing system that took into account square footage. We can thus conclude that the challenge faced by public administration would be to ensure in the first years after introducing the *ad valorem* tax that its rates are socially acceptable. These rates would be based not on the physical size of the object of taxation but on its value, established on a mass scale by means of mathematical models comprehensible to the taxpayer.

Nowadays, from 208 thousand to 324 thousand sales contracts are concluded annually on the Polish real estate market. In 2012, their total value was PLN 710 billion, and in land property transactions alone – PLN 184 billion. So, there is allocation of huge

[1] Real estate management act of 21 August 1997 (Journal of Laws 1997 issue no 115 item 741).

amount of capital on the real estate market. And although the annual real estate transactions on a national scale are not at such high level as in mid-1990s, in 2012 their value was 2.5 higher than state revenue [Obrót nieruchomościami w 2012 r., 2013].

The development of the real estate market is always accompanied by growing demand for reliable knowledge of value. Reliable information about the value of a house, flat or plot even became a value in itself. It makes it easier to take rational decisions not only in situations of selling real estate, but also when taking investment decisions. Nowadays, value management, or active shaping or influencing value, refer not only to commercial facilities. Compared to other goods, real estate is very costly, so it's worth making sure that capital is put in appropriate real estate and is not subject to depreciation. It should be stressed that economic consequences of the lack of comprehensive knowledge about value and its determinants can be very severe for market participants, as they are adequate to the money paid for real estate. So, what do real estate prices on the local market depend on? What factors and attributes establish these prices at a given level? These questions are asked every day by millions of potential purchasers and sellers of houses, flats and plots. These questions bother local governments, developers and banks.

According to the economic theory, price is the result of the market play between supply and demand forces. They, in turn, are determined by factors of the market environment [Wrzosek 1994]. This environment includes legal, economic, social and spatial factors. We can say that these factors shape a certain level of price on the local market. But it is individual properties of real estate, called attributes, that are responsible for its differentiation [Cellmer 1999, Dacko 2002]. Economic assessment of the impact of the different attributes on market price developments is not a simple task. Every real estate has a range of attributes, but usually only some of them significantly impact the price [Mączyńska et al. 2004]. Some of them may also be strongly interrelated. For instance, the neighbourhood of a plot may be strongly related with the existence of a network of utility infrastructure and a paved road. Building plots situated far from larger concentration of such plots are less often equipped with such costly facilities. Greenery and quiet location are valuable attributes of every real estate, but statistically they less often co-occur with the location in the strict centre, public transport accessibility and close location of social infrastructure facilities. It should also be stressed that the contribution of the different attributes to price differentiation varies across local markets. Thus, we cannot automatically use the results of an analysis of one local market to draw conclusion about prices on another local market. The traditional way to determine the impact of a particular attribute on the market value of real estate has been to compare the prices of real estates that extremely differ in an attribute, *ceteris paribus* [Mączyńska et al. 2004]. Other popular tools for such evaluation include simple and multiple regression models [Cellmer 1999, Dacko 2002]. However, with the development of calculation methods and techniques in the field of real estate market analyses, we can see an increasingly stronger position of methods classified as data mining (machine learning, neural networks, decision trees). Indeed, these methods start to be used by banks, statistical services and local governments. In situations when the question about value is on a mass scale, these methods allows for minimization of the unit workload in appraisal of real estate. This paper examines the process of price developments on the local real estate market in three places in the Gmina Zielonki using the model of a C&RT binary regression trees. The study covered the market of land property intended in local plans for single-family housing development. The study was exploratory in nature, and its aim was to evaluate results offered in mass appraisal by the regression trees C&RT method.

MATERIAL AND METHOD

The appraisal process is in fact a process of predicting the price that can be obtained on the local market depending on the attributes of a specific real estate. In this process we refer to historical events – past transactions relating to similar real estates. Thus, in modelling, apart from attributes, also the dates when the transactions were concluded are taken into account, as prices may change over time. For the purpose of this paper, market purchase/sale transactions between January 2008 and July 2013 in three places of the Gmina Zielonki (Zielonki, Bibice and Węgrzce), near Kraków, were examined. These places are considered to be dormitory towns of Kraków – many residents of this city look for plots to build houses. All transactions referred to undeveloped real estate intended in local plans for single-family housing development. When creating a database, the following transactions were excluded: transactions conducted by a tendering procedure and those concerning sale of plots intended for improvement of the conditions of the neighbouring real estate development. Plots which, due to their large size, were bought with the intention of divisions, building small housing estates and reselling them, were also not taken into account. The final database contained 109 transactions. After analysing notarial acts, maps and satellite imagery, the collection of prices was supplemented with data about square footage, utility infrastructure, shape and localisation of plots, date of entering into transaction, access and neighbourhood, and about potential encumbrances (mortgage, easement of passage or laying utilities) and status of the parties to transactions (Table 1).

Literature [Bitner 2007] recommends reduction of the number of variables in market analysis by grouping attributes. According to this principle, utility infrastructure can be treated as one attribute that has a few statuses (e.g. full, partial, lack). However, in this case, utility infrastructure was the most important price influencing factor. Already the preliminary analyses showed that treating utility infrastructure as one attribute with a few statuses resulted in the loss of information, which had a significant impact on reducing predictive capabilities of tree models. Therefore, each utility is analysed separately. Better results were obtained when the plot square footage was expressed in absolute numbers than when it was divided into various classes (e.g. small, medium-sized, large). Therefore this variable was expressed in absolute numbers. The other attributes were coded in accordance with their language description. Contrary to multiple regression models, regression trees are not subject to restrictions in the form of the requirement to code data by means of numbers. This is undoubtedly a significant convenience when analysing the real estate market. After all most attributes have qualitative character here (e.g. good location, convenient access, non-burdensome neighbourhood or regular shape of the plot).

Table 1. Variables selected for analysis

Variable	Variable name	Variable type	Variable variant
X_1	Plot square footage	Quantitative	number of square metres
X_2	Transaction date	Quantitative	yyyy-mm-dd
X_3	Seller	Quantitative	natural person, legal person
X_4	Buyer	Quantitative	natural person, legal person
X_5	Plot shape	Quantitative	favourable, unfavourable
X_6	Neighbourhood	Quantitative	favourable, unfavourable
X_7	Electrical connection (E)	Quantitative	exists, lack
X_8	Water supply connection (W)	Quantitative	exists, lack
X_9	Sewage connection (S)	Quantitative	exists, lack
X_{10}	Gas supply connection (G)	Quantitative	exists, lack
X_{11}	Encumbrances	Quantitative	exist, lack
X_{12}	Access	Quantitative	favourable, unfavourable
X_{13}	Location	Quantitative	Zielonki, Bibice, Węgrzce

Source: Own study.

Regression trees are widely used to solve data mining problems. They help to identify patterns and relationships hidden in data and thus extract knowledge from it. They work well in the case of data sets that even aren't complete. A C&RT algorithm-based tree searches for a set of logical "if-then" split conditions [Łapczyński 2010].

C&RT trees have numerous advantages compared to other methods. It is mainly simplicity of results: a tree model permits a quick classification of new cases and explanation of rules for this classification [Dacko 2007]. Moreover, C&RT trees represent a non-parametric and non-linear method, therefore it is not necessary to make preliminary assumptions regarding relationships between predictors and a dependent variable. This method works well with data mining problems, where the *a priori* knowledge about the existence of relationships between variables is often only intuitive [http://www.statsoft.pl/ textbook/stathome_stat.html]. Jasińska [2012] also appreciates no necessity to standardise explanatory variables and resistance of C&RT algorithm to predictors that do not affect the dependent variable. The authors of C&RT algorithm – Breiman et al. [1998] – stress that there is no need to convert quantitative predictors into dummy variables. Such conversion is recommended only when a qualitative variable has more than 15 variants.

Numerous advantages confirm attractiveness of regression trees as a tool used in market analysis with reference to neural networks or regression models. But trees, like other models, apart from expert knowledge of the market, require that the researchers understand the nature of modelling phenomena in order to properly select and prepare data for analysis [Dacko 2007].

The process of constructing a regression tree is about examining possibilities of identifying dichotomic sub-sets (nodes) which differ in the average value of the dependent variable. Splitting of each node consists in distinguishing two sub-sets: positive cases, which pass the test ascribed to the node, and negative cases, which do not pass this test. For each node, variance is estimated, which is its impurity measure. The aim is for average values in nodes to have the smallest possible variance

$$s^2(P) = \frac{1}{P}\sum_{k\in P}\left(y_k - \overline{y}_p\right)^2$$

where: P – a set of cases referred to a daughter node;
$\overline{y}_p$ – average value of the target function of the cases in set P.

As indicated by Dudek [2014], the division of a set of observations at a parent node into two sub-sets is justified only when it leads to decrease in variance in accordance with the following formula

$$p_1\, s^2(P_1) + p_0\, s^2(P_0) < s^2(P_n)$$

where: P_n, P_1, P_0 – respectively sets of cases at a parent node, at a child node which is reached by positive cases, and at a child node which is reached by negative cases;
p_1, p_0 – fractions of positive and negative cases in set P_n.

The splitting criterion (i.e. variable and its value) is selected using the so-called greedy algorithm, which in each node analyses all predictors and all possibilities of using them to divide a set of observations into two subdets [Dudek 2014]. This algorithm is resistant to irrelevant predictors – loosely related or unrelated to the response variable. Such predictors do not participate in constructing a tree. Each split is justified only when it leads to decrease in variance at child nodes in accordance with the above presented formula.

Thus, in the process of learning, a number of different predictors can be presented to trees to obtain valuable information regarding their importance. However, real estates are specific goods, characterised by great variety. One cannot find two identical real estates. Therefore, prices of the rights to real estate are not easy to model [Dacko 2002]. So, a few questions arose in the context of the research subject and method: will C&RT algorithm be able to classify real estate with similar unit prices to specific tree nodes? Will the selected predictors have a sufficiently strong relationship with market prices for tree classifications to have a practical value? Can the tree method be recommended as useful for mass appraisals? The answer to the last question seems to be positive because of simplicity and transparency of results alone. If predictors are related with the dependent variable strongly enough (this relationship may even be non-monotonic), a tree diagram can explain the nature of the differentiation of the variable being analysed and quickly classify its new cases.

The tree-building process requires defining parameters that will allow for evaluation of the model quality and prevention of its excessive growth. In this study, the procedure for creating new nodes was to prune on variance and criterion of minimum number of observations in a node ($n \geq 10$). Quality control of obtained results was conducted by means of V-fold cross-validation ($V = 10$). This test consisted in a random selection of V sub--samples from the set of possessed observations. This method generates a whole sequence of trees from which the best tree is selected. A tree of the specified size is computed V times each time leaving out one of the sub-samples from the computations and using that sub-sample as a test sample for cross-validation. Each sub-sample is used *V*-1 times in the learning sample and once as the test sample (http://www.statsoft.pl/ textbook/stathome_stat.html). The cross-validation costs (CV) are calculated as an averaged cost from V test samples, and this average is estimate of the CV cost. If the growth of a tree is not accompanied by a satisfactory growth of its predictive capabilities, the splitting process is stopped. In a special case, if none of the predictors contributed to explaining the dependent variable, no splitting would be justified. Then, the resubstitution and cross-validation costs would assume maximum and similar values matching the variance characterising the whole set of observations. If, however, predictors are well selected, the CV and re-substitution costs show desirable fall – which is similar at the beginning. As the trees grow, the difference between the costs becomes sharper, but in the final choice of the right tree the most important role is played by the CV costs. It is their decrease that shows growing capability of recognising regularities hidden in data, and their proper generalisation, which leads to increased predictive accuracy in the test sample. The compromise between complexity and accuracy is ensured by applying the principle of one standard error, suggested by the authors of C&RT algorithm: the "right-sized" tree is the smallest-sized tree whose cross-validation costs are not higher than the lowest (in the whole sequence of trees) costs of cross-validation increased by the value of one standard error of such costs.

RESULTS

The calculation approach used in the regression trees method (C&RT) makes it unaffected by the problem of excessive correlation of explanatory variables or the problem of loose relationship between some of them and the response variable. Moreover, as was already mentioned, trees cope with non-monotonic relationships, and even tolerate missing data. The latter does not have to be specially coded. Possibility of introducing language descriptions makes it much easier to analyse real estate. Such a description was used in this study in the case of as many as 11 predictors. The model was built using the data mining module from Statistica 10 suite. The software generated a sequence of 20 trees (Fig. 1) characterised by different degrees of detail and shapes whose measures were variances estimated for the learning sample (cost of re-substitution) and test sample (cost of cross-validation). The division into the learning sample and test sample was performed by means of V-fold cross-validation, which has been explained in the section describing the research method.

Tree 16, composed of five terminal nodes and four deep splits, was selected for further examination. Cross-validation costs estimated for this tree complied with the rule of one standard deviation:

$$\mathrm{RE}^{\mathrm{CV}} \le \min\left(\mathrm{RE}^{\mathrm{CV}}\right) + \sigma_{\min\left(\mathrm{RE}^{\mathrm{CV}}\right)}$$

where: $\mathrm{RE}^{\mathrm{CV}}$ – cross-validation costs for a given tree;
$\min(\mathrm{RE}^{\mathrm{CV}})$ – minimum costs of cross-validation;
$\sigma_{\min\left(\mathrm{RE}^{\mathrm{CV}}\right)}$ – standard deviation of minimum costs of cross-validation.

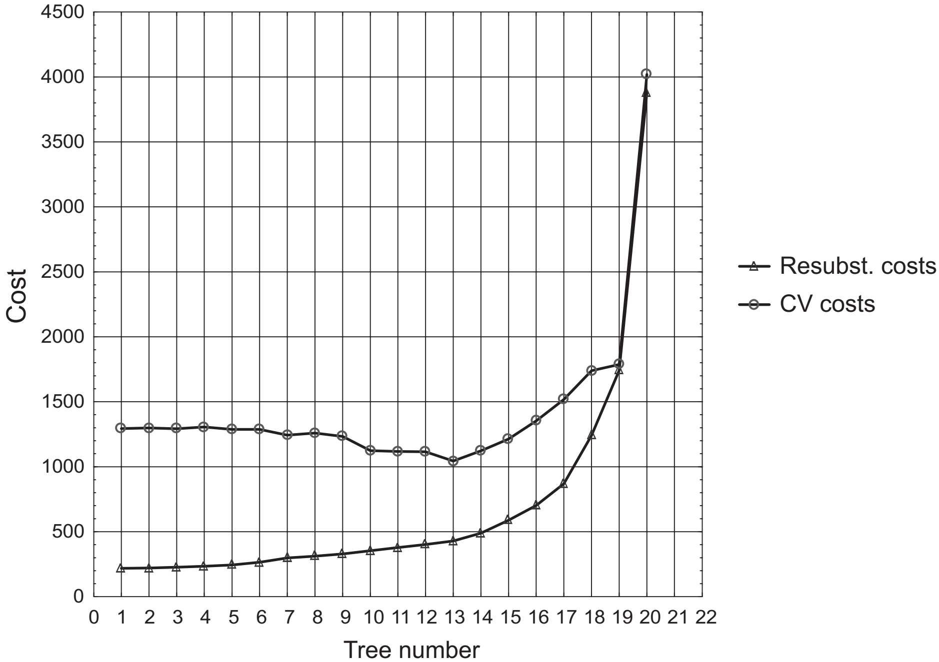

Fig. 1. Chart of costs for a sequence of C&RT regression trees
Source: Own study.

The tree suggested by Statistica was characterised by CV costs equal to 1353. 15 other trees also fulfilled the rule of one standard deviation, but according to the main principle of modelling simplicity implemented in the tree method, the model with the smallest number of terminal nodes should be chosen. A moderately complicated tree should ensure desired interpretation and predictive capabilities. The latter were positively evaluated based on the correlation coefficient between observed and predicted values of the model ($w_k = 0.94$). Diagram of the tree suggested by Statistica software has been presented in Figure 2.

The tree diagram showed that the process of price developments on the market analysed had a multifaceted character and was determined by availability of technical infrastructure elements. The first split (into branches 2 and 3) took place based on the variable "water supply connection". The plots which due to their location near water pipe network could be equipped with water supply connection achieved an average unit price of PLN 247 per m^2 (87 observations). The average price of plots without access to this connection (22 observations) was PLN 131 per m^2. The criterion for splitting node 2 (into branches 4 and 5) was gas supply connection. Its availability significantly differentiated average unit prices of plots with access to water pipe (207 *vs* PLN 262 per m^2). Another split, into branches 6 and 7, took into account the fact that in transactions relating to plots partially equipped with utilities where the selling party was a natural person average unit prices reached a lower level (PLN 258 per m^2). The last split (into branches 8 and 9) was based on the criterion of the presence of a sewage system. Real estate with access to a sewage

Tree number 16
Number of split nodes: 4, number of terminal nodes: 5

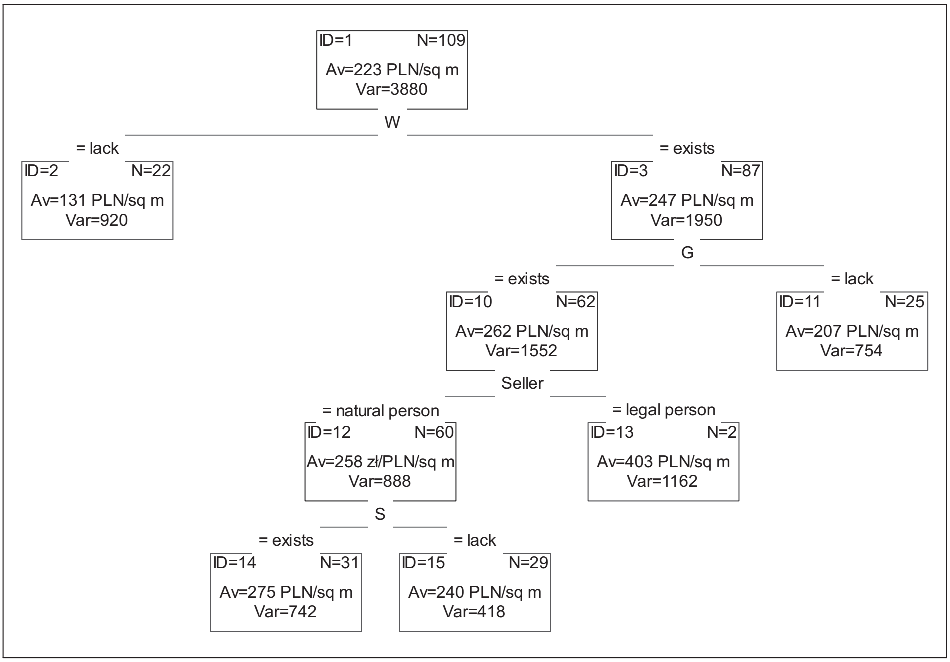

Fig. 2. Model of the final regression tree
Source: Own study.

system achieved an average price of PLN 275 per m^2. The average price of real estate without access to this utility was lower by PLN 35 per m^2.

The model discussed herein was characterised by clear asymmetry: the left branch of the tree was subject to further more detailed splits, whereas the right branch remained the terminal node. This was caused by the fact that a water supply system was the key utility that differentiated prices of building plots. If it was not available, other factors were not important – such plots were sold at a nearly two-fold lower price. Access to a water supply system determined further splits of the left branch of the tree. Then other connections became important. It was even important who was selling the plot.

The tree model is in fact a set of conditional statements the fulfilment of which led to one of five terminal nodes. The average characterising the different nodes was the basis for predicting prices. For instance, node number 9 was: if plots had water supply and gas supply connections and the selling party was a natural person, then if sewage connection was not available, their average unit price was PLN 240 per m^2.

Another advantage of regression trees is possibility of evaluating the importance of predictors. One of Statistica reports may be an ordered ranking of predictors (Fig. 3).

This ranking arranges predictors in terms of their importance, but it doesn't show whether the impact of a specific attribute on the price of real estate was directly proportional or inversely proportional. It should be reminded that in the trees method this impact

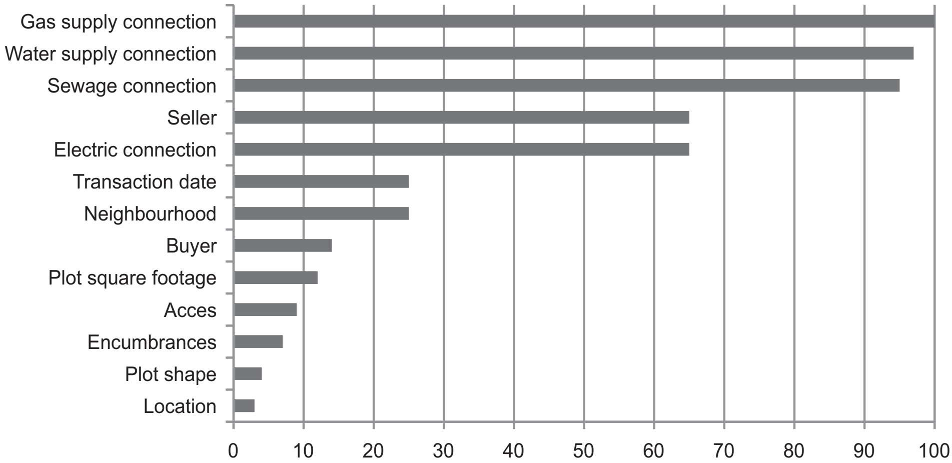

Fig. 3. Ranking of the importance of predictors
Source: Own study.

is often non-monotonic, which is reflected in a series of splits based on different values or classes of the same predictor. The character of relationships can be inferred only based on examination of the diagram of the final tree and only for those predictors that participated in its construction. The importance of predictors may not completely correspond with the final tree diagram. It is determined with reference to the whole sequence of trees of various complexity and all possible variants of their splits. A given predictor may achieve high place in the ranking of importance despite belonging to the main splitting criteria for the final tree. This explains why gas supply connection was the most important predictor in the ranking presented, although the first split of the final tree was performed based on the water supply connection variable. This difference results from the method for calculating the importance of predictors used in the data mining module of Statistica suite [Paluch and Sroka 2012].

The ranking presented confirms that utilities were of key importance in the process of average unit price developments in undeveloped plots intended for single-family house development (Fig. 3). Its elements, i.e. water supply, gas supply and sewage connections, were both used in the construction of the final tree and were at the top of the ranking of predictors. The party selling real estate and electrical connection were also important. These factors to the largest extent determined the process of the developments of unit prices of real estate in the areas analysed. The other attributes contributed much less, in particular: encumbrances on a plot, plot location and shape, and access to a plot.

The trees have not shown importance of the transaction date in the process of price developments, although the temporal scope of the market research was wide and covered the period of almost six years. In the ranking of the importance of market price predictors, the factor of lapse of time (here transaction date) came six and was overtaken by utilities and the selling party. Moreover, this factor has been left out in the structure of the final tree.

The theory of real estate valuation stresses the key importance of location. This fact is usually confirmed in practice. However, location has not been taken into account in the final tree model. In the ranking of predictors, this important attribute came last, which could suggest glaring contradiction between the results obtained and the theory of valuation. According to the authors, regression trees method (C&RT) would certainly assign high position to this attribute, if only it resulted from differentiation of average unit prices in the areas analysed. As this was not the case, we should suppose that for a potential purchaser location in each of the areas under analysis was equally attractive. Being situated at similar distance from Kraków, they indeed represented one local market.

CONCLUSIONS

The regression tree presented in this paper explained the process of real estate price developments within three areas of gmina Zielonki near Kraków. The model approach made it possible to examine the impact of multiple attributes at the same time on price developments in building plots. The trees method indicated utilities on the land as the main price influencing attribute. This very crucial condition of each building process turned out to be much more important than such factors as neighbourhood, access to a plot, its square footage, shape, or encumbrances.

The basic principle of modelling is simplification. That's why no prediction of any economic phenomena or processes will ever be ideal. Models only allow us to come closer to identifying key factors in the development of a given phenomenon. Their accuracy depends not only on using appropriate methods but also on the appropriate selection of predictors. Regression trees seem to make this task much more easier. They tolerate language descriptions, and even missing data. The results are resistant to the presence of predictors that do not have impact on a response variable. Despite their simplicity C&RT regression trees can reflect non-monotonic relationships. One of the advantages of their use is easy interpretation of the result. It is usually sufficient to analyse a few decision rules presented in a clear graph to identify the general relationship hidden in even huge amount of data.

The model presented permitted achievement of two research goals: predictive one (i.e. predictions of average unit prices of real estate by assigning them to terminal nodes) and descriptive one (i.e. relationships described by split nodes identified in the collection of market data).

Models of regression trees are advanced tools for learning about the complex social and economic reality, including the identification of regularities and tendencies on local real estate markets. Knowledge acquired by means of such models may be valuable to investors, banks and local authorities responsible for managing the property of gmina. It is worth considering their application in the area of mass appraisal.

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WIELOWYMIAROWA ANALIZA PROCESU KSZTAŁTOWANIA SIĘ CEN NA LOKALNYM RYNKU NIERUCHOMOŚCI PRZY UŻYCIU METODY DRZEW REGRESYJNYCH C&RT

Streszczenie. Uwaga racjonalnych nabywców i sprzedawców nieruchomości koncentruje się na cenach i cechach obiektów podobnych. W świetle teorii wyceny zróżnicowanie cen tłumaczy się zróżnicowaniem kilku najistotniejszych cech, jakimi charakteryzują się nieruchomości stanowiące przedmiot obrotu. Stąd w praktyce szacowania wartości ważną kwestią jest rozstrzygnięcie, które z atrybutów mają istotne znaczenie i jaki jest ich indywidualny wkład w możliwą do uzyskania cenę rynkową. W artykule problem ten rozstrzygnięto przy wykorzystaniu modelu drzew regresyjnych C&RT. Badaniem objęto nieruchomości gruntowe niezabudowane, przeznaczone w planach miejscowych na cele budownictwa jednorodzinnego, położone na północnych peryferiach Krakowa. Drzewo regresyjne umożliwiło prostą ocenę wpływu poszczególnych atrybutów na ceny nieruchomości. Metoda drzew pozwala przewidywać wartość rynkową, ale wymaga wiedzy o co najmniej kilkudziesięciu, a najlepiej kilkuset transakcjach obiektami podobnymi. Z tego względu jest więc predestynowana do wycen o charakterze masowym.

Słowa kluczowe: rynek nieruchomości, drzewa regresyjne C&RT

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COLLABORATIVE CONSUMPTION AS A NEW TREND OF SUSTAINABLE CONSUMPTION

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Abstract. In their article, the authors present the essence of sustainable consumption and the level of awareness among Polish consumers. A particular attention is paid to collaborative consumption as one of possible ways of implementation the idea of sustainable consumption. They made an attempt to characterise collaborative consumption and its manifestations in Poles' behaviours. They paid attention to some aspects of consumers' behaviours which may be treated as designata of the trend indicating, at the same time, the possible popularisation of those behaviours. Based on an analysis of the carried out quantitative research surveys, the authors defined the sociodemographic profile of consumers being supporters or opponents of collaborative consumption indicating that the issue of belonging to these categories is decided by the basic sociodemographic variables and awareness of the idea of collaborative consumption.

Key words: collaborative consumption, sustainable consumption, consumer behavior

INTRODUCTION

Development of the markets for goods and services allows meeting various needs, particularly those at the fringe of basic needs, what may lead to excessive consumption, i.e. consumerism, while the need to meet the basic needs concerns only a small part of the products being consumed.

Psychologists dealing with purchasing behaviours perceive that the greater and greater number of consumers assume a certain type of the defensive reaction making more and more frequently an unwitting, not rationalised choice, what may lead to the conclusion that the consumer is being changed from *homo oeonomicus* into *homo automaticus* [Stasiak and Maison 2013].

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The emerging in an ever growing degree symptoms of consumerism in the recent decades facilitate discussion on the effects of consumerism and the necessity to implement the idea of sustainable development, including also that of sustainable consumption. In this discourse, there participate representatives of various academic fields and disciplines but also decision-makers and representatives of the economic practice concerned about unfavourable consequences of excessive consumption of various products for the natural environment and, in result, for the quality of life of next generations. Having this context in mind, the idea of sustainable development, including that of sustainable consumption, acquires a particular attention.

The sustainable development concept goes back to the 1980s and is often understood as the commitment to a simultaneous involvement in the three following pillars: economic growth, ecological balance, and social progress [Facts and trends 2015].

It is proper to remind here the definition of sustainable development, which was given in the Brundtland report (coined after the name of the Chairman of the Brundtland Commission, Gro Harlem Brundtland), titled *Our Common Future*: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [UN Documents 2015].

In other words, sustainable development is development that ensures implementation of the needs of the present generation without exerting a negative influence on the ability of future generations to meet their own needs.

Degradation of the natural environment is a serious problem of present days, a threat to that sustainability due to the emergence of greater and more severe developmental barriers: environmental pollution, climate change, atrophy of biological variety, exhaustion of natural resources, and landscape degradation. There is being increasingly recognised the direct threat to the human existence.

All over the world, there are wasted 1.3 billion t of food (the total production amounts to 6 billion t; households almost equally with manufacturing are located in this respect in the third place – around 350 million t; at the same time, more than 2 billion people across the world need more for their survival that what they have got)[1].

In the European Union, every year there are wasted around 89 million t of food. In 2013, wastage of food was admitted by 39% of Polish households, by 9% more than in 2012. The European Parliament called for an immediate collective action aimed at reduction by half of the amount of wasted food by the year 2025, and the European Commission aspires to that reduction by the year 2020, considering food as the main priority in its "Roadmap for a Resource-efficient Europe". This ambition requires joint efforts of the entire chain of food handling – "from the field to the table" [the European Parliament 2011, Dąbrowska and Janoś-Kresło 2013]. If nothing has changed, the total amount of wasted food will have grown in 2020 to approximately 126 million t, i.e. by 40%.

As the European Commission's report on waste management shows, every year in the European Union there are produced 2.6 billion t of waste, of which more than 90 million t are considered as dangerous.

[1] http://www.forbes.pl/artykuly/sekcje/Wydarzenia/co-roku-na-swiecie-marnuje-sie-1-3-mld-ton-zywnosci,14724,1 (accessed: 20.07.2014).

For example, the average citizen in Denmark produced in 2011 – 718 kg of rubbish, in Luxembourg, Cyprus and Ireland – 600–700 kg, whereas in Germany, the Netherlands, Austria, Italy, Spain, the United Kingdom and Finland – 500–600 kg, and in Poland – below 400 kg. There is recommended establishment of a special agency at the level of the European Union whose task would be resolving crucial problems connected with implementation and enforcement of the European rules concerning waste. In the recent years, due to an increase of volumes of waste produced and dislocated in the enlarged EU, this problem has become still more important [Investments... 2014].

In the recent years, all over the world, there has been noted an avalanche-style increase of amounts of disposed by users obsolete electronic products (smartphones, washing machines, refrigerators, TV sets, computers etc.). Every year we produce 20–50 million t of such waste and it is anticipated that by the year 2017 the amount of electronic rubbish will have increased by as much as one third[2].

In Poland, smartphonisation has been going on what is evidenced at least by the fact that in January 2014 44% of Poles had smartphones, whereas in 2013 every third and in 2012 every fourth Pole. It is anticipated that at the beginning of 2015 we should reach the level of almost 60% [Smartfonizacja... 2014]. The biggest number of smartphones is in the group of the youngest Poles (in case of 29-year-olds or younger, more than 70% of the population have a smartphone). This indicates, on the one hand, how quickly there is growing the equipment of Poles with up-to-date devices, and, on the other hand, we should be aware that these are the products that very quickly are wearing out technically, hence becoming obsolete.

Having in mind the above-mentioned data, we should refer to the key Polish strategic document, titled *Strategia zmian wzorców produkcji i konsumpcji na sprzyjające realizacji zasad trwałego, zrównoważonego rozwoju* [Strategia... 2003]. As the basic directions of actions there were then adopted the influencing growth of responsibility of producers and consumers for environmental effects of their activity through the legal, administrative and economic mechanisms as well as while undertaking by those entities voluntary behaviours.

As the main threats in the sphere of consumption there were considered the permanent growth of amount of packaging waste in households, the high dynamics of growth of the number of electric appliances in households as well as the growth of the number of information and recreation devices and the dynamic growth of the number of cars.

Sustainable development is a search for such developmental paths that could ensure improvement of living standards without growth, and still better with a considerable reduction of the pressure on the natural environment [Kiełczewski 2009, Rogal 2010, Dąbrowska et al. 2014].

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[2] Comparehttp://www.greenpeace.org/poland/pl/co-robimy/substancje-toksyczne/odpady-elektroniczne and http://www.spidersweb.pl/2013/12/elektroniczne-smieci.html (accessed: 14.06.2014).

RESULTS AND DISCUSSION

The research survey carried out in 2013 on a representative sample of 1000 adult Poles by the omnibus[3] method shows that there can be distinguished attitudes relevant both for consumerism but also such that may be treated as designata of sustainable consumption. Thus, the symptoms of the first category of behaviours are the following facts:

- 76% of Poles believe that the Polish society is currently more focused on consumption than on living in the proecological (environment-friendly) way (55% think "rather yes");
- 57% of Poles used to buy more often cheaper and less durable products instead of one more expensive which, however, can be used longer (what does matter for the environment) where answers "I rather act in this way" prevail.

On the other hand, the symptoms of sustainable consumption may be other facts diagnosed in the mentioned research surveys:

- 63% of Poles declared that they were regularly sorting rubbish (21% act so definitely). Waste sorting is a method streamlining neutralisation and recovery of waste that may become a valuable raw material. In 2020, according to the EU law, rubbish tips should absorb only 35% of rubbish; the remaining part should be sorted and subjected to recycling[4];
- 76% of Poles prior to a purchase almost always check the shelf life of the product (49% rather do so);
- 70% hand over needless or used things to other people (every fifth Pole definitely acts so).

The world debate on the issue of sustainable consumption was initiated during the Earth Summit in Rio de Janeiro in 1992. In the document, titled Agenda 21 – the Global Programme of Action, crowning that conference, there were references to the change of

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[3] The omnibus survey was carried out on the representative, nation-wide sample of 1000 individuals aged 15–74, in the time-period of June–July 2013 by the CAPI (computer-aided personal interview) method, with the use of laptops or palmtops, during a face-to-face interview, at respondents' homes. The sample was of the quota-random nature. Respondents were sampled for the survey in compliance with the quota by the following traits: sex and age. The representative sample allowed extrapolating findings on the adult population of Poles, with an error of +/–3.2%.
The survey made it possible to select 5 of 20 statements that indicated definite competencies of Poles, namely: (1) If the product is proecological and has such a marking, then I shall readily buy it, even if it is by 10% more expensive than the one without such a marking; (2) I would like the direct producer could receive fair payment for the product, even if I had to pay for it 10% more; (3) I regularly sort rubbish; (4) When buying something new, I first listen to my acquaintances' opinion on the issue; (5) I almost always read the composition of the food product being bought. For the second survey (the main one), there were qualified the respondents who indicated their positive opinions on at least three of the five statements. They were considered as the consumers with the minimal competencies what allows defining their behaviours, particularly as regards sustainable consumption.
The survey was carried out for the purpose of the project financed by the National Science Centre "Consumers' Competencies as a Stimulator of Innovative Behaviours and Sustainable Consumption", 2011/03/B/HS4/04417, Instytut Badań Rynku, Konsumpcji i Koniunktur; the project manager – prof. Anna Dąbrowska, Ph.D.
[4] http://cp.gig.katowice.pl/pdf/segr_odp.pdf (accessed: 10.10.2014).

consumption models. There was paid attention to the problem of unsustainable patterns of consumption as well as, what is equally important, to the national policies and strategies of sustainable consumption development. As early as then it was already emphasised the necessity of research and international cooperation in the mentioned fields. Among the most important tasks there were specified, i.a., the growth of effectiveness of the use of energy and resources as well as reduction of amount of waste.

The development of research on sustainable consumption has created the bases for distinguishing at least three ways of formulating this category:

- sustainable consumption as an alternative lifestyle,
- sustainable consumption as ecoconsumption,
- holistic approach to sustainable consumption, hence expansion of this notion onto the social and economic issues.

As the quantitative survey (the main one) carried out in 2013 among 1000 adult Poles[5] by the CATI (computer-assisted telephone interview) method shows, opinions of Polish consumers on the issue of sustainable consumption do rather not fit into the mentioned criteria of this notion understanding. And so, there were noted that the way of understanding "sustainable consumption" was most often connected with the following: though-out purchases (25% of indications), buying the products which are necessary (24%), moderate consumption, adequately to one's financial abilities (21% of indications). At the same time, the "I do not know" responses accounted for 34% of indications [Dąbrowska et al. 2014].

We can say that the idea of sustainable consumption is associated by consumers quite narrowly what may evidence the need to educate Poles in the area of environmental and social consequences of their excessive, not justified by actual needs, purchases depleting the natural environment and reducing opportunities for dignified life of next generations.

In the world of surrounding, not to say crowding us products, of newer and newer brands, models, warding off temptation to buy a definite good or service is difficult and requires adoption and implementation of a new philosophy of life, and practically alteration of the lifestyle, the style of consumption. Collaborative consumption is such an example.

COLLABORATIVE CONSUMPTION

Collaborative consumption is a new trend in sustainable consumption, which remains in a certain opposition to consumerism understood as the cult of possession. The source of the concept of collaborative consumption is the book titled What's Mine Is Yours: The Rise of Collaborative Consumption by Rachel Botsman and Roo Rogers, who define this notion as a socioeconomic idea that has a chance to revolutionise the way in which we consume [Botsman and Rogers 2010].

[5] It was the second stage of research surveys for the earlier mentioned research project. The average respondent was a woman (51%), the person aged 18–29 (26%), with secondary education (46%), with household's gross income of 2001–4000 PLN (34%), living in the countryside (39%), being a married person or remaining in a partner relationship (64%), the childless person (81%), retired person (23%), from Masovian Voivodeship (14%).

The idea of collaborative consumption is connected with the new lifestyle, the ability to share, borrow, lend, barter exchange, hiring among consumers, where technology and social portals play a great role, but also confidence in other people. Consumers exchange goods, provide accommodation, share skills, sometimes share real estate, exchange clothes, carry out the so-called lotting (collective renting of employee lots, joint spending time therein, barbecue) etc. One of the examples of implementation of the idea of collaborative consumption in Poland is the Service-Free City Bicycle Rental which has been operating since recently in several cities, e.g. in Warsaw, Kraków, Poznań, Wrocław. It helps the cities in achieving a more ecological but also an effective system of urban transport.

Another example of the development of collaborative consumption in Poland is carpooling (carpooling.pl), i.e. provision and use of free seats in private cars. Owing to joint travel, both the driver and the passenger not only save money but also positively affect the environment.

There arises the question whether in Poland did not earlier exist examples of collaborative consumption. Naturally, they did exist though they were not called so. At the times of deficits, the exchange of many products, just to mention apparel, particularly for children, was a quite frequently met behaviour among consumers.

An equivalent of collaborative consumption is also the Time Bank [Sobczyk 2005, Dąbrowska 2013]. Most often they are informal groups whose activities are based on the free exchange of services among its members (service self-help) based on the principle: "Help me and I shall help you". Depending on the possessed skills, talents, stock of knowledge and time, the Bank's participants declare what sorts of services they may provide for other participants of that project. The persons coordinating the Time Bank's activities keep the register of individuals and direct help to those in need on a regular basis, in accordance with the reported requirement. Services exchanged at the Time Banks are such diversified as diversified are members' skills: from cakes baking, teaching foreign languages, including the sign language, playing instruments (e.g. the guitar, piano, keyboard), through credit consultancy and making online payments, assistance in writing official letters, repair of cars and other vehicles, still to face massage or the salsa dance teaching. The services are not paid with money but there is rendered another service for another member of the Bank. Most often the settlement unit is hour and not the market value of the service. The "earned" hours may be "spent" on other necessary service works.

The idea of Time Banks dates back to the 20th century. In 1980, Edgar Cahn, an American lawyer and sociologist, coined the term "Time Dollars". The concept of Time Bank was very simple. Particular individuals devote their free hours to the local community. In exchange for providing a definite service, e.g. shopping, senior care, assistance at home etc., they are gaining credits in the form of time banking for which they can "buy" services provided by other people, thus creating the community based on an equivalent exchange (the range of services depends on the skills of the individuals setting up the Time Bank). Therefore, Time Dollars serve as a local currency and they are not anywise tied up with the money in force what does not change the fact that it can be used for "payments" for the real activities executed by other members of the local community [Cahn 2003].

In Poland, this idea has found and finds newer and newer followers, contributing also to rebuilding social ties. As we have already mentioned, the more the group of users is diversified, the more attractive the offer is. In the offer of Internet Time Bank, there are most often offered foreign language learning, private lessons, walking, baby sitting, and sewing. There deserves attention the Poznan Time Bank where the offer has included original services: playing tarot, Arabic language learning and dream interpretation, whereas in the Silesian Time Banks – grand piano tuning, icon painting.

In 2012, there was established the Student Time Bank at the University of Commerce and International Finance[6]; on the portal Eurostudent we can read: "Would you like to learn Spanish but you want to assign your savings for something else? Do you like taking care of children and would you readily help anybody? Or maybe you do not have anybody to play billiards? Do you think you have been left with your problems alone? Nothing could be more wrong! The idea of the Time Bank is a remedy to all these problems".

In one of articles [Collaborative consumption... 2011], there was asked the reasonable question if collaborative consumption appears to be a new economic model where more important than what people consume is how they consume. One may also ask the question of how a robust element of the model of sustainable consumption it will be.

In 2010, collaborative consumption was mentioned by the "Time" magazine among 10 ideas that will change the world [10 Ideas That... 2011].

Undoubtedly fatigue by consumerism, paying greater attention to the environment induces to search new phenomena with opposite features and collaborative consumption is a part of this trend. Its driving force is young generations, particularly individuals free of stereotypes and sensitive to the state of the environment and sensitive to another human being.

Does collaborative consumption have chances for development? It will perhaps depend on the very consumers, their lifestyle, the shared values, and the economic condition but also on the ability to act jointly.

Perhaps the development of collaborative consumption will be affected by sociodemographic and economic factors, e.g. the economic situation, the scale of poverty, ageing of societies or digital division. There are allegations that the growth of interest in collaborative consumption has been caused by the global crisis and its effects. Since 2007, there has been increasing criticism of overconsumption, search of new forms of meeting needs and, practically, of a new lifestyle where greater attention is paid to thriftiness and rationalism [Burgiel 2013].

Development and implementation of new ideas within sustainable consumption in a broad sense are connected with social innovations that may be described as development and implementation of new concepts (goods, services and models) to meet social needs, as creating new social relations and bonds. Their role is to raise the living standard, people's wealth but also to promote cooperation [Guide to Social Innovation 2013].

Quite a considerable role in developing and adding dynamics to new forms of sustainable consumption, including collaborative consumption, is played by up-to-date technologies facilitating communication of members of various social groups or communities.

[6] http://www.wshifm.edu.pl/x.php/1,772/Studencki-Bank-Czasu.html (accessed: 5.02.2013).

When discussing the new trends in sustainable consumption it is worthwhile to refer to the trends presented in the report named "13 for 2013". We can find there many contrasts. The development of high technologies which, no doubt, make life easier (saving of time and money, overcoming the barriers of space), contrasts with the pursuit of slowing down, also in the sphere of consumption, of return to a simpler life. However, in all the presented trends, there takes place the discriminant relevant to collaborative consumption, Time Bank or digitisation; this is the permanent need to associate and establish interpersonal contacts.

In this article, we pay attention to the three trends distinguished in the report, namely [13 for 2013, 2012]:

1. "Co" – cooperation which is nowadays the hottest trend both in professional and private life. All words beginning with "co-" (contribution to, compatibility, collaboration, even coexistence) will raise their importance expanding, at the same time, the population of prosumers.
2. Austerity and doubled thriftiness. Consumerism will be replaced by collaborative consumption and respecting the slogan "less means more" implemented by microownership. It is anticipated that consumers will pursuit to reduce consumption and reuse the products in order to minimise the need to go shopping and to generate new rubbish dumps.
3. We are entering the epoch of fatigue. There is much said about the chronic fatigue syndrome. May be this is also fatigue with consumption, the pursuit of products, evaluation of the human being through the prism of possession.

PLACE OF COLLABORATIVE CONSUMPTION IN POLISH CONSUMERS' BEHAVIOURS – RESEARCH FINDINGS

In the already mentioned surveys carried out in 2013, there was also the reference to the symptoms of collaborative consumption. In the omnibus survey, Poles were asked whether they were handling needless or used things to other people. Rather so there conducts every second Pole and every fifth behaves "definitely so" the least percentage of such behaviours was noted in the group of the youngest (15–24-year old) and the oldest (65 and more) Poles. Propensity for such behaviours is growing with the level of education (47% among the individuals with primary/vocational education and 57% with higher education for the answers "rather yes" and 18 and 22% for the answers "definitely yes"). In terms of the vocational situation, most often such attitudes (answers "definitely yes") were presented by managers (34%), unemployed people (25%) and farmers (23%). It is worthwhile to emphasise the fact that more often such attitudes concerned the Poles who assessed their financial condition as favourable and they are inhabitants of big cities (more than 500 thousand inhabitants).

In turn, in the quantitative survey (the main one), carried out among 1000 adult Poles (18–74 years of age), considered as the minimally competent, the respondents were asked, first, whether they would be interested in collaborative consumption and whether they had heard of the Time Bank.

In case of collaborative consumption, there were more opponents than the individuals interested in this idea (Fig. 1).

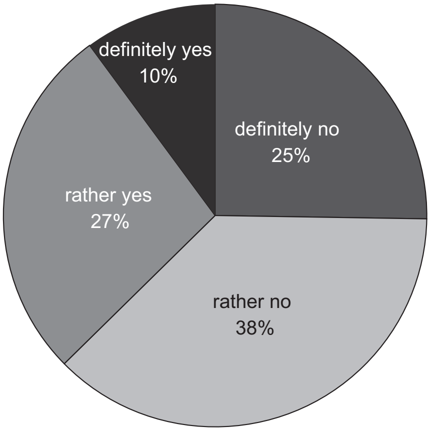

Fig. 1. Respondents' attitude to collaborative consumption (percentage of answers)
Source: Own research, IBRKK [2013].

The definite adherents of collaborative consumption are most often men (statistically significant dependence), individuals aged 18–29, with at least secondary education, assessing their financial situation as average, inhabitants of cities with 100 thousand and more inhabitants (statistically significant dependence), childless ones, top managerial staff, persons not deciding on household budget management, positively evaluating their knowledge as regards sustainable consumption.

On the other hand, definite opponents of collaborative consumption are mainly men, individuals aged 60 and elder (statistically significant dependence), people with primary/ /vocational education (statistically significant dependence), negatively evaluating their financial condition, individuals living in cities below 100 thousand inhabitants (statistically significant dependence), childless, old age pensioners (statistically significant dependence), individuals not deciding on household budget management, negatively assessing their knowledge as regards sustainable consumption.

Of the Time Bank there had heard and declared awareness of this term merely 3% of the respondents and 9% had heard but they did not remember details. Others (89%) had not heard of such initiative.

Those who had heard but did not remember details were people aged 30–39, with higher education, individuals negatively evaluating their financial condition, residents of cities with 100 thousand and more inhabitants, having children, top managers, and farmers, individuals deciding on household budget management.

CONCLUSIONS

The idea of sustainable consumption and collaborative consumption included into its designate are a response to the negative for the natural environments effects of consumerism, though they are also treated as a reaction to the global economic crisis. The symptoms of these new trends in consumption among Polish consumers can be seen in a minor scale and their intensity is differentiated by not only the basic sociodemographic variables but also by the variables connoted by the lifestyle. The findings of the surveys carried out indicate that Poles declare to a low degree awareness of the idea of sustainable consumption; however, they are familiar with the exchange of goods and services with other people what can be facilitated by the experience of market shortages of the 1980s. One may suppose that the behaviours relevant to collaborative consumption will manifest themselves to a larger and larger extent, what will be facilitated by digitisation and development of up-to-date technologies of social communication.

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KONSUMPCJA WSPÓLNA JAKO NOWY TREND ZRÓWNOWAŻONEJ KONSUMPCJI

Streszczenie. W artykule przedstawiono istotę konsumpcji zrównoważonej i poziom jej uświadomienia wśród polskich konsumentów. Szczególną uwagę zwrócono na konsumpcję wspólną (collaborative consumption), jako jeden z możliwych sposobów realizacji idei zrównoważonej konsumpcji. Podjęto próbę charakterystyki konsumpcji kolaboratywnej i jej przejawów w zachowaniach Polaków. Zwrócono uwagę na wybrane aspekty zachowań konsumentów, które mogą być traktowane jako desygnaty tego trendu, wskazując jednocześnie na możliwe upowszechnianie się tych zachowań. Na podstawie analizy przeprowadzonych badań określono profil społeczno-demograficzny konsumentów będących zarówno zwolennikami, jak i przeciwnikami konsumpcji wspólnej, wskazując, że o przynależności do tych kategorii decydują podstawowe zmienne socjodemograficzne oraz znajomość idei wspólnej konsumpcji.

Słowa kluczowe: konsumpcja wspólna, zrównoważona konsumpcja, zachowanie konsumenta

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COMMUNITY SUPPORTED AGRICULTURE (CSA) AS A FORM OF SUSTAINABLE CONSUMPTION

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Abstract. The article describes the activities and specificity of so-called CSA groups (Community Supported Agriculture) as one of the forms of the observable trend related to the formation of different types of informal, mutual social initiatives. Certainly such activities can be categorized as sustainable consumption. The article presents the results of research conducted on CSA groups operating in Poland. This study aims is to contribute to the discussion by combining data from basic research with a comparative analysis. The research shows that the various CSA-projects differ a lot from each other and that there is a variety of approaches within the CSA-movement.

Key words: CSA groups, Community Supported Agriculture, sustainable consumption

INTRODUCTION

Europe has experienced an incomparable modernization in agricultural production with technological progress and a green revolution, supported by an EU framework known as Common Agricultural Policy (CAP). This has tremendously increased productivity, provided food security and reduced food prices. However, the advancement of this new food regime often comes along with undesirable social and environmental consequences which have received more widespread attention recently [Schlicht et al. 2012].

As a reaction to this, new modes of agriculture have developed or re-developed in Europe, especially a recent shift to certified organic production, local food supply chains and new consumer-producer relationships. A promising approach addressing sustainable, local production and direct and partnership-based consumption has become known as

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Community Supported Agriculture (CSA). In contrast to intensive industrial farming and centralized food industries, CSA promotes a sustainable and diversified pattern of regional and local production with closer connections and solidarity between farmers and consumers, and with a high care for public health and environment. Such form of sustainable consumption relates to the reorientation of consumer behavior, changes in quality of life and a change of attitude: from egocentric to ecocentric one.

MATERIAL AND METHODS

Author used the descriptive method to analyze results of research related to American market and conducted a questionnaire survey on CSA groups operating in Poland.

Author identified 5 such groups in Poland: (a) active from 2012: RWS Świerże Panki – group of 27 households in Warsaw cooperating with 2 Masovia organic farms; pioneering group in Poland; (b) active from 2014: RWS Dobrodziej Szczecin – group of 17 households in Szczecin cooperating with 1 organic farm; Pora na Czosnek Poznań – group of 34 households in Poznań cooperating with 1 organic farm; RWS Wrocław – group of 36 households in Wrocław cooperating with 2 organic farms; Dobrzyń nad Wisłą – group of 20 households in Warsaw cooperating with 1 organic farm. Some Internet sources are mentioning also 6th group operating in Opole but author was not able to identify them.

The survey has been conducted in September 2014 via Internet. It has been divided into two parts: questionnaire for consumers and the other one – for farmers; 37 filled-out questionnaires were received from consumers, members of CSA groups (out of total identified 134 members – 28%) and 2 filled-out questionnaires were received from farmers (out of 6 farmers – one and the same farmer cooperates with 2 CSA groups – in Szczecin and Poznań).

THEORY AND BACKGROUND

Characteristics of Community Supported Agriculture (CSA) groups

The concept of CSA originated in Switzerland and Japan in 1960s [Farnsworth et al. 1996]. It was brought to the United States by Jan Vander Tuin from Switzerland in 1984 [Allen et al. 2006]. In 1986, there were 2 CSA groups operating in the United States, by 2005 – there were 1144 [Adam 2006]. Growing interest in local foods in the US is the result of several movements [Guptill and Wilkins 2002]. The environmental movement encourages people to consider geographic dimensions in their food choices. Long-distance transport of food is considered to contribute to greenhouse gas emissions. The community food-security movement seeks to enhance access to safe, healthy, and culturally appropriate food for all consumers. Challenges to the dominance of large corporations also have contributed to efforts to expand local food. The Slow Food movement, which originated in Italy, is a response to homogenous, mass-produced food production, and the "fast" nature of people's lives, by encouraging traditional ways of growing, producing, and preparing food. The local food movement also reflects an increasing interest by consumers in supporting local farmers and in better understanding the origin of their food [Ilbery and Maye 2005; Pirog 2009].

The original idea of CSA was to re-establish a sense of connection to the land for urban citizens and to foster a strong sense of community and cooperation with a goal to provide food security for disadvantaged groups. Community Supported Agriculture consist of food producers and consumers providing mutual support and sharing the risks and benefits of food production. Typically, members of the farm pledge in advance to cover the anticipated costs of the farm operation and farmer's salary. In return, they receive shares in the farm's produce throughout the growing season, as well as satisfaction gained from reconnecting to the land and participating directly in food production. Members also share in the risks of farming, including poor harvests due to unfavorable weather or pests.

Two distinct types of CSAs have developed:

– farmer-driven, subscription CSA – in which the farmer organizes the group and makes most of the management decisions; farm work is not required of subscribers; a permutation is the farmer cooperative, where two or more farmers organize to produce a variety of products for the CSA basket;
– shareholder, consumer-driven CSA – in which core group organizes subscribers and hires the farmer; the core group may be not-for-profit organization and land may be purchased, leased, or rented.

Activities of Community Supported Agriculture (CSA) groups are designed as a form of cooperation between consumers and food producers that creates favorable conditions for the activities of small farms. Such actions are especially common in large cities and among young generation who are seeking access to organic food, and do not want to pay a high price for it.

The success of any CSA depends heavily on highly developed organizational and communication skills [Brown and Miller 2008]. Money raised by the sale of CSA shares is used as operating capital to finance farm production activities, and consumers typically receive weekly deliveries of fresh produce (occasionally meat and eggs) from the farmers. CSAs allow producers to lock in their prices and receive their income up front, and consumers share in the risks of variability in output due to weather or pest conditions.

RESULTS AND DISCUSSION

Research results from US-operating CSAs

In 2003 the Leopold Center for Sustainable Agriculture at Iowa State University conducted a study of CSA farms in the Midwest, surveying 55 farm operators. Ninety seven percent of the farmers were "completely satisfied" or "satisfied" with their CSA operations. They believed that 83% of their members were "satisfied most of the time" and 17% "very satisfied". Farmers identified causes of dissatisfaction for their CSA members as "too much produce, too much food preparation time, and lack of product choice". Surveyed CSA operators were more highly educated and younger than the national average.

[McBride 2005]. A major conclusion of the Leopold Center study was that share prices should be increased to provide a better return to the farmer. The study ignored social justice aims common to other types of CSAs, as well as integration of CSAs into a comprehensive local food-system plan with many types of services, programs, and activities to ensure community food security.

Kolodinsky and Pelch studied CSAs from the point of view of consumer acceptance [Kolodinsky and Pelch 1997]. They found the likelihood of membership in a CSA to be highly correlated with food shoppers who have a high degree of education, who buy organic, and who consider political/economic/social factors in choosing their off-season (winter) produce venue. Likelihood of CSA membership was negatively correlated with the presence of children or teens in a family, having adequate storage space for canned or frozen foods (presumably lessening the need for fresh produce every week), and lower educational attainment. While income was found not to be correlated with the decision to join a CSA, higher cost of share per person decreases the likelihood of membership. Shareholders did not find the social and aesthetic meaning in the CSA system but viewed it primarily as a source of fresh produce.

CSA customers report numerous social, economic, and nutritional benefits from participation in the arrangement [Farnsworth et al. 1996, Ostrom 2007]. In several studies reported by Brown and Miller [2008], most CSA farmers mainly depend on income from their CSA shares and reported gross farm incomes that ranged from 15 thousand to 35 thousand USD per year. However, financial analyses have found that CSA farmers often fail to cover their full economic costs and suggest that typical share prices would need to double or triple to be competitive with market rates of return [Sabih and Baker 2000, Oberholtzer 2004]. This result is supported by surveys in which the majority of CSA producers were not satisfied with their ability to cover their operating costs or provide sufficient compensation for their work on the farm, although most were still very satisfied overall with their decision to have CSAs [Lass et al. 2003, Tegtmeier and Duffy 2005, Ostrom 2007].

In other studies, the role of demographic characteristics has been studied. Consumers who were female, older, more educated, higher income earners, and members of environmental groups were more likely to buy local food [Brooker and Eastwood 1989, Eastwood 1996, Eastwood et al. 1999, Brown 2003]. CSA membership was found to be positively linked to higher education, a preference for organic products, and finding out about the CSA via word-of-mouth [Zepeda and Leviten-Reid 2004].

Local foods may be more difficult for consumers to find than mainstream food due to seasonal constraints, limited accessibility, or limited awareness of farmers' markets accessibility [Hardesty 2008]. These barriers may be considered as transaction costs, which include costs of finding local food markets, obtaining information on their product offerings, obtaining access to markets, and searching for the best prices. Surveys suggest that reasons for not shopping at a farmers' market include: absence of availability in the patron's vicinity; lack of knowledge about market existence; inconvenience (too far to drive); food of comparable quality at more convenient locations; and prices being too high [Eastwood 1996, Eastwood et al. 1999].

A lack of product choice and the amount of produce provided, as well as transportation and inconvenience of pickup place or time, has been found to deter CSA membership [Zepeda and Leviten-Reid 2004]. Income does not seem to be an important factor in choice of where to purchase fresh produce, but time-constraining factors, such as presence of children under the age of 18, do appear to matter [Kolondinsky and Pelch 1997, Keeling-Bond et al. 2009].

Other studies examined the determinants of willingness to pay for locally produced food. Taken together, available studies suggest that purchase of local food is widespread, and willingness to pay a premium is not limited to consumers with higher incomes. Consumers with higher willingness to pay placed higher importance on quality [Brown 2003, Carpio and Isengildina-Massa 2009], nutrition [Loureiro and Hine 2002], the environment [Brown 2003], and helping farmers in their State [Carpio and Isengildina-Massa 2009]. The last determinant could be related to the high level of consumer ethnocentrism [Zięba and Ertmański 2006].

Research results from Poland operating CSAs

It is important to note that the data were not analyzed statistically due to small size of a sample.

CSA farmers. They can be characterized as youthful and highly educated. CSA farms are small farms producing organically. The farmers do not have long-term experience in collaboration with CSA groups, only 1–2 years. One farmer is collaborating only with one CSA group, the other one – with two. Besides this collaboration, they are delivering their products to stores offering organic products. Only a small portion of land is being used for the CSA operation.

CSA farms use a diverse combination of labor including principle farmers and hired workers as well as family and shareholder labor. CSA farms fit into the "small farms" category by physical land measures.

Farmers evaluate the cooperation with CSA groups well. They are "very satisfied" with timely payments for products, and "satisfied" with group organization and communication. As the area for improvements, they are pointing the communication techniques.

Farmers agree that computers greatly enhance the cooperation with CSA – not only in scheduling crop production and harvest, but keeping track of the makeup of the weekly basket. Members are being informed by e-mailing schedule changes and personal notes. Enhanced communication helps build community and increases the likelihood that the CSA will survive and prosper.

CSA members. Respondents were 81% women and 19% man, what shows who in the household is taking care for food supplies, and what is in line with the typical Polish family model; 43% of respondents were 26–32 years old, 30% were 33–40 years old. The vast majority of respondents (78%) stay in relationships, 80% are formal relationships – families; 49% of CSA members do not have children, 43% have one or two children; 46% of respondents evaluate their economic situation as good, 35% as average; 84% of CSA members have higher education, including 13% holding PhD degree.

Majority of respondents are involved in CSA activities for 1 year or less. It is obvious because of the novelty of this form of cooperation on the Polish market. They learned about the existence of such initiative through word-of-mouth channels – usually (43%)

from family and friends, sometimes (27%) via social media. As a main factor in joining the group they mention willingness to buy healthy food (65%) and possibility to shorten the delivery chain (27%). None of them mentioned social factors.

Only 14% of interviewed CSA members agreed that they had joined the group in some special moment of their life (e.g. childbirth, health deterioration/illness, transition to vegetarianism).

Most of the participants (60%) are engaged in CSA life in an active way (taking the lead, assuming some obligations) and 57% describe themselves as "social-worker". The respondents evaluate the cooperation with farmers well and CSA as a group average/well. Mean scores for some characteristics of the cooperation are shown in Table 1 (5-point Likert scale, where 1 = completely unsatisfied, 5 = very satisfied).

Table 1. Mean scores for characteristics of the cooperation within CSA group

Evaluated characteristic	Mean score
Place of products collection	4.46
Quality of products	4.41
Process of products collection	4.08
Product supply organization	3.89
Variety of products	3.84
Group organization	3.76

Source: Own research.

Every second respondent points some difficulties, shortcomings in the operation of a group, except of the factors reviewed previously. They were pointing out: no group organizer, failure to comply with the CSA rules and procedures, the reluctance in taking rosters, discrepancies between vegetables listed versus actually delivered, no possibility of individual composition of the package, lack of commitment of some group participants, the lack of understanding of the concept. Surprisingly, 65% of respondents do not want more formalization/structuring of the group (e.g. the board, association etc.) what – theoretically – could help to overcome the mentioned problems.

Fifty one percent of CSA groups organize integration, social gatherings for their members. Among the ones that do not practice it, 42% of members are not interested in changing it.

CSA members agree that computers greatly enhance the work of a CSA. Regular email communication is being used coordinate products collection, but also to organize informal meetings or send recipes.

Promotion of CSA initiatives takes advantage of free media outlets whenever possible. Promotion is being realized through related venues such as health food stores and farmers' markets, printed materials such as brochures and flyers, web pages, webinars and social media.

After the season (it usually lasts from May through October) the CSA members are trying to organize meeting summarizing the activities from the year, to discuss and iron out any problems before the next season.

CONCLUSIONS

In contrast to conventional farming, CSA promotes a sustainable and diversified pattern of regional and local production with closer connections between farmers and consumers, and with a high care for health and environment. CSA does not only demand food-security but also food sovereignty. Putting these high aspirations into practice takes endurance and dedication especially if the initiatives work without external support. As CSA has an inherently local approach, it is not surprising that many initiatives have only limited capacities for structural advancement of the concept but rather focus on consolidating their economic organism in their locality.

Farmers' markets and CSAs have grown dramatically in number and size over the past 10–20 years [Feenstra et al. 2003, Varner and Otto 2008]. They have been an important opportunity for producers to develop business and marketing skills, and they play a major role in the creation of more localized food systems [Gillespie et al. 2007]. Although CSAs currently only serve a small proportion of the consumer food market, the CSA model offers an alternative approach to mainstream marketing channels for producers and consumers in some regions.

Concepts like CSA can achieve many different (sometimes contradictory) ends. CSAs have been envisioned as vehicles to build community, preserve local food production systems, protect the environment, and provide for the poor. Perhaps unstated is the implication that farming as a business should support a middle-class lifestyle.

Many people see a loss of control over their own food supply. Superstore prices have already begun to reflect rapidly rising transportation costs, which leads to questions about the long-term sustainability of a food system based solely on comparative advantage and low-cost energy.

It is hard to generalize CSA because big differences between and within countries still exist and the priorities of the various CSA project activists have a high influence on the form of the different CSA initiatives.

The following points are important to understand the different prevalence of CSA in their respective regions:

– interest in fresh regional food and food quality (food culture in the various countries);
– publicity and communication of the initiatives (advocating CSA rather undogmatically as a political project and economic alternative or simply promoting fresh regional food; dealing in certified organic food only etc.);
– spread of organic shops and box schemes;
– networking;
– connectedness with local, regional or national politics.

The main question seems to be if CSA in Europe can become a comprehensive concept with decentralize coverage in almost any region. Scope for making the idea more convenient certainly exists, e.g. through the use of modern communication technologies. The question is in how far this is wanted and in how far CSA can be seen as a "mainstream" concept.

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Streszczenie. W artykule opisano działania i specyfikę grup RWS (rolnictwo wspierane przez społeczność) jako jednej z form obserwowanego trendu związanego z tworzeniem różnego rodzaju nieformalnych, wzajemnych inicjatyw społecznych. Takie działania można zaliczyć do zrównoważonej konsumpcji. W artykule przedstawiono wyniki badań przeprowadzonych na grupach RWS działających w Polsce. Wyniki badania powinny przyczynić się do dyskusji. Dane z badań podstawowych połączono z analizą porównawczą. Badania pokazują, że projekty RWS różnią się znacznie i że istnieje wiele podejść w ramach tego ruchu.

Słowa kluczowe: RWS, rolnictwo wspierane przez społeczność, zrównoważona konsumpcja

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ASSESSMENT OF ECONOMIC DEVELOPMENT AND FOREIGN RELATIONS AS ILLUSTRATED BY THE CASE OF MERCOSUR MEMBER STATES

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Abstract. The aim of this paper is to assess the level of economic development and foreign relations of the countries forming the economic group Mercosur. Numerous economic indicators are used for the purpose of research and international comparisons. Most important are gross domestic product (GDP), national income, unemployment rate, inflation rate, foreign trade's and investments' share in GDP. Other measures, which are based on GDP, may be used for economic growth assessment. These are for example economy internationalization, activity level, openness and dependence and international competitiveness. After a brief introduction to the subject, the manner of calculating the indicators that are used for such an assessment more rarely is described. Then the indicators calculated for the current Mercosur member states are analysed.

Key words: economic growth, economic integration, Mercosur, Latin America, comparative country studies

INTRODUCTION

In comparative analyses, various measures are used for economy assessment. In international statistics, among numerous indicators, the following are considered most important [Kamerschen et al. 1991, Noga 1998, Kowalik 2003]:

- gross domestic product – GDP;
- national income;
- unemployment rate;
- inflation rate;
- foreign trade's share in GDP;
- investments' share in GDP.

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In addition to the four listed core and two auxiliary indicators used for economic growth assessment, other measures, which are based on GDP, may be employed. They include among others the following indicators:
- economy internationalisation;
- level of economic activity;
- openness and dependence;
- international competitiveness.

The indicators discussed will be used in this paper to assess the economic development level for the states that form Mercosur, in the 21^{th} century in particular. A detailed analysis of development level in the first decade of Mercosur's activity can be found in [Kowalik 2003]. This paper is based on the author's knowledge, generally available information, UNCTAD database and information from The World Factbook unless indicated otherwise. International organisations' data were used instead of national statistical offices' data in order to ensure comparability of data.

METHODOLOGY

There are three indicators that specify the level of economy internationalisation:

$$LI_1 = \frac{Ex}{GDP} \tag{1}$$

$$LI_2 = \frac{Ex + FDI}{GDP} \tag{2}$$

$$LI_3 = \frac{Ex + FDI + FPI}{GDP} \tag{3}$$

where: *LI* – level of internationalisation;
GDP – gross domestic product;
Ex – export (goods and/or services);
FDI – foreign direct investments;
FPI – foreign portfolio investments.

In large countries, where the domestic market and considerable natural resources enable production and disposal based on domestic factors, the level of internationalisation will be low. However, in the case of small yet highly developed countries, the level of internalisation will be high. It is difficult to imagine a small country with specialised production with the assumption that it is intended exclusively for the internal market. All this is referred to in absolute terms. In this perspective, foreign trade turnover of large countries is many times as high as small countries' turnover. Countries with a low level of internationalisation (10–20%)[1] include Japan and the United States. Countries with a high

[1] Depending on which of the three above-mentioned indicators is used.

level of internationalisation (90–100%)[2] include Luxembourg and Hong Kong. Between them, there are other countries, among others Poland, with the level of internationalisation of approximately 45–55%[3].

The indicators of prosperity (*Ip*), consumption (*Ic*) and poverty (*Ipv*) can also be applied for the purpose of a synthetic comparison of the level of economic activity [Siedlecki 1993]. In the case of developing countries which face temporary inflation-related difficulties applying the indicator of poverty appears to be rather inefficient. Large disparities between inflation rate and unemployment rate blur differences when interpreting results[4]. The indicators are calculated in the following manner:

$$Ip = \frac{GDP_j}{\overline{GDP}} \tag{4}$$

$$Ic = Ip \cdot Cs \tag{5}$$

$$Ipv = i + u \tag{6}$$

where: Ip – indicator of prosperity;
Ic – indicator of consumption;
Ipv – indicator of poverty;
$\overline{GDP}$ – average GDP;
Cs – consumption's share in GDP;
i – inflation;
u – unemployment rate;
j – country;

Average GDP can be adopted as the average value for the group of the examined countries or for the region of which the countries are part.

Studying relations between economy openness and the real GDP growth is of crucial importance. Openness contributes mainly to: absorbing new technologies, creating premises for economies of scale, and enabling higher specialisation of the country through the effects of learning by doing [Olszewski 2001].

The relation of export and import with GDP is the indicator of economy openness to the world calculated according to the following formula:

$$Io = \frac{\frac{1}{2}(Ex + I)}{GDP} \cdot 100 \tag{7}$$

where: Io – indicator of economy openness;
I – imports (goods and/or services).

[2] As described above.
[3] As described above.
[4] They are calculated but will not be analysed for the mentioned reason.

The indicator that informs about the level of economic dependence of a given country on foreign countries is the indicator of import dependence, which is calculated in the following manner:

$$Id = \frac{I}{GDP} \cdot 100 \tag{8}$$

where: Id – indicator of import dependence.

Other measures that can be used for assessing economic development are international competitiveness indicators, which include coverage ratio in value terms and relative coverage ratio [Olszewski 1995]:

- Coverage ratio in value terms (*crv*). Its growth indicates improvement in the competitiveness

$$crv = \frac{Ex}{I} \tag{9}$$

- Relative coverage ratio (*rcr*) is the relation between the coverage ratio for a given country and the average coverage ratio for a group of countries. Most frequently, these are trading partners. Changes in the indicator inform about processes of economic growth in the country in relation to other countries, its deceleration or acceleration

$$rcr = \frac{crv_j}{\overline{crv}} \tag{10}$$

RESULTS

Mercosur – **Southern Common Market** (Spanish – **Mercado Común del Sur – Mercosur**) is an regional economic organisation brought to life on 26 March 1991 by the Treaty of Asunción signed by presidents of Argentina, Brazil, Paraguay and Uruguay. The Protocol of Ouro Preto of 1994 legitimised Mercosur as a legal entity under international law. The organisation operated as a common market. In 1995, it became a customs union. In June 2012, Paraguay's membership was suspended due breaching the democratic clause[5]. On 31 July 2012, Venezuela became a new member state, and on 7 December 2012, Bolivia acquired the status of an acceding member. In order to assess economies of the individual states, the same statistical databases were used to ensure comparability of data.

Argentina benefits from rich natural resources, the export-oriented agricultural sector, differentiated industrial base and a highly literate population [The World Factbook]. In the 20th century, the country experienced recurring economic crises, permanent budget and current account deficits, high inflation, growing external debt and outflow of foreign

[5] As a result of impeachment of President Fernando Lugo.

capital. The deep crisis, increase in external debt, as well as unprecedented withdrawal of deposits from banks culminated in 2001 in the most serious economic, social and political crisis in the country's history. In 2002, the economy experienced decrease in the real GDP growth by 10.9% (http://unctadstat.unctad.org/EN) and saw almost 60% of the population living below the poverty line [The World Factbook]. The reforms initiated by President Duhalde and the new reforms introduced by President Kirchner resulted in resumption of economic growth amounting to ca. 8.5% between 2003 and 2008 and decrease in unemployment rate, which remained at the relatively low level of 7.2% in the period 2011–2012 (Table 1). After the presidency was assumed by the wife of the former president in 2007, the rapid economic growth of the previous years started to decelerate in the following year (6.8%) and almost completely stopped in 2009 (0.9%). This resulted from decrease in export, which arose from the government's policy and the global economic recession. In 2010, the economy was back on the road to growth (9.2%). The following year also brought high growth (8.9%) – Table 1. Fiscal and monetary policy aimed at retaining inflation below 10%, state interventionism and both formal and informal import restrictions contributed to decrease in the GDP growth rate dynamics to 1.9% in 2012 (Table 1).

The level of internationalisation of Argentina's economy measured by three indicators was increasing until 2007. The global crisis had its repercussions also in this country, which is reflected by decrease in the three indicators. The largest decrease is noticeable in the case of the third indicator. This is caused by outflow of both portfolio and direct investments from this country.

Table 1. Economic development indicators for Argentina (percentage value)

Specification	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
LI_1	7.6	9.7	11.0	25.7	25.5	25.3	25.0	21.6	22.1	22.2	20.2
LI_2	8.9	11.9	14.7	28.5	28.1	27.7	28.0	22.9	24.2	24.4	22.8
LI_3	13.2	13.7	14.2	27.6	31.7	30.4	25.8	21.9	26.7	24.0	22.8
Ip	187.8	136.1	157.3	88.3	84.2	82.5	83.5	79.8	74.4	80.6	89.2
Ic	157.3	112.2	132.9	64.1	59.9	59.0	60.8	58.9	55.6	60.6	67.7
Ipv	177.5	22.2	14.1	20.2	21.0	17.3	16.4	14.9	18.5	16.7	17.2
Io	6.8	9.9	11.3	22.4	22.3	22.8	22.9	18.8	20.3	21.0	18.9
Id	6.1	10.1	11.6	19.1	19.2	20.3	20.7	16.0	18.5	19.8	17.7
crv	124.4	95.9	94.5	134.6	132.7	124.2	120.8	134.9	119.1	112.4	114.5
rcr	112.4	100.8	95.5	102.8	105.7	108.0	105.7	122.9	109.0	102.1	102.3
Real GDP growth rate	10.5	–2.8	–0.8	9.2	8.5	8.7	6.8	0.9	9.2	8.9	1.9
CPI	171.7	3.4	–0.9	9.6	10.9	8.8	8.6	6.3	10.8	9.5	10.0
Unemployment rate	5.8	18.8	15.0	10.6	10.1	8.5	7.8	8.6	7.7	7.2	7.2

Source: Own work based on UNCTAD and the World Bank databases, and Balance of Payments Statistics Yearbook Part 1: Country Tables. IMF different editions.

The indicator of economy openness to the world increased from 6.84% in 1991 to 22.9% in 2008. A similar pattern was noticed for the indicator of economic dependence on foreign countries, which was increasing until 2008, when it reached 20.7%. These two indicators also show the impact of crisis phenomena on Argentina's economy. The coverage ratio in value terms dropped first from 124.4% in 1991 to 94.5% in 2000, which proves Argentina's loss of competitiveness, but then it started to grow and reached the level of 134.9% in 2009. This proves increase in competitiveness of Argentina's economy. Between 2010 and 2012 we can see again a decrease in competitiveness of Argentina's economy. Between 2005 and 2012 the relative coverage ratio remains at the stable level of ca. 105%, which indicates that competitiveness in relation to other members in the group is retained. Only 2009 diverges from this average, which could indicate economic growth in the country in comparison to its major trading partners.

Brazil is characterised by large and well developed agriculture, mining, production and service sectors, as well as by the rapidly developing middle class. Brazil's economy exceeds all South American economies and marks its presence on global markets [The World Factbook]. Deceleration of the short-term real GDP growth after 1994, which was connected with trade liberalisation, can be associated with the introduced Real Plan (Spanish Plano Real) [Brazil… 2000] and the focus on reducing the inflation rate. The problems of 1998 were caused by the global crisis and the national currency devaluation at the beginning of 1999, and in 2001 – by the crisis in Argentina, its major trading partner. At the end of the 1980s and at the beginning of the 1990s, high inflation deterred economic and investment activities. Between 1990 and 1993, inflation amounted from ca. 470% to more than 2900%. In June 1994, the plan was introduced, which – in combination with trade liberalisation – brought about decrease in inflation. The crisis of the early 1999 triggered Brazilian Real's devaluation by 50% and caused increase in inflation to 8.9%. Despite temporary problems, Brazil continued to implement the policy of low inflation, that is below 10%. Since 2003, Brazil has improved its macroeconomic stability, developed foreign exchange reserves, reduced its indebtedness profile by approximating it to the national debt. In 2008, Brazil became a net foreign creditor. After a fairly significant economic growth between 2004[6] and 2008, which was from 3.2% in 2005 to 6.1% in 2007, Brazil experienced the impact of the global crisis. Its economy went into a short recession in 2009, which caused decrease in real GDP by 0.3%. Brazil was one of the first so-called emerging markets to be back on the road to economic growth. In 2010, the rate of economic growth amounted to 7.5%, which was the best result for over 20 years (Table 2). Growing inflation resulted in a response from the authorities, which took actions to cool down the economy. The measures and the worsening international economic situation caused growth deceleration in 2011 and 2012. The unemployment rate has been at the lowest level since 1997[7]. The high interest rates in recent years made Brazil attractive for foreign investors, first in the form of portfolio investments (the inflow amounted to USD 46.2 billion in 2009 and USD 67.8 billion in 2010) and subsequently, in the form of direct investments (USD 48.5 billion in 2010, USD 66.6 billion in 2011, and USD 65.3 billion in 2012) (unctadstat.unctad.org/EN). Such a large capital inflow led to appreciation of

[6] In 2004 it was 5.7% (unctadstat.unctad.org/EN).
[7] It amounted to 6% only between 1992 and 1996.

domestic currency, lower competitiveness of the Brazilian economy (Table 2 see *crv* and *rcr*), and forced the authorities to intervene in the currency market and to raise taxes on certain types of foreign capital. What was retained includes: the inflationary target, floating exchange rate and budgetary constraints.

The level of internationalisation of the Brazilian economy measured by means of the three indicators was increasing from the mid-1990s to 2004. Then it started to drop, reaching its minima between 2009 and 2011, which was followed by increase in all three indicators. The growth in LI_1 is small, whereas in the case of indicators LI_2 and LI_3, which allow for direct and portfolio foreign investments, the growth is quite significant. The indicator of economy openness to the world, after a small growth between 1991 and 1993, reached its minimum in 1996 (7.1%). By 2004, it had increased to 14.2%. During the next three years it was lower, and it increased again to 13.6% in 2008. In 2012, after three years, when it amounted to 11–12%, it equals 13% (Table 2). The indicator of the Brazilian economy dependence on foreign countries increased from ca. 8% in the first half of the 1990s to 13.5% in 2012.

Table 2. Economic development indicators for Brazil (percentage value)

Specification	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
LI_1	10.2	6.8	10.0	15.2	14.4	13.5	13.8	11.2	10.9	11.9	12.6
LI_2	10.5	7.4	15.1	16.9	16.2	16.0	16.5	12.8	13.2	14.6	15.4
LI_3	11.6	8.7	16.4	17.7	17.0	19.6	16.5	15.6	16.3	15.3	16.2
Ip	339.2	405.4	356.7	425.0	427.9	429.7	420.1	418.9	430.8	445.7	421.2
Ic	269.6	338.5	297.9	340.8	343.8	344.4	332.4	344.9	348.1	361.0	353.0
Ipv	442.8	72.0	16.5	16.2	12.6	11.7	12.8	13.2	12.9	13.3	12.3
Io	9.2	7.5	10.6	13.2	12.7	12.5	13.6	11.0	11.2	12.0	13.0
Id	8.2	8.2	11.2	11.1	11.1	11.5	13.3	10.8	11.4	12.2	13.5
crv	123.7	83.2	89.2	137.2	130.6	117.0	103.7	103.3	95.6	97.4	93.1
rcr	111.7	87.4	90.1	104.8	104.0	101.7	90.7	94.1	87.5	88.5	83.1
Real GDP growth rate	1.0	4.2	4.3	3.2	4.0	6.1	5.2	–0.3	7.5	2.7	0.9
CPI	432.8	66.0	7.0	6.9	4.2	3.6	5.7	4.9	5.0	6.6	5.4
Unemployment rate	10.0	6.0	9.5	9.3	8.4	8.1	7.1	8.3	7.9	6.7	6.9

Source: See Table 1.

The hallmark of the Paraguayan economy is the large informal private sector characterised by re-export of imported consumer goods to its neighbouring countries, as well as by a considerable number of microenterprises and street vendors in towns. A significant part of the society, mainly from rural areas, earn a living by pursuing agricultural activities, often at the subsistence level. Due to the fact that the informal sector is large, detailed economic data are difficult to obtain [The World Factbook].

The Paraguayan real GDP used to increase by 3% annually until 1997. After the financial crises of 1995 and 1997, which required a number of interventions by the central bank, what occurred was reduction of the available funds for financing production, which impeded the country's economic growth. It seems that the country regained its economic stability and recorded the economic growth of 2.1% in 2001. The first democratic government was able to solve the problem of inflation and government deficit, increase foreign exchange reserves, and stabilise the economy. The second government achieved an even higher price stability and further reduced inflation. The annual inflation rate was reduced from about 40% in 1990 to 18.2% in 1993 and 6.9% in 1997. The following year saw growth to 11.6%. The data on inflation in the 21st century demonstrate high variability. However, the country faces serious problems with employment, which has been decreasing since 1998, leading to an increased number of the unemployed. The highest unemployment rate was observed in 2002 – 10.7%. Since 2005 it has been maintained at the level of 6%. The Paraguayan economy started to grow rapidly between 2003 and 2008. This resulted from the global increase in demand for goods, which was accompanied by high prices and good weather, which supported Paraguay's goods export expansion[8]. The drought which occurred there in 2008 caused decrease in agricultural export and economic slowdown before the global recession. The economic growth was –3.8%. Fiscal and monetary stimulus packages were introduced and already in the following year the economic growth amounted to 15%. It slowed down to 3.8% in 2011, and it amounted to –1.8% in 2012. This resulted from exhaustion of stimuli as well as droughts and outbreaks of foot-and-mouth disease, which led to decrease in export of beef and other agricultural products. Political insecurity, corruption, limited structural reforms and infrastructure scarcity are the main obstacles to the long-term economic growth.

The level of internationalisation of the Paraguayan economy measured with the three indicators has increased. The growth has been observed for all three indicators LI_1, LI_2 and LI_3[9]. The small differences between the first and the second indicator result from the small volume of foreign direct investment in relation to the export of goods and services.

The indicator of economy openness to the world increased from 35.52% in 1991 to 62% in 1995, and then started to decrease to 41.4% in 2001. Subsequently, it started to grow and reached 50–55% in the period 2002–2011. In 2012, it increased to 62.7%. A similar pattern was observed for the indicator of dependence of the Paraguayan economy on foreign countries (Table 3).

The coverage ratio in value terms decreased from 102.1% in 1991 to 82.2% [Kowalik 2003] in 1997, which proves decrease in competitiveness of the Paraguayan economy. Then the competitiveness of the economy increased slightly and it returned to the downward trend in 2005 (Table 3). The relative coverage ratio informs about decrease in Paraguayan economic growth in relation to the major partners in the group between 1998 and 2006 and subsequently, about increase between 2007 and 2012.

What is characteristic of Uruguay's open market economy are the export-oriented agricultural sector, well-educated workforce and high social expenditure [The World Factbook]. As the consequence of financial difficulties in the 1990s and between 2000

[8] It is one of the largest soya producers in the world.
[9] Due to the lack of data on portfolio investments $LI_2 = LI_3$.

Table 3. Economic development indicators for Paraguay (percentage value)

Specification	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
LI_1	44.0	59.5	41.2	53.6	56.1	54.1	53.0	51.1	54.5	53.8	67.2
$LI_2 = LI_3$	45.5	60.8	42.6	54.1	57.1	55.8	54.2	51.7	55.8	54.7	68.7
Ip	5.5	4.3	3.9	3.6	3.6	3.8	4.3	3.7	3.7	4.1	4.2
Ic	3.7	3.1	3.0	2.6	2.7	2.9	3.4	3.0	3.0	3.4	3.6
Ipv	30.7	16.8	16.6	12.6	16.3	13.7	15.8	9.1	10.4	13.9	10.0
Io	43.6	62.0	43.8	54.6	57.2	54.3	54.5	51.6	56.4	55.2	62.7
Id	43.1	64.5	46.3	55.6	58.3	54.4	56.0	52.1	58.2	56.7	58.2
crv	102.1	92.4	89.0	96.4	96.2	99.5	94.7	98.0	93.6	94.9	115.6
rcr	92.2	101.0	89.9	73.6	76.6	86.5	82.8	89.3	85.7	86.2	103.3
Real GDP growth rate	2.5	5.4	–3.3	2.9	4.3	6.8	5.8	–3.8	15.0	3.8	–1.8
CPI	24.2	13.4	9.0	6.8	9.6	8.1	10.2	2.6	4.7	8.3	3.7
Unemploy-ment rate	6.5	3.4	7.6	5.8	6.7	5.6	5.6	6.5	5.7	5.6	6.3

Source: See Table 1.

and 2003, the economic growth was small or negative. It was not until the period 2004––2008 that higher economic growth, amounting to 6% annually on average, was noticeable. The global financial crisis impeded Uruguay's intensive growth to 2.4% in 2009. Nevertheless, Uruguay was able to avoid recession and retain a positive growth rate, mainly because of increased public expenditure and investment. In 2010, the GDP growth was 8.9%. During two subsequent years it dropped to 5.7 and 3.8%, respectively. This, in turn, was caused by another deceleration of the global economy and the main partners within the Mercosur framework: Argentina and Brazil. Uruguay strives for expanding trade not only within Mercosur, but also outside this group.

The level of internalisation of the Uruguayan economy measured by the three indicators for the period 1991-2001 remained at a low level of ca. 18%. At the beginning of the 21st century, the indicators started to grow. Indicators LI_1 and LI_2 reached their maximum in 2008, and indicator LI_3 in 2006. It was caused among others by increased inflow of foreign investments, both direct and portfolio ones, but also by the abovementioned economic growth and increased export and import. During the next years, the level of internalisation decreased slightly (Table 4). The indicator of economy openness to the world remained at the level of 16–18% between 1991 and 2001 and rose rapidly in 2004 to reach its maximum of 32.4% in 2008. In the period 2009–2012, it remained at the level of 27% with the deviation of 1% in individual years (Table 4).

The indicator of dependence of the Uruguayan economy on foreign countries has a very similar pattern. The coverage ratio in value terms decreased between 1991 and 2001 from 111.9 to 87.7%, which proves lower competitiveness of the Uruguayan economy. Uruguay saw increase in competitiveness between 2002 and 2004. In the following years, there was a slight downturn trend, which indicated another slow decrease in competitiveness of the Uruguayan economy. The relative coverage ratio remained stable in

Table 4. Economic development indicators for Uruguay (percentage value)

Specification	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
LI_1	19.8	16.5	16.0	29.3	29.6	29.6	30.9	28.3	26.9	27.2	26.6
LI_2	20.1	17.2	17.2	34.2	37.2	35.3	37.8	33.3	32.7	32.6	32.1
LI_3	20.6	18.5	18.5	35.5	46.3	39.4	36.1	33.0	34.5	34.3	36.2
Ip	11.0	11.2	12.6	8.4	7.7	7.4	7.7	7.9	7.9	8.4	9.2
Ic	9.0	9.5	11.2	6.7	6.3	6.0	6.3	6.3	6.4	6.8	7.6
Ipv	113.0	52.2	14.5	13.6	17.0	17.3	15.5	14.4	13.5	14.1	14.1
Io	18.8	16.6	17.2	28.2	29.8	29.3	32.4	27.6	26.3	27.2	28.0
Id	17.7	16.7	18.4	27.0	30.0	28.9	34.0	26.9	25.7	27.2	29.4
crv	111.9	98.3	87.3	108.4	98.5	102.3	90.7	105.2	104.9	100.0	90.6
rcr	101.1	103.3	88.2	82.8	78.4	89.0	79.4	95.8	96.1	90.9	81.0
Real GDP growth rate	3.2	–1.5	–1.9	7.5	4.1	6.5	7.2	2.4	8.9	5.7	3.8
CPI	102.0	42.2	4.8	4.7	6.4	8.1	7.9	7.1	6.7	8.1	8.1
Unemployment rate	11.0	10.0	9.7	8.9	10.6	9.2	7.6	7.3	6.8	6.0	6.0

Source: See Table 1.

the 1990s, when it amounted to 105%, but decreased to 80% in 2006 and 2008, which indicated lower competitiveness of the Uruguayan economy in relation to the group's member states. Competitiveness measured with this indicator grew to 96% in 2009 and 2010, but it was followed by another decrease, to 81% in 2012. At the moment when Mercosur was established, inflation in Uruguay amounted to 102% and was reduced to 42.2% in 1995 and to 4.4% in 2001. Due to the crisis in Argentina, inflation rose between 2002 and 2004 and reached 19.4% in 2003 (unctadstat.unctad.org/EN). It has remained stable, low and it has not exceeded 8.1% since 2005. Unemployment rate, which fluctuated between 7.6 and 11.3% in the period 1991–2008 was reduced to 6% in 2011 and 2012 (Table 4).

Venezuela remains strongly dependent on oil revenues [The World Factbook]. In the mid-1990s, inflation amounted to 50–60% and reached peak in 1996, which amounted to 99.9%. In 1994, a bank crisis occurred, contributing to the GDP decrease by 2.3%. In 1999, there was another drop in real GDP growth by 6% (unctadstat.unctad.org/EN). After H. Chavez came to power that year, the economy accelerated to 3.7 and 3.4% in 2000 and 2001, respectively. The significant recession in the period 2002–2003 caused by low crude oil prices, coup d'état attempt, strikes as well as capital outflow and foreign investors' reluctance caused decrease in GDP by 8.9 and 7.8%, respectively. As a result of increased oil prices and growing government expenditure, the economy rapidly accelerated and reached growth of 18.3% in 2004. The following three years demonstrated the GDP growth by 10.3, 9.9 and 8.8% (Table 5). In 2003, when H. Chavez imposed strict currency checks, which were supposed to prevent capital withdrawal, a number of currency devaluations took place, which disturbed the economy [Mander 2013]. Price controls, expropriations and other governmental policies brought about shortages of food and other products, including medical products [Venezuela's… 2011]. Venezuela is still facing high inflation. In the 21st century, except for years 2000–2001 and 2005–2007, it has amounted to more than 20%, and in 2003 and 2008 it was more than 30% (Table 5). The rapid decrease in crude oil prices in 2008 caused recession in the period 2009–2010. Another increase in crude oil prices and government expenditure helped stimulate the GDP growth in 2011 and 2012 to 4.0 and 5.1%, respectively.

Table 5. Economic development indicators for Venezuela (percentage value)

Specification	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
LI_1	31.7	27.7	29.6	39.2	36.6	31.2	30.8	18.2	17.2	30.0	26.2
LI_2	32.1	29.0	33.6	41.0	36.3	31.8	31.3	17.5	17.6	31.2	27.0
LI_3	32.8	28.0	31.8	43.2	34.1	33.6	31.3	19.1	18.3	32.1	28.1
Ip	51.2	39.5	64.8	70.1	72.1	72.4	80.2	85.2	79.2	56.8	71.0
Ic	39.0	30.2	41.6	40.5	42.3	46.1	50.8	65.2	53.1	37.9	50.8
Ipv	43.7	70.1	29.4	27.4	23.0	26.2	38.3	36.4	37.7	35.4	28.9
Io	29.1	25.1	23.9	29.7	29.1	27.8	25.4	17.2	15.1	24.9	23.3
Id	26.5	22.6	18.2	20.2	21.5	24.5	19.9	16.2	13.1	19.8	20.4
crv	119.7	122.8	163.0	194.4	169.8	127.2	154.4	112.1	131.0	151.7	128.4
rcr	108.2	129.0	164.7	148.5	135.2	110.6	135.1	102.1	120.0	137.8	114.8
Real GDP growth rate	9.7	4.0	3.7	10.3	9.9	8.8	5.3	–3.2	–1.5	4.0	5.1
CPI	34.2	59.9	16.2	16.0	13.7	18.7	31.4	28.6	29.1	27.1	21.1
Unemployment rate	9.5	10.2	13.2	11.4	9.3	7.5	6.9	7.8	8.6	8.3	7.8

Source: See Table 1.

The indicators of the level of internationalisation, which remained at the average level of ca. 30% between 1991 and 2002 increased to 40% in 2005. Subsequently, they decreased to below 20% (2009–2010). In 2011, they returned to the trend of the period 1991–2002.

The direction taken by H. Chavez with regard to the state's political system resulted in the indicator of openness and the indicator of dependence continuing their downward trends. The coverage ratio in value terms, except for years 2002–2005, is at a similar stable level, which proves that this country's economic competitiveness does not change. The economic competitiveness of the country grew only in the mentioned period 2002–2005. The relative coverage ratio maintains its stable level of ca. 130%, which indicates that competitiveness has been retained in relation to other countries in the group.

Bolivia is a country that is rich in natural resources and its strong economic growth is attributed to export of natural gas and zinc. However, the country continues to be one of the least developed in South America. This results from the state's policy, which discourages from investing and impedes economic growth. After the financial crisis of the early 1980s, the implemented reforms stimulated private investments and economic growth as well as they reduced poverty in the 1990s. The period between 2003 and 2005 was characterised by political instability, racial tensions and protests against natural gas export. The global recession decelerated the GDP growth to 3.9% in 2009. High prices of goods since 2010 have sustained a high GDP growth (from 4.1 to 5.2%) and large trade surpluses.

The country had been troubled by high inflation from the 1970s. The highest inflation was recorded in 1985, when it amounted to 11,749.6%. Fiscal and monetary reforms reduced the inflation rate to a one-digit value in 1993 (8.5%). After a slight growth to 12.4% in 1996, inflation was decreased and has ever since (except for 2007, 2008 and 2011) has been below 5%. The unemployment rate was reduced from the average level of 4.8% in years 1991–2007, to 2.9% in 2008, and to 3.2–3.4% in the following years (Table 6).

Table 6. Economic development indicators for Bolivia (percentage value)

Specification	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
LI_1	17.2	18.4	17.5	34.3	38.0	37.8	42.1	31.3	34.8	38.1	44.5
$LI_2 = LI_3$*	19.0	23.9	26.3	31.3	40.4	40.6	45.2	33.8	38.1	41.7	48.4
Ip	5.3	3.5	4.6	4.6	4.5	4.1	4.2	4.5	4.0	4.3	5.1
Ic	4.8	3.2	4.2	3.8	3.5	3.2	3.2	3.6	3.0	3.2	3.7
Ipv	25.7	15.5	9.4	10.8	9.6	13.9	16.9	6.7	5.8	13.0	7.8
Io	19.0	20.9	21.1	32.2	34.1	34.7	38.4	30.5	33.1	37.4	39.5
Id	20.9	23.4	24.7	30.0	30.2	31.6	34.7	29.8	31.3	36.7	34.4
crv	82.2	78.4	70.7	114.5	125.8	119.7	121.5	105.3	111.1	103.9	129.4
rcr	74.3	82.4	71.5	87.5	100.2	104.1	16.3	95.9	101.7	94.5	115.6
Real GDP growth rate	5.3	4.7	2.5	4.4	4.8	4.6	6.1	3.4	4.1	5.2	4.7
CPI	21.4	10.2	4.6	5.4	4.3	8.7	14.0	3.3	2.5	9.8	4.6
Unemploy-ment rate	4.3	5.3	4.8	5.4	5.3	5.2	2.9	3.4	3.3	3.2	3.2

*Lack of data on portfolio investments.

Source: See Table 1.

The level of internationalisation for the Bolivian economy between 1991 and 2012 increased by one and a half times – from nearly 20% to almost 50% (Table 6). The indicator of openness and the indicator of economy dependence presented similar patterns and increased from 20% to ca. 30%. The *crv* and *rcr* indicators demonstrate that competitiveness of the Bolivian economy has increased in the 21st century compared to the last decade of the 20th century.

CONCLUSIONS

Taking everything into account, it cannot be argued that a regional economic agreement will result in economic development. This can be illustrated by the countries that belong to Mercosur, in particular Argentina, which experienced another deep crisis at the beginning of the 21st century. The crisis had its impact not only on this country but also on other member states in the group, especially on the major trading partner – Brazil (the largest economy in the group). The global recession and other factors mentioned in the analysis also had an adverse influence on economic development of the other Mercosur member states. As for Argentina and Brazil, the indicators of the level of internationalisation are not high, which is proved by the fact that these are large countries and their natural resources enable production and disposal based on domestic factors. The indicators have higher values in the case of two other Mercosur founding members[10]: Uruguay and Paraguay. These are smaller countries, where partially specialised economic sectors dedicate their production to external markets. The global crisis has also brought about lower competitiveness of economies in this group. Mercosur membership has contributed to lower inflation, higher employment and reduced poverty, which was the case particularly in the first years of its activity. Also the indicator of openness of the economies to the world has improved.

Macroeconomic spillovers in this region arise mainly from large fluctuations of national economies related to crises.

The lack of any shared perspective on the role of Mercosur in growth of the individual economies hampers perceiving the integration project as a valuable and permanent economic undertaking, which could include particular national policies in the context of repeatable interactions within the group. Mercosur should be used for developing shared objectives and assumptions concerning growth strategies for individual economies which belong to this group.

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[10] The summary does not include Bolivia and Venezuela due to their short membership.

OCENA POZIOMU ROZWOJU GOSPODARCZEGO I POWIĄZAŃ Z ZAGRANICĄ KRAJÓW NA PRZYKŁADZIE CZŁONKÓW MERCOSUR

Streszczenie. W badaniach i porównaniach międzynarodowych wykorzystuje się wiele wskaźników gospodarczych. Najważniejsze z nich to produkt krajowy brutto (PKB), dochód narodowy, stopa bezrobocia, stopa inflacji, udział handlu i inwestycji w PKB. Do oceny wzrostu gospodarczego mogą być stosowane inne miary wykorzystujące PKB. Należą do nich między innymi wskaźniki internacjonalizacji gospodarki, poziomu aktywności, otwarcia i zależności oraz konkurencyjności międzynarodowej. Celem artykułu jest ocena poziomu rozwoju gospodarczego i powiązań z zagranicą krajów tworzących ugrupowanie gospodarcze Mercosur. Po krótkim wprowadzeniu do tematu przedstawiono sposób obliczania wskaźników rzadziej wykorzystywanych do takiej oceny, następnie dokonano analizy obliczonych wskaźników dla krajów będących obecnie członkami Mercosur.

Słowa kluczowe: wzrost gospodarczy, integracja gospodarcza, Mercosur, Ameryka Łacińska, badania porównawcze krajów

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EQUIPMENT WITH SOME APPLIANCES AND FACILITIES OF ENVIRONMENTAL PROTECTION IN VILLAGES (SPACE STUDY – 2013)

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Abstract. In the paper an attempt of assessment of equipment with some appliances and facilities of environmental protection in villages was made. The analysis was conducted taking into account division of country territory into voivodeships using methods of multi-dimensional comparative analysis. The final result of the study is voivodeships ranking and dividing voivodeships into three groups: of a high, average and low level of village environmentally friendly infrastructure. Attention was paid to relatively great span between the first group (group of the best equipment) and the third group – the worst in this respect.

Key words: ranking, object, diagnostics variable, synthetic variable, environmental protection

INTRODUCTION

Maintaining clean natural environment of the villages follows all-Poland environmentally friendly operations. It is a well-known fact that cleanliness of the environment constitutes national good that should be protected in rural areas as well. The efforts involve incurring expenses for appliances and facilities which are to provide all users with clean water, create separate places of storage of waste and rubbish and carry away impurities by subjecting them to filtration processes.

The main goal of the article is to assess the equipment of rural areas of different voivodeships in appliances and devices serving environmental purpose. Another objective is creation of the ranking arranging voivodeships from best equipped to the most poorly equipped with environmentally friendly rural infrastructure. The analysis presents the condition of the concerned phenomenon on 31 December 2013. This work constitutes a fragment of cycle of articles falling within the scope of issues of sustainable

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development, relates to issues of contamination of the environment and ecological actions [Kukuła 2014a] and waste management [Kukuła 2014b].

It should be assumed that environmentally friendly appliances and facilities of rural areas constitute a complicated issue [Kukuła 2000] that can be described by means of not one but several characteristics (variables). These variables were observed in all voivodeships, making collective evaluation of environmentally friendly rural infrastructure possible. Application of appropriate tools of multi-dimensional comparative analysis creates an opportunity of determining the difference between the most poorly equipped voivodeships with those occupying the highest position in the ranking. It is worth mentioning that similar analysis at the level of poviats was conducted by Dolata [2008]. Her analysis focused on ecological infrastructure in poviats of Wielkopolskie Voivodeship proved substantial diversity between objects.

Statistical data enabling comparative tests of voivodeships with regard to ecological infrastructure of Polish rural areas come from publications of the Central Statistical Office of Poland titled Ochrona Środowiska [Environmental Protection]. Environment 2014.

MATERIAL AND METHOD

Obtaining the ranking of voivodeships (interchangeably called objects) is not easy and consists of certain activities that should be performed. Key task in the procedure of construction of the ranking is to prepare selection of diagnostic variables, namely variables typical of the examined phenomenon. Selected variables create X-matrix:

$$X = [x_{ij}] = \begin{bmatrix} X_{11} & X_{12} & \dots & X_{1s} \\ X_{21} & X_{22} & \dots & X_{2s} \\ \dots & \dots & \dots & \dots \\ X_{r1} & X_{r2} & \dots & X_{rs} \end{bmatrix} \tag{1}$$

where: $i = 1, \dots, r$ (r – number of objects);
$j = 1, \dots, s$ (s – number of diagnostic variables).

Variability of features was defined by means of simple meter, being a quotient of extreme values of each of potential diagnostic variables:

$$I(X_j) = \frac{\max\limits_i x_{ij}}{\min\limits_i x_{ij}}, \quad \min_i x_{ij} > 0 \tag{2}$$

It was assumed that variable X_j is qualified to diagnostic variables if:

$$I(X_j) > 2 \ (j = 1, \dots, s) \tag{3}$$

From the perspective of ranking construction, specified in this way minimum level of variability of features seems to be sufficient.

Selected features have different sizes and usually different changes. For the purpose of standardization of their value and making them comparable, one of standardization procedures was used – method of zero unitarization. Possible applications and properties of this method were discussed in monograph [Kukuła 2000].

Diagnostic variables may be of various character, which results in influence on evaluation of complex phenomenon. If an increase of a features results in increased value of described phenomenon – these variables form a set of a positive variables (*S*). There exist such variables whose growth results in fall of value of complex phenomenon. These variables belong to a set of negative variables (*D*). Slightly less frequently (but it happens) we deal with variables that have optimum values. This may be one value or value interval. These variables form a set of nominants (*N*). The precursor in spatial research using multi-dimensional comparative analysis in Poland is Z. Hellwig. In his pioneer work [Hellwig 1968] introduced into subject literature a division of variables into positive variables and negative variables. The notion of nominants was introduced by T. Borys in 1978. In our research there are only features that are positive variables. Therefore, formula transforming original values of features into standardized features is as follows:

$$z_{ij} = \frac{X_{ij} - \min_i x_{ij}}{\max x_{ij} - \min_i x_{ij}} \qquad (X_j \in S) \tag{4}$$

provided that

$$Z_{ij} \in [0, 1] \tag{5}$$

Standardization of all features enables receiving synthetic variables (Q_i) characterizing the level of an examined phenomenon submitted in each of facilities. First, we accumulate values of regulated features for each object:

$$q_i = \sum_{j=1}^{s} z_{ij}, \qquad (i = 1, \ldots, r) \tag{6}$$

Successively we set the average value of regulated features and obtain synthetic variable (Q_i):

$$Q_i = \frac{1}{s} \sum_{j=1}^{s} z_{ij} \tag{7}$$

provided that $Q_i \in [0, 1]$

Synthetic variables constitute the basis for ranking construction. In ranking objects are ordered from the best to the worse.

After ordering facilities according to synthetic variable Q_i, they can be divided into any number of l groups smaller than *r* (the number of objects). In our study there are 16 objects (voivodeships), therefore division into 3 groups seems reasonable (l = 3). For this purpose, the following procedure should be used [Kukuła 2014c]:

1. Calculate range of synthetic variable $R(Q_i)$:

$$R(Q_i) = \max_i Q_i - \min_i Q_i \tag{8}$$

2. Identify the value (k) of division parameter:

$$k = \frac{R(Q_i)}{3} \tag{9}$$

3. Parameter value k is used for division of sets of objects into groups:
   - Group I (the highest level of complex phenomenon) – $Q_i \in (\max_i Q_i - k; \max_i Q_i]$;
   - Group II (medium level of complex phenomenon) – $Q_i \in (\max_i Q_i - 2k; \max_i Q_i - k]$;
   - Group III (low level of complex phenomenon) – $Q_i \in [\max_i Q_i - 3k; \max_i Q_i - 2k]$.

Presented procedure of objects division in generated ranking enables selecting three groups of voivodeships: of high, average and low level of ecological infrastructure.

SELECTION OF DIAGNOSTIC FEATURES

Selection of diagnostic variables for research on the equipment with appliances and facilities of environmental protection was conducted taking account three criteria:
- data availability;
- content usefulness;
- fulfillment of the requirement of the minimum the level of variability.

Set of features qualified as diagnostic variables contains six items. The six variables were recorded on 31 December 2013. The variables are positive variables:
- X_1 – capacity of collective waste water treatment facilities in m^3 per one agricultural holding;
- X_2 – number of individual waste water treatment facilities per 100,000 village inhabitants;
- X_3 – waste landfills-area in ha per 100,000 village inhabitants;
- X_4 – number of water treatment stations per 100,000 village inhabitants;
- X_5 – collective sewage network in km per 100,000 village inhabitants;
- X_6 – number of sewage connections to buildings in units per 100,000 village inhabitants.

All selected features fulfill condition of sufficient variability expressed with unevenness [I(X_j) > 2]. It is worth noting that the highest variability measured with measure (2) show the characteristics related to sewage treatment plants I(X_1) = 30.35 and I(X_2) = = 25.58. The lowest variability is shown by the characteristics X_6 and X_5 [(X_6) = 2.81 and I(X_5) = 6.56]. These are: number of sewage connections to the buildings and the length of collective sewerage network in km (both variables adjusted for 100,000 of village inhabitants).

RESULTS

For the purpose of regulating diagnostic features included in the Table 1, zero unitarization was used. Owing to the fact that all selected variables are positive variables, the following formula (4) was used for standardization. Standardization results are presented in Table 2.

Table 1. Values of diagnostic variables related to environmental protection of rural environment (31.12.2013)

Specification		X_1	X_2	X_3	X_4	X_5	X_6
Poland		1.292	820	11.35	46	525	8.48
Voivodeships	Dolnośląskie	2.766	700	15.98	40	617	9.48
	Kujawsko-Pomorskie	1.144	2066	19.29	48	532	7.17
	Lubelskie	0.263	1546	12.36	41	280	4.83
	Lubuskie	5.554	590	9.48	101	479	6.87
	Łódzkie	0.584	1206	10.23	54	283	6.17
	Małopolskie	1.282	458	2.81	10	465	7.79
	Mazowieckie	0.748	981	6.74	40	322	6.80
	Opolskie	3.869	474	15.70	26	562	11.12
	Podkarpackie	0.732	81	4.04	20	986	13.57
	Podlaskie	0.183	2072	1232	59	326	5.52
	Pomorskie	2.630	352	20.07	85	780	11.49
	Śląskie	2.429	429	4.18	13	473	9.98
	Świętokrzyskie	0.074	734	3.44	12	528	7.90
	Warmińsko-mazurskie	1.768	511	13.91	101	751	7.10
	Wielkopolskie	3.276	828	18.58	60	477	9.61
	Zachodniopomorskie	2.827	415	35.76	162	915	10.40
Quotient of extreme values		30.350	25.580	12.726	16.200	3.521	2.810

Source: Own elaboration on the basis of Environmental Protection. Environment 2014, CSOoP Warsaw, 2014, 468–469.

Another action is aggregation of standardized diagnostic features. In aggregation the same weight for each of the characteristics was adopted. The substantiation of such approach is the lack of information enabling determining weights of different diagnostic variables. In aggregation the following formula was used (6), which leads to obtaining standardized diagnostic variables for each voivodeship (q_i). Synthetic variables Q_i are arithmetic average of regulated features of each of 16 voivodeships (template 7). Values variables q_i and Q_i was presented in Table 2. Values of synthetic variable Q_i are the grounds for construction of the ranking of voivodeships owing to the state of rural environmentally friendly infrastructure on 31 December 2013. This ranking along with the division of voivodeships into three groups is presented in Table 3.

Table 2. Standarized values of diagnostic variables

Voivodeship	Z_1	Z_2	Z_3	Z_4	Z_5	Z_6	q_{and}	Q_{and}
Dolnośląskie	0.491	0.311	0.400	0.197	0.478	0.532	2.409	0.402
Kujawsko-pomorskie	0.195	0.997	0.500	0.250	0.357	0.268	2.567	0.428
Lubelskie	0.034	0.736	0.290	0.204	0	0	1.264	0.211
Lubuskie	1	0.256	0.202	0.599	0.282	0.233	2.572	0.429
Łódzkie	0.093	0.565	0.225	0.289	0.004	0.153	1.329	0.222
Małopolskie	0.220	0.189	0	0	0.262	0.339	1.010	0.168
Mazowieckie	0.123	0.452	0.119	0.197	0.060	0.225	1.176	0.196
Opolskie	0.693	0.197	0.391	0.105	0.400	0.720	2.506	0.418
Podkarpackie	0.120	0	0.037	0.066	1	1	2.223	0.371
Podlaskie	0.020	1	0.289	0.322	0.065	0.079	1.775	0.296
Pomorskie	0.466	0.136	0.524	0.493	0.709	0.762	3.090	0.515
Śląskie	0.430	0.175	0.042	0.020	0.274	0.589	1.530	0.255
Świętokrzyskie	0	0.328	0.019	0.013	0.352	0.351	1.063	0.177
Warmińsko-mazurskie	0.309	0.216	0.337	0.599	0.668	0.260	2.389	0.398
Wielkopolskie	0.584	0.375	0.479	0.329	0.279	0.547	2.593	0.432
Zachodniopomorskie	0.502	0.168	1	1	0.901	0.637	4.208	0.701

Source: Own elaboration on the basis of data in Table 1.

Table 3. Ranking of voivodeships according to equipment with some appliances and facilities for environmental protection in 2013

Place in the ranking	Voivodeship	Q_{and}	Groups
1	Zachodniopomorskie	0.701	I (1 voivodeship)
2	Pomorskie	0.515	
3	Wielkopolska	0.432	
4	Lubuskie	0.429	
5	Kujawsko-Pomorskie	0.428	Group II (8 voivodeships)
6	Opolskie	0.418	$\overline{Q}_{II} = 0.424$
7	Dolnośląskie	0.402	
8	Warmińsko-mazurskie	0.398	
9	Podkarpackie	0.371	
10	Podlaskie	0.296	
11	Śląskie	0.255	
12	Łódzkie	0.222	
13	Lubelskie	0.211	Group III (7 voivodeships)
14	Mazowieckie	0.196	$\overline{Q}_{III} = 0.218$
15	Świętokrzyskie	0.177	
16	Małopolskie	0.168	
Quotient of extreme values of synthetic variable – I (Q_{and}) = 4.173			

Source: Own elaboration on the basis of Table 2.

Group I, the one with the best developed ecological infrastructure, comprised only one object – the Zachodniopomorskie Voivodeship. Comparison of synthetic variables suggests that the voivodeship dominates over the rest of voivodeships (see Table 3).

The most numerous group II includes eight voivodeships. These are the following voivodeships (in ranking order): Pomorskie, Wielkopolskie, Lubuskie, Kujawsko-pomorskie, Opolskie, Dolnośląskie, Warmińsko-mazurskie and Podkarpackie. These objects are characterized by average level of equipment of appliances and facilities of environmental protection.

Group III consists of objects of relatively low development of environmentally friendly infrastructure and it includes seven voivodeships. These are the following voivodeships: Podlaskie, Śląskie, Łódzkie, Lubelskie, Mazowieckie, Świętokrzyskie and Małopolskie. Voivodeships belonging to this group and especially those occupying the last two places in the ranking (Świętokrzyskie and Małopolskie) have significantly worse level of environmentally friendly infrastructure.

Better understanding of spatial setting of the phenomenon shall be provided by the map presented in Figure 1.

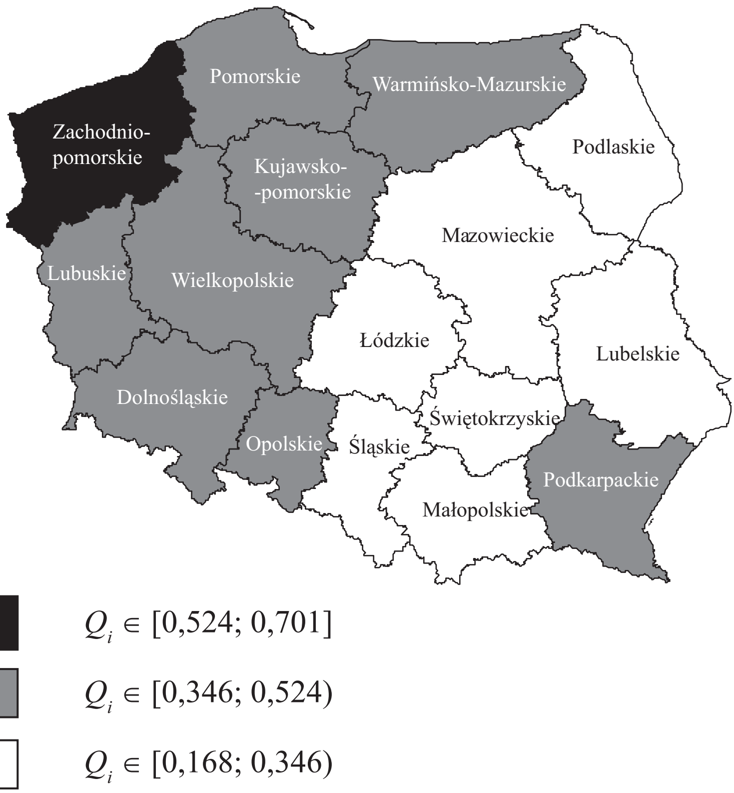

Fig. 1. Groups of voivodeships: breakdown by equipment with appliances and facilities for the rural environment protection on 31.12.2013

Source: Own elaboration on the basis of Table 3 and database of GUS (www.stat.gov.pl/bdl).

CONCLUSIONS

Completed study enables formulating several remarks and conclusions.

1. Equipment of the Polish village with appliances and facilities for environmental protection differs depending on voivodeships. Best equipped with appliances and facilities for rural environment protection are voivodeships located in the western and northern part of Poland. Rural areas of eastern, middle and southern part of Poland are relatively less effectively equipped with environmentally friendly infrastructure. The exception is the Podkarpackie Voivodeship, qualifying for a group of medium level of equipment of villages with appliances and facilities of environmental protection.
2. There are large differences between the voivodeships of Group I and objects of the end of the ranking [I (Q_i) = 4.173]. Condition of the examined infrastructure of the Zachodniopomorskie Voivodeship exceeds more than four times condition of infrastructure of Małopolskie (the last place in the ranking).
3. Łódź and Śląskie Voivodeships affiliation to last, group III of the worse equipment with environmentally friendly village infrastructure is surprising. It is worth mentioning the fact that listed voivodeships belong to major destroyers of the natural environment in Poland [Kukuła 2014b]. Śląskie Voivodeship has the first and Łódzkie Voivodeship the second place on the list of voivodeships most strongly polluting the environment.
4. Research proved existence of relatively deep differences between the voivodeships in terms of flow capacity of collective waste water treatment facilities and the number of individual sewage waste water treatment facilities (see Table 1). Voivodeships needing more numerous or more effective waste water treatment facilities are (starting from least effective): Świętokrzyskie, Podlaskie, Lubelskie, Łódzkie, Podkarpackie and Mazowieckie. Voivodeships poorly equipped with individual waste water treatment facilities are: Podkarpackie, Pomorskie, Zachodniopomorskie, Śląskie and Małopolskie.
5. Improvement in ecological infrastructure in rural areas will soon determine their development. It is worth emphasizing that analysis similar to the one presented in this article should be carried out both at the level of poviats as well as gminas in each voivodeship [Dolata 2008]. It shall enable identifying weak cells requiring corrective actions.
6. Zachodniopomorskie Voivodeship occupying the first position in the ranking is characterized by high level of all diagnostic features taken into account. All variables have standarization above 0.5 except for the variable of the number of individual waste water treatment facilities where standardization amounts 0.168 (see Table 2).
7. Małopolskie Voivodeship, ranked last, exhibits low level of all diagnostic features (their standardizations have values significantly below 0.5). In this voivodeship there is the worst situation with regard to waste landfills as well as the quantity of water treatment stations (see Table 2). The obtained results indicate problems to be solved in the future. These actions are in accordance with tasks set by UE with regard to eliminating excessive differences in levels of regions development in terms of their equipment in infrastructure of environmental protection.
8. The existing state of affairs has, to a large extent, its source in the period of the People's Republic of Poland (PRoP).

9. Tools offered by a multi-dimensional comparative analysis undoubtedly enrich the materials for regional research by enabling obtaining measurable and objective evaluations.

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STAN WYPOSAŻENIA WSI W OBIEKTY I URZĄDZENIA OCHRONY ŚRODOWISKA (STUDIUM PRZESTRZENNE – 2013 R.)

Streszczenie. Celem artykułu jest ukazanie aktualnego stanu wyposażenia wsi w infrastrukturę proekologiczną. Zebrane informacje sprowadzono do stanu porównywalności, stosując metodę unitaryzacji zerowanej. Unormowane zmienne pozwoliły otrzymać wartości zmiennej syntetycznej charakteryzujące każdy obiekt (województwo). Zmienne te są podstawą budowy rankingu województw przedstawiającego aktualną sytuację w zakresie przestrzennych zróżnicowań wyposażenia wsi w obiekty i urządzenia sprzyjające środowisku. Końcowym etapem badań jest podział obiektów na trzy grupy województwa: o wysokim, przeciętnym i niskim poziomie proekologicznego wyposażenia wsi.

Słowa kluczowe: ranking, obiekt, zmienna diagnostyczna, zmienna syntetyczna, ochrona środowiska

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KNOWLEDGE SHARING AND BUSINESS TOURISM PRODUCTS: CASE OF INDUSTRIAL TRADE FAIRS[1]

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Abstract. Due to the complexity of the needs of the business tourist that determine the character of the offered product, networking is an inherent part of the business tourism sector. Organizations enter multiple networks of relations in order to gain access to knowledge, which is important in creating innovation in tourism. The article aims to show the role of business networks in developing new products. The research was conducted on a network centered around a trade fair organizer. The research discovered a variety of knowledge sharing activities between the network actors. The relations between the actors determine the character of the activities. Exchange of knowledge leads to two types of innovations: network-driven innovation and network-supported innovation.

Key words: business-to-business, innovation, network approach, knowledge sharing

INTRODUCTION

According to knowledge and knowledge management literature, "knowledge" is the most strategic resource of an organisation in a competitive environment [Grant 1996]. It is assumed that an organisation's innovativeness may stem from sharing its knowledge within itself and with its environment. Its innovativeness may thus be influenced by it being able to extract knowledge from and sharing it with a business network. Therefore, it is crucial to examine a business network from the point of view of knowledge sharing.

A sector based on a network of relationships is exemplified by tourism sector, within which MICE (meetings, incentives, conventions and exhibitions) industry can be singled out. The sector is characterised by the great significance of entities' interdependence, close relations among them and their cooperation to create products. Tourism is seen as

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a system within which diversified organisations take collective action to attract tourists. Defining and creating such networks is based not on the nature of proposed products, but on a client's diversified and complex needs that can be met through the cooperation of various entities, which, as a consequence, make up a network focussed on a value for tourists. The paper presents the perspective of MICE industry business network actors and focuses on their knowledge exchange with other network participants. It is an approach which is different from the one dominating in relevant literature on tourism and which concentrates on actors of a network, rather than relations among them.

In the literature on tourist companies it is pointed out that while innovations are significant in marketing strategy as a source of competitive advantage, the nature and determinants of the innovations remain relatively little known [Gołembski, Olszewski 2015]. Therefore the purpose of this paper is to present the types of knowledge exchange activities in development of products for business tourists. We adopt a network approach because empirical research proves that cooperation networks and assets associated with a particular relation enable organisations to access resources which may not be available as part of a traditional market exchange [Arya, Lin 2007].

BUSINESS TOURISM NETWORK

Business tourism is a heterogeneous and place-determined economic activity. Tourism products are created in destinations as amalgams of attractions, services, commodities and facilities offered and consumed locally under the destinations' brand names [Bulhalis 2007]. These elements are linked together as a tourist value chain that is based on tourists' overall experience and contains a number of industries conventionally defined by their products [Poon 1993]. Therefore networks are created and defined not by the nature of the product, but by a complex of customer demand and needs, which require cooperation and commitment on part of the entities present in the market.

In business tourism co-organization and co-promotion of events, co-funding of promotions and events and experience delivery require that network participants communicate and interact on a wide range of issues. The processes of market sensing, information sharing, sourcing promotion partners and the planning and delivery of tourism products require considerable interaction. Communication, coordination, information sharing and interaction are required on a range of political and social issues that are relevant to the tourism network as a whole [Zmyślony 2008].

Business tourism product contains a number of industries conventionally defined by their products. Regardless of their identification with tourist industry all these firms and organizations are interdependent as they are parts of local tourism systems, which function objectively. Therefore networks of cooperation are created and defined not by the nature of the product, but by a complex of business customer demand. This character of the product results in the specific way innovation in tourism is created.

Relationships among business tourism market players are reflected in the tourism literature, where it is assumed that the strategic trend allows for coordination activities and the existence of a leader or an establishment supervising the network [Möller, Svahn 2003]. A key reason for the interest in networks in tourism development is the idea that tourist destinations can gain competitive advantage by bringing together the knowledge, expertise and other resources of their stakeholders. Treating tourism as a local open system is manifested by attempts to design the shape and operation of the system, and first of all to design an offer according to how the system is perceived by the recipient.

The market is also characterised by a great diversification of roles that business network participants play. Private, public and non-profit establishments are related to tourism industry to various extents – from totally tourism oriented ones, like hotels, to firms, which treat tourists as only a supplementary market. Regardless of their identification with tourist industry all these firms and organisations are interdependent as they are parts of local tourism systems, which function objectively. Business travel, comprising trips and visits made by employees and others in the course of their work, including attending meetings, incentive trips, conferences and exhibitions (that is why it is also called MICE industry) and individual business travel lie at the core of creating the strongest and the most dynamic products on tourism market [Davidson, Cope 2003]. From a network perspective business tourism is extending its subjective scope to include companies that represent those associated with tourism to a small degree, such as interpreters, telecommunications facilities, exhibition stand constructors, conference/exhibition centre owners, manufacturers etc., which means that they identify themselves with local tourism industry to a small extent. Moreover, the shape of the product is influenced more by establishments that can operate in any place, which extends the spatial scope of a network of relations. These are meeting planners, venue-finding agencies, PR agencies and event management companies, to name just a few of them. Therefore in business tourism the networks are becoming supralocal and supranational [Zmyślony 2014].

In relevant literature business tourism is usually treated as a system, which means that it is concentrated first of all on its objective elements. Analyses are not conducted on the level of a network's participants. According to our concept of managerial approach to network knowledge exchange, we are mainly interested in relations and interactions of these elements.

INNOVATION IN BUSINESS TOURISM

When it comes to tourism, Hjalager [2010] distinguishes the following innovations: product innovations (e.g. loyalty programs), process innovations (e.g. computerized booking systems), managerial innovations (e.g. decentralizing), logistic innovations (e.g. integrated tourist information systems) and institutional innovations (e.g. setting up a convention bureau).

In this article we take considerations on innovations in services as a starting point, as they are an essential part of the business tourism product. According to Berry [1980], benefits customers obtain from services are realized not from holding or using a physical product, but rather from the delivery of some effort or the performance of an action. Offering services is a complex process generally packing or combining several service elements and technologies. Service innovation therefore means new combination of those elements and technologies. Service innovation manifests itself in four areas: new combination of services or service elements, reproduction of service, involvement of customer or adoption of technology [Aa and Elfring 2002]. Maffei et al. [2005] point out three dimensions of innovation, which may be considered at business tourism:

- market dimension where pricing and offering strategies are developed;
- organizational dimension where processes and organizational models are invented;
- relational dimension in which the social and cultural aspects that characterize and influence the service experience by inclusion of the users' perspective.

The needs for cooperation between the organizations, which combine to form the tourism product, coupled with the need to meet customer expectations, make knowledge. The exchange of knowledge between the other members of the tourist network becomes the key element of the innovation process in the tourism industry. This agrees with the conclusion of Salunke et al. [2011], who present service innovation as the extent to which new knowledge is integrated by the firm into service offerings, which directly or indirectly results in value for the firm and its customers.

Enterprises enter complex networks of interdependencies in order to gain access to resources that they do not possess, thus ensuring growth for themselves. Knowledge is a resource that plays a significant role in creating innovation in tourism. Exchanging knowledge is a process in which the knowledge that an individual possesses is developed into a body that can be understood, assimilated, and applied by others. This requires a purposeful activity by the people who have knowledge and a relation between at least two parties: the knowledge sender and the receiver. The purpose of knowledge sharing is cooperation, or supporting others in implementing new procedures, solving problems, or developing new concepts [Cummings 2003]. Knowledge exchange is therefore essential for innovation: it leads to spreading innovative ideas, and is perceived as key in the innovation process within the organization [Armbrecht et al. 2001]. Moreover, in the case of the product on the business tourism market, exchanging knowledge makes it possible to include other people's knowledge into service offerings, which according to Salunke et al. [2011] is a manifestation of innovation. It is thus worth determining in what way the knowledge exchange activities within the framework of business relations influence the development of innovation.

KNOWLEDGE EXCHANGE IN TOURISM

Due to the complex needs of the business tourist, which determine the character of the offered product, the phenomenon of networking is inherently part of the business tourism sector. Therefore tourism as a sector relies on the organizational complementarities and interdependences among actors and tourism companies link others' resources to design a coherent product through the synchronization of activities in time and space [Werther, Klein 1999]. However tourist firms tend to see each other more as competitors than as colleagues. Collaboration between tourism enterprises is mostly the result of intermediation by other organizations, e.g. tourist offices, where activities are undertaken at an arms-length from the individual proprietor [Hjalager 2010].

Research on knowledge sharing indicates that the process is conditioned both by internal and external factors [Perechuda 2013]. In the latter case the relationship between the knowledge sharing organizations and the structure of the business network are important.

According to the network management model [Håkansson et al. 2009], a network participant has a certain image of the organizations in the network and their knowledge, and defines his or her own areas of knowledge exchange activity and the effects of this activity. One needs therefore to answer the following questions: who with, with what purpose, what knowledge, and how to share it. On this basis, knowledge exchange activities are proceeded in three dimensions:

- existing knowledge: confronting, which leads to broadening one's knowledge by comparing and supplementing it, or conforming and verifying one's knowledge with one possessed by others;
- new knowledge: creating new knowledge by using the potential of weak ties or structural holes of a network or consolidating already existing knowledge by strengthening the existing relations;
- networking activity: inactive – being forced to transfer knowledge because of conceding others needs or active – attempting to coerce others to exchange knowledge.

However research on business-to-business relationships consistently shows that strong ties-indicated by high levels of social interaction or frequent communication and affective closeness lead to more effective knowledge sharing [Hansen 2002] and promote knowledge creation [Nahapiet, Ghoshal 1998]. Therefore, our study assumes an approach, in which relations are analyzed. We focus on network from the perspective of the actors in the network, as opposed to the approach assumed in tourism research where the overall level of the business network is usually analyzed (a system approach).

TRADE FAIRS AS BUSINESS TOURISM PRODUCT

Trade fairs were chosen for analysis, as they are an example of a very complex product. The authors analyzed the knowledge exchange and resulting innovations, which were operationalized on the basis of review of literature. The exchange of knowledge was examined in three dimensions of its purpose: confronting/conforming knowledge, creating/consolidating knowledge and being forced/pursuing to exchange knowledge [Ford et al. 2003]. Innovation was regarded in a market dimension (a new product), organizational (new processes or organizational models) and relational (inclusion of the users' perspective) [Hjalager 2010].

The interaction is the core product for the fair participants – the exhibitors and the visitors. It results from the core needs for which the two groups take part in fairs: presentation/learning new things, making/maintaining contacts, knowledge sharing/gaining. Studying the case of trade fairs as a business tourism product needs to encompass different actors, as it contains more than one sub-unit of analysis. According to the Rosson and Seringhaus model [2004], the trade fair is an event that can be analyzed through the prism of actor interactions, and more generally through the prism of the interaction network of the actors involved both directly and indirectly in trade fairs. The actual level of the fairs as a product is significant, as it determines the number and quality of the fair participants and the venue facilities. The extended level relates to the fairs' surroundings and availability [Davidson, Cope 2003], however for the purposes of this article the authors do not venture to analyze this area. What we have is thus the organizers' product, that is the program of the fair, and the product perceived by the business tourist, that is all the experiences that participating in the fair involves.

CASE STUDUY OF INNOVATION-TECHNOLOGY-MACHINES TRADE FAIRS 2014

The case study in question is the annual Innovation-Technology-Machines Trade Fairs (ITM) fair in Poznań, Poland, the biggest fair event in the industry sector in Central Europe and the city, which has the highest share of business tourists in the total of those visiting Poland's big cities. Data was collected in three stages – in the first stage we identify the organizations that create the product as part of business network. In the second stage we look at the exchange of knowledge between the organizations that influence the core product; and in the final stage we identify innovations resulting from the exchange. The case study analysis was limited to the organizer's perspective, pointing to innovations implemented at the level of the overall fair, rather than the individual participants. In-depth procedures of collecting various data were introduced.

The actors of the network were determined to be groups with similar knowledge. This is due to the fact that it was impossible to reach all the actors, especially the two biggest groups: the exhibitors and the visitors[2]. What is more, the participation of these groups in networking is dynamic – not all participants of the previous editions will take part in the next one. That is why only typical exhibitors and visitor representatives were identified.

The identified business network does not have an egalitarian structure and can be examined at four levels. The key players are the fair organizer, the exhibitors, and the visitors. Their roles are determined by the character of the trade fair – there will be no core product, that is the interaction, without their participation. The goals of the three groups are interdependent: the exhibitor is interested in reaching the largest possible number of valuable visitors, the visitors are interested in making contact with valuable exhibitors, and the satisfaction of the two groups translates into the success or failure of the next edition of the fair, and therefore the organizer.

The three key players in the network are interrelated through the knowledge that they have and the others need, which is not symmetrical. The exhibitors know what products they will exhibit during the fair and have some knowledge about the visitors' needs, while the visitors are able to identify what information they need. The flow of information between the groups is not full, since no exhibitor is in touch with all fair visitors. The fair organizer tries to prepare a program of the fair that realizes the goals of the other players, based on the information from the potential exhibitors and visitors. Additionally, the organizer can gather knowledge by surveying the needs and opinions of the other two players, but his or her picture of the market is narrow, as they are in touch mainly with the ones who attend fairs, and to a much lesser extend with the other market players. It is worth remembering that the fair organizer is neutral, while most exhibitors and visitors are competitors. The character of the relations maintained or developed with the representatives of both groups is crucial for the organizer's knowledge exchange activities.

[2] 16,000 professional visitors and 960 exhibitors took part in ITM trade fairs in 2013.

The second level is made up of trade associations, universities, science and technology parks, and the trade media. All of the entities have the knowledge that is relevant in creating a product, however the relations between them are diverse. Each of them contributes, or can contribute knowledge in the process of creating the fair event. Their roles, however, may be seen as added value – thanks to the resources they have contributed the interaction between the exhibitor and the visitor will be a fuller experience, yet the entities themselves do not benefit directly from the success of the fair.

The next level of the network consists of trade fair support companies – technical, logistics, stand-construction companies. They are actors with whom the fair organizer enjoys good relations and which play an important part in organizing the fair. The knowledge they have, however, is of a universal character, and they see the fair events as a process that follows the same standard pattern for each and every fair. That is why the exchange between them and the fair organizer involves overt knowledge, of the kind that is often readily available. An exception to this is the knowledge resulting from the experience in offering services to exhibitors in other fairs. It may contribute to establishing the good practice applied by other fair organizers. Competitive industry trade fairs, with whom the exchange of knowledge is limited, but which serve as a benchmark, have a similar role.

The last level of the business network comprises the players who provide advertising, printing, catering or transport services, as well as hotels. Their knowledge is of little significance for the ultimate form of the fair product. The relations with them are weak, and they are easily replaceable in the network. Therefore these organizations, due to their role, have been excluded from further analysis, despite the fact that they make up the business tourism product senso largo.

In the product, which the ITM fair projected for 2014 is, seven solutions have been identified, which are used for the first time and can be seen as innovative in at least one of the dimensions: market, organizational or relational (Table 1). These innovations are characterized by two different types of solutions in terms of the knowledge exchange between the fair organizer and the actors of the business network. In network-driven innovations (NDI) the organizer has no knowledge that allows them to prepare and realize

Table 1. ITM 2014 innovations

Network-driven innovations		Network-supported innovations	
The India Show	an exhibition of innovation, technologies, and machines offered by Indians companies	matchmaking	meetings of exhibitors and visitors
FOCAST Forum	conference on new solutions in the foundry industry	cooperation avenue	a separate area for exhibitors looking for subcontractors
Salon transport	area for exhibitors offering internal transport solutions	research for industry	presentation of the work and potential of Polish scientific and research units
CAD/CAM	area for exhibitors offering computer aided solutions		

Source: The authors' own compilation based on the research.

the product on their own. Knowledge is thus needed before and during the fair. Therefore the exchange of knowledge is embedded in the cooperation with other organizations, and concerns both explicit and implicit knowledge. An example of this is the Foundry Forum, whose subject matter was suggested by a trade association and had to be consulted with representatives of three groups: industry leaders, an association representing visitors, and research institutions.

In type network-supported innovations (NSI), on the other hand, knowledge is needed to realize the solution during the fair, but not to prepare the event. An example of this is a matchmaking event where suppliers and visitors can meet. Outside knowledge is not needed to organize the event, since the fair organizer knows how to offer such a service, but in order to realize it visitors and exhibitors have to exchange information about their needs, offers, and diaries. Table 2 shows the knowledge exchange activities by a focal actor of the business network in question towards other network actors, divided into levels.

Table 2. Aim of knowledge exchange – the perspective of trade fairs organizer

Innovations	Network level I	Network level II	Network level III
Network-driven innovations	inactive confronting and creating	active conforming and consolidating	active confronting and consolidating
Network-supported innovations	active conforming and consolidating	active conforming and consolidating	weak knowledge exchange

Source: The authors' own compilation based on the research.

CONCLUSIONS

The trade fair product is developed, among other things, by adding new elements. They are innovative in the market dimension, as they are new for the fair organizer's customers, require organizational changes from the organizer, and are based on the exchange of knowledge and involving other organizations. The fair organizer must therefore assume the role of a knowledge broker at two levels. The first one concerns the core fair product, which is to facilitate knowledge exchange between the exhibitors and the visitors. The other level concerns developing all levels of this product. The organizer remains in relationships with many actors and industries. According to the theory of weak ties, this way knowledge brokers can provide bridge between closely related informal or formal networks, thereby supplying a source of specific information and resources. This way the fair organizer uses the network actors of levels II and III to introduce innovation to their own product. That is why in the case of NSI innovation the organizer's knowledge exchange is active, oriented primarily on conforming and consolidating of knowledge.

NDI innovations, on the other hand, is different in that the organizer's activities are a response to the initiative of the network level I actors. It is they who have the specific knowledge that leads to innovation, and without this knowledge it would be difficult to realize it. The organizer focuses on confronting and creating of knowledge in order to prepare the outline of innovation, and uses consolidation of knowledge on level II of network to realize it.

The case study we have presented indicates that the fair organizer's approach to the tourism product is wider than the tourism product in the strict sense seen through the very essence of the trade fair. It is not an approach in the broad sense, as there are no organizations that make up the overall experience of the person attending a fair, such as hotels, restaurants, or airports, in the network perceived by the organizer. This can influence strongly the marketing strategy. What we have is a situation in-between, in which the product is in the form of a package, albeit circumscribed by the boundaries of the fair grounds. This may likely be due to two reasons: the fair's business model, which is still founded on selling exhibit or event space, and treating those attending fairs as business people, not business tourists.

The conclusions are based on a case study method, which is by nature limited to the analyzed case study. The research among the actors of the network was done during the process of launching the product. The timing of the research may have influenced the actors' perceptions. The next step should be conducting research among the beneficiaries of innovation – in this case those attending fairs.

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DZIELENIE SIĘ WIEDZĄ A PRODUKT TURYSTYKI BIZNESOWEJ: PRZYKŁAD TARGÓW PRZEMYSŁOWYCH

Streszczenie. Ze względu na złożoność potrzeb turysty biznesowego, które określają charakter oferowanego produktu, współpraca w ramach sieci jest nieodłączną częścią sektora turystyki biznesowej. Organizacje i firmy wchodzą w liczne sieci relacji celem uzyskania dostępu do wiedzy, która jest kluczowa w procesie kreowania innowacji w sektorze turystyki. Celem artykułu jest ukazanie roli sieci biznesowych w rozwoju nowego produktu. Badania przeprowadzono w ramach sieci skupionej wokół organizatora targów. Badania ukazały zróżnicowane aktywności w obszarze dzielenia się wiedzą między uczestnikami sieci zależne od panujących między nimi relacji. Wymiana wiedzy prowadziła do powstania dwóch typów innowacji: wspieranych działaniami sieciowymi oraz wynikającymi bezpośrednio z uczestniczenia w sieci.

Słowa kluczowe: business-to-business, innowacje, podejście sieciowe, dzielenie się wiedzą

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PROMOTION OF SUSTAINABLE CONSUMPTION OF FOOD BY VITRUAL COMMUNITIES

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Abstract. Nowadays consumers tend to exchange information and collaborate to satisfy their needs in more and more effective ways. In consequence products are prepared and offered basing on customers' involvement and replacing traditional B2C paradigm. The growing popularity of that approach is possible mainly because of technological changes as well as changes within societies – their evolution towards post modernity. The paper presents different types of virtual communities created in Internet by businesses, NGOs or individual users to promote the idea of sustainable consumption of food.

Key words: collaborative economy, postmodern society, sustainable marketing, social media, smart shopping

INTRODUCTION

Internet and its accessibility enable users to consume together, share thoughts, opinions, facts concerning their private and professional lives in the scale and with easiness that have not been accessible so far. Information and communication technologies development influence interpersonal contacts, determine consumption patterns including ways of information gathering about products. Organisations, trying to follow that trend, prepare places where interactions between organisations and their customers and among customers can occur, develop and may be maintained. The communication tools in forms of Internet platforms, chats, blogs, social media accounts are participated by individuals who would probably never meet personally. They can share their hobbies, points of view, interests and also get involved in movements or initiatives as ones promoting sustainable development.

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The idea of sustainable development require some efforts from its followers but it is necessary when our planet functioning in present form is to be preserved for the next generations.

The idea of sustainable consumption is recognized by Polish customers but its holistic character is not known so well. People often follow some parts of it by using environment friendly products for example, but they do not see the wider context of the idea of sustainability. This is also the way how most of virtual communities perform – they focus on one aspect of sustainability and do not present those areas in the wider approach. That assumption was the main thesis discussed in the research part of the paper where Polish initiatives promoting sustainable consumption were analysed. The paper also includes presentations of different virtual initiatives and discussion on their character.

CHANGES WITHIN ECONOMY AND MARKETING

Economy evaluates towards the concept of the sharing economy or 4.0 economy but some author indicate that collaborative economy is a concept that describes nowadays changes more adequately. It bases on many-to-many model instead of one-to-many model that has been describing business and customers activeness for many years. The many--to-may approach is possible to be spread among different groups of customers because of intensiveness of new interactive media development. It influences many different areas of customers' decision making processes. Basing on results of research conducted by the Camppell and Mithun agency collaborative economy significance in nowadays world is increasing because it is compatible to rational expectations of receivers as: expenditure cuts, environment protection, flexibility, as well as emotional ones as: self-help and helping others, appurtenance, sharing intelligent life style, responsibility for being a part of larger initiatives [Sokołowski 2014].

Basing on analyze of nowadays tendencies in economy Kotler indicated that activities aimed at the common well being incensement are reasonable. He derived the concept of 3.0 marketing from cooperative, cultural and spirituals marketing. The concept is based on assumption that organisations are expected to look after the well being of global society not only about their dealings by customers [Kotler et al. 2010]. According to Nowacki [2014], marketing evaluates towards 4.0 orientation that involves activities aimed at creation of adequate spaces (virtual platforms, e.g.) to enable interactions between consumers and organisations and among consumers. There proposals concerning different dimension of organizational activities can also be submitted and discussed [Nowacki 2014]. If prepared for this purpose, communication tools enable creation of value not only for organisations but also for users of its offerings [Gouillart, Billings 2013]. In that situation traditional classification of producers and consumers is not valid anymore because both sides co-create value and both are involved by offering their unique sources in the value creation process [Casalo et al. 2010].

TECHNOLOGICAL CHANGES AND THEIR IMPACT ON CUSTOMER BEHAVIOUR PROCESSES

Information and communication technology development results in many aspects. One of them is a change in self-perception of customers – from "I think therefore I am" towards "I am connected to others". As the results social competences do not follow technological development and being permanently "in-touch" is crucial for nowadays customers. People want to control their actions to fulfill every single moment of their everyday life according to their expectations. At the same time they want to keep up with information about their friends, with news and this way they follow many stories at the same time [Goławski 2014]. As the result customers nowadays (especially the ones who are called Digital Natives) are not able to focus on one task for longer than 5–7 minutes. They suffer from memory deficits, they are impatient. Their perception of relation between value and price is disordered. They require mobility while products' usage [Żórawki 2014]. Nowadays consumption may be described as multitasking one. Customers gather information from many sources, sometimes using two devices at the same time – this behaviour is called multiscreening and it provides producers with a new tools to attract customers attention and to deliver information about products simultaneously to a TV broadcast.

There are also some other trends that may be observed in customers behaviour nowadays. Customers have become smart shoppers and they expect usage of a product to provide them with attractive, exciting and surprising experience [Taranko 2013]. Also the scope of activeness of customers has changed. In the literature the following stages of evaluation of customers can be found: from 1.0 customers who are passive addressees of promotional communication, through 2.0 consumers who express their opinions towards 3.0 – cooperating and co-creating prosumers [Nowacki 2014].

PROMOTION OF AN IDEA

An idea is interpreted as one of products' categories. Its introduction in the market require the same efforts as in case of other groups of offers, so customers' expectations should be recognized, adequate marketing mix tools performed and results analyzed.

Level of acceptance for a new idea depends on a process of consequent changes within ways of thinking, approaches and behaviours of target groups, as well as on costs of change estimation, the change arduousness, difficulties it causes, stress and lost benefits as results of the change introduction [Szromnik 2013]. No matter whether promoted idea is a commercial or non commercial one, the process of its distribution and communicating is similar and it should include steps indicated by Szromnik [2013]: analysing situation, indicating strategic goals of marketing strategies and programs, targeting, choosing adequate techniques and tools of influence, budget calculating, results monitoring and evaluation.

Sustainable development and sustainable consumption, as one of its dimensions, are examples of ideas that have been being introduced and promoted recently.

SUSTAINABLE CONSUMPTION

Sustainable marketing and sustainable consumption can be indicated as ideas that has been discussed in Polish marketing literature more and more frequently. In the world the concept of sustainable consumption is discussed mainly as one of new marketing tendencies [Baines et al. 2008, Armstrong and Kotler 2012] but there are also some publications describing only that aspect of marketing approach [Cohen and Murphy 2001, Southerton et al. 2004, Seyfang 2011]. It can be observed that sustainable consumption is also discussed from its sector perspective [Leithner 2010, Belz and Peattie 2010, Martin and Schouten 2012]. And in Poland the concept is discussed mainly in articles and described quite widely.

Sustainable consumption and production (SCP) can be defined as holistic approach to minimizing negative environmental impacts from production and consumption in society [Środowisko Europy 2007]. "SCP looks holistically at systems of production and consumption and explores how these systems can be changed to reduce their ultimate environmental impact. It involves critically reviewing current lifestyles and examining alternative modes of consumption, asking ourselves whether more is always better. SCP also recognises the influence of consumer demand on the consumption process, and therefore its potential as a policy area that can be addressed to minimise environmental effects" [CSCP 2007]. Sustainable consumption, when interpreted that way, includes not only purchasing and production but also life style dimension [Marchand and Walker 2008]. It indicates how customers' decisions influence functioning of the world. Local producers, ecology and respect for people and animals in production processes are indicated as key elements of sustainable consumption concept in its wider interpretation [Puciato 2014]. As Hansen, Schrader and Cooper indicate when individual customer decisions are discussed the symptoms of sustainable consumption may be indicated among: limitations of consumption, perceiving consumption that exceed needs as negative one, choosing products basing on their ecological features, recognizing substitutes for traditional consumption [Marchand and Walker 2008].

It must be underlined that sustainable consumption is also determined by personal factors (habits, motivations). For example research conducted among voluntary simplicity movement members revealed that some of them decide to purchase products basing on their personal benefits and personal factors and sustainability is not the only determinant of their decisions [Marchand and Walker 2008]. Researching that aspect of sustainable consumption in more detail way would allow to find more effective ways to change perception of people who are preferring sustainable patterns of consumption. At the moment they are perceived as people who are sacrificing themselves and that image cannot be helpful when wider promotion of sustainable consumption is discussed [Marchand and Walker 2008].

Also more holistic approach towards sustainable consumption is required. As observed, for most of customers the concept means buying ecological products that became "must have" category of offers [Frątczak-Rudnicka 2014]. Polish customers identify sustainable consumption with smart shopping. They also believe that ecological products are healthier. None of these ideas are perceived as elements of wider context while vast majority of Polish customers (74%) declare that their knowledge about sustainable consumption is deep or very deep [Puciato 2014]. Thus further education for sustainable consumption (ESC) should be introduced in Poland. The process "aims at providing knowledge, values and skills to enable individuals and social groups to become actors of change towards more sustainable consumption behaviours. The objective is to ensure that the basic needs of the global community are met, quality of life for all is improved, inefficient use of resources and environmental degradation are avoided. ESC is therefore about providing citizens with the appropriate information and knowledge on the environmental and social impacts of their daily choices, as well as workable solutions and alternatives. ESC integrates fundamental rights and freedoms including consumers' rights, and aims at empowering citizens for them to participate in the public debate and economy in an informed and ethical way." [CSCP 2011].

Basing on information and data cited above the following assumption can be made: to introduce sustainable consumption concept it is necessary to consider social processes that are involved but also individual needs and expectations that should be satisfied [Briceno and Stagl 2006].

VIRTUAL COMMUNITIES

As the age of individualisation has passed customers tend to search for new communities that can be joined by them. They are usually created apart from family relations and traditional social tights. They are set on common emotions, life styles, believes and purchase decisions. In the literature they are called nowadays tribes [Kacprzak-Choińska 2011]. The reasons to use a world tribe to describe those groups of people were identified by Covy in the similarity of those groups to earlier stages of society evaluation. Nowadays tribes are characterized by: local affiliation, narcissism, lack of central institutional source of leadership, focusing on emotions, passions, as well as small range and perishability [Skorek, 2012]. A tribal approach in marketing require concentration on emotions and perceiving organisations as supporters of those relations [Dziewanowska and Skorek 2011].

Many types of virtual and real communities are identified. They are characterised basing on a scale of their activeness, territorial range and places where they are functioning. Communities has been developing as new communication technologies become more and more advanced. They are not based on personal interactions and their character is rather transient – most of them do not last long. As Stevenson indicated virtual communities has been constantly evaluating because of spiritual, emotional and intellectual levels of involvement of their members. In future they will base on diversification of their members but also on celebration of those differences in areas of ethnicity, life styles and aspirations [Stevenson 2002]. The groups are strong when their members feel that they are parts of a larger entity and do not act as individuals. Research indicate that feeling of affiliation is strengthening its social value [Casalo et al. 2010].

Internet users are searching for others who share the same interests and values. They create smaller and larger communities around brands or ideas. Thus they participate in groups sharing and promoting sustainable consumption patterns that are created by internauts themselves. According to classification presented by Kaplan and Heanlein, those types of communities are characterized by low level of self-presentation and low level of media differentiation [Brzeziński and Jasiński 2014] – they usually gather their members in one social networking site. The communities that promote idea of sustainable consumption are created in social networks where, as Boyd and Elisson indicate, it is possible to: create public or semi-public profile, communicate with other users, view and cross lists of users. Virtual communities are promoted by recommendations of groups members' to other users whose participation would guarantee further functioning of a group [Casalo et al. 2010].

Promotion of sustainable consumption is also inspired by formally organized entities and in those cases it involves many communication channels and its presence is not limited to one place in virtual space.

VIRTUAL COMMUNITIES PROMOTING THE IDEA OF SUSTAINABLE CONSUMPTION

In that part of the paper different examples of virtual communities created for promotion of different aspects of sustainable consumption are presented.

Firstly on the example of Unilever the way of businesses to create communities as a consequence of the company's sustainable strategy is presented. Later different virtual initiatives promoting sustainable consumption created by individual users and NGOs were researched. The examples illustrate sustainable consumption promotion in different markets (Polish and global) but they mainly consider food consumption. Also usage of different tools to build communities in Internet for that purpose, i.e. blogs, application and social networks profiles, is presented in that part of the paper.

To present activities of business that are aimed at promotion of sustainable consumption the case of Unilever was chosen because financial and organisations sources of that enterprise enable the wide range of activities introduction but also their integration and compliance with overall strategies. The scheme Sunlight is one of the company's main activities in that area. It gathers different projects and more than 140 million activities have been undertaken since it was introduced. The scheme is aimed at creation of community of people who want their lives to be sustainable and who want to help others. Every user can participate in any projects (at the moment there are 27 carried on) conducted within the Sunlight. Among different initiatives promoting sustainable consumption of food, called Growing gardens, reducing waste, can be indicated. It encourages and teaches how to grow own herbs up-cycling Hellmann's jars. Also other types as initiatives supporting development in poorer countries are introduced (i.e. hand washing promotion, limiting number of people suffering from hunger) by Unilever. As the company can afford usage of wide range of tools it also provides chefs with specially tailored application Wise Up On Waste that enables identification of moments when wastes are generated. It also includes other tools helping to minimize wastes of products in professional kitchens.

The actions undertaken by Unilever are exemplifying how businesses can promote sustainable consumption as an element of their strategy of sustainable development. As mentioned above companies are expected to create special platforms where interactions between customers will be possible and also they should inspire those interactions due to many-to-many approach. Thanks to the amount of money that Unilever can spend on its CSR activities it is possible to create professional internet platform that is able to handle traffic on that scale (Facebook profile of the scheme is liked more than 2.8 million times).

The Buycott application may be given as another example of initiative promoting sustainable consumption prepared for global market but performed on much smaller scale. The application enables identifying organizations within corporate family trees of producers after scanning a barcode on a package. This way some concerns and their products may be boycotted if their practices appear to be unsustainable or unfair. It should be admitted that the application was created to trace products of Koch Industries and Monsanto [O'Connor 2013]. Apart from the application, Buycott movement also disposes an internet platform where different initiatives promoting sustainable consumption have been introduced. The Demand GMO labeling is one of the actions undertaken on the platform. It is concentrated on the demand to label products that are modified. More than 250 thousand customers decided to join it. There are also smaller initiatives called Boycott whole foods for financially supporting child rapist with 400 participants. Users may create campaigns and others may support them. To register the Facebook account is used.

The Letter from America (www.theletterfromamerica.org) may be an example of another global initiative promoting sustainable consumption. The letter is a result of movement that is warning citizens about consequences of genetically modified food and its impact on agriculture and global economy. Europeans are asked by Americans to spread the letter among consumers and authorities' members to protect Europe from genetically modified products. The letter has been signed by more than 56.7 million people.

But in the market there are not so many initiatives of that scales of activities. Most of them, especially the ones performed by individual users, gather no more than several dozen of followers. The situation within Polish market is similar because initiatives promoting sustainable promotion are rare and undertaken by individuals or NGOs.

For the study 50 Polish initiatives that could had been related to the idea of sustainable consumption were picked up basing on results provided by searching engines and as results of content linking (the web pages of projects and governmental institutions were excluded). When the list was created the detailed analyse of web pages content and FB profiles took place. It appeared that from the sample only 15 initiatives could be indicated as ones that are promoting sustainable consumption of food and 9 of them included at least two aspects of it in their contents. None of the initiatives concerned wider range of aspects of sustainable consumption. The research for the study was conducted between 3 and 16 of November 2014.

One of the platforms that is realizing the idea of sustainable consumption is managed by association GRUPA ODROLNIKA. The web page (and compatible Facebook profile) are prepared to enable direct selling of products from farmers to institutions and individual customers. They can contract adequate amounts of products that are delivered. The platform also provides readers with information about healthy diet and the Association.

Among the researched the ODROLNIKA was the initiative that could be indicated as the model one when promotion of sustainable consumption of food is discussed. There are some elements that could be improved in the web page but it is one of the best exemplifications of sustainable consumption introduction and promotion although its potential has not been used totally, yet.

The community of people who care about healthy life style can also be found in mamzdrowie.pl platform. The web page includes not only a shop with selected products and detailed information about their ingredients but also links to articles considering many aspects of life, not straightly connected with health problems. There is also information about sustainable consumption explaining that the idea does not include only shopping but also require changes in many aspects of everyday life. The webpage includes an area where registered visitors can meet and discuss. Similarly the ekolokalnie.pl webpage is operating. It is built basing on price comparison webpage. The webpage presents also different recipes for healthy meals. The Facebook profile created by the same authors, as a supplement to webpage, includes many interesting advices, courses etc., that promote sustainable consumption (for example projecting of sustainable habits).

Inspired by the Instytut Spraw Obywatelskich (INSPRO) foundation the Internet portal www.chcewiedziec.pl was established. It is aimed at drawing customers' attention to the problem of clear marking of products that are genetically modified. The portal is prepared to contact people who are involved or want to participate in process of society, whose members are involved in public life, cooperate for common wealth, are aware of their rights and obligations, want and can cooperate, formulation (www.chcewiedziec.pl). The content of the portal includes many information about sustainable consumption and the special declaration of support for campaign called Wolne od GMO? Chcę wiedzieć (GMO free? I want to know) may be signed there. The Facebook account of the initiative is aimed at constant communication with fans.

Users interested in the idea of sustainable consumption may also gather around blogs. There are many types of blogs that are linked to the idea of sustainable consumption although their content usually cover only parts of the concept. The following types of blogs of individual users and linked to the sustainable consumption can be indicated: the blogs that promote healthy life style, for example: Ziołowa Wyspa (www.ziolowa wyspa.pl), Ziołowy Zakątek (www.ziolowyzakatek.com.pl), słonecznybalkon.pl, niekupiejedzenia.blogspot.com; providing customers with information (zdrowoinatemat.blogspot.com); promoting veganism: (kasiaweganka.blogspot.com); self-helping (organiczeni.baranowscy.eu).

Also NGOs make their members and supporters involved in initiatives aimed at promotion of sustainable consumption in Poland. For example Empatia – the association of vegans promoted some of its initiatives by its blog (http://empatia.pl/) including "Tydzień weganizmu" (Veganism week) or collecting signatures for the petition asking the Canadian government to stop the annual seal hunt. The association of Polish entrepreneurs and employers (ZPP) prepared a blog where their opinion about limitations in production and selling of traditional and regional products is presented.

Sustainable consumers also gather as users of application prepared for them.

GreenLove is one of the applications. It is a kind of a virtual guide that helps users to find places (shops, restaurants, cafes) where healthy, ecological and vegetarian food is offered. Good Guide is another application dedicated to sustainable customers. It enables smarter shopping. Customers scan barcodes of products and they can find out how green, safe and sustainable a product is. By e-food application consumers can find out what are ingredients of a product, their origins, what kind of jeopardy and benefits are brought by their consumption. The application is coupled with Facebook and it enables sharing the knowledge about products' ingredients with friends. Capital to develop the e-food application was raised through crowdfunding platform www.polakpotrafi.pl.

The study revealed that sustainable consumption is discussed by Polish customers who are active in Internet from very different perspectives. Thus the blogs, applications or webpages present different issues of healthy life style and diets (these are the most numerous initiatives), much less other elements of the concept of sustainable consumption are discussed. Most of initiatives promoting sustainable consumption are initiated by individual Internet users (10 out of 15 researched) and they are generally self-help initiatives (11 out of 15).

It must be underlined that it is difficult to estimate whether the results of study reflect general tendency in areas of sustainable consumption promotion in Poland. The number of communities and their members change quickly as mentioned. Communities are not based on any structures or leadership so estimation of exact number of them is impossible thus statistical analyses and quantitive data collection.

CONCLUSIONS

Recent technological changes have affected many areas of social lives of customers. Thus marketers need to change their attitudes towards products and brands and accept that they should be co-created by the most involved, the most competent and the most creative customers [Goławski 2014]. Collaboration and co-creation have become a way of life and culture for many customers. Sharing experience but at the same time uniqueness, expression, freedom and possibility to realize ideas, discovering new people and experiences are expected [Sokołowski 2014]. Moreover many of participants of virtual communities do not expect any gratifications for their involvement. Sometimes they just want to be appreciated and esteemed by their peers. That mechanism is also characteristic for brand communities but involvement is maintained by companies in those cases.

The paper was a study on sustainable consumption promotion. The discussion in the paper was based on literature sources, secondary sources of data and some observations carried on in Internet. It was very difficult to estimate exact numbers when behaviour of customers, who are involved in the process of sustainability promotion, is discussed although some general tendencies were indicated. In Poland, although many consumers declare that their awareness of sustainable consumption is significant, there are not many initiatives that can be described as ones promoting the idea of sustainable consumption. In the paper also some examples of organizations that use Internet tools to promote sustainable consumption were presented. The scale of their activeness in the area is generally determined by sources they have in their disposal.

Nowadays behavior of customers' have been influenced by changes of communication patterns. The number of possible sources of information force customers to select them and chose the quickest ways to do so. One of the way to selection is participation in virtual communities that provide members with information that is expected. Maybe the promotion of sustainable consumption cannot be effective when performed to widely. As observed most of people gather around issues interested for them and do not expect any wider perspective and maybe that would be a key to change customers' consumption for more and more sustainable – make progress in seemingly unrelated areas to reach the expected result of global change in patterns of consumption.

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PROMOCJA IDEI ZRÓWNOWAŻONEJ KONSUMPCJI PRODUKTÓW SPOŻYWCZYCH PRZEZ SPOŁECZNOŚCI INTERNETOWE

Streszczenie. Konsumenci coraz częściej wymieniają się informacjami i współpracują ze sobą po to, by w sposób bardziej efektywny zaspokajać swoje potrzeby. Następuje odejście od paradygmatu działalności B2C na rzecz rynku, na którym produkty są tworzone i oferowane z wykorzystaniem aktywności konsumentów. Celem artykułu jest prezentacja przykładów społeczności tworzonych w Internecie, zarówno z inspiracji organizacji, jak i indywidualnych nabywców, po to, aby promować idee składające się na koncepcję zrównoważonej konsumpcji w sektorze produktów spożywczych.

Słowa kluczowe: ekonomia współpracy, społeczeństwo postmodernistyczne, zrównoważony marketing, media społecznościowe, smart shopping

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FOREIGN MARKET ENTRY STRATEGY

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Abstract. The preparation for international exchange consists of examining marketing mix factors and a value-based approach to customer needs. International exchange has forms ranging from casual export, agency agreements, partnerships, licensing, joint ventures, franchising to wholly owned subsidiaries. There are several ways in which an enterprise can invest directly in a foreign market. The foreign market entry strategy is determined by the consistency of a comparison between the international and domestic environment. Implementation is carrying out strategic activities. Export transactions require that the enterprise provides standard documentation to accompany shipments of goods.

Key words: enterprise, marketing mix, customer value, environment

INTRODUCTION

The main goals of this paper are to present the factors shaping the strategy of enterprises for entry into foreign markets and implementing that strategy. This will be done by applying a review of academic literature, comparative analysis and descriptive research. Marketing mix, value added to customer and foreign environment as hypothesis were put forward to examine foreign entry strategy.

An international exchange is the process of planning and conducting transactions across national borders to satisfy the objectives of customers and enterprises. The concept of foreign market entry is the core requirement for an exchange to take place. An enterprise must develop the products that satisfy customer needs and wants. It has to evaluate real market opportunities for a product. This requires knowledge of the foreign market. Therefore, the enterprise has to study its prospective customers: Who are they? Where are they? What factors are important in their purchase of a product? It also must identify key competitors.

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THE PREPARATION FOR INTERNATIONAL EXCHANGE

The potential of a foreign market is discovered by undertaking the necessary marketing research and planning and then implementation that will help to in being successful. First of all it is necessary to determine if a marketing mix fits within the business context of the foreign market. The marketing mix is intended to describe the strategic elements that must come together in some combination to produce a successful strategy. The fundamental marketing mix 4P factors [Kotler and Keller 2006] are: (i) product – selling the right product to the right market at the right time; (ii) place – determining the best way of getting the product to the customer; (iii) promotion – selecting the most effective means of making the customer aware of the value of the product and (iv) price – creating the price that both fits the market conditions and the costs of doing business in the market.

The enterprise needs to do marketing research to find out whether the product will appeal to customers. Product policy includes all possible distinctive tangible features and intangible characteristics such as branding and warranties. If an enterprise can offer something unique at a competitive price, the chances of success will go up. Conversely, producing and selling ordinary, widely available products usually will not work. Even if an enterprise has an appealing product, it may still need to modify it (possibly at considerable expense) to meet foreign tastes and regulatory standards.

The product is distributed so that it is conveniently available to customers. Distribution policy has two components: channel management and logistics management. Channel management is concerned with the entire process of setting up and operating the contractual organizations consisting of middlemen. Logistics management is focused on providing product availability at appropriate times and places in the marketing channel. Companies must evaluate their distribution options based on the size of the target market for a product and the service requirements of potential customers.

An enterprise must also inform the market about its product. Communications policy uses promotion tools to interact with customers, middlemen, and the public at large [Haag et al. 2009]. The communications element consists of advertising, sales promotion, personal selling, and publicity. It is the most visible and sensitive of marketing mix.

Pricing policy determines the costs of the product to customers. Margins to be made for middlemen who assist in the exchange must be taken into account. An important point to remember is that price is the only revenue-generating element of marketing mix.

In a foreign market, there are other 6P factors that should be considered [FITT 2013]: (i) planning – business, market, account, sales and calls; (ii) personnel – identifying the skills required to design, develop and deliver the product; (iii) practices – business practices within the culture of the target market; (iv) partnerships – potential partners that may strengthen the opportunity; (v) positioning – how the company wants to be perceived by middlemen and customers; (vi) protection – an assessment of the potential risks in all aspects of the transaction.

The number of Ps could be much higher depending on the business the enterprise is in and the unique aspects of the target market. The enterprise's responsibility does not end with the sale. There is an implied warranty of satisfaction with the product; thus, the enterprise must often perform after-sale services.

At present, the American Marketing Association defines marketing as the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large[1]. The value-based approach puts the customer at the center of all marketing considerations. Enhancing the international exchange effort really means enhancing the value that the customer perceives in the product offered.

Since the customer determines value, the customer is where companies should start when considering ways to enhance value [Robbins et al. 2000]. Marketing research can tell the enterprise exactly what customers value. It should have already provided some ideas about the characteristics of target customers. Knowing what characteristics enhance the customers' perception of value is key to determining value. Much, of course, depends on the nature of the good or service offered. Many other factors' influence may be hard to predict. The broad task is to plan and execute market entry strategies that will ensure a long term competitive advantage for the enterprise.

THE ENTERPRISE INVOLVEMENT IN INTERNATIONAL EXCHANGE

Market development in the international area has grown in importance and usually takes one of the forms [Czinkota and Ronkainen 2001] shows in Figure 1. Casual exporting involves distribution the same offering in another country. Because this approach typically requires minimal capital investment and is easy to initiate, it is popular option for developing foreign markets.

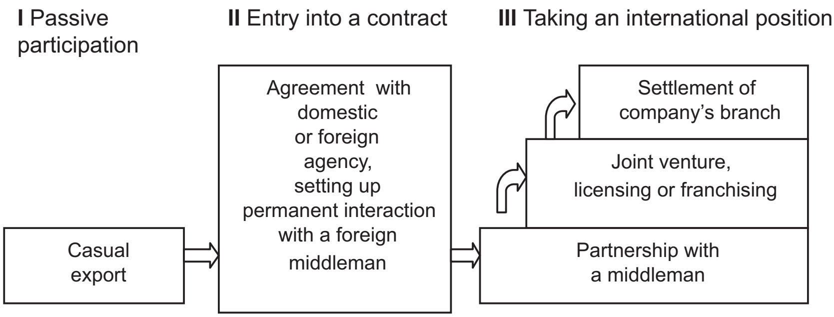

Figure 1. Enterprise involvement into international exchange
Source: Own elaboration.

Recruiting a domestic or foreign agency or setting up a permanent agreement with a foreign middleman has the same advantages as casual exports. Almost every permanent agreement with a foreign middleman leads to partnerships with the result of some form of an international position for the enterprise.

[1] http: //www.marketingpower.com/AboutAMA/Pages/DefinitionofMarketing.aspx (accessed: 15.02.2015).

Licensing is a contractual arrangement whereby one enterprise is given the right to partners, trademarks, know-how, and other intangible assets by its owner in return for a royalty or a fee. Licensing provides a low-risk, quick, and capital free entry to the host country. The two companies share ownership, control, and profits of the entity.

A joint venture, often called a strategic alliance, involves investment by both a foreign enterprise and a local enterprise to create a new entity. Joint ventures are popular because one enterprise may not have the necessary financial, technical, or managerial resources to enter a market alone. This approach also often ensures against barriers being imposed on the foreign company by the government of the host enterprise.

A franchise is an authority that is given by an enterprise to someone, allowing them to sell its goods or services or to take part in an activity which the enterprise controls. Franchising is mutually beneficial to both franchiser and franchisee. The franchise is distinguished by two features: (i) the franchiser owns a trade mark and licenses it to a franchisee in return for royalty payments; (ii) the franchisee pays for the right to be part of the system of doing business.

Foreign direct investment used to involve an enterprise investing in building or upgrading a factory in another country [Kotler and Keller 2006]. Currently it has been expanded to include the acquisition of a controlling interest in a company in another market. There are several ways in which an enterprise can invest directly in foreign markets: (i) construction of facilities or investment in facilities in a foreign market; (ii) mergers and acquisitions; (iii) investment in a joint venture located in a foreign market.

Direct investment in a manufacturing and/or assembly facility in a foreign market is the most risky option and requires the greatest commitment. However, it brings the enterprise closer to its customers and may be the most profitable approach for developing foreign markets. For this reasons, direct investment must be evaluated closely in terms of benefits and costs.

The enterprise should consider many reasons for making direct investments in a foreign market: (i) some governments prohibit or limit imports of goods produced in other countries, but an enterprise can build a production site in the foreign market and produce locally; (ii) producing goods in the target market avoids import duties and other taxes and the requirement for import permits; (iii) the enterprise can obtain the services of skilled employees in the target market or gain intelligence held by people in that market; (iv) in certain countries, an enterprise can take advantage of lower costs, such as cheaper labor; (v) an enterprise can become more competitive. Investments are often made in countries as a way of gaining access to markets that are closed or limited by trade barriers, procurement practices or government regulations. In some cases, this means manufacturing the contracted equipment in the country.

The enterprise can also make investments as a way of securing information or intelligence. A high-tech enterprise can invest in research and development consortia as a way to find out what others are doing. It can use an investment as a window into a market, helping it gather information and intelligence on market dynamics and the operations of competitors that would not otherwise be available.

Traditionally, investment decisions were based on low factor costs, including inexpensive labor and cheap raw materials. While these continue to be important in many industries, an enterprise today also demands innovation, access to technology and other things that give it a competitive advantage. Factor costs are not enduring. Currency devaluation, runaway inflation and improved standards of living can all have an impact on costs. If factor costs are an essential element of competitiveness, the company's strategy must be flexible enough to change locations, partners and venues to take advantage of shifting cost structures.

Investments can be made to enhance a competitive position or to anticipate and counter the actions of competitors. This might require opening and operating facilities in foreign markets. The facilities should then be staffed with personnel that are familiar with customer needs and with the degree of customer service required in those markets. An adequate level of inventory and a number of replacement or repair parts would also need to be maintained at the facility.

A foreign affiliate could be as modest as a small sales office or as ambitious as a full--scale manufacturing plant. Regardless of size, the affiliate is wholly owned by the enterprise but operates as a local enterprise with respect to regulations, laws and taxes.

To acquire a foreign business, the enterprise invests in the foreign enterprise by purchasing its shares and/or assets. However, the investment has to be large enough to give it significant influence over the foreign enterprise's activities. If the enterprise acquires 100 percent of the foreign enterprise, it gains complete control over its operations, and has effectively acquired a wholly owned affiliate without building it from the ground up.

In a merger, the enterprise establishes or already has an affiliate in the target market. It then combines that business and a local enterprise into a new enterprise that owns the resources of both enterprises. Both the original businesses disappear and the new enterprise continues as their successor. As with an acquisition, the new business functions as a wholly owned affiliate of enterprise's parent company.

FOREIGN COUNTRY BUSINESS BACKGROUND

Success of an international exchange requires figuring out what is the most appropriate market entry strategy for it and understanding of environmental forces, enterprise capacity, and marketing mix activities with healthy respect for competitor reactions. The marketer is subject to a new set of environmental factors, to different constraints, and quite frequent conflicts resulting from different laws, cultures, and societies. The basic principles of exchange still apply, but their applications, complexity, and intensity may vary substantially.

As shown in Figure 2, a recurrent issue in foreign market entry strategy is determining the consistency of the comparison between international and domestic environments. Proper analysis of these factors depends on the availability and evaluation of relevant information. In recent years enterprises have had to alter or adapt their marketing strategies because of political actions, social changes, economic fluctuations, demographic trends, buyers attitudes, technological advances, growth of the Internet, to name just a few of the environmental changes.

Competitive activities must be monitored to ascertain their existing or possible strategies and performance in satisfying customers' needs. A useful technique for gauging

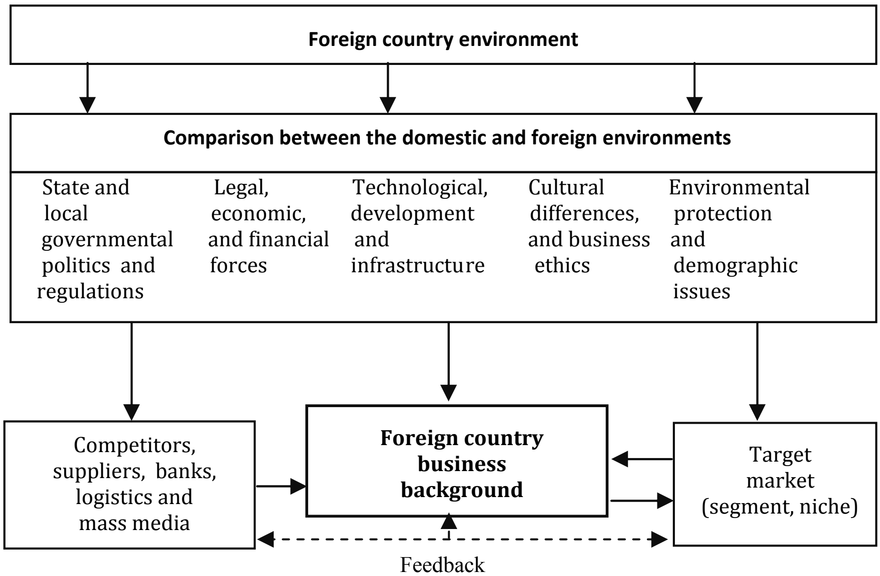

Figure 2. Foreign country business background
Source: Own elaboration.

potential outcomes of alternative marketing strategies is to array possible actions, the response to these actions, and the outcomes in the form of decision tree, so named because of branching out responses from the action taken.

International specialization and cross-sourcing has made production much more efficient. New technologies have changed the way the business is done, allowing to both supply and receive products from across the world by using the Internet. Ongoing technological innovation in marketing has a direct effect on the efficiency and effectiveness of business activities. Products can be produced more quickly, obtained less expensively from sources around the world, distributed at lower cost, and customized to meet diverse customers' needs. Enterprises can operate in a market space rather than a marketplace by keeping the content while changing the context of transaction.

The level of international investment is at an unprecedented high. The shifts in financial flows have had major effects. They resulted in buildup of international debt by governments, affected the international value of currencies, provided foreign capital for enterprises, and triggered major foreign direct investment activities [Czinkota and Ronkainen 2001]. Not only is the environment changing, but the pace of change grows faster. Policymakers have increasingly come to recognize that it is difficult to isolate domestic economic activity from international market events.

To regain some of their power to influence events, policymakers have sought to restrict the impact of global trade and financial flows by erecting barriers, charging tariffs, designing quotas, and implementing other import regulations. Export quotas are restrictions imposed by a government on the amount or number of goods or services that can be exported annually.

However, these measures have also been restrained by international agreements that regulate trade restrictions, particularly the World Trade Organization. Closer economic relations can result in many positive effects. At the same times, however, interdependence brings with risks, such as dislocations of people economic resources and decrease in nation's capability to do things its one way [Stiglitz 2002]. To help a country remain a player in the world economy, governments, enterprises, and individuals need to respond aggressively with innovation, process improvements, and creativity.

International activities can be crucial to an enterprise's survival and growth. Enterprises that heavily depend on long production runs can expand their activities far beyond their domestic markets and benefit from reaching many more customers. Market saturation can be avoided by lengthening or rejuvenating product life cycles in other countries. Production sites once were inflexible, but now plants can be shifted from one country to another and suppliers can be found on every continent. Cooperative agreements can be formed that enable all parties to bring their major strengths to the table and emerge with better products than they could produce on their own. International marketing enables consumers all over the world to find greater varieties of products at lower prices and improve their lifestyles and comfort.

One key facet of marketing concept is adaptation to the environment, particularly the market. Even though many enterprises understand the need for such an adaptation in their domestic market they often believe that international customers are just like the ones the enterprise deals with at home. It is here that many enterprises commit grave mistakes which lead to inefficiency, lack of customer acceptance, and sometimes even failure.

In the short term, the enterprise has to adjust to these environmental forces; in the long term, it can be manipulated to some extent by judicious marketing activities. After analyzing the characteristics of the market(s), the enterprise is in a position to specify the marketing mix variables that will best serve each target market. The actual process of marketing management consists of four stages: analysis, planning, implementation, and control [Kerin and Peterson 2004]. Analysis begins with collecting data and using various quantitative and qualitative techniques of marketing research. Data sources will vary from secondary to primary, internal to external, and informal to formal. The data are used to determine enterprise opportunities by screening a plethora of environment opportunities. The opportunities must then be checked against a company's resources to judge their viability.

Planning refers to the blueprint generated to react to and exploit the opportunities in the marketplace. The planning stage involves both long-term strategies and short-term tactics. A marketing plan developed for a particular market includes situation analysis, objectives and goals to be met, strategies and tactics, and cost and profit estimates. Competition in the foreign market is intense and widespread. The enterprise needs to bring something different or innovative to the market that allows to compete and beat the competition.

The enterprise needs to ensure that has a foreign exchange process is in place to repatriate profits and needs to talk with a bank or a government agency about financing and payment insurance. The enterprise should always remember that the way business is conducted in other countries is not same as in Poland [Michalski 2014]. It should learn about the local business culture, country and politics. Religion, social taboos and cultural preferences will also affect perceived value. No matter how well the country and its culture is understood, there will always be something missing, so is better to listen and learn from a local partner. Building and developing local networks is time consuming and can be expensive but it is worth every minute and every zloty.

THE IMPLEMENTATION OF A FOREIGN MARKET ENTRY STRATEGY

Once the exporter understands what motivates customers and what they value, the next step is to deliver it. In some cases, enhancing value means actually changing the product to give it new features or a different design. In other cases, companies can enhance perceived value by changing how a product is sold rather than what is sold.

Implementation is the actual carrying out of planned activities. Plans must take into account unforeseeable changes within the enterprise and environmental forces and allow for corresponding changes to occur in implementing the plans. For this reason, concurrently with implementation, control mechanisms must be put into effect. The marketplace is ever dynamic and requires the monitoring of environmental forces, competitors, channel participants, and customer receptiveness. The enterprise must seek to reduce its costs to meet the market's expectations on price while still making enough of a profit to make the transaction worthwhile[2]. Value-based pricing starts by looking at prices from the customer's point of view.

Successful implementation of the international exchange requires figuring out what is the most appropriate market entry strategy for it and understanding of environmental forces, enterprise capacity, and marketing mix activities with healthy respect for competitor reactions [Michalski 2012]. To achieve success in a foreign country, it is necessary to consider international issues and repercussions and make decisions based on answers to such questions as these: (i) How the product fits into the foreign market? (ii) What marketing adjustments are necessary? (iii) What threats from international competition should be expected? (iv) How can we work with these threats to turn them into opportunities? If all these issues are integrated into each decision made by marketers, foreign markets can become a source of growth, profit, needs satisfaction, and quality of life that would not have existed for them, had they limited themselves to domestic activities.

Before entering into an international supply agreement, an enterprise should ensure that it is aware of all international regulations that might affect the purchase, including export compliance in the foreign market and import controls in the domestic market. If regulations are not adhered to, enterprises might find their goods seized by customs or be subject to fines. The importing company will often have to assist the exporter in obtaining an export license from its government, usually by providing an import certificate or other documentation.

The enterprise has to identify staffing needs and have all the proper forms and documents for registration and have all the appropriate government approvals that will allow it to do business in the foreign country. International exchange costs money and the enterprise should be prepared and budget for expenses that are not normally incurred domestically. Enterprises must also offer a price for their goods or services that is both competi-

[2] http://www.getin2marketing.com/discover/what-is-marketing (accessed: 15.02.2015).

tive and profitable. Sometimes the cost of providing additional services is prohibitive and the competitive environment does not require it.

It is usually more complex for a company to provide high levels of service to international customers than to domestic customers. This is often due to factors such as the distances to reach foreign markets, the variety of transportation modes that might have to be used, multiple transfers and handling procedures, and regulations involved with transporting goods or service personnel across international borders.

Risk and ownership of goods may be transferred between exporter and importer at various points in the life of a transaction [Barlett and Beanish 2011]. Similarly, financing can be triggered at various points in a transaction – from pre-shipment financing, which favors the exporter, to import financing at the end of a trade transaction, which assists the importer. For an exporter, selling on open account requires post-shipment financing; one option is to sell receivables at a discount under a process referred to as factoring. Under this arrangement, a factoring enterprise, often a bank, will take the credit risk of the invoice and pay the client a percentage up front. This may satisfy an exporter's need for cash flow but is generally an expensive form of financing.

Export transactions require that the enterprise provides standard documentation to accompany shipments of goods. The documentation typically includes: commercial invoice, Bill of Lading or transport document, export declaration, packing list, insurance documentation and certificate of origin. Documentary requirements can vary significantly, as a result of both the specifics of a transaction or shipment, and as a result of the arrangements related to payment and financing.

The enterprise can improve its odds of foreign success by carefully examining the business, finding ways to capitalize on its strengths and taking action to remedy its weaknesses. Here are five important areas that deserve close attention: (i) performance – if the business is doing well in Poland, that's a big plus. A solid cash flow and comfortable profit margins, supported by an effective business plan, make an excellent launching pad for an export project; (ii) human resources – if the export is more than a modest success, the enterprise will need more people to handle the increased workload. That means recruiting, hiring and training, all of which will require enterprise resources ranging from more office space to a bigger payroll; (iii) financial resources – most small and medium-sized exporters can't start an international operation using their own financial resources, so they go to their lenders for the working capital they need. Unfortunately, it can be much harder to get financing for exporting than for domestic operations. This is because international trade is inherently riskier than domestic trade, and because the banks know that most export ventures need a couple of years to start turning a healthy profit; (iv) production resources – one sure way to fail internationally is to secure a large contract and then be unable to fill it. The enterprise has to make sure that it has enough spare production capacity – or can create it quickly – to meet unexpectedly large foreign demand; (v) logistics resources – producing enough to fill an order is only part of the job – its important make sure the customer gets goods on time and in the expected condition [Carter 2014].

If the enterprise finds some weaknesses, though, it should not give up – almost all non-exporting enterprises, at this early stage, have gaps in their preparedness. But once the enterprise fills those gaps, it can go abroad with confidence and a solid foundation for international success. The choice of strategy will, in most cases, determine the mode of entry. For example, Comarch, a global supplier of business information technology, builds up diverse strategies of foreign market entry. It makes good use of traditional distribution channels as well as e-commerce (Internet shop, B2B platform) and mobile selling [Michalski 2014]. Some product-market mismatches might be eliminated over time.

CONCLUSIONS

The hypothesis that the marketing mix, value added to customer and foreign environment, play the crucial role in foreign entry strategy has been proven. The most successful enterprises are those that know how to assess customer needs effectively and apply the findings to their strategy. Many different strategies can assist an enterprise in successfully entering new, foreign markets.

When an enterprise has examined its strengths in the context of its corporate objectives, it should be able to determine what it needs for an effective market entry strategy. If a main gap for meeting a strategic goal is financial constraints, an enterprise might consider looking for investors rather than partners. However, if there is still something missing, such as special expertise or market presence, partnership options must be examined more closely.

Research enables enterprises to make a realistic assessment of the strengths of their products and the amount of competition in a potential market. Strategies help the enterprise decide which markets to target and what approaches to use in entering them. Strategies indicates how management should balance costs and risks against potential returns. Analysis provides comparisons with competing products and identifies the modifications required to address new markets.

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STRATEGIA WEJŚCIA NA RYNEK ZAGRANICZNY

Streszczenie. Przygotowanie do wymiany międzynarodowej polega na zbadaniu zmienności składników marketingu mix i na podejściu do potrzeb nabywców opartym na wartości. Wymiana międzynarodowa przybiera różne formy począwszy od przypadkowego eksportu, pośrednictwa agenta, partnerstwa, licencji, spółki i franszyzy do założenia filii. Przedsiębiorstwo może zainwestować bezpośrednio kapitał na rynku zagranicznym. Strategia wejścia na rynek zagraniczny jest określana przez wyniki porównania środowiska międzynarodowego ze środowiskiem krajowym. Przedsięwzięcia strategiczne prowadzą do jej wdrożenia. Transakcje eksportowe wymagają przygotowania standardowej dokumentacji towarzyszącej wysyłce dóbr.

Słowa kluczowe: przedsiębiorstwo, marketing mix, wartość nabywcy, środowisko

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INNOVATIVENESS OF ADVERTISING ACTIVITIES IN THE POLISH MARKET – ADVERTISERS' ABILITIES AND RECIPIENTS' PERCEPTION

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Abstract. The development of advertising competition forces to undertake measures aimed at increasing effectiveness of the process of influencing potential customers. Advertisers more and more often reach for non-conventional and innovative solutions that are a part of innovativeness in a broad sense. This is facilitated by the development of modern mass media. The article touches the problem of the possibility to implement innovative solutions in advertising and perception thereof among consumers. The grounds for considerations are quantitative research surveys carried out among enterprises conducting their active advertising as well as recipients of those activities.

Key words: advertising, advertising innovativeness, advertising perception, advertising services, innovativeness

INTRODUCTION

The contemporary market realities pose new challenges to enterprises. Intensification of the competition processes forces undertaking actions allowing for creating a competitive advantage. Of the key importance is in this process the ability to compete in the market, described as competitiveness. It can be considered in various plains and its level is decided by many factors. Striving to cope with the ever growing competition, expressing in a greater and greater number of entities operating in the market, a growing number of products and brands, evolving ways of distribution and sale as well as in altering forms of marketing communication, enterprises are looking for new concepts of operation, reaching for the solutions not applied so far and impelling higher flexibility in all areas of management. Innovativeness is considered as one of the most important factors conducive to growth of competitiveness. Innovative processes are today the main direction of changes

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taking place at enterprises thus determining their present and future ability to effectively compete in the market. The innovative activity also concerns marketing as that function of management, which is intrinsically very susceptive to creating new concepts approaching towards the purchasers' expectations and to the observed market trends [Nowacki 2010a]. In the context of marketing activities, being characterised by high innovativeness and creativeness, the role of advertising processes deserves emphasising.

Having so defined the assumptions, an aim of the study is an attempt to determine the opportunities and scale of the use of innovative solutions in advertising activity as well as their importance for raising noticeability of advertising messages among recipients.

INNOVATIONS IN ADVERTISING – THEORETICAL BACKGROUND

The notions of innovation and innovativeness belong to the fundamental terms appearing in the theory of enterprise management, originating from the Schumpeter's concept [1960] who identified innovations with the introduction to production of new or with improvement of the existing products, introduction of a new or improved production method, opening a new sales market, application of a new manner of sales or purchases, application of new raw materials or half-products, or introduction of a new production organisation. Therefore, this is the translation of invention into the material reality [Bogdanienko et al. 2004]. The development of the enterprise management concept has led to the emergence of many alternative definitions of innovations, which differ from one another with plains of approach and the referred features [Nowacki 2010b].

For example, Damanpour [1991] has defined innovation as a product, service, process, programme or device which is new for the organisation adopting or implementing it. In turn, Amabile [Amabile et al. 1996] defines innovation from the organisational perspective, describing it as a successful implementation of creative ideas at the enterprise. DeCenzo and Robbins [2002], on the other hand, understand innovation as a process of transformation of the creative idea in a useful product, service or *modus operandi*. Considering the marketing context of innovation, one should also refer to the formulation proposed by Burnett [1953], according to which innovation is every idea or thing that is new as it is completely different from the already existing, well-known forms.

Irrespective the way of formulation, innovation is perceived as a strategic instrument which serves building and extending enterprises' competitive abilities [Farazmand 2004]. It is a key to progress and development, it is also a source of inventions in all spheres of life, community, technology and administration. Innovation refers to novelties in the area of ideas, approaches, methods, processes, structures, behaviours, attitudes and cultures, as well as technologies and abilities. It also refers to knowledge which is used for manufacturing new products and services, for communities governing and administering and managing organisations of different types [Nowacki, Staniewski 2012].

Individual and group creativeness is an indispensable though insufficient basis for innovativeness. Hence, as innovativeness there should be considered the propensity and ability to create new and to improve the existing products, technologies and organisations as well as systems of management and motivation [Kotowicz-Jawor 1997]. Innovation is an effect of combination or synthesis of knowledge into original, important, valuable new products, processes or services. So that innovativeness could have yielded effects it must, first of all, result in a significant change, not necessarily connected with emergence of something completely new, but it may have the form of a number of important improvements (of the product, process or service) vis-à-vis the earlier achievements.

From the objective point of view, innovative solutions can be divided into four categories: product, process (technological), organisational and marketing innovations [Niedzielski et al. 2007]. The traditionally treated marketing innovations are understood as the introduction in marketing activities of new or improved solutions (changes) as regards the product, its equipment, brand, packaging, positioning, pricing policy, promotional activity or business model [Nowacki 2010b]. The broad formulation of innovativeness and innovations, however, makes us look at marketing as a potential area of implementation of innovative solutions, both of the product nature (creating new and improving the existing products), process (concerning organisation's functioning and, in particular, improving the manufacturing methods), organisational (connected with the organisational structure of marketing services of the enterprise and their ties with business partners), and the typically marketing nature (as regards application of other than the product marketing instruments and activities).

Advertising innovations must be perceived in the latter context. Advertising as an area of enterprises' activities related to influencing the market seems to be particularly susceptible to implementation of innovative solutions. This is issuing from a few factors. The first one is the dynamics of the advertising market, being considered from the point of view of growing outlays on advertising activities and the related to it growth of the number of messages released and, thus, the growing advertising competition. The second is changes taking place in the sphere of recipients of advertising actions, their relation to advertising, perception of messages and susceptibility to their impact. They are mainly expressed in aggravation of the attitude towards advertising and dilution of its effectiveness.

As regards advertising, innovativeness may concern each of its elements, both creating directly the advertising strategy and connected with the activities determining and accompanying implementation thereof. Assuming the earlier cited broad understanding of innovation as an action connected with implementation of new and creative ideas, symptoms of innovativeness can be seen at each of the six fundamental stages of advertising strategy formation: determination of the advertising objectives (mission), identification of recipients and their purchase motives (market), determination of the advertising budget (money), choice of the advertising media and vehicles (media), determination of the advertising message contents (message), and assessment of effectiveness and efficiency (measurement) [Nowacki 2011].

The plain for implementing innovative solutions may be the whole, comprehensively formulated advertising strategy. Innovativeness of programming thereof comprises primarily all the initial stages connected with defining and modifying the advertising objectives, identifying the audience and looking for new target groups as well as with decisions on the volume and ways of budgeting and the processes of controlling and monitoring effects of advertising activities owing to making use of more and more sophisticated research tools and methods offered by specialised agencies. As Lane and Russell write [1996], this is connected with evolution of the entire marketing system which, evolving in the second half of the 20th century from the era of mass information, has appeared in the era of research. It is characterised by the permanent improvement of the research methods being used which help to recognise advertising recipients, their needs, motivations, expectations, attitudes, preferences as well as market behaviours. It is easier and easier for advertisers to identify narrow groups of recipients and, at the same time, to monitor effects of advertising campaigns impact. The improvement of research methods is connected with the use of modern technical solutions enabling faster and more precise data mining as well as contributing to development of new measurement methods, e.g. neuroresearch.

The high susceptibility to implementation of innovative solutions is specific to the remaining stages of the advertising strategy directly connected with influencing recipients, hence the measures related to the used advertising media and vehicles and with the advertising message creation.

In case of the media strategy, these abilities are connected with the dynamic development of the communications channels and the media infrastructure. This concerns not only the media being described as modern (e.g. Internet) but also those with the long tradition (e.g. the press or outdoor). The media markets are characterised by a high variability of the advertising means appearing there, stemming directly from changes in media consumption, diversification of recipients' interests, technical changes as regards accessibility and impact. The contemporary media offer advertisers an ever growing number of the impact measures differing with the degree of modernity and attractiveness. Also the rules of their use are changing. In effect, we deal with the evolution of old and the development of new advertising media, vehicles and carriers. This is manifested with continuous changes of the media structure of outlays on advertising or changes in the shares of individual means in advertising spending. Some of them are of the nature of permanent trends (as, for instance, the growth of importance of the Internet which for a few years has gained the second, after TV, position among media, at the expense of the press and radio); some acquire the form of multidirectional and ephemeral phenomena. There is commonly observed the appearance of new forms of advertising impact – this concerns, in particular, the most flexible and dynamic Internet, in which case there are still emerging and developing new vehicles, but also the media considered as traditional such as the press or outdoor, within the framework of which it is possible to meet more and more often unconventional carriers, breaking down from the schemes of formalised announcement modules or notice boards. The abundance of the contemporarily accessible carriers is so big that a considerable part of them is yet beyond the area of interest of most advertisers. Not all are sufficiently promoted, some are characterised by too high costs and still others seem to be doubtful as to efficacy of impact.

Of a similar nature are the changes taking place in the creative strategy plain. Its level, determined, *i.a.* by the scope of use of original and innovative contents, decides success or failure of the advertising campaign [Belch, Belch 2009]. This is an outcome of saturation of the advertising market with a vast number of various messages, what has led to reduction of effectiveness of impact, measured with noticeability (as there are too many of them recipients could be able to notice them), recognisability (as too often they are so similar that in result it is difficult to remind oneself what the brand it is about), acceptance (as it is more and more difficult for recipients to accept what they see another time), motivation to buy (as how many time one may fall for the same arguments). Coming up to meet these difficulties, advertisers are running a race in pursuit advertising content creativity. It comes more and more difficult to create fully original messages; therefore, their creators more and more often reach for innovative, frequently unconventional ideas whose usage was unimaginable a few or several years ago. In effect of exhaustion of ideas, they use controversial motives, balancing on the edge of binding regulations or unwritten albeit commonly respectable ethical norms.

Planning the schedule of advertising activities is another area susceptible to the introduction of changes. Most often changes in this respect concern modification of frequency of running the campaign, alteration in its periodicalness or taking in the schedules into account specific circumstances inducing to intensify advertising such as holiday seasons, jubilees, the seasonality related to changeability of the four seasons of the year etc.

The last area of advertising activity, where there may appear innovative solutions, is cooperation with agencies providing advertising services. This may concern both the change of partner and the principles of cooperation with them concerning the range of cooperation, forms of financing, and the existing ties between entities. It is proper to pay here attention not only to the changes taking part in relations between customers and service providers, but also to the nature of the offer of advertising industry which itself may display high innovativeness.

MATERIAL AND METHODS

To carry out an analysis of the use of innovative solutions in advertising activities and the way of perception thereof among advertising recipients there were used two sources of empirical materials. The first is findings of research carried out within the implementation of author's own project entitled Impact of the use of innovative solutions in some areas of management on enterprise's competitiveness. The research was conducted in 2009 on the non-probability, nation-wide sample of 608 enterprises operating in Poland. In the sample, there prevailed micro firms with employment from 5 to 9 persons (29%), 25% shares were specific to small and medium-sized enterprises, and the per cent of large enterprises, employing more than 249 people, accounted for 21%. Half of the firms surveyed were of the production nature; the other half was comprised in equal parts by service and commercial enterprises. Seventy eight percent were entities operating exclusively in the Polish market (of which 24% covered by their activity the whole country and 54% operated in the regional scale as maximum); the remaining were of the international character. In the research, there was applied the method of questionnaire-based face-to-face interview carried out with representatives of top management responsible for marketing activity. This part of the research concerned the use of innovative solutions in formation of the enterprise's advertising strategy.

The research findings were compared with results of surveys conducted among advertising recipients. Such surveys were carried out in 2013 within the project devoted to the use of various forms of argumentation in creating the advertising message. The research was implemented by the method of face-to-face interview on the nation-wide, stratified sample of 504 advertising recipients aged 15+. As the criteria for stratification there were adopted sex, age and place of residence (province and the class of locality). In result, among respondents there were 52% of women and 48% of men. Among the whole body of respondents, 18% were individuals aged 15–24, 21% were aged from 25 to 34, 16% were at the age of 35–44 years, 18% belonged to the age interval of 45–54, 17% of respondents represented the group of 55–64 years old individuals, while the remaining 10% were of the age of more than 64. The research carried out among advertising recipients concerned their perception of the advertising activities carried out in the mass media, and their attitude towards various ways of advertising argumentation.

RESULTS AND DISCUSSION

Surveys among advertisers – use of innovative solutions

The surveys carried out among advertisers show that from among various activities related to marketing it is advertising activity that was spontaneously indicated by entrepreneurs as the area where innovations can be applied mostly. Such an opinion was uttered by almost 30% of managers. Most often they were managers of small enterprises carrying out activities in the service sector. On the one hand, it may evidence their greater flexibility in programming advertising activities and susceptibility to implementation in this area of various innovative solutions, but also, on the other hand, the lack of explicit and long-run policy, what forces them to a relatively often reach for new solutions. In turn, larger enterprises more rigorously observe the standards worked out in this area, focusing on the proven procedures and thus minimising the risk of failure in result of application of new ideas, greater due to the scale of advertising activities than in the case of small entities.

However, these statements were merely of the declarative nature as they did not mean the actual scope of implementation of innovations in advertising activity. In the reality, the per cent of enterprises applying innovative solutions in their advertising activity was clearly lower, and the relations between individual categories of enterprises were also formed differently.

Taking into account the real application of innovative solutions in the period of two years prior to the research, most often innovative solutions were implemented in case of the used channels for advertising contents conveyance, i.e. advertising media, vehicles and carriers. Such activities were undertaken by 13.7% of the enterprises surveyed. Every tenth entity made at that time changes in the comprehensively formulated advertising strategy, every fifteenth altered the schedule of campaign run and every twentieth modified the concept and idea of advertising message. The definitely lowest per cent – less than 3% – introduced new solutions in the field of cooperation with advertising agencies (Table 1).

The level of innovativeness of the surveyed enterprises in the sphere of advertising should be considered as low. When analysing the diversification of statements in individual categories of enterprises, one can notice interesting trends. The first is the relationship between the scope of use of innovative solutions in advertising and capital of the enterprise – in all the areas, the entities with foreign or mixed capital demonstrated a significantly higher innovative activity. The most visible it was in the area of

Table 1. Areas of advertising activity where enterprises implemented or plan to implement innovative solutions

Enterprises' features	Used advertising media, vehicles and carriers		Comprehensive advertising strategy		Schedule of carrying out advertising activities		Ideas/concepts of advertising messages		Scope of use of advertising agencies' services	
	innovation implemented	innovation planned	innovation implemented	innovation planned	innovation implemented	innovation planned	innovation implemented	innovation planned	innovation implemented	innovation planned
	In per cent of indications									
Total	13.7	5.6	9.9	6.9	6.6	4.1	4.8	3.3	2.6	2.6
Type of activity of the enterprise										
Production	12.6	5.6	9.3	10.7	4.4	3.0	5.9	3.0	2.6	1.9
Trade	18.7	5.4	12.8	5.9	8.9	5.4	5.9	3.0	3.9	2.5
Services	9.6	6.6	8.6	7.6	5.6	5.1	2.5	4.6	1.0	4.1
Size of the enterprise measured with the number of employees										
5–9 people	6.3	5.1	6.3	5.1	4.0	2.3	4.0	3.4	1.1	1.1
10–49 people	13.2	4.6	9.9	6.6	8.6	4.6	2.6	2.0	2.0	2.0
50–249 people	13.6	4.5	10.4	9.7	7.8	4.5	4.5	5.2	5.2	3.2
250 people and more	24.6	8.7	14.3	6.3	6.3	5.6	8.7	2.4	2.4	4.8
Enterprise's capital origin										
Exclusively Polish	11.9	4.9	9.2	6.5	5.9	4.3	3.3	3.5	2.2	2.0
Foreign and mixed	22.7	9.3	13.4	9.3	10.3	3.1	12.4	2.1	5.2	6.2

Source: Author's own research carried out in 2009.

creative strategy – the per cent of entities with the share of foreign capital introducing innovative solutions in this field was almost four times higher than in case of Polish firms. One must also pay attention to the fact that the most open to changes as regards advertising activities were trade enterprises – their pro-innovative stance mostly concerned the use of new channels of advertising communications. Small enterprises displayed a low activity in the process of application of innovations. While earlier their representatives declared high flexibility in the possibilities to introduce innovative solutions but, in practice, they implemented it more seldom than in the case of large organisations. Probably the barrier in this respect was limited financial opportunities. There can also be noticed a clearly greater interest in implementation of innovations in the sphere of mass media, advertising vehicles and carriers among large enterprises and those making use of foreign capital.

The characteristic phenomenon is also the declining propensity to innovations in advertising. In the four out of the five analysed dimensions of advertising activity (apart from the use of services provided by advertising agencies), the per cents of managers declaring their readiness to introduce new solutions in the future were lower than the indicators illustrating their real use. This indicator to the highest degree – by more than half – lowered in case of the application of new communication channels. The greatest propensity to reduce innovative activities was displayed by large enterprises and those with foreign capital, therefore, those which so far have been leaders in implementation of changes in advertising activities.

This very cautious approach to introduce advertising innovations may be determined by the market situation. The period of economic slowdown and slack felt by many entities may induce managers to minimise advertising spending in general, and to reduce outlays on new, yet not proven and, therefore, encumbered by greater risk, activities.

Surveys among advertising recipients – perception of innovation in advertising

Looking at the phenomenon of advertising innovativeness from the point of view of its recipients, we should focus on the two aspects. The first concerns the use of advertising communication channels, while the second is linked to the application of innovations in the creative strategy.

The carried out surveys show that 63% of respondents see the use by advertisers of new solutions in the area of advertising messages emission. This more often concerns men than women and younger people (up to 35 years of age). This is not a surprise as the highest dynamics of development is specific to the Internet, i.e. the medium for young people. In case of online advertising, there can be observed great changes as regards the applied forms of advertising, their volume, form, animation etc., what makes the Internet advertising more noticeable and attractive. The changes in Internet advertising carriers are noticed by 76% of respondents (from among those declaring perception of the changes in the advertising media and vehicles). Significantly more seldom innovative solutions are noticed in case of the press advertising – they are declared by 44% of respondents. The changes concern mainly formats and shapes of press announcements, their position as well as the ways in which they are attached to the issue. Departure from the standards to the benefit of non-standard forms is today specific for the majority of press titles. Thirty six percent of respondents pay attention to the evolution of forms of outdoor advertising. There are more and more frequently observed changes in the size and shape of billboards, the way of their exposition, use of new solutions of the LED screen type, boards enabling the rotate-form presentation of posters as well as placement of advertising means not only in the open space but also inside transportation vehicles or facilities of public services. Against the background of those three media, of a significantly more conservative nature are TV and radio. The changes therein are perceived by less than every tenth person (7% – TV, 6% – radio) and they most often concern the way of advertising contents emission. On the other hand, quite frequently innovations take place in case of other media (e.g. intrashop advertising, advertising gadgets, advertising in publications of the form of books and leaflets, direct mail), what is an effect of their great diversity, lack of standardisation and susceptibility to new solutions. Innovativeness of these forms is noticed by 28% of respondents.

The innovations concerning the sphere of creative advertising are of another nature. They are connected with modifications of advertising messages. It is difficult for advertising recipients to refer to changes of the whole idea or concept of the message; however, they can see and assess the elements appeared therein. Of a particular importance is in this context the use by advertisers of the arguments referring to the notions "innovation" or "innovative", or the related to them and often perceived as the synonym of the terms "modernity" or "modern".

The surveys show that these notions belong to the ones that attract attention in the advertising messages. Both are along the five – besides the humorous contents, information on the price and scenery of the message – elements of the greatest noticeability. The arguments and notions related to modernity were indicated by 21%, and innovativeness – by 16% of the respondents.

These notions may appear in all elements of the message. To the highest degree, they attract attention in the context of the cited results of surveys and tests (more than 40% of indications). Somehow more seldom they are noticed in the headlines and the main body of the advertising content, and, in the least degree, they attract attention in the situation of placement in the advertisement illustration. Differences between the uses of both notions are minor – innovativeness is a little bit more often observed in surveys and tests findings, while modernity – in the main body of message contents (Fig. 1).

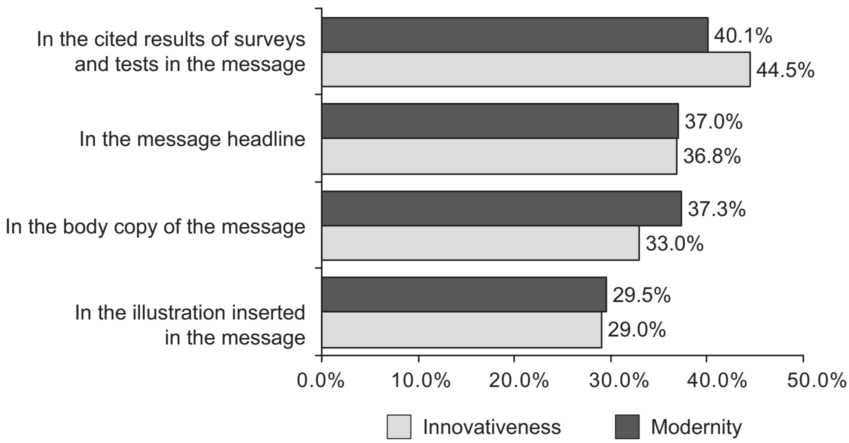

Fig. 1. Identification of location of the terms "innovativeness" and "modernity" in advertising messages

Source: Author's own research carried out in 2013.

Advertisers use the arguments of innovativeness most often in the context of informing of the product composition. Such a manner of use of this notion is noticed by 35.5% of the people surveyed (Fig. 2). Somehow more seldom the recipients encoun-

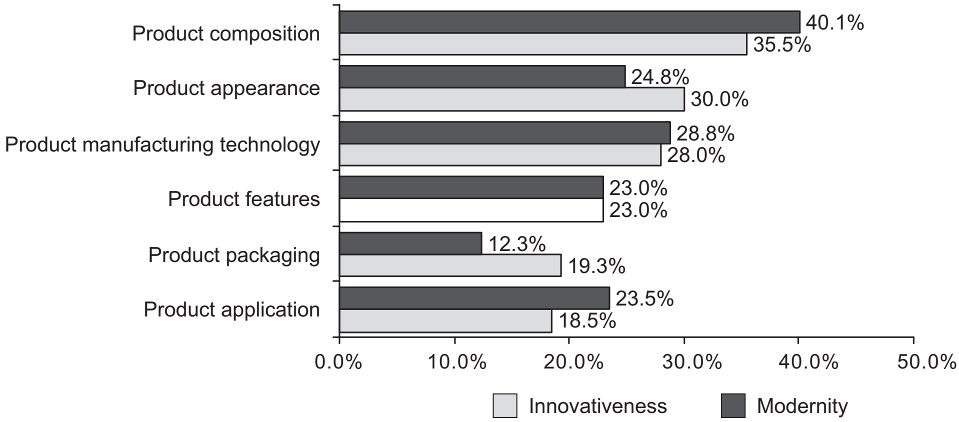

Fig. 2. Elements to which there refer the terms "innovativeness" and "modernity" in advertising messages

Source: Author's own research carried out in 2013.

ter in messages references to the innovative appearance of the product and innovative production technologies (around 30%) as well as the product's innovative features and applications and packaging thereof (about 20%). Modernity most often appears in the message content as regards the advertised product's composition (such perception of this argument is declared by more than 40% of respondents). Approximately 1/4 of the individuals surveyed encounter the term "modernity" in the context of manufacturing technology, appearance, application, and product's features. On the other hand, to a minor degree this notion is used in relation to packaging of the products being advertised (only 12.3% of indications).

CONCLUSIONS

Summing up the presented considerations concerning the opportunity to implement innovations in the sphere of advertising activity and the way of perception thereof by recipients, one may try to attempt to assess this phenomenon, indicating, at the same time, its importance in the process of formation of purchasers' behaviours.

There must be emphasised the quite a high level of managers' awareness as regards the role of both advertising activity and innovative solutions in raising competitiveness. Advertising is also perceived as that area of marketing where possibilities to implement innovations are very high. Its essence is high flexibility and susceptibility to creative solutions. Also the civilisation and technical development provides an enormous spectrum of modern impact measures. These are just the aspects where potential opportunities to implement innovations can be seen.

Against this background, however, there can be seen low innovativeness of enterprises as regards advertising. Only a small part of them implement innovative solutions; the majority reaches for the proven, often cliché-type measures. The reason for this is the felt by managers lack of confidence in what is innovative. In their pursuit to minimise the risk, especially in the context of potential harm to the organisation's image, they are reluctant to reach for innovative solutions. Thus, however, they resign from the opportunity to exist in purchasers' awareness as original and creative entities.

This caution seems to be not fully justified. Advertising innovations do not, in principle, generate higher costs. Utterances of the representatives of enterprises, which are, in the plain of implementation of innovations in marketing in a broad sense, therefore, also in advertising [Nowacki 2010b], characterised by great activity, indicating benefits both considered in financial terms (growth of sales and profits) and in market terms (gaining new markets, winning new customers, image improvement). A specific effect of the application of innovations is also competitiveness rising – more than half of entities explicitly declare the high growth of competitiveness under the impact of marketing innovations.

The source of this is the recipients' positive attitude towards innovative solutions. In the epoch of oversaturation of the advertising market and fatigue with advertising, there are also noticeable and acceptable such actions for which specific are manifestations of originality. Everything what is new or promises novelty attracts attention and inspires recipients to get interested in the message contents.

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INNOWACYJNOŚĆ DZIAŁAŃ REKLAMOWYCH NA RYNKU POLSKIM – MOŻLIWOŚCI REKLAMODAWCÓW A PERCEPCJA ODBIORCÓW

Streszczenie. Rozwój konkurencji reklamowej wymusza podejmowanie działań zmierzających do zwiększenia efektywności procesu oddziaływania na potencjalnych nabywców. Reklamodawcy coraz częściej sięgają po rozwiązania niekonwencjonalne i nowatorskie, które wpisują się w szeroko pojmowaną innowacyjność. Sprzyja temu rozwój nowoczesnych środków przekazu. Artykuł porusza problem możliwości wdrażania rozwiązań innowacyjnych w reklamie i ich percepcję wśród konsumentów. Podstawą rozważań są badania ilościowe prowadzone wśród przedsiębiorstw prowadzących aktywną działalność reklamową oraz odbiorców tych działań.

Słowa kluczowe: reklama, innowacyjność reklamy, percepcja reklamy, usługi reklamowe, innowacyjność

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THE SUSTAINABLE WINE MARKET IN EUROPE – INTRODUCTION TO A MARKET TREND AND ITS ISSUES

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Abstract. The wine market in EU had changed, and in general, wine consumption decreased. New trend can be however observed in terms of production and consumption of organic wines. The aim of the article is to analyse the wine market in EU, regarding organic products and to evaluate the social significance of the growing popularity of organic wines. The survey was conducted basing on the analysis of data on the volume of production and sales of conventional and organic, statements and still ongoing focus group conducted with Austrian and Italian organic winemakers. The results are confirming growing popularity of organic production, but also are showing some problems in the matter of terminology, eco-labelling and naming the organic wines, which seems to arise from a change of the paradigm of entrepreneurial actions and ceding from the assumptions of profit and efficiency maximization, to greater care about sustainable development and quality.

Key words: wine market, organic wine, biodynamic wine, natural wine, eco-labelling

So many poisons are employed to force wine to suit our taste – and we are surprised that it is not wholesome!

Pliny the Elder, Natural History, Book XIV, 130

INTRODUCTION

The aim of the article is to provide an overview of the phenomenon of organic products on the wine market. In Europe, the consumption of a conventional wine is gradually declining, as is the area of vine plantation. This problem does not concern organic winemakers, as the numbers in terms of plantation, production and consumption of organic vines and wine are on the rise. The popularity of organic products can be associ-

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ated with the EU policies, but also with a change of social values[1]. Organic wine is also a source of concern, as the EU regulations were defined only in 2012, and turned out to be not quite restrictive, from point of view of some winemakers. Organic wine market existed well before the 2012 and this resulted with a creation of many private certification systems. Another problem comes from a naming of types of products, as the terminology is not always clear and consistent. Sustainable production is then an ethical issue, which will be discussed in the further part of this paper.

MATERIAL AND METHODS

The present study is an analysis of the chosen trends on European wine market. The time horizon of the study, covers a period 2000–2013. However, due to diversity of the sources, not all collected data refers to exactly the same period. The access to the data concerning organic wine was particularly problematic issue, because of a confusion on the definition of a different kinds of wines, but also because of the fact the market of organic wine is just emerging. In terms of the geographical area, a focus is on the EU countries market. The study is basing mainly on the raw data introduced by United States Department of Agriculture, Research Institute of Organic Agriculture (FiBL), Eurostat, and Centre for the Promotion of Imports from developing countries (CBI), which is Agency of the Ministry of Foreign Affairs of the Netherlands, as well as on secondary analyses of International Organisation of Vine and Wine, International Federation of Organic Agriculture Movements and other institutions supporting organic wine production and trade, as well as statements from organic, biodynamic or natural winemakers and natural wine importers gathered during still ongoing focus research.

RESULTS

The wine market in Europe

Europe is the largest wine producer in a world and delivers 60% of global production. It also occupies first place in terms of vine growing areas, as almost every second vine grows in Europe. For years, the biggest wine producer was France, but it has recently lost its dominant position to Italy and Spain. Table 1 presents the volume of wine production in the leading EU countries over the period from 2007 to 2013/2014.

Wine production is dominated by France, Italy and Spain, although it is also worth mentioning some of the countries with smaller production, who are just entering the market, like England, with its very well-respected fine sparkling wines, whose production

[1] A concept that seems to be especially appropriate is that of post-materialistic value orientation described by R. Inglehart in 1977, where the focus shifts to self-expression and quality of the life rather than physical and economic security. The Author is referring to political change as an overall phenomenon, but the syndrome of post-materialism is also suitable to describe individuals' behaviour.

Table 1. Trends in wine production in the EU-27 countries (thousand hl)

Country	2007	2008	2009	2010	2011	2012	2012/ /2013	2013/ /2014
France	45,672	41,640	46,269	45,669	50,757	40,609	40,609	44,100
Italy	42,514	46,245	45,800	46,737	42,705	39,300	40,057	44,900
Spain	36,408	35,913	36,097	35,363	33,397	31,500	31,123	44,600
Germany	10,261	9,991	9,228	6,906	9,132	8,903	9,000	8,500
Portugal	6,074	5,620	5,872	7,133	5,610	5,857	6,140	6,740
Romania	5,289	5,159	6,703	3,287	4,213	4,059	4,100	5,400
Greece	3,511	3,869	3,366	2,950	2,750	3,150	3,150	3,700
Austria	2,256	2,628	2,672	2,352	1,737	2,815	2,243	2,450
Hungary	3,222	3,460	3,198	1,762	2,750	1,874	2,155	2,252
Other EU-27 countries[a]	3,853	3,604	3,034	2,616	3,177	2,773	2,558	4,911
EU-27/28	159,060	158,129	162,238	154,775	155,671	140,840	141,135	167,553

[a] The data in the first six columns do not take Croatia into account.

Source: USDA Foreign Agricultural Service, GAIN Report Number: IT1307, Wine Annual Report and Statistics 2013 and USDA Foreign Agricultural Service, GAIN Report Number: IT1414, Wine Annual Report and Statistics, 2014.

in the period 2005–2012 was around 22,000 hl (Eurostat database) on average, or Central European producers, like the Czech Republic (especially Moravia), where in 2012, the total volume of wine production amounted to 650,000 hl or Slovakia with 325,000 hl in 2013 (Eurostat database). In Poland, which is a new player in a wine industry, in 2009/2010, the level of production stood at 412.49 hl; 2010/2011 – 437.10 hl; 2011/2012 – 428.40 hl; 2012/2013 – 898.25 hl; while in 2013/2014, it amounted to 1978.95 hl [Burkot 2014]. Despite of above, interestingly, the area of plantation of vines in Europe as a whole is successively decreasing, as is shown in Figure 1.

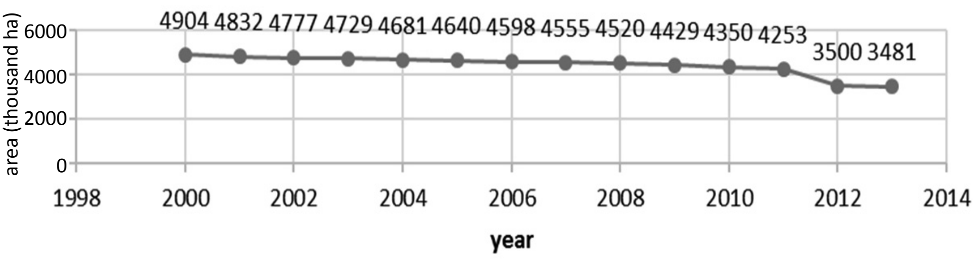

Fig. 1. Vine growing area in Europe (total) 2000–2013

Source: Own work, based on statistics from the International Organisation of Vine and Wine (http://www.oiv.int/oiv/info/enstatoivextracts2, accessed: 04.11.2014).

In terms of consumption of wine, most of the countries in the EU also reported a distinctive decline in volumes. The figures showing wine consumption per capita in 2012 and the percentage change in consumption since 2009 are presented in Table 2.

Table 2. Wine consumption per capita (litres) in 2012 and percentage change in consumption 2009/2012

Country	Litres per capita	Percentage change	Country	Litres per capita	Percentage change
France	44.19	↓4	**UK**	**20.19**	**↑0.4**
Slovenia	**43.27**	**↑15.2**	Hungary	20.18	↓20.4
Croatia	42.59	↓12.2	Bulgaria	20.18	↓2.4
Portugal	40.93	↓2.3	Czech Republic	19.50	↓8.1
Italy	37.54	↓4.6	**Slovakia**	**15.36**	**↑8.4**
Austria	31.87	↓1.7	Cyprus	13.97	↑6.5
Greece	28.15	↓6.8	Denmark	12.22	↓13.1
Latvia	**26.36**	**↑54.5**	**Luxembourg**	**9.50**	**↑3.1**
Belgium	24.00	↓15.4	Sweden	6.69	↓8.6
Germany	23.98	↓3.6	Ireland	5.24	↓24.4
Romania	**23.80**	**↑41.2**	Finland	4.54	↓24.4
Malta	**23.67**	**↑2.1**	**Estonia**	**2.93**	**↑38.7**
Spain	21.47	↓10.4	**Lithuania**	**0.1**	**↑31.1**
Netherlands	**21.09**	**↑2**	**Poland**[a]	**2.05**	**↑14**

[a] Data for Poland refers to the year 2010 and the change between 2007 and 2010.

Source: Per capita wine consumption per country 2009–2012 and % change 2012/2009, litres per capita, http://www.wineinstitute.org/files/2012_World_Per_Capita_Consumption_by_County_cCalifornia_Wine_Institute.pdf and Per Capita Wine Consumption by Country – ranked by per capita consumption 2007–2010 and % change 2010/2007, litres per capita, http://www.wineinstitute.org/files/2010_Per_Capita_Wine_Consumption_by_Country.pdf (accessed: 20.11.2014) and http://www.wineinstitute.org/resources/statistics (accessed: 20.11.2014).

A consumption per capita is falling in most of the countries, especially among the traditional wine drinking countries, however, a significant increase in interest in wine consumption can be seen among the new member states. The EU continues to be the biggest importer of the wine in the world, with the numbers increasing from 7,992,000 hl in 2011 to 8,520,000 hl in 2012 and 8,629,000 hl in 2013; with the biggest quantity coming from Chile, South Africa, Australia and the USA. And, despite the decrease in the volume of exports, the EU is still the largest exporter in the world: in 2011 – 22,525,000 hl worth $11,238 million, in 2012 – 22,293,000 hl worth $11,355 million and, in 2013 – 18,799,000 hl worth $10,960 million [USDA Foreign Agricultural Service, GAIN Report Number: IT1414, Wine Annual Report and Statistics 2014].

The wine market is changing, not only in terms of its structure, but also due to new trends, one of which is the production and consumption of organic wine. In a contrast to the general tendency towards shrinkage of the area of land planted with vines, the area of organic vineyards and the proportion of the share of organic grape in the total grape area is growing and those trends are shown in Figure 2. In 2011, the UK had the biggest share of organic grapes to total grape area with 16.7%, followed by the Netherlands with 14.6%, Belgium with 10%, Austria with 9.5%, France with 8%, Spain with 7.9%, Italy with 7.3% and Germany with 6.9% [FiBL and IFOAM, The World of Organic Agriculture. Statistics and Emerging Trends 2013]. Unfortunately, there is little evidence to illustrate the changes on national wine markets. Firstly, this is because organic wines were defined in the European Union only in 2012, secondly because there are many smaller producers, who work without EU certification, producing organic wines, and thirdly, because there is a whole range of certifications for organic wine, and following their distribution is at the moment impossible. However, even with incomplete data about the sale and consumption of organic wines, it can be seen that it is a growing market.

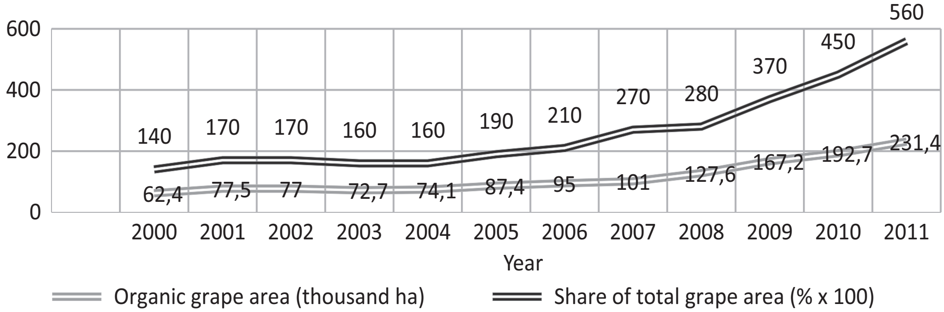

Fig. 2. Organic grape area and the share of organic grape area in total grape area in 2000–2011

Source: FiBL and IFOAM, The World of Organic Agriculture. Statistics and Emerging Trends 2013, www. fibl.org/fileadmin/documents/shop/1606-organic-world-2013.pdf (accessed: 01.12.2014) and http://orgprints.org/25258/1/willer-2013-wine.pdf (accessed: 01.12.2014).

The biggest markets for organic wine in the EU are France, Germany, Italy, the United Kingdom and Austria. The organic wine market in France was worth €413,000,000 in 2012 with growth of 15% compared to 2011 and 28% compared to 2010[2]. The German market was worth €198,000,000 in 2012 and has seen growth of 14% since 2011 and, like in France, 28% since 2010. In terms of a value, organic wines account for a 6% share of the market (4.5% in terms of quantity), excluding restaurant consumption and direct sales. In the UK and Italy, organic wines account for around a 2% share of the total wine market [FiBL and IFOAM, The World of Organic Agriculture. Statistics and Emerging Trends 2013]. The UK's organic wine market grew 42% between 2007 and 2008, and the same trend is expected to continue up to 2014[3]. As for Italy, the volume of organic wine consumed in 2012 grew by 4%. In March 2013, 2% of Italians declared they had drank organic wine compared to 11.6% in March 2014[4]. Distinctive growth has been noted in

[2] These figures exclude consumption in restaurants.
[3] CBI Market Information Database website www.cbi.eu/system/files/marketintel/2011_Trends_for_wine_in_Denmark.pdf (accessed: 10.12.2014); www.cbi.eu/system/files/markintel/2011_Trends_for_wine_in_the_United_Kingdom.pdf. (accessed: 10.12.2014).
[4] Winemonitor Nomisma Press Release: www.winemonitor.it/images/PDF/CS%20Wine%20Monitor%20Nomisma%20Bio%20EN.pdf (accessed: 20.11.2014).

Sweden, where in the first half of 2010, Systembolaget, the State-owned alcohol trade monopolist, reported a 20% increase in the private sales of organic wines[5]. Similarly, in Denmark, consumers were more concerned about sustainability, with an increase of 35%[6] seen in the sales of organic wine, beer and cider between 2008 and 2009. Another country with a distinctive niche market for organic wine was Switzerland, where the volume of organic wine production was growing at a rate of 5% yearly, and still 57% of organic wine sales came from imports. The Swiss consume 23,000 hl of organic wine yearly, which corresponds to 0.8% of total wine consumption. The growing trend can be observed from the point of view of the increasing number of specifically organic wine fairs, which are no longer just meetings for a group of eccentric outsiders. The biggest of these are RAW, La Dive Bouteille, À Caen le Vin, Buvons Nature, Millésime Bio, Festivin, H2O Vegetal, Les Vins Cochons, Les Affranchis, Real Wine Fair, Rootstock, Salon de Vins Anonymes, Vini Circus, Vini di Vignaioli, not to mention a whole host of other special shows for organic wines at regular wine fairs or local fairs.

Even that organic wine market is still a niche, the dynamics of its growth, or what we can genuinely refer to as the "organic wine boom" continues unabated, and, together with natural and ecological trends in consumption and behaviour, cannot be seen to be just a short-term fashion, but rather a new attitude to market realities.

Troubles with the definition and understanding of organic wine

One of the main reasons why there is so little clear and consistent evidence of the production and consumption of organic wine are down to problems with definition of the concept. As a matter of fact, a formal definition of organic wine has existed in the EU since 8 March 2012, when the rules for organic wines were implemented. Until that time, a wine made in a way that is more natural than mass production could have only been designated as a "wine made from organic grapes", which does not necessarily mean, it was vinfied in an organic way. What does organic wine actually then mean? According to EU regulations, organic wine must be made out of organic ingredients, and the cultivation of organic grapes was described in Regulation (EC) 834/2007 and 889/2008. Apart from the use of organic ingredients manufacturing of the wine cannot be carried out using certain oenological processes used in the production of conventional wine[7]. These include the following methods and processes, listed in the EU Rules for Organic Wine Production: "partial concentration through cooling, elimination of sulphur dioxide by physical process, electro dialysis treatment to ensure the tartaric stabilisation of the wine, partial dealcoholisation of the wine, treatment with cation exchangers to ensure the tartaric stabilisation of the wine, physical methods allowed in regulation (EC) No 144/2013, like nano or ultrafiltration, as well as coupled membrane procedures, in heat treatments, the temperature shall not exceed 70°C and the size of the pores for centrifuging and filtration shall not be smaller than 0.2 micrometres" [Szeremeta 2014].

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5 www.concealedwines.com/page.asp?pageID=2767 (accessed: 10.12.2014).
6 See reference notes 3.
7 Oenological practices and methods suitable for conventional wine are described in Regulations (EC) 1234/2007, 606/2009 and 607/2009.

As for the substances permitted in organic wine production, the list is distinctively shorter than that of the substances and additives permitted in conventional wine production. Still though, an organic wine does not necessarily mean just fermented grape juice and nothing else, as there are quite a few substances permitted for use in manufacturing of the wine, for example: concentrated must, rectified concentrated must, sucrose, yeast cells, active dry yeast, fresh yeast in suspension, edible gelatine, plant proteins from wheat and peas, isinglass, egg white albumin, gum arabic and tannins [Szeremeta 2014]. All substances used should be organic, if possible. Organic wines should have a limited amount of added sulphites. In a dry red wines, 100–170 mg/l of SO_2[8] is permitted, whereas in conventional red wines it is 150–200 mg/l. In the case of dry, white or rosé wines, the figures are 150–220 mg/l and 200–250 mg/l of SO_2 in conventional wines. For dry wines, the reduction in sulphites corresponds to around 12–33%, while for special wines, liqueurs wines or sparkling wines, there is a decrease in the level of added sulphites of around 7.5–20%.

The rules for the production of organic wine are not over-restrictive, and because of wide range of permitted practices, two products labelled as "organic" can be quite different. The legislative process is however still ongoing and the existing arrangements will be revised in 2015. In the view of the EU, organic wines are those that comply with the aforementioned standards, though in practice, on the market, among the producers and consumers, the definitions are not so obvious. Apart from organic wines, described above, there is also a segment of biodynamic wines, made according to the rules set out by Rudolf Steiner in 1924[9], and finally a segment of natural wines[10]. Vinification of this kind of wine goes further than applying the rules of organic or biodynamic manufacturing, choosing distinctively more restrictive methods of production, where organic grapes (planted according to Regulation (EC) 834/2007) is just a first step and the following principles are applied: "manual harvesting, yeasts exogenous to the grape and the wine are prohibited, no oenological additives except SO_2 with a total maximal SO_2 as follows: 30 mg/l in red and sparkling wines, 40 mg/l in dry white wines, 80 mg/l in white wines over 5 g/l of residual sugar; and minimal intervention on vinified wines" [Tuz 2010]. The issue is how the consumer is supposed to know what is he consuming? This is where the role of eco-labelling and certification comes in. Table 3 lists some of the labels used to identify wines produced in an organic, biodynamic and/or natural way, along with some of the criteria for obtaining certification.

[8] Depending of the level of residual sugar in a wine, where a higher level of residual sugar means the producer is entitled to use a higher amount of SO_2.

[9] The definition of biodynamics according to J.R. Reeve, L. Carpenter-Boggs, J.P. Reganold, A.L. York, G. McGourty, L.P. McCloskey: "Biodynamics is a holistic approach that emphasizes soil building and high diversity of crops, animals, and wildlife habitat; therefore, inputs from outside the farm are minimized and use of on farm resources is optimized. In addition, biodynamic practitioners use a series of fermented manure, plant, and mineral-based preparations on soil, crops, and compost. These substances are not claimed to act as fertilizers but are said to stimulate soil nutrient cycling and promote photosynthesis and optimal compost development". The authors proved, inter alia, that biodynamic treatment of vines resulted in grapes with significantly higher Brix and notably higher total phenols and total anthocyanin.

[10] Market synonyms are: raw wine, naked wine, real wine, low intervention wine, additive-free wine.

Table 3. Wine eco-labelling in Europe

Eco-label/ /certification	Category of wine	Area	Description of chosen criteria
	organic[a]	EU	May contain no more than 100–220 mg/l of SO_2[b] and the following additives and substances may be used during the vinification process: citric acid, L-ascorbic acid, L(+) tartaric acid, lactic acid, metatartaric acid, egg albumin, lactic bacteria, bentonite, potassium bisulphite, potassium metabisulphite, potassium bicarbonate, calcium carbonate, potassium caseinate, casein, oenological coal, copper citrate, fish glue, thiamine hydrochloride, silica gel, yeast cell, gelatine, gum arabic, DAP, potassium hydrogen, dry active yeast, vegetable proteins of wheat and peas, oak wood flakes, concentrated must, concentrated rectified must, pectinases, sucrose, copper sulphate, oenological tannins, potassium tartrate
demeter biodynamic certification	biodynamic	International[c]	May contain no more than 70–90 mg/l of SO_2 and the following additives: egg albumin, bentonite, oenological carbon, sucrose. Must be made of Demeter-certified biodynamic grapes
BIODYVIN	biodynamic	France	May contain no more than 80–135 mg/l of SO_2[d]. Wine from biodynamic grapes
AVN – L'Association des vins naturels	natural	France	May contain 30–40 mg/l of SO_2. Wine from organic grapes
S.A.I.N.S.	natural	France	Does not contain any additives, only natural traces of SO_2. Wine from organic grapes

[a] This list is not exhaustive in terms of the organic, biodynamic and natural certification in Europe.

[b] Refers to dry and semi-dry white and red wines.

[c] Standards for Demeter certification vary between different countries, even it is an international organisation, the rules differ in certain details.

[d] Refers to dry and semi-dry white and red wines. The highest category refers to wines with an extended ageing period – of more than 9 months.

Source: www.vinsnatureles.fr (accessed: 12.11.2014).

Organic certification is based on EU regulations, as well as on certification by private bodies, such as the different international branches of Demeter[11], the French certification body Biodyvin, or the German certification body Ecovin, and national standards issued by the FNIVAB in France, Bioaustria, Bio Suisse, the Italian CCPB and many others[12]. Understanding the difference between organic, biodynamic and natural wine, can be problematic for winemakers themselves. From the point of view of many winemakers, who have gone to the lengths of obtaining official organic certification, natural winemakers, who often shun or have given up on any attempts to introduce eco-labelling for their products, pose a threat and cause confusion for customers. Jem Gardener, managing director of Vinceremos[13], says: "I'm worried that 'natural' might undermine the progress made by organic wines by muddying the waters. There appears to be no clear definition of what they are but there seems to be an implication that they are 'better than' organic"[14]. Conversely, from point of view of some natural winemakers, the introduction of the new EU regulations in 2012 has often been seen as a way of make organic wine production more mass. All of the above can result in confusion for consumers, as can the fact that many natural winemakers simply do not wish to seek any kind of certification. Some associations of natural wine producers, such as the 'L'Association des vins naturels' simply being based on trust, as a their Preamble says: "There are no in-house controls; the present Code of good practices, based on trust, shall be signed by the entire membership without exception" [Tuz 2010]. This kind of attitude can be of great value, introducing the notion of a community[15] and trust amongst producers. However, it also opens up leeway for possible abuses or unauthorized usage of what is in any case just an informal term "natural wine".

[11] It is worth noting that Demeter standards for wine production vary between different countries. For example, German branch of Demeter permits the usage of endogenous yeasts, and while Demeter in the USA or Austria only permit indigenous yeasts.

[12] From the point of view of the consumer, knowing that a wine producer belongs to certain associations, such as the association of producers VinNatur, or the growers association La Renaissance des Appellations, is has important cognitive and informative value. The standards expected by different organisations differ considerably, mainly from point of view of amount of permitted SO_2 that may be added but also with regard to the such questions as "the use of K metabisulphite and K bisulphite; correction of N deficiency in the musts: principle of correction and type of additives, with different positions on N salts use (Diammonium phosphate, Ammonium sulphate, Ammonium sulphite, Ammonium bisulphite) or other agents stimulating the growth of yeasts (Thiamine and yeast cell walls); Deacidification: nature of substances to be used for; Clarification: use of gelatine, betaglucanase enzymes, tannins and potassium caseinates; Reduction of taste defaults: use of Copper sulphate; Alternative practices to Sulphitation for unstable sweet wines: physical treatments like flash pasteurization and reverse osmosis" www.online.org/intranet/libretti/meunier-regulatoryen_219_01_0_.doc (accessed: 05.11.2014).

[13] Vinceremos is a major wine importer in UK, specialising in organic wines.

[14] www.jancisrobinson.com/articles/organic-producers-fret-over-natural-wine (accessed: 12.11.2014).

[15] Winemakers must be active and cooperate within the AVN.

ETHICAL ISSUE IN WINE PRODUCTION

The growing popularity of organic food and drink products is a trend that can be seen worldwide, though 96% of the demand is concentrated in North America and Europe. Over a 10-year period (1999–2011), the value of the organic food market tripled [Kwasek 2013]. In the EU, the value of the market for organic products grew from 10.2 billion euro in 2004 to €20.9 billion in 2012 [Willer et al. 2014]. It seems to be more than just a fashion, but a mental change of producers and for customers. Amongst the factors standing behind such growing demand, one can indicate better awareness of health issues, food safety, increased awareness of the environmental, credibility and media interest. These are all important reasons, and conventional wine may not be able to meet the demands of the consumers who are choosing to subscribe to such values. When buying wine, people expect buying fermented grape juice, as a definition of wine according to EU regulations (Annex I, Regulation 1493/1999) says: “Wine: the product obtained exclusively from the total or partial alcoholic fermentation of fresh grapes, whether or not crushed, or of grape must”, in conventional wine though, they may be getting much more than that. Of course, permitted additives[16] are not poisonous, in small amounts, but they can cause allergic reactions[17], lack of information on labels can also be a problem for vegans or vegetarians, as permitted substances such as isinglass or gelatine are animal products. A consumer has no information about the additives contained in the product, except SO_2, the amounts of which can vary considerably in different wines, which is also not shown on the label, and without this knowledge, it is not possible to make an informed decision.

CONCLUSIONS

Organic, biodynamic, natural – in general – sustainable wine market in EU is growing despite rather negative changes observed on the conventional wine market. Being still a niche, the new trend is important from an ethical and sustainable development point of view and those issues manifest themselves at several levels – the growing number of organic, biodynamic or natural wineries is of course a result of EU policy, but is also proof of a change in the mind-set of winemakers returning to traditional, less invasive methods, at the cost of lower efficiency. The growing segment of consumers of organic wines is proof a heightened awareness of the issue of sustainable consumption and the importance of “consuming consciously”. Natural winemaking is often based on trust, with biodynamic producers creating real social networks to support and observe each other’s methods and ensure proper quality of the final product. Those are values which are crucial for social capital. At the same time, institutions are also faced with ethical issues, as it is the authorities concern to ensure that they provide the frameworks

[16] A list of oenological processes and additives permitted in a wine production in EU is mostly included in Annex IV and V of EC Regulation 1493/1999, with further specifications given in EC Regulation 1622/2000.
[17] For example egg albumin.

for clear information to be provided to consumers, so they can choose a product in a knowledgeable and informed manner. The principle of displaying the composition of a product and nutritional facts is very well developed in terms of food and non-alcoholic beverages, so why should it not also be introduced on the alcoholic beverages market, where it would not only be convenient for consumers, but also for producers promoting their product as natural or organic too.

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RYNEK ZRÓWNOWAŻONEGO WINIARSTWA W EUROPIE – NOWY TREND RYNKOWY I JEGO WYBRANE PROBLEMY

Streszczenie. Rynek wina w Europie ulega w ostatnich latach znaczącym przemianom. Spada konsumpcja wina w krajach winiarskich, wzrasta zaś w tych, które tradycyjnie do tego grona nie należały. Innym trendom podlega zaś produkcja i konsumpcja szeroko rozumianych win ekologicznych. Celem artykułu jest analiza rynku wina w Europie w kontekście produktów ekologicznych oraz ocena społecznego znaczenia rosnącej popularności win ekologicznych. Badanie przeprowadzono na podstawie analizy danych dotyczących wielkości produkcji i sprzedaży wina konwencjonalnego i ekologicznego oraz deklaracji z wywiadu fokusowego przeprowadzonego z producentami wina ekologicznego. Wyniki badań potwierdzają rosnącą popularność ekologicznych upraw i produkcji zarówno wśród wytwórców wina, jak i konsumentów. Ukazują jednak również pewne problemy w zakresie terminologii dotyczącej istoty, eko-znakowania i nazewnictwa win ekologicznych, których natura wydaje się wynikać ze zmiany paradygmatu działania przedsiębiorcy i odejściu od założeń maksymalizacji zysku i zwiększania efektywności, na rzecz dbałości o zrównoważony rozwój i jakość.

Słowa kluczowe: rynek winiarstwa, wino ekologiczne, wino biodynamiczne, wino naturalne, eko-znakowanie

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THE RELATIONAL CONTEXT OF CREATING CUSTOMER PORTFOLIO ANALYSES

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Abstract. Over the past two decades customer relationship management has emerged as a key domain in marketing research and practice. In this context customer relationship portfolio thinking has become highly topical. The customer portfolio analysis, as a management tool, enables the company taking proper decisions about the kind of relationships that should be created by the firm. Because firms have only limited amount of resources to use on their customers, it does not seem rational to treat and develop all relationships in the same way. Instead firms should differentiate the allocation in relation to the value of relationship. This way they can assure long-term performance and lasting competitive advantage. The main aim of the present article is to shed light on the concept of customer relationships portfolio analysis – its importance and dimensions stated in the literature. The author intended to broaden the current understanding of customer portfolio analysis.
Key words: relationship marketing, customer portfolio analysis, portfolio analysis, customer relationships

INTRODUCTION

Customer relationships portfolio analysis represents one of the latest and key tools used for managing business strategy. It is a tool of strategic importance nowadays. Portfolios provide a mechanism for conceptualizing and managing customers and a set of relationships created with them. Customer portfolios have attracted research attention in the form of analytical customer portfolio studies. Much less effort has been devoted to characterizing the nature of firms' total customer portfolio relationships. The limitations in customer relationships portfolio analysis research have arisen because there is little agreement on the kinds and number of dimensions that should be used when preparing them. The main aim of the present article is to shed light on the concept of customer

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relationships portfolio analysis – its importance and dimensions stated in the literature. The author intended to broaden the current understanding of customer portfolio analysis. Regarding the methodology used in the development of the study, the author appealed to the documentary research by consulting different specialty papers dealing with relationship marketing and portfolio analysis, in order to find out relevant aspects of the analyzed issues. Based on the literature, findings indicate different perspectives when preparing customer portfolio analyses. These perspectives regard different dimensions used as well as different number of variables. The nature of portfolio used depends mainly on the sector the company operates in and on the kind of information the company needs. The study contributes to the current knowledge by offering a set of dimensions that can be used in customer portfolio analysis by companies operating in different market circumstances as well as some conditions for a successful use of these analyses.

FOUR PERSPECTIVES OF RELATIONSHIP MARKETING

The relationship paradigm has been one of the most influential concepts of marketing activities for two decades. Literature published during the last 20 years initially concentrated on the need for creating relationships with all customers. A special role of customer satisfaction was emphasized, assuming that customer satisfaction means his/her loyalty. Lasting, strong customer relationships were seen as tools necessary to build competitive advantage. Later, however, an increased number of research and companies' experience confirmed that establishing strong and lasting relations with all customers is not always needed. There are two reasons for the situation. Firstly, some customers do not wish or need to establish lasting relationships with service provider. They only wish to purchase an offer at an expected price. A transactional approach is therefore suitable for this group of customers. Secondly, sometimes such activities are not justified from the economic point of view. If we assume that the concept of modern marketing is a management process aimed at maximizing shareholder returns and producing lasting increase in cash flows, then the relations should be created with valuable customers. Establishing lasting customer relationships does not need to mean achieving economic benefits. Benefits are not determined by the length of a relationship but by the type of customers. The key is to create appropriate relationships with particular customers, not to create any relations and retaining all customers. Relationship management activities should be adjusted to the customer value and focus on managing the whole spectrum of customer relationships, from sale transactions in case of a particular group of customers to a strategic partnership in case of another. Bearing in mind the fact that not all customers equally contribute to the company value, an appropriate selection of customers is necessary. Enterprises should therefore focus on establishing various relationships with different customers in order to achieve benefits in the long term.

The literature presents four key perspectives providing a context for understanding the necessity to establish various kinds of customer relationships by organizations operating in the market [Johnson, Selnes 2005]. The **economic** perspective focuses on establishing lasting relationships rather than making simple, short-term transactions, since the former enables companies to obtain more financial benefits. This approach assesses whether the costs saved or profits generated from particular relationships justify increase in costs or investments in them in the long term. According to this approach, decisions about investments in a particular relationship depend on four factors: costs and risks of the exchange process, ways of process management (cooperation based on a contract or informal arrangements), value proposition for the customer, as well as resources and skills unique for the customer or the company. The **sociological** perspective underlines the significance of the networks and connections resulting from the relationships established over time. Close relationships create dependencies, which have both positive and negative aspects for customers and service providers. Exchange processes result in events and activities, which determine customers' trust and their commitment in relationships. In this approach decisions about relationships involve a wider perspective than economic benefits. Trust and customer commitment in the relationship development make that, despite economic reasons encouraging the change of the service provider, resource affiliation of relationship parties, personal contacts and common activities undertaken in the past prevent the use of resources and value proposition of other companies by the customer. Trust and commitment created along with the development of the relationship are key concepts in the sociological perspective. Considering conditions and relevance of establishing customer relationships in the **psychological** perspective, the focus is put on the influence of quality, perceived value and satisfaction on exchange processes and customer loyalty. In this perspective it is proved that customer perceived value and satisfaction determine customer buying behaviors and creates their loyalty. The loyalty is seen as an overriding objective of relationship marketing since only loyal customers are assumed to be profitable to the company. The assumption, however, needs to be seen as generalization. Sometimes the costs of loyal customers service are higher than that of others. Moreover, loyal customers, being aware of their value for a particular company, may use their position to impose their conditions of cooperation. In the **operational** perspective the roles of CRM and database marketing are emphasized for the assessment of lifetime value of particular customers. This area of research contributes to the learning process about determinants of customer relationships creation by facilitating the understanding of methods for allocating marketing activities aimed at the optimization of resources among particular customers and relationships created with them.

CUSTOMER RELATIONSHIP PORTFOLIO MANAGEMENT

In all mentioned above perspectives of customer relationships creation undertaken in the management literature one may see the potential of relationship marketing for creating value for the company. It also needs to be underlined that the influence of customer relationships on this value cannot be considered in the context of a short-sighted pursuit of relationships at all costs, with all customers by using economic incentives. From the economic point of view, some customers do not wish to establish close relationships, as they want to use their bargaining power while negotiating prices. From the sociological point of view, this shortsightedness prevents mutual trust and commitment in the development of future relationships. From the psychological point of view, more profitable relationships are created by customers' satisfaction and long-term trust, not by price policy. Finally, from the operational point of view, establishing relationships with all customers is not profitable since their lifetime value is different.

The concept of customer portfolio management, comprising the four mentioned perspectives, enables the company taking good decisions about its customer relationship portfolio, so that it can create value and lasting competitive advantage. In this context customer portfolio management may be defined as “a process in which companies analyze current and future value of their customers in order to develop a balanced structure of their customers by an effective allocation of resources among particular customers or groups” [Terho, Halinen 2007]. According to this concept, the idea of unconditional satisfying all needs and expectations of all customers is abandoned. Instead, customer relationships are seen as company asset managed according to their potential. Managing the whole portfolio of customer relationships and developing them according to their value for the firm so that it can accomplish its financial objectives in the long term is key in the portfolio analysis.

The theory of portfolio originated in 1950s when H. Markowitz formulated its principles. He initiated numerous researches into capital investments, thus contributing to formulating the investment theory. Markowitz referred to financial investments and their best allocation so that the investor could maximize profit and minimize risk [Markowski, Rutkowska-Ziarko 2011]. Economic growth that took place in the 1990s, globalization, the development of information technologies, and growing competition forced changes in the ways customer – company relationships were perceived. Thus, the portfolio theory started to spread to other then financial areas of company’s. New possibilities of solving the problem of allocation of limited company’s resources in order to maximize profits at a defined risk level were noticed. Playing an important role in almost all areas of management, portfolio methods support company’s decision-making processes. Their position is especially strong in marketing practices for examining the structure of product portfolio offered by the firm. Particular products or product groups were analyzed in the context of their present or future market share and sales volume, as well as associated costs, financial effects and investment requirements. The analyses enabled managers to take strategic decisions about the identification of assortment gaps, to create product innovations, and to allocate resources on marketing activities in reference to particular products in order to increase their capabilities for gaining and retaining competitive advantage [Garbarski 2011 – Ed.].

Later, studies on the portfolio theory based on scientific research and its application in business practice were used to assess and manage the new strategic asset, namely customers. Considering customer relationships as a company’s asset determining its value requires the optimization of the customer portfolio structure. In order to achieve this, it is necessary to select and allocate marketing activities among individual customers so as to maximize the customer database. The portfolio approach is of crucial importance when values generated by customers for the enterprise are significantly diversified. On the one hand, values created by customers are direct and connected with cash flows from purchased products and services. On the other hand, they are indirect and result from customers’ recommendations, offer co-creation, or communicating information about the company.

VARIABLES USED IN PORTFOLIO ANALYSES

Customer relationship portfolio analysis, as a strategic tool, may be prepared in different dimensions and with the use of different combinations of variables, depending on the company's objectives and requirements. The key element determining the effectiveness of the portfolio analyses as a tool for making decisions is to work out the appropriate combination of variables to analyze the company's customers. Thanks to the analysis of existing models two categories may be distinguished. One includes variables for the customer's financial value for the enterprise. Variables used in the analyses of this type include, among others, sales volume, purchase value, relational costs, customer profitability, and customer lifetime value. Financial customer value is considered both retrospectively, where customer assessment is analyzed in a precisely defined time span in the past, and prospectively referring to the future, where the value of current customers is assessed, defined on the basis of predictions of future transactions and relationship costs (Table 1). Customer value may be defined as a net of the revenues obtained from the

Table 1. Measures used in customer relationship portfolio analysis

Author	Year	Number of measures	Number of steps	Suggested measures
Portfolio analysis using financial measures				
K. Storbacka	1997	2	1	• Relationship revenue • Relationship cost
B. Shapiro, K. Rangan, R. Moriarty, E. Rossa	1987	2	1	• Cost to serve (presale costs, production costs, distribution costs, post sale costs) • Net price
L. Ryals	2003	2	1	• Profitability/Customer Lifetime Value • Customer risk
Portfolio analysis using relational measures (role and function customer represent to selling firm)				
R. Fiocca	1982	2	2	Step I • Strategic importance of the account • Difficulty in managing the account Step II • Customer's business attractiveness • Relative strength of the relationship
Portfolio analysis using fix measures				
T. Ritter, H. Andersen	2014	3	1	• Profitability and Customer Value • Commitment • Growth potential
D. Yorke, G. Droussiotis	1994	2	2	Step I • Strategic importance of the account • Difficulty in managing the account Step II • Customer profitability • Perceived strength of the relationship
R. Krapfel, D. Salmond, R. Spekman	1991	2	1	• Relationship value • Interest commonality (compatibility of actor's economic goals)
J. Zolkiewski, P. Turnbull	2000	3	1	• Cost to serve • Net price • Relationship value

Source: Own elaboration.

customer over the lifetime of transactions with that customer minus the cost of attracting, selling, and servicing that customer, taking into account the time value of money [Jain, Singh 2002]. The other group of variables refers to the condition and nature of the established customer relationships. It includes perceived strength of a relationship, customers' liability to involve in a relationship and its development, confidence level, customer's adaptation to long-term objectives, possibilities and company's resources.

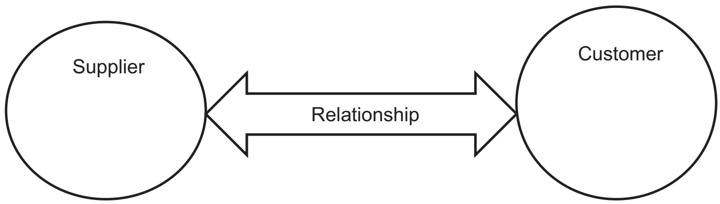
CONDITIONS FOR THE USE OF PORTFOLIO ANALYSES

On the basis of the review of research into issues connected with the customer portfolio analysis conducted over the last several dozen years, one may point to a few key conditions for their use. They include:

1. The necessity to take into consideration three perspectives in portfolio analyses.
2. The necessity to apply a dynamic approach in portfolio analyses.
3. The necessity to keep a balance between the offensive and defensive customer portfolio management.
4. The necessity to predict changes in customers' positions in the company's portfolio.

The necessity to take into consideration the three perspectives in portfolio analyses

The analysis of customer portfolio enables the company to optimize the strategy of building and maintaining customer relationships in order to maximize financial results and strengthen its competitive position. Therefore, it is necessary not to limit to the supplier's perspective only (the situation common in present concepts of customer portfolio analyses). Customer and relationship perspectives are also important [Ritter, Andersen 2014] – Figure 1.



Perspective	ME	WE	YOU
Dependent variable	Supplier's value	Relationship properties	Customer's value
Independent variable	Customer's contribution	Actor characteristics	Supplier's contribution
Key term	Supplier's profitability	Relationship	Customer's needs

Fig. 1. Three perspectives in customer portfolio analysis

Source: T. Ritter, H. Andersen, 2014. A Relationship Strategy Perspective on Relationship Portfolios: Linking Customer Profitability, Commitment, and Growth Potential to Relationship Strategy. Industrial Marketing Management, 43, 1005–1006.

Customer portfolio should be managed so that supplier's requirements are fulfilled ("ME" perspective). Analyses should make it possible to classify customers according to their value for the supplier and to optimize customers' contribution in profits generated by suppliers. On the other hand, in order to create effective marketing strategies towards customers, which would translate into the company's success, it is necessary to consider customers' perspective ("YOU"), in which analyses concentrate on their needs and expectations. This approach is uncommon in portfolio analyses. In this perspective supplier's contribution to satisfying customer's expectations in order to identify reasons behind his/her interest in the offer is analyzed. The "WE" perspective refers to properties of a relationship linking the customer and the supplier. In order to understand relationships between them, and to develop and implement effective marketing strategies, customer relationship portfolio analyses combining these three perspectives should be carried out.

The necessity to apply a dynamic perspective in portfolio analyses

Most methods of the portfolio analysis found in the literature document the company's condition within a defined time span in the past. They are static and consist in classifying customers (customer segments) with the use of variables analyzed at a particular point in time (customer's profitability, gross price, service costs, profits from a relationship). Yet, customer relationships are dynamic [Terho, Halinen 2012]. Since customers change in time and evolve, their value changes in future time spans. Changes in customers' behaviour and their preferences caused by situations occurring both within the company and in business environment change relationships. Hence customer portfolio analyses should be used to monitor changes in relationships between suppliers and customers. This is connected with the application of a dynamic approach according to which a customer portfolio is a classification of customers (customer segments) with regard to their present and future value [Johnson, Selnes 2004, Homburg et al. 2009]. Such a presentation of a portfolio analysis implies the necessity to take into consideration a defined risk level in customer relationships, the fact that is not taken into consideration if customer value is presented statically. The risk of customer relationship change should take into consideration the probability of change in customer value with time and the level of the change (positive/negative).

The analysis of a customer portfolio in a dynamic dimension enables the company to allocate its resources so that it contributes to an increase in customer value in the future, thus enabling the company to develop in the long term.

The necessity to maintain a balance between the offensive and defensive management of a customer portfolio

Customer portfolio management models are to strengthen the company's market position. According to the modern concept of marketing, this objective may be accomplished by developing existing customer relationships or establishing relationships with new customers. It also refers to the possibility of ending relationships with customers of low value for the company if there are no chances of improving this value in the long term. It is called the offensive management of a customer portfolio, and it is of particular significance in reference to low and medium value customers [Homburg et al. 2009]. Its main idea is to allocate resources in customer relationships so as to increase the customer's value. On the other hand, companies may do defensive activities connected with their concentration on maintaining present customer value. Defensive activities are recommended for high value customers. In the process of customer portfolio management one should pay attention to the necessity to keep a balance between the two approaches, as they are complementary, and focus on the influence of these activities on the value of the whole customer portfolio.

The necessity to predict changes in customers' position in a company's portfolio

The firm should know where and how to invest its resources in order to develop customer relationships in a dynamic perspective, but it should also attempt to predict changes in a customer portfolio. Customer value for the company does not change rapidly. Therefore, it is necessary to identify variables, which would facilitate predicting customer behavior in the future. Characteristics of current transactions with the customer and previous experience of a relationship with him/her may be an important source of information, which can be used to determine current customer's profitability. Such indexes include: the scope of the use of company's services (company's share in a customer portfolio), transaction value, buying frequency, and the date of last purchase. Socio-demographic characteristics of customers, their attitudes and values may indicate the direction of changes in customer value in the long term. This type of variables includes the area of customer's professional activity, his/her age, his/her bargaining power, risk aversion, lifestyle etc.

CONCLUSIONS

Analyses of a customer relationship portfolio are assumed to be useful tools to support decision-making processes, directed at achieving market success in the long term. In order to achieve this objective they must be included in the continuous process-taking place in the company, not just a separate analytical or strategic tool used at a particular moment in time. Customer portfolio management activities evolve and change over time as companies adapt their strategies to current situations within the structure of served customers. Moreover, portfolio analyses are not separate marketing tools used to achieve merely marketing objectives. They are a multi-functional tool used at different levels of management, both operational and strategic, linked to various functional areas of the enterprise, such as selling, accounting and production.

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RELACYJNE UWARUNKOWANIA KSZTAŁTOWANIA ANALIZ PORTFELA KLIENTÓW

Streszczenie. Paradygmat relacji już od ponad dwóch dekad jest jedną z bardziej wpływowych koncepcji działań marketingowych zarówno w badaniach naukowych, jak i praktyce biznesu. W tym kontekście analiza portfela relacji z klientami stała się jednym z kluczowym wyzwań dla marketerów. Analiza portfela klientów, jako narzędzie zarządzania marketingowego, umożliwia firmie podejmowanie właściwych decyzji dotyczących rodzaju relacji z klientami, jakie firma powinna nawiązywać i rozwijać. Z uwagi na ograniczone zasoby, jakimi dysponuje współcześnie przedsiębiorstwo nie jest uzasadnione podejście, w którym wszystkich klientów i relacje z nimi nawiązane traktuje się w ten sam sposób. Przedsiębiorstwa powinny koncentrować się na budowaniu różnego rodzaju relacji z różnymi klientami w taki sposób, aby mogły one pomnażać korzyści własne w efekcie prowadzonych działań w długim okresie. Celem opracowania jest omówienie znaczenia analiz portfela relacji z klientami w strategii organizacji oraz zmiennych wykorzystywanych w procesie ich przygotowywania. Intencją autorki była również identyfikacja uwarunkowań związanych ze stosowaniem analiz portfela relacji z klientami w przedsiębiorstwie.

Słowa kluczowe: marketing relacji, analizy portfela klientów, analizy portfelowe, relacje z klientami

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THE THEORETICAL LINKS BETWEEN ENTERPRISE VALUE MIGRATION, CAPITAL MIGRATION, AND CAPITAL COMMITMENTS' MIGRATION

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Abstract. The development of the economics theory of value migration is the main goal of this paper. The required advances of understanding of this phenomenon call for clarification and distinction of related conceptions. Thus, this paper explains and compares the notions of value migration, capital migration, and a novel term, introduced in this paper – capital commitments' migration – in order to provide a deeper understanding of migration processes happening on the related markets. This knowledge can be used to scan the lifecycle of business models to provide managerial guidance.

Key words: value migration, capital migration, capital commitments' migration, value inflow, value outflow, capital allocation

INTRODUCTION

A growing body of literature highlights the importance of value migration (Billington 1997, Donol 1997, Griffiths 1997, Slywotzky, Linthicum 1997, Baptista 1999, Brabazon 1999, Herman, Szablewski 1999, Siudak 2000, Strikwerda et al. 2000, Campbell 2001, Moster, Moukanas 2001, Sharma et al. 2001, Klincewicz 2005, Owen, Griffiths, 2006, Slywotzky et al. 2006, Wiatr 2006, Woodard 2006, Szablewski 2008, Szablewski 2009, Woźniak-Sobczak 2011, Jabłoński, Jabłoński 2013, Siudak 2013, Skowron 2014). Although value migration is the basic process on the capital market, the theory development related to it has received little attention, especially in the economics and management research. Exception to this is the prominent Slywotzky's book on managerial aspects of

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value migration [Slywotzky 1996], which is believed to coin the term. However, the economics theory of value migration is still underdeveloped. The dearth of well-established literature and theory is encountered by scholars who wish to investigate value migration processes to evaluate the lifecycle of business models. So, more attention should be paid to formulate economics underpinnings of value migration processes. The current paper aims to fulfill this theoretical gap.

Using an economics lenses, value migration is the effect of investors' seeking for effective capital allocations maximizing the return rates of comparable risks. The value migration processes are the non-zero-sum game understood as "the amount won by all players does not equal the amount lost by all players" [Lawarence, Pasternack 2002, p. 367]. An outflow of some amount of value expressed in determined units from one enterprise does not entail the same amount of a value inflow to the other enterprise. Conversely, an outflow of value from the group of firms does not indicate a value inflow to the other companies from an analyzed set. One can imagine even conditions under which value exclusively flows into or flows from all enterprises in a specific country. In this case, we can talk about one-way value migration. This might occur due to events, such as downturn on the capital market, restrictive or liberal politics employment exercised by a central bank, country bankruptcy and so on.

In this article, it is proposed that value migration processes should be considered with regard to capital migration but still distinguished from it. The company value is usually understood as current value of invested capital financing both tangible assets incorporated into a firm' balance sheet as well as intangible assets, which are not reflected by traditional financial accounts. M. Górski [2005, p. 26] describes capital as the sum of unit's liabilities, which finances assets in order to multiply the capital. Building on the logic of above definitions, the important distinction between value and capital, it is well-understood that terms "value migration" and "capital migration" differ. The distinction between the terms is pivotal for a further understanding of value migration processes and their quantification. No studies and literature inquires to the best of my knowledge, despite of the upsurge of interest in value and capital migration, do demarcate clearly between the above notions. Surprisingly, often value migration is understood as capital migration [Szablewski 2008, p. 18, Mikołajek-Gocejna 2009, p. 86], which holds true only partly. Seeing this theoretical confusion, the paper aims at clarification and introduction of basic concepts, which shed new light on capital markets understanding. The important theoretical distinction between value migration and capital migration is coupled with the assertion that there exists a broader notion than capital migration. Such theorizing about migration processes on the financial markets contributes to the subject literature.

The paper is organized as follows. First, it is reviewed the notion of value migration. Next, it is described the capital migration in order to distinguish it from value migration. Then, it is proposed to incorporate to the literature a conception of capital commitments' migration. Thereafter, there are compared all three types of migration. There are discussed the major links between them. Significantly, in this paper migration processes are explicitly categorized from the financial perspective in order to provide further insight into capital market processes.

VALUE MIGRATION AND CAPITAL MIGRATION

The phenomenon of value migration is defined as “the shifting of value-creating forces” [Phillips 2012, p. 36] or as “the flow of profit and shareholder wealth across the business chessboard” [Slywotzky 1996, p. 21]. Notably, aforementioned definitions represent the management theory approach. With regard to the capital market value migration refers to alterations of value between enterprises, which is a part of capital migration. For example, if investors, as a result of a quest for optimal capital allocation, decide to sell out stocks of a definite enterprise and then they invest money from the transactions in shares of another enterprise (or a set of enterprises), then undoubtedly there will occur value migration from some enterprises to others. At the same time we can talk about capital migration, which is the consequence of looking for high return rates of comparable risks accepted by investors. Simultaneously, there might be another course of actions, when, due to the increase in market risk, invaluably assessed by each investor, investors will decide to sell enterprise or enterprises’ shares and allocate cash in hand to other financial instruments, not related to the financing of enterprise capital, for example, into government bonds. In such circumstances, we wittiness an outflow of value from an enterprise or enterprises without at the same time a corresponding inflow to other companies listed on the stock exchange market. The value of enterprise flows out and/or flows into in the form of materialized capital (physical money) flow into other possibilities of capital allocations, which are offered by existing financial instruments to the owners of money as an investment option on capital market. In some sense, it is constrained (one-way) value migration and capital migration. Yet, it can happen an adverse situation, when the value migrates into enterprises as an outcome of liquidation of other financial instruments different than shares emitted by companies.

Scarce capital resources, possessed by both individual and institutional investors, are the subject of rivalry of enterprises, governments, institutions, non-governmental organizations and so on. With a wide spectrum of available on capital markets instruments, investors have a possibility to transfer owned capital resources between financial instruments unrelated to the financing of enterprise activities. This implies capital migration, which in this case, does not directly affect value migration processes.

Generalizing, capital migration is the conception broader than value migration. It signifies, that in the certain economy, or in the considered set of world economies, theoretically, in extreme case, we can envisage the occurrence of capital migration processes without encountering any value migration processes.

CAPITAL COMMITMENTS’ MIGRATION

In the previous section it was delineated the distinction between value migration and capital migration. We can now consider the existence of even broader conception that these two. Having said that, a worthy note is that capital migration processes, which is a wider form of transferring capital resources with regard to enterprise value migration, realize as an effect of searching for possibilities of optimal allocation (higher return rates at the comparable risk) of financial means by its owners, which they can invest in the various financial instruments on the capital market (such as derivatives which are tailored to market value of the base unit to which they refer to).

A investor's entrance into the capital market and purchase of a particular financial instrument is limited only by possession of a minimal amount of money, which is determined by the present market value (concerning a secondary market), or nominal and emission price (applying to a primary market) of securities, alternatively a minimal value of a securing deposit in case of derivatives. An investor's exit from a financial market is not limited with formal constraints of financial system of a specific country either, expect for transactional costs associated with selling financial instrument (including also currency market) and a cost of transferring money within a bank system.

The exit from an investment on regional or international financial market is not attributed to formal system restrictions. Restrictions, if any, can pertain only to the distinct financial instrument features itself in its own right. For instance, commercial banks, which allow credits, only in very exceptional situations might require their return, although there exists the possibility to utilize the instrument of securitization. The sale of a security (a financial instrument) on a secondary market is depended on its liquidity, if there is an individual that demands a security of distinct price exposed to selling. Those constraints are related to the inherited features of an investment in particular securities, but not to system regulations.

Therefore, there is a free hand in possession of investment capital beyond a financial market. An investor, after investing on a financial market, can transfer his capital outside its area and might invest on a market of material goods and properties (e.g. property market, goods market, market of art, and so on) in pursuit for a higher return rate. In such a case, the processes of wider character than capital migration are observed. These processes are proposed to be designated as capital commitments' migration or embedded capital migration, which imply capital flows that can occur between all potential capital commitments investments opportunities, and as a result they change values of investments undertaken in quest of high return rats at an accepted risk. Capital allocation opportunities do not only refer to the financial market, but as well to all investment on markets of goods, properties or natural resources. Capital commitments' migration can occur in following types of situations: (1) when capital flows out of a financial market (capital migration) and migrates outside its scope – to markets of good and properties (capital commitments' migration), or (2) when the seller of goods or properties decides to invest on a financial market – capital arrives to this market. In a very particular case, when fluctuations of capitals concern a market for financing enterprises' activities, then the processes are related to value migration.

All three previously described notions of migration are tightly interconnected, although migration processes can take place within their area without crossing own borders. The graphical presentation of interdependence between three types of migration is depicted in Figure 1.

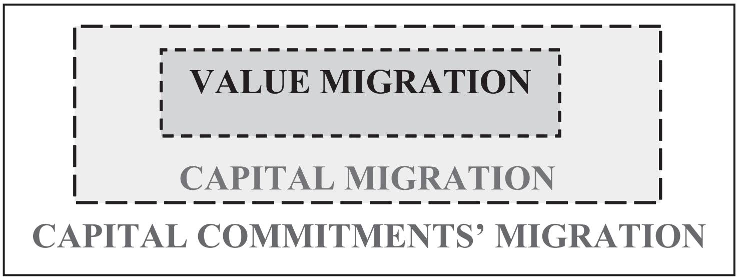


Fig. 1. Value migration, capital migration, and capital commitments' migration

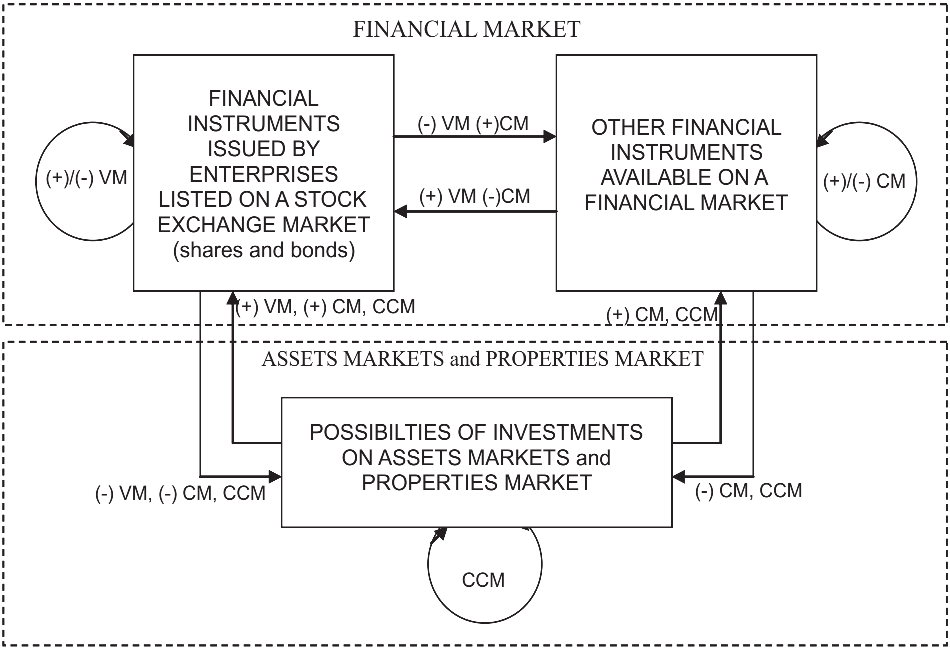
Source: Own elaboration.

LINKS BETWEEN THREE TYPES OF MIGRATIONS

As it was previously signaled capital commitments' migration is a broader conception than capital migration and accordingly value migration. The transactions on the market of goods and properties aimed at investments constitute the process of capital commitments' migration, in this case without influencing neither capital migration nor value migration. This claim is only valid when funds for real investments are acquired outside the financial market and when resources received by a seller from those assets will be located also outside the financial market. In practical terms, usually fluctuations of capital are related to all the other types of migrations with greater or lesser extent.

Relations between different types of migration are dependent on the area to which an investor brings his investments. If capital fluctuations cover only investments directly dedicated to financing enterprises, then we spot value migration – an inflow (+) or an outflow (–) of value from the considered pool of enterprises – which herein overlaps partly with capital migration and capital commitments' migration. When capital fluctuations encompass other than above mentioned financial instruments, still within the transactions on capital market (e.g. for example, selling of government bonds and depositing money in a commercial bank), then we discern capital migration, which falls too into the category of capital commitments' migration but not within scope of value migration. Generally, capital migration includes all fluctuations between financial instruments on the financial market. In addition to all above, capital commitment's migration might occur without interaction of value migration and capital migration. For example, selling of a land and purchase of another property (e.g. a flat or a house) for an investment purpose as the form of optimal allocation of one's capital. Above examined relations between three types of migration with respect to investment instruments are portrayed in Figure 2.

Often all three processes can influence each other, such as when a value inflow – (+) VM originates from a capital outflow – (–) CM from other financial instruments at hand on a market. And adversely, a source of capital inflow (+) CM – is an outflow of value – (–) VM – also as a result of looking for optimal capital allocation. The conveyance of



(+) – inflow, (–) – outflow, (VM) – value migration, (CM) – capital market, (CCM) – capital commitments' market

Fig. 2. Relations between different types of migration with regard to investments possibilies
Source: Own elaboration.

investments on a financial market from a market of goods and properties causes capital commitments' of migration and capital migration. When investments refer to financial instruments financing enterprises' activity, then flows affect also enterprise value migration.

As capital commitments' migration embodies capital migration and value migration, in such analyzed relations, formally its balance will remain zero, which is denoted by the lack of an inflow (+) and an outflow (–). A non-zero balance of capital commitments' migration can arise only when the process of capital creation (increase) in economies realizes (an inflow of financial resources for investments) or in case of destroying the wealth and prosperity of societies (an outflow of financial resources). When referring to the global structure of all economies, outflow/inflow of capital commitments happens in the processes of creation/destruction of value for all participants of the socio-economical system.

Taking this debate at the level of individual countries' economies, a balance of capital commitments' migration can alter as an aftermath of international fluctuations of capital resources. When international capital quoted in foreign currencies flows, in most of the cases it will affect a balance of capital migration considering transactions on the currency market, which is a part of the financial market.

In above discussion it has been neglected a possibility that individual investors might resign from investments on a capital market and decide to commit released money to current consumption. Though, after some time those financial resources can be again invested by other owners of cash. Noteworthy is that, when the goal concerning possessed investment capital changes, resources stop to multiply and are becoming sources of finances for households' consumption.

In this line we mention interesting points brought by the separation theorem developed by Irving Fisher [Fisher 1965], which specifically is a formal model of capital market. It assumes the substitution of current or postponed in time consumption (with regard to an investor), when decisions about current consumption or investment plans could be independent from each other (decision could be separated). Thus, investment and financial decisions are detached. If Fisher's assertion holds true, then we can talk about unanimity among all financing economic units – independent on different time preferences – pertaining to the real investment attractiveness undertaken by an enterprise with positive net present value. The condition for the Fisher separation theorem to apply is above the all not only the existence of a perfect capital market, a lack of information asymmetry, transaction costs or taxes, but also the same interest rate for both units (individuals) financing and being financed (a capital provider and a recipient). It should be highlighted that in the economic reality there is not such a thing as the same interest rate for providers and recipient of capital, which is the theory (model) limitation concerning simplification of reality. We can note that other models also contain simplification of observed reality, for instance Capital Assets Pricing Model, often employed in enterprise financial management, one of assumptions is that an investor can borrow or lend unlimited amounts at the risk-free rate of interest [Jajuga, Jajuga 1998, p. 168, Bailey 2005, p. 144].

Investors considering a particular investment on a capital market in shares take into account a current market interest rate for deposits (in a commercial bank of certain financial condition and good reputation or purchase of government bonds) as well as expectations with regard to their volatility in the future and the extent of risk coupled with an investment. Investments in stocks are always compared to other substitutive opportunities of capital allocation with account of that the substitute can be as well a plan of current consumption (which does fail into a category of capital deposit for the expected interest rate).

CONCLUSIONS AND IMPLICATIONS

Value migration is a direct effect of changes in allocation of investment capital on a capital market as a consequence of search for optimal investments with regard to a rate of return and an accompanied risk. As capital flows might occur within financial instruments not related with financing enterprises, capital migration are the boarder notion. Going further, financial flows, aimed at an investment outside a financial market, are comprising a wider scope than capital migration.

From a formal standpoint, both a balance of value migration and a balance of capital migration can be positive (inflow) or negative (outflow). Theoretically, taken to the extreme, these balances can equal zero, however, because of capital commitments' migration processes – and within them capital migration – seldom it can occur in economic reality. In other words, taking into consideration the set of analyzed enterprises, when value inflows to some enterprises based on value outflows from other enterprises, then a balance of value migration will equal zero.

To sum up, a relatively strong distinction between value migration and capital migration provided in this study is a necessary prerequisite for elaborating a measurement model of value migration fluctuations on a capital market. It is a base too for the one-way value migration model and its interpretations in further studies.

The proposed theoretical distinction of value migration, capital migration, and capital commitments' migration can be used by researchers and practitioners alike when describing migration processes on the financial market and assets market. So far they were captured indistinctly. Better precision in describing migration processes on the financial markets can result in theories development.

As far as limitations of the introduced distinction are concerned, it must be noted the concepts introduced in the paper are concerning the aggregated values, so they are not developed for micro-level of analysis, but rather to describe migration processes at the higher level.

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TEORETYCZNE ZALEŻNOŚCI MIĘDZY MIGRACJĄ WARTOŚCI PRZEDSIĘBIORSTW, MIGRACJĄ KAPITAŁÓW I MIGRACJĄ ZAGAZOWAŃ KAPITAŁOWYCH

Streszczenie. W prezentowanym artykule podejmowana jest problematyka relacji między migracją wartości a migracją kapitałów. W finansach przedsiębiorstw zarządzanie przez wartość jest przyjętym paradygmatem. Migracja wartości pozostaje w bezpośrednim związku z koncepcją zarządzania wartością przedsiębiorstw. Nieustannie zachodzące procesy migracji wartości oraz ich jednoczesna akceleracja w ostatnim czasie urzeczywistniają potrzebę ich ilościowego pomiaru. Przeprowadzenie właściwego pomiaru fluktuacji wartości przedsiębiorstw wymaga rozgraniczenia pojęć migracji wartości i migracji kapitałów.

Słowa kluczowe: migracja wartości, migracja kapitałów, migracja zaangażowań kapitałowych, przypływ wartości, odpływ wartości, alokacja kapitału

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NEUROSCIENCE IN CONSUMER MARKETING RESEARCH. AN ANALYSIS DRAWN FROM THE EXAMPLES OF FOOD PRODUCTS

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Abstract. This article aims to contribute to the discussion about the potential for the implementation of consumer neuroscience into marketing research. This article highlights three areas of consumer neuroscience: methods used by consumer neuroscience, the findings and their interpretations and the ethical aspects. The article has a partly descriptive character as the research area of neuroeconomics or consumer neuroscience is new. To illustrate the investigated problems the selected studies, especially connected with food products, were presented as a review of literature.

Key words: consumer neuroscience, marketing research, neuromarketing, neuroeconomics

INTRODUCTION

The birth of neuroeconomics is connected to the technical improvement and broader accessibility to new technology to scan the human body, especially functional magnetic resonance imaging (fMRI), electroencephalography (EEG) and magnetoencephalography (MEG). Although these imaging methods are not new[1], nowadays an advanced imaging technology allows a much more detailed picture of how the body and brain works to be obtained. The development of neuroimaging technology and neuroscience has raised the question of if it is possible to apply neuroscience to study human behaviour in the field of economics and marketing. The question is not entirely new, as

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[1] The first MRI scan of human body was produced in 1977, the first MRI scanner built in 1980 [Kirsh 2014], and the field of electroencephalography was born in the beginning of 20th century [Magiorkinis et al. 2014].

marketing research based on psychophysiological observations of consumer's reactions (pupil dilation, electrodermal response) were conducted in the 1960s [Solnais et al. 2013]. Later, the EEG was employed for marketing purposes in 1970s [Solnais et al. 2013], and the fMRI at the end of the 1990s [Vlăsceanu 2014a]. It is worth mentioning that in the USA, the implementation of MRI scanners, up to field strengths of 4.0 T, was approved for marketing in 1998, and in 2002 the approval included up to 3-T MRI scanners for the skull base, brain, and whole body [Kirsch 2014].

As a consequence of developing imaging technology and its implementation within the analysis of consumer's behaviour, new sub-fields of science have been emerging: neuroeconomics, neuromarketing and consumer neuroscience. The part of literature defines the term of neuroeconomics as the application of neuroscientific methods to analyse and understand economically relevant behaviour [Kenning and Plassmann 2005], with the aim to "[…] to create a theory of economic choice and exchange that is neurally detailed, mathematically accurate, and behaviorally relevant" [Camerer 2008, p. 416]. The term "consumer neuroscience" is often understood as a subfield of neuroeconomics, which focuses on the problems connected with consumer buying-process (e.g. a consumer's preferences), while the term of neuromarketing refers to the practical and commercial application of consumer neuroscience [Solnais et al. 2013]. However, consensus about the definition and terminology has not been reached yet. Some researchers apply the term of consumer neuroscience, while other authors – use the term of neuromarketing to indicate the new neural research area of consumer behaviour. Moreover, much research in neuroeconomics is virtually the same as research in the consumer neuroscience or neuromarketing fields [Lee et al. 2006]. In this article, following other authors, I use the term of consumer neuroscience for further discussion, as – in my opinion – this term adequately describes the main concept: consumer research based on the usage of advanced neuroimaging technology.

THE PROBLEM

This article aims to contribute to the discussion about the potential of implementing consumer neuroscience in marketing research. Neuroeconomics or consumer neuroscience are new and developing fields of study, and therefore research in these fields still raises many questions about the possibilities and constraints. This article focuses on discussing the following questions:

1. Do the methods of consumer neuroscience allow researchers to obtain valuable data for marketing research purposes? What kind of marketing problems can be solved?
2. What are the constraints connected with implementing the methods of consumer neuroscience?
3. How are the findings of consumer neuroscience to be "read" and understood through the perspective of marketing?
4. Is consumer neuroscience unethical?

As this article tries to convey the broader "picture" of consumer neuroscience, the further discussion highlights the most pressing issues, but is not focused on details.

DO THE METHODS OF CONSUMER NEUROSCIENCE ALLOW RESEARCHERS TO OBTAIN VALUABLE DATA?

Considering the main purpose of marketing research and the way in which data is obtained, marketing research can be divided into quantitative and qualitative marketing research, and interview-based research and observation-based research. Which is better: observations or the interviewing of respondents? It seems that nowadays obtaining valuable data from interviewing a large sample of the respondents faces increasing obstacles and challenges, e.g. the consumers are "tired" of the growing number of requests to take part in surveys, and the consumers often falsify answers for questionnaires. Therefore, if we agree that traditional ways of interviewing customers do not lead to "perfect" data allowing companies to get valuable look inside consumer behaviour, the alternative methods of marketing research are based on gathering data from observations. So far, methods based on observations of physiological response to marketing stimuli have received very little attention. In traditional textbooks of marketing research these methods have been presented as "peripheral" compared to traditional interviews or even other methods based on observations (e.g. observations of customers' or a salesperson's behaviour at the shop).

Nowadays, consumer neuroscience is mostly based on the following methods to obtain data: electroencepahlography (EEG), magnetoencephalography (MEG), functional magnetic resonance imaging (fMRI), eye-tracking and other physiological observations such as skin response, heart rate, pupil dilation. Some of the literature also indicates positron emission tomography (PET) to be among the methods of neuroeconomics or neuromarketing. However, the application of PET for healthy participants is limited, as in the PET radioactive traces are used [Kenning and Plassmann 2005]. To my knowledge, there has not been any research within neuroeconomic or consumer neuroscience based on the PET in Poland. Table 1 presents a short description of neuroimaging methods usually used for consumer neuroscience.

Table 1. The description of methods used in consumer neuroscience

Electroencephalography (EEG)	The EEG measures the brain activity as the detection of the electric changes on the scalp, and the electrodes are attached to the respondent's head. The EEG allows to receive the high temporal resolution of milliseconds of brain activity, but the spatial resolution is low [Kenning and Plassmann 2005]. In consumer neuroscience the EEG is used as a stand-alone method or the EEG is used in conjunction with other tools such as eye-tracking
Magnetoencephalography (MEG)	The MEG detects changes of magnetic fields of brain activity
Functional magnetic resonance imaging (fMRI)	fMRI works on the basis of tracking the blood flow in the brain, and these "tracking" is possible due to changes in magnetic properties of blood oxygenation, so called blood oxygenation level dependent (BOLD) – signal [Camerer et al. 2005]

Source: Author's elaboration.

The implementation of methods of consumer neuroscience enables the gathering of data based on observation, and is therefore "more objective" than data from traditional interview-based surveys. Assume that we design a study aiming to select the layout of an advertisement. In "traditional" studies, we often compare results coming from the control group and the test group of respondents (e.g. the test group and control group are exposed to different layouts of the advertisement). This experiment raises (at least) questions about the form of the questionnaire which is used to gather respondents' opinion about an advertised products and advertisement, or the problem of the "similarity" between respondents in both groups (e.g. age and gender differences, initial attitude to the advertised product). While we use methods allowing researchers to measure how the consumer's brain works while the participants are exposed to marketing stimuli[2], we need a completely new approach to the study. First, the questionnaire is not irrelevant, but it plays a different role in the study. The questionnaire which is used for gathering information should be linked to the data obtained by observations due to e.g. fMRI scan, and from a particular respondent two kinds of data is gathered: the "more objective data" from neuroimaging, and also the data based on the interview. The other problems and constraints (e.g. age differences) between participants are still valid for the study. For example, if we find a common pattern of brain activity for example in 12 participants, we still do not know that this result would not be different if participants were of different ages.

The next aspect of the implementation of the consumer neuroscience is connected with the scope of marketing problems which can be solved. So far, the spectrum of marketing problems which have been investigated within the studies based on neuroscientific methods is quite narrow. Neuroscientific data does not allow researchers to solve all varieties of differently formulated problems which are within the scope of "traditional" marketing research[3]. Table 2 presents examples from literature: the problems which were investigated, and methods which were used as tools to obtain the data.

It is also worth highlighting that methods used in consumer neuroscience are often conducted within an environment which does not resemble the natural shopping or consumers' experience. Apart from mobile eye-tracking and the EEG, the neuroscientific research has to be conducted exclusively in a laboratory. This means that there are also limited forms of marketing stimuli which can be used. For the studies based on fMRI marketing stimuli can be visual (e.g. advertisements), it can be heard by participants (aural), or the participant can drink a sample liquid. However, within the closed space of fMRI the participant cannot move freely.

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[2] Although it is worth emphasizing that this sentence it is not entirely true. For example the fMRI does not directly measure the neural activity, but the measurement is indirect – due to the changes of blood flow [Rachul and Zarzeczny 2012]. Other concerns connected with the problems of interpretation of findings are further presented in the article.

[3] The problems of marketing research varied from very general to very specific e.g. How to introduce new product to new market?, What is the percentage of customers who buy the brand A at least three times per week?, or What colour of the package does enhance the brand perception as ecological?

Table 2. The marketing problems and the methods used in selected studies

Author/Authors	Method	The problem investigated
Jones et al. [2012]	EEG	How high math anxiety and low-math anxiety consumers made the buying decisions for product with or without price discount
Ma et al. [2008]	EEG	The suitability of extending the brand of products
Vecchiato et al. [2011]	EEG	To analyse the changes in the EEG frontal activity during the observation of commercial video clips, and the researchers were focused on investigation the EEG frontal asymmetries in the distribution of the signals' power spectra related to experienced pleasantness of the video
Khushaba et al. [2013]	EEG and eye-tracking	To capture the process of choosing the most preferable form of product by respondents
Kenning and Plassmann [2005]		Overview of studies in literature which indicates that: – the implementation of MEG for the neural correlates of product choices – fMRI were used for investigating e.g. problems of neural responses to expectancy and experience of monetary gains and losses, neural correlates of cooperative behaviour, neural correlates of social rewards, neural correlates of decision-making processes during the ultimatum game
Solnais et al. [2013]		Overview of studies in literature which indicates: – the implementation of MEG for brands as a marketing stimuli – fMRI implementation for advertising, brands, price, products, packaging as a marketing stimuli

Source: Author's elaboration.

THE FINDINGS – HOW TO UNDERSTAND AND BELIEVE THE DATA?

To discuss the "features" of findings for consumer neuroscience I selected a few studies connected with food products. The publications about consumer neuroscience with reference to food product (brand, advertising, form of food product etc.) are still rarely presented in the literature, but publications can be found within three domains: research directly connected with the food industry, "general" neuroeconomics and medicine.

1. In literature we can find publications which directly emphasize the investigation of food products. For example, Lusk et al. [2015], in the article published in the Food Quality and Preference, investigated how consumers made choices between two milk options which varied in price and/or use of technology: growth hormones and cloning. First, the researchers found that both deliberative and effective processes are involved when deciding whether to choose a higher-price, more natural food (see details in Table 3). Second, researchers pointed out that the model which gives the best prediction to consumer's choices is based on all types of data: demographics, psychometric scales, product attributes, and neural data obtained by fMRI.

2. Within this scope of publications of neuroeconomics there are articles which give a useful inside look at "food-related" research, as the researchers quite often choose food products for their studies[4]. Examples of studies can be found among the papers including a presentation of one particular study [Khushaba et al. 2013 – Table 2; or the research of Thomas et al. 2013], and also within articles reviewing the scope of different studies [Solnais et al. 2013].
3. The third domain in which we can find results useful for the consumer neuroscience is medical literature referring to problems connected with eating habits. As the researchers used the different stimuli connected with food, these studies are equally important for a much broader food sector. There are the following examples of such studies: Stoeckel et al. [2008], Murdaugh et al. [2012], Bruce et al. [2013] – Table 2.

Table 3. The findings of neuroscientific research – the examples connected with food products

Author/Authors	Results (cited from the abstract)
Lusk et al. [2015]	"Functional magnetic resonance imaging (fMRI) data were obtained while consumers (*n* = 47) made choices between two milk options which varied in price and/or use of technology (growth hormones and cloning). Results revealed both deliberative and affective processes were involved when deciding whether to choose a higher-price, more 'natural' food. Brain activations in the dorsolateral prefrontal cortex and insula predicted the choice of higher-priced but more 'natural' foods produced without the use of controversial technology. Brain activations in price-alone or technology-alone decisions predicted behavior in choice tasks involving price-technology tradeoffs, revealing cross-task predictive power." (p. 209)
Khushaba et al. [2013]	"Subjects were shown 57 choice sets; each choice set described three choice options (crackers). The patterns of cortical activity were obtained in the five principal frequency bands, Delta (0–4 Hz), Theta (3–7 Hz), Alpha (8–12 Hz), Beta (13–30 Hz), and Gamma (30–40 Hz). There was a clear phase synchronization between the left and right frontal and occipital regions indicating interhemispheric communications during the chosen task for the 18 participants. Results also indicated that there was a clear and significant change ($p < 0.01$) in the EEG power spectral activities taking a place mainly in the frontal (delta, alpha and beta across F3, F4, FC5 and FC6), temporal (alpha, beta, gamma across T7), and occipital (theta, alpha, and beta across O1) regions when participants indicated their preferences for their preferred crackers. Additionally, our mutual information analysis indicated that the various cracker flavors and toppings of the crackers were more important factors affecting the buying decision than the shapes of the crackers" (p. 3803)
Bruce et al. [2013]	"Compared with the healthy weight children, obese children showed significantly less brain activation to food logos in the bilateral middle/inferior prefrontal cortex, an area involved in cognitive control" (p. 759)

Source: Author's elaboration.

[4] Although the titles of the publications do not often emphasize the product which is used as a stimuli.

So far, the explanation of findings within consumer neuroscience lies in an explanation for a particular case. There are still too few studies in the field of consumer neuroscience, therefore it would be premature to say that consumer neuroscience brings new foundations to new marketing paradigm. As Hubert [2010] pointed out the constraints of neuroeconomics lay in uncertain reliability and validity of findings due to lack of replication of existing studies, small samples of participants of the studies, limitation of experimental settings, and therefore the possibilities to derive practical or ethical-normative recommendations beyond individual case are limited. Also Levallois et al. [2012] indicate that the translation of results based on neuroimaging data to complex social sciences constructs and theories is difficult. Rachul and Zarzeczny [2012] points out to "general" rise of neuroskepticism, which brings the concerns e.g. about the methods of analysing results, the possible over-interpretations of results, presentation of the findings in a premature or biased way, concerns about the technology and methodology problems, inappropriate applications and concerns about privacy.

In my opinion, the indicated constraints support the argument that the term "neuromarketing" does not accurately depict its meaning and the main concept. The terms describing the marketing paradigms – such as relationship marketing, the experience marketing, or the transactional marketing – clearly indicate the base of marketing strategy and the marketing tools which organizations can use in order to survive and grow e.g. relationship marketing emphasizes the role of the relations with different entities, especially with customers, and due to the quality of these relations the company receives the customer's loyalty, recommendations and customer's support. So far, the application of neuroscientific methods to understand the consumer decision-making process does not lead to results which allow the building of a new marketing theoretical and practical framework, although neuroscience helps to understand some important constructs e.g. the construct of trust[5] (which plays crucial role e.g. in relationship marketing).

The understanding and the proper interpretations of the findings depend on overcoming the barriers of communication, collaboration and understanding between different sciences: neurology, economy, marketing, mathematics. Even the three examples of results presented in Table 3 clearly indicate that the findings of consumer neuroscience are difficult to present and understand from the perspective of traditional economics or marketing, as they are based on medical knowledge and language. Moreover the interpretations of the neurosignals captured in different methods need to be analysed on the basis of advanced mathematics. The barriers of communication between different fields of science lie not only in the area of language, but also in the area of 'different questions, different abstractions' used by economics, marketing and neuroscience (see interesting discussion in Aydinonat [2010]). So far, the frameworks of understanding the problems which are used by the traditional marketing and consumer neuroscience are so different, that the translation of results and cooperation between these two fields is difficult.

[5] For instance, trust is discussed in the following articles: Kenning and Plassmann [2005], Lee et al. [2007], Javor et al. [2013].

ETHICAL ASPECTS OF CONSUMER NEUROSCIENCE

The last, but not least important aspect of consumer neuroscience is the ethics. The problem about the ethical aspect of consumer neuroscience needs to be carefully investigated. Ethical aspects are considered on two sub-fields: ethical aspects connected with designing the studies and the ethical issues connected with the ethical, social and legal impact of neuroscientific research on existing social and legal structures [Vlăsceanu 2014b]. As detailed discussion about neuroethics, and ethical aspects of consumer neuroscience is beyond the scope of this article, I would like to highlight two selected issues. First, it is obvious that the methods of consumer neuroscience cannot harm participants in any way. However, theoretically we can foresee the situation where a particular participant takes part in a series of studies based on fMRI. Although fMRI is considered safe for usage for a healthy person, we must remember that magnetic field inside the MRI is extremely strong, and if the participant goes through an fMRI scan – let's say once a month – it is difficult to say how the research may influence the participant's health.

Another ethical concern is about unethical attempts to press "the buy-button" in the consumer's mind. However, an understanding on the neural level of how a consumer's brain works does not mean that the companies will be able to "manage and influence the consumer's brain", e.g. discovering that a particular advertisement triggers the activity of a particular part of brain does not imply that the consumer may be "forced" to buy a product. It seems that the usage the term of "neuromarketing" instead of "consumer neuroscience", increases the possibility that neuroscientific methods would be viewed by the public through the perspective of the search for 'neurotools' which allow companies to press the "buy-button" in consumer's brain.

CONCLUSIONS

The field of consumer neuroscience is still in the very early stages of development, but we may presume that the impact of neuroscientific research on understanding consumer's behaviour will steadily grow. For successful implementation of consumer neuroscience we need to gradually accumulate the knowledge, which allows the construction of the research framework to integrate different fields of study. Therefore marketing research should, in a more detailed way, address such problems as: the identification of the scope of marketing problems which can be solved using a neuroscientific approach, the problem of designing the methodology of study, the problem of introducing detailed ethical standards of research, and at last – but highly important – identifying and overcoming the barriers of collaboration between researchers from different fields of science.

The following arguments summarize the discussion presented in this article:

1. The implementation of the methods of consumer neuroscience allows researchers to receive data based on observation, therefore - from perspective based on one respondent - 'more objective' than data from traditional interview-based surveys.
2. So far, the explanation of findings within consumer neuroscience mostly lies in an explanation for a particular case, and the generalization of findings to the larger population is very limited.

3. So far, the spectrum of marketing problems which have been investigated within the studies based on neuroscientific methods is quite narrow.
4. Consumer neuroscientific studies are often conducted within an environment which does not resemble the natural shopping or consumer's experience.
5. The form of marketing stimuli which can be used for some methods such as fMRI is limited.
6. Consumer neuroscientific studies may raise questions about their validity.
7. The understanding and the proper interpretations of the findings of consumer neuroscience depend on overcoming the barriers of communication, collaboration and understanding between different sciences: neurology, economy, marketing, mathematics.
8. The ethical aspect of consumer neuroscience is "multi-layered", and should be addressed carefully.

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NEUROOBRAZOWANIE W BADANIACH MARKETINGOWYCH KONSUMENTÓW. ANALIZA NA PRZYKŁADZIE PRODUKTÓW ŻYWNOŚCIOWYCH

Streszczenie. Celem prowadzonych w artykule rozważań jest wzbogacenie dyskusji dotyczącej możliwości zastosowania metod neuroobrazowania w badaniach marketingowych. Prowadzone rozważania szczególnie akcentują trzy obszary: metody badawcze, wyniki badań i możliwości ich interpretacji oraz aspekt etyczny. Ze względu na początkową fazę rozwoju neuroekonomii oraz badań marketingowych na podstawie neuroobrazowania artykuł częściowo ma opisowy charakter. W celu zobrazowania prowadzonej dyskusji w artykule zaprezentowano wybrane studia badawcze, szczególnie te powiązane z produktami żywnościowymi.

Słowa kluczowe: badania konsumentów na podstawie neuroobrazowania, badania marketingowe, neuromarketing, neuroekonomia

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