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Preface

This book presents the results of Polish-Ukrainian scientific cooperation. It contains the papers prepared for the 10th international conference “Quantitative Methods in Accounting and Finance”. Accounting and finance face nowadays many challenges. They require both an international and local approach, they need to be considered from the theoretical and practical point of view, and they also encourage general and specific analysis.

Support from quantitative methods is needed in order to discover, implement and verify new finance and accounting trends, methods and instruments. The research papers which are part of this book present different aspects of accounting and finance combined with a quantitative, in particular Econometric, approach.

Some of the papers focus on methodology of measurement, estimation and forecasting of financial phenomena, especially those related to investment processes. Others address specific problems of accounting such as accounting solutions for different branches, legal issues of accounting, responsibility and reporting. An alternative approach was also undertaken and the roles of a narrative and culture in accounting were presented.

The variety of papers selected for this issue ensures the complexity of the book. It provides theoretical as well as empirical material which can be used in further research and in business practice, particularly in accounting and finance. We hope that the content of the book provides a starting point for scientific discussion and practical changes.

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METHODOLOGICAL APPROACHES TO DETERMINING THE LEVEL OF TRANSACTION COSTS OF SALES OF AGRICULTURAL ENTERPRISES

METODYCZNE PODEJŚCIA DO OKREŚLENIA POZIOMU KOSZTÓW TRANSAKCYJNYCH GOSPODARSTW ROLNYCH

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Summary: The effectiveness of the marketing policy of agricultural enterprises to some extent is determined by the level of transaction costs. These are the costs of organizing and servicing various types of its activities, including marketing ones. They affect the price of production, sales volumes and competitive position in the market as well as profit. Ignoring the role of transaction costs can lead to a deterioration of these indicators in the company and a reduction of economic efficiency. Today there is a trend for higher transaction costs for agricultural producers (market seeking, negotiating, contracting, etc.). The task of leadership is to take into account transaction costs at the micro level in order to identify additional reserves of efficiency of marketing of companies and find the best forms of business practices such as trading on the Internet. Elements of transaction costs depend on the direction of the company, its size and structure, specialization, types of business entity, the degree of integration with other market players, their frequency. According to the last criterion transaction costs are divided into single, relatively fixed and semi-variable. Research has established that an important role in enhancing the effectiveness of the marketing policy of agricultural enterprises depends on lowering transaction costs, based on the technique from data from operational, analytical and synthetic accounting.

Keywords: transaction costs, sales of agricultural enterprises.

Streszczenie: Skuteczność polityki marketingowej przedsiębiorstw rolniczych w pewnym stopniu zależy od poziomu kosztów transakcyjnych. Są to koszty organizacji i obsługi różnych rodzajów działalności, w tym marketingowych. Mają one wpływ na koszty przedsiębiorstw rolnych, wielkość sprzedaży i ich pozycję konkurencyjną na rynku, jak i wysokość zysku. Ignorowanie roli kosztów transakcyjnych może prowadzić do pogorszenia wskaźników finansowych przedsiębiorstw rolnych i zmniejszenia ich efektywności ekonomicznej. Obecnie istnieje tendencja wzrostowa kosztów transakcyjnych w przedsiębiorstwach rolniczych (poszukiwanie rynku, negocjacje, zawieranie umów). Zadaniem kierownictwa jest

uwzględnienie kosztów transakcyjnych w podejmowaniu decyzji w celu zidentyfikowania dodatkowych rezerw efektywności i znalezienia optymalnej formy sprzedaży produktów, np. handel w Internecie. Wysokość kosztów transakcyjnych zależy od specyfiki przedsiębiorstwa, jego wielkości i struktury, formy prawnej oraz stopnia integracji z innymi graczami na rynku oraz częstotliwości zawieranych transakcji. Koszty transakcyjne są dzielone najczęściej na koszty pojedynczych transakcji, stałe oraz semi-stałe. Przedstawione w artykule badania wskazują na to, że istotną rolę w podnoszeniu efektywności działań marketingowych przedsiębiorstw rolnych odgrywa ograniczenie kosztów transakcyjnych.

Słowa kluczowe: koszty transakcyjne, marketing, przedsiębiorstwa rolne.

1. Introduction

The effectiveness of managing an agricultural commodity is the main precondition for ensuring food independence, the formation of the competitive potential of agricultural products in domestic and foreign markets, and resolving social, technological and demographic problems in rural areas. The national economy's depression confronted with the country's aspirations to enhance participation in global economic processes actualizes the problem of preventing food crises, which can be caused by a decrease in domestic production due to its low efficiency. Increased competition in the domestic food market needs to create powerful competitive advantages of domestic products over imports' providers.

The neoclassical approach to the study and interpretation of the formation mechanisms and cost minimization, is literally wearing off. The neoclassical theory of evolution in spending arrives at institutionalism which began to emerge in the late XIX century. The theory of transaction costs started its development in institutionalism.

Among the integrated cost economics has to deal with, there are two types:

- transformation costs i.e. “production costs”;
- “transaction costs”.

Transformation costs can be labeled as “production costs” only conditionally, because a significant production cost includes transformation and transaction costs. Transformation costs are costs that accompany the process of physical change of the material, resulting in obtaining a product that has a certain value. These costs include not only the cost of processing the material, but also the costs associated with the planning and coordinating production process, if it applies to technology rather than human relations.

2. Scientific approaches to the interpretation of transaction costs

Transaction costs are costs that ensure the transition of ownership from one hand to the other, and the protection of these rights. Unlike transformation costs, transaction costs are not associated with the very process of costs creation. They provide

transaction. We can say that the transformation costs create good properties which are of value to the individual or collective agent of the economy (companies, firms, associations) [Tarasenko 2004, pp. 215-219].

The first interpretation of transaction costs as an economic category emerged in the work of R. Kouz "Nature of the Firm," considered the founder of the concept. According to the author, without the concept of transaction costs it is impossible to understand how the economic system cannot be usefully analysed, numerous problems, and there is no reason for a particular policy [Kouz 1993].

We reviewed scientific approaches to the definition of "transaction costs" (Table 1).

Table 1. Scientific approaches to the definition of "transaction costs"

№	Author	Definition
1	G.B. Kleiner [Kleyner 1998]	The cost of adapting the company to ever changing market conditions.
2	N.V. Grishko [Grishko]	Costs of establishing and ensuring property rights. Inspection, enforcement, protection and measurement - all these elements relate to the problem of protection of property rights. If property rights are protected and respected the transaction costs are equal to zero. If there is a need to defend or fight for ownership, there are transaction costs. If the transaction costs are too high, then ownership will never be established and it will never adhere to.
3	V.I. Miloshik [Miloshik]	The cost of designing, discussing and insuring conditions of guarantee agreements; costs associated with poor adaptation to unforeseen events and occurring in violation of agreements mechanism according to the circumstances of their implementation; administrative and operating costs associated with the use of certain governance structures to address conflict situations; costs associated with insurance of exact agreement obligations.
4	R.I. Kapelushnikov [Kapelyushnikov]	Spending decisions, plans development and organization of future activities, negotiating on their content and conditions when a business relationships are among two or more participants; the cost of changing plans, renegotiation of agreements and dispute resolution, if it is dictated by the circumstances that have changed; ensure that members adhere to agreements reached.
5	S.I. Arkhierev [Arkhiereev]	Economic costs include implicit costs (expenses), determined by an alternative basis, as a set of costs arising from the exchange of property rights and the costs intended to reduce these costs.

Source: own elaboration.

Therefore the transaction costs are extremely diverse. We believe that every definition of transaction costs has a right to exist, as the view of transaction costs, the view and the position occupied by scientists in their study, largely depend on economic theory to which they are exposed.

The effectiveness of marketing policy of agricultural enterprises to some extent is determined by the level of transaction costs. These are the costs of organizing and servicing various types of its activities, including marketing ones. They affect the price of production, sales volumes and competitive position in the market as well as profit.

Ignoring the role of transaction costs can lead to a deterioration of these indicators in the company and a reduction of economic efficiency. Today there is a trend to higher transaction costs for agricultural producers (market seeking, negotiating, contracting, etc.). The task of leadership is to take into account transaction costs at the micro level in order to identify additional reserves of efficiency of marketing of companies and find the best forms of business practices such as trading on the Internet.

Table 2. Type of transaction for marketing of agricultural enterprises products

Elements of economic relations of agricultural enterprises	Transaction costs of servicing activities of agricultural enterprises		
	Single	Relatively fixed	Conditionally variable
Production	formation of the sales department (marketing), acquisition of capital and circulating assets for marketing activities, site creation	market research, orders portfolio creation, marketing, information and transport security, technical equipment, staff training, improvement of service sales, demonstration activities	certification, standardization, recruitment of qualified personnel, participation in specialized exhibitions and projects, customs procedures, restructuring sales department of the company due to changes in market conditions
Relations of joint activities	the creation of cooperatives, associations of manufacturers	coordination of activities, harmonization of interests, membership fees	risk-sharing of joint activities
Monetary-settlement relations	determining margin manufacturer the size of the advance payment for the products, the possibility of providing trade credit	coordination of activities, harmonization of interests, membership fees ongoing payments to contractors	the imposition of fines and damages recovery for non-performance of contractual obligations
Contractual relations	Contracting	liaising with partners; advertising	negotiations with customers and suppliers; entertainment expenses, after-sales support
Financial relations	insurance of export products	Customer registration ensuring	servicing insurance contract, calculation of insurance, tax and customs duties, correction of errors
Civil-legal relation	creation of the legal department, the development of standard sales contracts legal	legal support prevention and exposure of facts failure to fulfill contractual obligations of contractors	settling disputes in court

Source: own elaboration [Sharapa 2015].

Elements of transaction costs depend on the direction of the company, its size and structure, specialization, types of business entity, the degree of integration with other market players, their frequency. According to the last criterion, transaction costs are divided into single, relatively fixed and semi-variable (Table 2).

According to statistical, financial and tax statements, it is impossible to give an objective assessment of the structure and level of transaction costs, so determining their quantitative state should provide special technique, which should take into account all kinds of relations arising in the implementation of agricultural activity, factors influencing the change of transaction costs (volume, specialization, diversification and production technology, organization of marketing, seeking of the market for products; the possibility of internal logistics; organization of contractual relationships with partners, participation in cooperative and associative enterprises, and other associations, etc.).

3. Method of calculating the value of the transaction costs

Maintenance of production relations largely is at the expense of an intellectual work solving of the organizational issues by employees and considerable investments. Transaction costs of production relations maintenance (TB_{BB}) in formalized language can be shown by the equation

$$TB_{BB} = 3\mathcal{U} \times O\Pi + B_{\text{ITK}} + B_C + \mathcal{D} + B_M, \quad (1)$$

where: $3\mathcal{U}$ – time spent on market research and portfolio formation of orders, man-hours.; $O\Pi$ – payment for one man-hour., грн; B_{ITK} – the costs of qualification development of employees in sales department, грн; B_C – the costs of creating and maintaining website, UAH; \mathcal{D} – costs of demonstrative activities, UAH; B_M – material costs, UAH.

Transaction costs of establishing a network of company stores, participation in cooperatives and associations, coordination of their activities in order to ensure optimal allocation of risks, ($TB_{\mathcal{D}}$), which represent relations of joint activity, can be determined by the formula

$$TB_{\mathcal{D}} = B_{\Phi M} + B_K, \quad (2)$$

where: $B_{\Phi M}$ – costs of establishing a network of company stores, UAH; B_K – costs of participation and coordination of the cooperatives and associations, UAH.

Maintenance of monetary settlement relations ($TB_{\text{ГРБ}}$) involves transaction costs onto determining margin of production, amount of prepayment for the product, an ability to provide trade credit, conducting ongoing payments to contractors, in the event of failing contractual obligations the calculation of penalties calculated by the formula

$$TB_{\text{ГРБ}} = (B_{\text{ITK}} + B_{\text{ПТО}} + B_{\text{РО}} + B_{\text{БМ}} + B_{\text{ЛІС}}) \times O\Pi + B_M, \quad (3)$$

where: B_{ITK} – time spent on determining the size of payments on commercial credit, man-hours.; B_{PIO} – time spent on determining the amount of prepayment, man-hours.; B_{PO} – time spent on the ongoing customers payment servicing, man-hours.; B_{BM} – time spent on determining margin of production, man-hours.; B_{IIC} – time spent on determining the penalties, man-hours.

Transaction costs on conclusion of contracts (TB_{VK}) can be determined as:

$$TB_{VK} = \left(\sum_{i=1}^n 3\mathcal{U} \times O\Pi \right) + B_P + B_{II} + B_M + B_C \quad (4)$$

where: $3\mathcal{U}$ – time spent on conclusion of contract, man-hours.; B_P – costs of advertisement, UAH; B_{II} – representative costs, UAH; B_M – material costs, UAH; B_C – the costs of creating and maintaining a website, UAH.

Transactions regarding maintenance of financial relations ($TB_{\phi B}$), depend on the volume of goods exports, that are subject to insurance, can be calculated by the formula

$$TB_{\phi B} = (3\mathcal{U}_{CO} + 3\mathcal{U}_{IO}) \times O\Pi + B_M \quad (5)$$

where: $3\mathcal{U}_{CO}$ – time spent on processing conducting operations of insurance man-hours.; $3\mathcal{U}_{IO}$ – time spent on tax accounting, man-hours.

Civil legal relations are characterized by a significant increase in transaction costs in the event of disputes and the use of judicial procedures.

Transaction costs maintenance of civil relations (TB_{IIB}) calculated by the formula

$$TB_{IIB} = B_{TI} \times O\Pi + B_{CI} + B_{HI}, \quad (6)$$

where: B_{TI} – the cost of developing standard sale contracts, man-hours.; B_{CI} – the cost of judicial procedures, UAH; B_{HI} – the cost of partner management, UAH.

Transaction costs (TB_{3I}) can be shown as:

$$TB_{3I} = C_{II} + K + \Pi + \mathcal{D} + P + Y_K + B_C + B_M \quad (7)$$

where: Y_K – the costs of development and contracting, UAH; Π – marketing team labor costs, UAH; C_{II} – costs of product certification, UAH; K – cooperative membership fees, UAH; P – advertisement costs, UAH.

Transaction costs of the company for each activity type can be defined as the sum of its single, relatively fixed and conditionally variable costs to the corresponding activity. Accordingly, general transaction costs of agricultural enterprises maintenance are calculated as the sum of costs for all activities.

Thus, the transaction costs of marketing activity for agricultural enterprises ($\sum TB_{CII}$) can be determined by the formula

$$\sum_{i=1}^n TB_{CII} = TB_{BB} + TB_{CI} + TB_{IPB} + TB_{VK} + TB_{\phi B} + TB_{IIB} + TB_{3I}, \quad (8)$$

Accordingly, effectiveness of the transaction costs for the current year to build a time series determined by the formula

$$ETB_{CTII} = \left(TB_{CTII} / \sum_{i=1}^n YK \right) \times 100 \rightarrow \min. \quad (9)$$

Any company, including agricultural, conducts its sales activities in order to reimburse the cost and obtain the profit needed for future development. To achieve this, companies set limits of trade margin (margin), seeking its optimal size, taking into account production costs, competitors prices for the goods-analogues, population purchase capacity and market capacity.

4. Conclusions

In improving the agricultural enterprises' effectiveness in marketing policy, a very important role is played by the reduction of transaction costs. In order to determine those costs, a method was developed based on data from operational, analytical and synthetic accounting.

References

- Arkhieriev S.I., *Transaktsiyni vitrati v umovah rinkovoyi transformatsiyi*, Avtoref. dis. d-ra ekon. nauk: 8.01.01/S. I. Arkhieriev HarkIvskiy natsIonalniy un-t Im. V.N.KarazIna.
- Grishko N.V., *Suchasni kontseptsiyi upravlinnya vitratami promislovih pidpriemstv*, http://lukyanenko.at.ua/_ld/2/208.pdf.
- Kapelyushnikov R., *Ekonomicheskaya teoriya prav sobstvennosti (metodologiya, osnovnyie ponyatiya, krug problem)*, <http://ecsocman.edu.ru/db/msg/4463>.
- Kleyner G.B., 1998, *Strategii biznesa: analiticheskij spravochnik*.
- Kouz R., 1993, *Firma. Ryinok. Pravo*.
- Miloshik V.I. *Problemi viznachennya transaktsiynih vitrat*, NaukovI zapisi. T .18, Ekonomichni nauki. zb. nauk. prats natsionalno universitetu „KiEvo-Mogilyanskoyi akademiyi”.
- Sharapa O.M., 2015, *OrganizatsIyno-ekonomichni zasadi formuvannya zbutovoyi politiki silskogospodarskih pidpriemstv: dis. ... kand. ekon. nauk: 8.00.04, Kyiv*.
- Tarascenko O.V., 2004, *Vimiryuvannya transaktsiynih vitrat na fondovomu rinku Ukrayini*, Nauchnyie trudyi DonNTU, Seriya: Ekonomicheskaya, Vyipusk 69, pp. 215-219.