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THE IMPACT OF TRANSACTION COSTS ON MANAGEMENT DECISIONS (ON THE EXAMPLE OF UKRAINIAN COMPANIES)

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Abstract. The *purpose* of the article is to study the impact of transaction costs on managerial decision-making on the example of Ukrainian enterprises. The article notes that, despite the significant achievements of the institutional theory, there are still questions about the clarity of understanding of its key concepts and definitions, the content of transaction costs and the concept of their minimization, the expediency and efficiency of the existence of certain types of transaction costs. The *subject* of the study is the essence of transaction costs of the enterprise and their modern classification. The *methodological* basis of the study was an integrated approach to the essence and classification of transaction costs, as well as general scientific and special research methods: retrospective and systematic analysis, comparison and generalization, grouping and sampling, methods of building linear and nonlinear economic and statistical models with constraints. As noted above, the main issue of the study was the classification of transaction costs. The economic situation in Ukraine was assessed, which allowed to determine that transaction costs are quite high for enterprises due to: insufficient development of markets, unformed structure of institutions, complex and ambiguous legislation, significant tax pressure and existing facts of corruption. The authors noted that the list of components of transaction costs is constantly updated due to the complication of the socio-economic conditions for doing business associated with crisis-forming force majeure factors (in particular, the COVID-19 pandemic), which have become very significant for the world economy and have significantly changed approaches to the allocation of investment resources. As a result of the study, it is proposed to supplement the existing classification of transaction costs with costs associated with adapting to new business conditions ("adaptation cost"), which together characterize the ability of an enterprise to adapt to new conditions of functioning and development. The *main conclusions of the study* include the fact that, given current trends, reducing transaction costs is becoming a priority issue. At the same time, in the context of the proposed classification, a model for minimizing transaction costs was developed for the first time, which includes a modern classification of transaction costs and provides the possibility of their modeling for a more complete and logical calculation. According to the authors, the presented model will provide an opportunity to more correctly determine the effectiveness of management decisions related to investments in the core business of the enterprise. It is important to note that, given the basic provisions of institutional theory, a significant amount of transaction costs, in principle, can neutralize the investment process. Thus, the study is of both theoretical and practical importance and gives an idea of solving a number of both industrial and social problems and can become the basis for further research.

Key words: transaction costs, decision making, indirect optimization models, enterprise behavior.

JEL Classification: D23, D81, D83, M13, C10

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1. Introduction

Humanity is at a turning point in its development. The realities of industrial civilization are becoming a thing of the past, the cadence of capitalism is coming to an end, and new transformational processes are being formed under the influence of the fifth industrial revolution. They prevail in all spheres of human existence. Today, the transformation processes taking place in society form fundamentally new approaches to the functioning of complex socio-economic systems. New methods and techniques are being created to assess the feasibility and efficiency of resource use in conditions of their limited and gradual reduction.

It should be noted that previous achievements, which have determined the general trends in the implementation of the modern management paradigm, play a significant role in the formation of new approaches, and, most importantly for evolutionary changes, support this process and form the foundation of "new thinking". At the same time, it should be noted that the speed of events and processes that are taking place allows, in comparison with previous periods, to quickly identify the main trends that form the basis of the new paradigm and, accordingly, scientific thoughts and research.

It is important to note that currently in the Ukrainian economic space the issue of transaction costs management is of particular relevance. According to the authors, this is due, first of all, to the fact that in Ukraine there is a huge discrepancy between the institutional model and the use of the resource base and legal support to the strategic goals of the state development.

The shift in the structure of transaction costs towards a significant predominance of the public sector with the simultaneous protection of their own rights significantly complicates the management process, eliminates the ability of the enterprise to further minimize and control their level. In addition, the analysis of the current economic situation in Ukraine shows that administrative reforms related to the decentralization of public administration, changes in the administrative-territorial structure, powers of local governments and responsibilities of local communities significantly affect the management of transaction costs and the correctness of their calculation.

In addition, the modern process of transaction cost management is complicated by the impact of crisis-forming force majeure factors. Against the background of the existing methodological difficulties, in the absence of a unified approach to the definition of categories and types of transaction costs, a universal methodological basis for assessing their level at the enterprise, the inconsistency of the existing information base (completeness, transparency, timeliness, objectivity) with the requirements of the analytical process, there is a need to study the impact of transaction costs on the cost of making management decisions at the enterprise.

2. Literature review

Today, a large number of scientists and specialists in the field of applied economics are engaged in the study of the impact of transaction costs on management decision-making in all areas of enterprise functioning.

For the first time, R. Coase (Coase, 1937, 1960) drew attention to transaction costs and described them. It is determined that when concluding any contract (transaction) it is necessary to have information, negotiate, supervise, establish relations, resolve differences. At the same time, T. Eggertsson (Eggertsson, 1987) noted in his works that within the framework of orthodox economic theory, which assumes the availability of complete information, the costs of obtaining it are not taken into account. As a result, the theory of transaction costs did not receive proper distribution for a long time. Weakliem D. L. (Weakliem, 1989), Ghoshal S., Moran P. (Ghoshal, Moran, 1996) argue that despite the theory's significant impact on managerial decision-making, some of the recommendations derived from this theory may not only be wrong, but also dangerous for corporate managers because of the assumptions and logic on which it is based. They provide evidence in favor of building a completely different theory, more adapted to "organizational economics".

Contrary to these approaches, Nobel laureate D. North (North, 1990), after carefully studying the work of R. Coase (Coase, 1960), identified the fundamental component of transaction costs, which gave him the opportunity to justify the viability of the institutional theory. The combination of the theory of human behavior with the theory of transaction costs and the theory of production during the study of the American market allowed the author to conclude that each transaction is always accompanied by certain costs, which are based on two main components:

1) information search costs associated with determining the useful qualities of the object of exchange;

2) costs of ensuring rights and their observance during the conclusion of agreements, which are associated with the presence of institutions, the role of which is to minimize costs due to the reduction of uncertainty during the interaction of subjects.

On this basis, the author concluded that the theory that does not take into account their functioning does not correspond to economic realities.

Williamson O. E. (Williamson, 1981, 1990), Robins J. A. (Robins, 1987), Pratten S. (Pratten, 1997), Beccerra M., Gupta A. K. (Beccerra, Gupta, 1999) drew attention to the need to apply a transactional approach to understanding the essence of the functioning of an economic organization. Comparing non-traditional approaches to organizational forms of the firm and the market with new contract-theoretical approaches, the author distinguishes the theory of disposal rights, the economic theory of agency relations, as well as the approach based on transaction costs. This comparison allowed the author to conclude that the theory of disposition rights is mainly based on retrospective analysis of institutional mechanisms, while the economic theory of agency relations focuses on the development of incentives in advance (ex ante, as costs associated with the preparation and execution of transactions); and the approach based on the theory of transaction costs emphasizes the importance of the organizational structure ex post – the costs that arise after the signing of agreements due to the violation of the mechanism of interaction and leveling its consequences with the maximum preservation of their own interests at the stage of contract execution.

Hennart, J.-F. (Hennart, 1988) consider the application of transaction cost theory of joint-stock for joint ventures. A distinction is made between "scale" joint ventures, which arise when parent companies try to internalize a failing market, but inseparability due to economies of scale makes full ownership of the relevant assets inefficient, and "network" joint ventures, that arise from the simultaneous failure of markets for servicing two or more assets, when these assets are firm-specific public goods and the acquisition of the firm that owns them will entail significant management costs, the author proves that excessive transaction costs in intermediate markets lead to the fact that economic agents choose to manage through equity stakes rather than through signing contracts.

Nooteboom B. (Nooteboom, 1993) in his work investigates the differences in the factors that determine the transaction costs of "threshold" costs at the stages of contact, contract and control and related to the position of the firm size. On the basis of which the author concluded that depending on the field of activity, experience and training, transaction costs of firms are determined by limited rationality, opportunism, uncertainty and transaction specificity of assets.

Lesmond D. A., Ogden J. P., Trzcinka C. A. (Lesmond, Ogden, Trzcinka, 1999) in their paper argue that transaction costs are important for many empirical analyses, but we do not always have the opportunity to estimate them, and those that are available are quite expensive to acquire and difficult to use. Therefore, they propose a model for estimating the efficiency of transaction costs based on the use of time series of daily securities returns and zero returns.

Anup Madhok (Madhok, 996) developed his vision of complementing the theory of transaction costs with the theory of organizational learning, where the firm is considered as a set of knowledge and processes underlying it. Considering the impact of the resource attributes of the firm on managerial decisions, as well as the associated difficulties of contracting, the author expanded the focus of the study from minimizing the costs associated with the organization of activities within a particular management system to the management of the value embedded in the knowledge base of the firm.

In recent years, the choice of threshold parameters by firms has become the subject of careful study in the field of information services. Thus, Laura Poppo and Todd Zenger (Poppo, Zenger, 1998) developed a model of comparative institutional effectiveness. Based on models of knowledge and measurement costs, the authors investigated the impact of exchange features on the effectiveness of markets and hierarchies as governance institutions.

The work of Meyer, K. E. (Meyer, 2001), who analyzes the impact of transaction costs on business organization in the conditions of a protracted transition period, deserves special attention. The results are of practical importance for multinational companies that are part of transition economies and need to adapt their strategies to local institutions and reduce their dependence on highly imperfect markets.

The question of choosing a method of entering a foreign market was also considered in the work of Brouthers, K. D. (Brouthers, 2013), who proved that companies whose choice of method could be predicted using an extended model of transaction c osts showed significantly better results (financial and non-financial) than companies that did not use it.

Trevor L. Brown and Matthew Potosky (Brown, Potosky, 2003, 2005) examine contract management at the government contracting level and note that when governments enter into contracts for the provision of services under conditions associated with the risk of default, they use various monitoring techniques to increase the ability to monitor and adjust the work of suppliers. As a result, the authors prove that the monitoring process significantly increases transaction costs and sometimes leads to incorrect redistribution of public resources, which indicates institutional imperfections.

What is very interesting in each study is the combination of different directions, which until now remained largely independent of each other.

Thus Husted B. W., Folger R. (Husted, Folger, 2004) combined: organizational justice and transaction cost economics. The result of these studies is a model of transaction costs based on a more complete description of human psychology acting in exchange relations. They prove that transaction costs often arise due to the difficulty of assessing the fairness of the exchange of goods and services. In addition, the relationship between the governance mechanism and the perception of fairness is governed by the elements of interactive fairness that characterize the exchange.

Jeonwook Kim and Joseph T. Mahoney (Mahoney, 2005) explore the need to apply the theory of property rights to explain business situations where inefficient economic results are maintained on the volume of transaction costs.

The above list of works, of course, is not exhaustive, but it confirms the relevance of the chosen topic, its practical significance and wide scope of application, since transaction cost economics explains organizational decisions and final productivity. But the scale of the effect shows that there is still much to learn (Crook, Combs, Ketchen, Aguinis, 2013).

The purpose of the transaction costs item for making managerial decisions (on the example of Ukrainian enterprises).

Thus, the main objectives of the article are as follows:

1) theoretical substantiation of the impact of transaction costs on managerial decision-making on performance.

2. Hence, the goals of the article are:

2) to supplement the existing classification with transaction costs associated with adaptation to new economic conditions;

3) to develop a model of minimizing transaction costs and compare the results of the enterprise with transaction costs that most fully reflect the efficiency of investments;

4) to assess the return on investment, taking into account transaction costs.

3. Institutional approach to determining transaction costs

One of such fundamental achievements, which makes it possible to form a logical basis for understanding the complex processes of modernity, forms the philosophy of perspective, is the assimilation of the theory of institutionalism.

The institutional school is based on an expanded interpretation of the nature of the enterprise, including the analysis of internal and external factors of influence, possible solutions to the problems of organization, planning, control, motivation. According to the institutional theory, an enterprise is a hierarchical structure based on a system of rules that ensures interaction between its employees. At the same time, the company is considered as an alternative to the market mechanism of concluding transactions in order to save transaction costs. Such costs are determined by the emergence of situations of uncertainty about the external environment for competitors and their behavior in the market space. Thus, the main task of the institutional paradigm of enterprise development is to analyze its behavior under conditions of incomplete information, "market failures" or "uncertainty" ("insufficiency") (Coase, 1960; Eggertsson, 1987).

In contrast to the neoclassical paradigm, where transaction costs are not considered, representatives of the institutional direction focus on the internal components of the enterprise, which characterize the costs of business operations and are based on certain rules and regulations of staff interaction. Thus, the company is considered as a separate institution, where rules and regulations simplify decision-making processes and increase the ability to meet the interests of various economic agents (Weakliem, 1989). At the same time, relying on the optimization tools of the neoclassical paradigm, representatives of the institutional theory see the limitation of the expansion of enterprises in the significant costs of management and control. In the context of significant expansion of the enterprise, transaction costs tend to zero, while management costs increase significantly (Coase, 1937). As a result, there is a risk of reducing the individual contribution of the employee due to the inability to control the overall result. Therefore, the economic development of the enterprise depends on the ratio between internal and external transaction costs. At the same time, a significant drawback of the institutional paradigm is the difficulty of formalizing data that are subjective and difficult to quantify. In addition, the new institutional economic theory, despite significant achievements, remains controversial in terms of the clarity of understanding of its key concepts and definitions, the content of transaction costs and the concept of their minimization, the feasibility of some of them, the efficiency and profitability of transaction costs, etc.

Thus, all of the above confirms the relevance of the topic of the chosen research and provides an opportunity to outline its direction, namely to explore some aspects of minimizing transaction costs. It is necessary to study the components of transaction costs that significantly affect these processes in order to build a correct mathematical model that will allow to study both aspects of minimizing transaction costs and compare them with the final result of any economic system.

4. Components of transaction costs

Taking into account the study of the essence of transaction costs and factors that directly affect their volume, it is believed that they can be classified by sources of occurrence:

I. Costs of searching for information

Information search costs (costs of searching for buyers or sellers, costs of obtaining information about them, obtaining information about the market situation, costs of maintaining a marketing service, advertising, telephone and postage costs, etc.). This component of transaction costs occupies a special place among the studies of leading scientists and specialists, since depending on the institutional environment of economic systems, their structure changes. Analysis of recent scientific publications on this issue shows that considerable attention is paid to it with the definition of "information aberrations" that form the market environment of the state and increase the level of transaction costs.

Thus, insufficient, incomplete and non-transparent information leads to additional costs associated with the purchase of goods at higher prices than possible in a given market and the sale of products at prices lower than possible. Thus, economic entities should compare the benefits of better terms of purchase and sale with the costs of searching for information and loss of time for the transaction. Please note that in the article we emphasize that the inherent nature of transaction costs in itself is a significant limitation when making decisions on the establishment and further functioning of the enterprise and its management decisions as such. Thus, the above specificity indicates that they will always be greater than 0, and their list will constantly change (transform). Form the conditions for the above information, the formula

$$P_1 \geq \sum_i^I C_i E_i \quad (1)$$

where I – the number of information types;

P_1 – possible benefit from better terms of purchase;

C_i – the cost of the i-type of searching information;

E_i – the efficiency of i-type of searching information, in its turn it can be described in the following way, formula 2:

$$E_i = \sum_{j=1}^{J} A_i^j N_i^j \quad (2)$$

where J – the number of searching days;

A_i – completeness of the received information of the i-type in j day, which can be calculated as the ratio of the current amount of information (Ap) and the full informing (A);

N_i^j – the efficiency of i-type of searching information in j day.

It all comes down to a general model, formula 3:

$$P_1 \geq \sum_i^I C_i \sum_{j=1}^{J} \frac{Ap_i^j}{A} N_i^j \quad (3)$$

Summing up, formula 4:

$$P_1 \geq \sum_i^I \sum_{j=1}^{J} C_i \frac{Ap_i^j}{A} N_i^j \quad (4)$$

II. Costs associated with negotiating and concluding agreements

Costs associated with negotiating and concluding transactions (costs of negotiating the terms of the transaction, legal due diligence, managerial costs, representation costs, choice of the form of the transaction, costs of legal or illegal execution of the transaction, travel expenses, translation services).

Some experts distinguish between negotiation costs and transaction costs. It should be noted that today Ukraine has extremely complex and unclear legislation, the rules of which are constantly changing. Therefore, Ukrainian companies need to spend a lot of time and resources to study, legally justify and conclude contracts that would satisfy both parties and have one interpretation from both economic and legal points of view.

The conditions for the above information will be formed:

$$P_2 \geq C_p + C_y \quad (5)$$

where P_2 – possible benefits from negotiating and concluding agreements;

C_p – costs associated with concluding agreements;

C_y – costs associated with conducting agreements;

Each cost, in its turn, consists of:

$$C_y = \sum_{w=1}^{W} SW * F_w L_w \quad (6)$$

where W – the general amount of personnel involved in the negotiation process;

SU – coefficient of the processes of concluding complexity;

L_w – regulated time spent by employee;

F_w – hourly rate of employee.

$$C_p = \sum_{u=1}^{U} SU * F_u L_u \quad (7)$$

where U – the total number of personnel involved in the negotiation process;

SU – the coefficient of the complexity of the negotiation process;

L_u – time spent by employee;

F_u – hourly rate of employee.

Bring together everything to the general model:

$$P_2 \geq \sum_{w=1}^{W} SW * F_w L_w + \sum_{u=1}^{U} SU * F_u L_u \quad (8)$$

III. Costs of measuring quality

Costs of quality measurement (costs of product quality assessment). They mainly include the costs of special equipment that provides quality control, standardization costs.

According to the authors, these costs include the costs of obtaining the right to produce products under a well-known brand, as this requires the enterprise to comply with the quality standards set by the integrator company, the costs associated with measuring the quality of goods, concluding contracts for the provision of services.

Form the conditions to the above information:

$$P_3 \geq min\{Or; Kup\} + min\{Fr; Br\} \quad (9)$$

where P_3 – possible benefit from measuring quality;

Or – costs associated with renting special equipment to measure quality;

Kup – costs associated with the purchase of special equipment for measuring quality;

Fr – costs associated with obtaining the right to produce products under a well-known brand;

Br – costs associated with creating and promoting your brand;

Each of these can be calculated in the following way:

$$Or = \sum_{q=1}^{Q} (D_q + O_q)V_q \quad (10)$$

where *Q* – the number of rent days;

D_q – the cost of rented equipment in q-day;

O_q – the cost of personnel that is recruited in q-day;

V_q – the number of worked hours in q-day.

$$Kup = DD + DDD + \sum_{qq=1}^{QQ} O_{qq}V_{qq} \quad (11)$$

where *QQ* – the number of working days;

DD – the cost of equipment that is bought;

DDD – the cost of education of personnel for work with the new equipment;

O_{qq} – the cost of personnel who are hired in qq-days;

V_q – the number of worked hours in q-day.

$$Br = Reg + Roz \quad (12)$$

where *Reg* – initial funds to open a company;

Roz – the costs of the company development.

$$Fr = B * FR \quad (13)$$

where *B* – the number of days;

FR – the cost of the day of the franchise.

Thus, concluding the given above material.

$$P_3 \geq \min\left\{\sum_{q=1}^{Q}(D_q + O_q)V_q; DD + DDD + \sum_{qq=1}^{QQ} O_{qq}V_{qq}\right\} + \min\{B * FR; \text{Reg} + \text{Roz}\} \quad (14)$$

This specific linear model can be used in order to analyze parameter 3, costs of measuring quality.

IV. Specification costs and costs for protection of property rights

Expenses for specification and protection of property rights, which include the costs of establishing property rights, losses from poor specification of property rights, losses from violation of property rights and their restoration, acquisition of licenses, obtaining a legal address, opening of bank accounts, costs of courts, arbitration, time and resources necessary to restore the rights violated during the execution of the contract, loss of property rights from unreliable protection and costs of registration of the enterprise, costs associated with the establishment of the enterprise, change of ownership and organizational and legal structure of the enterprise during its re-registration.

Thus, for the period from 2017 to 2020, the number of natural persons-entrepreneurs (PE) in Ukraine increased significantly from 1466803 in 2017 to 1599755 in 2020 (Ghoshal S., & Moran P., 1996), due to significant policy changes in the field of small and medium enterprises (SMEs). In particular, through:

1) improvement of adaptive public administration. Namely, improving the institutional and legal framework for SMEs by combining institutional reforms with financial and technical support from external donors, which led to an increase in the index from 2.45 to 3.5;

2) through the development of human capital by upgrading the skills of SME employees by improving key competencies, which led to an increase in the entrepreneurship training policy index from 2.25 to 3.98;

3) improved access to finance for SMEs, which led to an increase in the index from 3.22 to 3.31;

4) by supporting innovations and entrepreneurship through the development of SME support infrastructure, which is due to the presence of business centers (329 as of January 2019), business incubators (62), technology and science parks (79) and national industrial clusters (20), which led to an increase in the innovation policy index from 1.86 to 2.28 (North, 1990).

As for Ukraine, the parameters of this group of costs will be quite significant and will require constant monitoring by the company. The authors adhere to the principle that calls these costs "the cost of compliance with the law", which consists of Hernando de Soto's definition of the cost of access to the law (Williamson, 1981).

However, it should be noted that the costs associated with continuing to operate within the law (tax costs, compliance with labor laws, legal costs, etc.) are significant. Due to the corruption of certain links of reproduction in society, significant tax pressure (and hence – due to high transaction costs),

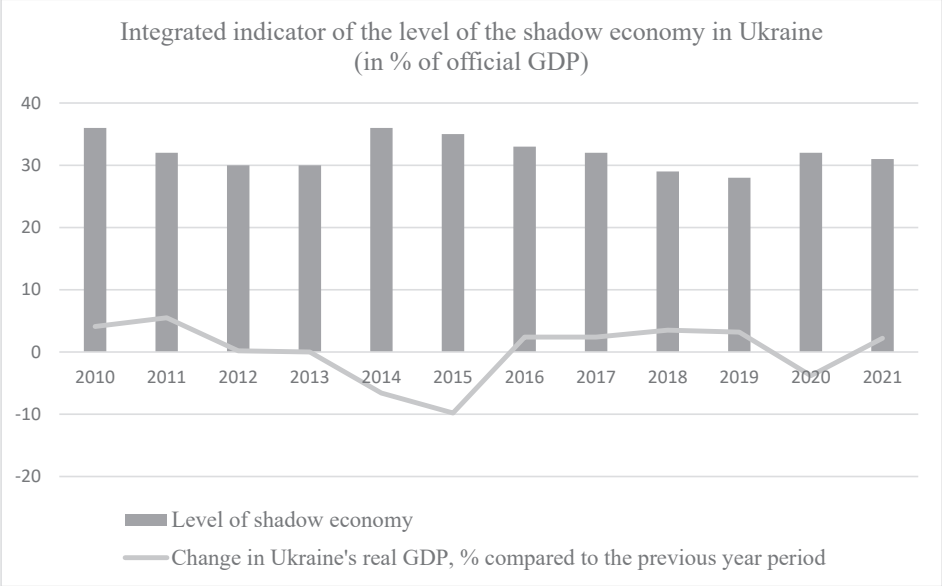

Figure 1. Integral indicator of the level of shadow economy in Ukraine

Ukrainian companies are often forced to transfer their activities to the shadow economy (Figure 1).

As can be seen in Fig. 1, the integrated indicator of the level of the shadow economy according to the calculations of the Ministry of Economic Development of Ukraine in 2021 amounted to 31% of gross domestic product (GDP), which is 1% less compared to the previous year. This is primarily due to the adaptation of Ukrainian business to unpredictable quarantine restrictions. In particular, in the third quarter of 2021, GDP amounted to UAH 1498.359 billion, so the size of the shadow economy for this period can be estimated at UAH 464.491 billion (Ghoshal, Moran, 1996). Based on the data of the State Statistics Committee on the number of enterprises in Ukraine, each enterprise accounts for an average of UAH 323,000, as well as due to the abuse of monopoly pricing position of certain business entities, etc.

In addition, the indicators that increase the number of transaction costs include the scale of corruption in Ukraine (Figure 2). Thus, according to the National Anti-Corruption Bureau of Ukraine, over the past two years (from 2019 to 2021), 41% of surveyed business executives and 39% of surveyed citizens have faced corruption in their professional

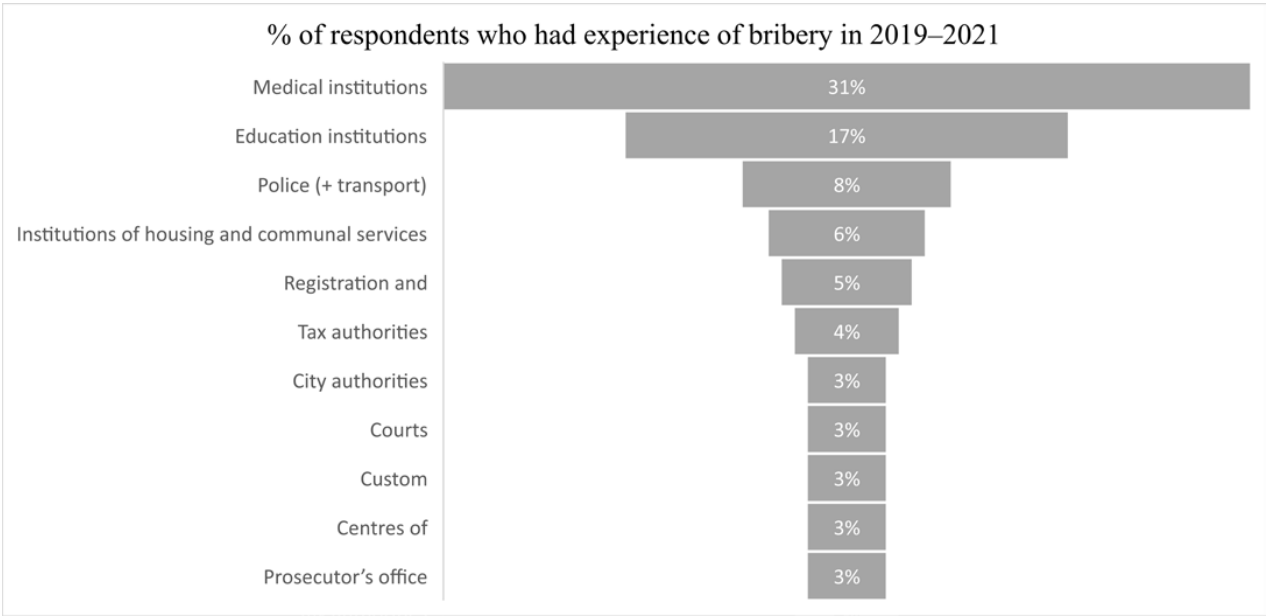

Figure 2. Percentage of respondents who had an experience of bribes from 2019 to 2021

activities and paid bribes in the housing and communal services sector (6% of respondents), when obtaining registration and permits (5%), in tax authorities (4%), 3% each – when applying to city authorities, passing customs control, in administrative service centers and when applying to the prosecutor's office (Williamson, 1990).

Based on the volumes that business owners assume within this issue; the list of transaction costs can also be added – the cost of overcoming administrative barriers built by the state on the way of doing business (administrative costs). If to examine the number of state-owned enterprises, despite the reforms, the number of decentralized enterprises remains quite large for our country, so there is no reduction in transaction costs (Figure 3). As a result, administrative barriers have become full-fledged sectors of the economy that live by their own laws.

Therefore, it can be recognized that companies will work in the legal field only when the comparison of transaction costs in legal and illegal business is in favor of the former.

Conditions will be added to the above information:

$$P_4 \geq min\{Leg; NLeg\} \quad (15)$$

P_4 – possible benefit from better property rights;

Leg – costs associated with running a legal business.

$NLeg$ – costs associated with doing illegal business.

Explain what was mentioned above,

Each aspect of the business can be considered separately

Business will choose the minimum cost rather than a direct cost comparison. Therefore, take into account the mathematical expectation of the function $NLeg$.

$$P_4 \geq min\{Leg; NLeg + M[NLeg]\} \quad (16)$$

$M[NLeg]$ – is the mathematical expectation of shadow business, which is calculated as the product of the probability of paying a fine by the amount of penalties (ST) in variable directions.

V. Costs of monitoring and preventing opportunistic behavior

Costs of monitoring and preventing opportunistic behavior (costs of controlling the implementation of contracts, ensuring the risks of their non-fulfillment, costs of preventing such behavior of counterparties (monitoring) and staff) (losses associated with strikes of staff, late fulfillment of obligations to suppliers).

In the framework of building a more accurate model of transaction costs, it should be noted that these costs are also divided into different parts, such as costs associated with monitoring opportunistic behavior and costs associated with its prevention. Opportunistic behavior is considered to be the behavior that consists in avoiding the fulfillment of the terms of the agreement in order to make a profit at the expense of the interests of partners.

Form the conditions for the above information, for this use the standard formula for the Poisson distribution of the above possibilities in time:

$$P_k = \frac{e^{-n} n^k}{k!} \quad (17)$$

For Z take losses from the occurrence of an adverse event

Then,

$$P_5 \geq Z \sum_{t=0}^{k} \frac{e^{-n} n^k}{k!} \quad (18)$$

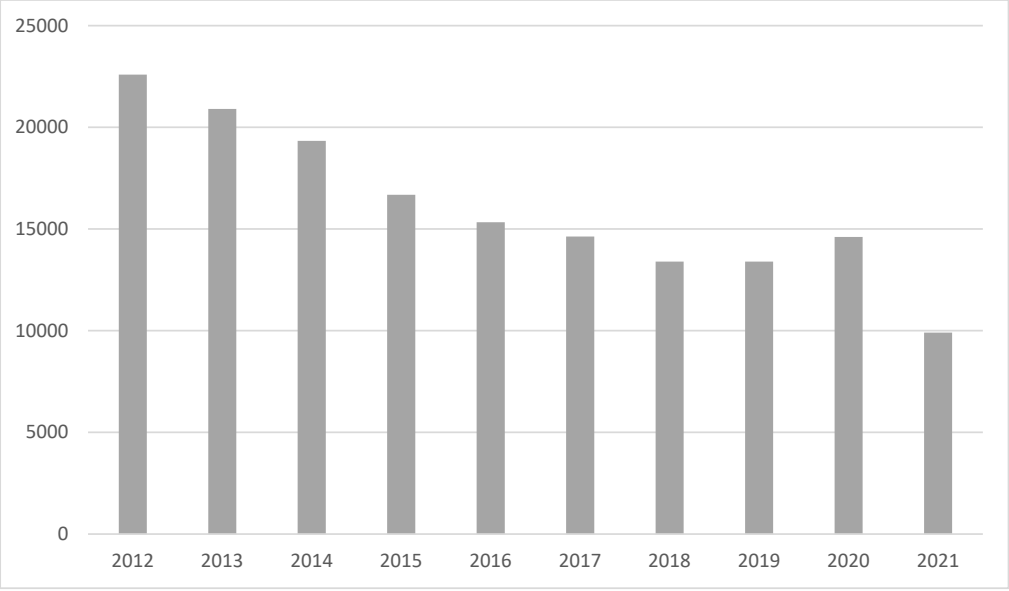

Figure 3. Number of state enterprises

VI. Costs of protection against third parties

Expenses for protection against third parties (the state). That is, the costs of protection against other persons (other than the parties to the agreement) who claim a share of the benefits from the implementation of the provisions of the agreement.

In addition, it is advisable to add to this list the costs associated with adapting to new operating conditions ("adaptation cost", costs of additional staff training, psychological adaptation costs, pandemic costs). They, like some transaction costs, can be divided into endogenous and exogenous.

Costs associated with innovations (costs of commercialization of innovations, costs of providing the innovation process with professional staff, costs associated with the transition to innovation-oriented management of enterprises and making appropriate decisions on their further development). Among the most important tasks of adaptation to innovations is the formation of a new type of employees in the country, characterized by high competence, taking into account high general education and professional training.

The conditions for the above information will be formed:

$$P_6 \geq \sum_{a=1}^{A} \frac{C_a}{ln\left(e_a^g\right)} \quad (19)$$

where P_6 – possible benefit from the adaptation

A – the number of adaptation types;

C_a – the costs connected with the adaptation of a-type;

$ln\left(e_a^g\right)$ – the level of training that can be achieved by a-type of,

where $g \in \{0 \dots 1\}$ – the level of training.

5. Model of minimization of transaction costs

Formulate a generalized nonlinear model, which includes all the above indicators and problems, as follows:

$$\sum_{p=1}^{6} P_p \geq \sum_{i}^{I}\sum_{j=1}^{J} C_i \frac{Ap_i^j}{A} N_i^j + \left(\sum_{w=1}^{W} SW * F_w L_w + \sum_{u=1}^{U} SU * F_u L_u\right) + \left(min\left\{\sum_{q=1}^{Q}(D_q + O_q)V_q ; DD + DDD + \sum_{qq=1}^{QQ} O_{qq}V_{qq}\right\} + min\{B * FR; \text{Reg} + \text{Roz}\}\right) + (mmin\{Leg; NLeg + M[NLeg]\}) + Z\sum_{t=0}^{k}\frac{e^{-n}n^k}{k!} + \sum_{a=1}^{A}\frac{C_a}{ln\left(e_a^g\right)} \quad (20)$$

This model summarizes all 6 criteria and can be used to calculate the right-hand side (factors) and make a decision on the transaction costs of governance. Depending on the result, different solutions can be chosen.

At the same time, it is very difficult to investigate all the problems that hinder the development of business and significantly affect not only the final result of the enterprises, but also generally exclude the expediency of their opening and further functioning in our country. At the same time, the most common and important problems faced by domestic enterprises in their activities include: weak protection of property rights by state authorities (P1 90.30%), high level of corruption of state authorities (P2 88.90%), tax system – types and rates of taxes (P3 86.10%), high payroll charges (P4 86.10%), insufficient access to credit resources (P5 80.60%), tax system – tax administration procedures (P6 79.20%), low law-abidingness of citizens and businesses (P7 77.80%), excessive state intervention in the regulation of economic relations (P8 77.80%), improper implementation of national legislation by state authorities and local self-government (P9 72.20%), lack of practice of transferring state functions to self-regulatory organizations (P10 70.80%) (Figure 4)

Thus, the study of the classification of transaction costs makes it possible to state that all of them are quite high at Ukrainian enterprises. The reasons for this are insufficient market development, unformed structure of institutions, complex and ambiguous legislation, significant tax pressure, and corruption.

6. Conclusions

1. The study underlined the relevance of the chosen topic and provided an opportunity to determine the impact of transaction costs on management decisions on performance.

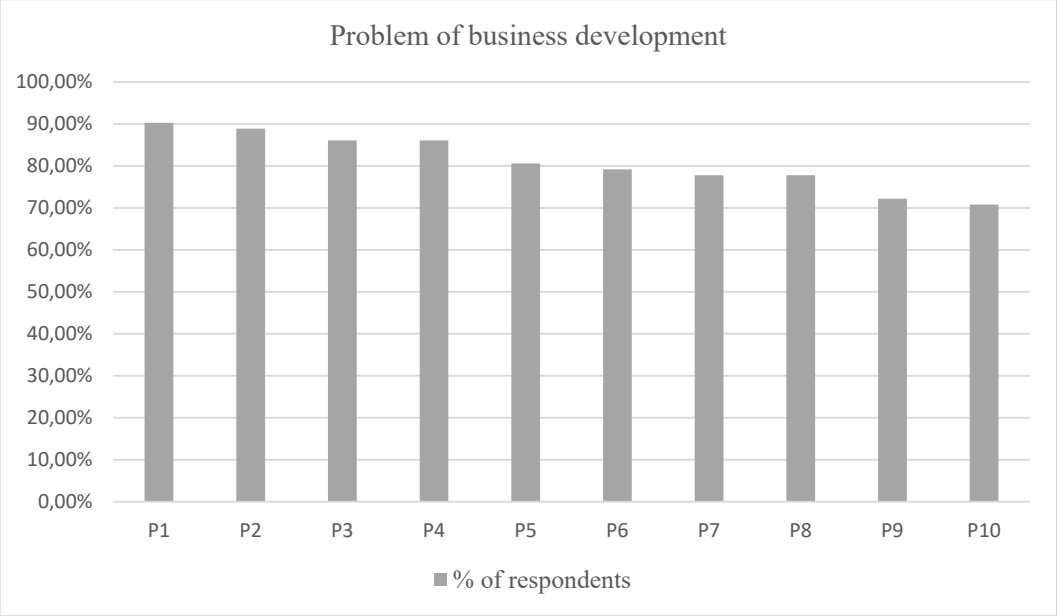

Figure 4. Rating of problems that hinder business development

2. The assimilation of the theory of institutionalism has allowed to supplement the existing classification of transaction costs associated with adaptation to new business conditions. These include "adaptation costs", additional staff training costs, psychological adaptation costs, pandemic costs, which together characterize the ability of an enterprise to adapt to new conditions of functioning and development.

3. In the context of the proposed classification, a model of minimization of transaction costs has been developed, which includes all the above indicators and problems and makes it possible to make a model for correct and logical calculations.

4. The application of the proposed model makes it possible to compare the results of the enterprise with transaction costs, which most fully reflect the efficiency of investments.

5. The practical significance of the study lies in the possibility of a realistic assessment of the return on investment not only due to the classical theory, which defines the main components of the production process, but also taking into account the theory of institutionalism, including costs that can devalue the investment process.

6. Thus, it is concluded that taking into account current trends, quality becomes an integral component of competitiveness and that is why reducing transaction costs becomes a priority.

7. Since a clear understanding of the essence of transaction costs and their types makes it possible to solve a number of problems of both production and social nature, the results of the analysis become the basis for further research.

References:

Coase, R. H. (1937). The Nature of the Firm. *Economica*, vol. 4(16), pp. 386–405. DOI: https://doi.org/10.2307/2626876

Coase, R. H. (1960). The Problem of Social Cost. *The Journal of Law & Economics,* vol. 3, pp. 1–44. Available at: http://www.jstor.org/stable/724810

Eggertsson, T. (1987). Transaction Cost Analysis of Structural Changes in the Distribution System: Reflections on Institutional Developments in the Federal Republic of Germany: Comment. *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift Für Die Gesamte Staatswissenschaft,* vol. 143(1), pp. 82–85. Available at: http://www.jstor.org/stable/40750957

Weakliem, D. L. (1989). The Employment Contract: A Test of the Transaction Cost Theory. *Sociological Forum*, vol. 4(2), pp. 203–226. Available at: http://www.jstor.org/stable/684490

Ghoshal, S., & Moran, P. (1996). Bad for Practice: A Critique of the Transaction Cost Theory. *The Academy of Management Review*, vol. 21(1), pp. 13–47. DOI: https://doi.org/10.2307/258627

North, D. (1990). Institutions, Institutional Change and Economic Performance (Political Economy of Institutions and Decisions). Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511808678

Williamson, O. E. (1981). The Economics of Organization: The Transaction Cost Approach. *American Journal of Sociology*, vol. 87(3), pp. 548–577.

Williamson, O. E. (1990). A Comparison of Alternative Approaches to Economic Organization. *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift Für Die Gesamte Staatswissenschaft*, vol. 146(1), pp. 61–71. Available at: http://www.jstor.org/stable/40751303

Robins, J. A. (1987). Organizational Economics: Notes on the Use of Transaction-Cost Theory in the Study of Organizations. *Administrative Science Quarterly,* vol. 32(1), pp. 68–86. DOI: https://doi.org/10.2307/2392743

Pratten, S. (1997). The Nature of Transaction Cost Economics. *Journal of Economic Issues*, vol. 31(3), pp. 781–803. Available at: http://www.jstor.org/stable/4227228

Beccerra, M., & Gupta, A. K. (1999). Trust within the organization: integrating the trust literature with agency theory and transaction costs economics. *Public Administration Quarterly*, vol. 23(2), pp. 177–203. Available at: http://www.jstor.org/stable/40861779

Hennart, J.-F. (1988). A Transaction Costs Theory of Equity Joint Ventures. *Strategic Management Journal*, vol. 9(4), pp. 361–374. Available at: http://www.jstor.org/stable/2486271

Nooteboom, B. (1993). Firm Size Effects on Transaction Costs. *Small Business Economics*, vol. 5(4), pp. 283–295. Available at: http://www.jstor.org/stable/40228937

Lesmond, D. A., Ogden, J. P., & Trzcinka, C. A. (1999). A New Estimate of Transaction Costs. *The Review of Financial Studies*, vol. 12(5), pp. 1113–1141. Available at: http://www.jstor.org/stable/2645977

Madhok, A. (1996). The Organization of Economic Activity: Transaction Costs, Firm Capabilities, and the Nature of Governance. *Organization Science*, vol. 7(5), pp. 577–590. Available at: http://www.jstor.org/stable/2635293

Poppo, L., & Zenger, T. (1998). Testing Altermative Theories of the Firm: Transaction Cost, Knowledge-Based, and Measurement Explanations for Make-or-Buy Decisions in Information Services. *Strategic Management Journal*, vol. 19(9), pp. 853–877. Available at: http://www.jstor.org/stable/3094089

Meyer, K. E. (2001). Institutions, Transaction Costs, and Entry Mode Choice in Eastern Europe. *Journal of International Business Studies*, vol. 32(2), pp. 357–367. Available at: http://www.jstor.org/stable/3069565

Brouthers, K. D. (2013). Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of International Business Studies,* vol. 44(1), pp. 1–13. Available at: http://www.jstor.org/stable/23434098

Brown, T. L., & Potoski, M. (2003). Managing Contract Performance: A Transaction Costs Approach. *Journal of Policy Analysis and Management*, vol. 22(2), pp. 275–297. Available at: http://www.jstor.org/stable/3325825

Brown, T. L., & Potoski, M. (2005). Transaction Costs and Contracting: The Practitioner Perspective. *Public Performance & Management Review*, vol. 28(3), pp. 326–351. Available at: http://www.jstor.org/stable/3381157

Husted, B. W., & Folger, R. (2004). Fairness and Transaction Costs: The Contribution of Organizational Justice Theory to an Integrative Model of Economic Organization. *Organization Science*, vol. 15(6), pp. 719–729. Available at: http://www.jstor.org/stable/30034772

Kim, J., & Mahoney, J. T. (2005). Property Rights Theory, Transaction Costs Theory, and Agency Theory: An Organizational Economics Approach to Strategic Eggertsson Economics, vol. 26(4), pp. 223–242. Available at: http://www.jstor.org/stable/25151371

Crook, T. R., Combs, J. G., Ketchen, D. J., & Aguinis, H. (2013). Organizing around transaction costs: what have we learned and where do we go from here? *Academy of Management Perspectives*, vol. 27(1), pp. 63–79. Available at: http://www.jstor.org/stable/23414339

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