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## **THE IMPACT OF TRANSACTION COSTS ON THE TRANSFORMATION OF THE NATURAL GAS MARKET OF UKRAINE**

*The desire to integrate into the European development model stipulated that Ukraine voluntarily assumed international commitments about transformation of the institutional environment according to the European model. The level of political awareness of the content of the necessary changes and how to achieve a systemic balance of reforming different sectors was often declarative in the absence of any sound estimates, including the implications for different economic actors.*

*However, the need to reform the energy sector was determined not only by international obligations, but also by the presence of domestic problems, which over time without the application of systemic changes would become barriers to the entire further economic development of Ukraine. The main content of the implementation of European directives in the energy sector was just intended to systematically transform market relations by changing the rules of market functioning, which was supposed to solve the main crisis problems in various areas of the energy sector.*

*The recent model of Ukrainian natural gas market was featured by all the shortcomings of the pre-reformed state of European markets: the tariff system did not promote rational consumer behavior, which exacerbated the pressure on the state budget; the delivery rules did not guarantee the proper quality of service; the absence of investment in the gas transportation sector made it impossible to expand fixed assets; the established transport and distribution rules became a barrier to free access to third-party networks and the development of competition in the supply segment.*

*The actual implementation of the Second and Third Energy Package standards in the functioning of the national market of the natural gas began in 2015, with the adoption of the Law on the Natural Gas Market. Today, an urgent task remains to estimate the process of reforming the natural gas market and to efficiently solve those crisis phenomena that caused the distortion of the institutional environment of the natural gas market.*

*Since the accumulated problems of the previous model of the natural gas market were due to the inefficiency of the institutions, the article attempted to evaluate the effectiveness of the gas sector transformation process and analyze the impact of changes in certain market segments from the perspective of neoinstitutional theory and study the level of transaction costs.*

**Key words:** natural gas market, transaction costs, transformation of industrial organization, liberalization

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**Research paper outline.** By joining the Energy Community and subsequently signing the EU-Ukraine Association Agreement, Ukraine updated its commitments towards reforming the legislative and regulatory framework according to European rules and standards. The commitments undertaken determine the direction and phasing of transformation of the national natural gas market, which are intended to resolve the failures of the previous gas market model and to promote further integration into a single Pan-European Energy Space.

The inefficiency of the previous model was due to the fact that the existing system of established rules and market structure made market pricing and, accordingly, the optimal distribution of limited energy resources for the benefit of all members of society impossible. Sectoral markets that do not meet the requirements of perfect competition increase the risk of unfair redistribution of public goods and the maximization of benefits for individual members of public relations due to their ability to influence market pricing. Non-transparent pricing allows such members of society (or business groups) to gain superprofits by taking advantage of their monopolistic (dominant) position in the market and setting high prices for products, while often maintaining cost-intensive production in the absence of incentives to increase its efficiency. Insufficient transparency of the economic activity in the gas sector has contributed to the maintenance of significant servicing costs and losses in networks that are equally covered by the tariff. The state implemented a paternalistic policy at the expense of administrative regulation of the market and setting tariffs for end-users below market levels. This deprived the market of incentives to modernize the infrastructure, leaving enterprises without adequate financial resources to invest in upgrading of fixed assets. As a result, misuse of gas supply has become a source of profit for gas market enterprises. In turn, keeping the price of natural gas below market level completely satisfied the interests of the majority of households, but did not create any incentive to reduce consumption and implement energy-efficient measures.

Established in previous periods, the institutional environment determined the current structure of the sector, the level of transaction costs and the conditions for the realization of market relations between the entities. Economic theory states that reducing transaction costs is only possible by changing market rules and forms of business models, which should ensure that the principles of transparency and openness of market relations between all market players are respected. This means that the specificity of economic decision making is driven by the conditions of institutional constraints. Douglass North formulated the classic interpretation of the institution as “the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interaction” [1].

The impact of transaction costs, regulated by society through institutions, on the behavior of market actors has questioned the view that the market is a neutral organizational and spatial entity where participants make decisions and execute commodity-based transactions, based on the value of prices [2, 3]. Thus, Ronald Coase emphasized that markets are institutions that exist to reduce the cost of exchange transactions [4, p. 13]. Oliver E. Williamson extended this talking point, arguing that firms, markets, and contracting are important economic institutions, the main purpose of which is to minimize transaction costs by the results of their operation [5, p. 48–51].



The basic provisions of the transaction costs theory enable to reveal the theoretical basis of state transactional policy mechanisms. It is based on the separation of transaction costs for losses, as well as public and private costs. Social transaction costs are reduced to the costs associated with acceptance and observance of institutional norms, so they are inherently institutional costs. By defining the institutional conditions for conducting transactions, society can influence both the structure and the amount of transaction costs, i.e. the efficiency of public transaction costs is the most effective condition for reducing overall transaction losses. An important task of the social transactional policy is the transition to the institutional situation when the number of private transaction costs will be sufficient to regulate the total amount of transaction losses [6, p. 7–9].

However, society cannot reduce transaction costs for all participants in transaction processes. In most cases, reducing one party's transaction costs can most effectively be achieved by putting transaction costs in another form on the other side:

- reducing the number of transaction costs of all public relations entities;
- reducing of excessive transaction losses;
- caring for the least protected subjects of socio-economic relations.

Transformation on market conditions causes an increase in the share of the private sector, while at the same time there remain some specific functions for the state, particularly, the establishment of rules for the implementation of agreements, regulatory action on the system of prevention and punishment for violations of market rules, judicial functions. An increase in transaction costs causes additional costs to occur in virtually all participants in the transaction, including individual consumers, who have to incur additional costs to prevent losses or to recover losses. This makes the role of the state more important, which should assume more control functions.

The necessity and limits of state intervention in the economic relations of the subjects are determined by the characteristics of specific transactions. The state policy in the sphere of transactional relations regulation should not restrict absolutely all actions of the parties. In many cases, the market itself can solve most problems within certain institutional frameworks. According to transaction cost theory, their value is largely determined by the transaction attributes. It is advisable to pursue government transactional policy measures only when the attributes of the transactions give rise to excessive transaction costs or their asymmetric distribution. Transaction attributes are understood as various factors or parameters that characterize the peculiarities of transactional relations implementation [7, p. 56]. Based on the analysis of such transaction attributes as the specificity of the assets, the frequency of transactions, uncertainty of the parties during the execution of transactions, the complexity of measuring transaction results, we will try to assess the conditions that led to the need for transformation of the gas sector and the first results of gas market reforming.

**Asset specificity.** The gas sector is characterized by a high specificity of investments and assets and, consequently, a high risk of opportunistic behavior by market players. In the old model of market organization, the state of gas assets, primarily gas transportation infrastructure, was characterized by a lack of investment in the industry, which made it impossible to ensure the reproduction of fixed assets [8]. The result was a gradual physical and moral deterioration of the infrastructure,

which in the medium term could lead to critical gas supply situations and inadequate provision of energy services to consumers.

Deterioration of Ukrainian Gas Transmission System (GTS), as noted by Public Joint Stock Company (PJSC) Ukrtransgaz, is on average 61%; almost 20,000 km of main gas pipelines (out of 33,250 km) have been in operation for more than 33 years, and 74% of gas distribution stations - for more than 23 years; the life of the pumping units is on average 80% exhausted. The number of accidents at main gas pipelines has been gradually increasing: from 27 in 2013 to 34 in 2016. [8]. In 2014, every one hundred kilometers of gas distribution pipelines in Ukraine was in a state of emergency, by 2020 so was every tenth kilometers, and 3,5–4 thousand kilometers have to be replaced annually. The cost of such work to prevent accidents in the gas distribution system of Ukraine is about UAH 2–2,5 billion. Standard planned, though urgent replacements of technologically dangerous sections annually require about 7 billion UAH. The technical condition of the gas-distribution (points) (GDPs) is in no less problematic condition. Experts assume that only 4% of GDPs do not need replacement. In 2014 every twelfth GDP in Ukraine was in an emergency condition, and by 2020 so will be every sixth GDP, if current trends continue [9].

Despite this crisis, investments in the development of gas distribution networks (GDN) continue to remain at a very low level. According to the approved, by the National Commission for State Regulation of Energy and Public Utilities (NEURC), plans for the development of gas distribution systems of gas operators, investments in 2013 amounted to UAH 1,12 billion, in 2014 – UAH 0,96 billion, 2015 – UAH 1,0 billion, in 2016 – UAH 1,8 billion, in 2017 – UAH 0,955 billion, and in 2018 – UAH 1,203 billion. At the same time, even with such a low level of investment plans, actual annual investments have been even lower and sometimes amounted to only 50% of the plans, particularly in 2015 [8].

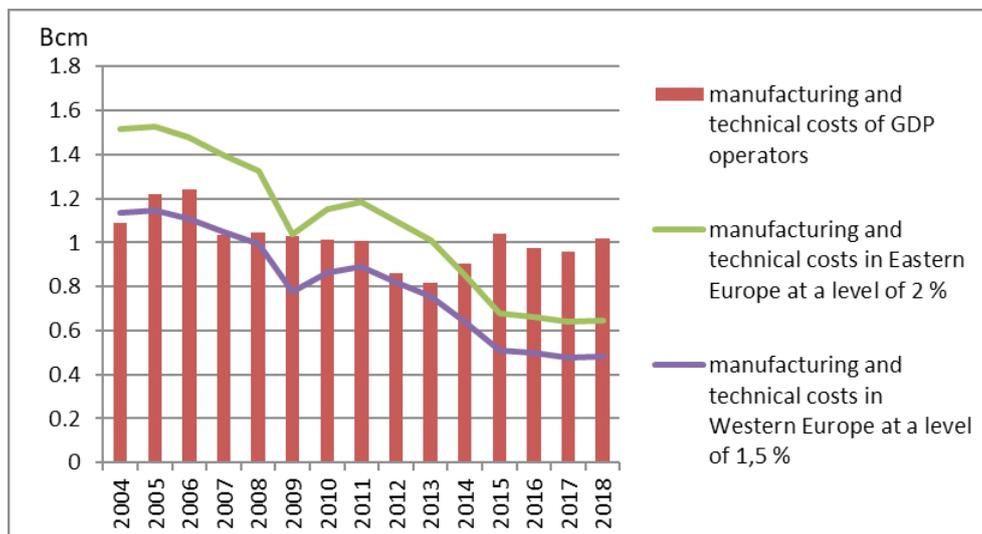
The existing ownership structure on the market, under the conditions that part of the market (transport) infrastructure belong to the public vertically integrated company, which holds a monopolistic position in most market segments, produces risks of abuse, particularly, through odd accounting and the possibility of opaque redistribution of natural gas between different categories of consumers, physical losses of the network at the expense of end consumers, and barriers to access of independent suppliers to the gas transmission network fail to encourage cost reduction and prevent competition on pricing and delivery conditions. The competition is disadvantageous to the state-owned company, which simultaneously supplies natural gas to end-users and functions as a transport operator.

Similar features and practices on the Ukrainian natural gas market cause substantial transactional losses from the established model, and therefore require state-initiated changes in the market structure and game rules. The liberalization of the market in the context of the overall transformation of the market model implies a separation of the transport infrastructure. It will function as an independent business entity mainly to provide natural gas transportation services and generate commercial profits. The presence of a developed extensive network of gas pipelines, relevant information and control systems, is becoming nowadays an objective factor, which creates an opportunity for transition to a competitive market organization. As a result of the depreciation of the GTS, specificity of the assets is reduced, so it is assumed that when expanding sources of natural gas supply and infrastructural development,

there should be a transition from vertical integration and bilateral long-term contracts to classic contracts and market-based transaction management.

According to Williamson, such changes in the functioning of entities, which provide natural gas transportation services, essentially lead them to serve as intermediaries [10, p. 11–12] so the most effective form of their interaction with other entities is the classic contract. This requires contract specification, as it should be comprehensive. It also means rising transaction costs, but their growth rates will be much lower than those of the reduction of transaction losses.

The analysis of operational costs of the gas distribution networks shows (Fig. 1) that the volume of natural gas losses in the system over the last 10 years remains relatively stable. However, considering that domestic consumption has decreased significantly over the last five years, the percentage of MTC has been only increasing and does not even correspond to the level of Central and Eastern European countries.



**Fig. 1. The amount of manufacturing and technical losses of GDN operators in comparison with the level of losses in the countries of Eastern and Western Europe**

Source: according to data [8, 11–13].

While the old tariff-fixing system for “cost-plus” distribution services is preserved (with postponed introduction of encouraging tariffing for distribution operators and tariffs being lowered by the regulator to the greatest possible extent), the problem of deterioration of the gas transportation infrastructure will remain and will only raise risks concerning the reliability of the networks’ functioning.

**Transaction frequency.** In recurring transactions the parties’ subsequent actions depend on the nature of their past obligations. This is usually a sufficient incentive to execute transactions properly and reduce associated transaction costs. The duration of the contract reduces transaction costs, including the search for counterparties, and assessment of service quality and the product itself, but at the expense of increasing

the costs associated with the contract's specification [14]. However, in the absence of a competitive market and proper state or other public control over the process of economic contracting, the monopolist has no incentive to reduce the level of operating and technical costs. They are redistributed mainly to end consumers without improving the quality of services provided. The very use of the "costs plus" approach in tariffing for natural gas transportation services does not create any economic incentives for operators to reduce costs on the maintenance and implement energy-efficient measures [15]. Increased competition in various segments of the natural gas market is intended to cause changes in the form of transactional relationships, which will affect the structure and duration of contractual relations. Such changes allow to use the classic form of contract more actively in all market segments and to make the market more flexible to the needs of end consumers. However, the formation of a competitive market will also mean an increase in ex-ante transaction costs for business entities (costs for finding counterparties, developing a contract, negotiating, etc.). At the same time, the practice of reforming gas markets towards liberalization demonstrates that the transaction costs of maintaining the old system of contractual relations in a monopolized gas market are greater than those associated with the introduction and functioning of a competitive market.

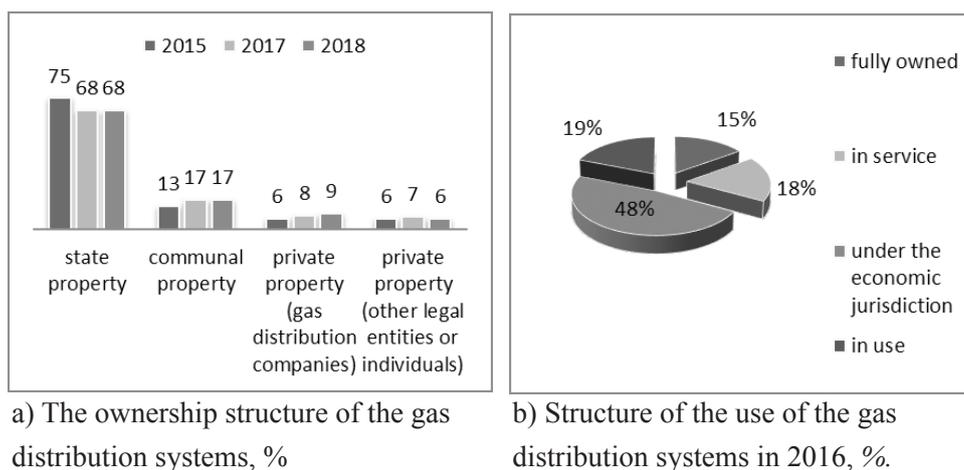
Thus, since 2015 natural gas import has not been solely carried out by the state-owned company NJSC Naftogaz of Ukraine. According to the 2018 results, independent private companies account for about 34% of imports. Natural gas is supplied by 234 companies, Naftogaz Ukraine accounts for about 27% of the total natural gas supply in the unregulated segment of the retail market. The number of customers who changed supplier in 2018 was 5 189, of which only 69 were household customers, being the remaining 5120 non-residential ones [8]. However, the conditions of the functioning of the retail market for domestic consumers and the imposition of special obligations on some market entities do not yet allow the product to become competitive in all segments of the natural gas market.

#### **Uncertainty of the parties' actions during the implementation of agreements.**

The previous model of the natural gas market in its various segments often failed to clearly identify competencies between different market players, which gave rise to significant misapplications. The behavior of business entities depends on the acquisition of certain property rights [16]. According to Ronald Coase [2] and George J. Stigler [17], "given zero transaction cost and clearly defined property rights, recourse allocation would be identical irrespective of the pattern of rights and liabilities, or the way in which they are assigned".

Privatization during the time of Ukraine's independence has often had a spontaneous nature and took place using non-tender procedures. The result of such privatization is that in many areas public and private property are not clearly delimited and the ownership of a large proportion of assets is controversial. In conditions of political instability, the private owner cannot feel the security of his/her assets and is not interested in investing when his/her property that may be alienated by the state. The state is unable, without proper inventory, to receive proper payment for granting the right to use state-owned assets to other entities, which only leads to greater social losses in the future. This problem is particularly acute in the field of gas networks operation, where the uncertainty of property rights has led to considerable wear and tear of the latter and corresponding increase in operational costs. The state as a business

entity was largely removed from the management of spontaneously privatized assets in the gas sector while retaining social and economic obligations, which led to the need of using mechanisms to subsidize certain categories of consumers or cover the losses of energy companies from the state budget. Consequently, it worked to enrich the involvement of business groups, provoke a crisis of public finances, and preserve the inefficient model of functioning in the gas sector (Fig. 2).



**Fig. 2. The correlation of ownership structure and use of gas transportation systems in Ukraine**

*Source:* NEURC annual report 2015–2018.

The main problem of the uncertainty of ownership rights in Ukraine is that the state only registers ownership rights. But it does not have clear mechanisms for their market regulation and judicial protection. This problem causes concomitant barriers to the development of the energy sector, for example, lack of effective mechanisms of protecting ownership rights. Also there is lack of reasons for asset owners to invest in renewal and development because of uncertainty about the final legal ownership of assets. One more barrier is lack of clear inventory and identification of assets' affiliation accessory. There are such problems as fragmentation of property complexes and ownership rights, non-compliance with commercial transactions, loss of control over state-owned enterprises, the existence of crossing subsidies and application of state subsidies for certain energy sectors or individual companies.

The ambiguity of ownership rights causes the problem of the ambiguous "concentration of powers" in making decisions about a particular asset. Licensing, certification, land valuation, and territorial and urban development planning preserve the industry-specific distribution of powers over the same object of property. Accordingly, the legal vagueness of the definition of certain competencies for certain economic entities leads to constant contradictions between economic entities in obtaining benefits from the available asset. The lack of orderliness of relations between entities in the field of ownership rights from the point of view of public relations makes it impossible to establish uniform rules of the game for all economic agents. It causes an increase in risks and costs for the protection of ownership rights

to assets, which leads to increased transaction costs of the energy sector and decrease in its efficiency.

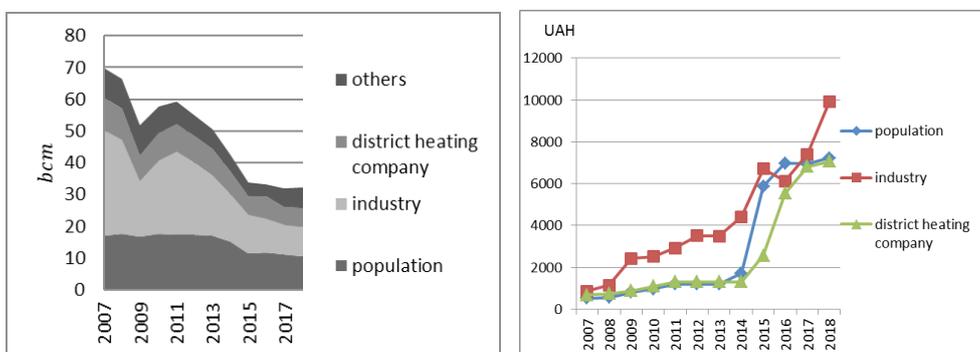
During the independence, the authorized state bodies of Ukraine did not work out any effective mechanisms for the use of state-owned gas distribution network assets by private GDS operators. In fact, being the owner of these networks, the state could not receive the proper payment for their operation. There were no incentives to modernize the networks. Private operators were interested in constant understatement of such assets. No less difficult issue remains the ownership of the networks built at the expense of consumers and transferred to the GDS operation.

Conservation of this situation and aggravation of negative tendencies are also contributed by the current market pattern, where the state-owned vertically integrated monopolistic company practices administrative pricing, while the gas sector itself is seen as a donor for the development of other sectors and a factor of maintaining low tariffs on public utilities for the households. In reforming the rules of the game in the field of property rights, the state must create effective mechanisms for regulating relations between business entities by establishing clear and transparent uniform rules for all aspects of ownership, use, operation, and access to assets in the gas sector. This requires liberalization of relations in the licensing sphere, inventory and final specification of property rights to disputed assets that were privatized in previous periods.

**The complexity of measuring the results of operations.** This characteristic leads to an increase in transaction costs due to the imperfect market organization and non-transparent economic activities caused by the lack of strict accounting or by its violation. The lack of direct 100% accounting of gas consumption by all categories of consumers in the tariff schedule that existed until recently created the preconditions for the abuse of commercial sale of the natural gas originally intended for households. The overestimation of gas consumption by households without gas consumption meters allowed suppliers to sell non-consumed natural gas at commercial rates while stating that it was already consumed by households.

The then existing tariff-setting system did not contribute to rational consumer behavior, but instead increased pressure on the state budget and created additional excess transaction losses for society. For the analyzed period from 2007 to 2015 alone, about 7–9 billion cubic meters of natural gas was sold annually to district heating companies at economically unreasonable prices, which were lowered more than twice compared to tariffs for industrial consumers and budgetary institutions. The 5,5-fold understated (subsidized) tariff for households (compared with the tariff for industrial enterprises) caused unfair distribution of benefits between different decile groups of households. As a result, all the solvent categories made similar underpayments relative to the full cost of gas services, which ultimately only led to increased transactional public losses. Regarding the import price as the base price of natural gas and considering that tariffs for heating services had been reduced by 40% in previous years, 20% of the richest households received 2,4 times more subsidies than 20% of the poorest ones [18, p. 32]. This policy resulted in increased losses of National Joint Stock Company “Naftogaz of Ukraine”, whose budget deficit amounted to UAH 85,5 billion (5,6% of GDP) in 2014. Such distortions in public finance and in the general economic model led to high transaction costs, while such distribution of financial support of the functioning of the economy (budget

financing) led to an even greater impoverishment of the least protected social groups (Figure 3).



a) Natural gas consumption in Ukraine by categories of consumers, billion cubic meters  
 b) The price of natural gas by consumer category 2007–2018, UAH

**Fig. 3. Natural gas consumption and price by consumer category**

Source: According to the National Commission for State Regulation of Energy and Public Utilities, National Joint Stock Company “Naftogaz”.

The formed model of the national natural gas market did not contribute to the growth of investments in domestic production and the achievement of independence from external sources. State paternalistic policies with the administrative setting of significantly reduced natural gas prices for final customers deprived the gas sector, especially its state-owned segment, of financial resources that could have been invested in its own production. The result of this policy was that from 2004 to 2018, Ukraine had to import a \$ 104 billion worth of natural gas [19]. Import fee for natural gas led to a deterioration of Ukraine’s foreign trade balance and deprived the gas sector of domestic investments that would have helped develop the national economy and energy security.

As of the end of 2015, 2,902 million subscribers (out of 3,992 million), or 72,7% of those who used natural gas for cooking; about 18% of consumers who used gas for heating water and cooking and 1% of consumers who used gas comprehensively, including for heating, were not provided with metering devices. The result of the reforms is that at the beginning of 2019, according to the gas distribution mechanism operators, 1,278 million consumers who use natural gas only for cooking still lack commercial accounting. The liberalization of economic relations in the natural gas market and the establishment of market pricing in certain segments of this market made it possible to stabilize the inland production of natural gas with an annual upward trend. The state-owned company “Naftogaz of Ukraine” ceased to be unprofitable.

Transaction attributes are not only benchmarks but also the results of government transactional policy. Depending on the chosen state transaction policy, the degree of institutional regulation of transactions (which is an additional attribute) changes. This regulation is aimed at taking actions that directly reduce transaction costs. The higher is the degree of institutional regulation, the lower is the level of transaction

costs. However, excessive regulation can also lead to increased transaction costs and therefore we need to be able to maintain an effective balance of government regulation. The introduction of liberal institutional norms is aimed at attracting the involvement of new institutions in transactional activities and providing the growth of the legal transactional sector. The expansion of the legal transactional sector in the natural gas market of Ukraine was one of the tasks reforming and de-shadowing this country's economy.

### **Conclusions**

The essence of government transactional policy is the implementation of measures whose main purpose is to reduce transaction costs. Such a reduction of social relations can be achieved by putting part of the costs on the other side. Such redistribution may be justified by the cut of total costs, reduction of excessive transaction losses, or the need to protect the least protected participants of public relations.

The major factors behind the transformation of the Ukrainian gas sector were the significant institutional transaction costs and public losses, which led to inefficient market model and degradation of the industry-specific infrastructure. Due to these circumstances, there was a need to reduce public losses by redistributing transaction costs between market actors, first of all, between the state and the private sector in favor of the latter. It is exactly those segments of the natural gas market where such redistribution have taken place recently where success of the reforms can be observed: in the form of the growth of domestic production, and the emergence of real competition in imports and supply in the unregulated segment of the natural gas market.

Assessing the results of the reforms in the gas sector in terms of overcoming the crisis phenomena that necessitated the market reform, we can note: positive dynamics in the diversification and reduction of the dependence on imports from a single source of supply; and the increased competition and improved delivery conditions in the unregulated market segment, which made it possible to change suppliers and reduce the monopoly influence of the state vertically integrated company "Naftogaz of Ukraine". Setting market prices for natural gas in certain segments of the market helped to transform the state-owned "Naftogaz of Ukraine" into a profitable and one of the largest payers to the state budget. Changes in consumer behavior, especially in the industrial and budget sectors, made it possible to significantly reduce domestic consumption of natural gas. Domestic output of natural gas was stabilized and increased.

However, despite the positive developments, there are still a number of critical problems in the market: significant infrastructure deterioration of the gas distribution network, closure of certain segments of the sector to market pricing, the lack of incentives for certain categories of consumers to reduce consumption and introduce energy-efficient measures, and high budget expenditure on subsidies. The fragmental character of reforms in some areas gives rise to a new wave of threats to the sector, particularly, the attempt to delay market pricing in all market segments, leading to the need to maintain special obligations for certain categories of consumers, which prevents competition in these segments and leads to arrears between partners, which are an additional burden on public finances. The delay and incompleteness



of secondary legislation leads to a crisis of non-payments in the balancing market, which threatens the functioning of the transport operator. The lack of political will to implement changes in the methodology of tariffing for transportation services, has effectively frozen the crisis condition of the gas transport infrastructure in the distribution segment of the market.

### **References**

1. North, D. (1997). Institutions, institutional change and economic performance. Moscow [in Russian].
2. Ronald, C. (2007). The Firms, the Market and the Law. Moscow [in Russian].
3. Pustovojt, O.V. (2016). The institutional nature of economic cycles. Experience of Ukraine. Institute for Economics and Forecasting, NAS of Ukraine. Kyiv [in Ukrainian].
4. Williamson, O.E. (1996). The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting. Moscow [in Russian].
5. Arxiyereyev, S.I. (2006). State Transactional Policy and Structural Transformations of the Ukrainian Economy. Kharkiv [in Ukrainian].
6. Arxiyereyev, S.I. (2003). Transactional Sector of Ukrainian Economy. Kharkiv [in Ukrainian].
7. Juris, A. (1998). Market Development in the U.K. Natural Gas Industry. Washington D.C.: The World Bank Group. <https://doi.org/10.1596/1813-9450-1890>
8. Annual Report NCSREPU 2015-2018. Retrieved from [http://www.nerc.gov.ua/index.php/map\\_9/data/filearch/Materialy\\_zasidan/data/filearch/Catalog3/Richnyi\\_zvit\\_NKREKP\\_2018.pdf](http://www.nerc.gov.ua/index.php/map_9/data/filearch/Materialy_zasidan/data/filearch/Catalog3/Richnyi_zvit_NKREKP_2018.pdf) [in Ukrainian].
9. Kazda, S. After 5 years, the incidence of gas distribution pipelines in Ukraine will increase by 10 times. Retrieved from <https://104.ua> [in Ukrainian].
10. Williamson, O.E. (2001). The Nature of the Firm Origins, Evolution, and Development. Moscow [in Russian].
11. Information site of gas distribution companies 104. Retrieved from <https://104.ua/ua/gas/id/chto-takoe-proizvodstvenno-tehnologicheskie-poteri-2511> [in Ukrainian].
12. Rybiczkyj, I.V., Trofimchuk V.I. (2017). Modern instruments, materials and technologies for non-destructive testing and technical diagnostics of machine building and oil and gas equipment: a collection of materials. 8-thconference. Ivano-Frankivsk [in Ukrainian].
13. Zachmann, G., Golovin, S. Accounting for gas distribution losses – German Advisory Group. Retrieved from [content/uploads/2014/06/TN\\_02\\_2015\\_en.pdf](content/uploads/2014/06/TN_02_2015_en.pdf) [in Ukrainian].
14. Arxiyereyev, S.I., Popadynech, O.V. (2007). Development of credit transactions and measures to regulate their expenses in Ukraine [in Ukrainian].
15. Yukhymets, R.S. (2017). On some peculiar features in the introduction of the entry-exit tariff model on Ukrainian natural gas market. *Ekonomika i prognozuvannâ – Economy and forecasting*, 1, 128-145. <https://doi.org/10.15407/eip2017.01.128> [in Ukrainian].

16. Williamson, Oliver E. (2000). The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature*, 38(3), 595. <https://doi.org/10.1257/jel.38.3.595>
17. Stigler, George J. (1982). The process and progress of economics. Nobel Memorial Lecture by Graduate School of Business, University of Chicago.
18. Chepelyev, M.G. (2014). Modeling and evaluation of the economic consequences of changing the subsidy policy in Ukraine's natural gas market. *Ekonomika promyslovosti – Economics of industry*, 3(67), 32-40 [in Ukrainian].
19. State Statistics Committee of Ukraine. Retrieved from <http://www.ukrstat.gov.ua/>

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**ВПЛИВ ТРАНСАКЦІЙНИХ ВИТРАТ НА ТРАНСФОРМАЦІЮ  
РИНКУ ПРИРОДНОГО ГАЗУ УКРАЇНИ**

Прагнення інтегруватися у європейську модель розвитку зумовило добровільне прийняття Україною міжнародних зобов'язань щодо трансформації інституційного середовища за європейським зразком як в економічній площині, так і в політичній. У політичному сенсі зміст необхідних змін та шляхів забезпечення міжгалузевої збалансованості часто усвідомлювався надто спрощено через відсутність ґрунтовних оцінок наслідків задекларованих секторальних реформ, у тому числі для різних суб'єктів економічних відносин. Однак для енергетичного сектора потреба його реформування обумовлювалася не лише щойно прийнятими міжнародними зобов'язаннями, а й наявністю внутрішніх проблем, накопичених за попередні роки, які без впровадження системних змін з часом перетворювалися б на бар'єри для усього подальшого економічного розвитку держави. Основний зміст імплементації європейських директив в енергетичному секторі саме й був покликаний системно трансформувати економічні відносини за рахунок зміни правил функціонування ринку, що мало би зумовити вирішення основних кризових проблем у різних сферах енергетичного сектора. Існуючій до останнього часу моделі ринку природного газу України були притаманні всі недоліки дореформованого стану ринків країн Європи: система тарифоутворення не сприяла раціональній поведінці споживачів, що посилювало тиск на державний бюджет; правила постачання не гарантували надання належної якості послуг; відсутність достатніх інвестицій у газотранспортний сектор унеможлилювала розширене відтворення основних фондів; сформовані правила транспортування



та розподілення ставали бар'єром для вільного доступу до мереж третіх сторін та розвитку конкуренції в сегменті постачання.

Фактична імплементація норм Другого та Третього енергетичного пакетів ЄС у газовому секторі розпочалася у 2015 р. з ухваленням Закону України “Про ринок природного газу”, який передбачає надання доступу незалежним постачальникам до газотранспортної інфраструктури, право кінцевих споживачів змінювати постачальників, встановлення ринкового ціноутворення та загальну лібералізацію економічних відносин на ринку. Оскільки накопичені проблеми попередньої моделі ринку природного газу були зумовлені неефективністю функціонування інститутів, у статті було здійснено спробу оцінити ефективність процесу трансформації газового сектора й проаналізувати результативність змін на певних сегментах ринку з позиції саме неоінституціональної теорії та аналізу трансакційних витрат.

**Ключові слова:** ринок природного газу, трансакційні витрати, трансформація галузевих ринків, лібералізація

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**ВЛИЯНИЕ ТРАНСАКЦИОННЫХ ИЗДЕЖЕК НА  
ТРАНСФОРМАЦИЮ РЫНКА ПРИРОДНОГО ГАЗА УКРАИНЫ**

Стремление интегрироваться в европейскую модель развития обусловило добровольное принятие Украиной международных обязательств относительно трансформации институциональной среды по европейскому образцу как в экономической плоскости, так и в политической. В политическом смысле необходимые изменения и пути обеспечения межотраслевой сбалансированности часто воспринимались слишком упрощенно из-за отсутствия фундаментальных оценок последствий задекларированных секторальных реформ, в том числе для различных субъектов экономических отношений. Однако для энергетического сектора потребность его реформирования обуславливалась не только принятыми международными обязательствами, но и наличием внутренних проблем, накопленных за предыдущие годы, которые без применения системных изменений со временем становились бы барьерами для дальнейшего экономического развития государства. Основное содержание имплементации европейских директив в энергетическом секторе как раз и было нацелено на системное трансформирование экономических отношений за счет изменения правил функционирования рынка, что должно было способствовать решению основных кризисных проблем в различных сферах энергетического сектора. Существующей до последнего времени модели рынка природного газа Украины были присущи все недостатки дореформенного состояния рынков стран Европы: система тарифообразования не способствовала рациональному поведению потребителей, усиливало давление на государственный бюджет; правила поставки не гарантировали предоставления надлежащего качества услуг; отсутствие достаточных инвестиций в газотранспортный сектор делало невозможным расширенное воспроизводство

основных фондов; сложившиеся правила транспортировки и распределения становились барьером для свободного доступа к сетям третьих сторон и развития конкуренции в сегменте поставок.

Фактическая имплементация норм Второго и Третьего энергетического пакетов в газовом секторе началось с 2015 года с принятием Закона «О рынке природного газа», который предусматривает предоставление доступа независимым поставщикам к газотранспортной инфраструктуре, право конечных потребителей менять поставщиков, установление рыночного ценообразования и общую либерализацию экономических отношений на рынке. Поскольку накопленные проблемы предыдущей модели рынка природного газа были обусловлены неэффективностью функционирования институтов, в статье была предпринята попытка оценить эффективность процесса трансформации газового сектора и проанализировать результативность изменений на определенных сегментах рынка с позиции именно неоинституциональной теории и анализа транзакционных издержек.

**Ключевые слова:** рынок природного газа, транзакционные издержки, трансформация отраслевых рынков, либерализация