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Dissertation work “Transformation of the world oil market and prospects for the development of the oil industry of the economy of Kazakhstan”, submitted for the degree of Doctor of Philosophy (PhD) in the specialty “6D051300 - World Economy”.

ANNOTATION

General characteristics of the work. This dissertation presents a comprehensive study of the transformation of the global oil market and the development prospects of the oil sector in Kazakhstan, taking into account changing factors and conditions affecting the global oil market. The work consists of three logically interconnected sections, sequentially revealing the theoretical aspects of the transformation of the global oil market, the current state and development characteristics of the oil industry in the Republic of Kazakhstan, as well as proposals for increasing its export and production potential through structural diversification and the formation of a petrochemical cluster.

The relevance of research. Oil retains one of the central places in the global economy, as it acts not only as an energy resource, but also as a raw material for processing industries, a source of export earnings and a factor in the sustainability of oil-producing states. Despite the expansion of the use of renewable energy sources and increased climate regulation, the global oil market continues to have a significant impact on international trade, investment flows, industrial development and energy security. At the same time, the current stage of its functioning is characterized by an increase in price volatility, a change in the structure of demand, a restructuring of trade flows and an increased role of institutional and geopolitical factors.

These processes are of direct importance for the Republic of Kazakhstan. The oil industry remains one of the basic sectors of the national economy, forming a significant part of export earnings, investment activity, employment in oil-producing regions and state budget revenues. The presence of large reserves of hydrocarbon raw materials, operating deposits, export infrastructure and accumulated production experience allowed Kazakhstan to take a stable place in the global energy market. The National Energy Report KAZENERGY 2023 emphasizes that Kazakhstan has acquired the status of a major participant in global energy markets for several decades, while the industry is developing in conditions of geopolitical turbulence and disruption of established trade and transport flows.

At the same time, the current model of development of the oil industry in Kazakhstan is still largely focused on the production and export of crude oil. This model provides significant current revenues, but limits the opportunities for creating added value within the country and increases the industry's dependence on the external price environment, the state of export routes, the investment regime and the technological conditions of production. With increasing external shocks, sanctions

restrictions, changes in logistics and the gradual restructuring of global demand for hydrocarbons, this dependence is becoming one of the key constraints on the long-term development of the oil sector.

The relevance of the dissertation research is determined by the need to identify the patterns of transformation of the global oil market, systematize the factors and conditions affecting its development, as well as assess their significance for the oil industry in Kazakhstan. In applied terms, the research is aimed at substantiating scenarios for the development of the industry, identifying priorities for increasing its export and production potential, and developing proposals for the formation of a petrochemical cluster as one of the areas of structural diversification of the oil sector in Kazakhstan.

The purpose of the dissertation research is to develop conceptual approaches and practical recommendations for the development of the oil industry of the Republic of Kazakhstan based on the study of the peculiarities of the transformation of the global oil market, the factors and conditions of its modern functioning.

To achieve this goal, the following **objectives** are set in this paper:

- to explore the theoretical aspects of global oil market transformation, identify the stages of its evolution, and clarify the meaning of the category "global oil market transformation";

- to identify and systematize the factors and conditions of global oil market transformation, taking into account the role of crisis periods and price shocks;
- to reveal the influence of international regulation on global oil market transformation and systematize the instruments of its influence;
- to conduct a comprehensive analysis of the economic potential of Kazakhstan's oil industry in the context of global oil market transformation;
- to analyze the institutional and investment mechanisms for the development of Kazakhstan's oil sector;
- to assess the factors of global oil market transformation and determine their significance for Kazakhstan's oil industry;
- to develop scenarios for global oil market development and determine their significance for the prospects of Kazakhstan's oil industry;
- to substantiate priority areas for increasing the export and production potential of Kazakhstan's oil industry based on its structural diversification;
- to develop proposals for the formation of a petrochemical cluster as a new model for the development of the oil industry in Kazakhstan.

Object of research: the global oil market and the oil industry of Kazakhstan in the context of the transformation of the global oil market.

The subject of the research is economic relations, factors and mechanisms of transformation of the global oil market, as well as their impact on the development of the oil industry in the Republic of Kazakhstan.

The research information base. When writing the dissertation research, a wide range of sources were used, which can be classified as follows.

The first group of sources consists of normative and legal documents, which include: legislative acts of the Republic of Kazakhstan (RK), such as the Constitution of the RK [40], Codes and Laws of the RK [41-44], regulating relations in the sphere of subsoil use in Kazakhstan, as well as Laws of other oil-producing countries under consideration [45].

The second group of sources consists of programmatic documents adopted by the decree of the Head of State of the Republic of Kazakhstan [46-49] and the Government of the Republic of Kazakhstan [3, 50-58], concerning the diversification of the economic structure and priority areas for the development of the oil industry of Kazakhstan; the National Transformation Program of the Ministry of Environment, Water Resources and Agriculture (MEWA) of the Government of the Kingdom of Saudi Arabia (SA) [59]; orders of ministers of the Republic of Kazakhstan, including the Order of the Minister of Energy of the Republic of Kazakhstan "On approval of the General Scheme for Gasification of the Republic of Kazakhstan for 2023-2030" [60].

The third group of sources includes the messages of the President of the Republic of Kazakhstan to the people of Kazakhstan [61-62], annual analytical reports, reports, reviews, information bulletins of subordinate organizations of the Republic of Kazakhstan and other oil-producing countries, domestic and foreign oil and gas companies: National reports of the Ministry of Industry and Infrastructure Development of the Republic of Kazakhstan [63-64], the Congressional Budget Office of the United States of America (USA) [65]; National energy reports of JSC Kazenergy [2, 66], JSC NC KazMunayGas (JSC NC KMG) [67-70], JSC Kazakh Institute of Oil and Gas [71, 72], the Center for Global Energy Policy of the USA [73], Energy insights & analytics [74, 75]; annual reports of the World Bank (WB) [76], International Energy Agency (IEA) [77], reports of the International Monetary Fund [78] and other rating companies [79-90], a database that made it possible to comprehensively study the problems posed and reveal the objectives and purpose of the work.

The fourth group includes general and country-specific statistical data on the macroeconomics and energy resources of Kazakhstan and other oil-producing countries such as the USA, Norway, etc., published by international and national statistical agencies: the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan [91], U.S. Energy Information Administration (EIA) [92], BP Statistical Review of World Energy (BP) [93], International Energy Agency (IEA) [94], World Bank (WB) [95], Trade Map: Trade statistics for international business development [96], Statistics Norway [97], Knoema. World Data Atlas [98], National Bank of the Republic of Kazakhstan (NBRK) [99], OPEC World Oil Outlook [100] and other statistical data from global organizations [101-103].

The fifth group includes reference literature necessary for studying materials on the topic of the dissertation [104, 105]; information materials from the Internet portals of the ministries of Kazakhstan [106-109] and other oil-producing countries [110-111], oil and gas [112-121] and other companies [122-129]; news feeds of

official mass media (electronic and print) published in the countries represented in the study: kazpravda.kz, inform.kz, zakon.kz, kz.kursiv.media, neftegaz.ru, inbusiness.kz, arabnews.com, etc.

The theoretical and methodological basis of the research consists of the provisions of the theory of the world market, the theory of depleted natural resources, the concept of oil shocks, the institutional approach to the analysis of international regulation, the theory of financialization of commodity markets, the cluster approach and strategic scenario analysis. Their use made it possible to consider the global oil market as a system, the development of which is determined by the interaction of resource, economic, financial, technological, environmental, geopolitical and institutional factors.

In exploring the evolution and transformation of the global oil market, approaches by D. Yergin, K. Tugendhat, A. Hamilton, M. Wilkins, G. Hotelling, M. Adelman, J.D. Hamilton, L. Kilian, B. Fattoukh, and other researchers were used. These approaches allowed us to substantiate the specific nature of oil as a strategic and exhaustible resource and to reveal the significance of oil crises, price shocks, financial factors, and international regulation in changing the operating conditions of the global oil market.

The analysis of Kazakhstan's oil industry relied on scientific principles that reveal the dependence of oil-producing economies on the global commodity market, the investment environment, transport and logistics infrastructure, hydrocarbon processing depth, and opportunities for structural diversification. This allowed us to link the transformation of the global oil market with the development prospects of the national oil sector.

In substantiating the petrochemical cluster, M. Porter's concept was used, which links industry development with the concentration of enterprises, suppliers, service organizations, scientific and educational institutions, and development institutions [130]. This concept is used in the dissertation as the basis for the organizational and economic model of Kazakhstan's petrochemical cluster.

The methodological basis of factor regression analysis is formed based on the works of A.B. Costello, J.W. Osborne [131], A.G. Young and S. Pearce [132], which disclosed the principles of applying factor analysis in identifying hidden relationships between observed indicators. The methodological provisions of scenario analysis are defined on the basis of the works of P.J.H. Shoemaker [133], M. Amer, T.W. Dime, A. Jetter [134], P. Durance, M. Godet [135] and P. Schwartz [136], who consider scenario planning as a tool for strategic analysis in conditions of uncertainty.

Results with scientific novelty. The factors of transformation of the global oil market are systematized based on the analysis of crisis periods of its development; in contrast to existing approaches, crisis episodes are considered as a form of manifestation of structural market changes, which made it possible to identify factors, conditions of their manifestation and a system of indicators for subsequent qualitative and quantitative analysis.

A factor regression model of the influence of the enlarged factors of the transformation of the global oil market on the dynamics of global oil production is constructed, in which the initial system of indicators is aggregated into three latent factors and their quantitative relationship with changes in global oil production is determined.

A scenario matrix for the development of the global oil market has been developed, which makes it possible to correlate possible options for its transformation with the directions of adaptation of the oil industry in Kazakhstan; on this basis, scenarios for the development of the industry have been identified and priorities for its structural diversification have been substantiated.

A functional model of the petrochemical cluster of the Republic of Kazakhstan has been developed, revealing the interrelation of mining, processing, petrochemical, service, scientific, educational, infrastructural and financial participants within the framework of a single organizational and economic system of structural restructuring of the oil industry.