

The Logic of the Formation of the Soviet Technological Monopoly

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Keywords: concentration and centralization of production, natural (technological) monopoly, socio-economic functions, socio-political functions, administrative monopoly.

This article examines the emergence of a technological natural monopoly in the extractive sector of the Soviet economy, revealing its nature and the socio-economic and socio-political functions it performed. It substantiates the influence of the effect of previous societal development on the formation and development of the functions of the Russian natural monopoly.

In the context of ongoing institutional changes in global and domestic gas markets, economists focus on the complex set of issues related to the operation of the Russian natural monopoly PJSC Gazprom. On one hand, the company is losing its market position and under-earning monopoly profits; on the other, as a natural monopoly, it is obliged to fulfill its socio-economic functions according to the Russian Federation Law “On Natural Monopolies” [16]. Against this background, questions arise concerning the state's role in developing the socio-economic functions of natural monopolies in the extractive sectors of the Russian economy. In our view, the characteristics of the Russian natural monopoly and the specifics of the formation of its socio-economic functions are largely predetermined by the well-known effect of the historically conditioned development of society.

From a historical perspective, the conceptual foundation for the emergence and subsequent development of the modern natural monopoly in the domestic extractive sector was the national economic complex of the socialist economy. Thus, the study of the inherited technical and economic components of enterprises in the extractive sectors of the USSR's national economy provides an opportunity to reveal the prerequisites for the emergence of monopoly trends in the modern Russian economy and the characteristics of the established system of organizational and economic relations.

Economic research contains numerous studies analyzing the process of emergence, functioning, and crisis of the industrialization model under Soviet economic modernization. According to A. Belousov, the industrialization of the USSR occurred in two stages [1; 2]. The first stage, beginning in the 1930s, represented, in Belousov's view, a mobilization model of the Soviet industrial system, with heavy industry as its technological core. Within this model, a powerful energy base for the USSR economy was built, in which coal accounted for 64.8% of the fuel balance, oil 21.1%, and gas 2.4%. In contrast, during the same period, the U.S. economic system allocated 12% of total energy production to gas (90% of the global level) [12]. Scholars explain the dominance of coal over oil in the domestic economy by “industry overheating in the first five-year plan and rising extraction costs in the subsequent period” [7].

Significant changes in the fuel balance occurred with the discovery of new natural gas fields as the most economical fuel type. The subsequent construction of the first gas pipelines, forming an advanced infrastructure network, can be considered the beginning of the technological natural monopoly in the extractive sector. In 1942, the first Soviet gas pipeline, “Elshanka–Saratov,” was commissioned, supplying natural gas to the Saratov thermal power plant and defense enterprises, saving up to 500,000 tons of solid fuel for Saratov industry [18]. The construction and commissioning of the first trunk gas pipeline, “Saratov–Moscow,” marked the beginning of the development of the gas transportation system and significant changes in the fuel and energy balance structure of the capital and subsequently the entire Soviet Union. As such, the technological natural monopoly performed a system-forming function, ensuring the continuous operation of production and commodity flow processes.

However, during this period, gas production volumes were minimal due to the absence of a gas industry as a separate sector of the national economy. Based on the above, it can be concluded that the concentration and centralization of production laid the foundation for a new industrial system in the USSR, based on energy and electromechanical engineering and machine tool construction. At the same time, enterprises of the military-industrial complex and related economic sectors created the prerequisites for the next, fourth, technological paradigm—“petrochemical technologies and internal combustion engine energy,” on the basis of which other branches of Soviet engineering successfully developed, including tank construction, aircraft manufacturing, and engine production.

The second stage of industrial system modernization, dated 1950–1960, according to A. Belousov, is associated with changes in the composition of the country's political elite and the formation of a higher-level reproductive model, characterized by a transition from labor-intensive to labor-saving technologies, marking the creation of a new technological structure. The accelerated development of natural fuel reserves during this period gave a new impetus to the development of a technological monopoly in the extractive sector of the domestic economy. The Main Administration of the Gas Industry, functioning as the coordinator of the gas sector and reporting directly to the Council of Ministers of the USSR, was tasked with overcoming the chronic fuel deficit through the intensive growth of oil and natural gas production.

The implementation of this strategic task enabled a radical restructuring of the country's fuel balance: in 1950, hydrocarbons accounted for 19.7%, and by 1965, their share had increased to 51.3% [13]. Despite the U.S. embargo on large-diameter pipe supplies and the termination of the supply contract by West Germany, Soviet heavy industry successfully addressed the task: pipe-rolling plants were built, and engineering structures for constructing underground gas pipelines were developed and implemented.

The consumption of natural gas in related sectors of the economy led to increased efficiency. For example, the analysis of blast furnace efficiency showed that the use of natural gas increased coke savings by up to 15%, improved equipment productivity by 4–5%, and enhanced the quality of the final product (pig iron) [17].

The construction of trunk gas pipelines “Stavropol–Moscow” and “Dashava–Kiev–Moscow” as a network infrastructure formed the basis for unifying public-use enterprises, thereby creating the conditions for the functioning of the national economy as a coherent system. In this capacity, the technological natural monopoly assumed the function of ensuring national security in emergencies and during military actions. In the 1950s, the RSFSR Council of Ministers’ resolution “On Further Development of Gas Supply to RSFSR Cities” launched the process of gasification of settlements and enterprises. However, its pace lagged significantly behind that of capitalist countries: the U.S.—62%, France—49%, Italy—33%, USSR—8% [15].

It should be noted that the technological natural monopoly with an administrative management form emerged within the framework of Soviet economic industrialization, based on heavy industry. Its distinctive feature was the delegation of socio-economic functions traditionally reserved for government authorities or state enterprises. For instance, with the discovery and development of new gas fields, it performed city-forming functions and provided employment, actively hiring personnel. Cities such as Nadym, Novy Urengoy, Noyabrsk, and in the Khanty-Mansi Autonomous Okrug, Kogalym and Nizhnevartovsk, were built. However, the non-targeted use of oil and gas revenues by extractive enterprises led to a slowdown in capital renewal and reduced production capacity. Specialists note that during 1970–1980, equipment service life decreased from 30 to 26–27 years, raising questions about established depreciation standards [9].

With the USSR entering the European energy market, the growing deficit of high-tech gas equipment was offset through tolling contracts. The “contract of the century” with West Germany implemented a promising “infrastructure and money in exchange for gas” scheme [6]. Such compensatory agreements allowed the Soviet government to implement other state programs. From 1970–1983, the total value of imported oil and gas equipment increased 80-fold, with physical import volume increasing 38-fold [4]. Simultaneously, the USSR government actively discussed exporting liquefied gas to industrialized capitalist countries. The projects were suspended due to the lack of specialized equipment for processing, liquefying, transporting natural gas, and technical feasibility for pipeline construction from Western Siberia [3]. Thus, the government opted to acquire expensive Western technologies rather than support domestic scientific developments in the extractive sector.

State policy, aimed at national security, sanctioned the socio-political functions of the technological monopoly. In 1966–1970, the USSR supplied crude oil to CMEA countries at prices insufficient even to cover extraction and transportation costs—15–18 rubles per ton [10]. Similar practices were applied to the gas market: in 1980, gas accounted for 16% of export value [4].

The 1973 global energy crisis significantly altered Soviet export policy. With a sharp reduction in textile raw material exports, crude oil and gas exports surged—from 3.9% of total exports in 1950 to 18.0% in 1970 and 52.7% in 1985 [11]. This period laid the foundation for the country's raw material export-oriented development model. By the late 1980s, the USSR led global oil and gas production and ranked third in coal extraction [5].

As a result, investment allocation priorities were skewed, leading to unbalanced development of certain domestic economic sectors. In 1970, consumer goods production accounted for 25.2% of industrial output against 26.6%, resulting in 1970s–1980s shortages of goods and services ranging from 78% to 84% [13]. During this period, the technological natural monopoly addressed domestic market deficits by allocating significant oil and gas revenues to the supply of food, equipment, machinery, and high technology imports. Economists estimate that 50–90% of foreign currency revenue went to importing grain, meat, clothing, and footwear [13]. Views differ: Polyakov N. suggests this solved the state budget problem (over 60% of payments came from extractive enterprises, over half from oil and gas sectors) [8], while Slavkina M. notes that exports and imports were almost balanced due to the sale of raw materials and weapons to friendly countries [14].

In a planned economy, centralized distribution of oil and gas rents allowed the state to cross-subsidize unprofitable industrial and agricultural enterprises, sectoral enterprises producing negative value added, and housing and communal services. Approximately 70% of oil and 87% of gas were sold domestically at prices far below world levels [4], with a large share of rent allocated to the military-industrial complex.

In conclusion, the processes of concentration and centralization in the extractive sectors led to the formation of a technological monopoly with an administrative management form, based on scale effects, performing socio-economic and socio-political functions. While this structure proved viable over a historical period, it also resulted in bureaucratic-administrative control, impeding scientific and technological progress and contributing to a raw material export model. Today, studying the formation of the Soviet technological monopoly is practically significant, as it raises issues concerning the socio-economic functions of Gazprom, the successor of the State Gas Concern “Gazprom,” in post-reform market conditions.

References (APA 7)

1. Belousov, A. Long-term Trends of the Russian Economy. Retrieved March 14, 2024, from http://www.forecast.ru/_ARCHIVE/Analitics/ANCEA2005/Doklad.pdf
2. Belousov, A. Formation of the New Industrial System. Retrieved October 2, 2019, from <https://af.attachmail.ru/cgi-bin/readmsg>
3. Bodrova, E. V. State Policy in the Oil and Gas Sector in the Context of Russian Modernization. Retrieved March 23, 2024, from https://www.gubkin.ru/faculty/humanities/chairs_and_departments/country_political_history/science/publications
4. Ermolaev, S. Formation and Development of the USSR's Oil and Gas Dependence. Retrieved March 16, 2024, from https://carnegieendowment.org/files/CP_Ermolaev_2017_Rus_web.pdf
5. Zhirnov, E. Our Gas Industry is Still at an Extremely Low Level. Retrieved April 10, 2024, from <https://www.kommersant.ru/doc/199220>
6. How the USSR Beat the USA: 50 Years of the Gas “Deal of the Century.” Retrieved March 17, 2024, from <https://finance.rambler.ru/economics/43603489>
7. Karpov, V. Oil and Gas in Soviet Industrial Policy. Retrieved November 10, 2018, from <https://cyberleninka.ru/article/n/neft-i-gaz-v-promyshlennoy-politike-sssr-rossii>
8. Polyakov, N. Taxes in the Era of Developed Socialism. Retrieved March 22, 2024, from <http://nalogkodeks.ru/nalogi-v-epoxu-razvitiya-socializma>
9. Rozov, D. V. Renewal of the Active Part of Fixed Capital in Enterprise Development Strategy. Retrieved March 14, 2024, from <https://cyberleninka.ru/article/n/problema-vysokoy-stepeni-iznosa-osnovnyh-sredstv-na-obrabatvayushchih-predpriyatiyah-v-rossii/pdf>
10. Russian Export. Goods. Oil. From the Post-War Years to the Present. Retrieved March 22, 2024, from <https://www.alta.ru/articles/70428>
11. Russian Export. Goods. Oil. From the Post-War Years to the Present. Retrieved March 20, 2024, from <https://www.alta.ru/articles/70428>
12. Sedykh, A. The First Gas Pipelines in Russia: “Stalin’s Gas Artery.” Retrieved March 10, 2024, from <https://cyberleninka.ru/article/n/pervye-gazoprovody-v-rossii.pdf>
13. Slavkina, M. Development of the USSR Oil and Gas Complex in the 1960–1980s: Great Achievements and Missed Opportunities. Retrieved November 10, 2018, from <https://www.hist.msu.ru/Science/LMNS2002/24.htm>

14. Slavkina, M. V. How the Soviet Union Became Dependent on Oil. Retrieved March 22, 2024, from <https://rodina-history.ru/2016/04/25/rodina-neft.html>
15. Time Arrow, Scientific Calendar. April-May 2023. Retrieved March 10, 2024, from https://nvo.ng.ru/nauka/2023-04-25/16_8715
16. Federal Law “On Natural Monopolies,” August 17, 1995, No. 147-FZ (latest edition). Retrieved October 14, 2023, from <https://www.consultant.ru/document/cons>
17. Khasanov, I. Formation of Natural Gas Production and Transport in the USSR. Retrieved February 20, 2024, from <https://cyberleninka.ru/article/n/stanovlenie-dobychi-i-transporta-prirodnogo-gaza-v-sssr/pdf>
18. Chuntulov, V. T. Economic History of the USSR: Textbook for Economics Universities. Moscow: Higher School, 1987.