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GERASYMENKO Anzhelika,
Doctor of Science (Economics), Professor,
Vice-Rector for Research, Pedagogical Activities and International Relations
State University of Trade and Economics
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0003-0313-6942
a.gerasymenko@knute.edu.ua

HANOVSKYI Vasyl,
Master, Postgraduate Student at the Department of Economics and Competition Policy State University of Trade and Economics
19, Kyoto St., Kyiv, 02156, Ukraine

ORCID: 0000-0002-9897-7754
v.hanovskyy@knute.edu.ua

EVOLUTION OF MONOPOLY REGULATION

The monopolistic organization of markets is as deeply rooted as the competitive one. It requires market actors to take this into consideration. It requires national regulators to counteract it or at least to restrict the freedom of monopolists to the extent that they cannot abuse their market power and negatively affect public welfare. Both the ways of monopolization and the ways of counteracting it are evolving, constantly upsetting the balance between competition and monopoly, requiring new ways of regulating monopolies. The authors research the evolution of monopoly regulation: from spot prohibitions of anticompetitive practices in ancient times to the systemic balancing of competitive and state mechanisms of monopoly regulation today. The article is systematized all approaches to monopoly regulation into three groups, such as: antitrust regulation as control and counteraction to abuse of dominant position by a monopolist; direct regulation of permitted monopolies, including licensing, price regulation and regulation of access to a key resource; structural reform of monopolistic industries and introducetion of competition in the potentially competitive segments of it – outside the bottleneck in the value chain, where a key resource of a permitted monopoly is exploited. The combination of the theoretical foundations of state monopoly

ГЕРАСИМЕНКО Анжеліка,
д. е. н., професор, проректор з науково-педагогічної роботи та міжнародних зв'язків Державного торговельно-економічного університету
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0003-0313-6942
a.gerasymenko@knute.edu.ua

ГАНОВСЬКИЙ Василь,
магістр, аспірант кафедри економічної теорії та конкурентної політики Державного торговельно-економічного університету
вул. Кіото, 19, м. Київ, 02156, Україна

ORCID: 0000-0002-9897-7754
v.hanovskyy@knute.edu.ua

ЕВОЛЮЦІЯ РЕГУЛЮВАННЯ МОНОПОЛІЙ

Монопольна організація ринків має таке ж глибоке коріння, як і конкурентна, що вимагає від ринкових акторів рахуватися з цим, а національних регуляторів цьому протидіяти або принаймні обмежувати свободу монополістів настільки, щоб вони не могли зловживати наявною у них ринковою владою і негативно впливати на суспільний добробут. При цьому як способи монополізації, так і способи протидії їй еволюціонують, постійно порушуючи баланс між конкуренцією і монополією, потребуючи нових способів регулювання монополій. Авторами досліджено еволюцію регулювання монополій: від точкових заборон антиконкурентних практик у стародавні часи до системного балансування конкурентного і державного механізмів регулювання монополій сьогодні. Усі підходи до регулювання монополій систематизовано у три групи: антимонопольне регулювання як контроль та протидія зловживанням домінівним становищем монополістом; пряме регулювання дозволених монополій, що охоплює ліцензування, цінове регулювання та регулювання доступу до ключового ресурсу; структурне реформування монопольних галузей та запровадження конкуренції при реалізації потенційно конкурентних видів діяльності за межами вузького місця у ланцюгу вартості – експлуатації ключового ресурсу дозволеної монополії.

regulation with the practice of such regulation within each approach illustrates the synergy of their joint application and opens up prospects for their exploitation not only for traditional forms of monopoly, but also for neo-monopolies that are emerged in the digital unregulated sector.

Keywords: competition, monopoly, antitrust regulation, key resource of a natural monopoly, access regulation, vertical unbundling.

Поєднання теоретичних засад державного регулювання монополій із практикою такого регулювання у межах кожного підходу ілюструє синергію їх спільного застосування та відкриває перспективи їх експлуатації не тільки для традиційних форм монополії, але й для неомонополій, які формуються у цифровому нерегульованому просторі.

Ключові слова: конкуренція, монополія, антимонопольне регулювання, ключовий ресурс природної монополії, регулювання доступу, вертикальне відокремлення.

JEL Classification: L40, L42, L43 L98.

Introduction

Despite the fact that monopolies were known to ancient societies and were described by the classics of political economy, such as Smith (1776), Ricardo (1817), Mill (1848), Marshall (1890), and others, their systemic regulation is quite young. It started with the Sherman Antitrust Act of 1890. Were there any attempts to regulate monopolies before that? Of course, there were. Among them are the Hammurabi Code of Laws (more than 2 thousands years BC), the Constitution of Zeno (483 BC), the Code of Julian Laws (50 years BC), Diocletian's Edict on Prices (301 AD), Justinian's Code (529 AD), the English Statute of Labourers (1351), etc. However, none of these attempts can be called systemic. They illustrate the struggle against certain manifestations of monopoly rather than monopoly itself.

The Sherman Act has a different nature. Having been drafted in the era of monopolies (at the turn of the nineteenth and twentieth centuries), when the latter no longer just abused their power within individual local markets but began to multiply their influence on a national scale, it was the first attempt to counter monopoly systematically, covering not only the scope of abuse, but also the ways of establishing a monopoly (Sherman Antitrust Act, 1890).

The Sherman Act was the starting shot for both legislative changes in a number of countries and the development of new economic theories that justified these changes and approaches to antitrust regulation. In the more than a hundred years since then, the "Structure-Conduct-Performance Paradigm", theories of market organization, contestable markets, market power, public welfare, efficiency, harm, economic regulation and regulatory capture, and a number of others have been developed, theoretically substantiated and empirically tested. They have formed the basics of antitrust regulation. Among their authors are Nobel Prize winners Stigler (1975), Tirole (1988), Williamson (1975), as well as no less eminent Bergson (1973), Baumol et al. (1982), Gilbert (2023), Woodcook (2023), Mason (1957), Robinson (1933), Rhoades (1985), Page (1980), Posner (1973), Hovenkamp (2024), Shapiro (2021), Davis and Schmalensee (2019), etc. In Ukraine, the

problem of monopolies regulation was studied by Bazylevych (2005), Borovyk (2013), Abakumenko et al. (2017), Ihnatiuk (2010), Lagutin (2015), Mykhalchyshyn (2016), Umantsiv (2019), Fyliuk (2009), Yasko (2013). These authors mostly focused their research on certain areas of antitrust regulation, studying in depth certain phenomena of monopolistic behaviour through the prism of various theories mentioned above, as well as the corresponding regulatory practices. However, there is no evolutionary overview of conceptual approaches to monopoly regulation in the economic literature.

In this article, the authors' aim is to systematize the existing conceptual approaches to antitrust regulation, taking into account their evolutionary order and illustrating the interrelation of the theory and practice of antitrust regulation. The article is based on the hypothesis of a dialectical interrelation between the "first and second best" (in the categories of welfare economics and the Lipsey-Lancaster concept) in antitrust regulation, which constant interaction brings the maximizing of public welfare. In order to verify this, the article applies the content analysis of theoretical concepts of monopoly regulation and an empirical analysis of practices of antitrust regulation in retrospect and interconnection. They are the subject to comparative analysis and analytical grouping.

The first section of the article considers antitrust regulation as a component of the state's competition policy with a logical tendency to "first best" – ensuring conditions for competitive self-regulation. The second section reveals alternatives of ensuring the "second best" in cases where monopolistic market organization is prioritized from the standpoint of public welfare. The third section of the article illustrates a compromise between the "first and second best" in monopolized industries on the basis of their structural reorganization. The conclusions summarize the results of the analysis, summarizing the conceptual framework of monopoly regulation and identifying the prospects for regulating monopoly and neo-monopoly.

1. Antitrust regulation as a component of competition policy

The era of monopolies at the turn of the XIX–XX centuries grew out of the era of pure competition of the previous period, which logically led to the idealization of the market mechanism, recently described by Smith (1776). The market mechanism as the "first best" was recognized as the ideal one to be strived for in antitrust regulation, and the regulation itself involved the use of rather harsh tools – up to the destruction of monopolies. An example of the latter is the 1911 split of Standard Oil into 34 independent companies, including ExxonMobil and Chevron (Standard Oil Co. of New Jersey v. United States, 1911). A similar fate befell AT&T in 1982, which was divided into seven independent "Baby Bells" (United States v. AT&T, 1982). However, we should pay tribute to the American regulator, which managed

to maintain a balance between competition protection and freedom of enterprise. Neither a hundred years ago nor now, a monopoly was and is not considered an a priori violation, only anticompetitive practices of the monopolist are.

In the 1930s, the Structure-Conduct-Performance Paradigm developped by Harvard Business School economists (Bain, 1956, p. 9–11) was introduced and became the basis of antitrust regulation for many years. The paradigm substantiated the relationship between market structure, conduct of market players and market consequences of their business, effectively untying the hands of small companies and requiring caution in behaviour from large ones. Those firms whose market share exceeds 35/40/60% (depending on the limit set by national legislation), are subject to a number of behavioural restrictions:

• prohibition of imposing unfair purchase or selling prices or other unfair trading conditions;

• prohibition of limiting production, markets or technical development, refusal to purchase/sell goods in the absence of alternative sources of sale/purchase;

• prohibition of price discrimination or price personalization;

• prohibition of making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts;

• prohibition of erecting barriers to market access (exit from the market) or elimination of sellers, buyers, other business entities, etc. (Consolidated version of the Treaty on the Functioning of the European Union, Art. 102, 2012; Sherman Antitrust Act, sec. 3, 1890; Clayton Antitrust Act, sec. 2, 1914; Law of Ukraine "On Protection of Economic Competition", Art. 13, 2001).

Thus, antitrust regulation as an element of competition policy has for many years been characterized by control over the activities of significant market participants to ensure that their actions or inactions comply with the established requirements and to bring them to liability in case of non-compliance, ranging from fines to split, as per the Standard Oil model.

It is obvious that in the almost one hundred years since then, the tools for determining the dominant position as a source of market power of a monopolist, as well as the list of prohibited practices, have been significantly improved. The latter, for example, have been supplemented by the prohibition of self-preferences, blocking of multihoming, etc. (Digital Markets Act, 2022). However, the conceptual approach to regulating a monopoly in a potentially competitive environment has not changed. Another matter is the regulation of natural monopolies or other markets, the monopolistic organization of which is a priority for society compared to a competitive one, whether due to the appropriate balance of demand and costs, or due to national security, social protection, etc.

2. Regulation of permitted monopolies

Tollison and Wagner (1991, p. 483), describing traditional approaches to the regulation of permitted monopolies on the example of natural monopolies, wrote: "there are three options for dealing with a natural monopoly: (1) leave it along and accept the monopoly outcome, (2) regulate it to bring about the competitive outcome, or (3) bring it under public ownership as an alternative way of attaining competitive outcome". Obviously, the first of the proposed options is unacceptable, while the last two are actually aimed at the same thing – ensuring competitive outcome despite the monopolistic market structure. The only difference is in the way it is achieved.

State ownership as a solution to the problem of natural, administrative or any other permitted monopoly was widespread in European countries of the second half of the twentieth century and the USSR. In Ukraine, such naturally monopolistic industries as railroad transportation, water supply and sewerage are still in state / municipal ownership. Meanwhile, the recognition of the lack of efficiency of the state as an owner is a proven fact, confirmed by a number of empirical studies (Bitros, 2003; Megginson & Netter, 2001; Goldeng et al., 2008; Arocena, & Oliveros, 2012; Gakhar & Phukon, 2018; Lazzarini et al., 2021), and Peltzman (1971) in the 1970s empirically proved that public and private monopolies produce the same result in terms of price, indicating the inefficiency of state ownership in solving the problem of natural monopoly. These factors became the main prerequisites for the large-scale privatization of state monopolies in Europe in the late twentieth century, launched by M. Thatcher. However, privatization did not mean choosing the first option proposed by Tollison and Wagner (1991), but rather the second one. Along with large-scale privatization, a large-scale reform of state regulation of natural and similar monopolies began.

Since traditional microeconomic theory defines the competitive outcome (as the aim of state regulation of monopoly) through the parameters of price and output, it is logical that monopoly regulation has long focused on the price segment, having developed a wide range of price regulation methods. Among them:

• *marginal cost regulation*, which ensures maximum approximation to the stated aim of regulation by setting the monopolist's prices at the level of marginal costs. This method ensures allocative efficiency, but does not meet the requirements of X-efficiency, because for a natural monopoly operating on the downward sloping curve of long-run average costs, average costs are usually higher than marginal costs, which means that the regulated price does not cover average costs, requiring subsidization of natural monopoly activities;

• *average cost regulation*, which provides for the coverage of costs and normal profit by deviating from the competitive equilibrium. It is implemented in models of price cap regulation, regulation of profit margins, Ramsey pricing, nonlinear pricing and through application of multi-part tariffs;

• *incentive regulation*, which provides not only for short-term coverage of average costs, but also for creating incentives to reduce them in the long-run by allowing the monopolist to withdraw the savings in a pre-agreed proportion and during the regulatory period (RPI-X and RAB-regulation).

The more revolutionary consequence of the late twentieth century reform was the introduction of *the regulation of access to the key resource of a monopoly* (e.g., a naturally monopolistic network). It is about ensuring the right of independent participants in adjacent markets to use the monopolist's facilities to carry out their own business activities, preventing the leverage of monopoly power between markets.

Seemingly a fairly straightforward legal task, access regulation is actually a complex procedure that includes determining the list of networks and the range of business entities subject to regulation, regulating the range of adjacent services, determining the capacity of the monopoly network, establishing the procedure for servicing users in case of insufficient capacity, etc. The latter in the open access model can be realized in accordance with different concepts: third-party access or public carrier. The former means the monopolist's obligation to provide access to the key resource at the request of a third party only if there is free (unallocated) capacity. The second means the redistribution of the key resource (network capacity) among participants of the adjacent market in proportion to the volume of services provided by them when a new player is connected (Borovyk, 2013, p. 85). The former meets the parameters of X-efficiency, but in the face of a shortage of a key resource, it breaches the parameters of allocative efficiency. The latter, on the contrary, is focused on ensuring allocative efficiency, destroying the foundations of X-efficiency and complicating the planning and implementation of economic activities, giving rise to the risk of non-fulfilment of contracts. It is not difficult to guess that this balance of advantages and disadvantages is increasingly tipping the regulatory scales in favour of the first concept. The institution of short-term access to a naturally monopolistic market (to a key resource), obtained through a competitive process, such as daily, weekly or monthly auctions, is commonly used as a safeguard against the perpetuation of unfair allocation of network capacity.

Finally, the traditional tool for regulating monopolies is *licensing of monopolistic activities*. It is not innovative, but it cannot be omitted from the analysis. Its task is to assess the capacity and ability of a potential licensee to operate in a monopolistic market, guaranteeing the proper level of quality of the monopolistic service and the development of the network as a key resource, and to ensure control over the fulfilment of licensing requirements. And while this tool has not changed much functionally over time, the list of control points has expanded significantly, covering not only basic quality parameters, such as a list of gas/water/electricity supply quality indicators, the procedure and amount of compensation for non-compliance, but also business reputation, parameters of the regulatory compliance program,

standard technical requirements for grid connection, etc (Resolution of NCREPU No. 1388, 2017, November 9; Resolution of NCREPU No. 201, 2017, February 16; Resolution of NCREPU No. 307, 2017, March 22).

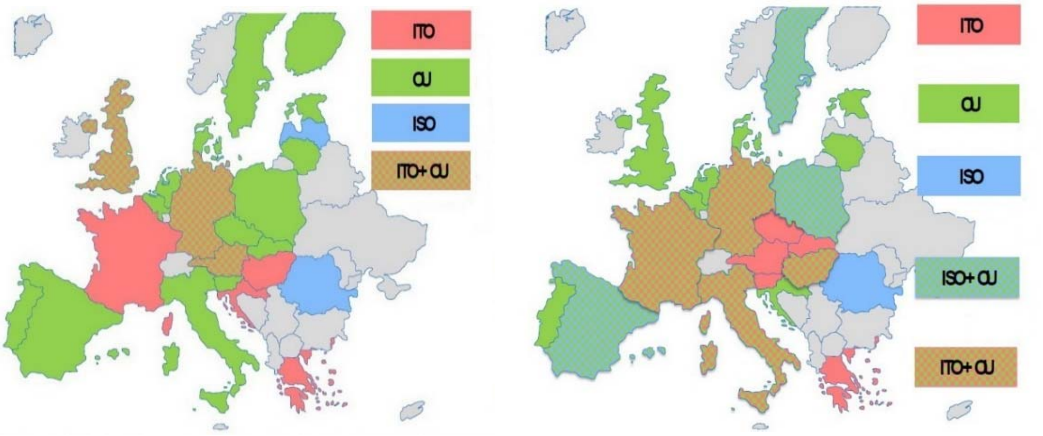
3. Introduction of competition in naturally monopolistic industries

Until the end of the 1960s, the introduction of competition in the natural monopoly industries was considered an oxymoron, until Demsetz in his article Why regulate utilities? (1968) substantiated the feasibility of using a competitive mechanism for the struggle for the status of a natural monopoly. His idea was to introduce auctions for the right to operate in the field of natural monopoly for a predetermined period of time (the so-called franchise bidding). The bidding instrument is not the price of a conditional patent or license that confirms such a right, but the price of a service of a future natural monopoly. The winner is not the one who offers the highest price, but the one who offers the lowest one. Thus, competition at the entrance to a naturally monopolistic industry/market or the so-called competition for the market (Demsetz competition) is a substitute for competition within a naturally monopolistic industry/market, performing the same function that was assigned to state regulation in the face of market failure due to economies of scale – ensuring competitive equilibrium. Of course, there are still risks of bid rigging, reduced incentives to develop a key resource, manipulation of the quality of the service of natural monopoly, etc., but it should be noted that the Demsetz approach is now actively used by independent regulators as an element of the system of state regulation of natural monopolies.

Demsetz's role in the evolution of approaches to state regulation of natural monopolies is not limited to the mentioned above. His breakthrough study was the trigger for criticizing the theory of natural monopoly, the foundations of which have remained unchanged since the time of Mill (1849), while scientific and technological progress has significantly changed the relationship between demand and costs in the public utility sector as a typical natural monopoly. The logical outcome of this criticism was a rethinking of the integrity of the natural monopoly industry. It has become increasingly clear that not all natural monopoly industries, whether in the electricity, gas or railroad sectors, meet the requirements of the natural monopoly and require state protection. Usually, such industries have a bottleneck – a transmission network or a network of railways, which is a key resource of a naturally monopolistic industry, while electricity generation, gas production, their sale on wholesale and/or retail energy markets, as well as rail transporttation could easily be realized on a competitive basis. This means that it is possible to reduce the extent of substitution of "first best" for "second best" by limiting imperfect state regulation to those markets where it is strictly necessary, while other markets in the industry can operate competitively.

The US Congress was the first to listen to these arguments, and by adopting the Energy Policy Act (1992), it launched an era of liberalization of the traditionally naturally monopolistic energy sector on the basis of introducing competition and vertical unbundling. In 1996, a similar reform was launched in the EU, implemented successively in the first three EU energy packages (1998, 2003 and 2009) (EU's Internal Energy Market, 2024), which resulted in the natural monopoly of the transmission and distribution of electricity and gas, while other activities in the industry were fully liberalized and implemented on the basis of competition.

Different European countries have chosen different ways to implement the third energy package. Belgium, Denmark, Estonia, Lithuania, the Netherlands, Portugal, etc. (*Figure*) chose the most stringent liberalization option – ownership unbundling (OU-model), which required previously vertically integrated energy companies to completely alienate their gas and electricity networks. Moreover, no supply or production company is allowed to hold a majority stake in or interfere with the operation of an electricity transmission operator or gas transmission system operator (The Third Energy Package, 2009).



a) electric power industry *b) gas sector*

Models of vertical unbundling in the EU energy sector

Sourse: (CEER, 2016, p. 14–15).

Romania chose the Independent System Operator (ISO) model, according to which energy supply companies retain formal ownership of gas or electricity transmission networks, but must outsource the operation, maintenance and investment in network development to an independent company. France, Greece, Hungary, and Croatia in the electricity sector and Austria, Greece, Slovakia, Slovenia, and the Czech Republic in the gas sector have chosen the Independent Transmission Operator (ITO) model, according to which the energy supply companies can still own and operate the gas or electricity networks, but must do so through a subsidiary. All important decisions must be made independently of the parent company (CEER, 2016).

Equally popular is the combination of several models within a country. For example, Ukraine has a mixed model, where gas and electricity transmission functions are done by independent operators at the trunk level according to the OU-model, and at the distribution level – according to the ITO-model (The Law of Ukraine "On the Electricity Market", Art. 25, 2017; The Law of Ukraine "On the Natural Gas Market", Art. 23, 2015).

The models are different, but the essence is the same: to minimize state regulation under the approaches described in the second section of the article to an extremely limited list of truly naturally monopolistic markets, while maximizing the exemption of potentially competitive markets from state regulation and restoring the competitive mechanism to them.

Conclusions

Summarizing the described evolution, we can state the dialectical interrelation between not only competition and monopoly, but also competitive and state mechanisms of market regulation to prevent monopoly and loss of public welfare. None of the above regulatory approaches contradicts the others. On the contrary, they ensure synergy of their implementation in modern mixed economies: in a limited number of bottlenecks of the national economy, where monopoly organization is more beneficial for society than competitive one, the regulatory approaches described in Section 2 should be applied, and competition should be developed in the rest of the markets, both by controlling abuse and reducing incentives for monopolization, and by structural reforms of highly concentrated industries. This includes not only the natural monopolies used as a model in the article above, but also the neo-monopolies that are growing in the digital space. Google, Microsoft, Apple, Amazon, etc. are vertically integrated giants that have extended their monopoly far beyond the network effect bottlenecks and exploit it in a huge number of adjacent markets that could exist much more efficiently in a competitive environment, while for bottlenecks, there are always licensing, price regulation and access regulation.

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