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Theoretical Dilemmas of the Natural Monopolistic Position of Network Based Public Utilities

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SUMMARY

The change in the market of public utilities – the liberalisation of markets – is a much debated and highly significant tendency in today's economy. Many competing, contradicting views have been published on this issue. The demand for the liberalisation of the market of public utilities has become stronger in certain professional circles, emphasising the benefits of the competition evolving as a consequence of the opening of the market. The idea of privatisation was closely linked to liberalisation. According to other schools of thought, market mechanisms are not capable of efficient operation in all cases; public utilities are the state's responsibility and marketing them has unchangeable negative consequences.

Key words: public utilities; natural monopoly; regulation; liberalisation; privatisation
Journal of Economic Literature (JEL) code: D4, H4, L5, L9, Q4

INTRODUCTION

The change in the market of public utilities, that is, the liberalisation of markets, is a much debated and highly significant tendency in today's economy. Many competing and contradicting views on this issue have been made public. The demand for the liberalisation of the market of public utilities has become stronger and stronger in certain professional circles, emphasising the benefits of the competition evolving as a consequence of the opening of the market. The idea of privatisation is closely linked to liberalisation; privatisation and liberalisation are considered to be the prerequisites of competition. According to other schools of thought, market mechanisms are not capable of efficient operation in all cases. One of the reasons for market failures is natural monopolies. Natural monopoly limits competition, or even makes it impossible to establish competition. This is the reason why there is a need for strict regulations and strong control by the authorities. The followers of this school of thought still believe that public utilities are the state's responsibility and marketing them will have inevitable negative consequences, which endanger the sustainability of public utilities. So, when analysing the dilemmas of natural monopolies, the fields of natural monopolies, regulatory economics, modern market theories, liberalisation – demonopolisation – deregulation and privatisation need to be overviewed. Besides these, interesting contexts can be shown in the fields of information asymmetries and the agent theory, applied to the relationship of regulators and regulated.

STATE INTERVENTION VERSUS PRIVATE SECTOR – ARGUMENTS AND COUNTERARGUMETNS ABOUT THE NECESSITY OF INTERVENTION

The standard neoclassical economics used several assumptions by which market mechanisms lead to Pareto efficiency, eliminating the need for state intervention. However, these assumptions – perfect competition, the existence of entire markets, the absence of market failures and perfect information – are only partially met in reality. This way, market mechanisms are incapable of fulfilling their tasks in all circumstances and competitive markets do not create optimal situations in the national economies. The literature mentions six circumstances in which markets cannot function perfectly (meaning not in a Pareto efficient way) for some reasons. These are natural monopolies, pure public goods, externalities (external economic effects) and non-entire markets (where the supply of commodities is lower than necessary), information asymmetries and periods of higher unemployment. These circumstances are defined as market failures (Stiglitz 2000). Market failures can be a reason for state intervention in certain fields, but this does not necessarily mean the centralisation of production. Instead of the direct control of production the government may apply regulatory solutions, taxation, subsidies in order to give incentives for the private enterprises to follow the interest of the public. The economics literature usually mentions four possible ways of state intervention (see Stiglitz 2000, Cullis and Jones 2003, Barr 2009, amongst others). “Regulations, applying financing tools, and the public production of certain commodities influences the operation of market mechanisms in an indirect way; while income transfers have an indirect influence” (Barr 2009, p. 134). In any case, it needs to be investigated which forms of state interventions can be accepted.

There is no uniform view in the literature about the necessity of strong government intervention. Some points of view not only reject the idea of public production, but criticise the other ways of state intervention as well. According to these views, regulation cannot be proven in any cases either. Theories denying the necessity of regulation can be clustered around two theories. The first of these is the “theory of contestable markets” (Baumol et al. 1982). According to this theory the threat of competition is present even in case of natural monopolies so the monopoly has to decrease its prices. The other significant theory is the “theory of public choice” (Buchanan and Tollison 1972) stating that the public utility of regulation is lower than its public cost. According to this theory, regulation is harmful from the society’s point of view. The reasons for this are explained by the theory of “regulatory capture” of Stigler. According to Stigler (1989) companies of a branch of industry want regulation in their branch because by “capturing the agencies” (with convincing, bribes or threats) they can influence the agencies making the regulations and can be able to distort competition for their own interest. In this view the fundamental objective of regulation, to improve market imperfections, cannot work. The lobbying activities of the companies in a given branch of the industry are focused on making the regulatory environment favourable for themselves. Another explanation can be the influence of politics, according to which policy controls the regulatory processes.

An additional argument of those who oppose state intervention is that besides market failures, government failures exist, too. Barr (2009) summarises government failures as follows: the government that cannot fulfil its obligations in an efficient way of the regulation will be captured by those who were originally to be regulated, or if it is maintained, it is in the interest of the bureaucrats operating the system, and politicians are incapable of fully controlling the operation of the administration. The large size of the public sector is often criticised, stating that it fulfils the needs of special interest groups (Barr 2009, p. 159).

Due to the criticism summarised above, there is in any case a need to analyse whether the chosen form of governmental intervention is capable of correcting the harmful effects of the imperfect market, and of improving the efficiency, and whether its social benefits are greater than the social cost, so for example, whether the intervention is cost-efficient. Both the market and the government can operate in an efficient or an inefficient way. It is not easy to draw the line between the market and the government. None of the solutions can be considered to be the unquestionably preferred method of the allocation of social commodities. All institutions have their strengths and weaknesses. The decision on the borderline between the market and state needs a sense for judgement, so different attitudes and interpretations can be possible. (Barr 2009, p. 165)

Vigvári (2009) gives an informative summary of the debates on the welfare state in Hungary.

“The mainstream economists of the transition economies are less open to the schools of thought emphasising the market failures and market imperfections due to the past’s planned economy. The basic note of the professional discussions is influenced by a kind of bias for the markets (…) since the 1960’s in Hungary. These concepts put less emphasis on the importance of the standard assumptions about market efficiency, so they propose the use of market mechanisms, considered to be objective, for the solution of several public policy problems without criticism (…). The „invisible hand” is also capable of hiding distinct interest groups in the backgrounds of distinct public policy decisions, representing their own goals as public interests.” (Vigvári as cited in the appendix of the Hungarian edition of Barr 2009, p. 610)

As has been shown, the experts are divided on the the necessity for and scale of state intervention. The extent of state intervention varies in different countries and there is no standard recipe for the optimal scale of state intervention. In mixed economies the welfare system is based on the cooperation of the public and private sector. But we could also ask what can be considered as state intervention? Hills (2004) and Barr (2009) set this question in a different context, by discussing state intervention in three dimensions, which are the financing, the supply and the decision making.

JUDGING THE LIBERALISATION OF NETWORK BASED PUBLIC UTILITIES

Public opinion is divided generally in terms of privatisation but also concerning the public utilities.

Distinct professional circles have demanded the liberalisation of public utilities more and more strongly, and related to this, the demand for privatisation has came into focus too, emphasizing the benefits of the competition evolving as a consequence of these. Different giant companies and international financial institutions, including the World Bank, the OECD and the IMF, have an interest in the privatisation of public utilities, and increase the pressure on national governments to market their public utilities (see the Bolkestein directive, GATS agreement, and the EU directives concerning this question).

The defenders of privatisation consider the possibility to earn monopoly profit due to the monopolistic position, and the too convenient position to be unacceptable. Their major argument is that competition forces companies to increase their efficiency in public utilities, and this leads to the decrease of cost and the decrease of price levels. Further arguments of theirs are that the quality of services will increase too, and by letting the private enterprises provide these services public resources will become available for other purposes, the revenue from privatisation can be used to finance the provision of other public goods, the involvement of working capital will serve as a source of financing development, the organizations can be modernized and a new, more flexible organization will take the place of the old, bureaucratic structures.

On the other hand, several experts warn us to be careful with privatisation, although agreeing with the necessity of competition. According to this point of view, the provision of public goods stays the responsibility of the state, and marketing them is a process which cannot be turned backwards, endangering the sustainability of the provision of public goods. (Schering and Boda and some further experts founded an association in Hungary which argues against the liberalisation of public services. Their book was published in 2008.)

Several authors use the argument against privatisation that changing ownerships is not a precondition for creating competition. Competition will not be created only through privatisation. They also show that when involving private capital, profit interest also enters, and this leads to an increase in the price of the commodity. Osborne and Gaebler (1994) use very good examples to support their argumentation, according to which it is not true that private enterprises are always more efficient than the state. The important difference lays not between private and public ownership, but between monopoly and competition (Osborne and Gaebler 1994, p. 92). In competition, public institutions often operate just as good as private enterprises (Osborne and Gaebler 1994, p. 103). Osborne and Hutchinson (2006) call for maintaining a public administration which is capable of providing public goods with optimal efficiency. Goal-oriented government stands in the focus of their work. They mention the benefits of competition, but also warn that the change in ownership is not a prerequisite of competition.

According to one of the reports of the United Nations the privatisation of state owned monopolies is not an ideal solution, as the gains from the increased efficiency cannot be transferred to the consumers, but it stays in the hands of the producers as monopoly profit. (The United Nations Conference on Trade and Development, cited in Baar 1999, p. 274). Illés also argues against the careless privatisation of public services. Regarding this she says, “Changing the ownership in itself will improve neither the quality nor change the natural monopoly, only turn state or local government monopolies to private monopolies.” (Illés 2000, p. 43).

Of course, in certain cases, privatisation can be a good choice, so we cannot consider refusing privatisation either. It is only suggested to be very careful when making the decision about privatisation.

The idea of privatisation is often connected to liberalisation. Privatisation is considered to be the prerequisite of liberalisation and competition. So it is not a coincidence that the increased attention to liberalisation was accompanied by the strengthening of the demand for privatisation. Gál et al. (2005) analyzed trends in privatisation in Europe. In their study they emphasize that waves of privatisation were always connected to periods of liberalisation. Liberalisation of the productive sectors happened first, so privatisation appeared in these sectors first as well. Nowadays the liberalisation of services and public services is occurring, and due to this privatisation has become a general trend in these sectors too, which were earlier considered to be of strategic importance (for example energy supply, telecommunications, post and railways). The circle of strategic sectors keeps on narrowing. In the previous years the demand for liberalisation became stronger in the field of network-based systems, which are natural monopolies.

In modern market economies, the solution to the problem of natural monopolies is seen in separating the network and the activities related to it. The separated activities can become competitive and only the network itself keeps the natural monopolistic position. This process is called demonopolisation. The definition of liberalisation is closely related to this. Mozsár (2002) defines the core idea of liberalisation in a very compact way. It means the opening of certain sectors for competition. This definition includes both making the contestable activities free for competition and suggests the necessity of regulating those “core activities” which remain in the position of natural monopolies. In order to let economic competition evolve, the company operating the network (a natural monopoly) needs to ensure access to the network to its competitors. Considering that the company operating the network is not interested in doing this, the proper regulatory background must be introduced. In the case of separating the activities, the first level of liberalisation was to secure access to the network. The separation of branches of business in accounting is the next condition, more favourable for the evolution of competition, but still not sufficient in itself. New regulations often oblige the full organisational separation of networks, so the full legal separation, but only the separation of ownership could bring the expected solution. We will have to wait for a long time for this though, due to relationships between owners.

Opinions about the effects of liberalisation are various. Dickhaus and Dietz (2004), in their study "Public Services under Privatisation Pressure: Impacts of Privatisation and Liberalisation of Public Services in Europe," evaluated the experiences of the liberalisation of the British energy sector. The opening of the market had its positive effects: the price of energy definitely decreased, while the security and the quality of the service improved. The environmental goals were met, emission of pollutants decreased. However, the authors criticise the lack of considering other effects of liberalisation. The questions of efficiency and social fairness are not in the focus of attention. They show some negative aspects of liberalisation (which cannot be neglected or considered to be insignificant) in their analysis: instead of national monopolies, international oligopolies control the market, with the dominance of transnational companies that pursue their activities in several branches of services. This way, we cannot truly talk about the accomplishment of competition. In terms of employment, large lay-offs took place, employees were exploited, they had to work more overtime and their wages decreased. The decrease in prices was accomplished through measures like these in several cases. Employment decreased and defencelessness increased.

Other authors mention the negative effects of the liberalisation of public utilities, too. The security of the service can decrease (this can even lead to tragedies, for example in case of the liberalisation of the water market). The access to public utilities of lower income groups is not secure in many cases. Private suppliers often deny their services to lower income groups in order to maximise their profit and to decrease their costs, and geographical polarisation happens too, when no companies compete for weak customers or the regions with low population density. The competitive private capitalists tend to target only the layers of society with higher purchasing power. The "drain" of the layers of society with higher purchasing power leads to a distorted competition, as the supplier (and its customers) which is obliged to supply is in a less favourable position compared to the private company which is not obliged to do so. These issues must be considered when making a decision about privatisation and liberalisation, and regulation must be formed in a way to secure the sustainability of public services. The experiences of previous liberalisation processes show that several problems can arise from the harmonisation of various suppliers' activities and in some cases organisational problems are mentioned as well (for example, train accidents which happen due to the failure to harmonise railway schedules). Stiglitz (2005) considers extreme liberalisation to be harmful. He shows that liberalisation leads to monopolistic practices and unfair benefits for managers instead of competition, by the analysis of American liberalisation processes. Liberalisation proved to be stronger in the recent past and many sectors, including the energy sector markets, have been opened up. The idea of demonopolisation in case of network-based local public utilities can be considered only on a theoretical level, as the preconditions for this are not present. (Several authors deal with the analysis of its possibility.)

The Economics of Regulations, as the Theory Applied to the Regulation of the Market for Public Utilities

The economics of regulation deals with the regulation of markets. It aim is to overcome market failures, and to improve these situations. It deals with those rules and regulations which are meant to improve the economically efficient operation of markets in times when the unregulated market operates, or would operate not in a perfect way – so not in optimal manner from the society's point of view (Kiss in Valentiny and Kiss (ed.) 2008, p. 15). So, it is focused on the basic cases of market failures. To be more precise, one of its major subjects is the regulation of natural monopolies, which has been changed to a certain extent with the appearance of competition, but is still a major question of the economics of regulations. The regulators are mainly state (governmental) agencies.

The history of the economics of regulation can be divided into three major phases. In the beginning it dealt mainly with the regulation of natural monopolies, later, with the formation of competition, and then with the spread of liberalisation, regulations needed to be adjusted: some rules were no longer needed, while other, new ones had to come into force.

The major characteristics of these phases will be introduced based on the study of Kiss (2008), supplementing it with the use of other literature in the field. (The following sources give a thorough introduction to the methods of regulation: Train (1997), Jha (2004), Carlton and Perloff (2006), Kiss (2008).

Phase One – the Period of Regulation of Natural Monopolies

In the first phase (from the 1930s to the 1980-1990s), the regulation of natural monopolies was the major focus of the economics of regulation. I will focus on the rate of return regulation as a major method of this period, and on the Averch-Johnson effect, which is closely related to this. The regulation of the rate of return was introduced in the 1960s. Its basic aim was to limit the opportunities of earning monopolist profit and to secure the level of profitability regarded as normal or average in the given country, in the given financial circumstances. Several critiques were formulated regarding this theory. Both the numerator and denominator of this rate can be manipulated. A smaller result can be achieved by either decreasing the numerator – the profit – or by increasing the denominator – the capital (assets). The numerator was usually distorted by accounting for unnecessary costs (i.e., by hiding the profit behind extra expenses), so showing lower profit in the end. The possibilities of distorting the denominator are known as Averch-Johnson effect in the literature. They were the first ones to describe (in 1962) the effect of regulation of the rate of return working as an incentive for suppliers to overcapitalise, as this allows them to earn higher profit compared to the higher level of capital used. The possibilities of overcapitalising are (1) increasing the volume of capital used (rate base padding), (2) improving the quality of capital used, so purchasing better quality and more expensive capital goods which are not really necessary (gold plating), and (3) shifting towards the more capital-intensive technologies (technology bias).

The other possibility to regulate the prices is the application of so called price index formulas. There are several technical solutions to this; the simpler forms use only one price index for this, while the more complicated ones apply weighted price indices, which reflect the types of expenses too. For further details on this, see the works of Barr (1999) and Illés (2000).

PHASE TWO – THE INTRODUCTION OF COMPETITION TO THE MARKETS OF PUBLIC UTILITIES

The second phase started with the introduction of competition to the markets of public utilities. Besides the regulation of the natural monopoly, the necessity to regulate the markets with imperfect competition appeared as well in this period. The basic requirement the regulation had to meet was to be able to resolve the problems arising from the evolving competition. Therefore, regulation had to cover the barriers to accessing and leaving the markets, as well as creating the preconditions of competition. Amongst other, price cap regulation became widespread in this period. This means that "the stakeholders (the regulator authority and the enterprise) (…) agree on a base fee based on the necessary cost and capital, and limit the opportunity to raise this base fee with a price cap, which is determined by the inflation, the expectations for the improvement of productivity and the effect of changes in the volume" (Illés 2000, p. 148). One of the major advantages of this method is that in the period for which the formula is determined, since the prices can only be increased according to the criteria involved in the formula, the monopoly has incentives to decrease its cost, as it can keep the profit earned by any savings on costs (Illés 2000).

In addition, in order to limit the possibility of companies supplying both competitive and monopolistic markets to cross finance their activities (to favour their competitive products), the need arose for a new type of regulation to separate these activities both in organisation and in accounting. (It was mentioned previously that these levels of separation were not sufficient to create a competition which is free of distortions. The requirement of the separation of ownership could solve this issue, but due to the complex ownership relations we will have to wait for this for a long time.)

This phase was a transition period between the regulations of natural monopolies and creating the regulatory environment for imperfect markets, which gained significance after competition, was introduced to these fields. This transition period led to the evolution of the new economics of regulation.

PHASE THREE – THE EVOLUTION OF INDUSTRIAL ORGANISATION

The third (and so far last) phase of the economics of regulation can be considered as the new economics of regulations. In this period the regulation changed to a significant extent. The traditional methods of the economics of regulation, which were based on the neoclassical approach, were not successful in explaining the new tendencies (the wave of liberalisation) taking place at the end of the 20th century. It was discovered that the assumptions of the theory are not fulfilled in reality, so events can hardly be explained, or not at all. There was a need for a change in the paradigm, which led to the application of game theory instead of the neoclassical theory. The theory of industrial organization evolved, which is the economics of imperfect competition. Industrial organisation is the "branch of economic theory which studies imperfect competition" (Pepall et al. 2008, p. 28). This is one of the most dynamic, fastest developing fields of modern economics, which analyses the market situations differently from perfect competition and pure monopolies, and includes the analytical methods and way of thinking which try to deal with the phenomena of real business life, linking theoretical microeconomics and modern business administration studies. According to Pepall et al. (2008, p. 17.), it can be considered as the application of microeconomics models to business studies.

The opposite models of the operation of perfect competition and monopolies are well known in microeconomics. In reality, though, market mechanisms are somewhere in between these two extremes. There is no perfect competition in many fields, but there is not one single company possessing the entire market, either. Generally, companies compete with a limited number of competitors. Industrial organisation creates the common theoretical framework for answering the major questions concerning the market structures described above. When analysing imperfect markets, tools are needed which are capable of identifying and measuring monopolistic power and it can be determined how far the given market is from perfect competition. The so-called concentration curve is perfectly capable of showing the characteristics of market structures in one measure. Concentration rate (CR) and Herfindahl-Hirschmann index (HHI) are measures to show the concentration of a given branch of industry. Besides these market structure measures, the so-called Lerner index can also be determined, which measures the market strength by showing the difference between the outcome of the market compared to perfect competition (the larger the value is, the further away the branch of industry is from perfect competition). For further details about these measures see Pepall et al. (2008), p. 85-101. For a summary of measures showing the structure of industry and performance see Carlton and Perloff (2006).

Vigvári (2005) underlines the importance of the role of technological progress in the dramatic change of the structure of branches of industry, market structures and market regulations. Natural monopolies' situation can be solved by technological progress. For example, nowadays the same network-based infrastructure can be used by multiple companies at the same time. In relation to this, the objective and methods of regulations were changed to a large extent; creating competition requires different forms of regulations. It became a significant question to regulate the "use of crucial tools" (following Kiss 2008). For the sake of creating competition the owners of networks were obliged to give their competitors access to their network, and in return competitors are obliged to pay a fee to owners for using the system. It was a difficult challenge to formulate the conditions of using the system and determining the access price. In this period the traditional interventionalist regulation was changed to incentive-based regulation, the efficiency of which is limited by the barriers arising from the imperfect information of actors and information asymmetries. Agent theory, related to game theory, also appeared as a tool of economic analysis.

THE DISTORTING EFFECTS OF INFORMATION ASYMMETRIES ON THE MARKET

A new era of thought was launched by the discovery and modelling of information asymmetries in economic theory, as several phenomena which could not be explained by the assumptions of the neoclassical economic theory on perfect information of actors became understandable through this new theory (economics of information, or economics of information asymmetries). In reality economic actors can never be perfectly informed. Asymmetric information can lead to market failures. The disadvantages of information asymmetries can arise in several fields. So for example, we can often see it in the relationships of buyers and sellers or owners and managers or agencies and regulated bodies.

We talk about an information asymmetry if one of the actors possesses more information than the other (with opposite interests). One of the basic examples of information asymmetries is the problem of agents. The less informed party is called the principal, while the well informed party is the agent. The agent basically acts in the interest of the principal, but the issue of asymmetric information arises between them. In 2001 Akerlof, Stiglitz and Spence received the economics Nobel Prize for the development of the analysis of markets with information asymmetries. The importance of their work lays in showing that market mechanisms do not lead to Pareto optimal outcomes in markets with economic actors with information asymmetries (Bekker 2005). The most problematic forms of information asymmetries prove the necessity of state regulations. To judge these, criteria can be found in the work of Barr (2009). The efficiency is also weakened by principal-agent problem arising in the relationship of regulator and regulated as well.

In this aspect, regulators can be considered as principals while the regulated companies are agents. Kiss (2008) defines the role of agency theory in the economics of regulation as follows: "…the regulator has a limited knowledge of the market and of the regulated companies, as the companies themselves. In a competitive environment it is especially important because the most important economic data that the monopolies were required to publish previously became business secrets due to competition. Some of these can only be known to the regulator, while others are known not even to them. The results of theoretical research on asymmetric information and its consequences became very important, as regulators had to find principles, methods and tools of regulation which can contribute to efficient regulation even in case of relatively imperfect information" (Kiss 2008, p. 64). Vigvári (2002) mentions the function of control as one possibility for resolving the problems arising from insecurities evolving due to information asymmetries. Even though control can decrease the distortions arising because of information asymmetries, it cannot mitigate them fully.

CONCLUSION

The present study deals with the dilemmas of marketing public utilities by introducing different theories. Questions about the necessity and extent of state intervention were discussed, followed by a detailed study of the arguments and counterarguments concerning the liberalisation and privatisation of network based public utilities. The permanent change of the methods of economics of regulations were introduced, as measures to mitigate the effects of monopolistic situations and creating competition, and the major phases of its development were also shown.

It is not an easy task to choose a standpoint in the intersection of arguments and counterarguments. Based on the different theories introduced in the study I summarise my opinion as follows. Concerning the provision of public utilities I consider state intervention necessary, via the public production of certain public utilities and via careful regulation of natural monopolies. In my opinion, careless privatisation/marketing of public utilities can be disadvantageous both for the society and for the economy. We may have doubts about the benefits of competition, but I cannot agree with the idea of changing ownership as a primary method of creating competition. Public companies exposed to competition can also be capable of increasing their efficiency, which has benefits for the consumers. Regarding regulation, I consider the decrease of information asymmetry between the regulators and regulated a basic precondition, via proper control, and by minimising the influence of industry lobbying and politics via objectivity.

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