

## Economic Assumptions of the Regulatory Algorithm of Social Economic Infrastructure

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*The study analyzes the necessity of the infrastructure services for the state economy growth; and to insure the provision of these services, applying regulation.*

*Having evaluated infrastructure enterprises according to certain criteria and predicting regulation possibilities, the algorithm can be created, which can help to evaluate the infrastructure enterprises and to choose the most suitable method of the regulation. The economic infrastructure services are necessary for all the subjects of the state economy. The social infrastructure services insure the welfare of the populations. Most of the infrastructure enterprises are natural monopolies. Evaluating different possibilities, the government can initiate the reforms of infrastructural sectors trying to increase the rationality of the activities.*

*The main findings of the study:*

- regulation of the social economic infrastructure – the main factor assuring rational state economy functioning;*
- the government guarantees are needed for infrastructure sectors;*
- more rapid economy growth can be assured by the implementation of the infrastructure reforms, initiated by the government.*

Keywords: *Infrastructure, regulation of the infrastructure, regulatory algorithm of the infrastructure*

### Introduction

The creation of infrastructure itself is not profitable. The infrastructure is a subject to accomplish functions in several economy branches. It performs an integration function between industry branches, regions and states. Infrastructure does not produce material goods, it disposes the function of provision. It is determined that the higher infrastructure development level in particular region causes the faster flow of investment, faster economy growth, better quality of life. On the contrary, the lower infrastructure development level results in the lower quality of life.

In the mid of the twentieth century the researches of the social economic infrastructure began. On their foundations the theory of infrastructure was defined and consistent researches started. The researches of infrastructure deal with the analysis of infrastructure impact on economic growth. These researches are unambiguous and the impact is not empirically proved. Since 1980 the interest in the reforms of infrastructure enterprises and

their privatization is noticed. The mentioned aspects of infrastructure researches can be regarded as the most important. The restructuring and privatization of the infrastructure enterprises necessitated the analyzes of the mentioned sectors regulation. These studies are assigned as modern scientific researches. The researches of separate infrastructure enterprises were performed all the time, trying to evaluate the effectiveness of enterprise activities and methods, as well as the possibilities of activity planning.

R. Jochimsen, A. Yangson, P. Rosenstein – Rodan, Hirschmann are the initiators of the researches of social economic infrastructure. The economists Gramlich, Aschauer, Canning, Fay and Perotti, Sanches – Robles, Baltagi, Pinnoi, Munnell, Garica-Mila, McGuire, Holtz Eakin tried to find a link between infrastructure and economic growth and to evaluate it.

Later the researches of privatization infrastructure enterprises, reforms and deregulation followed. M. Kagami analyzed privatization and deregulation of infrastructure enterprises in Japan. He emphasized two cases of privatization: Japans national railways and Nippon public Telegraph and Telephone Corporation. H. Kim studied deregulation processes in South Korea since 1980. His findings were published in article “Review of the deregulation policy in Korea”. According to deregulation processes in Korea, H. Kim found that: the organizations supervising deregulation stages should be stable; the staff for implementing deregulation should be qualified; the long run and thorough deregulation strategy should be taken into account. S. Mani analyzed deregulation processes that started in 1991 in India’s industries. He studied India’s telecommunication sector which consists of two parts: production of telecommunication facilities and provision of telecommunication services. He emphasizes that the reform of service sector was more effective. T. McCoy analyzed reforms in Latin America and published the results of the study in the article “Economic reform in Latin America”. M. Pollit studied the liberalization processes of public enterprises in the United Kingdom since 1979. S. Berg took into account the experience of implementing regulation and deregulation in the United States. M. Kerf, R. David Gray, T. Irvin, C. Levesque, Robert R. Taylor analyzed natural monopolies and their privatization. D. Ferreira, K. Khatami studied infrastructure subsidization in developing countries. I. Alexander and A. Estache evaluated the influence of infrastructure on the restructuring of economic growth according to the Latin Amer-

ica's sample. Russian scientist M. P. Komarov analyzed infrastructure of world regions.

Lithuanian economists started to analyze infrastructure aspects at the end of the 20th century. A. Mačiulis (1995) studied the taxes strategy for using Lithuanian transport infrastructure in his doctor theses. V. Atkociuniene (2000) evaluated social infrastructure of Lithuanian countryside. The informational infrastructure of the universities was analyzed by D. Janavičienė (2001). The transport infrastructure is studied by A. Baublys and R. Minalga. V. Jankauskas researches the economic regulation of public utilities, and had reviewed restructuring of infrastructure branches in Lithuania.

**Scientific issue.** Countries economic growth should be assured by providing infrastructure services. Seeking economic growth the government ought to regulate properly and assure rational activity of infrastructure enterprises.

**Subject of the study.** Social economic infrastructure and public regulation.

**Objectives of the study.** Extricate, systemize and investigate economic assumptions of a social economic infrastructure regulatory algorithm.

**Scientific novelty.** This study presents the notion of the social economic infrastructure regulatory algorithm. Assumptions of the social economic infrastructure regulatory algorithm are extricated and systemized. There are no similar researches made in Lithuania. The practical significance of the study is that, according to the defined assumptions of the regulatory algorithm of the social economic infrastructure, destructive solutions, implementing states economic growth strategy can be avoided and/or the inaccuracies can be corrected.

**Methods of the study.** Statistical and literal data analysis, comparative analysis. Method of the logical analysis is one of the most suitable methods, determining assumptions of the regulatory algorithm of social economic infrastructure. This method is applied when a conclusion follows logically from the set of premises.

### **Notion of the regulatory algorithm of social economic infrastructure**

Most of infrastructure enterprises, because of their specific activity, historically were state owned enterprises. The regulation of enterprises got meaning when the privatization processes began.

Present Lithuanian language dictionary (2002) gives such notion of the regulation: "state regulation that is purposeful totality of state actions, trying to reach social and personal, private and corporate consistency of concerns".

The disproportions of monopoly and competitive market forces, the contradictions in economic and social districts can be decreased by state regulation. State regulation signifies not only in control of private enterprises by defining the standards of their activity, but also in the direct regulation of state enterprises. State regulation is needed and necessary because the market has shortages that arise from economic reasons, for example, defective market structure (natural monopoly, oligopoly, monopoly competition). The state by regula-

tion implements tries to make stable conditions for economic and social development, which assures business terms, lowers negative production impact on environment and society.

The state usually tries to consolidate the monopoly position of infrastructure enterprises – it publishes decrees or resolutions, by which guarantees exclusive and special rights for the mentioned enterprises. It is believed that services the infrastructure enterprises provide are necessary and essential for the state economy and people. In those countries, where infrastructure services are believed to be necessary for the society and they are not regulated by the economic law, the de jure monopolies are established and they are given prerogative rights and in some cases prerogatives. The best known privilege is – prerogative rights given to maintain particular territory (franchise territory) for long term (usually 15-20 years) or indefinitely. Under mentioned conditions the enterprises contract to render their services (V. Jankauskas, 1997).

4 main regulation objectives of infrastructure enterprises can be abstracted:

- customer defense;
- assurance of the company's financial vitality;
- inducement of competition;
- accumulation and dissemination of information.

Regulation influences a lot of modern economy aspects and has lots of economic, social and political objectives. The infrastructure regulation – most often the regulation of energy, gas, water, telecommunications and transport – seeks to avoid possible inefficiency and other factors which cause low efficiency because of many natural monopoly features of these sectors.

The main and controversial objective of regulation is the control of prices and profit in monopoly market. Other important objectives of the regulation are the determination of discounts and other agreements, holding up for quality of services, technical standards and investment levels.

When the importance of social economic structure the state economy and that of regulation level for effective economy activity is defined, the regulatory algorithm of social economic infrastructure can be defined. Algorithm is a definite sequence of operations performed by the rules that necessitates the quested result from basic data. *Regulatory algorithm of the social economic infrastructure can be defined as a sequence of succession economic processes and the sequence of the state handed activities that necessitates determination of regulation SEI method (degree).*

Algorithm can be formed when infrastructure enterprises are evaluated according to chosen criterion, foreseeing the potentiality of state regulation, that helps to evaluate infrastructure enterprises and to choose the best way to regulate state enterprises (from maximum control to absolute deregulation). To reason formation of algorithm economic assumptions should be formulated.

Regulation of social economic infrastructure is like the main factor assuring rational functioning of the state economy.

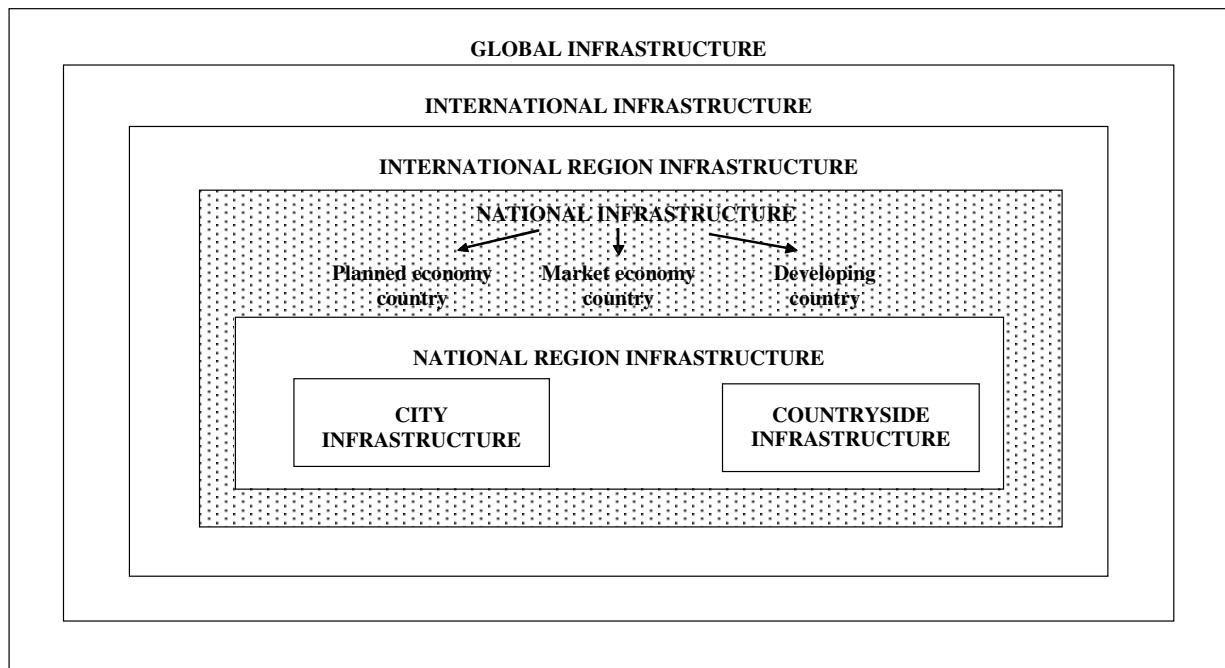
In a broad sense infrastructure is reasoned as the

whole of economic resources, and from its functioning depends the level of active economical activity. That is transport, communication, energy, water-supply also education, public health, public utilities. Two main branches of infrastructure can be abstracted: economic and social infrastructure. All branches implementing activity of economic process can be attributed to economic infrastructure. Variant complexion services that meet requirements of the population can be attributed to social infrastructure.

Infrastructure can be classified according to social-economic attributes: planned economy, market economy

and the infrastructure of developing countries, also it can be classified according to territorial aspect: one state, international, global infrastructure (see figure 1). In this study the social infrastructure is analyzed in state level.

The hypothesis about infrastructure significance for economic growth is formulated in this way: developed infrastructure increases production volumes of enterprises and decreases costs because of increased production. Theoretically it is a case, when infrastructure as a free given factor of production directly or non-directly positively influences productivity of private factors. (S.Aubert, 2000)



**Figure 1.** Classification of the infrastructure according to social – economic and territorial principle

Infrastructure impacts economic growth by increasing productivity and by ensuring services that improves the quality of life. Infrastructure increases enterprises production volume in two ways.

- Infrastructure services (transport, water, electricity) are inputs of intermediate production and any decrease of the input costs increases the profitability of production, in that way it permits to increase the volume of production, revenue and /or employment.
- Infrastructure services increase productivity of other factors of production (work and others) – for example, permitting to switch from manual to automate operations, shortening the time needed to report for work, improving informational flow transferred in electronic way.

Because of the mentioned features infrastructure is described as “unpaid factor of production”, since its existence conditions can be better improved that by other factors of production – labor and capital.

All the enterprises of the state embrace services of economic infrastructure – service and manufacture enterprises (classifying enterprises by the character of activity). Earnings of manufacture enterprises depend on how many units of the products it can produce and realize. First of all

electricity is needed for successful manufacture planning. Also manufacture processes can not run without water and also the production needs to be transported. Communication does not take part in manufacture process directly, but it has great impact on manufacture planning, because it gives information that is needed for improving production. Information in today’s economy is reputed as the factor of production, even goods. Enterprises that quicker than others can make a snatch at information, acquires competitive advantage. In this aspect communication – as economic infrastructure branch – is important and significant for developing enterprise economic activity. Needs for economic infrastructure services of enterprises that provide services are similar to the needs of industrial enterprises but commonly they are smaller in their size, because an industrial process absorbs more energy. Infrastructure enterprises are also service providing enterprises.

Taxes for services of economic infrastructure are the costs of every enterprise. Total costs are estimated using formula:

$$TC = VC + FC$$

TC – total costs;

VC – variable costs;

FC – fixed costs.

Costs for infrastructure services can be fixed (tax for accommodation heating) and variable costs (tax for expenditure of equipment), so they form a part of enterprises variable costs and a part of fixed costs.

$$VC = VC' + VCI$$

$$FC = FC' + FCI$$

- VCI – variable infrastructure costs
- FCI – fixed infrastructure costs
- VC' – variable enterprise activity costs, excluding variable infrastructure costs.
- FC' – fixed enterprise activity costs, excluding fixed infrastructure costs.

Total infrastructure costs TCI can be estimated as:

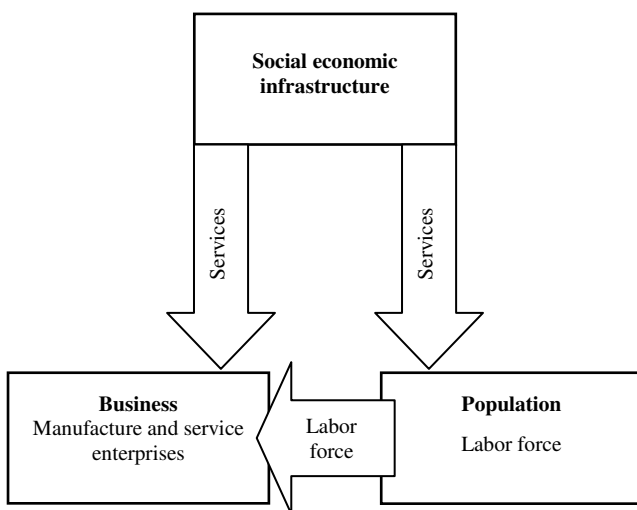
$$TCI = VCI + FCI,$$

Total infrastructure cost always are lesser than common costs  $TC > TCI$ .

Total enterprise costs can be estimated so:

$$TC = FC' + VC' + TCI$$

Social and economic infrastructure can be studied separately, defining their interconnections. If a man by economic view is treated as a labor force (factor of production), it is obvious that seeking to work it up qualitatively, proper social infrastructure is needed. Studying labor force adequate professional – qualified preparation is needed, that means that education system is important and it is a part of social infrastructure. A man, who has required education, performs one of the most important conditions to become a full-fledged participant in economics. Then he can offer his services to different economic subjects: to enterprises of manufacturing or services, to state or municipality institutions etc. He can also become a labor force in the sector of social and economic infrastructure. It depends on the social infrastructure if labor force, that is needed by economic infrastructure and the whole economy is educated qualitatively, because no enterprise can work without labor force.



**Figure 2.** Link between social economic infrastructure, business and population

In 2000 expenses for the infrastructure services in the household expenses composed 33.5 per cent (expenses for accommodation, water, electricity, gas and other fuel make 13.5 per cent). It shows that a great part of the household expenses go for infrastructure services.

Table 1

**Household consumption expenses for infrastructure services**  
(percentage value from all household consumption expenses)

Year	Accommodation, water, electricity, gas, other fuel	Public health	Transport	Communications	Recreation and culture	Education	Total
2000	13.5	4.4	7.6	3.6	3.8	0.6	33.5
2001	13.4	4.6	7.4	4.5	4.0	0.7	34.6
2002	14.0	4.8	6.9	5.2	4.3	0.6	35.8

Supply of electricity, gas and water (economic infrastructure) composed 3803016 thousand litas and 14.88 per cent of the gross industrial production in 2000, accordingly 4126029 thousand litas and 14.88 per cent 2001. In 2000 electricity generation and supply composed 56.2 per cent (56.5 per cent in the year 2001), accordingly 12.9 per cent (10.3 per cent) gas production and supply, 26.3 per cent (29.2 per cent) steam and hot water supply, 4.6 per cent (4.0 per cent) water collection, cleaning and distribution. Hence we see that infrastructure services compose a great part of the gross industrial production.

Table 2

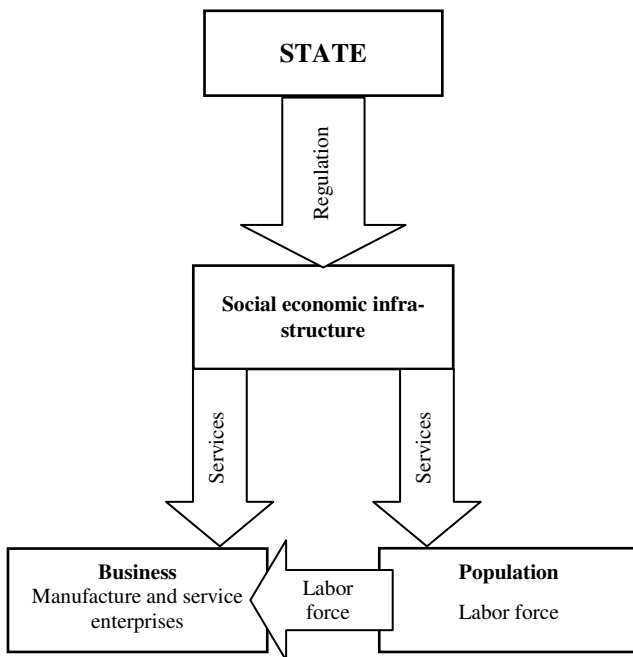
**Surplus value of infrastructure branches**  
(percent from total surplus value)

Year	Supply of electricity, water and gas	Transport, storage and remote communications	Education	Public health and social security	Other municipal, social, personal service activity	Total
2000	3.8	12.5	6.5	3.6	3.2	29.6
2001	4.2	12.6	6.4	3.4	3.3	29.9
2002	4.2	13.6	6.1	3.4	3.3	30.6

Surplus, created by the infrastructure branches composes one third of the states surplus and from 2000 to 2002 has increased by one per cent. Transport, storage and remote communications (12-13 per cent), creates greatest part of infrastructure surplus, second is education (6-6.5 per cent).

When the importance of the social economic infrastructure for the state economy is evaluated, it is obvious, that indefectible functioning of these branches should be assured and the first economic assumption of the regulatory algorithm of the social economic infrastructure can be formulated:

Social economic infrastructure establishes assumptions for the rational functioning of economy, therefore its activities should be secured by productive regulation.



**Figure 3.** Link between social economic infrastructure, business and population, evaluating regulation

### Government guarantees for infrastructure branches

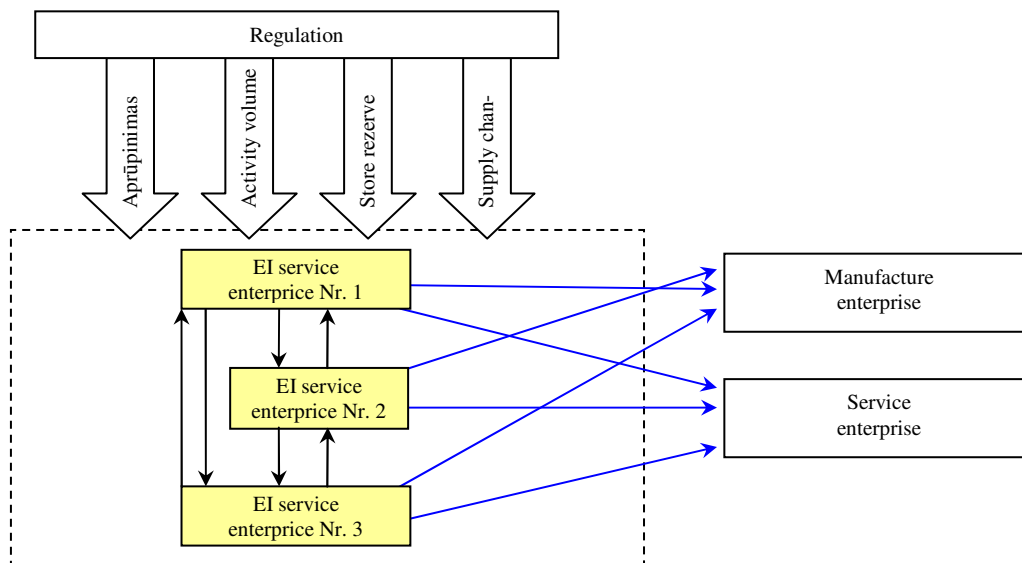
Most of the infrastructure enterprises are natural monopolies. Natural monopoly is such an industry branch in the economy, where fixed costs are so high that it is not profitable for the second enterprise to enter the market and to compete. The peculiarity of this activity is comparatively low annual return, comparing with high partition of own capital in gross expenses. Mentioned circumstances make these branches unattractive for private business. Under crisis stock capital of this branch because of its large amount can not be transferred to more profitable branches. It is also impossible to decrease it when economic activity in the country is falling down and remarkable decrease in price is totally

unfavorable. The infrastructure features do not allow infrastructure branches to successfully develop in the competitive market all the time, therefore centralized state regulation is needed. Even if energy or gas production is in private hands its distribution process, according to the fixed tariffs, should be submitted to government regulation. Government regulation seeks to fix prices close to marginal costs to encourage the monopolist to increase production to the level that enterprise could reach acting under perfect competition conditions.

Enterprises providing economic infrastructure (EI) services have to organize their activities effectively seeking to provide qualitative services. Some of these enterprises are natural monopolies; some of them are regulated by government in such a way that they unnaturally are made monopolies, etc. In any case the activity of infrastructure enterprise should be well organized:

- supply of needed materials and facilities should be assured;
- optimal activity scope should be estimated;
- optimal resource reserve should be evaluated;
- service distribution channels should be assured (nets, pipelines, etc.).

Secured activity of the economic infrastructure enterprises guarantees qualitative supply of its services for manufacturing and service enterprises, including other economic infrastructure enterprises. Government regulation is especially important for infrastructure enterprises that use natural resources for their activity which are not sourced in the domestic country. In Lithuania an example is gas supply. Well developed infrastructure and consumption level is characteristic to Lithuanian energy sector. Dependence on one supply source from Russia (excluding oil and its products) does not create proper conditions for well-balanced development. There are no physical connections with alternative energy sources, such as electricity and gas supply nets of EU. When gas supply is disturbed, the whole state economy sustains losses. To avoid mentioned disturbances supply contracts and guarantees should be assured on the state level.



**Figure 4.** Scheme assuring effective economic infrastructure services

When the particularities of natural monopolies activities are traversed and when activities of infrastructure enterprises depending on foreign suppliers are assessed, the second economic assumption of the regulatory algorithm of the social economic infrastructure can be formulated:

Not all infrastructure branches can operate in the free market system without the guarantees of the state.

### **Implementation of government reforms for infrastructure, trying to reach better efficiency of the state economy**

In the last decade the change in government role for infrastructure provision was noticed. It was also noticed in the market economy countries, that government drifts away from the role of infrastructure owner and administrator and pays more attention to the new regulator role which regulates services that are provided by private sectors.

Technological progress allowed to separate enterprises, formed conditions for incoming of private capital and for competition in most of infrastructure services earlier held as natural monopolies. Wireless technologies in the telecommunications, such as satellites and microwave systems replaced long way cable systems. Transferable systems in telecommunications are alternatives for local distribution network. Such technological progresses determined most of the restructuring decisions, and even between private companies in industrial countries.

The provision of infrastructure services by state owned enterprises, the public sectors subsidization and management often was inefficient. Low productivity of the labor and capital, weak inducement of the structures, remised supervision, lack of economic and institutional connections between demand and supply, budget limitations, absence of financial risk management and financial management intermixture with macro economic management, characterized inefficient provision of the services by state owned enterprises.

Privatization of the infrastructure enterprises is not negative phenomenon itself, but while implementing it the assurance of state regulation for enterprises is needed to avoid licence. Promoting privatization of the infrastructure enterprises, the government tries to decrease budget deficit, originate possibilities to eliminate monopoly and create competitive conditions. Then not so much attention for infrastructure regulation is needed, regulation costs for monopolies can be decreased. The present private investment flow for infrastructure has several reasons. Most important reasons are: inefficiency of the service provision by state owned enterprises, necessity for economic pricing and cost reimbursement, technological progress that enables better private capital participation, progress of regulation system, necessity for private resources and lack of capital investment faced by developing countries.

Foreign investment for privatizations should not be held formidable. Privatization properly balanced with mobilization of domestic funds has several advantages. As infrastructure resources usually are expensive and

domestic capital market can be too weak to mobilize sufficient funds, the foreign capital can help to start privatization process. Moreover, foreign enterprises that are interested to acquire real stocks usually are corporate enterprises that are interested in infrastructure financial management in more developed countries. Verily privatization programs can necessitate the main investors to be "strategic" investors.

In 1987 the biggest state enterprise – state railway was privatized and divided into 7 joint stock companies in Japan. The stocks of government in these enterprises decreased by 56 percents during 12 years. 10 years after privatization the quality of railways services improved, equipments were innovated and the schedule of railways became trusty, also the activity of enterprises became effective and profitable. Japans Public Telegraph and Telephone Corporation was privatized in 1985. The privatization of the corporation and the deregulation necessitated decrease in phone call prices. Summarizing the results of privatized enterprises in Japan, it is necessary to accent that they were useful for the state by two aspects: the government got revenue and also the budget was supplemented by taxes, because privatized enterprises began to work profitably. In 1979 in Great Britain in eight per cent of working staff worked in state owned enterprises that produced 10 percent of goods produced in country, their capital composed 16 percent of gross capital. In 1992 years the values were accordingly 3, 3 ir 5 per cent. Privatization revenue in Great Britain 1984 – 1994 year composed 1-2 percent of the gross domestic product. Privatization and deregulation programs were implemented in the United Kingdom in 1979-1997, under the guidance of conservatives. The sectors as telecommunication and energy, also water were either privatized or deregulated. Typical example is electricity. British public electricity monopoly was apportioned to three regions and privatized. Therefore the customers paid the least electric tariffs in Europe.

Table 3

#### **The expenses of the state budget for infrastructure branches in 1999-2003 (thousand litas)**

The expenses of the state budget for infrastructure branches	1999	2000	2001	2002	2003
<b>Total</b>	<b>2234384</b>	<b>2329607</b>	<b>2601268</b>	<b>3699932</b>	<b>4139722</b>
National defense	494154	611017	698071	844838	942201
Education	883665	832263	1027956	1164463	1223857
Public health	544363	594649	579334	607075	688996
Recreation, culture	231093	230880	235223	263551	291994
Supply of fuel, energy services	6075	5705	5997	6880	8176
Transport and communications	73035	53093	52686	811123	982495
The state budget expenses that falls to infrastructure branches (percentage value)	37.59	35.65	37.16	36.89	43.01

The expenses of Lithuanian republic government budget for some infrastructure branches increases. The government should be interested in decreasing expenses of the budget, by promotion rational activity of infrastructure branches that requires less assignment from the state budget. Definitely not all infrastructure branches can function without government subsidies. These are social infrastructure branches: social security, education and others. Government expenses for national defense increases every year. Whereas military actions in these days are handed rarely, but the defense forces have to be kept in military preparedness constantly, thus the government has to take burden of the military defense financing. All states try to decrease above mentioned expenses. In this aspect it is significant to develop conventional infrastructure – objects that can be used implementing usual and military activity.

Evaluating infrastructure restructuring possibilities, the government can find restructuring ways inducing more effective activity of infrastructure enterprises and also decreasing deregulation expenses. The government trying to control natural monopoly can choose different strategies. It can tax excess profit, it can give licenses or privileges for managing natural monopolies or it can control prices. The government has to choose regulation methods or system that gives opportunity to reach objectives cost-effectively.

Trying to sift if regulation system is good, acceptable, and if reform is needed, the evaluation should be performed.

Evaluating the effectiveness of particular regulation regime expenses, the gain benefit and other economic estimation methods can be used. In many countries searching for effective infrastructure regulating methods such actions were taken:

- a) the study of regulation influence is prepared, evaluating costs and benefit as well as performing risk analysis;
- b) resituating alternative regulation ways by which the regulation objectives can be reached in decreased costs;
- c) costs and benefit is evaluated in terms of money, and the benefit is not evaluated quantifiably;
- d) the positive benefit of the offer is shown;
- e) “Estimation of the regulation following costs” is prepared, it shows business costs, which they have to pay according to the reform.

Not suitable regulation causes great costs for the government administrating regulation, for the enterprises – being controlled by regulation and for the whole economy. Government, implementing infrastructure reforms can seek for greater economic efficiency.

## Conclusion

Most of the infrastructure enterprises, because of their specific activity, historically were state owned enterprises. The enterprises state regulation got meaning when the privatization processes began. The disproportions of monopoly and competitive market forces, the contradictions in economic and social districts can be decreased by state regulation.

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When the importance of the social economic structure for the state economy and when regulation level for effective economy activity is defined, the regulatory algorithm of the social economic infrastructure can be defined. *Regulatory algorithm of the social economic infrastructure can be defined as a sequence of succession economic processes and the sequence of the state handed activities that necessitates determination of regulation SEI method (degree).*

After the evaluation of the social economic infrastructure the importance for the state economy, it is obvious that perfect functioning of this sector is needed. The assumptions of the regulatory algorithms of the social economic infrastructure are determined in the following way:

- 1) social economic infrastructure establishes assumptions for the rational functioning of economy, therefore its activities should be secured by productive regulation;
- 2) not all infrastructure sectors can operate without guaranties of the state;
- 3) reforms of the infrastructure, initialized by the government are necessary for better economic efficiency of the state.

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- Akvilė Čibinskienė, Valentinas Navickas
- Socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmo ekonominės prielaidos**
- Santrauka
- Šiaurės pabrėžiamas infrastruktūros šakų teikiamų paslaugų būtinumas šalies ekonomikos plėtrai ir šių paslaugų teikimo užtikrinimas, taikant valstybinį reguliavimą. Infrastruktūros įmonės įvertinus pagal tam tikrus kriterijus, numatydami valstybinio reguliavimo galimybes, galime sudaryti algoritmą, kurį pasitelkus būtų vertinamos infrastruktūros įmonės ir parenkamas joms tinkamiausias valstybinio reguliavimo būdas. Ekonominės infrastruktūros paslaugos būtinos visiems šalyje veikiams ūkio subjektams. Socialinės infrastruktūros paslaugos užtikrina šalies gyventojų gerovę. Daugelis infrastruktūros įmonių yra natūralios monopolijos. Įvertinama įvairias galimybes, valstybė gali vykdyti infrastruktūros šakų reformas ir taip didinti jų veiklos racionalumą.
- Įvadas**
- Socialinės ekonominės infrastruktūros tyrimų pradininkais laikomi R.Jochimsenas (R. Jochimsen), A.Jangsonas (A. Yangson), P. Rozenšteinas-Rodanas (P. Rosenstein-Rodan), A. Hiršmanas (A.Hirschmann). Daugelyje tyrimų bandoma surasti infrastruktūros ir ekonominio augimo ryšį, jį įvertinti. Šią sritį tyrinėjo šie ekonomistai: Gramlichas (Gramlich), Ašaueris (Aschauer), Kaningas (Canning), Fėjus (Fay) ir Perotis (Perotti), Sančesas Roblesas (Sanches-Robles), Baltagis ir Pinojis (Baltagi, Pinnoi), Munel (Munnell), Garsia-Mila ir Makgvairas (Garica-Mila, McGuire), Holtzas-Eakinis (Holtz Eakin).
- Lietuvoje ekonomistai infrastruktūrą pradėjo tyrinėti tik praėjusio amžiaus paskutiniame dešimtmetyje. A. Mačiulis (1995) daktaro disertacijoje nagrinėjo mokesčių už naudojamą Lietuvos transporto infrastruktūrą strategiją, V. Atkočiūnienė (2000) taip pat daktaro disertacijoje vertino Lietuvos kaimo socialinės infrastruktūrą, universitetų informacinę infrastruktūrą nagrinėjo D. Janavičienė (2001) daktaro disertacijoje. Transporto infrastruktūrą gvildena A. Baublys, R. Minalga. V. Jankauskas tyrinėja ekonominių komunalinių įmonių reguliavimą, apžvelgė infrastruktūros šakų pertvarką Lietuvoje.
- Mokslinė problema.** Kad šalies ekonomika plėtotųsi, būtina ją aprūpinti infrastruktūros paslaugomis. Siekdama šalies ekonomikos plėtos, valstybė privalo tinkamai reguliuoti ir užtikrinti racionalią infrastruktūros įmonių veiklą.
- Tyrimo objektas.** Socialinė ekonominė infrastruktūra ir valstybinis jos reguliavimas.
- Tyrimo tikslas.** Išskirti, susisteminti ir ištirti socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmo parengimo ekonominės prielaidas.
- Mokslinis naujumas.** Atlikus tyrimą, pateikta socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmo sąvoka; išskirtos ir susistemintos socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmo parengimo ekonominės prielaidos. Panašūs tyrimai Lietuvoje iki šiol nebuvo atlikti. Praktinė atlikto tyrimo reikšmė ta, jog, remiantis suformuluotomis SEI valstybinio reguliavimo algoritmo parengimo prielaidomis, gali būti išvengiama destruktinių sprendimų realizuojant valstybės ekonomikos plėtos strategiją ir (ar) ištaisyti padarytus netikslumus.
- Tyrimo metodai.** Literatūros bei statistikos duomenų analizė, loginė analizė.
- Socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmo sąvoka**
- Įvertinus socialinės ekonominės infrastruktūros svarbą šalies ekonomikai ir tam tikrą valstybinio reguliavimo lygį, reikalingą efektyviai socialinės ekonominės infrastruktūros veiklai užtikrinti, galima suformuoti socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmą. Algoritmas – tai pagal tam tikras taisykles atliekamų operacijų tiksli seka, sąlygojanti ieškomo rezultato gavimą iš bazinių duomenų. *Socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmą galime apibūdinti taip: tai tam*

*tikru eiliškumu vykstančių ekonominių procesų ir valstybės vykdomų veiksmų seka, sąlygojanti SEI valstybinio reguliavimo metodo (laipsnio) nustatymą.*

Infrastruktūros įmonės įvertinę pagal tam tikrus pasirinktus kriterijus, numatant valstybinio reguliavimo galimybes, galime sudaryti algoritmą, kurį pasitelkus būtų vertinamos infrastruktūros įmonės ir parenkamas joms tinkamiausias valstybinio reguliavimo būdas (nuo maksimalios kontrolės iki visiško dereguliacinio). Norint pagrįsti šio algoritmo sudarymą, reikia suformuluoti juo parengimo ekonomines prielaidas.

#### **Valstybinis socialinės ekonominės infrastruktūros reguliavimas kaip pagrindinis racionalaus šalies ekonomikos funkcionavimo užtikrinimo veiksnys**

Hipotezė apie infrastruktūros reikšmę ekonomikos augimui formuluojama taip: išvystyta infrastruktūra padidina įmonių produkcijos apimtį, ir dėl to sumažėja padidėjusios produkcijos kaštai. Teoriškai nagrinėjant, tai atvejis, kai infrastruktūra arba tiesiogiai kaip nemo-kamai pateiktas gamybos veiksnys įmonės gamybos funkcijoje, arba netiesiogiai daro teigiamą įtaką privačių veiksnių produktyvumui (Aubert, 2000).

#### **Valstybės garantijų teikimas infrastruktūros šakoms**

Daugelis infrastruktūros įmonių yra natūralios monopolijos. Natūralia monopolija vadinama tokia pramonės šaka ekonomikoje, kur fiksuoti kapitalo kaštai tokie aukšti, kad antrai įmonei nepelninga įeiti į rinką ir konkuruoti. Tokios veiklos srities ypatumas – gana žemos metinės pajamos, palyginti su didele dalimi nuosavo kapitalo bendrosiose išlaidose. Dėl šių aplinkybių infrastruktūros šakos tampa nepatrauklios privačiam verslui. Krizių atveju šios šakos pagrindinis kapitalas dėl didelės apimties negali būti perkeltas į pelningesnes šakas. Jo taip pat negalima sumažinti krentant ekonominės veiklos aktyvumui šalyje, o ryškus kainų kritimas yra visiškai nepalankus. Infrastruktūrai priskiriamos savybės neleidžia jos šakoms visada sėkmingai plėtotis konkurencinėje rinkos ekonomikoje, todėl reikalingas ir centralizuotas valstybinis reguliavimas.

#### **Valstybės inicijuojamų infrastruktūros reformų įgyvendinimas siekiant didesnio šalies ekonomikos efektyvumo**

Per pastarąjį dešimtmetį pastebėtas svarbus valstybės vaidmens aprūpinimu infrastruktūra pasikeitimas. Rinkos ūkį vystančiose valstybėse pastebėta, jog valstybė pasitraukia iš infrastruktūros paslaugų savininko bei valdytojo vaidmens ir daugiau dėmesio skiria naujam privačių firmų teikiamų paslaugų regulatoriaus vaidmeniui.

Technologijų pažanga sudarė sąlygas įmonių suskaidymui, privataus kapitalo atėjimui ir konkurencijai daugelyje infrastruktūros paslaugų, kadaise laikytų natūralia monopolija.

#### **Išvados**

Dauguma infrastruktūros įmonių būdavo valstybinės įmonės. Prasidėjus šių įmonių privatizavimo procesams, valstybinis jų veiklos reguliavimas tapo ypač svarbus. Jis būtinas todėl, kad rinkai būdingi defektai, kuriuos sukelia ekonominės priežastys, pavyzdžiui, netobula rinkos struktūra. *Socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmą galime apibūdinti taip: tai tam tikru eiliškumu vykstančių ekonominių procesų ir valstybės vykdomų veiksmų seka, sąlygojanti SEI valstybinio reguliavimo metodo (laipsnio) nustatymą.*

Įvertinus socialinės ekonominės infrastruktūros reikšmę valstybės ekonomikai, akivaizdu, jog reikia užtikrinti šių šakų nepriekaištingą funkcionavimą. Iškeliama šios socialinės ekonominės infrastruktūros valstybinio reguliavimo algoritmo paruošimo ekonominės prielaidos:

1. Socialinė ekonominė infrastruktūra sukuria esmines sąlygas racionaliam šalies ekonomikos funkcionavimui, todėl jos veikla turi būti užtikrinama tinkamu ir produktyviu valstybinio reguliavimu;
2. Ne visos infrastruktūros šakos gali funkcionuoti rinkos ūkio sistemoje be valstybės garantijų;
3. Reikalingas valstybės inicijuojamų infrastruktūros reformų įgyvendinimas siekiant spartesnio šalies ekonomikos augimo.

Raktažodžiai: *infrastruktūra, valstybinis infrastruktūros reguliavimas, valstybinio infrastruktūros reguliavimo algoritmas.*

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