IMPACT OF PRODUCTS AND SERVICES PRICES OF INFRASTRUCTURAL NATURAL MONOPOLIES ON THE FACTORS OF NATIONAL COMPETITIVENESS

Akvile Cibinskiene¹, Valentinas Navickas²

¹ Kaunas University of Technology, Lithuania, akvile.cibinskiene@ktu.lt
² Kaunas University of Technology, Lithuania, valentinas.navickas@ktu.lt

Abstract

Infrastructure resources in the country’s economy – is an important factor of competitiveness and the ability of the society to satisfy its economic and social needs. The Economic theory and international practice shows that infrastructure industries’ activity plays an important role in economic development, competitiveness, creates a background for the survival and development of the country’s economic subjects. Assessment of the country’s competitiveness in the context of infrastructure natural monopoly (INM), price regulation of the goods or services is gaining even wider sense, since these prices have influence to the competitiveness of the country, so the assessment of this impact is relevant. Research on different approaches of competitiveness forms by various authors is made, creating a background for further research of the relationship between INM and country’s competitiveness. In this paper the development of the competitiveness concept and different approaches of various authors is analyzed, the impact of INM goods and services prices to the country’s competitiveness factors is defined.

Keywords: Infrastructure, natural monopoly, competitiveness.

JEL Classification: H410, L12, F20.

Introduction

In the conditions of the today’s globalization, competitiveness is becoming more important aiming to reach country’s economic development or attraction of foreign investments. Production factors might be transferred from one country to the other more easily, that is why the importance of higher evaluation of country’s competitiveness arises.

Infrastructure resources in the country’s economy – is an important factor of competitiveness and the ability of the society to satisfy its economic and social needs. The Economic theory and international practice shows that infrastructure industries’ activity plays an important role in economic development, competitiveness, creates a background for the survival and development of the country’s economic subjects.

Assessment of the country's competitiveness in the context of infrastructure natural monopoly (INM), price regulation of the goods or services is gaining even wider sense, since these prices have influence to the competitiveness of the country, so the assessment of this impact is relevant.

Seeking to ensure country’s economic growth, it’s provision with infrastructure services is necessary. Infrastructure natural monopoly limits the possibilities of country's economic subjects to choose another service provider. By regulating INM prices, usually by increasing according to cost-based methodology and the data provided by monopolists, state can reduce country's competitiveness on domestic and international market as well as reduce consumers' purchasing power, and hence the country's competitiveness. The methodology is needed for assessing, how changes in prices of goods and services, provided by INM, affect country's competitiveness. Higher prices of INM goods or services in the country may reduce foreign investments in the country, manufacture or certain of its phases can be transferred to other countries in which INM services are cheaper.

Seeking to define the interaction between infrastructure natural monopolies (INM) and national competitiveness, it is important to analyze the factors of competitiveness and how they are affected by the prices for infrastructure natural monopolies products and services.

The object of the paper is impact of products and services prices of infrastructural natural monopolies on the factors of national competitiveness.

The aim of the paper is to analyze theoretically the impact of products and services prices of infrastructural natural monopolies on the factors of national competitiveness.

Methods of the study: systemic comparative analysis of scientific economic literature, structural analysis and logical analysis.
The theory on competitiveness is one of the most confused and difficult to summarize fields of research, because of complexity of the concept, numerous varieties of factors, complicated process of competitiveness. Competitiveness researches and comparisons in Lithuania are made by V. Juscius, V. Snieska (2008), A. Saboniene (2009). Regional competitiveness is analyzed by V. Snieska, J. Bruneckiene (2009), Z. Simanaviciene, J. Bruneckiene, I. Simberova (2007), the importance of the competitiveness forming factors is studied by J. Urbonas, I. Maksytiene (2003), D. Bernatonyte, A. Normandiene (2007), J. Ciburiene, G. Zaharieva (2006). A. Cibinskiene (2010) analyzed links between infrastructure of natural monopolies and the country’s competitiveness. Researchers of the authors of this article V. Navickas, A. Malakauskaite (2007), A. Cibinskiene, J. Bruneckiene, A. Guzavicius (2010) showed that while analyzing countries’ competitiveness most of the scientists used the framework of M. E. Porter „National diamond“.

### Products and Services Prices of Infrastructure Natural Monopolies and the Factors of National Competitiveness

Infrastructural resources in the country’s economics are an important factor of its competitiveness and the society’s ability to satisfy its social needs. The establishment of infrastructure itself does not gain profit. Infrastructure performs the function of integration between branches of production, regions and countries. It does not create material goods; it performs the function of provision. The better infrastructure is developed, the faster and easier investments, manpower are attracted, the economic development and quality of life are improved (Komarov, 2000). P. Rosenstein-Rodan (1961) maintains that economic analysis of infrastructure is especially important from the social-economic perspective because the expenses assigned for infrastructural development are not a naturally material product prepared for realization by the way of purchase and sale but economy received by the users of infrastructure.

The studies conducted prove that economists identify characteristics of infrastructure in different ways, however the common feature remains the same – infrastructure must establish favorable conditions for the functioning of both private and public capital (Navickas, Cibinskiene, 2002). It is the essential condition for a further economic development of developing countries. Within economically developed countries infrastructure may be analyzed as a supplementary source of capital accumulation or growth, factor of competitiveness, means of fighting the crisis, etc.

The studies conducted proved the significance of the methodological step – identification of characteristics thus providing possibilities to group branches of infrastructure and distinguish them from the totality of branches of the country’s economy (Navickas, Cibinskiene, 2002). This enables to conduct a systematic distribution of infrastructure, i.e. distinguish its characteristic elements, identify their inter-relationship. Summarizing the above mentioned characteristics of infrastructure, including those also mentioned in the scientific literature, the following characteristics inherent exceptionally to infrastructure can be distinguished:

1. **Indirect effect of branches of infrastructure on the country’s economics**: expenses for the payment goods or services of infrastructure are considered as expenses of economic-commercial activities of economic subjects.
2. **Public form of the infrastructure usage**: the common characteristics of all branches of infrastructure involve its „generality“ and „universality“, i.e. it is related to all branches and spheres of the country’s economy.
3. **Establishment of infrastructure goes ahead of the economic assimilation of the area**: none new business is started in the region unless it is properly accommodated with infrastructure.
4. **Branches of infrastructure usually belong to the state or its activities in one way or another are regulated by the state**.

Existence of different economical subjects, their development and success, i.e. competitiveness depend on impact of particular direct or indirect factors.

J. Reiljan and others (2000) claim that different authors mark different factors of country’s competitiveness according to their study field. These studies are valuable sources of information to settle general selection of competitiveness factors. Anyway the analysis of each particular factor does not show general image of competitiveness. Country’s competitiveness factors are closely related to each other and the positive change of one factor can influence negative change of another.

According to J. Reiljan and others (2000), factors of country’s or region competitiveness or business environment (ability to attract) and export (ability to sell) can be classified as the following:
a. **Main factors defining competitive environment:** country’s (region) openness to world economics, world economics openness to region, political stability of region and its environment, country’s (region) economical geographical locality, “gentle” factors of business environment (living conditions, cultural environment), climate conditions and natural resources, demographical situation and structure of human resources.

b. **Main market economics characteristics and devices (economical policy):** general attitude to foreign investment and market economics, level of government bureaucracy, stability of prices, taxes, subsidies and credits, price setting and regulation (monopoly), property, general governance, foreign economics regulation, trade policy, currency exchange policy.

c. **Competitiveness of business infrastructure factors:** level of wages, relation of wage and productivity, work quality, work motivation and attitude, land, energy and ecological environment, stability of materials and energy supply, existence of territories suitable for business activities, transport and communications, infrastructure of research and technologies.

Listed factors (groups of factors) are sort of independent, because in some cases they can be improved. However they should be analyzed as a complex (J. Reiljan and others, 2000). In this classification of competitiveness factors, products and services prices of infrastructural natural monopolies are included in the main market economics characteristics and devices, and infrastructure - in the competitiveness of business infrastructure factors. In this way, INM prices of goods and services impact country’s or region competitiveness through both of these groups. Here only classification of country’s competitiveness factors is presented, but relations of particular groups of factors are not mentioned, so the classification of factors are not studied in the further research.


**Factor conditions** according to M. E. Porter (1990) are: human resources, physical resources, knowledge resources, capital resources and infrastructure. While studying human resources from competitiveness point, their quality, skills and personnel costs are evaluated. These resources can be divided to many subcategories. Physical resources are country’s land, water, mineral resources, hydroelectric power reserves, piscatorial areas and other. Their quantity, quality, attainability and price are evaluated. Climate conditions, locality of the country and geographical size are also included in these resources. Knowledge resources comprise country’s scientific, technological and market knowledge resources, related with development of goods and services, their production and offering. Universities, state research institutes, private research enterprises, state statistic agencies, business and scientific literature, market research reports and data bases, trade associations and other institutions all are knowledge resources. Knowledge resources can be classified to many different subjects. Capital resources are the amount and price of country’s financial reserves. General country’s capital resources and way, that they are divided, depend on country’s savings ratio and capital market structure. Infrastructure includes type, quality and price, that consumer is paying for it (transport system, communications, post, health care and etc.), of present infrastructure which affects competitiveness. Moreover, provision of accommodation, cultural institutions, which affect quality of living, attraction of the country as working and living place also are treated as infrastructure. Importance of which is highlighted by C. Freeman (2004),

M. E. Porter (1990) marks main and progressive factors in order to emphasize the importance of factor conditions to competitive advantage. Main factors are natural resources, climate, allocation, unqualified and low qualification labor force and capital in debt. Progressive factors are infrastructure of modern communication system and qualified personnel: engineers and scientists. According to M. E. Porter (1990) progressive factors are key factors of competitive advantage. They are essential in order to gain such competitive advantage as differentiated products and patented production technology. They are rare because their development needs huge and often long-lasting investment in human and physical capital. Institutions that create progressive factors (e. g. education programs) need educated human factors and technologies themselves. In this case, infrastructure natural monopoly, according to its function, can be treated as main and as well as progressive factor. Other significant classification of the factors is according to their particularity. General factors can be used in many industries and economic fields. Specialized factors can be
applied just in a few or one industry. INM can be seen as general factor; therefore its goods and services are widely used in various industries as well as households.

The significance of human factor to country’s competitiveness was highlighted by J. Fagerberg and others (2005), R. Martin and others (2003), J. Bagdanavicius (2006), R. Saner (2001). They claimed that the main wealth of any society is people and the last criterion of economic-social progress is a human and fuller satisfaction of his needs.

Studies show that it is essential to seek the quality of factors and increase industry’s competitiveness and state that quality of factors impacts competitiveness. M. E. Porter (1990) propose that in order to create permanent and big competitive advantage, progressive factor conditions must be developed. Basis of international competitiveness are: effectively developed and spread technology, products and production technology companies and how the technology is used. W. Niefer (1990), S. S. Cohen and J. Zysman (1988), P. Dufour and Y. Gingras (1988), R. Calori and R. Noel (1986) claim that permanent investment to science, technology development and spread, and education are the main factors that maintain companies’ competitive advantages. J. Duffey (1988) and D. G. Vice (1987) mark out that future success in international market will be defined by capability to develop, create and put on the market new high quality products and services that will satisfy the consumers by competitive price. This capability in long-term relies on the quality of labor force which in turn relies on residents’ education. The studies of A. Sapienza (1989) show that research and development collaboration with scientific studies is the key criteria to increase efficiency of production factors. H. C. Moon, A. M. Rugman and A. Verbeke (1998) treated scientists and specialists as an indicator of country’s progressive factor conditions in the study of Korea and Singapore global competitiveness, and appreciated their impact to competitiveness. D. D. C. Tam (1998) defined that numerous and qualified labor force can increase country’s competitiveness. Studies show that the quality of factors affects competitiveness positively.

When the wage in the country increases, economical-commercial operations that need lots of labor force are moved to other countries where the labor force is not so expensive. At the same time, it is needed to attract international companies from developed countries that they would invest in the country, and during research and development cooperation acquire modern technologies and improve local factor conditions. Both leaving the country and coming into the country investment is important while assessing country’s factor conditions. X. Liu and H. Song (1997) mark that direct foreign investment is essential resources of spread and sharing the knowledge as well as competitiveness. Different authors support different opinions of balance of direct investment. Substantial direct investment indicates attractiveness of the country. This means that it is worth to invest in that country. On the other hand, orientation of direct investment shows excess of balance of payments, which means that country can allocate its capital abroad (H. Trabold, 1995).

Factor conditions are influenced by three other groups of factors of “National diamond”. Among the firm strategy, structure and rivalry the main impact to factor conditions is made by local rivalry. In order to compete successfully, qualified human resources, technologies, etc. are needed. This need promotes creation of the factors. Related and supporting industries impact factor conditions by creating and renewing factors themselves. Demand conditions influence factor conditions through private investment, designed for creating factors of marketable products and services.

Carried research shows that subjects offering infrastructure goods and services are included in factor conditions. Also their existence, quality and price of their goods or services directly affect country’s competitiveness. Natural monopolies, which prices of goods and services are set by the State, are also among these subjects. INM prices of goods and services impact country’s competitiveness directly through factor conditions which in turn affect three other factor groups of country’s competitiveness.

**Demand conditions.** M. E. Porter (1990) excludes scale of demand and consumers’ sophistication and need. Companies in the country gain competitive advantages if its customers are sophisticated and demanding for goods and services. These customers make companies keep high standards of product quality, features and services. H. E. Edmondson and S. C. Wheelwright (1989) and J. R. D’Cruz and A. M. Rugman (1993) also accept this attitude. According to D. S. Cho and H. C. Moon (2000) higher level of consumers’ education leads to higher demand sophistication.

Size of local demand (amount). Big local market can determine competitive advantages to industries, which have manufacturing economies of scale and education, and can stimulate companies to invest in large scale equipment, technologies development and efficiency increase. Local demand can be seen as more clear and easily predicted, when foreign demand is more doubtful, even if companies think they can satisfy it. The
size of local market for country’s competitiveness is important just in particular industries (or segments), especially in those, that have high requirements for research and development, substantial manufacturing economies of scale, large manufacturing-technological leaps or high level of uncertainty. Size of country’s market is advantage if it promotes investment and re-investment. On the other hand, big local market can offer wide opportunities, so companies may not want to perform foreign trade, that can rebound on dynamism and turn to be loss-making. Other factors, as intensity of local market, explain if large country’s market is advantage or disadvantage.

M. E. Porter (1990) marks these elements that affect demand conditions: number of independent consumers, growth of local demand, early needs of local demand, early market saturation, mobile or local multinational consumers, impact to foreign needs.

Firm strategies, structure and rivalry factor group as well as local competitiveness, which through product and marketing innovations create demand to its products and exercise the sophistication of consumers, also make impact to demand conditions. Active competitiveness inside the country can increase the foreign demand too. Related and supporting industries can strengthen international demand to the production of these industries. Demand internationalization is affected by factor conditions and factor creating mechanisms. Country which has fancy factor creating mechanisms, related with particular industry, will attract foreign students and companies. These students and employees will form foreign demand for country’s goods and services.

INM regulated prices of goods and services do not affect demand conditions (demand scale and consumers sophistication) directly, but can reduce demand through decreased consumer purchasing power. When INM prices for goods and services increase, consumers cannot refuse these goods and services or substitute them, so they are forced to reduce their expenses for other consuming goods and services.

Third group of country’s competitiveness is related and supporting industries in the country (clusters). Probably the most important benefit of existence of local suppliers is innovation and development process. Competitive advantages come from close relationship of world class suppliers and industries. Suppliers help companies to notice new methods and provide opportunities to apply new technologies. Companies quickly get the information, new ideas and innovations of suppliers. They have possibility to impact technical endeavor of suppliers and to try the innovations. Due to this process innovation speed in the country accelerates. To have competitive local supplier is much better than to rely on even much qualified foreign suppliers. The existence of managing and technical personnel in the country and cultural similarities makes free and open information exchange easier. Moreover, presence of related competitive industries in the country prompts the development of new competitive industries. In international scale, successful presence of related industries in the country creates opportunities to exchange information and technical innovations likewise in the local suppliers’ case. Proximity and cultural similarities make it easier. International success of one industry can increase the demand of complement (supplementing each other) goods or services.

Factor conditions and factor creating mechanisms affect the development of related and supporting industries. Specialization of supporting industries and its manufacturing volumes depend on size and growth of local demand. Local rivals can promote formation of more specialized related and supporting industries.

M. E. Porter (1990) stated that related and other supporting industries, as banks and financial services, energy supply, transport and communication are essential for country’s competitiveness growth. X. Liu and H. Song (1997) also proposed that better infrastructure prompts economical growth. J. D. Roessnger and others (1996) summarized that social-economical and technical infrastructures are two most important factors of country’s competitiveness. G. S. Wang (1996) strongly declared that infrastructure helps to strengthen competitive advantages.

It is important that infrastructure is included in factor conditions, but it is also called supporting industry. This shows the significance of infrastructure for country’s competitiveness.

Firm strategy, structure and rivalry. Firms’ goals, strategies and activity organization are different in different countries. Scale of local competitiveness plays an important role in the process of innovations and modern perspectives and in achieving competitiveness.

According to M. E. Porter (1990) huge differences between countries exist in their companies’ goals and motivation of employees and employers. Countries’ industries perform successfully when their goals and motivation are related with resources of competitive advantages. In many industries element of gaining long-term (permanent) advantage is long-term (permanent) investment. Firms’ goals depend on property structure,
owners and shareholders motivation, nature of general board. Industries function successfully when the goals of owners and managers match the needs of the industry. Influence of capital market varies due to the different need of the capital. Motivation of persons who manage and work in the company may strengthen or weaken the success of particular industry. Quality of human resources in particular industry, personal motivation and even shareholders are affected by prestige or national priority. When industry becomes a known business (occupation) or acquires national importance, often it stands as competitive advantage. Significance of long-term obligations. Aims of companies and individuals reflect in capital and human resources obligations to industry, company and occupation. Local rivalry. Local rivalry as any other rivalry motivates firms to improve and apply innovations. Local competitors promote each other to reduce the costs, improve quality and services, and create new products and processes. Due to the fact that firms cannot keep advantages for long period of time, active pressure of local competitors induces innovations. Local rivalry not only creates advantages but also helps to bypass some difficulties. Together with local competitors, according to particular competitive strategies, obstructions for government intervention which suppress innovations and rivalry are made. Establishment of new business. Establishment of new companies is also very significant in strengthening competitive advantages because it promotes innovations in industries.

INM regulated prices of goods and services can impact firm strategy, structure and rivalry through manufacturing factors and input. Studies show that the role of the government is widely discussed in evaluating country’s competitiveness. It is seen as an important, even the most important factor of modern international competitiveness. On the other hand, M. E. Porter (1990) states that it is not right and even not useful to take the government as the fifth factor, because then the role of the government can be wrong understood. Decisions of the government can influence all four factor groups of “National diamond”. This in its turn can affect particular factor groups positively or negatively. Factor groups can also make influence to the government. Of course the actions of the government are significant to country’s competitiveness. Government subsidies, education and finance market are related with production factors in local and in international markets. On the other hand, regulation of manufacturing standards affects production demand, and regulation of financial policy, taxes and antitrust legislations affect circumstances of companies’ competitiveness.

Conclusions

It is stated that prices of goods and services of infrastructure natural monopolies affect factors of country’s competitiveness because there are no close substitutes and needs for basic necessities must be satisfied. Infrastructure includes type, quality and price, that consumer is paying for it (transport system, communications, post, health care and etc.), of present infrastructure which affects competitiveness. Moreover, provision of accommodation, cultural institutions, which affect quality of living, attraction of the country as working and living place also are treated as infrastructure. INM can be seen as general factor; therefore its goods and services are widely used in various industries as well as households. Natural monopolies, which prices of goods and services are set by the State, are also among these subjects. INM prices of goods and services impact country’s competitiveness directly through factor conditions which in turn affect three other factor groups of country’s competitiveness. INM regulated prices of goods and services do not affect demand conditions (demand scale and consumers sophistication) directly, but can reduce demand through decreased consumer purchasing power. When INM prices for goods and services increase, consumers cannot refuse these goods and services or substitute them, so they are forced to reduce their expenses for other consuming goods and services. It is important that infrastructure is included in factor conditions, but it is also called supporting industry. This shows the significance of infrastructure for country’s competitiveness. INM regulated prices of goods and services can impact firm strategy, structure and rivalry through manufacturing factors and input. Infrastructure natural monopolies can be marked as separate factor of country’s competitiveness.

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