

A Vision of the Policy Concerning the Financing and Management of Physical Infrastructure in Network Industries in Slovenia

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ABSTRACT

There are many reasons why Slovenia needs to change its management of network industry infrastructure and question the legacy we wish to pass onto the next generation. However, these issues are not at the forefront of the public debate despite being as relevant today as the pension reform, if not even more. Until now, no government in Slovenia has adopted a systemic approach to infrastructure-related issues; instead, they have let partial interests prevail. This paper and the vision of infrastructure management present a synthesis of the current state of profession and past experiences in infrastructure management and financing acquired by the most developed countries, as well as practical experiences concerning the regulation, financing, and management of network industry infrastructure. The practical experience and empirical findings call for a consistent use of the RAB principles and for the restructuring of certain and partial privatization of all network industries. Foreign experience tells us that if the changes are correctly implemented, the current state of infrastructure can be significantly improved and could lead to a considerable decrease in real infrastructure costs and/or an increase in the availability of funds for infrastructure renovation or expansion. In the future, EU regulations might also expand and raise their requirements to meet the state of the art, but Slovenia need not wait for the EU. The introduction of such a policy would also mean a quantum leap in terms of the competitiveness of Slovenia's economy and bring the country closer to the world's most developed economies.

Key words: network industries, economic regulation, ownership, privatization, efficiency, infrastructure financing, intergenerational equality, utilities

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1 Introduction

Debates concerning the investment needs and financing of new or existing infrastructure in transport, energy, and other infrastructure subsystems have been present in the world for some time. On the basis of own research and analyses of international institutions the McKinsey Global Institute (Dobbs et al., 2013) estimated that USD 57 trillion in infrastructure investment will be needed by the year 2030. The EU's investment needs for the same period were estimated at EUR 1.5 trillion just for the subsystem of transport infrastructure. Such estimates, although carried out with due care, can only be illustrative, as most countries do not possess the appropriate data framework that would enable a more informative assessment of investment needs into existing, as well as new infrastructure. They do, however, provide indications regarding the size of the gap. According to Slovenia's Resolution on National Development Projects for the Period 2007–2023, EUR 8.9 billion would need to be invested into the modernization of the railway network; the investment needed for the modernization of the national power grid, supply and other aspects of the energy sector would be around EUR 24.99 billion in the period 2010–2030, according to the data provided by the National Energy Programme (IJS, 2011); certain other estimates which are not included in the present paper were also given for other infrastructure subsystems. The scope and content of investment needs in these areas in Slovenia were and still are a subject of discussion. However, on the other hand it is clear that Slovenia currently has no solid, publicly adopted, and comprehensive strategy for the financing, and management of its infrastructure.

This paper does not deal in detail with each of the previously stated issues at the level of Slovenia, but rather attempts to outline a transparent vision of the financing, and management of infrastructure, while taking into account the state of the art and best practice of the most developed countries.

In this paper "(physical) infrastructure" refers mainly to network industries, which are subject to severe market imperfections and result from certain characteristics which normally allow these to be classified as natural monopolies.

Primarily, examples would include:

- distribution of electrical power (not its marketing/sales),
- distribution and supply/pumping of water; and sewage and treatment of waste water;
- distribution of gas (not sales);
- railway infrastructure (services/availability of railway infrastructure and not transport services);
- road infrastructure;
- segments of telecommunications networks;

- port infrastructure;
- reserved postal services;
- other systems with similar features (e.g. multiplex capacity for radio and television, production of electrical power in Slovenia) which meet the criteria for natural monopolies, but are exposed to competition to a limited extent.

It should be noted that an industry does not need to comply with all the theoretical presumptions to be termed “a natural monopoly”; what is crucial, is the justification of the argument that competition is limited to an extent that makes state intervention necessary in the form of economic regulation, which tries to mimic competition.

The manner how countries managed their infrastructure in the past has been changing, mainly due to a better understanding of the importance of incentives in economic regulation of infrastructure managers, and as a result of the evolution of infrastructure financing and procurement mechanisms.

By changing their approach, countries were looking to address several issues:

- There is an absence of suitable performance incentives for (natural) monopolies caused by an absence or lack of competition.
- Governments (and, in the past, also regulators) are known to be myopic and focused on cutting costs of infrastructure services to a level that only allows the recovery of current operating costs without any depreciation costs (full cost recovery is impossible). If the infrastructure managers are state-owned companies, they operate as long they can pay salaries to their workers, while the state of infrastructure continues to deteriorate. Optimization of infrastructure running costs is not possible. This creates additional costs and introduces generation-based discrimination because deferred costs of replacement or maintenance investment are now transferred to the next generation of taxpayers or users. Such a set up makes private capital investments impossible.
- Managers of publicly-owned infrastructure find it difficult to withstand pressure from the owners to cut the costs of infrastructure investment without considering the effects of such savings on subsequent operating and maintenance costs of the infrastructure concerned (Parker & Hartley, 2003).
- The mechanisms of traditional infrastructure procurement have often proven inferior to contemporary procurement methods, in particular in capital-intensive infrastructure (road, rail, and other types of infrastructure), and in terms of cost overruns and schedule delays.
- Adverse political interests (e.g. the need for publicity, clientelism) often lead to supply of the wrong infrastructure, a type of overinvestment that also leaves the future burden of operation and maintenance of this infrastructure.

The rest of this paper gives a brief presentation of the solutions, which have been widely used in addressing infrastructure system management and infrastructure procurement issues.

2 Economic Regulation in Network Industries

In economic theory the behavior of a monopoly is well understood. In the absence of competition, the operation of such a company prevents the maximization of social welfare and achievement of other economic policy objectives. A text book reading on the treatment of monopoly are the papers of Laffont and Tirole (1993), published in the 1980s and 1990s. Today, it is generally believed that such cases require incentive regulation, performed by a designated institution or an independent regulator. The regulator can be set up as either a transitional regime to facilitate the evolution of competition, or a permanent regime when the introduction of competition is not viable or feasible. Especially in the latter case, the regulator mimics the competition through incentives to achieve the following goals (Joskow, 2006):

- efficient pricing of products and services (prices near actual costs);
- efficient production (at the lowest possible costs);
- efficient supply of services and investments (to ensure the volume or quantity of products/services to satisfy the demand and to execute investments in a timely and effective manner);
- suitable level of quality and diversity of products/services;
- potential income redistribution;
- providing the monopoly with a rate of return that encourages it to perform, but no more than that.

With an aim to achieve these objectives, regulators use various instruments which include: control over the monopoly's prices; demands upon the monopoly to introduce a special regulatory accounting convention that will enable accurate determination of cost prices of the monopoly's services; benchmark analyses of the monopoly's efficiency against other comparable firms (also abroad), etc.

In practice, regulators face a number of challenges in their efforts to meet these goals. One of the most important challenges is the asymmetry of information between the regulator and the firms it regulates. Even though the regulator has at its disposal a range of mechanisms to control and monitor the monopoly's business, it cannot be 100 % informed about its operations (e.g. is the monopolist as efficient as he could be, given the available technologies). The monopoly may use this deviation to its advantage, for example by persuading the regulator that higher service prices are crucial to its economic sustainability.

Among the most extensively used and effective regulatory systems in large network industries in the developed countries is incentive based regulation. In this approach two concepts are crucial, the RAB (RAB – Regulatory Asset Base), and incentive mechanism, most commonly known as the RPI-X model. In such a system the infrastructure manager is issued a license, specifying its rights and obligations. It can also be called a “regulatory contract.” The two principles, the RAB and RPI-X, will be briefly presented in the rest of this paper, followed by the question of ownership in infrastructure management

2.1 RAB

The first principle is a baseline, which refers to all assets employed by the infrastructure manager in the supply of regulated services (e.g. in a power utility, the RAB includes all assets, used by the utility in the provision of its services). The regulator determines the RAB by trying to assess the appropriate asset value (not necessarily the book value of assets). It must also ensure that the RAB is maintained (depreciation) and expanded (new CAPEX) if new capacity demands so require. The capital expenditures increase the value of RAB.

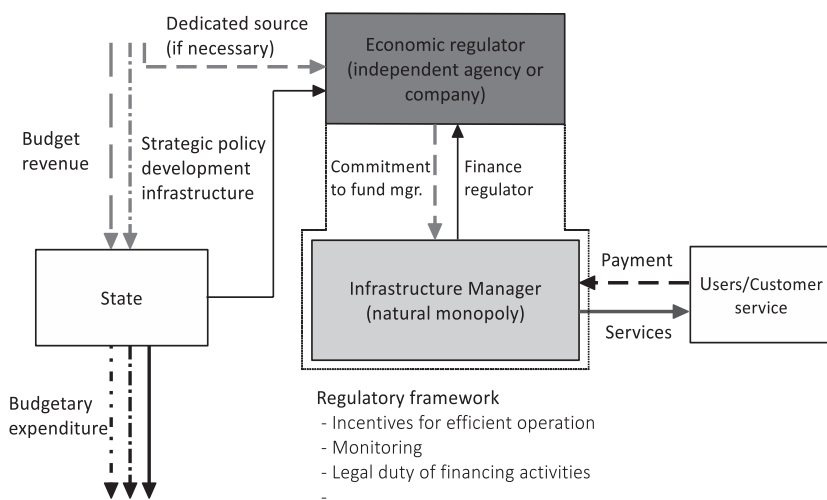
In addition to assessing the RAB value and necessary expenditures to maintain or expand the RAB, the regulator must also determine the manager's operating costs and, finally, the financing cost (the cost of equity and debt), which also include an appropriate return on the RAB. Through this process, the manager arrives at a predictable cash flow, against which it can borrow. The described process is known in the scientific community as the RAB financing model.

A key feature of the RAB model is that it provides a guarantee to the manager (and to potential investors, if it were privatized) that it is not at risk of (hidden or gradual) expropriation. This guarantee normally comes from the legislation, which imposes upon the regulators a duty to ensure that the monopoly generates sufficient revenue to finance its functions. The generated revenue should enable the monopoly to secure a return on its initial investment into the existing RAB, allow investment into new infrastructure (investment expenses or capital expenditures that increase the RAB), depreciation (investments to preserve the value of the RAB), operating costs (OPEX, or operating expenditures), and an appropriate reward or return, provided it performs its function efficiently.

Figure 1 presents the position of the regulator. When the infrastructure manager can finance its functions entirely through the sale of its services (infrastructure access and related services), other sources of financing are not needed. Such utilities include road network inframangers or power distribution system inframangers. In other cases, however, RAB financing is not (yet) possible for a variety of reasons. For example, high investment needed for the build-up of the railway infrastructure prevents the infrastructure manager to fully finance its operations from the sale of services

(railway infrastructure usage fees payable by transport companies), although these are socially or economically justified. A direct state contribution is needed, but it should not depend on the current political will and budgetary planning, as this can cause numerous detrimental effects such as the inability to plan and optimize infrastructure maintenance and management (the time inconsistency problem).

Figure 1: RAB financing model



Source: Authors

When the utility cannot finance its operations solely from the sale of its services, the regulator, legally obliged under the RAB to finance the operations of the utility, shall set up a dedicated direct financing scheme. These funds are ring-fenced and therefore safe from discretionary interventions from the government. The government participates in the management of state-owned utilities (appoints the supervisory and management boards) and formulates their strategic policies (e.g. a national transport policy for the transport sector).

The regulator strives for maximum independence from the government and its political influences (although complete independence is not practically achievable). It is financed through a license issued to the monopoly or through a regulatory contract between the regulator and the utility (and paid by the utility). Several recommendations concerning regulator independence have been made by international organizations such as OECD and others, but they are outside the scope of this paper.

The RAB model per se is a collection of principles to preserve the financial and functional value of (physical) assets through time and prevent time-related reallocation of burdens arising from the preservation of the value and functionality of these assets. Therefore, the RAB is an essential component of intergenerational equity in any area financed by taxpayers (e.g. healthcare – buildings and equipment of hospitals and other health centres).

To conclude, the RAB financing model can in principle be combined with project financing structures to provide the regulator with greater control over the effective implementation of large infrastructure projects and ensure more favourable outturns. The following section gives a brief description of such a hybrid model.

2.2 RPI-X

The RAB defines the basis to determine the baseline prices of utility services, but by itself it does not provide any incentives for the regulated company to become more efficient. The efficiency incentive comes from the adjustments of the baseline price. One of the currently most popular models in this context is the RPI-X or the price-cap model, which was developed in the 1980s (Littlechild, 1983). The abbreviation, RPI stands for the consumer price index (or retail price index in the UK), and X denotes the expected efficiency savings.

In line with this principle, the regulator allows the monopoly to adjust its prices in accordance with the growth rate of the selected price level (the rate of inflation or another suitable price index), but reduces this growth rate by the X-factor of inefficiency. The regulator determines the X-factor on the basis of benchmark analyses with identical or similar firms in the country, or with similar firms abroad. The approach is also known as “yardstick competition”, which was formalized by Schleifer and Vishny (1985). A simple illustration is provided in the following example. Let’s assume that the retail price index shows an annual price growth of 2 %, and that the benchmark analysis has shown that the monopoly is 20 % less efficient than the most efficient companies in the industry. Since firms are unable to adapt instantaneously, the regulator decides that the monopoly shall increase its efficiency by 10 % over the next five years (i.e. by 2 % a year). As a result, the monopoly may adjust its prices by 0 % per year (RPI is + 2 % per year, and the inefficiency factor is also 2 %), which means that the prices are lagging behind retail prices in real terms.

The RAB and the RPI-X described briefly above are two concepts which showcase a big part of the function of economic regulation in a network industry. In the next chapter, we summarize what economic theory has to say about ownership in network industries.

2.3 The Importance of Utility Ownership

For many decades economic theory assumed that in a market where competition is viable and active, privately owned firms are more efficient than those publicly owned. Empirical evidence to support the conclusion was only provided at the beginning of this millennium when Megginson and Netter (2001) published a paper confirming this theoretical expectation.

In countries where institutions could be classified as insufficiently strong (Guasch, 2004, for example, gives an overview of South America's experiences) privatization of network industries did not always yield the expected results. On the other hand, extensive research conducted in other countries points out the positive effects of regulation and changes in utility ownership structure. Estache and Rossi (2010) explored a representative sample of 220 electric utilities from 51 development and transition countries in period 1985–2005 to show that establishment of a regulatory agency was essential in the increase of efficiency and that the privatized firms were more efficient than regulated, state-owned enterprises. An even more extensive study, conducted by the World Bank (Gassner et al., 2009) used a dataset of 1,200 utilities (water distribution, waste water collection and treatment, electricity distribution) in 71 development and transition economies in Central and Eastern Europe. The sample included 301 utilities with private sector participation (PSP) and 926 state-owned enterprises. Table 1 illustrates several findings of the study.

Table 1: Improvements made by PSP firms compared to state-owned enterprises over a period of no less than five years

Criterion	Improvement
Number of residential water connections	+ 12 %
Number of residential water connections per utility worker	+ 54 %
Number of residential electricity connections per utility worker	+ 29 %
Residential sanitation coverage (streets/waste) and sanitation services	+ 19 %
Water sold per utility worker	+ 18 %
Electricity sold per utility worker	+ 32 %
Collection rate	+ 45 %
Electricity lost in distribution	– 11 %

Source: Gassner et al., 2009.

Other interesting observations include an over 20 % reduction in the number of utility employees and an increase in operational efficiency. The study found no considerable difference in the scope of investment undertaken by state-owned and privately-held enterprises.

Among the developed European countries, Great Britain has had the most experience with regulating and privatizing natural monopolies. The country privatized almost all large network industries, predominantly with the application of the RAB approach. In almost all regulated and privatized industries privatization led to increased efficiency and reduced customer prices (Parker, 2004), securing at the same time adequate returns for the private owner, full cost recovery, and equal or higher quality of services. There are, however, two controversial cases that may argue otherwise: the privatization of water supply enterprises and the privatization of the rail infrastructure manager.

A decrease in employment following privatisation (and after introducing economic regulation) as observed in Gassner et al. in 2009 in developing and transitional countries was also recorded in Great Britain.

Table 2: Decrease in employment in certain Great Britain network industries, as a result of privatization and the change in retail prices

Industry	Number of employees AT privatization/(year)	Number of employees AFTER privatization/(year)	Changes (real ¹) in end user prices (time of study)
Electric power distribution	127,300 (1990/1991)	66,000 (1996/1997)	from – 25 to – 34 % (1990–1999) ²
Telecommunications (British Telecom)	238,000 (1979/1980)	124,700 (1999)	– 48 % (1984–1999) ³
Gas distribution	92,000 (1986)	70,000 (1994)	– 26 % (1986–1997) ⁴

1 The figure is based on the general price level growth, which means that the nominal drop was even greater.

2 Measured in England and Wales.

3 In this case the decrease can also be attributed to technological progress and, indirectly, an increase in competition as a result of privatization.

4 In the original text, "2.6 % per year", which would amount to 26.6 % in 11 years; rounded down.

Source: Parker, 2004.

Some other studies (i.e. Pendleton, 1997) have shown that the increasing efficiency of companies, which was reflected through lower labor costs, was mainly the result of a reduction in the number of (excess) employees and did not include wage cuts.

3 Proposals on the Organization of Infrastructure Management, Financing, and Regulation in Slovenia

In the area of economic regulation in Europe there are basically two approaches. A regulator (agency) may be one that has a number of sectors, each covering a distinct area, or the regulators are separated organizational units (separate agencies) for specific network operations. In Slovenia the organization of these functions is partly a consequence of the requirements

of the EU directives, and partly of the historical reasons and maneuvers of various interest groups.

Among the network activities listed in the introductory chapter, we have a regulator (as an agency), which carries out the functions of the economic regulation of network activity, as envisaged in economic theory and practice, established in the following major areas:

- postal services (regulator APEK, recently renamed to AKOS);
- telecommunications – fixed and mobile network (the regulator APEK);
- distribution of electricity and gas (regulator AGEN RS).

In light of the topics treated so far, we outline several propositions, based on which we can discuss how an efficient organization of infrastructure management and regulation in Slovenia could look like:

- Slovenia is a small country, so the planning and management of infrastructure is also a boutique industry and the number of experts who can dominate this area is correspondingly limited. The small size of the country dictates that economic regulation has to be organized as efficiently as possible. For example, the rail traffic subsystem controller – the Office of the Rail Regulator in the UK – employs around 300 people. A controller in Slovenia would never be able to employ on such a scale, simply because of the cost burden to the regulated company. Nevertheless, in principle the complexity of the Slovene rail system and of the British one, at its core and the economic laws that govern it, cannot be very different.
- For some network industries, due to their nature, because of the losses in the economies of scale or other aspects it will never make sense to have more than one infrastructure manager (the railway infrastructure is one such example).
- When the economies of scale allow more than one infrastructure manager, creating several managers makes sense (how many is a matter of economic analysis), so that the benefits of their mutual competition can be obtained.
- In cases where the infrastructure management is fragmented down to a level that is no longer economically optimal (due to diseconomies of scale), it becomes necessary to create incentives for mergers of companies. One of the most prominent regulators of water distribution and sanitation services in the EU, Portugal's ERSAR, is continuing the reorganization of services related to water (drinking water and sewage) that begun in 1993. The reorganization led to a transformation from total fragmentation at the level of numerous municipalities to mergers at the level of regions.
- When different types of infrastructure are mutually complementary, it is also possible to combine infrastructure management, although funding

remains separate. An example of such an organization is Trafikverket, the central controller of the railway and road infrastructure in Sweden, which is also responsible for coordinated planning of road, rail, air, and maritime infrastructure.

- In other cases, it makes sense to create conditions for the development of competition and it is better to establish several infrastructure managers instead of one. The network industries, in which a transition from a single to multiple infrastructure managers is taking place, are not many and take time. An example would be the transition from one national provider of telecommunication services (which is at the same time also the infrastructure manager) to a competitive market of fixed and mobile communication services. Another similar example could be the liberalization of postal services.

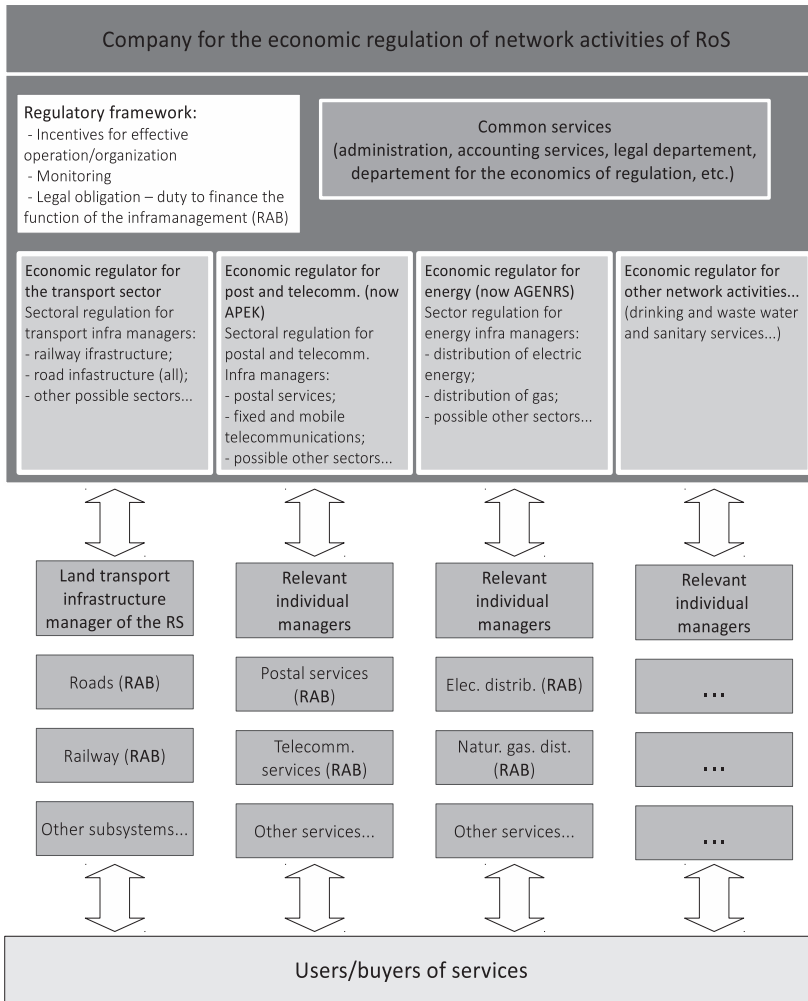
Figure 2 presents how the economic regulation of network industries could be organized in Slovenia to exploit the similarity among different areas through shared services. It is important to point out that within such an organization each sectoral regulator should have its own director, who has his/her own supervisory board (or council, if the form of an agency was chosen). The composition of such a body has to be different for each sector (since in principle each sector concerns the various stakeholders and interest groups). We do not address further details of such an organization here but we assume that it should follow best practice in terms of independence as well as corporate governance.

3.1 Infrastructure Management in Slovenia

As noted before the ownership of the infrastructure manager is not a trivial question. But in any case it is necessary to economically regulate the infrastructure manager, if it does not operate in a competitive market. Transferring the management of a natural monopoly to a private partner, if the monopoly is not economically regulated, is unreasonable in terms of social welfare outcomes. In principle, it is also possible to choose other forms of organization of relations between the state and infrastructure manager, which do not require economic regulation as presented in this paper. These include for example, long-term concession contracts or management contracts.

Thus empirical research clearly points to the benefits of economic regulation, which can be substantially increased through later privatisation, when the development of competition is possible. In those sectors, where it is likely impossible to introduce competition, the answer to the question whether to privatise or not, is less clear. To shed some light on this issue, we review below the studies on the effectiveness of economic regulation of state owned companies in Slovenia.

Figure 2: A vision of management and economic regulation of the network activities in Slovenia



Source: Authors

Hrovatin (2010) cites a number of results from comparative analyses on the effectiveness of Slovenian infrastructure managers, which are predominantly owned by the state (or municipalities):

- Slovenian distributors of drinking water on average reached only 84 % cost-effectiveness in the period 1997–2003, where the least efficient company operated with 67 % efficiency, and the most efficient with 93 %.

- Compared to foreign distributors of natural gas (the Netherlands, the United Kingdom) for the year 2003, the efficiency of Slovenian distribution companies was at 48 %; and Hrovatin and Zoric (2012a) in a recent study concluded that there were no major shifts in cost-efficiency in the period 2007–2011.

A similar comparison, based on data for 2003, was also carried out for electricity distributors:

- In comparison to the British and Dutch distribution companies, the Slovenian companies operator with 58 % cost efficiency; more recent research for this sector (Hrovatin & Zorič, 2012b), which focused on the period 2004–2010, was able to measure a mere 1 % improvement in the OPEX efficiency, which led to the conclusion that the failure to produce a significant efficiency improvement was the result of “lax regulation”.
- Consistent with economic theory, Hrovatin (2010) cites other research, which concludes, that the differences in efficiency between the Slovenian and foreign companies are explained by the small size of firms (inadequate economies of scale) and the lack of proper regulation.

If we summarize the research findings in Slovenia and abroad, the regulation of companies, when they are state-owned, is in principle less effective or ineffective. Such a result is to be expected, since state ownership is inextricably linked to political appointments, stronger pressures of rent-seeking interest groups, and the manipulation of the concept of “national interest”.

These findings suggest, that even in those network industries, where it will not be possible to introduce some form of competition, privatisation should still be considered. In practice, the main reason is the consistent inability of Slovenian politicians to establish the appropriate mechanisms for the accreditation of adequate corporate leadership, and their inability to stop interfering in the daily operations of state owned companies.

To summarise, for those areas where regulation is in place and it is possible to introduce competition at some level, the professional debate about whether to include private capital in the management infrastructure is redundant, since all expectations from theory and empirical studies point to the fact that this is necessary. In those cases where competition cannot be introduced at any level (e.g. management of railway or road infrastructure), the only impulses that mimic the incentives of competition come from the regulator. However, taking into account the overview of experiences in Slovenia (i.e. the efficiency of economic regulators in Slovenia), the regulator is unable to carry out his functions in full if the regulated companies are owned by the state, because the regulator can never be fully independent from the state. Therefore, privatization seems justified even in those cases, where it is economically sensible to have only a single infrastructure manager. Given the global experience, in part summarized in this paper, it is only in this case

that we can expect the necessary antagonism to be generated between the regulator and the regulated firm so that the first one can start to perform its function properly.

The available data suggests that the privatization is the economically sensible ultimate goal. In this context, it is necessary to bear in mind that such a process also leads to a long-term and gradual reduction of excess employment in the infrastructure management companies, which may represent several 10,000 employees. However, it is also important to note, that such a process cannot significantly affect the rate of unemployment in the country because:

- It is a long-term process which would, judging by the experience of other countries, last for several years;
- It largely concerns technical staff (and not administrative staff or public officials, for example), who are more mobile in the economy;
- Such a process reduces the cost burden of the economy in general, increases its competitiveness, and indirectly increases employment in the economy.

Ultimately, however, it is also necessary to realize that even with the introduction of regulatory incentives, all of the challenges associated with the meaning of ownership are not resolved (Helm, 2009). There are a number of economic, policy, and technical issues, where in some cases, solutions were already proposed, while for others it is at least clear that they require special attention. There is no reason why Slovenia should repeat the mistakes of other countries in regulation and/or privatization.

4 Conclusion

The state of infrastructure, its development, and the amount of funds devoted to it is one of the key elements of competitiveness of an economy. A global awareness of the importance of these issues is growing, and reforms that will fundamentally change the approach infrastructure related issues are in preparation.

Slovenia does not have a comprehensive overview of the state of its infrastructure and it does not have an efficient and transparent system for the management of its infrastructure. A similar assessment would apply to infrastructure procurement and a comprehensive national plan for infrastructure.

In this paper we have tried to outline a vision for the financing and management of physical Infrastructure in network industries in Slovenia. This vision establishes a financing model (RAB) and a central organization – the economic regulator – in charge of incentives for the effective management of the infrastructure in various network industries. While this is not necessarily an indispensable part of the proposal, empirical research suggests that

the effects of economic regulation can be further improved through privatisation of infrastructure managers. Only in this case can we expect that an appropriate antagonism will be created between the regulator and the regulated company, which will allow an uninhibited performance of the former.

Through these changes, a process of economic restructuring would come about, which does not reduce the scope or content of the welfare state, but represents merely a transition to a long-term, more sustainability-based economy. Through the increase in the Slovenia's competitiveness, it even allows the expansion of the boundaries of the welfare state.

We may consider the introduction of economic regulation and the RAB model in the extent presented in this paper to be a challenge. It is even a greater challenge to consider privatisation in network industries, knowing well that the perception of the role of private capital by the Slovenian public is very negative. The latter being the result of efforts by a number of interest groups, which benefit from the existing order of things. It is illusory to expect that the public institutions will be set free from their grip by themselves. Thus, the only means in overcoming this challenge is the mobilization and the rising awareness of civil society and the affected parts of the economy (e.g. a coordinated and persistent effort by the main chambers of commerce), which actually bear the burden and the consequences of inefficiency in the management and financing in network industries in Slovenia.

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POVZETEK

1.02 Pregledni znanstveni članek

Vizija politike financiranja in upravljanja fizične infrastrukture v omrežnih dejavnostih v Sloveniji

Ključne besede: omrežne dejavnosti, ekonomska regulacija, lastništvo, učinkovitost, privatizacija, financiranje infrastrukture, medgeneracijska enakost, javne storitve

V svetu že dlje časa potekajo razprave o potrebah in načinih financiranja investicij v novo ali obstoječo infrastrukturo na področju prometa, energetike in drugi infrastrukturnih podsistemov. McKinsey Global Institute (Dobbs et. al, 2013) je na podlagi lastnih analiz in analiz mednarodnih inštitucij ocenil globalno potrebne investicije v infrastrukturo do leta 2030 na okrog 57 trilijonov USD. Samo v podsistemu prometne infrastrukture v EU so bile investicije v enakem obdobju ocenjene na 1,5 trilijonov EUR. Takšne ocene so, čeprav pripravljene z dolžno skrbnostjo, seveda lahko zgolj ilustrativne, saj mnoge države ne razpolagajo z ustreznimi podatkovnimi podlagami, ki bi omogočale čim bolj informativno oceno potreb investicij, ne samo v novo infrastrukturo, ampak tudi v obstoječo. Vendarle pa podajajo vsaj velikostna razmerja. V Sloveniji je Resolucija o nacionalnih razvojnih projektih 2007–2023 svoj čas ocenjevala potrebne investicije v železniško infrastrukturo v obravnavanem obdobju na 8,9 milijard EUR, potrebne investicije v energetske infrastrukturo naj bi se po podatkih Nacionalnega energetskega programa (IJS, 2011) v obdobju 2010–2030 gibale na ravni 24,99 milijonov EUR, nekaj ocen, ki jih v članku ne navajamo, pa je bilo podanih tudi za druge infrastrukturne podsisteme. Tudi ocene potrebnih investicij, ki so bile podane v Sloveniji, so bile predmet različnih polemik v zvezi z obsegom ali vsebino investicij. Načeloma pa je sprejeto dejstvo, da Slovenija danes ne razpolaga z jasno, splošno sprejeto, predvsem pa celovito strategijo, kako namerava svojo infrastrukturo financirati, naročati oziroma izgraditi ali izvajati in upravljati. Dodatni izzivi pa se pojavljajo tudi na drugih področjih, kot je na primer ocenjevanje upravičenosti investicij, kjer v Sloveniji prav tako ne sledimo najnovejšim dognanjem in dobri praksi v tujini.

Pojem »(fizična) infrastruktura« se v tem prispevku pretežno nanaša na kontekst t. i. omrežne dejavnosti. Te so zaradi svojih značilnosti predmet več neučinkovitosti delovanja trga (angl. *market failures*). Te neučinkovitosti so posledica značilnosti omrežnih dejavnosti, ki navadno izpolnjujejo pogoje za uvrstitev v klasifikacijo t. i. naravnih monopolov (npr. distribucija električne energije, distribucija in črpanje vode ter kanalizacija in obdelava odpadnih vod, distribucija plina, železniška infrastruktura, cestna infrastruktura, segmenti telekomunikacijskega omrežja, pristaniška infrastruktura, rezervirane poštne storitve).

Način, na katerega so države v preteklosti v preteklosti obravnavale infrastrukturo, se spreminja, glavni vlogi pri tem pa igra vse boljše razumevanje delovanja spodbud v ekonomski regulaciji upravljavcev infrastrukture ter evolucije mehanizmov financiranja in naročanja infrastrukture, kot so npr. različne oblike projektnega financiranja. S spremembo svojega odnosa so države želele rešiti več problemov, med katerimi so predvsem naslednji:

- (Naravni) monopolist nima ustreznih spodbud za učinkovitost zaradi neobstoja ali premajhne konkurence.
- Vlade (in v preteklosti tudi regulatorji) so nagnjene h kratkovidnosti in težijo k zniževanju stroškov storitev, ki izhajajo iz infrastrukture, na tako raven, da je omogočena samo povrnitev tekočih stroškov iz poslovanja, ne pa tudi stroškov amortizacije (onemogočeno je pokrivanje celotnih stroškov; v svetu pa se je v tem kontekstu uveljavil pojem *full cost recovery*). Ko so upravljavci infrastrukture podjetja v državni lasti, to v praksi pomeni, da ta delujejo, dokler lahko delavci v podjetju dobivajo plače, medtem ko se fizično stanje infrastrukture slabša. Takšen položaj onemogoča optimizacijo življenjskih stroškov infrastrukture in s tem povzroča dodatne stroške, uvaža tudi medgeneracijsko nepravičnost, saj se odloženi stroški nadomestitvenih ali obnovitvenih investicij prenašajo na naslednjo generacijo davkoplačevalcev oziroma uporabnikov, onemogoča pa tudi investiranje zasebnega kapitala.
- Upravljavci infrastrukture v javni lasti se težko ubranijo pritiskom lastnika na zmanjševanje stroškov posameznih investicij v infrastrukturo, ne da bi upoštevali vpliv takšnih prihrankov na kasnejše stroške obratovanja in vzdrževanja te infrastrukture (Parker & Hartley, 2003).

Med danes najbolj razširjene in dodelane sisteme regulacije v najrazvitejših državah spada oblika regulacije s spodbudami. Ta temelji na osnovi, iz katere določimo izhodiščno ceno za storitev monopolista (regulirana vrednost sredstev – RAB), in na mehanizmu, po katerem se ta cena spreminja skozi čas – cenovna kapica (RPI-X model). V takšnem sistemu regulacije je upravljavcu podeljena licenca (dovoljenje za opravljanje dejavnosti), na katero so vezane njegove pravice in obveznosti – imenujemo jo lahko tudi regulatorna pogodba.

Pri prvem principu najprej potrebujemo osnovo, na podlagi katere se bo izračunavala cena (monopolistove) storitve oziroma določal njegov donos (angl. *allowable return*). To osnovo predstavlja regulirana vrednost sredstev (v nadaljevanju RAB – angl. *Regulatory Asset Base*). To so sredstva, s katerimi monopolist izvaja dejavnost, ki je predmet regulacije (npr. pri distributerju električne energije so to vsa sredstva, ki jih potrebuje, da lahko ustrezno opravlja svojo funkcijo). Regulator določi RAB tako, da skuša oceniti ustrezno vrednost sredstev (ta ni nujno knjigovodska) ter investicije, ki so potrebne, da se ohranja (finančna in uporabna) vrednost teh sredstev (amortizacija). Upošteva pa tudi nove investicije v širitev zmogljivosti ali dvig kakovosti storitev/proizvodov, ki povečujejo RAB. Poleg ocene vrednosti RAB mora

regulator ugotoviti tudi, kakšni so stroški tekočega poslovanja monopolista, in končno, kakšen je strošek (lastniškega in dolžniškega) kapitala.

Z RAB je določena osnova za določitev izhodiščne cene infrastrukturnih storitev. Samo uravnavanje cene skozi čas pa je prav tako instrument regulatorja. Eden danes najbolj uveljavljenih je model cenovne kapice RPI-X, pri čemer RPI predstavlja rast splošne (ali druge izbrane) ravni cen, X pa predstavlja popravek za neučinkovitost.

Poenostavljeno povedano, po tem principu regulator za monopolista določi, da le-ta lahko svoje cene povečuje za rast izbrane ravni cen (lahko inflacije ali drugega primerne indeksa cen), zmanjšano za faktor neučinkovitosti, ki jo želimo v določenem obdobju odpraviti. Neučinkovitost regulator določi prek primerjalnih analiz z drugimi enakimi ali podobnimi družbami v državi, ali s primerjavami s tujimi podobnimi družbami. Najučinkovitejše družbe so na meji učinkovitosti (meja učinkovitosti – angl. *efficiency frontier*).

Ekonomska regulacija dejavnosti, ki imajo značilnosti naravnega monopola, je v vsakem primeru nujna. Vprašanje lastništva prav tako ni nepomembno in v tistih dejavnostih, kjer je v neki obliki konkurenco mogoče vključevati (razgradnja monopola), privatizacija jasno daje boljše rezultate, morebiti tudi zato, ker se s spremembo lastništva prekine »protekcioniistični odnos« med državo in lastnim monopolistom in omogoči, da do konkurence sploh pride. V primerih, kjer konkurenca sploh ni mogoča, je odgovor na vprašanje privatizirati ali ne manj jasen. V vsakem primeru pa ostajajo odprta tudi vprašanja o tem, v kakšnem obsegu (npr. ali je 100 % privatizacija edina pot) ali načinu lahko poteka sodelovanje z zasebnim sektorjem, da bi še bili deležni koristi večje učinkovitosti, hkrati pa zato plačali čim nižjo ceno v pričakovanih donosih zasebnega sektorja.

Glede na vse do sedaj navedeno postavljamo teze, ki so okvir za določanje učinkovite organiziranosti upravljanja infrastrukture in regulacije v Sloveniji:

- Slovenija je majhna država, načrtovanje in upravljanje z infrastrukturo pa je tudi sicer butična industrija, zato je število strokovnjakov, ki lahko to področje obvladujejo, temu primerno omejeno. Majhnost države narekuje, da mora biti ekonomska regulacija zastavljena čim bolj učinkovito.
- Zaradi narave nekaterih omrežnih dejavnosti, zaradi izgub v ekonomiji obsega ali drugih vidikov (tak primer je železniška infrastruktura) v nekaterih primerih ne bo nikoli smiselno imeti več upravljavcev infrastrukture kot enega. Na drugih področjih, ko ekonomija obsega dopušča več upravljavcev infrastrukture, je smiselno, da jih je več (koliko, je stvar ekonomske analize), zato da lahko žanjemo koristi njihove medsebojne konkurence.

- V primerih, ko je upravljanje infrastrukture razdrobljeno na raven, ki ni več ekonomsko optimalna (zaradi diseconomij obsega), to pomeni, da je treba ustvariti spodbude za združevanje podjetij.
- Ko se različni tipi infrastrukture med sabo dopolnjujejo, je prav tako mogoče združevati upravljanje, čeprav financiranje ostaja ločeno.
- V drugih primerih je smiselno ustvariti pogoje za razvoj konkurence, oziroma bi namesto enega dobili več ponudnikov.

V tem članku smo skušali orisati trende ekonomske teorije in prakse v zvezi z financiranjem in upravljanjem infrastrukture v kontekstu omrežnih dejavnosti, pri čemer smo upoštevali nekatera najnovejša dognanja oziroma praktične izkušnje najrazvitejših držav.

Izid tega orisa je vizija, v kateri je vzpostavljena centralna organizacija – ekonomski regulator, ki bi skrbel za ustrezne spodbude in učinkovito upravljanje infrastrukture različnih omrežnih dejavnosti, obenem pa prek modela RAB omogočil transparentno upravljanje z vrednostjo infrastrukture. Čeprav to ni nujen sestavni del tega predloga, empirične raziskave kažejo, da je učinke ekonomske regulacije v nekaterih primerih mogoče še izboljšati, če na takšni podlagi izvedemo še privatizacijo upravljavcev infrastrukture, oziroma da ekonomski regulator sploh lahko začne v polnem obsegu izvajati svojo funkcijo.

Če je uvedba ekonomske regulacije in modela RAB izziv, je privatizacija ob zavedanju, da je pojmovanje vloge zasebnega kapitala v Sloveniji v javnosti močno negativno, v večini omrežnih dejavnosti v Sloveniji še težje uresničljiva. Slednje je posledica tudi tega, da obstaja vrsta interesnih skupin, ki jim obstoječa ureditev ustreza. Vendarle pa se je treba zavedati, da omrežne dejavnosti, kot osnova, na kateri se izvaja gospodarska aktivnost, pomenijo manjšino zaposlenih in gospodarstva v Sloveniji. Alternativna možnost morebitni tuji intervenciji (npr. »trojki«) sta mobilizacija in osveščanje civilne družbe ter prizadetih delov gospodarstva (del Gospodarske zbornice Slovenije, obrtniška zbornica, druga združenja, ki zastopajo interese podjetij v Sloveniji...), ki pravzaprav nosijo breme in posledice neučinkovitosti na področjih upravljanja, financiranja, naročanja in razvoja infrastrukture omrežnih dejavnosti v Sloveniji.