

УДК 330.1:338.49

A Study of the Institutional Environment Through Economic Analysis of Regulations on the Example of the Infrastructure for Population Living Conditions

**Igor S. Pyzhev, Vladislav N. Rutskiy
Ekaterina N. Tanenkova and Nadezhda V. Ustyugova***
*Siberian Federal University
79 Svobodny, Krasnoyarsk, 660041 Russia¹*

Received 24.07.2012, received in revised form 07.08.2012, accepted 24.09.2012

In the paper research on the institutional environment of infrastructure is carried out on the example of transportation and architectural complexes of infrastructure for population living conditions of the Krasnoyarsk Krai. A modification of the well-known method of economic analysis of regulations is used as a research tool which is supplemented with a special algorithm based on a combination of neo-institutional and system-reproduction approaches. As a result the trends of relevant institutional change are revealed.

Keywords: infrastructure for population living conditions, infrastructure subjects relations, infrastructure goods, economic analysis of regulations, institutional analysis.

The present paper is prepared under the grant of KSAI «Krasnoyarsk Regional Fund for Scientific and Technical Activity Support» provided to Siberian Federal University in 2011 for the research project «Elaboration of Strategy for Infrastructure for Population Living Conditions Institutional Development Encouraging Qualitative Economic Growth of the Krasnoyarsk Krai».

Introduction

The system of relations among subjects of the infrastructure for population living conditions consists of functionally interrelated stationary behavioral strategies of infrastructure goods manufacturers and suppliers of needed resources, goods consumers, public organizations, government bodies and local authorities. Along with it the simultaneous engagement and active participation of relevant subjects in the infrastructure reproduction create

need for institutional dimension analysis of their interactions.

Economic analysis of regulations as a tool for research of institutions of the infrastructure for population living conditions

A wide range of problems arising in the implementation of the infrastructure potential in our view can be solved within the institutional environment and relevant institutional change.

* Corresponding author E-mail address: igsep@yandex.ru

¹ © Siberian Federal University. All rights reserved

Moreover institutions are able to resolve existing problems as well as create new ones. Here are some considerations that confirm these assumptions.

In the first place the relations among infrastructure subjects cannot be fully regulated by any one group of institutions (e.g., market or planning) and depend on the specific situation of the production, distribution or consumption of infrastructure goods by groups of business, social and public subjects in the sectoral and territorial aspects of their interactions. An adequate analysis of these relations requires establishing a hierarchy of norms and institutions (Volchik, 2009; Levin, 2007; Kleiner, 2004).

Secondly the content of routines as basic elements of infrastructure institutions (Nelson, Winter, 2002; Hodgson, 2003) and relevant norms formed from routines is determined by the mutual influence of rational and societal imperatives of relations of subjects of the infrastructure for population living conditions (Kirdina, 2000; Polterovich, 2007).

Thirdly institutions as restrictive or stimulating rules of individuals' behavior are based not only upon routines which formed norms but also upon related enforcement mechanisms to guarantee norm implementation by incentives and sanctions. Therefore there is another important part of the institutional analysis of the infrastructure for population living conditions which consists in the set of coordination mechanisms (Hayek, 1992) which combine elements of the five basic forms – “market”, “hierarchy”, “relational contracting”, “collective action” and “community” (“reciprocity”). These forms differ in the alternative features of institutional characteristics centralizing or decentralizing relations among subjects in various situations and with varying efficiency (Commons, 1931; Eggertsson, 2001). Using the same coordination forms in some cases can facilitate the efficiency

of human and infrastructure capital reproduction, while in others – deteriorate the efficiency. This causes a wide variety of coordination forms (Sapir, 2001; Simon, 2000).

Fourthly the institutional changes in the infrastructure are derived from the social and technological change providing the information about the future is incomplete (North, 1997; Alchian, 1950). Institutional change implement through identifying of the possible and the most likely alternatives of borrowing, spontaneous invention and *conscious* design of norms and institutions, which may occur on the basis of mechanisms of political (Afontsev, 2010) or institutional market (Pejovich, 1996; Tambovtsev, 2001).

The above considerations clearly imply that the study of institutional environment of a complex socio-economic system can be carried out on the basis of a systematic approach by analyzing norms and institutions, assessing its feasibility and efficiency, identifying trends of institutional change.

As is well-known an institutional approach to economic analysis of regulations is implemented under the economic theory of law, which formed the specific direction of interdisciplinary research – an economic analysis of law (Coase, 2007; Posner, 2004; Economic analysis of regulations, 2001). The essence of the desired analysis is assessment of existing or designed regulations for that what benefits and costs of actual or projected performance of norms contained in regulations for addressees and guarantors. To designate the components of the institution as an actual regulation we should use logical scheme containing a set of the following elements: the prescribed action (norm content), the conditions of norm application, the addressee, the sanctions, the guarantor of the norm implementation, the enforcement mechanism (Elster, 1993; Tambovtsev, 2005).

Economic analysis of regulations is carried out in two directions (Economic analysis of regulations, 2001):

1) efficiency which implies comparison of the costs and benefits for addressees and guarantors of institution norms versus the case of alternative institution or the case of institution absence;

2) feasibility which implies unambiguity of the institutional components, the societal acceptance of institutions and consisting norms – its conformity with interests and culture of the concrete special interest groups as well as availability of financial, information, temporal and other resources owned by addressees and guarantors and needed for successful implementation of norms.

It should be noted that there can be transformation and transaction costs. Besides benefits can also be direct (compensation for goods sold) or indirect (economy of transformation or transaction costs).

In accordance with modern neo-institutional theory there could be four types of institutions as specific objects of analysis of some sphere of economic relations:

- formal institutions that regulate the relations of indefinite group of subjects (legislative acts, regulations);
- formal institutions that regulate the relations of definite group of subjects (the components of specific contracts, formal organizations with defined membership, etc.);
- informal institutions that regulate the relations of definite group of subjects (non-formal organizations and associations, etc.);
- informal institutions that regulate the relations of indefinite group of subjects (customs, conventions, etc.).

Each of these institution types does not exist in isolation from other types but complies with

institutional organization within the economic order implying the possibility of institutions to replace and complement each other. In the basis of institutional structure there are formal institutions for indefinite number of subjects – legal acts of the legislative (independent) and the sub-legislative (subordinate) type which provide the basic rules within sectors and levels of economic relations regulated with the prevalence of rational motives of decisions made. The relevant norms form the basis of the institutional order within the economic system. The next segment of institutional structure comprises of formal institutions for definite groups of subjects which, on the one hand, imply compliance with the institutions of the first type, but on the other hand, specify the specific relationships for the sake of reducing the uncertainty of future benefits and costs. The institutional components of informal institutions for definite groups of subjects are even more specific as far as societal (corresponding to the culture) factors play a significant role within such groups. Wide but vaguely perceived institutional components are typical for informal institutions and indefinite groups of subjects, where societal factors of relations are the most powerful and transform directly into the culture of subjects and non-economic spheres of relations.

The study of any institutional structure should represent a modeling of the norms and institutions hierarchy, figuring out what the extent to which the constitutive and derivative norms and institutions match each other, how correlated and how efficient norms and institutions are, and what are the norms enforcement mechanisms.

In order to form the initial data needed for analysis of the specific institutions, regulating reproduction of the primary infrastructural goods, in our view it is sensible to complement neo-institutional approach for describing institutions as the equilibriums among private transactions (Tambovtsev, 2011) with a system-

reproduction approach towards economy as a whole. The combination of these approaches allows us to formulate a special algorithm for the institutional analysis of infrastructure. It consists of separation of relations' types (special interest groups involved in the goods reproduction and numbered among producers, consumers and regulators), relations objects (goods to be exchanged in transactions of producers, consumers and regulators), subject-objects characteristics of relations (operations accomplished with good, stage of good reproduction). Then the institutions defining transactions should be described in accordance with the developed logic scheme. On this basis we can assess the success of the transactions with regard to the institutions applied (the benefits and costs of institutions implementation, its ratio).

**The results of analysis
of the institutional environment
of transportation
and architectural complexes
of the infrastructure
for population living conditions
of the Krasnoyarsk Krai**

Capabilities of economic analysis of regulations as a tool for research of institutions of the infrastructure for population living conditions have been implemented on the example of the region. The format of this paper does not allow us to expound the results of the work performed by the authors within the research project «Elaboration of Strategy for Infrastructure for Population Living Conditions Institutional Development Encouraging Qualitative Economic Growth of the Krasnoyarsk Krai», so we should briefly state the main ones.

The Krasnoyarsk Krai can be characterized by a number of specific trends in the infrastructure for population living conditions of the region because it has a significant natural resource

potential, demonstrates an extensive growth of basic raw materials export-oriented industries. At the same time the region is characterized by underdevelopment of the derivate industries, demonstrates strong differentiation of socio-economic indicators of industries and territories, high dependence on the external environment, and imbalances in the structure of consumption and accumulation (Assessment of strategic competitiveness..., 2011; Regional socio-economic system..., 2009).

When writing the study we systemized formal norms and institutional arrangements regarding the production, distribution and consumption of relevant infrastructure goods. Economic analysis of institutions within infrastructure industries was held in the Krasnoyarsk Krai within the primary industries of the infrastructure for population living conditions – transportation complex and architectural complex which consists of construction and renovation of housing stock, housing and communal services. These complexes demonstrate much of the well-known institutional problems (Pyzhev I.S., Rutskiy V.N., Goryachev V.P., 2011).

All subjects of an integrated regional economy (business, social, public) play specific roles (producers, consumers and regulators) in the reproduction of the infrastructure goods, which applies equally to primary, secondary and tertiary industries of the infrastructure for population living conditions (Pyzhev I.S., Rutskiy V.N., Goryachev V.P., 2011). The role of the consumers is partly played by social subjects (households). The producers that supply ready-made infrastructure goods and intermediate components comprise of business and public subjects (the private, state and municipal enterprises and the state and local government agencies). The regulators primarily act as public subjects (state agencies and local government), but can also act as social subjects (non-profit organizations or NGOs).

In accordance with these roles, we can talk about the possible existence of seven types of cross-relations and related subjects transactions. Analysis has shown that relationships between subjects actually take place in most spheres of infrastructure goods reproduction: “producers-consumers”, “producers-regulators”, “consumers-consumers”, “consumers-regulators”, “regulators-regulators”, “producers-consumers-regulators”. The sphere of relations “producers-producers” is not covered by existing regulations. The subjects conditionally combined on the basis of their roles represent special interest groups (SIG).

Regulations governing the transportation complex mostly focused on the regulation of manufactured, distributed and consumed goods. Manufactured goods include: provision of civil aviation services, freight, aviation security. Distributed goods include: state fees payment, provision of licenses and certificates of compliance, budget assignments, social support. Consumed goods include: purchase of tickets, transportation of baggage, cargo and passengers services, using of vehicles. The authors studied 49 (the number of norms is 444) legal acts regulating relations in the sphere of transportation of the region. The total number of connections between acts is 75.

It is revealed that in the sphere of transportation, namely, within the legal acts considered sanctions to be implemented in case of norm violation are not always clarified. Definiteness of the norms content is quite high (up to 100 % of cases), but at the same time, the conditions of norms application are identified in less than 30 % of cases. The efficiency and feasibility of regulations governing the relationships between subjects in the transport complex of the region are not sufficient for high-quality reproduction of the infrastructure goods, as much of special interest groups are weakly (not more than 30 % of cases) involved

in the regulated relationships. On the other hand, in all aspects of relationships the majority of institutional components stay weakly (not more than 30 % of cases) or moderately (from 30 to 70 % of cases) identified and moderately (from 30 to 70 % of cases) defined with regard to role of infrastructure subjects, therefore, it is difficult to calculate benefits and costs incurred by regulations for specific spheres of relationships.

Legal acts in the sphere of housing and communal services regulate the following types of goods: manufactured and distributed. Manufactured goods include: utility services, water supply and drainage, the removal of municipal solid and liquid waste, gas supply, heat supply, electricity supply. Distributed goods include: subsidies and grants for the development of design documentation and construction of solid waste landfills, subsidies for compensation of expenditures of apartment houses capital repair and renovation of yard areas, subsidies for housing and communal services payment, as well as additional measures of social support for housing and utilities services payments. The authors studied 57 (the number of norms is 564) legal acts regulating relations in the sphere of housing and communal services of the region. The total number of connections between acts is 65.

It is revealed that in the sphere of housing and communal services, namely, within the legal acts considered sanctions to be implemented in case of norm violation are not always clarified. The guarantors in the spheres of housing and communal services in all aspects of relationships in 100 % of cases are the regulators (all levels of government, or its authorized agencies).

Definiteness of the norms content and norms objects is quite high (almost in 100 % of cases) in all aspects of the relationship of housing and communal services. However, definiteness of conditions of norms application and sanctions

governing the production and distribution of goods in all spheres of relationships is very low (less than 30 % of cases). However the interests of the consumers are hardly taken into consideration in the norms governing the production of housing and communal services, construction and renovation of housing stock of the property owners. The same can be said about norms governing the allocation of financial resources, including grants for the reimbursement of costs to organizations engaged in capital repair and renovation, production of energy services and lifts. Interests of the producers and regulators of all types of services are moderately taken into consideration (from 30 up to 70 % of cases). It is interesting that in the norms governing the allocation of financial resources in the form of subsidies for social support the interests of executive agencies are taken into account at the moderate level, and interests of the population as recipients of grants are almost not taken into account.

The analysis has shown that the efficiency and feasibility of regulations governing the relationships between subjects in the housing and communal services industries of architectural complex of the infrastructure for population living conditions of the Krasnoyarsk Krai are not sufficient for high-quality reproduction of the relevant infrastructure goods, as much of special interest groups stay weakly involved in the regulated relationships. On the other hand, in all aspects of relationships the majority of institutional components and the role of institutional subjects are moderately defined, therefore, it is difficult to calculate benefits and costs incurred by regulations for specific spheres of relationships.

Legal acts in the sphere of construction and renovation of housing stock regulate the following types of goods: manufactured, consumed and distributed. Manufactured goods

include: the design of buildings and facilities on the basis of safety, construction, reconstruction and capital repair of buildings and facilities, development of operating instructions for an apartment house, engineering and survey work, technical specifications, the connection of capital construction object to the network engineering and technical support; spatial planning, re-planning and reconstruction of the dwelling, the development of regional standards for urban planning, cadastral work. Consumed goods include: the use and maintenance of premises for the personal use of residence. Distributed goods include: grants for capital repair of the premises owners common property and the entrances to apartment houses and repairs itself, the investment projects, providing of living quarters from the regional housing stock, social welfare payments for the purchase or construction of housing for young families, providing the service premises; social payment for the purchase or construction of housing for the members of targeted programs, including veterans, financial aid for construction or purchase of individual houses, co-financing of the apartment houses capital repair, grants for capital repair of engineering infrastructure, the privatization of housing stock. The authors studied 60 (the number of norms is 1302) legal acts regulating relations in the sphere of housing and communal services of the region. The total number of connections between acts is 85.

The analysis of regulations in the sphere of construction and renovation of housing stock has shown that the sanctions to be implemented in case of norm violation are generally not clarified. The guarantors in the sphere of construction and renovation of housing stock in all aspects of relationships in 100 % of cases are the goods reproduction regulators. In most spheres of relations sanctions are rather diffused. Definiteness of the norms content and norms objects is quite high (almost in 100 % of cases) in

all spheres of the construction and renovation of housing stock. However, definiteness of conditions of norms application and sanctions governing the production, consumption and distribution of goods in all spheres of relationships is sufficiently low. The interests of the consumers of goods are hardly taken into consideration in the norms governing the production of construction and renovation of housing stock of the property owners, except for regulating the distribution of financial resources and social support (from 30 to 70 % of cases). However, the interests of regulators considered in above the average number of cases (from 70 to 100 % of cases).

Thus it can be argued that the efficiency and feasibility of regulations governing the relationships between subjects in the of construction and renovations industries of architectural complex of the infrastructure for population living conditions of the Krasnoyarsk Krai are not sufficient for high-quality reproduction of the relevant infrastructure goods, as much of special interest groups stay weakly or moderately involved into the regulated relationships. In all aspects of relationships the role of institutional subjects are moderately and weakly defined, but the majority of institutional components remain moderately and highly defined, what facilitates calculations of benefits and costs incurred by regulations for specific spheres of relationships.

Conclusion

The analysis of the institutional components and interconnections between these components has revealed a lot of institutional problems that are present at all levels of relations between the producers, the consumers and the regulators within the functioning of the primary industries of the infrastructure for population living conditions of the Krasnoyarsk Krai. It concerns the decision-making mechanisms on the formation of solvent demand for infrastructure goods, actions for the

implementation of these decisions, as well as for the regulation of organizations producing and distributing goods.

The most relevant problems, in our opinion, are problems of indistinct specification of institutional components for certain types of the subjects relations, weak incentives engaging people in shaping public preferences towards reproduction of infrastructure goods as well as weak legal status and incentives for the relevant public and self-regulatory organizations to participate in development and implementation of the state and municipal policies.

It can be argued that problems revealed during analysis of the institutional environment of the transportation and architectural complexes within the infrastructure for population living conditions of the Krasnoyarsk Krai can be perceived as institutional traps. On the one hand, a lot of “white spots” and “gaps” in legislation establish a system of informal institutions for definite and indefinite groups of subjects. On the other hand, the absence of aggregated demand of consumers and producers of infrastructure goods for institutional change on the political markets provokes decisions-making on the institutional markets and the formation of inefficient institutions.

To overcome the existing institutional traps we need an aggregation of flexible solvent demand for institutional change efficient from the viewpoint of reproduction of human and infrastructure capital of the economy as a whole. Among main subjects of such a demand there should be the consumers of infrastructural goods who are potentially interested in improving the life quality and human capital formation, the producers of these goods from a number of private, state and municipal organizations (enterprises and agencies) who can compete with each other through more productive infrastructure capital.

References

- Afontsev S.A. Political markets and economic policy. Moscow, KomKniga, 2010. 384 p.
- Alchian A. (1950) Uncertainty, evolution and economic theory. *Journal of political economy*. 58 (3), 211-221.
- Bukharova E.B., Ferova I.S. [and others]. Assessment of strategic competitiveness of innovation potential of the Krasnoyarsk Krai in the context of global trends of innovation-technological development. Krasnoyarsk, Siberian Federal University (SibFU), 2011. 424 p.
- Coase R. H. The firm, the market and the law. Moscow, Novoe izdatelstvo, 2007. P.7.
- Commons J. R. (1931) Institutional economics. *American Economic Review*. (21), 648-657.
- Economic analysis of regulations. Moscow, Faculty of Economics of Moscow State University, TEIS, 2001. 408 p.
- Eggertsson T. Economic behavior and institutions. Moscow, Delo, 2001. 408 p.
- Elster, Yu. (1993) Social norms and economics. *THESIS*. Moscow, 1 (3). 73-91.
- Hayek F.A. The Fatal Conceit. The Errors of Socialism. Moscow, Publishing House Novosti, 1992. 304 p.
- Hodgson G.M. Economics and institutions: a manifesto for a modern institutional economics. Moscow, Delo, 2003. P. 202.
- Kirdina S.G. Institutional matrices and the development of Russia. Moscow, TEIS, 2000. 213 p.
- Kleiner G.B. The evolution of institutional systems. Moscow, Nauka, 2004. 240 p.
- Levin S.N. The formation of constitutional rules in the economy of Russia. Kemerovo, Kuzbassvuzizdat, 2007. 263 p.
- Nelson R.R. Winter S. An Evolutionary theory of Economic change. Moscow, Delo, 2002. P. 142.
- North D. (1997) Institutional change: a framework of analysis. *Voprosi ekonomiki*. (3), 6-17.
- Pejovich, S. The market for institution versus the strong hand of the state: the case of Eastern Europe. *Economic Institutions, Market and Competition by B. Dallago and L. Mittone (eds)*. Cheltenham, 1996. 111-126.
- Polterovich V.M. Elements of the theory of reform. Moscow, ZAO Publishing House Ekonomika, 2007. 87-130.
- Posner R.A. Economic Analysis of Law. St. Petersburg, Ekonomicheskaya Shkola, 2004. (1), 524 p.
- Pyzhev I.S., Rutskiy V.N., Goryachev V.P. (2011) Infrastructure for Population Living Conditions in the Context of Qualitative Economic Growth. *Journal of Siberian Federal University. Humanities & Social Sciences*. 4 (12). 1820-1835.
- Bukharova E.B., Bezgacheva V.G. [and others] Regional socio-economic system: spatial planning and development management (on the example of the Krasnoyarsk Krai). Krasnoyarsk, Siberian Federal University, 2009. 198 p.
- Sapir J. On the economic theory of inhomogeneous systems: the experience of the decentralized economy study. Moscow, Higher School of Economics, 2001. P. 171.
- Simon G. The theory of decision making. *Milestones of economic thought. The theory of the firm. V.2. by V.M. Halperin (ed.)*. St. Petersburg, Ekonomicheskaya Shkola, 2000. 54-72.
- Tambovtsev V.L. (2001) An Institutional market as a mechanism of institutional change. *Obshchestvennye nauki i sovremennost*. (5). 25-38.

Tambovtsev V.L. Law and economics. Moscow, INFRA-M, 2005. 32-41.

Tambovtsev V.L. Theories of institutional change. Moscow, INFRA-M, 2011. P 20.

Volchik V.V. (2009) Complementarity and hierarchy of institutions within the economic order. *Proceedings of DonNTU. Series: Economic.* (37-1). 35-41.

Исследование институциональной среды посредством экономического анализа нормативных актов на примере инфраструктуры жизнедеятельности населения

**И.С. Пыжев, В.Н. Руцкий,
Е.Н. Таненкова, Н.В. Устюгова**
*Сибирский федеральный университет
Россия 660041, Красноярск, пр. Свободный, 79*

В статье изложены результаты исследования институциональной среды инфраструктуры на примере транспортного и градостроительного комплексов инфраструктуры жизнедеятельности населения Красноярского края. В качестве инструмента использована модификация известного метода экономического анализа нормативных актов, дополненного специальным алгоритмом на основе сочетания неинституционального и системно-воспроизводственного подходов. В результате выявлены тенденции соответствующих институциональных изменений.

Ключевые слова: инфраструктура жизнедеятельности населения, отношения субъектов инфраструктуры, инфраструктурные блага, экономический анализ нормативных актов, институциональный анализ.

Статья подготовлена при поддержке КГАУ «Красноярский краевой фонд поддержки научной и научно-технической деятельности» в рамках выполнения гранта, предоставленного Сибирскому федеральному университету за 2011 год, на тему: «Разработка стратегии институционального развития инфраструктуры жизнедеятельности населения, обеспечивающей качественный экономический рост Красноярского края».
