
Designing Organizational Structures of Public-Private Partnerships

I. Yu. Vaslavskaya¹, Y.I. Vaslavskiy²

¹*Department of Economics of enterprises and organizations,
Higher School of Economics and rights,
Kazan Federal University, Naberezhnye Chelny Institute,
Email: vaslavskaya@yandex.ru, IJVaslavskaya@kpfu.ru*

²*Department of Political Theory,
Moscow State Institute for Foreign Relations (MGIMO University),
Moscow, Russian Federation,
Email: vaslavsky@yandex.ru, y.vaslavskiy@inno.mgimo.ru*

Abstract

The work is devoted to the substantiation of methodological approaches to the structuring of basic forms of public-private partnership: (1) quasi-market, (2) hierarchical and (3) hybrid ones. O. Williamson (1996a) was the first to present the concept of institutional matrices. The authors use matrix designing of organizational forms of public-private partnerships, varying transaction costs and options for property rights exchange. Operations with institutional matrices of public-private partnership basic forms allow to identify cells with coinciding interests of partners regarding the organization of transactions with public items. The square matrices, presented in tabular form, turn out to be convenient for highlighting all potentially possible variants of collaboration between the private and public sectors. Their implementation in the future depends on the elimination of the factors that for some reason block the cooperation of partners. The solution of this problem will allow the government to use public-private partnership to reduce the budget deficit, the society will receive public goods planned for the fiscal year, and the private business will reduce transaction costs and receive the profitable sphere for investments under the state patronage and its formal organizations.

Keywords: quasi-market; hierarchical transaction organizations; hybrid agreements; institutional matrices; transaction costs; property rights.

Introduction

In the current context there is a growing need for institutional support of mutually beneficial partnership of the private and public sectors because of economic slowdown in almost all countries of the world and governments' failure to reverse this trend (Tanzi and Schuknecht 2000). For instance, nation states themselves make contribution to the slowdown of their economies. The main reason for this is that the build-up of budget deficits and the increase of the cost of the public debt servicing have become usual for them. Taking into account the fact that the significant share (about 30-50%) of the world gross domestic product (GDP) is redistributed through the public finances system (IMF 2018), theoretically this system can be regarded as states' contribution to their national economies slowdown. This determines the importance of factors that can increase its efficiency, at least when it comes to providing higher returns on budgetary investments (Global Infrastructure Hub 2017). At the same time, states' contribution to the economic development can be regarded as positive only in case of its acceleration, and negative – in case of its slowdown.

In September 2017 these problems were discussed at the Sustainable Development Impact Summit (World Economic Forum 2017). Experts from all over the world were discussing framework for sustainable growth of national economies and the contribution of accelerated development of various public-private partnership (PPP) forms to this process. Politicians and scientists concurred that the sustainable development goals can be achieved in the global economic landscape by 2030 only if the potential of different PPP forms is used.

Russian authorities seem to associate rapid economic growth of the country with the successful implementation of national (infrastructural) projects through PPP (National projects 2019).

In this context, it becomes obvious that it seems vital to set up and develop institutional forms of partnership of the private and state sector that has a lot of potential in maintenance of sustainable world economic growth. However, the implementation of PPP in the global economy still leaves much to be desired (Vaslavskaya and Vaslavskiy 2019; Vaslavskiy and Vaslavskaya 2019; Guillemette *et al.* 2018). In this regard, the provision that a well-developed theory is the most practical is still relevant. It is within this framework that the methodology of matrix modelling of PPP forms proposed by the authors should be assessed. This methodology is aimed at accelerating assimilation of the private businesses into the sphere of the states' functions of stabilizing the national economies.

Methodology

Theoretical approaches to identification of main factors of modelling PPP organizational forms

PPP: specific features of the state as the partner of the private businesses in the transaction with public items

Economic actors partnership on the market is conditional upon the dialectics of their interrelation over transaction. Indeed, partners conclude purchase acts and sales while being interrelated dialectically as sellers and buyers and they realize that they need each other and reject this need at the same time. This interdependence provides each member of the dialectic pair with a chance of maximizing its feasibility, and society – with the change of the stabilization the GDP reproduction as well as to maintain national economy's sustainability in general. This market partnership's dialectic is extremely important to understand the need and sufficiency as conditions of its proper growth. Dialectically interrelated economic actors have to harmonize their individual behavior when it comes to organizing market transactions in the framework of mutual partnership since it will ensure economic gains through the minimization of transaction costs (or exchange costs) for them.

However, cooperation of representatives of the private business on the market and collaborator of the private and state businesses in conducting transaction differ significantly. Private organizations as partners on the market have similar duties and rights, all other conditions also are equal. With respect to the state, it has been established by society to implement functions, that it was made responsible for by the society itself. Fulfilling these functions, state is intended to 'personify' this society and become its main actor and regulate economic relations that are being formed within it (Vaslavskiy 2008). It set standards of conduct, mechanisms of incentive and punishment for economic actors by the means of different institutions and practices.

Personalized exchange was gradually replaced by institutional support of participants of market exchange that became the most important task of the state. North (1997) considered the development of non personalized rules and contract-based relationship implied building of the state. Consequently, a reduced role of informal limits in personalized exchanges has been offset by the expanding formal institutions established by state (Vyatkina *et al.* 2001) in the light of the growing amount of non-personalized transactions. Formal institutions defining property rights of the partners had a special role in the institutional system. The reason for this was that non-personalized exchange was mostly not about goods, but about ownership of these goods.

Eventually, the state received its duality given the fact that it was a management entity, and, at the same time, a financial agent as private business' partner in transaction. This ambiguity of state determines a specific feature of PPP: the state always dominates associated with private investors and dictates its partnership terms.

The scope of PPP depends on the amount of public goods¹ that the state is responsible for and that are partially financed by national income.

Within this framework, public-private partnerships could be described as collaboration between the private business and state in transactions with public items that are funded from the budget but also with financial resources of the private sector. The society also benefits from this since its well-being increases and the growth of domestic economy is accelerated.

Minimization Of Transaction Costs As A Basis For Harmonizing Interests Of The Private Business And State In Selecting PPP Sorts

The partnership of the private and state organizations in transaction with public items and services and products may be arranged in varied ways. Any PPP form mediates intentions of the private business and state to reduce transaction expenses. Therefore, the state private and business acquire that, though their ultimate goals are diametrically opposite. The state duty is to guarantee socio-economic effectiveness for the society as a whole. Private businesses, on the other hand, looks for maximizing its profit through decreasing transaction expenses.

The assistance of the contemporary state with the domestic economies' downturns is in many ways connected with the issue of dire budget deficit at almost all of the government levels (Zeldner and Vaslavskaya 2006). Simple reduction of budget costs in order to restore the stability of public finances is herewith unacceptable as a solution to this problem, since the idea is about the state's duty to provide society with public goods planned for the current fiscal year. Theoretically, functions of the state, empowered by the society which pays for them, are about the state's duty to fulfill these functions. That indicated that any present budget issue shall be aided by raising extra funds. There exist non-market and market means to revive prevailing public budget stability (Alchian and Demsetz 1972, 777).

Theoretically, as new transaction costs grow, potential organizational structures emerge, including PPP forms, which are acceptable for their minimization. As the number of transaction costs increases, new ways of transactions organization forms, suitable for their minimization, appear. The result is the increasing number of institutional matrices that can specify forms of PPP cooperation.

¹ Characteristics of public goods and services are linked with their general user value (i.e. their non-excludability from the consumption of any member of society) and with absence of individual limits on access to their consumption (i.e. marginal utility of these goods equals 0).

Property Rights Exchange As a Means to Influence Transaction Expenses of Private and Public PPP Participants

Alongside with transaction costs, property rights are a substantial element of the growth of the private business and state partnership in transaction with public items. Given North (1997, 73-74), it is alterations of economic expenses and partners' advantages in transaction that determine the range of exchangeable property rights and the formal institutions system supporting them. Costs of transaction, as a fundamental element in determining the willingness of the state private and business to cooperate, can't be reduced without intermediating transactions with goods by exchanging respective property rights. This idea was proposed as far back as in the 19th century by Eugen Böhm von Bawerk (Behrens 1985, 64). The essence of this idea is that for partners it is not the resource itself that is important but the property rights share to use the exchangeable resource (Demsetz 1967, 17). Thus, only those possessing a set of property rights for the exchangeable resource could be partners in transaction.

Those kinds dialectics of interdependence with costs of transaction shows itself merely when property rights are specified. It means that formal institutions effectively deprive any other individuals of the access to a property object and provide protection of the owner's property rights (North 1981, 21; North 1997, 68).

R. Kapelushnikov (1990) made a compelling case for the central role of the "exclusivity" principle in the institutionalization of property, because it is the foundation of the infinite diversity of concrete property rights within the system. From the theoretical point of view, the property rights exclusivity principle is constantly varying between 1 and 0, when 1 refers to open access only for one individual (individual property) and 0 signifies open access for all society members (public property) (Kleiner 1988). Different property systems, providing various access to the resources of the society, overall, include all possible forms of potential relations among economic agents depending on the way of their (resources) use.

In this case their quantity varies depending on 'narrow' and 'broad' interpretation of the concept of property. T.

Eggertsson (1999, 34-35) included a set of the following rights in the 'narrow' interpretation of property: (a) *the right to gain money from a contract and asset over the terms with other people*; (b) *the rights to utilize an asset – user rights – defining the potential applications of assets that are right for a person, such as the right to transform physically or even demolish the asset*; (c) *the rights to transfer permanently to another party ownership rights over an asset – in other words, to alienate or sell assets* (Honoré, 1961).

In the light of the above, L. Becker wrote about infinite multiplicity of the forms of transactions institutionalization in exchange, claiming that the quantity of proper combinations (*rights, organizational structure, and transaction expenses – ed.*) equals 1.5 thousand. Moreover, according to him, considering their variations by subjects and objects, the diversity of property forms (*and institutional matrices – ed.*) becomes really frightening (Becker 1977, 21).

The assumptions mentioned above as well as the diversity of transaction expenses predetermine the multiplicity of PPP forms.

Basic Forms of PPP Institutional Organization

In the contemporary market economy, there are multiple co-existing forms of organization of transactions among private business, private organizations, and the state, the state and the private businesses, as well as among state institutions. Having said that, PPP's particularity is that they all mediate transactions with public goods financed by the state. It is the state domination as a specific financial agent which in a certain way modifies all distinguished forms of the institutionalization of transaction between private organizations (Vaslavskaya and Vaslavskiy 2019). At the same time, each is pointed at the minimization of a particular kind of transaction expenses. That, in its turn, makes PPP subjects negotiate the most adequate means of exchanging property rights during transactions with public products and items.

As the structure of transaction expenses to be minimized grows, new alternative means of their combination with the property rights exchange during PPP institutionalization appear. Thus, multiple pairs of interdepending property rights and transaction expenses determine concrete shapes of the transactions' organization with public items.

Williamson (1996a) and his proponents have been proving that market exchange is mediated by a wide variety of shapes of substitutional organization of market transaction. According to them, all involved governance structures could be described as institutional matrices within which transaction is carried out (Williamson 1996b, 378). Such an approach has led us to an idea to use matrix modelling relating to shapes of transactions organization based on PPP. Some methodological remarks have to be made before we proceed to concretize basic PPP forms.

The initial fundamental structure of transactions organization relating to private products exchange is presented by the *market*. Circumstances of services exchange and public items based on PPP are set by the state just imitating common market. Regarding that, quasi-market form of organizations (Korytsev 2009, 147), mediating transactions between the private business and state with public services and items, is accompanied by formal institutions that support PPP participants' competitive interaction (Shishkin 2000, 208-209; Hodgson 2003).

The second basic form of the institutionalization of sale and purchase transactions with private items is presented via their *hierarchical organizations (within private companies)*. Regarding PPP transaction, this organizational form has certain specifics, namely when hierarchies presented by state-owned organizations (in Russian practice

these are state and municipal unitary enterprises², formed as a result of the nationalization), as well as public and non-public organization with different degree of state involvement in their capital, stand as partners of private business in PPP.

The next, most variable, fundamental form of economic agents collaboration in transaction with private goods exchange is represented by *hybrid organizations*. In this case, hybrid forms of transactions organization with both public and private goods, randomly combine individual mechanisms and factors from the initial (market/quasi-market) and second (hierarchical) fundamental forms of transactions realization.

In reality, a small number of types of hybrid public goods and services transactions organizations has become widespread. Mostly these are concessions, rental and state property use agreements. Of all diversity of transactions organization forms based on PPP, they are associated only with some partnership patterns, which are most demanded in the contemporary practice. As a principle, they have regular features and exclude the likelihood of their variability regarding the adjustment to particular transactions features and concrete participants with different options of property rights exchange. Such a formal PPP implementation depending on short-term practical demand for only a few of its forms closes off possibilities of using all existing PPP potential in the context of multiple alternative solutions to the state private and business cooperation problems.

Our approach towards theoretical description of PPP forms presupposes the necessity for including all basic types of their organization: quasi-market, hierarchical, hybrid, as well as all their numerous modifications. This is the essence of the '*broad*' PPP interpretation. Every single basic type of PPP organization (its institutional matrix) contains numerous potential sub-options of its implementation. Each of them can be described as *PPP in its 'narrow' interpretation* (Vaslavskaya and Vaslavskiy 2019) and has its own institutional matrix in the understanding of O. Williamson and his followers

Matrix Approach towards Basic PPP Forms Modelling

According to O. Williamson (1996b, 378), any market economy is a multiplicity of governance structures mediating transactions realization, and each of them can be presented as an institutional matrix (Menard 2007, 195). In case of PPP all its basic types (and their subtypes) mediate transactions linked with exchange of public goods and services financed (fully or partially) from the state budget.

We have limited matrix modelling of PPP forms to three basic structures (quasi-market, hierarchical, and hybrid) which are negotiated by the state and a private partner in the context of minimization of the costs of public goods transactions and options of delegating property rights.

First, though PPP is a dialectically interconnected pair of participants, the state dominates and the private partner has a subordinate status. Thus, institutional matrix of each PPP form allows to define spheres where interests of participants coincide under given conditions.

Second, both the state and its private partner strive for joint organization of their exchange operations, since it allows to optimize transaction costs.

Third, in any form of PPP organization partners' agreements on the exchange property rights to a certain object of transaction always precede goods exchange.

To simplify, while constructing the institutional matrix we used its square type with three lines and three columns. In reality there can be a wide variety of institutional matrix elements based on the modern structure of transaction costs (with five main groups), eleven 'incidents of ownership' as interpreted by A.M. Honoré (1961) and the diversity of alternative quasi-market, hierarchical and hybrid PPP forms and their possible options.

Let Matrix *A* represent *private partner's* preferences while choosing *PPP organization forms* for transactions with public goods. Each element of Matrix *A* line is a logically completed PPP form preference of *private business* (from the set of quasi-market, hierarchical and hybrid models). A priori this decision is predetermined by specifics of a concrete public goods transaction costs and options of property rights delegation which are offered by the state. In this case forms of business organization preferred by a private partner will be marked with *a*, and their modifications – from quasi-market to hierarchical and hybrid – will vary from 1 to 2 and 3 depending on transaction costs – in lines and based on property rights delegation – in columns. *Lines* are marked as $a_{i1}, \dots, a_{i2}, \dots, a_{i3}$, where *i* is a line number ($i = 1, 2, 3$), and *columns* – $a_{1j}, \dots, a_{2j}, \dots, a_{3j}$, where *j* is a column number ($j = 1, 2, 3$).

Ultimately, we have derived a matrix of private partner's PPP forms preferences (1) in public goods transaction

$$A \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a & a & a \end{pmatrix} = \begin{matrix} a_{2131} & a_{2232} & a_{2333} \end{matrix} \quad (1)$$

² In 2019, a government-initiated law was passed aimed at the liquidation of state and municipal unitary enterprises in Russia, with existing state and municipal unitary enterprises to be liquidated or reformed in a specified period of time. However, this law will not be implemented towards enterprises established in accordance with a special law, act or decree of the President or the Government. Also excluded from this law are enterprises working in the spheres of national security and defense. Law text can be accessed by following this link: <https://sozd.duma.gov.ru/bill/554026-7>.

When using a square matrix, where the choice is made only from three classic PPP forms (quasi-market, hierarchical and hybrid), the result is nine different combinations, or possible PPP options. They are preferable from the perspective of private investor as the state's partner in public goods transactions.

With the same logic we have elaborated Matrix **B** (2) with consideration to the state interests regarding PPP organization. The state's preferred forms of business organization in this case are marked with *b*, and their modifications – from quasi-market to hierarchical and hybrid – will vary from 1 to 2 and 3 depending on transaction costs – in lines and based on property rights delegation – in columns. *Lines* are marked as $b_{i1}, \dots, b_{i2}, \dots, b_{i3}$, where *i* is a line number ($i = 1, 2, 3$), and *columns* – $b_{1j}, \dots, b_{2j}, \dots, b_{3j}$, where *j* is a column number ($j = 1, 2, 3$).

$$B = \begin{pmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \\ b_{31} & b_{32} & b_{33} \end{pmatrix} \quad (2)$$

The matrices **A** and **B** indicate only all possible options of preferences of the private business and the state as potential PPP partners regarding the choice of its form ('institutional matrix'). Resultant 'institutional matrix' **C** represents a PPP form which combines the interests of both the state and its private partner. Consequently, it is satisfying in terms of bringing down transaction costs as well as regarding delegating property rights in a concrete transaction with public goods.

In order to come to the situation described above, it necessary to multiply together matrices **A** and **B**, thereby getting lines and columns of the resultant 'institutional matrix' **C** (7):

$$C = \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{pmatrix} \times \begin{pmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \end{pmatrix} \begin{matrix} a_{31} & a_{32} & a_{33} \\ b_{31} & b_{32} & b_{33} \end{matrix} \quad (3)$$

Let us perform the necessary mathematical operations to get elements of the first line c_{1j} of Matrix **C** (4):

$$\left. \begin{aligned} c_{11} &= a_{11} \cap b_{11} + a_{12} \cap b_{21} + a_{13} \cap b_{31} \\ c_{12} &= a_{11} \cap b_{12} + a_{12} \cap b_{22} + a_{13} \cap b_{32} \\ c_{13} &= a_{11} \cap b_{13} + a_{12} \cap b_{23} + a_{13} \cap b_{33} \end{aligned} \right\} \quad (4)$$

to get elements of the second line c_{2j}

of Matrix **C** (5):

$$\left. \begin{aligned} c_{21} &= a_{21} \cap b_{11} + a_{22} \cap b_{21} + a_{23} \cap b_{31} \\ c_{22} &= a_{21} \cap b_{12} + a_{22} \cap b_{22} + a_{23} \cap b_{32} \\ c_{23} &= a_{21} \cap b_{13} + a_{22} \cap b_{23} + a_{23} \cap b_{33} \end{aligned} \right\} \quad (5)$$

and to get elements of the third line c_{3j} of Matrix **C** (6):

$$\left. \begin{aligned} c_{31} &= a_{31} \cap b_{11} + a_{32} \cap b_{21} + a_{33} \cap b_{31} \\ c_{32} &= a_{31} \cap b_{12} + a_{32} \cap b_{22} + a_{33} \cap b_{32} \\ c_{33} &= a_{31} \cap b_{13} + a_{32} \cap b_{23} + a_{33} \cap b_{33} \end{aligned} \right\} \quad (6)$$

As a result of the mathematical operations performed above, we have come to the structure of elements c_{ij} of the 'institutional matrix' **C** (7):

$$C = \begin{pmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{pmatrix} \quad (7)$$

The latter is a set of alternative PPP forms ('institutional matrices') comprising its three basic options (quasimarket, hierarchical and hybrid) with respect to which the interests of both public and private PPP partners coincide.

The above-mentioned logic is aimed at building a simple matrix model that can be applied to any institutional matrix describing PPP provided that its cells are filled in some way.

In other words, modern PPP forms presuppose complex interactions and 'alliances' between the state and private investors. They are predetermined by partners' relations regarding joining their forces to minimize transaction costs and raise the efficiency of transactions with public goods. Basic PPP forms allow the state and private business to optimize sharing risks and costs as the public segment grows, as well as in forming optimal 'rules of the game', conditions and effective incentives for the maximum realization of the national economy potential.

Results and Discussion

In Russia three basic PPP forms are represented by organizational structures ('infrastructural matrices') which have their own specifics. The quasi-market works through the contract system of government procurement. According to the World Bank (2008), the PPP hierarchy, which emerges as a result of assets transition, is represented by Russian vertically-integrated structures and companies with state participation (from 20 to 100 percent of share capital), state corporations, development institutions (Radygin *et al.* 2015, 45), and abovementioned state and municipal unitary enterprises. As for hybrid agreements realized through PPP, as a rule, they are linked with the cooperation of the state and private business in the realization of capital-intensive long-term social projects, most often in public infrastructure. Concessions are the most wide-spread form of hybrid agreements in Russia and abroad.

The perspective of solving the state's financial problems and stabilization of the national economic growth is related to the accelerated development of PPP hybrid forms. We have made a hypothetical assessment of macroeconomic gain which Russia could achieve if it manages to expand the implementation of hybrid agreements in the sphere of public infrastructure. According to Illustration 1, approximately 12 trillion rubles are required for the full development of the national infrastructure till 2020, which the state only possesses 2 trillion (1/6). Private investors are ready to invest in infrastructural projects on PPP conditions almost twice as much (around 4 trillion rubles) in 2019-2020. But even this will be insufficient to ensure national economic growth in 2020, as 6 more trillion rubles are needed.

Therefore, the potential of infrastructural PPP projects is practically unlimited taking into account full amortization of the infrastructural facilities built as long ago as in the USSR period.

Figure 1. Perspectives of infrastructure development in Russia in 2019-2020 and the state financial capacities in 2019-2024



Consequently, strangely enough, the main problem is the lack of professionally prepared investment PPP projects offered by the state, as well as of their institutional support which could ensure low transaction costs and exclude the risks of financial losses for private investors in the future. In other words, it is the state which treats factors ensuring rapid development of hybrid PPP forms in inadequate way. This situation could be radically changed if the state refocuses its efforts in the national infrastructural development from increasing budget spending on hybrid PPP projects to the development of financial tools for the attraction of private investment. Today the goal of attracting 1 ruble of private investment against 1 budget ruble in PPP infrastructural projects is considered as ambitious. At the same time, changing this proportion for 2 (or more) extrabudgetary rubles against 1 budget ruble could allow the state to ensure accelerated development by 2021 without increasing the budget deficit.

According to InfraONE experts (2018), the use of alternative forms of state support for PPP infrastructural projects will attract additional investment at the level of 0.34-1 percent of GDP over the next three years.

Conclusion and Implications

There have been assessed three scenarios on the basis of PPP hybrid form institutional matrix agreed by the state and private business. They differ by the economic return which a hybrid PPP agreement could ensure in case of using the 1:1, 1:2 and 1:3 ratios between budget and extra-budgetary (private) investments (Table 1).

This data reveals a considerable financial leverage which the state could use to attract to extra budgetary investments in PPP infrastructural projects. With the 1:1 ratio, the state capital infrastructural capacities only through federal funds will double; with 1:2 ratio, capital expenditures of the state will triple; with 1:3 ratio, it will quadruple. When considering the change of the state's financial capacities, based on capital expenditures in the federal budget, and comparing them against the return in GDP growth, this return could be even bigger taking into account the GDP coefficient of elasticity based on federal budget expenditures which will be more than 1 over the whole period analyzed.

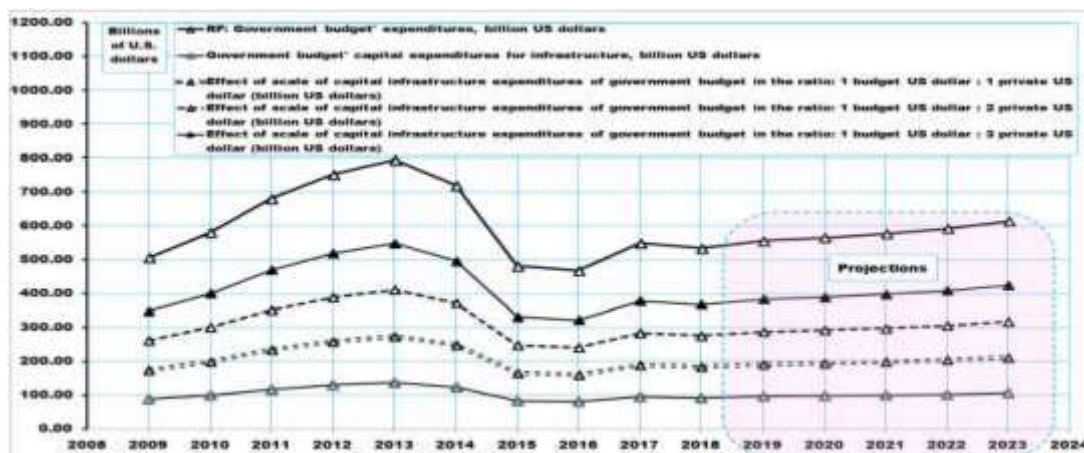
Table 1. Estimation of economic effect obtained from attracting private investments to 1 budget US dollar in the infrastructure projects in current prices (bn US dollars) in 2009-2023* in Russia

Year	Federal budget expenditures, bn US dollars	Federal budget capital expenditures for infrastructure, bn US dollars	Scale effect of federal budget capital infrastructure expenditures in the ratio: 1 budgetary US dollar and 1 private US dollar (bn US dollars)	Scale effect of federal budget capital infrastructure expenditures in the ratio: 1 budgetary US dollar and 2 private US dollars (bn US dollars)	Scale effect of federal budget capital infrastructure expenditures in the ratio: 1 budgetary US dollar and 3 private US dollars (bn US dollars)
2009	505.6130	87.1340	174.2680	261.4019	348.5359
2010	580.1076	99.9719	199.9437	299.9156	399.8875
2011	680.4985	117.2726	234.5452	351.8177	469.0903
2012	751.4540	129.5006	259.0011	388.5017	518.0023
2013	794.3837	136.8988	273.7976	410.6964	547.5952
2014	719.4620	123.9873	247.9746	371.9619	495.9491
2015	480.9470	82.8832	165.7664	248.6496	331.5328
2016	467.1275	80.5016	161.0033	241.5049	322.0065
2017	548.2962	94.4897	188.9794	283.4691	377.9589
2018	533.6368	91.9634	183.9268	275.8902	367.8536
2019*	555.2389	95.6862	191.3724	287.0585	382.7447
2020*	564.4192	97.2682	194.5365	291.8047	389.0729
2021*	576.6216	99.3711	198.7422	298.1134	397.4845
2022*	592.0645	102.0324	204.0649	306.0973	408.1298
2023*	613.9864	105.8103	211.6206	317.4310	423.2413

Source: calculated by the authors on the basis of Rosstat data for respective years Note:

* means projections

Figure 2 clearly demonstrates all these proportions in dynamics.

Figure 2. Russia: Dynamics of the effect of scale obtained from attracting private investments to 1 budget US dollar in the infrastructure projects in current prices (bn US dollars) in 2009-2023*

Sources: the authors' estimations on the base of Table 1

All these calculations prove the exceptional efficiency of PPP hybrid forms in the realization of capital-intensive long-term social PPP infrastructural projects. With the government's orientation towards budget consolidation, the development of basic PPP forms as well as their different potentially perspective variations could stabilize the growth of the Russian economy.

Acknowledgements

The work is performed according to Grant from the Development Program of the Federal State Autonomous Educational Institution of Higher Education "Kazan (Volga Region) Federal University" academic leadership "PRIORITY-2030", on measures to improve the efficiency of material and creative incentives for teachers and scientists "Initiative research".

References

- [1] Alchian, A.A., and Demsetz, H. 1972. Production, information costs, and economic organization. *American Economic Review* 62(5): 777-795.
- [2] Becker, L.S. 1977. *Property rights: philosophical foundations*. London, Henley and Boston: Routledge & Kegan Paul.
- [3] Behrens, P. 1985. The firm as a complex institution. *Journal of Institutional and Theoretical Economics* 141(1): 62-75.
- [4] Demsetz, H. 1967. Toward a Theory of Property Rights. *American Economic Review* 57(2): 17.
- [5] Eggertsson, T. 1999. *Economic Behavior and Institutions*. Cambridge: Cambridge University Press.
- [6] Global Infrastructure Hub. 2017. Global Infrastructure Outlook. Infrastructure investment needs for 50 countries, 7 sectors to 2040.
- [7] : Decree of the President of the Russian Federation of May 7, 2018 No. 204 "On national goals and strategic objectives of the development of the Russian Federation for the period until 2024" (with amendments and additions) <http://publication.pravo.gov.ru/Document/View/0001201805070038>
- [8] Guillemette, Y., De Mauro, A., and Turner, D. 2018. Saving, Investment, Capital Stock and Current Account Projections in Long-Term Scenarios. OECD Economics Department Working Papers No. 1461. Paris: OECD Publishing,
- [9] Hodgson, G. 2003. *Economics and Institutions: A Manifesto for a Modern Institutional Economics* (translated from English). Moscow: Delo.
- [10] Honore, A.M. 1961. Ownership. In *Oxford Essays in Jurisprudence*, edited by A.W. Guest, 107-147. Oxford: Oxford University Press.
- [11] IMF. 2018. Fiscal Monitor Reports. <https://www.imf.org/en/Publications/FM>
- [12] InfraONE. 2018. *Infrastructure Investment: 2018. Analytical Review: at Which Point Investors' Interests Meet Government Concerns*. Moscow: First Infrastructure Company InfraONE.
- [13] Kapelushnikov, R.I. 1990. *Economic Theory of Property Rights (Methodology, Main Concepts, Key Issues)*. Moscow: IMEMO.
- [14] Kleiner, G. 1988. *From Natural Right to the Nature of the Right*. Moscow: Progress.
- [15] Korytsev, M.A. 2009. *Institutional Structure and Mechanisms of Functioning of Quasi-Markets in the Public Sector*. Rostov-on-Don: Sodeistvie XXI Vek.
- [16] Menard, C. 2007. Theory of Organizations: Diversity of Agreements in a Developed Market Economy.
- [17] In *Institutional Economics: A Textbook*, edited by A. Oleinik. Moscow: INFRA-M.
- [18] North, D. 1981. *Structure and Change in Economic History*. New York: W.W. Norton.
- [19] North, D. 1997. *Institutions, Institutional Change and Economic Performance*. Moscow: Fond Ekonomicheskoi Knigi "Nachala".
- [20] Radygin, A., Simachev, Y., and Entov, R. 2015. Gosudarstvennaya kompaniya: sfera proyavleniya
- [21] "provalov gosudarstva" ili "provalov rynka"? [State-Owned Company: Detection Zone of Government Failure or Market Failure?]. *Voprosy ekonomiki* 1: 45-79.
- [22] Shishkin, S. 2000. *Reform of the Finance of the Russian Healthcare*. Moscow: IEPP.
- [23] Tanzi, V. and Schuknecht, L. 2000. *Public Spending in the 20th Century: A Global Perspective*. Cambridge: Cambridge University Press.
- [24] Vaslavskaya, I.U., and Vaslavskiy, Y.I. 2019. Infrastructure Public-Private Partnership' Projects: budget consolidation policy in Russia and government expenditures' efficiency increase. In *Modeling Economic Growth in Contemporary Russia*, edited by B.S. Sergi, 203-232. London: Emerald Publishing Limited.
- [25] Vaslavskiy, Y.I. 2008. *Constitutional Conditions for Democracy: A Comparative Analysis*. Moscow: MGIMO University.
- [26] Vaslavskiy, Y.I., and Vaslavskaya, I.U. 2019. *Public-Private Partnership: An Institutional Approach*. Moscow: Aspekt Press and MGIMO University.
- [27] Vyatkina, N.A., Kopytina, M.O., Teperman, V.A., Shurubovich, A.V., and Belov, A.G. 2001. *Banking Systems in Reforming Economies. Russia in the Context of Foreign Experience*. Saint-Petersburg: Dmitry Bulanin.

- [28] Williamson, O. 1996a. *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. Saint Petersburg: Lenizdat.
- [29] Williamson, O. 1996b. *The Mechanisms of Governance*. New York: Oxford University Press.
- [30] The World Bank. 2008. Private Participation in Infrastructure Projects Database. The Public-Private Infrastructure Advisory Facility. <http://ppi.worldbank.org>
- [31] World Economic Forum. 2017. <https://www.weforum.org/events/world-economic-forum-annualmeeting-2017>
- [32] Zeldner, A.G., and Vaslavskaya, I.U. 2006. *Transformation of the Role of the State in a Mixed Economy*. Institute of Economics of the Russian Academy of Sciences, "Economic Theory and Development Strategy" Series. Moscow: Nauka.