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PUBLIC-PRIVATE PARTNERSHIP IN THE EDUCATIONAL SYSTEM

The article is focused on public-private partnership (PPP) as an efficient instrument of the development of education and, in general, the social sphere in the Russian Federation. Considered are two extreme points of the education system: pre-school level and universities. The authors analyze the current conditions of interaction between the state and business in creation and operation of pre-school institutions, offer measures to stimulate the attraction of investments and competencies of the private sector to pre-school educational infrastructure and identify prospects of public-private partnership in this area. The transfer function of universities is examined, and public-private partnership system enhancement is substantiated as one of the basic factors responsible for the underlying the extensiveness and results of the integration process between the state and the private sector in the context of transition to knowledge-based economy.

Keywords: Education system, market of educational services, commercial pre-school education, public-private partnership (PPP), investment in research and development

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ГОСУДАРСТВЕННО-ЧАСТНОЕ ПАРТНЕРСТВО В ОБРАЗОВАТЕЛЬНОЙ СИСТЕМЕ

В статье исследуется государственно-частное партнерство (ГЧП) как действенный инструмент развития системы образования и, в целом, социальной сферы в Российской Федерации. Рассмотрены две крайние точки реализации системы образования: дошкольная ступень и вузы. Проанализированы текущие условия взаимодействия государства и бизнеса при создании и эксплуатации дошкольных учреждений, предложены меры по стимулированию привлечения инвестиций и компетенций частного сектора в дошкольную образовательную инфраструктуру, определены направления развития государственно-частного партнерства в данной области. Проанализирована трансфертная функция вузов, обоснована необходимость развития системы государственно-частного партнерства в сфере высшего образования как одного из базовых факторов, обуславливающих масштабы, динамику и результаты процесса интеграции государства и частного сектора в современных условиях перехода к инновационной экономике. В ходе исследования была доказана необходимость построения тесного постоянного взаимодействия государства и частного сектора в образовательной сфере: были выявлены негативные тенденции в области дошкольного образования, а также определены основные направления развития высшего образования через привлечение негосударственных организаций и частных предприятий.

Ключевые слова: система образования, рынок образовательных услуг, коммерческое дошкольное образование, государственно-частное партнерство (ГЧП), инвестирование НИОКР.

Introduction. In contemporary economic environment the development of productive cooperation between the state and business in solving social issues, which comprise education at all its levels, is a priority task aimed, ultimately, at increasing the efficiency of the country's labor potential. In the process of introducing market-oriented reforms the public sector in the economy, including the management of critical infrastructure, has declined significantly, and strategic partnership with the private sector becomes a decisive factor affecting the future of the country.

The primary goal of the state in implementing public-private partnership projects (PPP) is to attract private capital to socially significant projects, as well as to use private sector management and technical innovation experience. With the help of PPP tools (for example, partial risks cover and sustainable revenue stream provision) the state encourages the private sector to participate in the production of public goods, whereas business, in addition to financial investments, infuses projects with flexibility, economic feasibility and higher quality standards specific to the private sector. Consequently, in the context of crisis and insufficient public funds, PPP mechanism is instrumental in significant projects execution in the most efficient way with limited public expenses.

The development of the national innovation system and coordination of education, science and business are among the priorities of the Concept for the long-term socio-economic development of the Russian Federation for the period up to 2020. Public-private partnership is

defined as an effective model of interaction between science, education and business in the innovation sector [3].

Methods and object of the research. Considering that the objective of the study is the examination of PPP implementation and prospects at different levels of educational system of the Russian Federation, the authors analyze statistics data on pre-school education provided by RF Federal State Statistic Service and data on the structure of investment into Research & Development, published by OECD. Interview and Delphi methods were used to verify the results of the study.

Results and their discussion. The OECD Committee on Science and Technology Policy defines public-private partnership in the innovation sector as «any formal relationship or arrangement for a fixed or infinite period of time, between public and private actors, in which both parties interact in the decision-making process and co-invest limited resources such as money, personnel, equipment and information to achieve specific goals in a particular field of science, technology and innovation» [8].

The International Technology and Investment Fund (MIPT) provides another definition of PPP: «Public-private partnership in the field of innovation is an institutional and organizational Alliance between the state and business in order to implement socially significant projects and programs in a wide range of industries and research areas» [1].

Federal Law No. 224-FZ dated July 13, 2015, «On Public-Private Partnership, Municipal-Private Partnership in the Russian Federation

and Amending Certain Legislative Acts of the Russian Federation», which was enacted on January 1, 2016, defines public-private partnership as «legal cooperation of a public partner on the one hand and a private partner on the other hand, based on a public-private partnership agreement concluded in accordance with this federal law in order to attract private investment in the economy, to provide for the availability of goods, works and services and improve their quality by public authorities and local self-government» [4].

The analysis of PPP mechanism educates a variety of advantages of this form of interaction between the private sector and the state. The most significant for the research and innovation sphere are [7]:

- Capital investments replacement with a stream of time stretched payments, which is indispensable when government funding is limited and a project is of acute importance.
- Shorter execution period, induced by flexibility and efficiency of the private party, especially if it is interested in the acceleration of the project execution.
- Cost reduction at all stages of project life cycle: in private sector project profitability depends directly on its operational efficiency, so its improvement is continual even after the development stage.
- Efficient allocation of risks, where the responsibility for project execution is distributed among several participants, which back up conceivable failures.
- Improved service by reference to international experience.
- Additional revenue provided by the private sector through the realization of previously unobserved opportunities.

For education, at its all levels (pre-school, additional, general, higher), despite significant differences in the components of the process, its final indicator is social procurement implementation with the most appropriate ratio of accessibility, cost and quality of educational services, which proves unattainable with the existing system of forecasting, distribution and expenditure of budgetary funds, the practice of transferring/buying out social facilities from investment and construction companies and economic conditions of private sector involvement into unreclaimed by the public sector projects.

A number of subjects of the Russian Federation, such as St. Petersburg and the Leningrad Region, expose several PPP projects at different

stages of execution, including the construction of educational institutions in the Pushkin district of St. Petersburg, as well as the creation of an innovative scientific and educational mini-complex within the cooperation of Secondary School No. 564 of St. Petersburg and the Primary Educational Establishment «Laboratory of Continuous Mathematic Education», based on the concept of interconnection and integration of general, additional education and research activities in the field of mathematics and natural sciences. However, these projects do not objectively provide for the creation of new places for students, although these examples have a positive economic effect for a particular institution and contribute to the improvement of the quality of education and the implementation of an individual approach to learning.

The current situation regarding the launching of new places in kindergartens in St. Petersburg is as follows:

According to the Russian Federation Federal State Statistic Service the availability of places in kindergartens in pre-school institutions in 2017 was 62.2%.

The official data for 2018 has not yet been published, but the practice of recent years shows a steady negative trend in reducing the availability of places in pre-school educational institutions since 2011, which is graphically presented in Figure 1.

In 2018 252 thousand children attended kindergartens. The funding of the «Development of preschool education» subprogram of St. Petersburg state program «Development of education in St. Petersburg» for 2015-2020 period is 50,505,988.9 thousand rubles in 2019 [2]. According to various sources, the cost of launching a new place in the pre-school is from 1,000 to 2,145 thousand rubles. Investments into current activities of a kindergarten amount at least 240 thousand rubles per child per year (according to data obtained in the course of negotiations with representatives of the public sector; this figure is also substantiated in reference to commercial pre-school educational establishments). Accordingly, the amount of funds planned under the state program, even in the case of their timely and full-scale allocation, is not sufficient to meet the target of the sub-program for the development of pre-school education: to fill the existing and, moreover, forecasted by 2020 need in childcare service.

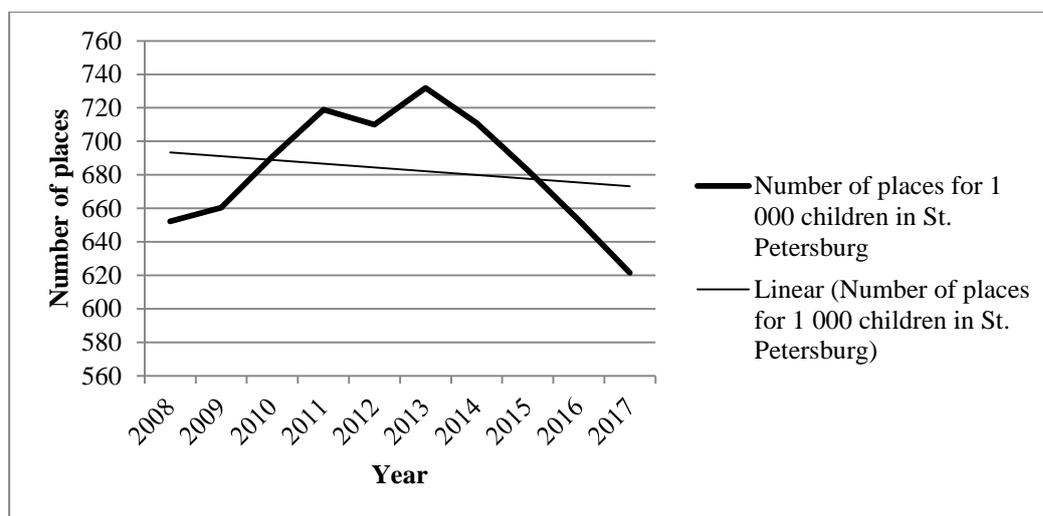


Figure 1. – Number of places in pre-school educational institutions in St. Petersburg for 1000 children
Source – compiled by the authors on the basis of RF Federal State Statistic Service data [6]

In the process of launching new pre-school education facilities with the participation of extra budgetary funds, there are at least two principal parties of cooperation: construction and investment companies and the state. The first aim at the creation of all-inclusive infrastructure of residential complexes in order to ensure their attractiveness to the final consumer. The latter must fulfill their social program. At the same time, with the existing situation with the transfer/repayment of pre-school education facilities, state structures cannot provide, and investment and construction companies cannot expect, timely or, at least, predictable consummation. At the same time launching a new kindergarten implies not only its repayment, but also refunding its operational expenditures, which, as it has been noted earlier, requires additional significant funds, since parents' payment does not nearly cover these expenses, consequently, organizing current operation of a kindergarten is also vexatious for the state. In this context it is expedient to consider another participant of a PPP project - private educational organizations working in the field of pre-school education and additional educational services for children. Major network structures are interested in expanding their coverage, diversifying risks, strengthening competitiveness, enhancement the network's positive image and developing the social component of business. However, acting as independent entities in the field of organizing pre-school education, all these parties face a number of challenges unsolvable outside PPP context: construction companies expect non-payment for social facilities and prospects of continued facilities maintenance payments at their own expense, the state

operates exclusively within the budget, which should include not only the purchase of new kindergartens but also existing and new kindergartens operational activities refunding in uncomfortable economic conditions (taking into account inflation, etc.) Acting independently private pre-school institutions face, on the one hand, the high cost of borrowed funds required within the investment period to adapt the leased premises to the appropriate use, on the other hand, regardless of seasonality and other risks of this type of business, they are forced to enter projects with a fixed rent rate, which is, on average, from 25 to 35% of working expenses of such companies. Noteworthy is the fact that regional authorities can compensate wages and a number of other expenses to private educational institutions, which, by all means, supports business, but due to time-delayed payments, their size (currently, in the Leningrad region, the subsidy amount is 7,000 rubles for a child attending a kindergarten) and forecasting complexity these subventions do not actually affect the cost of services for the end consumer. Thus, the materialization of budget funds in this area is not efficient, since it does not provide the desired target - affordability of childcare services for the population.

At present market participants and interested consumers have cognized the opposition «public vs. private institution» with all the resulting exclusive ideas about the quality and accessibility of services, which is substantiated by the lack of demand for PPP tools and, consequently, by the absence of transitive forms of interaction. For trilateral cooperation in this area (the state – investment and construction company – private

pre-school education company) it is possible to use such legally-established forms as BOT, BOOT, DBFO, however, this requires close cooperation between construction companies and private operators at the management stage, which is impossible in current economic environment due to the lack of interest of the public sector in such forms of cooperation in this area and, consequently, the scarcity of efficient interaction mechanisms, positive experience and relevant competencies. Accordingly, in current conditions it seems practicable to transfer/buy the constructed objects from construction companies via the existing and prospective mechanisms (for example, the Social Obligations Fund for Developers), with subsequent transfer for operational management to a private operator acting as a management company under a certain term, limitations and fixed service price for the end consumer, which will certainly be higher than public service price, but lower, than the average market price for the same kind of childcare service. However, in this respect it is neces-

sary to adapt to domestic conditions and establish legislatively such a form of PPP as Operation & Maintenance. This PPP scheme provides for the needs of all participants: reduction of infrastructure transfer period for investment and construction companies, alleviation of budget expenditures and improvement of budget funds allocation for the state and decrease of service cost for commercial organizations. Its development within the principles provided by Federal Law 224 and legal enactment will combine social and economic interests of prospective partners, which is a decisive factor contributing to attracting business to cooperation in this area.

In terms of PPP application in higher education it is necessary to note the tendency towards a reduction of the state-guaranteed order and, in general, the budget funds allocated for the development of the science and innovation sphere, which is prevailing in developed world economy (Table 1).

Table 1. – The structure of R&D expenditure in the OECD countries

| Year | Canada | | | France | | |
|------|---------------------------------------|--------------------------------|------------------------------------|---------------------------------------|--------------------------------|------------------------------------|
| | Total investment, US Dollar, Millions | % government sector investment | % non-government sector investment | Total investment, US Dollar, Millions | % government sector investment | % non-government sector investment |
| 2009 | 9110,105 | 63,5 | 36,5 | 10537,222 | 89,7 | 10,3 |
| 2010 | 9208,411 | 60,9 | 39,1 | 10974,792 | 90,2 | 9,8 |
| 2011 | 9381,5 | 61,2 | 38,8 | 10951,967 | 88,3 | 11,7 |
| 2012 | 9992,881 | 59,4 | 40,6 | 11100,938 | 89,1 | 10,9 |
| 2013 | 9874,74 | 57,3 | 42,7 | 11242,491 | 88,3 | 11,7 |
| 2014 | 9748,928 | 55,6 | 44,4 | 11172,019 | 89,6 | 10,4 |
| 2015 | 10138,293 | 56,0 | 44,0 | 12246,497 | 81,3 | 18,7 |
| 2016 | 10518,99 | 53,8 | 46,2 | ... | ... | ... |
| 2017 | 10379,615 | 53,8 | 46,2 | ... | ... | ... |
| Year | South Korea | | | Spain | | |
| | Total investment, US Dollar, Millions | % government sector investment | % non-government sector investment | Total investment, US Dollar, Millions | % government sector investment | % non-government sector investment |
| 2009 | 5157,837 | 79,5 | 20,5 | 5591,4 | 74,2 | 25,8 |
| 2010 | 5643,375 | 79,8 | 20,2 | 5671,6 | 72,7 | 27,3 |
| 2011 | 5892,915 | 80,2 | 19,8 | 5503,4 | 71,9 | 28,1 |
| 2012 | 6113,721 | 81,3 | 18,7 | 5106,0 | 72,0 | 28,0 |
| 2013 | 6295,646 | 78,1 | 21,9 | 4994,7 | 72,5 | 27,5 |
| 2014 | 6585,387 | 80,2 | 19,8 | 4947,8 | 73,1 | 26,9 |
| 2015 | 6690,008 | 79,2 | 20,8 | 5056,0 | 71,8 | 28,2 |
| 2016 | 6933,176 | 78,8 | 21,2 | 4966,5 | 71,8 | 28,2 |
| 2017 | 7146,005 | 77,6 | 22,4 | ... | ... | ... |
| Year | United Kingdom | | | Japan | | |
| | Total investment, US Dollar, Millions | % government sector investment | % non-government sector investment | Total investment, US Dollar, Millions | % government sector investment | % non-government sector investment |
| 2009 | 10449,55 | 68,3 | 31,7 | 18635,903 | 52,6 | 47,4 |
| 2010 | 10151,916 | 66,9 | 33,1 | 18094,114 | 52,6 | 47,4 |
| 2011 | 9956,431 | 65,1 | 34,9 | 19185,228 | 53,1 | 46,9 |
| 2012 | 9920,01 | 63,0 | 37,0 | 19469,78 | 53,1 | 46,9 |
| 2013 | 10301,184 | 62,9 | 37,1 | 20682,827 | 53,3 | 46,7 |
| 2014 | 10473,321 | 62,4 | 37,6 | 19890,5 | 52,9 | 47,1 |
| 2015 | 10587,469 | 60,8 | 39,2 | 18968,858 | 52,5 | 47,5 |
| 2016 | 10407,388 | 59,7 | 40,3 | 18407,141 | 52,4 | 47,6 |
| 2017 | ... | ... | ... | 18632,019 | 52,1 | 47,9 |

Source - compiled by the authors on the basis of OECD Science Indicators data [5]

Attracting private sector to this area of traditional state responsibility not only provides additional funding for science and innovation, but also ensures the introduction of new management practices, ensuring a higher level of R&D commercialization, and accelerating the diffusion of cutting-edge technologies in various economy sectors.

Statistics on R&D in the domestic economy shows an increase in both public and private investment in this area when compared to 2009, but the indicators for the period from 2014 to 2016 have a negative trend (Table 2).

Considering the general scheme of interaction between the state, the private sector (business) and universities, noteworthy is the uniqueness of the function of higher professional education establishments, expressed in the transfer of technology and innovation, as well as provision for personnel needs of the state and business.

In general, the scheme of interaction of universities, the state and the private sector is presented in Figure 2.

Table 2. – R&D funding of the Russian Federation, US Dollar, Millions [5]

| Year | Government sector investment, US Dollar, Millions | Business sector investment, US Dollar, Millions |
|------|---|---|
| 2009 | 1745,261 | 560,782 |
| 2010 | 1897,322 | 677,827 |
| 2011 | 2020,155 | 721,119 |
| 2012 | 2025,383 | 885,237 |
| 2013 | 1899,304 | 884,76 |
| 2014 | 2214,242 | 996,728 |
| 2015 | 2103,476 | 980,083 |
| 2016 | 2064,582 | 938,223 |
| 2017 | 2113,617 | 968,999 |

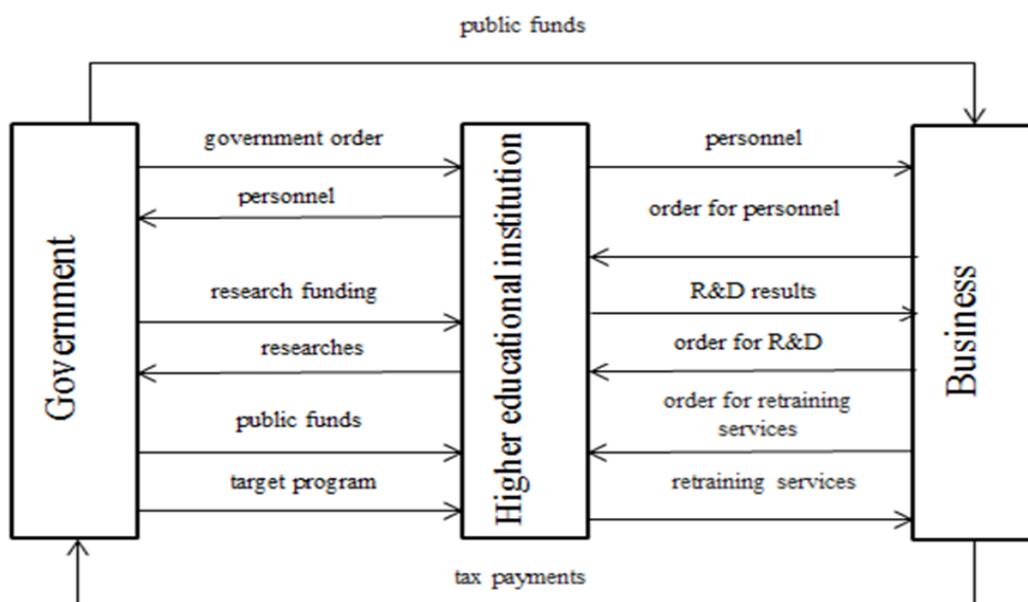


Figure 2. – The transfer function of the universities in the system of PPP

The interaction between the state and the university is displayed not only in the state-guaranteed order for training of certain categories of specialists and the allocation of appropriate budgetary funds, but also in the form of an order for certain studies, funding of target programs, such as evaluating teaching staff resources, stimulating young scientists research activities. In turn, universities transfer research and development results, as well as reports on the implementation of target programs, which enhance government managerial decisions, and train specialists for state-owned companies and academic sector.

Cooperation between business and universities is expressed in personnel training/retraining for specific private sector goals and the development of business-oriented training programs. In addition, science can provide research and development at the request of the private sector, which attracts additional funds for development, as well enhances a relevant and sensitive response to domestic economy need in certain specialists and particular areas of research.

At the same time, the state aims at strengthening the relationship between the private sector and universities (initiating programs to encourage interaction, creating joint ventures on the basis of universities, subsidizing the private sector) via the reduction of taxes on R&D and innovative activities, which is unfeasible outside close cooperation with higher education and research institutions. In return, the state receives expanding tax revenues due to the development of innovative enterprises and their profits increase.

In this context, socially significant projects implementation via PPP is one of the main tasks of the state. In view of recent PPP trends in domestic and world economy the most urgent problems facing the involved into PPP parties detected in the course of the study are as follows:

1. The equitable combination of economic interests of PPP projects participants

2. Provision for investment attractiveness of projects.

In general, the analysis exposes education as an attractive and advantageous PPP field. Despite the existing restrictions that detain interaction between the state, business and science, undeniable is the fact, that the solution of the highlighted problems is vitally important not only for the development of education at all its levels, but also for the cultivation of a stronger, sustained and competitive economy.

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