

Risk Management in Public-Private Partnerships and Research Agenda for Transitional Countries

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Abstract

The article surveys common risks that public-private partnerships (PPPs) face, discusses principles of risk allocation and identifies approaches to risk management. Additionally, the relevance of aspects of PPP risk allocation and management to partnerships in transitional countries such as Kazakhstan and Russia is deliniated. The article contrasts and compares few ways of categorizing PPP risks, and finds no major discrepancies between available approaches. The article emphasizes the need to focus not only on initial risk allocation in a contract between partners, but also on subsequent risk management. Due to emerging risks such as unanticipated changes in demand, risks may need to be negotiated and reallocated. The article argues that risk mitigation tools such as those that may increase demand for a partnership service have to be employed as they permit to raise revenue and contribute to the overall PPP success. For the discussed aspects of PPP risk management, the article suggests directions for future research in the context of a transitional country.

Keywords

Public-Private Partnerships (PPPs), Risk Management, Revenue Risk

I. Introduction

Among many themes related to public-private partnership (PPP) governance, risk management is undoubtedly one of the core topics. The reason is that initial risk allocation between parties in a PPP and subsequent management of risks that tend to emerge in the course of project implementation are factors that determine costs of each partner. If cost pattern is unpredictable and cost overruns become frequent and significant, this may have a major detrimental influence on a project and may lead to a project failure. For example, a private operator that has faced unanticipated risks and related large costs may simply abandon the project, and all costs will be shifted to the government. On the contrary, successful initial risk allocation, i.e., in the PPP contract, and effective risk management over the project term may mitigate many kinds of risk, and keep each partner's costs low. This explains the significance of risk management; the latter is often viewed as a critical PPP success factor.

The article begins with highlighting the principal risks that partnerships often face. Few ways of categorizing PPP risks are contrasted and compared in this section, and the commonalities and differences are identified. This is followed by the discussion of principles underpinning risk allocation in a PPP. Then approaches to effective risk management are explained, and suggestions regarding how risks can be mitigated are noted. In order to illuminate how a specific risk can be managed, a separate section discusses revenue risk management using the examples from transitional countries. An article intends to contribute to the body of knowledge about PPPs by providing a structured and conceptualized deliniation of risks and approaches to risk management in partnerships, and by assessment of risk allocation and management aspects from the perspective of their relevance to a transitional country.

II. Principal PPP Risks

Partnerships are exposed to various kinds of risk. The purpose of this section is to explore principal PPP risks and highlight how they are understood. This will allow to apply the knowledge of risks to PPP practices in transitional countries such as Kazakhstan and Russia, and investigate whether partnerships in these countries are exposed to the same kinds of risk or not, and what the differences are. The next section discusses how risk is allocated between partners.

Guidelines of the European Commission (EC) define risk as “any factor, event or influence that threatens the successful completion of a project in terms of time, cost or quality” [1]. Similarly, Hardcastle and Boothroyd (2003) describe risk is as uncertain possibility of something going wrong that can result in increased cost or cause delay [2]. It is worth emphasizing that risk may have direct impact on costs, and/or it may have an indirect impact, for example, on quality and/or volume of services. This point can be illuminated by an example of a private party that, in an attempt to increase its financial gains from a project, may neglect some quality features of a service, such as cleanliness of a sports facility or an airport, or may reduce some elements of the service, such as the number of clerks, causing longer waiting time for customers.

There are many different types of risk that PPPs may face. Grimsey and Lewis (2002), in their study of risks affecting infrastructure projects, have identified the following nine types [3]:

- Technical risk. This may happen due to engineering and design failures, and may lead to overhaul of the entire project.
- Construction risk. It includes errors in construction, inappropriate construction techniques, and/or flaws in construction materials. This may lead to delays and escalation of costs.
- Operating risk. It involves higher, than planned, operating and maintenance costs.
- Revenue risk. It is also often called demand risk and it includes risk that comes from insufficient (i.e., below forecasted) demand for PPP services and from volatility of prices for services.
- Financial risk. It involves errors in the estimation of project revenue flows and project financing costs.
- Force majeure risk that involves wars and calamities.
- Regulatory/political risk. It includes changes in government and/or public policies, and changes in laws and regulations pertinent to PPP operations and asset ownership.
- Environmental risk. This risk stems from adverse impact of the project on the environment (such as greater pollution), and adverse impact of changing environmental conditions on the PPP operations, such as climate change that may cause a greater need for airconditioning of a facility and, consequently, larger costs.
- Project default. This is viewed as the overall project failure that may come from a combination of any kinds of risk described above.

Similarly, the EC guidelines identify eleven types of risk as follows: revenue risk, construction risk, foreign exchange risk, regulatory (contractual) risk, political risk, environmental risk,

latent defect risk, public acceptance risk, sustainability risk, hidden protectionism, and risk involved in the choice of private the sector partner [1]. Some kinds of risk are the same as in the Grimsey and Lewis classification [3], although there are few additional kinds such as:

- Foreign exchange risk. It involves the changing value of a domestic (national) currency compared to major world currencies, such as the U.S. dollar or euro. The risk comes to play if and when PPP parties have to purchase some equipment, materials or services from other countries during the project term. As these purchases were planned in a national currency, by the time when a purchase has to be made the value of national currency may change and a buyer may have to pay more for materials and equipment (if national currency has depreciated), which will mean higher PPP project costs. In other cases, a buyer may have to pay less, if a national currency has appreciated, which will mean cost savings for a PPP project. Naturally, this kind of risk is more relevant to transitional countries including Russia and Kazakhstan as their economies and currencies are less stable than those of industrialized countries.
- Latent defect risk. Grimsey and Lewis call this risk technical risk [3] as it refers to potential technical flaws in the way how an asset was constructed.
- Public acceptance risk. This risk comes from the degree of population's willingness to use PPP services. As some services involve user fees, public acceptance often means the citizens' readiness to pay these fees. If many people are not willing to pay, the PPP facility may be underutilized leading to smaller revenue and the need for government subsidies. In addition, lack of public acceptance may lead to political ramifications for the government as public may be concerned with the misuse of taxpayers' money. In ex-Soviet countries, including Russia and Kazakhstan, in which many people got used to free or heavily subsidized public services, such as health care or free roads, the risk of public acceptance needs to be carefully addressed by all those who initiate PPP projects.
- Sustainability risk. This risk stems from a question whether a project can continue for the full length of its term as citizens preferences may change, or the service may become outdated (for example, a recreational facility may face smaller use because of development of new kinds of sports, entertainment and recreation; traditional railroads may become obsolete because of development of new high-speed trains and railroads). This may result in earlier PPP project shutdown as opposed to the longer contract term. In this case government is likely to incur additional costs in order to compensate a private party.
- Hidden protectionism. This is the risk of creating a private monopoly, protected by the government from competition. The examples include power generation, toll roads, sports and leisure facilities, and educational centers. In fact, examples may include any PPP if a government-protected monopoly restricts competition and leads to higher prices without losing customers.
- Risk involved in the choice of the private sector partner. This risk may exist because of the private partner's lack of experience and/or lack of commitment to a PPP project. The risk may result in increased project costs and/or multiple disputes between parties. In the worst case scenario, a private party may abandon the project if it becomes money-losing.

The longer list of PPP-related risks, offered by the European

Commission, captures a greater number of details, relevant to PPP formation and operation, as opposed to placing some types of risk in more general categories, as Grimsey and Lewis did, and, as a result, the two classifications can be considered complementary.

As for the other kinds of risk, their relevance to partnerships in post-Soviet countries including Russia and Kazakhstan needs to be investigated. Specifically, future research may explore what kinds of risk have greater importance for partnerships in the Russian and Kazakhstani context and why, and what risks have lesser importance. In addition, there might be some other risks unique to one of the two countries or for both (as opposed to other countries). These unique risks also have to be identified, as well as the reasons for them. In turn, the study of PPP risks will permit better understanding how they are allocated between partners, and what tools and mechanisms are used for risk mitigation. An overarching goal is to investigate whether risk identification, assessment and allocation in PPP projects in Russia and Kazakhstan is a success factor for partnerships or an impediment.

III. Principles of Risk Allocation in PPPs

Risk allocation in partnerships has been discussed extensively in the scholarly literature and various guidelines and documents for practitioners. This topic informs the broader discussion of PPP governance and partner interaction from at least two perspectives.

One is that initial risk allocation is reflected in an original PPP contract, with an attempt to avoid or reduce uncertainty regarding which party is assigned responsibility for what, in case some event happens. Klijn and Teisman (2003) argue that risks in PPP should be shared by the public and private partners [4]. As accepting an additional risk is likely to increase private party's costs and decrease its profits, the risk acceptance is subject to discussion during the process of PPP contract negotiation and getting some compensation that is supposed to offset increased costs. Effective negotiation of identified risks and related compensation in the initial PPP contract becomes, from this perspective, a factor that contributes to a partnership success. Risk sharing, much of which is specified in a partnership contract, is often viewed as one of the main PPP aspects, especially in major infrastructure development projects due to high capital costs [5].

The second perspective suggests that, notwithstanding the contracts, how exactly parties bear the risk in the course of project implementation significantly depends on their interaction [6]. Some risks may not be spelled out in a contract, and may require further negotiation, while some other provisions may be subject to interpretation by either party. Additionally, in the long run, new circumstances of any kind may develop which will present new challenges and possibly reallocation of responsibilities and costs. The examples of challenges to PPPs include changes in legislative environment, political and economic reforms, and/or international influences. Some of them cannot be foreseen, such as formation of (or phasing out) a regional customs union, or a change in the region's administrative boundaries (which may influence the demand for a service). Especially in such cases, it is the dynamics of the partners' relationship, rather than initial risk allocation, that determines redistribution of risks and related expenses [7].

The EC guidelines point out that "risk should be transferred to the party best able to manage it in the most cost effective manner. [1]. The reason is that risk has direct influence on financial position of a party, and on the total project cost. Risk allocation is not about

just transferring some risks from the public sector to the private sector. On the contrary, effective risk allocation requires finding out what party is in a better position to deal with a certain kind of risk, so that the risk itself is mitigated, and related costs are the lowest as opposed to when another partner in a PPP bears the risk. Guidance for Public Private Partnerships in New Zealand discusses similar notions about risk allocation [8].

The lowest cost has become a critical factor in deciding what partner should bear a certain risk because the cost of a private party has the impact above and beyond the private sector: the private party's costs have to be compensated by government and/or citizens. The more a PPP project costs to a private party, the more government and/or citizens will have to pay. "... The degree of risk transfer to the private sector will influence the overall cost of the project to the public sector as all risk will be associated with the price premium. Therefore the objective must be to achieve cost effective risk transfer, not simply risk allocation for its own sake" [1]. Optimal risk allocation can be described as follows. If greater ability to mitigate some risks and to deal with them at the least possible cost belongs to the public sector partner, these risks should remain with the public sector. Those kinds of risk that the private sector partner can mitigate better and cheaper, should be transferred to the private sector.

Based on the concept of effective risk allocation, the European Commission guidelines for successful PPPs state four objectives for risk transfer including (a) reduction of long-term project costs; (b) creation of incentives to deliver projects on time, to required standard and within the budget; (c) improvement of quality of service and increase in revenue through efficient operation; and (d) ensuring consistent and predictable profile of expenditure [1]. If these objectives are pursued, risk transfer, instead of assigning as many tasks and responsibilities as possible to the private sector partner, involves determination of the party that can handle each risk better and cheaper.

The meaning of proper risk allocation between parties is illuminated in the Guidance for Public Private Partnerships in New Zealand with the following two examples [8]. One example suggests that demand risk for a prison should be borne by the public sector because "the demand for the prison is very much influenced by legislation and therefore by the government's sentencing policy, by the sentencing policy of the courts, by the approach taken by parole boards and by the Department of Corrections' prisoner management policies" [8]. Further, Guidance concludes that transferring demand risk to the private sector party would therefore be an inefficient allocation of risk. Instead, the payment mechanism should be based on some combination of service performance, availability and occupancy rates.

An additional example from the same source is about the ground conditions in a tunneling project. Guidance for New Zealand partnerships claims that the risk for the ground conditions should be borne by the private sector partner because these conditions cannot be determined fully before tunneling operations begin. The document concludes that a private contractor responsible for the construction is in the better position to manage such risks and should therefore bear them [8]. This is because it is in the interest of the contractor to complete construction at the least cost. In addition, the contractor possesses the necessary expertise and technological solutions to undertake construction under various ground conditions. The ultimate influence on the PPP project is that risk allocation becomes cost effective, and the overall project costs are smaller than in the case of assigning responsibility for the ground conditions to the public agency.

IV. Approaches to Risk Management

Fruitful insights of risk allocation have been provided by Lam, Wang, Lee and Tsang [9]. Their study identifies seven key risk allocation criteria. They include: ability of the party to foresee the risk; ability of the party to assess the possible magnitude of the consequences of the risk; ability of the party to control the chance of the risk occurring; ability of the party to manage the risk in case it occurs; ability of the party to sustain the consequences if the risk occurs; whether the party will benefit from bearing the risk; and whether the premium charged by the risk-receiving party is considered reasonable and acceptable for the owner. Although the above criteria are quite detailed and may be helpful in partnership design and contract preparation, often the focus in the risk allocation discussion shifts to the links between risk management and the private partner performance incentives.

There is a general consensus in the literature that at least some risk should be transferred to the private sector in order to give incentives to a contractor to perform better, to improve its management and project performance. One of the tools to ensure that such incentives are effective is to not make full payments to a private partner until all performance standards are met. The EC guidelines claim that "under most PPP projects, full payment to the private sector contractor will only occur if the required service standards are being met on an ongoing basis" [1].

Similar to the EC guidelines, Guidance for PPPs in New Zealand states that "the payment should only be paid to the extent that the service is available, i.e., it should be proportionate to the quality or quantity of units. There should not be a fixed element which the contractor receives irrespective of performance. In principle, abatements for nonperformance (or penalties) should be large enough so that the contractor's incentive to perform or to remedy performance defects is fully aligned with the government's interests [8]. The above shows how government can mitigate risk of private partner's nonperformance in the cost effective manner and, therefore, ensure that public interest is served by receiving the pre-determined service quality and quantity without an increase in the use of public funds.

With regard to how risks are allocated and mitigated, it is argued that "perhaps the most challenging feature of PPP for contractors is the need to understand fully the risk allocation mandated under the PPP agreement between the project company and the government" [10]. This view calls attention to the first and foremost challenge for parties – the need to identify the risks that each partner is going to accept in a partnership. This task has particular relevance to Russia and Kazakhstan: because of the limited experience with PPPs in the two countries, parties may not fully realize the nature and range of risks they may be exposed to, and how difficult and costly dealing with each risk may be. However, risk management tools may be available. As an example, Cook suggests using insurance coverage, such as surety bonds, for a number of project situations to offset a private company for some unaddressed risks in an original PPP contract [10].

In line with Cook's proposal is Shin's suggestion that "those risks that are foreseeable and can be insured shall be handled by insurance as much as possible" [11]. Shin advocates a notion that risks should be insured whenever possible and should be allocated through negotiations between parties. However, getting insurance depends on willingness of an insurer to accept a particular risk, which in turn depends on how high a risk is priced. Thus, buying insurance may be possible, although it may be pricey for a private company and, ultimately, for the government and citizens.

Tools for coping with risks, such as insurance, may prove to be useful in Russia and Kazakhstan. Future PPP research may investigate what instruments for risk management are used in these countries and which ones are more effective.

V. Managing Revenue Risk

Out of many kinds of risk to which PPPs are exposed, revenue risk (or demand risk) is one of the most common because it is difficult to forecast accurately what revenues a project can bring over a long period of time. In this section, revenue risk is discussed as an example of how a certain risk can be managed and mitigated, and insights for transitional countries are drawn.

Revenue is influenced by many factors such as tariffs (or prices), utilization level, and the price elasticity of demand. Different sectors have different historic information about demand for a service. The EC report emphasizes that historical data may be a reliable basis for the demand estimates or may not. If costs were subsidized in the past, forecasting how consumers may react to unsubsidized prices may be a challenging task [1]. This applies to projects such as transportation services (railroads, automobile roads, and airports), water supply, energy supply, and educational services.

Additional factors also may influence revenue of a PPP project. This can be illuminated with a note, relevant to Russia and Kazakhstan, that a toll-road project also depends on drivers' income and level of automobile ownership. In countries with low incomes and low automobile ownership people may prefer to use slower but free of charge roads rather than paying tolls [12]. Although in Russia and Kazakhstan incomes are generally lower than in industrialized countries, the level of automobile ownership is fairly high as many people drive inexpensive and older cars. As a result, the toll-road projects may be facing some unpredictable behavior of drivers in reference to tolls. Patterns of consumer behavior and the likelihood of public acceptance of such projects have to be carefully investigated before the beginning of a project with the help of surveys, interviews and public discussions.

As demand risk is one of the most common in partnerships, the government role in coping with demand risk is often emphasized. Prud'homme [13] finds that usually partnership costs are underestimated while benefits are overestimated. In regards to PPP revenues and expenses, he claims that "errors of 50 percent or more seem to be the rule rather than the exception" [13]. There is almost always a difference between planned and actual outcome and many reasons that explain that fact, such as low demand and/or additional expenses. As demand risk is often high, government may play a significant role in mitigating it.

Sadka states that "under many PPP arrangements, the government provides the concessionaire with a guarantee against certain cost overruns or revenue shortfalls" [14]. In such cases it should be specified in the contract that government would compensate extra cost to concessionaire. Another safeguard which government could provide concerns the benefit side. Government may offer insurance in those cases when actual benefit is smaller than estimated. Thus, government would share some risks, or may bear a risk instead of a private party.

At the same time revenue risk is not merely the subject for negotiation and allocation between the parties regarding who is responsible for what. Demand can be influenced (i.e., shifted), and some tools are available to a private company to encourage demand. For example, in the case of a toll road, a private operator could do aggressive advertisement and marketing, provide clean and comfortable rest areas along the roads provide fast and good

breakdown services or if demand is elastic the private partner may charge a toll below the maximum level allowable in the concession agreement [14]. This way of coping with revenue risk may be preferred, as opposed to the option when government accepts responsibility for making additional payments to a private partner if revenue falls short of projected, for the reason that this mobilizes private partner innovation without the use of public funds.

Another government tool of dealing with demand risk is giving a private party a guarantee for the fixed amount of revenue. However, such guarantees may lead to a situation when a private operator has no incentive to increase the volume of services, such as boost traffic on the road. There would be no incentive because higher volume of traffic is likely to lead to higher maintenance costs. In such cases "some revenue-sharing arrangement, between the public and private partners, would seem to be efficient, as it would maintain an incentive for the concessionaire to take demand-enhancing measures" [14].

Instead of fixed government payments, Sadka offers a solution in which demand is set out as a benchmark. "If actual demand falls short of this benchmark, then the public partner pays to the private partner a fraction α of the deficit; if actual demand exceeds the benchmark, the private partner transfers to the public partner a fraction β of the surplus" [14]. This is an effective proposal as it resolves the problem with lack of private partner incentives, creates the motivation for increasing the volume of services, and permits the more efficient use of government money if demand is smaller than projected.

At the same time the United Nations report suggests that "guarantees and support by governments must be provided with care" [15]. By providing support government not only deals with some kinds of risk, but also creates the 'guarantee culture' which reduces the incentives of the private sector to accept risk, and the private sector may become increasingly risk averse. Similarly, the European Commission guidelines for PPPs argue that grant financing carries certain risks. Grants "provide little incentive to efficiency enhancements usually associated with the pressures of commercial financing. Additionally the availability of free funds can cause a degree of dependency and 'crowding out' of alternative sources" [1]. As government grants are likely to be viewed by private partners as coverage of some of their risks, this method of coping with risks may be quite ineffective as it discourages private partner innovation and reduces incentives for better performance.

The notes about the guarantee culture in PPPs and the government grant financing of partnerships are important for transitional countries including Russia and Kazakhstan due to general underdevelopment of private business and, in particular, restricted opportunities for long-term financing. Future research has to find out what kinds of government financial support to PPPs are used in these countries, and what influence they have on risk management in a partnership, and, ultimately, on project success or failure.

VI. Conclusion

In the course of project implementation one partner often tries to shift risks to another partner. It is not unusual that parties cannot agree on the proper risk allocation because when a party accepts a certain risk it also accepts related costs that potentially may be very high and may turn project's profit into a loss. This is one of the main reasons why PPP projects fail [15]. This note reiterates the importance of governance and partner interaction in a PPP as opposed to an intent to fully decide on risk allocation in an original partnership contract. In other words, risk management includes not

only initial risk allocation specified in a contract, but also – and more importantly – additional allocation and/or reallocation that may stem from unforeseen factors and that are likely to be heavily influenced by how effective the partner interaction is. This presents a suggestion for future research in transitional countries including Kazakhstan and Russia. As partnerships in these nations are in the very beginning of their operations, the PPP research needs to embrace both perspectives, i.e., firstly, to analyze how and why partners have shared risks initially, and, secondly, investigate what kinds of decisions regarding additional risk reallocation are being made, and what the contextual factors that drive these decisions are.

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