

Using Public-Private Partnership towards public services improvement

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Abstract

Public-Private Partnership (PPP) has been popular among public sector due to its objectives in transferring risk, reducing cost, solving budgeting constraints problems, providing higher quality and saving time. However, global financial crisis in 2008 affected development of PPP. Realizing private sector's tendency to being involved in PPP projects, and its advantages and disadvantages from their point of view seems essential. This study aims to find out that whether private sector is interested in partnership with public sector in general and if so, in which type of infrastructure and public service facilities. A questionnaire survey was conducted among a number of high grade Iranian contractors and data was analyzed to ascertain their level of awareness and experiences about PPP and the project type they are interested for investment. The survey results showed that it is not practical for some projects to utilize PPP since local private sector is not interested to be involved with them. Furthermore, considering the projects with more potential to be noteworthy for private sector, the factors were introduced which must be taken into account for development of PPP in order to improve public service.

Keywords: Public-Private Partnership, Project Delivery, Public Service, Private Sector.

1. Introduction

During the last few decades, as method of construction projects became more complicated and required more financial resources, traditional models of contracts were not able to satisfy projects' needs and as a result, new methods of construction contracts were considered. Public-Private Partnership (PPP) is one of the most popular types of contracts which are widely used in different countries. PPP is an effective approach to enhance project productivity by bringing in management efficiency and creative skills from business practice, and reducing governmental involvement by using private sectors in the provision of public services. PPP is resulted from development of the procurement strategy of BOT (Build, Operate and Transfer) and it is particularly suitable for large scale infrastructure projects (Shen, Platten and Deng, 2006). The function of PPPs is to lower the risks of projects during the life cycle, including cost overruns and delays, while still achieving the best value (Zhang,

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2005). Meanwhile, PPP also provides the opportunity for innovation and establishment of partnerships (Bloomfield, 2006). Sagalyn (2007) contended that existing Public–Private (PP) projects have three generations. In the first generation, mistakes easily emerged due to lack of experience by public and private partners and their consultants. In the second generation, large development companies developed specialized Public-Private urban development projects, often by employing planners who managed Public-Private projects for public entities or led PP corporations. As a result of social development, the third generation has emerged, which are PP projects initiated by developers seeking private-sector involvement. The number of PP projects is expanding in the third generation and it is anticipated that they will be used more widely in public service, city reconstruction, and so forth. PPP employs private sector experts and skills to provide public goods and services. It is considered to be a suitable option for complex capital projects with significant ongoing maintenance requirements. To these partnerships, private companies can offer innovative design, project management skills and risk management expertise. PPP contracts commonly require the private agent to take full responsibility for the performance of the asset over a long term, at least for a significant part of its useful life, so that efficiencies arising from long-term investment and asset management could be realized (Nisar, 2012). PPPs are arrangements which require the co-operation between public and private parties, which have a common goal in the long term, and share equally the risks and responsibilities for providing public services (Ham and Koppenjan, 2001). These contractual relationships can adopt a diversity of figures, namely concession contracts, lease-develop-operate, built-operate-transfer, built-operate-own and franchise, among others (Navarro-Espigares and Martín- Segura, 2011). A PPP is collaboration between the public and private sectors for the purpose of delivering a project or a service traditionally provided by the public sector. Recent years have seen an increasing market for PPPs for the development and operation of infrastructure projects (Ke, Liu and Wang, 2008).

Iran is a developing country which is located in the Middle East and like other countries in this region, contains enormous amount of natural resources like oil and gas. Additionally, in today's competitive market, improving the current economic and strategic conditions of Iran require ongoing process of construction and development. Currently, Prevail trend for constructing projects in Iran is based on direct investment and supervision of government without enough attention to the potential and capability of private sector. The aim of this study is to find out to what extent PPP is applicable and practical for construction projects in Iran and to discover the opinion and view of construction parties in this regard. Financial evaluation methods are only considering the benefits of the public sector or the government in Iran and only a few PPP projects have been successfully completed. However, with the fast pace of new construction in infrastructures, a delicate balance has to exist among the private sector capacity, government regulatory function, and public satisfaction. This study wants to assess the possibility of using PPP method for the delivery of projects and taking into account the viewpoints of stakeholders.

So far, several studies have been carried out to identify the function and application of new construction contracts and in particular PPP in different countries. For example, Yuan et al. (2010) stated that for more efficient and effective PPP projects, the performance management is increasingly important and the influence of stakeholders must fully be

considered and based on the perspectives of different stakeholders, they proposed several performance objective attributes. Cheung and Chan (2011) presented an evaluation model which is useful for assessing the suitability of PPP projects by studying their attractive and negative factors and they ranked the importance of 15 attractive and 13 negative factors for adopting PPP. Zhang (2005) identified, analyzed, and categorized various critical success factors for PPPs in general based on a public private principle and classified them into five main aspects: (1) economic viability, (2) appropriate risk allocation, (3) sound financial package, (4) reliable concessionaire consortium, and (5) favorable investment environment. According to the findings of Chan et al. (2010) thirteen potential obstacles toward PPP projects identified and the top three obstacles were found to be lengthy delays in negotiation, lack of experience and appropriate skills, and lengthy delays because of political debate. Grimsey and Lewis (2005) by focusing on the intricacies of the accounting issues raised by PPP have investigated and determined the value for money for PPP in construction projects. On the other hand, the study of Abdul-Aziz and Jahn Kassim (2011) examined the objectives of housing PPP, the success and failure factors and found that the public agencies desired to fulfill an array of objectives when adopting PPP, the most important being to enhance organizational reputation. The success factor which had the most impact was action against errant developers. The most influential failure factor was absence of robust and clear agreement.

As another example related to the PPP, Shen, Platten and Deng (2006) evaluated the major risks in implementing public sector works, and the ways that the application of PPP can help to manage risks in project delivery. Their results presented valuable lessons for both the practitioners and researchers in application of PPPs to manage risks in delivering of public sector projects in other countries and regions. Moreover, the research of Abednego and Ogunlana (2006) discovered the perception of proper risk allocation of construction stakeholders and utilized the findings as the foundation to develop the concept of good project governance and they achieved that proper risk allocation in projects are developed under PPP procurement system which would enhance the project performance. In order to provide insights for directing PPP research and improving the existing practices of PPP projects, Tang, Shen and Cheng (2009) reviewed PPP studies published in the six top journals in the construction field and they suggested that risks, financing, contractual agreements, development of PPP models, concession periods, and strategies in choosing the right type of PPP are preferable for future studies. Nisar (2012) examined three community PPP projects and identified critical success factors of the project outcomes and due to that two conclusions particularly stand out: first, the project must be aligned with both the public and private parties business and service plans; and second, appropriate management structures and procedures must be established for obtaining this alignment. Cruz and Marques (2012) have addressed the concept of contract flexibility as well as the several possibilities for its incorporation into PPP development. Based on existing classifications, the authors proposed a double entry matrix as a new model for contract flexibility. Another research related to PPP which was prepared by Ke, Liu and Wang (2008), developed equitable financial evaluation method which is based on characteristics of PPP projects using six separate indicators and Monte Carlo simulations. The result of this study shows that the method combines the viewpoints of all the relevant stakeholders to achieve an equitable financial evaluation of PPP projects.

In spite of all above mentioned studies, it seems that there is a lack of systematic investigation on all aspects of using PPP in Iran and in fact few studies have addressed the importance of using different project contracts such as PPP in Iranian construction industry. For example, Kheiri, Honarkar and Mousavi (2012) categorized several models between public and private sector by focusing on previous experiences of other countries and proposed them for Iran. However, due to the nature and characteristic of national projects which are complex and prone to error, different types of PPPs need to be practiced in Iran's infrastructure and based on diverse results and a variety of problems that might arise, improve and provide a cutting edge model which suits construction projects in Iran. Shahdani, Ghiasi and Bighdeli (2012) investigated several types of PPP models by using the capacities of private sector to supply public services and infrastructures in transportation sector as a fundamental sector of economic development in Iran. For this purpose they reviewed a theoretical literature of PPPs and then they investigated the barriers to the development of such partnerships in transportation sector of Iran economic, infrastructure, legal and social areas. Therefore, the aim of this study is to investigate the possibility of using PPP in Iranian construction industry and based on a survey which was prepared according to a detailed questionnaire, determine that to what extent construction parties including public and private sectors are ready to collaborate more efficiently; in which, both bring their complementary skills to national projects, with different levels of involvement and responsibility.

2. Methodology

According to the review of literature, a questionnaire survey was conducted to evaluate tendency of construction industry's parties to partnership in public projects. In order to design the questionnaire, a draft was prepared and was distributed among five graduate students in Civil Engineering department as a pilot sample. Regarding to the standard deviation of answers and participants recommendations, final questionnaire was designed. The questionnaire consisted of two main parts which contained close-ended questions.

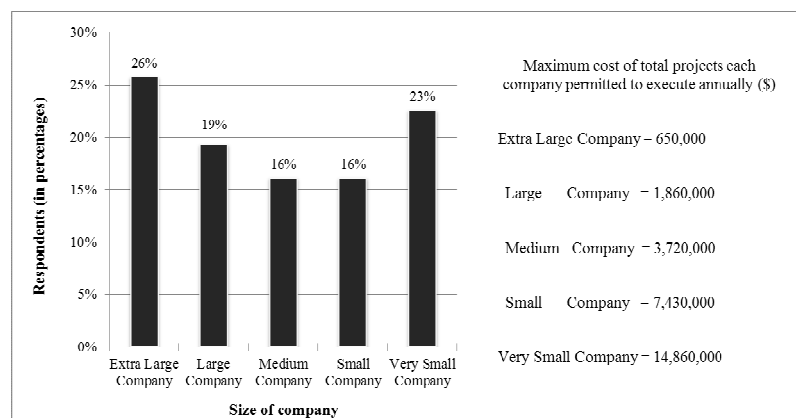


Figure 1 : Percentages of respondents in terms of size of their companies

First part of the questionnaire was divided into three segments. At the beginning personal information of participant were asked for categorizing the data. Then the level of familiarity with PPP was investigated by two simple questions. Regarding to predicted low level of awareness about PPP, a brief definition was presented at the end of the first part of the

questionnaire. Second part had four sections to find out the opinions and tendencies of participants about partnering in public projects. In first section type of projects and phases which participant was interested for partnering in were asked. The next three sections included close-ended questions with Likert scale to evaluate participants' opinions about the level of importance of different factors as advantages, barriers, and success factors in PPP projects. Questionnaires were filled out by face-to-face approach with assistance of a Civil Engineer. Total numbers of 60 questionnaires were sent to 5 Civil Engineers (12 for each one) in three different cities to distribute them among their Colleagues in construction industry's private sector. Respondent companies participated in projects of building construction, transportation construction (e.g. Roads, Railways, and Ports), and pipeline construction (e.g. water and sewage networks). Figure1 shows the percentages of respondents in terms of their company's size and maximum cost of total projects that each company permitted to execute annually. 80 percent of the participants had bachelor degree in engineering and 20% had master degree. In terms of job experience, 48% had less than five years experiences, those with experience between 5 to 10 years were 35%. Participants with experience between 10 to 15 and more than 15 years were 6% and 10%, respectively.

3. Results and discussions

Considering questionnaire's main parts, results were categorized into four parts which will be described. First part was about participants' knowledge about PPP and was followed by questions about their tendencies to partnering in public projects. In second part, according to literature review and characteristics of Iran's construction industry, significant advantages, barriers, and success factors of using PPP were selected. Participants were asked about the importance level of these factors by close-ended questions with Likert scale. As a result, the weighted means calculated for each factor to evaluate overall viewpoint of participants.

3.1 Knowledge and tendencies

To evaluating participants' knowledge about PPP, their level of familiarity with PPP was asked. Twenty nine percent of them were not familiar, and same percent just heard the term "Public-Private Partnership", about 39% were a little familiar and only 3 percent had complete familiarity. The private sector's low level of awareness with PPP and its advantages, in previous studies was recognized as one of the most significant obstacles in partnering which can be obviously seen among Iranian private sector. This unawareness may be the reason that more than half (about 52%) of the participants were not interested in partnering with public sector. The participants were asked about their tendency to partnering with public sector in terms of the type of projects. As illustrated in Figure 2, schools, power plants, airports, and hospitals were ranked at the top of the list. These tendencies interpret by considering the level of familiarity because of the existence of non-governmental (private) schools for about two decades and also the nature of the schools' buildings which is not very complicated, so schools are appropriate projects in terms of constructability and experiences in operation. From respondent's point of view, constructing power plants were ranked as most favorable projects after schools. This is due to easy access and low cost of oil which lead to creation of numerous power plants in Iran and consequently provided valuable experiences for private sector during collaboration with oil industry among these projects.

These experiences and high amount of energy consumption may be the cause of private sector's interest in partnering in these types of projects.

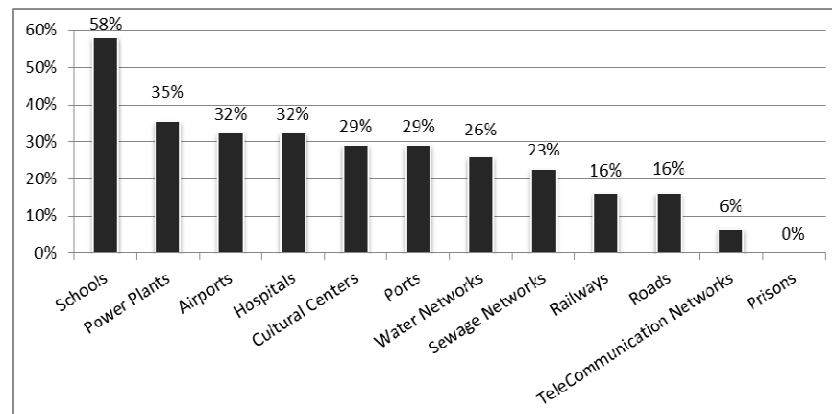


Figure 2: Participants' tendency to partnering in terms of the type of project

Next six types of projects do not differ considerably. The same percent of respondents' tendency to railways and roads (16%) which are half of the airports' amount (32%) show that between different types of transportation projects, partnering in air transportation is more interested for private sector. Telecommunication networks are unknown for construction industry practitioners, and it was predictable that they were not interested in partnering in these projects. Surprisingly none of the participants had tendency to partnering in prison projects, this dislike may have political or social roots. There are different types of PPP projects in terms of the phases included in projects. According to the questionnaire results, participants prefer to join in build, design, and operation phases respectively with 80%, 58%, and 23%. Finance and maintenance place at the last level, each one with about 13 percent.

3.2 Advantages

Six advantages of using PPP in projects which ranked by their weighted means of importance level from participants point of view are showed in Figure 3. Private sector is leader in innovation and using technologies to achieve more benefits (Chan et al., 2006). Public sector can benefit from these capabilities of private sector by partnering them in public projects. "Benefit from private sector capabilities" was selected by participants as most important one with weighted mean of 3.94. Traditional characteristic and inefficiencies of Iran's construction industry and its practitioners are major reasons of this selection. Private sector is very worthy resource for financial support of public projects. By partnering them public sector does not need to invest whole project cost at the beginning, so they can spend their budget for projects with higher priority (Le et al., 2005). Also the problem of low quality which resulted by limited budget will be ignored and projects will be executed with high quality and performance. The second choice of participants in terms of importance was "Provide required financial resource" with 3.65 weighted mean.

It is obvious that allocating appropriate budget, using new methods and materials, and including expertise to project by private sector will lead to higher quality and improved user satisfaction. High quality projects which lead to consensus, improve the value and benefits of projects. This factor ranked third between advantages with level of importance equal to 3.45.

Private sector has better understanding of management usefulness. The importance of consumer satisfaction is proved to private sector and it is demonstrated that better services will lead to consumer satisfaction which will result to more benefits. Partnering private sector in public projects will be very effective to improve service delivery which placed between medium and high importance level by participants with a 3.4 weighted mean.

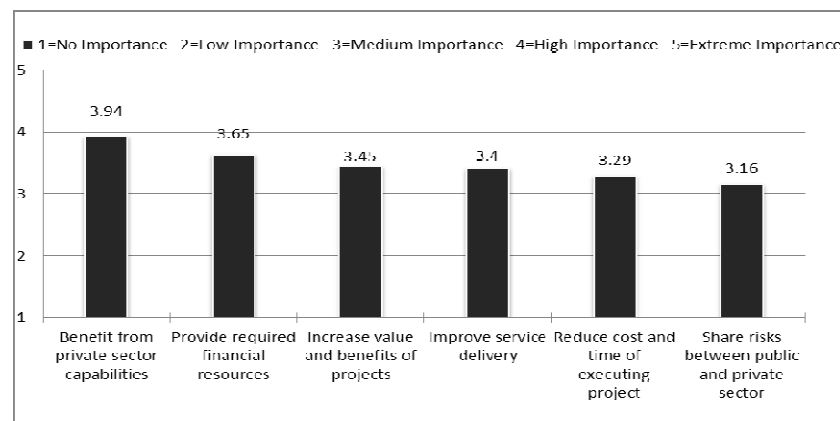


Figure 3: Advantages of using Public-Private Partnership in terms of their weighted means of importance level from participant's point of view

There are two considerations about cost in PPP projects. First, to gain more benefits, private sector has motives to implement project on time and budget to eliminate cost overrun from increasing direct costs or indirect costs resulted from delays. Second, the earlier operation of project, the earlier return on investment. This financial incentive is very significant reason to complete the project on schedule (Grimsey and Lewis, 2004). "Reduce cost and time of executing projects" placed fifth by participants in advantages list. By using PPP, the risks of projects are transferred to expert firms and lead to reduce government risks. Private sector has more efficiency in delivering projects and is reliable to share the risks of project. It does not mean that all of the risks of projects must be managed by private sector; it means that each sector is responsible to risks associated with its duties (Boussabaine, 2007). Although the risk transfer is one of the most significant advantages of PPP, but it was placed at the end of the list in terms of importance. It seems that the concept of risk sharing is not well understood.

3.3 Barriers

The major obstacles in implementing PPP were classified; the participants' opinions about their level of importance are illustrated in Figure 4. "High transaction costs and lengthy lead time" was the most important barrier to implement PPP from participants' point of view. The complexity of PPP Projects and involvement of different parties lead to high cost which might not be economically viable. The high transaction cost may affect the best value for money negatively (Corbett and Smith, 2006). In addition, bidding phase in PPP projects is also costly and time consuming. "Political and social obstacles" stand in second rank. These obstacles may occur in design, construction, and operation phases of projects, for example town planning can affect the design of the project, or environmental issues have impact on construction phase. Most significant problem of private sector is raising tariff to cover the cost of projects; this raising may faces with political and social opposition (Zhang and

Abourisk, 2006). The major political changes like revolutions which transform the macroeconomic policies are other significant barriers to using PPP.

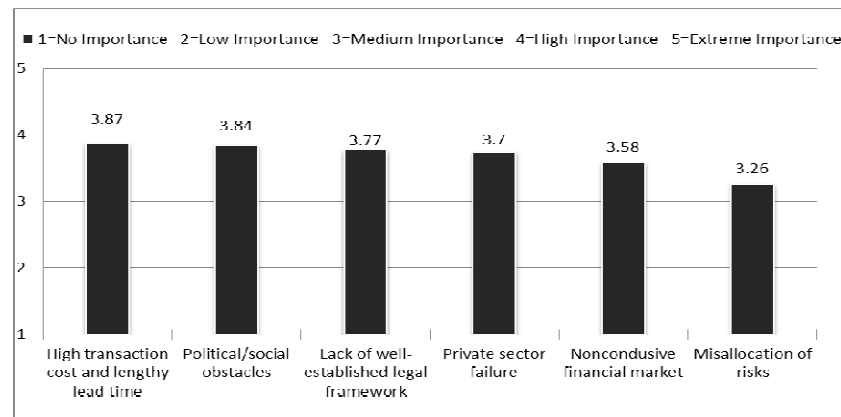


Figure 4: Barriers to using Public-Private Partnership in terms of their weighted means of importance level from participants' point of view

The legal framework has significant role in successful implementation of PPP projects. Iran like some other countries does not have separate legal framework for PPP which leads to increasing potential disputes between parties (Satpathy and Das, 2007). "Lack of well-established legal framework" with weighted mean of 3.77 was third important barrier to using PPP. According to important role of private sector in PPP projects, public sector must be assured about private sector's abilities in financing, constructing, and operating the projects. PPP projects in most cases are complicated projects which require several different experts to execute. Lack of these proficiencies may result in project failure or reconsideration of private partner. "Private sector failure" was forth factor in participants' opinion. The main objective of private sector for partnering in PPP projects is to achieve financial benefits. The unattractive financial market is significant barrier to PPP projects. In order to prevent private sector from facing this problem, accurate financial survey is essential. "Nonconductive financial market" as a barrier has 3.58 weighted mean. Surprisingly, it is observed that the "misallocation of risk" was placed at the end of the barriers list. Regarding to the complexity of PPP projects and involving variety of parties, the widespread range of risks are associated in these projects. For implementing the projects, both public and private sectors must have good understanding about these risks (Sun et al., 2008). Placing this factor as last important barrier to using PPP approves the claim that participants do not realize the importance of risks in these types of projects.

3.4 Success factors

Success factors of PPP projects are illustrated in Figure 5 and are ordered from the highest to lowest level of importance from participants' opinions. Economic viability is very important factor in all types of projects. There are several different methods to evaluate financial viability of projects which can be employed to be assured about beneficial characteristics of projects. In addition, according to long lead time and broad range of risks in infrastructure projects, risk analysis must be performed. Placing "Economic viability" as the most important factor of project success shows the sensitivity of participants on profitability of projects. Private sector tendency to implementing a project regardless of its procurement method

depends on the benefits which will be achieved. As previously discussed, return on investment is very important factor which can motivate private sector to success in PPP projects. Selecting “Favorable investment environment” as second important success factor approves this claim. PPP projects need private partner with experiences in these types of projects because of their unique specifications. Private sector qualifications like experiences, financial afford, and expert personnel play significant role in project success. “Reliable partner with strong technical strength” was placed at the median of success factors.

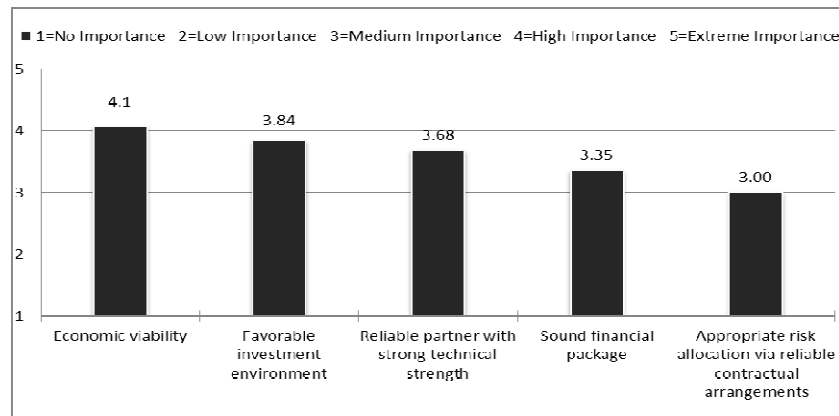


Figure 5: Success factors of Public-Private Partnership in terms of their weighted means of importance level from participant’s point of view

Financial package is one of the most important parts of PPP projects which must be provided very carefully. Financial package must contain several items like, financial analysis, payment, high equity-debt ratio, etc. which can warrant the success of project and ignore potential of budget reallocation. As same as advantages and barriers to using PPP, risk related factor of success was placed at the end of the list. “Appropriate risk allocation via reliable contractual agreements” with 3.00 weighted mean was the least important factor among others. It must be emphasized that these results explain the low level of awareness about projects’ risks between practitioners of Iran’s construction industry.

4. Conclusion

PPP is an efficient and generally accepted approach which has been used in several countries and as time goes by, various outcomes have revealed shortcomings and merits of this method. However, there is lack of enough attention or even acquaintance in Iran which requires an urgent need to measure all aspects and requirements of this technique to develop an appropriate agenda for further actions; in which public and private sectors collaborate more efficiently and enhance their benefits. This paper presented a survey for evaluating several aspects of using PPP in Iran infrastructure projects including knowledge and tendencies of construction parties about PPP, advantages of using PPP, most important barriers to performing PPP, and finally its success factors. The research study presented in this paper has analyzed the perceptions and insights of 60 participants from different Civil Engineering disciplines. By dividing the analysis of this paper in four singular stages, through comparison of factors in the first part regarding to the knowledge and tendencies, the authors found that constructing schools as PPP project is the most desirable one among 12 different options with about 58%. The reason behind this view is that private sectors

constantly were included in construction of schools in Iran and public sector always considered incentives such as tax exempt for attracting contractors. As opposed to schools, telecommunication projects and prisons were respectively ranked by 6% and 0%. Generally, as the projects get more complicated and require more time, effort, and additional financial resources, the tendency of participants' declines.

Second section in this analysis is related to the advantages and benefits of PPP. Six advantages of implementing PPP in projects were selected and ranked which "Benefit from private sector capabilities" became the most important advantage from respondent's perspective with weighted mean of 3.94, whereas "Share risks between public and private sector" was the last advantage with weighted mean of 3.16. Through a superficial comparison between these 6 advantages, it is quite obvious that all respondents were in favor of increasing their profits without paying enough attention to the risks of executing projects. In fact, as Information and data need for accurate planning of time and cost of project in order to acquire precise forecast is somehow uncertain, all stakeholders are exposed to the terrible consequences of project failure or even bankruptcy. Nevertheless PPP cannot reduce the likelihood of undertaking a bad project, but it can help to distribute the risk of projects. So, it is strongly recommended that both parties have to take into account risk of projects in advance and it is totally crucial.

Third stage of this study is presented to describe the barriers and obstacles of implementing PPP. It was observed that "High transaction costs and lengthy lead time" was ranked as the first barrier. The findings reveal that this obstacle was important irrespective of being either in public side or private. Therefore, it can be concluded that this obstacle is pertinent to both parties and they are equally exposed to the time consuming and cost prohibitive aspects of PPP. On the contrary, "Misallocation of risks" was ranked as the least important factor with weighted mean of 3.26. Fourth part of the analysis is dedicated to the success factors of PPP based on five different criteria. According to the results, "Economic viability" was chosen by participants as their first criterion with weighted mean of 4.1. Meantime, respondents selected the "Appropriate risk allocation via reliable contractual arrangements" as the least important factor with weighted mean of 3 which can be concluded that this factor has less influence on success of projects.

While this study was delimited to practitioners in private sector of Iran's construction industry, low level of respondents' awareness about PPP was the most significant limitation which may overshadow the reliability of questionnaire results. To overcome this problem in future works, studying cases of using PPP in Iran's construction industry by interviewing practitioners of these projects is recommended. The structured interviews with practitioners in PPP projects can provide more reliable answers about advantages of using PPP and its related barriers and success factors. In addition, reviewing the records of these projects will be helpful to find out the Iran's construction industry attitude toward PPP projects.

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