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The Success Factors of Public Private Partnership Implementation for Infrastructures Development: New Evidence from the Indonesian Experience

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Abstract. Infrastructure is one of the main instruments to foster Indonesia's economic growth. Nevertheless, government's financial capacity is so limited that it is not sufficient for financing all infrastructure projects. That is the reason for the government to invite the private sector under the scheme called Public Private Partnership (PPP). This paper reports the results of an econometric analysis (i.e. logistic regression) to identify the factors that are responsible for the success of the infrastructures development plan under PPP scheme in the years of 2009-2015. It was found that government supports, results of cost-benefit analysis (i.e. financial internal rate of return), and the economic sector to which the infrastructure belongs were the significant factors for the success of PPP scheme, in which government support was identified as the most significant factor among the others. Based on these findings and the results of a literature review on related topics, some suggestions are proposed.

Keywords: Indonesia; Infrastructure; Logistic regression; Public Private Partnerships

JEL Classification: H54, O2, O18

I. INTRODUCTION

Infrastructure development has long been considered a catalytic factor in a country's economic development. The availability of viable infrastructure plays an important role in improving and sustaining economic growth in a country [1] [2] [3] [4]. The World Bank estimates that every 1% of government spending invested in the infrastructure sector is equivalent to a Gross Domestic Product (GDP) increase of 1% [5]. World Economic Forum (WEF) in the Global Competitiveness Index 2016-2017 stated that infrastructure is the second pillar of basic requirements that is the key factor-driven level of a country's economy [6].

In Indonesia, infrastructure development becomes one of the great ideals of the government. Referring to the National Medium-Term Development Plan, the infrastructure funding need for the period 2015-2019 reached Rp4,796 (four thousand seven hundred and ninety six) trillion [7]. From this need, the government through the State Budget and Local Budget portion is only able to meet Rp1,978 trillion or 41.25% and state-owned companies contribute Rp1,066 trillion or 22.23%. The remaining Rp1, 751 trillion or 36.52%, the government has to invite the private sector as a source of funding.

The financial gap issue between the need and the availability of funds is a challenge for Indonesia in the development and improvement of infrastructure. The involvement of private parties, known as Public-Private Partnerships (PPP) is seen as an alternative source and new financing scheme apart from the government budget (state or local budget) as well as a bridge between the needs and availability of funds. Procurement of infrastructure under the PPP scheme is considered as more prioritized method compared to other schemes because PPP is a legally structured partnership so that the government still has control over infrastructure both in terms of regulation, security, and guarantee of service availability.

According to Global Competitiveness Index 2016-2017, the quality of infrastructure in Indonesia ranks 60 out of 138 countries in the world. As a result, the lack of quality of infrastructure is ranked third as the most problematic factor for doing business in Indonesia [6]. As one of the solutions to overcome the problem of poor quality of infrastructure and limited government funds, PPP initiative has been started since the 90s, but until now the implementation has not been optimal and has faced obstacles in many infrastructure sectors [2].

The suboptimal implementation process of PPP in Indonesia is the background of this research. There are two objectives of the present study to be achieved. First, it intends to identify the factors that affect the success of PPP implementation. Second, it aims to provide policy recommendations to improve the implementation of PPP in

Indonesia. This paper is structured as follows. The next chapter will briefly review the PPP process in Indonesia and some previous research on the success factors of PPP implementation. This will be followed by description of methodology of the paper. The next chapter discusses the findings of the research, while the final chapter provides the conclusion, implications, and suggestions for future research.

II. LITERATURE REVIEW

PPP is not necessarily related to infrastructure because any form of special cooperation between government and private related public issues is referred to as PPP [8]. In the context of infrastructure development, PPP is defined as a contractual agreement between the public/government and the private sector in infrastructure development and related services, including the planning, design, financing, construction, and operational phase [9] [5] [10].

In Indonesia, the adoption of the current PPP scheme is regulated by Presidential Regulation No. 38 Year 2015 on Cooperation between Government and Business Entities in Procurement of Infrastructure. Some sectoral regulations also form part of the legal framework of PPP. In terms of institutional framework at the state level, National Development Planning Agency (Bappenas) is the institution responsible for overseeing the implementation of PPP in Indonesia. Therefore, infrastructure projects that will be proposed using PPP schemes, both from regions and state level, must be approved by Bappenas.

Implementation of PPP in Indonesia is a long and relatively complex process. The process begins with the stage of the project planning that contains the identification and selection of projects which can be shelved by PPP. The next stage is the preparation of the project including conducting preliminary studies of the feasibility study of the project and preparing the project to be ready for PPP scheme. After the preparation phase of the project is completed, the next stage is the project transaction. At this stage, all the feasibility study must be completed. The procurement process and the signing of the cooperation agreement as a sign that the project is developed under the PPP scheme is done. The final stage of the long process of PPP is the implementation of a cooperation agreement, which usually contains project financing, construction, up to the stages of operation and monitoring of the implementation of the cooperation agreement.

In general, research on the success factors of PPP implementation has been largely done by various methods, such as case studies and survey, particularly overseas. [5] With survey-based research involving stakeholders in PPP projects identified competitive procurement processes, thorough and realistic assessment of the cost and benefits, favorable framework, appropriate risk allocation and risk sharing, government guarantees and support, stable macroeconomic condition, sound economic policy, and the availability suitable financial market, as important factors in the successful implementation of PPP. Using the same method, [11] identified that successful factors of PPP implementation in Malaysia were good governance, public and private commitment, a favorable legal framework, sound economic policy, and the availability of financial market.

[12] Conducted research in China and Hong Kong using survey method and found eighteen important factors in the PPP scheme with the top five factors of stable macro-economic condition, favorable legal framework, sound economic policy, availability of financial market, and thorough and realistic assessment of the cost and benefits of the project. In another study using in-depth interviews and literature reviews, [9] identified ten successful factors of PPP implementation i.e. specific planning and vision, stakeholder commitment, information disclosure and trust, willingness to compromise/collaborate, mutual respect, community outreach, political support, expert advice and review, risk awareness, and clarity of duties and responsibilities.

Using a literature review-based study, [13] identified four successful factors in the implementation of PPP in the public infrastructure sector, i.e. project positions within the current political, legislative and regulatory framework, project-specific risks and risk allocations, and initiation of risk management. [14] used determinant analysis wanted to know the development of PPP in developing countries by taking samples of 77 countries. The recommendations generated from the research are the need for a sound regulatory and institutional framework, risk sharing among involved parties, transparency in fund management, and adequate fiscal policy.

[15] applied the Analytical Hierarchy Process (AHP) method in his research to find out the factors affecting the successful implementation of PPP to urban infrastructure projects in the United States. Owner satisfaction with the delivered project, clearly defined project mission, objective and scope definition, appropriate funding mechanisms, adequate planning and control techniques, experience of contractors/consultants team, and the effective communication between involved parties throughout the project become the success factor of the PPP project of its findings. [16] conducted research to 22 developing countries in the world about determinant factors of PPP implementation. Using panel methods, it is concluded that the large size and relatively higher income markets of a country more stimulates the PPP project. In addition, macroeconomic stability as well as quality of regulation and governance are also important factors that affect the implementation of PPP.

Although the number of research projects on success factors of PPP implementation in Indonesia is very limited, one of them can be seen from the research of [2], which identified the success factors in macro-environmental as well as analyzed what improvement is needed. Using survey methods, it was found that commitment to maintaining policy continuity, transparency of financial management, and commitment to corruption eradication was a factor of success and it needed improvements.

With the limited PPP-related research in Indonesia, this research is expected to be a new literature in analyzing the success factors of PPP implementation, especially in Indonesia. A new analytical tool approach that emphasizes more on the attributes of infrastructure projects will also be used to identify these success factors.

III. METHODOLOGY

The data used in this research is taken from PPP Book 2009-2015 published by Bappenas. The book lists 203 PPP projects, 59 of which are categorized as "success", where as the other 144 are "fail". Six variables analyzed are government contracting agency (ministry, local government, or business entity), investment value (US$ million), government support (nil or exist), economic internal rate of return (%), financial internal rate of return or FIRR (%), and types of infrastructure (toll road, port, railway, airport, water supply, waste processing facility, electricity, or others). Logistic regression analysis is employed with binary dependent variable y (y = 1, if a project is successful, or y = 0, otherwise).

IV. RESULT AND DISCUSSION

The quality of the econometric model is satisfactory (R-square = 0.86). Three independent variables are identified as significant success factors, i.e. government support, financial internal rate of return, and types of infrastructure, where toll road projects are found to be more likely successful, whereas port and waste processing facility projects tend to be less likely successful.

The results are consistent with the findings of similar studies in other countries such as India, China, Chile, and Australia [17] [18] [19] [20] [21]. Basically, the private companies involved in PPP projects need to share the business risks with the government under several schemes such as minimum revenue guarantee, subsidies, and viability gap funding (VGF). It is not surprising that the higher the FIRR the more higher the willingness of the private companies to actively participate in PPP projects, ceteris paribus. The finding also reveals that toll road projects have lower business risks than port and waste processing facility projects

V. CONCLUSIONS

The results of this study suggest several recommendations as follows. In the preparation of infrastructure projects that will be developed under PPP scheme; the certainty of the existence of government support becomes the most important factor to be considered. Although it is not an obligation, the support from the government is proven to increase private sector involvement in infrastructure projects. The type of support provided by the government may be fiscal (e.g. VGF and land acquisition fund) or non-fiscal (e.g. project preparation support and political risk guarantee). Coordination between the involved government parties is absolutely necessary in this regard. A regulatory framework that supports the implementation of the project is also indispensable so that there is no overlapping regulation.

In line with government support, the cost-benefit analysis aspect reflected in the FIRR is also a part to be considered. The cost-benefit value derived from the pre-feasibility study of the project should continue to be enhanced by its credibility, making investors confident that the value of the offered cost-benefit is derived from the appropriate calculation and meeting the value for money criteria. With regard to the selection of infrastructure sectors prepared for PPP projects, it is believed that sectors with clear and definite revenue streams are more attractive to the private sector compared to sectors that are not yet be guaranteed or difficult to calculate their revenue streams.

In developing countries such as Indonesia with high basic infrastructure requirements, road, water supply, electricity and transportation sectors can be prioritized to be developed under the PPP scheme. In addition to the feasibility aspects, sectorial regulatory frameworks also need to be strengthened and disseminated.

With limited research on PPP in Indonesia, research involving infrastructure development experts, will be a good topic in the future and complementary to the results of this study. In-depth interviews or questionnaires can be used as a tool to extract information to produce comprehensive findings. Primary data taken from in-depth case study of successful infrastructure projects or failed PPP schemes can be useful approach in future studies. In addition, an in-depth analysis of the stages in the implementation of infrastructure development under PPP schemes in Indonesia, as well as identifying which stages are the major obstacles to the realization of this scheme will also be good research problems in the future.

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