Correlation Model Between Estimated Project Cost and Net Present Value (NPV) on Transportation Infrastructure Projects Using Public Private Partnership (PPP) Scheme

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Abstract. Public Private Partnership (PPP) scheme has been used throughout the world as an effective tool to fill the gap between the surge in infrastructure development needs and the shrinking of public fiscal budget. The Ministry of Public Works and Housing 2030’s vision is focused on the construction of infrastructure. The state budget related to road infrastructure development around Rp 1.796 trillion but not all the needs fit to the budget. The aim of this research are identify field facts related to infrastructure financing with PPP, create correlation model and evaluate the suitability of the model. The success factor implementation of Public Private Partnership (PPP) scheme is the positive value of Net Present Value (NPV) that indicates the project is feasible. The correlation model between estimated project cost and Net Present Value (NPV) performed using statistical analysis is also used to make financial scheme from user-pay and government-pay on the PPP. The correlation model is $Y_t = 102.227.962 + 0.1098892t$ which the variable $t$ can be changed into the number of estimation concession period. The result from this research are expected as a reference in determining project cost and negotiating the equity financial between user-pay and government-pay on PPP’s project.

Keywords: PPP, cost, NPV, correlation, transportation infrastructure

1. Introduction
Indonesia is rapidly growing up in this recent year and classified as a newly industrialised country. The way to sustain growth, the Government of Indonesia has invested heavily on infrastructure projects from 2015-2019. The infrastructure development is expected will enhance the economic capabilities of Indonesia. The investments, however, can’t be fulfilled solely from the government budget. Based on an estimation of infrastructure funding needs in 2015-2019, the Government is only able to fillfull 41.3% of total infrastructure funding needs, which is about IDR 4,796 trillion in total. Approximately 36.5% of the funding gap is expected to be fulfilled through cooperation with private using a PPP scheme. Public Private Partnership (PPP) scheme has been used throughout the world as an effective tool to fill the gap between the surge in infrastructure development needs and the shrinking of public fiscal budget.

In order to support private participation grows, Government of Indonesia need to facilitate and strengthen the policy to accelerate the PPP process. Government of Indonesia has enacted Presidential Regulation 38/2015 on Cooperation between Government and Business Entity in Infrastructure Provision as to the new regulation for PPP implementation in Indonesia. In line with that, the Ministry of Public Works and Housing 2030’s vision is focused on the construction of three types of infrastructure such as, roads, dams and housing. Transportation infrastructure (roads) received special
attention in its development to realize 99% of steady roads that are integrated between modes by utilizing as much local material as possible and using recycle technology. The state budget and investment related to road infrastructure development reaches 26.25% or around Rp 1.796 trillion. This indicates that the needs for transportation infrastructure development is very high in Indonesia. In short, PPP program’s goal is acknowledging the importance of improving the nation’s infrastructure while also fully aware of the profitability of such infrastructure investment from the perspective of business and private sector. The interest of the private sector on finding profitable investment and providing better infrastructure for the people, PPP scheme is the best way to prove. The aim of this research is making correlation model by the data from PPP’s project and evaluate the suitability of the model. The success factor implementation of Public Private Partnership (PPP) scheme is not only the equity between user-pay and government-pay but also the correlation between estimated project cost and Net Present Value (NPV). The positive value of Net Present Value (NPV) indicates that the project is feasible. This research will make a model correlation between estimated project cost and Net Present Value (NPV) using statistical analysis to predict the feasibility factor of transportation infrastructure project. The model also can be used to make financial scheme from user-pay and government-pay on the PPP.

2. Literature Review

2.1. Concept of Public Private Partnership (PPP)
Public Private Partnerships are not the only solution to the lack of infrastructure problem, but it can be an effective tool for addressing the underlying causes of inefficiency and putting poorly performing public enterprises on the path to recovery. There are three stage for the PPP scheme as follow Presidential Regulation Number 38/2015 that establishing the cross-sector regulation framework for implementing PPP’s in the provision of infrastructure such as:

1) Planning
   There are two main activities in the planning stage:
   a) Project Identification
      The activity on project identification refers to find a suitable infrastructure project to be provided using a PPP scheme. There are three ways to decide PPP projects, such as:
      • Proposed by Minister/ Head of Institution/Head of Regional Government/Director of State-Owned Enterprise (SOE)/Director of Regional-Owned Enterprise (ROE), colloquially named Government Contracting Agency (GCA).
      • Proposed by Ministry of National Development Planning / National Development Planning Agency (Kementerian Perencanaan Pembangunan Nasional / Badan Perencanaan Pembangunan Nasional - BAPPENAS) based on National Development Priority Program.
      • Proposed to suitable GCA by business entity itself, known as unsolicited projects.
   b) Preliminary Study
      Preliminary study is conducted by the Government Contracting Agency (GCA) to analyse the requirement needs for the infrastructure provision. Preliminary study plan to finish the stage from pra-construction until operation maintenance. The preliminary study should consist of:
      • Need analysis
      • Compliance criteria
      • Value for money analysis
      • Analysis of potential revenue and project funding scheme
      • Recommendation and follow plan

2) Preparation
   Preparation stage comprises of Pre-Feasibility Study that prepare document such as:
   a) Outline Business Case (OBC)
      • Legal and institutional study
• Technical study
• Economic and commercial study
• Environmental and social study
• Study of cooperation form and structure in infrastructure provision
• Risk management study
• Study of Government Support and/or Government Guarantee needs
• Study of outstanding issues

b) Final Business Case (FBC)
The FBC document should consist of the data adjustment based on the current conditions and updates of the feasibility and readiness of the PPP project referred to the Outline Business Case.

3) Transaction
Transaction stage include step to finish the financial needs of PPP’s project between user-pay and government-pay. The stage include of:
a) Pre-qualification
b) Request for proposal
c) Bid award
d) Agreement signing
e) Financial close

Based on the PPP’s policy that requires cross-sector and cross-agency coordination to make sure the success of the PPP’s projects. Due to the policy, in December 2016, Government formalize PPP Joint Office (Kantor Bersama KPBU Republik Indonesia) as an agency to organize that has function to:

1) Coordinate government agencies, GCA, and SPV related to PPP project;
2) Facilitate all parties related the project to accelerate PPP project implementation in Indonesia; and
3) Capacity building related to PPP project implementation.
The structure of PPP Joint Office is explained on the Figure 1.

2.2. Equity Capital Structure Model on PPP’s Project
Equity capital structure is one of the key concept for the successful implementation PPPs project, no exception in Indonesia. Equity capital structure not only affects the initial project investments in the construction period but also influences the allocation of future project revenues in the operation period (Feng, 2017). From the perspective of debt holders (debt level), the financial viability and debt repayment (equity level) ability of PPP projects are of special importance. To protect their interests from the defaults of debtors, debt holders have strict terms concerning items such as usage of the loan, repayment period, or equity capital structure of the company. In PPP detail structure, we can find the information of user-pay as debt level and government-pay as equity level. PPP’s project in Indonesia have a standard of both of them that cited on Presidential Regulation. Most of PPP’s projects have the proportion number as follow debt level (70%) and equity level (30%). But the proportion also related to the project scope, Government Contracting Agency (GCA), and type of contract.
3. Methods

The research framework that used in this research is showed on the Figure 2.

**Figure 1.** PPP joint office workflow in Indonesia.

**Figure 2** Research framework
3.1. NPV Method
NPV is a calculation that measures the profitability of the PPP’s projects equity investment. The present values of costs and benefits are calculated by discounting their future values at the rate of return indicated by comparable projects [9]. The NPV’s equation as follow on this subsection.

$$NPV = F \times \frac{1}{(1+r)^n}$$  

Which is:
F = future value 
P = present value 
r = rate 
n = period

3.2. Statistical Method
Statistical method is using to make sure the data is distributed and have Goodness of Fit. Kolmogorov-Smirnov Test is a nonparametric test of the equality of continuous. The Kolmogorov–Smirnov statistic quantifies a distance between the empirical distribution function of the sample and the cumulative distribution function of the reference distribution, or between the empirical distribution functions of two samples. Procedure to analyse using Kolmogorov-Smirnov Test is:

1) Make hypothesis to define purpose of analysis;  
2) Define level of significant;  
3) Decide the testing rules if D_{calculation}<D_{table}, so Ho is accepted  
4) Calculate D_{calculation} and D_{table}  
5) Compare the amount of D_{calculation} and D_{table}  

$$S = \sqrt{\frac{\sum (t_i - \bar{t})^2}{n-1}}$$  

6) Decide the result

![Figure 3. D_{calculation} table.](image)

3.3. Regression Analysis
Regression analysis is a powerful statistical method that allows you to examine the relationship between two or more variables of interest. There are two variables that have to be consider, dependent variable and independent variable. Regression analysis is a reliable method of identifying which variables have impact on a topic of interest. The process of performing a regression allows you to confidently determine which factors matter most, which factors can be ignored, and how these factors influence each other. The formulation of Regression Analysis is figured out on the equation 3 and 4.

$$b = \frac{n \Sigma XY - \Sigma X \Sigma Y}{n \Sigma X^2 - (\Sigma X)^2}$$  

$$a = \frac{\Sigma Y - b \Sigma X}{n}$$
4. Results and Discussions
Due to collect the data of PPP projects in Indonesia, BAPPENAS made a successive PPP Books since 2009. Most of the PPP projects had been detailed on the book. This research collect the data from the book to analyse the correlation model from the project.

4.1. PPP’s Infrastructure Transportation Project Profile
PPP projects that analyze in this research start from 2017-2019. During this time, Government of Indonesia was developing an important infrastructure to accelerate Indonesia economic. By the development of infrastructure, Government is optimistic can speed up the economic growth. Data from BAPPENAS showed that since 2009 there are several PPP projects have been done in Indonesia. The data is showed on the Figure 4. This research is focusing the discussion on the infrastructure project that have been done between 2017-2019. Infrastructure project is one of the essential project that can affect to speed up another sector. Ministry of Public Works and Housing also has vision to steady up the transportation infrastructure and integrated the moda to be easily used.

There are 32 infrastructure projects in total during 2017-2019. The success factor implementation of Public Private Partnership (PPP) scheme is not only the equity between user-pay and government-pay but also the correlation between estimated project cost and Net Present Value (NPV). From this project profile, this research will make a correlation model to understand the connection between estimated project cost and Net Present Value (NPV). The positive value of Net Present Value (NPV) indicates that the project is feasible.

![Figure 4. PPP Projects from 2009-2019.](image)

Table 1. PPP’s infrastructure transportation project profile (2017-2019).

| No | Project Name                                      | Location           | Estimated Project Cost | Contracting Agency                        |
|----|---------------------------------------------------|---------------------|------------------------|------------------------------------------|
| 1  | Development of Kabil Port (Tanjung Sauh Terminal) | Batam, Riau Island  | $ 729,000,000          | Batam Indonesia Free Zone Authority      |
| 2  | Development of Kuala Tanjung International Hub Port| North Sumatera      | $3,670,000             | Ministry of Transportation                |
| No | Project Name                               | Location       | Estimated Project Cost | Contracting Agency                                      |
|----|--------------------------------------------|----------------|------------------------|--------------------------------------------------------|
| 3  | Development of Bitung International Hub Port | North Sulawesi | $532,000,000           | Ministry of Transportation                             |
| 4  | Development of Makassar New Port           | South Sulawesi | $416,000,000           | Ministry of Transportation                             |
| 5  | Development of Patimban Port               | West Java      | $3,203,000,000         | Ministry of Transportation                             |
| 6  | Batam Island Railway                       | Riau Island    | $2,811,000,000         | Batam Indonesia Free Zone Authority                    |
| 7  | Urban Railway City of Medan                | North Sumatera | $477,400,000           | Local Development Planning Agency (BAPPEDA), City of Medan |
| 8  | Sukabumi - Ciranjang Toll Road             | West Java      | $113,000,000           | Indonesia Toll Road Authority (BPJT)                  |
| 9  | The 2nd Jakarta-Cikampek Toll Road         | West Java      | $1,102,000,000         | Indonesia Toll Road Authority (BPJT)                  |
| 10 | TanjungPriok Access Toll Road              | DKI Jakarta    | $281,000,000           | Indonesia Toll Road Authority (BPJT)                  |
| 11 | Yogyakarta - Solo Toll Road               | Central Java   | $113,000,000           | Indonesia Toll Road Authority (BPJT)                  |
| 12 | Yogyakarta - Bawen Toll Road              | Central Java   | $270,000,000           | Indonesia Toll Road Authority (BPJT)                  |

**2018**

| No | Project Name                               | Location       | Estimated Project Cost | Contracting Agency                                      |
|----|--------------------------------------------|----------------|------------------------|--------------------------------------------------------|
| 1  | Jakarta – Cikampek II South Toll Road      | West Java      | $1,079,500,000         | Indonesia Toll Road Authority (BPJT)                   |
| 2  | Probolinggo – Banyuwangi Toll Road         | East Java      | $1,718,800,000         | Indonesia Toll Road Authority (BPJT)                   |
| 3  | Serang – Panimbang Toll Road (51 km)       | Banten         | $391,600,000           | Indonesia Toll Road Authority (BPJT)                   |
| 4  | Serang – Panimbang Toll Road (33 km)       | Banten         | $253,700,000           | Indonesia Toll Road Authority (BPJT)                   |
| 5  | Cileunyi – Sumedang – Dawuan Toll Road     | West Java      | $617,900,000           | Indonesia Toll Road Authority (BPJT)                   |
| 6  | Medan Municipal Transport                  | North Sumatera | $353,000,000           | City of Medan                                          |
| 7  | Semarang - Demak Toll Road                 | Central Java   | $583,400,000           | Indonesia Toll Road Authority (BPJT)                   |
| No | Project Name                          | Location          | Estimated Project Cost  | Contracting Agency                        |
|----|--------------------------------------|-------------------|-------------------------|-------------------------------------------|
| 8  | Yogya - Bawen Toll Road              | Central Java      | $1,018,900.000          | Indonesia Toll Road Authority (BPJT)      |
| 9  | Surabaya - Madura Toll Bridge        | East Java         | $169,000.000            | Indonesia Toll Road Authority (BPJT)      |
| 1  | Expansion of Hang Nadim International Airport Passenger Terminal | Batam, Riau Island | $274,910.000           | Batam Indonesia Free Zone Authority       |
| 2  | Riau Non-Toll Road Preservation      | Riau Island       | $67,850.000             | Ministry of Public Works and Housing      |
| 3  | Development of Baubau Port           | South East Sulawesi | $33,600.000           | Ministry of Transportation                |
| 4  | Yogyakarta - Bawen Toll Road        | D.I. Yogyakarta - Central Java | $1,018,900.000 | Indonesia Toll Road Authority (BPJT)      |
| 5  | LRT Semarang                         | Central Java      | $1,041,480.000          | City of Semarang                          |
| 6  | Medan Municipal Transport            | North Sumatera    | $891,100.000            | City of Medan                             |
| 7  | Probolinggo – Banyuwangi Toll Road   | East Java         | $1,718,800.000          | Indonesia Toll Road Authority (BPJT)      |
| 8  | Semarang – Demak Toll Road           | Central Java      | $1,090,000.000          | Indonesia Toll Road Authority (BPJT)      |
| 9  | South Sumatera Non-Toll Road Preservation | South Sumatera   | $193,900.000          | Ministry of Public Works and Housing      |
| 10 | Makassar – Parepare Railway          | South Sulawesi    | $147,210.000            | Ministry of Transportation                |
| 11 | Airport of Komodo, Labuan Bajo       | East Nusa Tenggara | $210,000.000          | Ministry of Transportation                |

Reference: Ministry of National Development Planning Agency, 2017-2019

4.2. NPV Calculation
The principle used in different financial models for PPP projects is that the concession period should bring a certain level of return on investment and/or NPV to the investor (Shen et al. 2002). Assuming a PPP project has a concession period of \( T_c \) years, including a construction period of \( m \) years. NPC was calculated using the formulation from equation 1. The period is decided using estimated concession period based on the project. The analysis result is showed on the Table 2.
### Table 2. NPV result

| No | Project Name                                                | Estimated Project Cost | NPV     |
|----|-------------------------------------------------------------|------------------------|---------|
|    |                                                             |                        |         |
| **2017** |                                                               |                        |         |
| 1  | Development of Kabil Port (Tanjung Sauh Terminal)            | $729.000.000           | $18.184.647 |
| 2  | Development of Kuala Tanjung International Hub Port          | $3.670.000             | $52.025  |
| 3  | Development of Bitung International Hub Port                 | $532.000.000           | $46.168.181 |
| 4  | Development of Makassar New Port                            | $416.000.000           | $76.001.645 |
| 5  | Development of Patimban Port                                | $3,203,000.000         | $1,196,281.988 |
| 6  | Batam Island Railway                                        | $2,811,000.000         | $385,106.483 |
| 7  | Urban Railway City of Medan                                | $477,400.000           | $45,272.238 |
| 8  | Sukabumi - Ciranjang Toll Road                              | $113,000.000           | $3,500.000  |
| 9  | The 2nd Jakarta-Cikampek Toll Road                          | $1,102,000.000         | $104,000.000 |
| 10 | Tanjung Priok Access Toll Road                              | $281,000.000           | $9,501.613  |
| 11 | Yogyakarta - Solo Toll Road                                 | $113,000.000           | $1,910.863  |
| 12 | Yogyakarta - Bawen Toll Road                                | $270,000.000           | $300,000.000 |
|    |                                                             |                        |         |
| **2018** |                                                               |                        |         |
| 1  | Jakarta – Cikampek II South Toll Road                       | $1,079,500.000         | $5,000.000  |
| 2  | Probolinggo – Banyuwangi Toll Road                          | $1,718,800.000         | $45,900.000 |
| 3  | Serang – Panimbang Toll Road (51 km)                        | $391,600.000           | $391,000.000 |
| 4  | Serang – Panimbang Toll Road (33 km)                        | $253,700.000           | $409,000.000 |
| 5  | Cileunyi – Sumedang – Dawuan Toll Road                      | $617,900.000           | $1,790,000.000 |
| 6  | Medan Municipal Transport                                   | $353,000.000           | $600.000  |
| 7  | Semarang - Demak Toll Road                                  | $583,400.000           | $1,044,100.000 |
| 8  | Yogyakarta - Bawen Toll Road                                | $1,018,900.000         | $1,160,900.000 |
| 9  | Surabaya - Madura Toll Bridge                               | $169,000.000           | $293,400.000 |
|    |                                                             |                        |         |
| **2019** |                                                               |                        |         |
| 1  | Expansion of Hang Nadim International Airport Passenger Terminal | $274,910.000           | $151,000.000 |
| 2  | Riau Non-Toll Road Preservation                             | $67,850.000            | $8,751.358  |
| 3  | Development of Baubau Port                                  | $33,600.000            | $6,138.594  |
| 4  | Yogyakarta - Bawen Toll Road                                | $1,018,900.000         | $14,850.904  |
| 5  | LRT Semarang                                                | $1,041,480.000         | $536,810.000 |
| 6  | Medan Municipal Transport                                   | $891,100.000           | $626,600.000 |
| 7  | Probolinggo – Banyuwangi Toll Road                          | $1,718,800.000         | $45,900.000 |
| 8  | Semarang - Demak Toll Road                                  | $1,090,000.000         | $800,000.000 |
| 9  | South Sumatera Non-Toll Road Preservation                   | $193,900.000           | $97,990.000  |
| 10 | Makassar – Parepare Railway                                 | $147,210.000           | $16,119.251 |
| 11 | Airport of Komodo, Labuan Bajo                             | $210,000.000           | $23,800.000 |

Reference: Analysis Result, 2017-2019
4.3. Significant Results

The collecting data have to analyse the Goodness of Fit using Kolmogorov Smirnov Test. This test is used to know the significant between sample distribution and others, comparing some of data on sample toward normal distribution using value of the same mean and deviation standard.

| No | Project Name                                             | Nilai $D_{max}$ Estimated Project Cost | Nilai $D_{max}$ NPV | Significant Result |
|----|----------------------------------------------------------|----------------------------------------|---------------------|--------------------|
| 1  | Development of Kabil Port (TanjungSauh Terminal) Development of Kuala Port | 0.5080 | 0.2643 | Significant |
| 2  | Tanjung International Hub Port                            | 0.2390 | 0.2390 | Not Significant |
| 3  | Development of Bitung International Hub Port              | 0.3427 | 0.2390 | Not Significant |
| 4  | Development of Makassar New Port                          | 0.2546 | 0.2390 | Not Significant |
| 5  | Development of Patimban Port                              | 0.8745 | 0.8522 | Significant |
| 6  | Batam Island Railway                                      | 0.8409 | 0.4191 | Significant |
| 7  | Urban Railway City of Medan                               | 0.2390 | 0.2390 | Not Significant |
| 8  | Sukabumi - Ciranjang Toll Road                            | 0.2390 | 0.2390 | Not Significant |
| 9  | The 2nd Jakarta-Cikampek Toll Road                         | 0.4450 | 0.2390 | Not Significant |
| 10 | TanjungPriok Access Toll Road                              | 0.2390 | 0.2390 | Not Significant |
| 11 | Yogyakarta - Solo Toll Road                               | 0.2390 | 0.2390 | Not Significant |
| 12 | Yogyakarta - Bawen Toll Road                              | 0.2390 | 0.2390 | Not Significant |
| 13 | Jakarta – Cikampek II South Toll Road                     | 0.3094 | 0.2390 | Not Significant |
| 14 | Probolinggo – Banyuwangi Toll Road                        | 0.5004 | 0.2390 | Not Significant |
| 15 | Serang – Panimbang Toll Road (51 km)                      | 0.2390 | 0.2390 | Not Significant |
| 16 | Serang – Panimbang Toll Road (33 km)                      | 0.2390 | 0.2390 | Not Significant |
| 17 | Cileunyi – Sumedang – Dawuan Toll Road                    | 0.2390 | 0.4996 | Not Significant |
| 18 | Medan Municipal Transport                                 | 0.2469 | 0.3111 | Significant |
| 19 | Semarang - Demak Toll Road                                | 0.2390 | 0.3890 | Not Significant |
| 20 | Yogya - Bawen Toll Road                                   | 0.2390 | 0.3789 | Not Significant |
| 21 | Surabaya - Madura Toll                                    | 0.4205 | 0.2390 | Not Significant |
| No | Project Name                                      | Nilai \( D_{\text{max}} \) Estimated Project Cost | Nilai \( D_{\text{max}} \) NPV | Significant Result |
|----|--------------------------------------------------|--------------------------------------------------|---------------------------------|--------------------|
| 22 | Expansion of Hang Nadim International Airport Passenger Terminal | 0.4065                                           | 0.3206                          | Significant        |
| 23 | Riau Non-Toll Road Preservation                   | 0.5211                                           | 0.4642                          | Significant        |
| 24 | Development of Baubau Port                        | 0.5659                                           | 0.4954                          | Significant        |
| 25 | Yogyakarta - Bawen Toll Road                     | 0.2390                                           | 0.5202                          | Not Significant    |
| 26 | LRT Semarang                                     | 0.2390                                           | 0.2390                          | Not Significant    |
| 27 | Medan Municipal Transport                        | 0.2528                                           | 0.2390                          | Not Significant    |
| 28 | Probolinggo – Banyuwangi Toll Road               | 0.2390                                           | 0.5907                          | Not Significant    |
| 29 | Semarang – Demak Toll Road                       | 0.2390                                           | 0.2390                          | Not Significant    |
| 30 | South Sumatera Non-Toll Road Preservation         | 0.6924                                           | 0.6147                          | Significant        |
| 31 | Makassar – Parepare Railway                      | 0.7422                                           | 0.7077                          | Significant        |
| 32 | Airport of Komodo, Labuan Bajo                   | 0.7486                                           | 0.7324                          | Significant        |

Reference: Analysis Result, 2017-2019

4.4. Correlation Model

The last analysis step is making a model from the significant data. In statistical modelling, regression analysis can be used to estimate the correlation between dependent and independent variables. This PPP model is using NPV as dependent variable and estimated project cost as independent variable. This model construct a valuation that can be used to the next project to have a simple calculation of NPV.

\[
b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}
\]

\[
b = \frac{10 \times 4.996.376.561.278.410.000 - 8.023.470.000 \times 1.903.972.321}{10 \times 19.001.656.084.700.000.000 - (8.023.470.000)^2}
\]

\[
b = 0.1098892
\]

\[
a = \frac{\sum y - b \sum x}{n}
\]

\[
a = \frac{1.903.972.321 - 0 \times 0.1098892}{8.023.470.000}
\]

\[
a = 102.227.962
\]

The model result for correlation between estimated project cost and Net Present Value (NPV) on transportation infrastructure projects using Public Private Partnership (PPP) scheme is \( Y_t = 102.227.962 + 0.1098892t \). Prior research is mostly discuss about the success factor of PPP scheme that is used in the various country. This research hopefully can contribute to enrich the implementation of PPP scheme in the developing country.
5. Conclusions
The aim of this research are identify field facts related to infrastructure financing with PPP, create correlation model and evaluate the suitability of the model. The result from this research as follow:
1) PPP program’s goal is acknowledging the importance of improving the nation’s infrastructure while also fully aware of the profitability of such infrastructure investment from the perspective of business and private sector. The interest of the private sector on finding profitable investment and providing better infrastructure for the people, PPP scheme is the best way to prove;
2) The correlation model done by this research hopefully can suitable for PPP implementation in Indonesia which result \( Y_t = 102.227.962 + 0.1098892t \). The success factor implementation of Public Private Partnership (PPP) scheme is not only the equity between user-pay and government-pay but also the correlation between estimated project cost and Net Present Value (NPV);
3) The model is suitable used to PPP implementation in the developing country based on the data reference.

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