UDC 658.046
IRSTI 06.52.13

https://doi.org/10.55452/1998-6688-2026-23-2-524-533

[1]*Ryskulbekova M.M.,
Researcher, ORCID ID: 0009-0008-2979-7857,
*e-mail: maralryskulbekova.98@gmail.com

[1]Nurstroy Yug LLP, Shymkent, Kazakhstan

PROJECT-LEVEL DETERMINANTS OF TOTAL INVESTMENT IN GREENFIELD INFRASTRUCTURE PROJECTS

Abstract

This study examines the relationship between project-level characteristics and total investment in greenfield infrastructure projects. While existing foreign direct investment literature primarily focuses on macroeconomic and institutional determinants, project-specific characteristics remain comparatively underexplored. Using a dataset of 131 infrastructure projects obtained from the World Bank Private Participation in Infrastructure (PPI) database, the study applies multiple linear regression analysis to evaluate the effects of physical assets, project capacity, procurement conditions, financial structure, and country-level characteristics on investment size. The results show that physical assets have a positive and statistically significant effect on total investment, confirming the capital-intensive nature of greenfield infrastructure development. In contrast, project capacity demonstrates a significant negative relationship, suggesting the presence of operational efficiency or economies of scale. Other variables, including procurement competition, financial structure, and country-level conditions, do not demonstrate statistically significant effects. The findings provide empirical evidence that investment size in greenfield infrastructure projects is influenced more strongly by internal project characteristics than by broader external conditions. The study contributes to project-level infrastructure investment literature and highlights the importance of technical planning, infrastructure configuration, and operational assessment in investment decision-making.

Keywords: greenfield investment, infrastructure investment, investment determinants, multiple linear regression, project design; project-level characteristics.

Received May 1, 2026; revised May 20, 25, 2026; accepted May 26, 2026

Introduction

Greenfield investment plays an important role in infrastructure development because it supports the creation of new assets, production facilities, and operational capacity [1]. Unlike mergers and acquisitions, greenfield projects require the construction of new infrastructure systems and facilities, which makes them highly capital-intensive and closely related to project financing decisions [2]. Some research also shows that accuracy of cost estimations in capital-intensive construction projects depends not only on the consumption of the initial investment but also on the project-level risks which impact the final cost at project completion [3].

In recent years, greenfield infrastructure investment has become increasingly important in developing economies due to urbanization, industrial expansion, and rising demand for large infrastructure projects. Amendolagine et al. [4] additionally emphasize the importance of regional institutional conditions and project geography in shaping greenfield investment allocation across countries and regions. Therefore, understanding the factors influencing investment decisions in greenfield infrastructure projects has become important for governments, investors, and infrastructure planners.

The literature on foreign direct investment mainly focuses on macroeconomic and institutional determinants of investment activity. Previous studies emphasize the role of governance quality,

political stability, institutional conditions, and market attractiveness in shaping foreign investment flows [5]. Other studies also show that economic stability and institutional quality influence the attractiveness of greenfield investment across countries and industries [6]. Political and regulatory conditions are also frequently identified as important determinants of foreign direct investment decisions [7].

Several theoretical studies explain greenfield investment through broader multinational enterprise and foreign direct investment frameworks. Dunning [8] argues that foreign investment decisions are influenced by ownership, location, and internalization advantages. Helpman et al. [9] explain that firms choose foreign direct investment when international production becomes more efficient than export-based strategies. Markusen and Maskus [10] also show that differences in factor endowments and market conditions may influence multinational investment decisions across countries. However, existing literature pays comparatively less attention to project-level characteristics in infrastructure investment research.

Kazakhstan has recently increased the implementation of large-scale greenfield infrastructure projects through public-private partnership mechanisms. One of the largest infrastructure projects in Central Asia is the Big Almaty Ring Road (BAKAD), which demonstrates the growing importance of infrastructure financing, project governance, and investment planning in the region. The expansion of transport, energy, and infrastructure projects in Kazakhstan additionally highlights the practical importance of understanding the factors associated with investment allocation and project scale in greenfield infrastructure development.

This study examines the relationship between project characteristics and investment size in greenfield infrastructure projects using project-level data from the World Bank Private Participation in Infrastructure database. The analysis focuses on how internal project characteristics and external contextual conditions are associated with differences in investment size across infrastructure projects.

The study contributes to the literature by providing project-level evidence on greenfield infrastructure investment. The findings may also support infrastructure planning, project evaluation, and investment decision-making in developing economies where infrastructure expansion continues to play an important role in economic development.

Materials and methods

Recent project-level studies show that greenfield investment decisions may differ according to project structure, implementation conditions, financing mechanisms, and operational characteristics. Moghadam et al. [11] explain that greenfield projects differ from acquisition-based investments in terms of investment behavior and project implementation. Ti et al. [12] show that investment decisions in greenfield projects may also depend on firm-specific motivations, ownership structure, and operational considerations. Wu et al. [13] further emphasize the importance of location conditions and knowledge-intensive clusters in shaping greenfield investment decisions.

Other infrastructure-related studies highlight the importance of project configuration, technical characteristics, and sector-specific investment conditions. Patala et al. [14] demonstrate that infrastructure investment drivers may differ across sectors depending on project configuration and operational requirements. Li et al. [15] show that infrastructure location decisions and project characteristics may significantly influence investment allocation across projects and regions. These studies suggest that project-level characteristics may influence infrastructure investment decisions differently across sectors and project environments.

Infrastructure and project finance literature also emphasizes the importance of project governance, financial planning, and risk allocation in large-scale infrastructure development. Narbaev [16] highlights the growing importance of governance mechanisms in public-private partnership projects. De Marco et al. [17] emphasize the role of cost forecasting and financial planning in project implementation. Other studies also show that infrastructure projects may be affected by external risks, institutional coordination, and financing conditions across countries [18].

Contemporary project management research also highlights the increasing role of data analytics and AI-based approaches in infrastructure decision-making and project evaluation [19]. These approaches may improve forecasting accuracy, analytical assessment, and decision-making efficiency in large-scale infrastructure projects.

The present study uses project-level data obtained from the World Bank Private Participation in Infrastructure database. The analysis focuses exclusively on greenfield infrastructure projects to maintain consistency in project structure and investment characteristics across observations. The initial dataset included 159 projects. After removing observations with incomplete information, the final sample consisted of 131 projects.

The empirical model includes both internal and external variables. Internal project characteristics include Physical Assets and Capacity, which reflect project scale and operational structure. External and contextual variables include Total Debt Funding, Debt–Equity–Grant Ratio, Number of Bids, and Income Group classification. Total Investment is used as the dependent variable representing project investment size and capital intensity.

To examine the relationship between project characteristics and investment size, the study applies multiple linear regression analysis. The regression model evaluates how internal project characteristics and external contextual factors are associated with variation in investment size across infrastructure projects. Descriptive statistics and correlation analysis are additionally used to examine relationships among variables and identify potential multicollinearity issues before model estimation.

Based on the existing literature and empirical framework, the following hypotheses are proposed:

H1: Internal project characteristics, particularly physical assets and project capacity, have a statistically significant effect on investment size.

H2: External and contextual factors, including financial structure, procurement competition, and country-level economic classification, have a statistically significant effect on investment size.

Data and Variables

The empirical analysis is based on project-level data obtained from the World Bank Private Participation in Infrastructure database. The analysis focuses only on greenfield infrastructure projects to ensure consistency in project structure and investment characteristics.

The initial dataset included 159 projects. Observations with missing values in key variables were excluded from the analysis. The dataset includes greenfield infrastructure projects implemented between 2000 and 2024 and obtained from the World Bank Private Participation in Infrastructure (PPI) database. As a result, the final sample consisted of 131 greenfield infrastructure projects.

The dependent variable is Total Investment, measured in million USD. In this study, it is treated as an indicator of project scale and capital intensity rather than a direct measure of project performance.

The independent variables represent the main structural, operational, and financial characteristics of infrastructure projects. Internal project variables include Physical Assets and Capacity, which reflect project scale and operational structure. External and contextual variables include Number of Bids, Total Debt Funding, Debt–Equity–Grant Ratio, and Income Group classification. These variables are consistent with project-level and infrastructure investment studies that emphasize project structure, financing conditions, and location-related characteristics [11, 14, 15, 17].

The sample includes projects from both upper middle income and lower middle income countries based on the World Bank classification. Upper middle income countries include Brazil, Turkey, Mexico, and South Africa, while lower middle income countries include India, Indonesia, Morocco, and Pakistan.

A summary of the variables used in the analysis is presented in Table 1.

To examine the relationship between project characteristics and investment size, the study applies multiple linear regression analysis. This method is appropriate for evaluating the simultaneous effect of several explanatory variables on a continuous dependent variable. Similar approaches are widely used in infrastructure investment and project finance research [16, 17].

Table 1 – Variable Description

Variable	Description
Total Investment	Total investment value of the project (million USD)
Physical Assets	Value of physical infrastructure assets associated with the project (million USD)
Capacity	Operational or production capacity of the project (project-specific units)
Number of Bids	Number of bidders participating in the procurement process (count)
Total Debt Funding	Total debt financing allocated to the project (million USD)
Debt–Equity–Grant Ratio	Composition of debt, equity, and grant financing (ratio)
Income–Group Dummy	Country income classification (1 = upper middle income; 0 = lower middle income)

Analytical Approach

The regression model evaluates how internal project characteristics and external contextual factors are associated with variation in investment size across infrastructure projects. The model includes variables related to project scale, operational capacity, financing structure, procurement conditions, and country-level characteristics.

The regression model is specified as follows:

$$TI = \beta_0 + \beta_1 PA + \beta_2 CAP + \beta_3 NB + \beta_4 TDF + \beta_5 DEG + \beta_6 IGD + \varepsilon$$

where β represents the estimated coefficients and ε is the error term.

The analysis begins with descriptive statistics to summarize the main characteristics of the dataset and identify variation in project size and project structure. Correlation analysis is then conducted to examine relationships between variables and identify potential multicollinearity issues before model estimation.

Regression models are estimated using SPSS software. Alternative model specifications are additionally considered to evaluate the stability of the results and the influence of highly correlated variables. Collinearity diagnostics are also applied to assess model reliability and ensure that the estimated relationships satisfy acceptable statistical thresholds.

Results and discussion

The empirical analysis examines the relationship between project characteristics and investment size in greenfield infrastructure projects. Descriptive statistics, correlation analysis, and regression estimation are used to evaluate the proposed hypotheses and identify the main factors associated with variation in total investment across projects.

Table 2 – Descriptive Statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
Physical Assets (million USD)	660.03	1668.53	6	14800
Capacity (project-specific units)	418.33	1193.30	1	11200
Number of Bids (count)	27.84	45.15	1	180
Total Debt Funding (million USD)	487.46	1386.49	3	13415
Debt–Equity–Grant Ratio (ratio)	0.68	0.176	0	1
Total Investment (million USD)	885.81	3443.14	6	35587
Income Group Dummy (binary variable)	~0.5	-	0	1

The descriptive statistics show substantial variation across projects included in the sample. Total investment and physical assets demonstrate particularly high standard deviations, indicating the presence of both small-scale and large-scale infrastructure projects. This reflects the heterogeneous nature of greenfield infrastructure investment and project structure [11, 15].

Table 3 – Correlation Matrix

	Variable	1	2	3	4	5	6	7
1	Physical Assets	1						
2	Capacity	0.686***	1					
3	Number of Bids	-0.188*	-0.168	1				
4	Total Debt Funding	0.981***	0.745***	-0.168	1			
5	Debt–Equity–Grant Ratio	0.159	0.113	0.023	0.166	1		
6	Total Investment	0.712***	0.311***	-0.126	0.682***	0.120	1	
7	Income Group Dummy	0.084	0.017	-0.286	0.074	-0.204	0.094	1

Note: Physical Assets, Total Debt Funding, and Total Investment are measured in million USD. Capacity is measured in project-specific units. Number of Bids is measured as count data. Income Group Dummy is a binary variable. * indicates significance at the 5% level, *** indicates significance at the 1% level.

The correlation analysis indicates a strong positive relationship between Physical Assets and Total Investment, suggesting that projects with larger infrastructure components generally require higher levels of investment. A very strong positive relationship is also observed between Physical Assets and Total Debt Funding ($r = 0.981$), reflecting the financing structure commonly associated with capital-intensive infrastructure projects [11, 17].

ANOVA testing was conducted to evaluate the overall statistical significance of the regression models. The results indicate that the models are statistically significant at the 1% level ($F = 27.27$, $p < 0.001$), confirming that the explanatory variables jointly contribute to explaining variation in Total Investment across infrastructure projects.

Variance Inflation Factor (VIF) analysis and correlation diagnostics were additionally used to assess potential multicollinearity among the explanatory variables. The results suggest potential multicollinearity between Physical Assets and Total Debt Funding due to their very strong correlation. To further evaluate the proposed hypotheses, multiple linear regression analysis was conducted using two alternative model specifications. Model 1 focuses on the core project-level variables, while Model 2 additionally incorporates financing-related and country-level contextual variables. This specification approach allows the robustness of the estimated relationships to be evaluated across alternative explanatory structures.

Capacity demonstrates a moderate correlation with Total Investment, while Number of Bids and Debt–Equity–Grant Ratio show relatively weak relationships. The Income Group Dummy also demonstrates only a weak association with investment size, suggesting that project-level characteristics may play a more important role than broader external conditions in explaining differences across projects [14, 15].

The regression results show that Physical Assets have a positive and statistically significant effect on total investment in both models. This confirms the capital-intensive nature of greenfield infrastructure projects and highlights the importance of infrastructure scale in determining investment requirements [11, 15].

Table 4 – Regression Results

Variable	Model 1	Std. Error	p-value	Model 2	Std. Error	p-value
Physical Assets	1.940***	0.169	<0.001	1.409**	0.679	0.040
Capacity	-0.972***	0.233	<0.001	-1.078***	0.275	<0.001
Number of Bids	-0.479	4.570	0.917	-0.514	4.821	0.915
Debt–Equity–Grant Ratio	158.18	1165.11	0.892	201.44	1200.46	0.867
Total Debt Funding	–	–	–	0.711	0.889	0.426
Income Group Dummy	–	–	–	154.18	443.30	0.729
Constant	-82.65	824.14	0.919	-154.90	955.45	0.871
R^2	0.566			0.569		
Adjusted R^2	0.552			0.548		
F-statistic	41.11			27.27		
N	131			131		

Note: Dependent variable: Total Investment (million USD). Physical Assets and Total Debt Funding are measured in million USD. Capacity is measured in project-specific units. Number of Bids is measured as count data. Income Group Dummy is a binary variable. *** indicates significance at the 1% level, ** indicates significance at the 5% level.

This result is reasonable because greenfield infrastructure projects usually require large upfront investment in physical facilities, construction works, and technical systems. Projects with larger asset bases naturally require higher capital allocation, especially when investment is related to the creation of new infrastructure rather than the expansion of existing assets. This finding is consistent with project-level studies showing that greenfield investment decisions are closely linked to project structure, location, and infrastructure configuration [11, 15]. It also supports infrastructure finance research, where cost planning and project scale are treated as important elements of investment estimation.

Capacity is also statistically significant, although the coefficient is negative. This may indicate the presence of operational efficiency or economies of scale, where higher-capacity projects are able to generate greater output without a proportional increase in investment [14].

The negative relationship may also reflect differences in infrastructure utilization and project design across sectors. Some large-capacity projects may operate more efficiently due to standardized infrastructure systems, technological optimization, or lower marginal expansion costs. In infrastructure projects, capacity growth does not always require proportional increases in physical investment, particularly in sectors where operational efficiency and technological integration play an important role. Similar observations are discussed in infrastructure investment studies emphasizing the relationship between project configuration and operational performance [14].

In contrast, Number of Bids, Debt–Equity–Grant Ratio, Total Debt Funding, and Income Group Dummy do not demonstrate statistically significant effects. These findings suggest that external and contextual factors may play a more limited role in explaining differences in investment size across projects.

One possible explanation is that investment size in greenfield infrastructure projects is determined primarily during the project planning and design stage, where technical structure and infrastructure requirements have a stronger influence than external market conditions. Variables such as procurement competition or country income classification may affect implementation conditions, financing accessibility, or project risk, but they do not necessarily determine the overall scale of infrastructure investment. This may explain why project-level characteristics demonstrate stronger statistical relationships compared to broader contextual variables. Similar conclusions are observed in studies emphasizing the importance of project configuration and infrastructure structure in investment allocation decisions [11, 14, 15].

The explanatory power of both models remains relatively stable, with R^2 values close to 0.57, indicating satisfactory model performance. Overall, the results support H1, confirming that internal project characteristics significantly affect investment size. However, H2 is not supported, as external and contextual variables do not demonstrate statistically significant relationships within the sample. The relatively small difference in explanatory power between the two models additionally suggests that financing-related and contextual variables contribute only marginally to explaining variation in investment size within the analyzed sample. This further supports the importance of internal project characteristics in greenfield infrastructure investment decisions.

The findings are generally consistent with previous studies emphasizing the importance of project configuration, infrastructure scale, and operational characteristics in shaping greenfield investment decisions. Moghadam et al. [11] argue that greenfield projects differ substantially from acquisition-based investments due to their higher dependence on infrastructure development and project implementation requirements. Similarly, Patala et al. [14] show that investment allocation in infrastructure projects may vary depending on project configuration and sector-specific operational conditions. The results are also consistent with Li et al. [15], who emphasize the importance of infrastructure location and project characteristics in shaping investment patterns across projects and regions. In addition, the findings support project management research highlighting the importance of cost forecasting and infrastructure planning in large-scale construction projects [17].

From a practical perspective, the findings highlight the importance of technical planning, infrastructure configuration, and operational assessment in greenfield infrastructure investment decisions. The results suggest that project-specific characteristics may provide stronger explanatory value for investment allocation than broader country-level indicators within the analyzed sample. These findings may assist policymakers, infrastructure planners, and investors in improving project evaluation and investment planning processes in developing economies.

Conclusion

This study examined the relationship between project characteristics and investment size in greenfield infrastructure projects using project-level data from the World Bank Private Participation in Infrastructure database. The analysis focused on how internal project characteristics and external contextual factors are associated with differences in total investment across infrastructure projects.

The findings lead to several important conclusions. First, the results show that internal project characteristics play the most important role in explaining investment size. Physical Assets demonstrated a positive and statistically significant relationship with total investment in both regression models, confirming the capital-intensive nature of greenfield infrastructure projects. This suggests that infrastructure scale remains one of the main factors influencing investment requirements.

Second, the analysis showed that Capacity also has a statistically significant effect on investment size. The negative relationship may indicate the presence of operational efficiency or economies of scale, where projects with higher capacity are able to generate greater output without proportional increases in investment. This demonstrates that different dimensions of project scale may influence investment decisions in different ways.

Third, external and contextual variables, including Number of Bids, Debt–Equity–Grant Ratio, Total Debt Funding, and Income Group classification, did not demonstrate statistically significant effects in the regression models. These findings suggest that project-level structure and operational characteristics may have a stronger influence on investment decisions than broader country-level conditions or financing composition.

The study contributes to the existing literature by providing project-level empirical evidence on greenfield infrastructure investment. While many previous studies focus primarily on macroeconomic and institutional determinants of foreign direct investment, the present analysis highlights the importance of infrastructure configuration, project scale, and operational characteristics in explaining differences in investment size across projects.

The findings additionally demonstrate the importance of combining project-level analysis with infrastructure finance perspectives when examining investment behavior in greenfield projects. The results suggest that infrastructure investment decisions may depend more strongly on technical and operational project characteristics than on broader macroeconomic conditions alone. This highlights the need for greater attention to project structure, infrastructure configuration, and operational planning in future greenfield investment research.

From a practical perspective, the findings suggest that policymakers and investors should place greater attention on project-specific characteristics during infrastructure planning and investment evaluation. In developing economies, where infrastructure expansion often requires substantial financial resources, accurate project assessment becomes particularly important. Evaluating infrastructure scale, operational capacity, and technical structure during the planning stage may improve investment allocation and reduce uncertainty during project implementation. The findings also suggest that infrastructure projects should not be evaluated only through broader economic indicators, since project-level characteristics may provide more direct information about investment requirements and project scale. Improving project design, infrastructure configuration, and operational assessment may support more efficient allocation of investment resources in large-scale infrastructure projects.

Despite its contributions, the study has several limitations. First, the sample size of 131 observations may limit the generalizability of the findings across different infrastructure sectors and regions. Second, the analysis relies on secondary data obtained from the PPI database and is therefore limited to available project-level variables. In addition, total investment is used as an indicator of project scale rather than a direct measure of project performance, which limits the ability to evaluate efficiency, profitability, or long-term project outcomes. In addition, the external environment is represented mainly by the Income Group Dummy variable, which may not fully capture broader institutional, macroeconomic, and political conditions affecting greenfield infrastructure investment.

Future research may extend the analysis by incorporating larger datasets, additional financial and operational variables, and alternative performance measures. Further studies may also examine sector-specific differences and compare infrastructure investment patterns across countries and regions. Future studies may also examine the relationship between project characteristics and alternative dimensions of project performance, including operational efficiency, profitability, implementation risk, and long-term infrastructure sustainability. Additional comparative studies across sectors and regions may further improve understanding of investment behavior in greenfield infrastructure projects.

Overall, the findings suggest that investment size in greenfield infrastructure projects depends more strongly on internal project structure and infrastructure characteristics than on broader country-level conditions.

REFERENCES

1 Harms, P., Méon, P.-G. Good and useless FDI. Review of International Economics, 26(1), 37–59 (2018). https://doi.org/10.1111/roie.12302

2 Kumar, A., Srivastava, V., Tabash, M.I. Infrastructure project finance: a systematic literature review and directions for future research. Qualitative Research in Financial Markets, 13(3), 295–327 (2021). https://doi.org/10.1108/QRFM-07-2020-0130

3 De Marco, A., Rosso, M., Narbaev, T. Nonlinear cost estimates at completion adjusted with risk contingency. Journal of Modern Project Management, 4(2), 24–33 (2016). https://doi.org/10.19255/JMPM01102

4 Amendolagine, V., Crescenzi, R., Rabellotti, R. The geography of acquisitions and greenfield investments: Firm heterogeneity and regional institutional conditions. Journal of Regional Science, 64(3), 1–30 (2024). https://doi.org/10.1111/jors.12705

5 Alon, I., Bretas, V.P.G., Sclip, A., Paltrinieri, A. Greenfield FDI attractiveness index: A machine learning approach. Multinational Business Review, 30(4), 620–642 (2022). https://doi.org/10.1108/MBR-11-2020-0155

6 Antonietti, R., Cainelli, G., Lupi, C. Foreign direct investment and institutional quality: Evidence from emerging economies. Review of World Economics, 159, 421–445 (2023). https://doi.org/10.1007/s10290-022-00473-7

7 Busse, M., Hefeker, C. Political risk, institutions and foreign direct investment. European Journal of Political Economy, 23(2), 397–415 (2007). https://doi.org/10.1016/j.ejpoleco.2007.02.003

8 Dunning, J.H. The eclectic paradigm as an envelope for economic and business theories of MNE activity. International Business Review, 9(2), 163–190 (2000). https://doi.org/10.1016/S0969-5931(99)00035-9

9 Helpman, E., Melitz, M., Yeaple, S. Export versus FDI with heterogeneous firms. American Economic Review, 94(1), 300–316 (2004). https://doi.org/10.1257/000282804322970814

10 Markusen, J.R., Maskus, K.E. Discriminating among alternative theories of the multinational enterprise. Review of International Economics, 10(4), 694–707 (2002). https://doi.org/10.1111/1467-9396.00359

11 Moghadam, A.T., Zali, M.R., Rezaei, S. M&A and greenfield FDI: location choice and investment behavior. Journal of Economic Studies, 46(5), 1037–1054 (2019). https://doi.org/10.1108/JES-10-2017-0280

12 Ti, L.-L., Ng, B.-K., Rasiah, R. Motivations behind SME greenfield investment in emerging markets. Management Decision, 61(6), 1656–1676 (2023). https://doi.org/10.1108/MD-04-2022-0482

13 Wu, L., Sutherland, D., Peng, X., Anderson, J. Are Chinese MNEs more strongly attracted to global cities and knowledge intensive city clusters than developed market MNEs when undertaking greenfield strategic asset seeking related FDI? Competitiveness Review, 33(3), 534–556 (2023). https://doi.org/10.1108/CR-02-2022-0026

14 Patala, S., Jalkala, A., Keränen, J. Configurational drivers of renewable energy investment. Journal of Cleaner Production, 281 (2021). https://doi.org/10.1016/j.jclepro.2020.124752

15 Li, S., Li, X., Qian, Z. Geography of greenfield investment and infrastructure location decisions. Journal of Regional Science, 64(1), 55–78 (2024). https://doi.org/10.1111/jors.12688

16 Narbaev, T. A meta-analysis of the public-private partnership literature reviews: Exploring the identity of the field. International Journal of Strategic Property Management, 26(4), 318–331 (2022). https://doi.org/10.3846/ijspm.2022.17860

17 De Marco, A., Ottaviani, F.M., Bolognesi, F. Time series-based project cost forecasting framework. Procedia Computer Science, 239, 105–113 (2024). https://doi.org/10.1016/j.procs.2024.06.152

18 Castelblanco, G., Narbaev, T., Osei-Kyei, R., Serikbay, D., Mukashev, Y., Guevara, J. Pandemic risks in PPPs: comparative analysis within developing countries. International Journal of Construction Management, 25(4), 456–468 (2025). https://doi.org/10.1080/15623599.2024.2336660

19 Kalidullin, B., Samoilov, A., De Marco, A. AI Applications in Project Management: Trends, Challenges and Future Perspectives. Herald of the Kazakh-British Technical University, 22(3), 390–403 (2025). https://doi.org/10.55452/1998-6688-2025-22-3-390-403

[1]*Рыскулбекова М.М.,
зерттеуші, ORCID ID: 0009-0008-2979-7857,
*e-mail: maralryskulbekova.98@gmail.com

[1]«Nurstroy Yug» ЖШС, Шымкент қ., Қазақстан

ГРИНФИЛД ИНФРАҚҰРЫЛЫМДЫҚ ЖОБАЛАРДАҒЫ ИНВЕСТИЦИЯ КӨЛЕМІНІҢ ЖОБАЛЫҚ ДЕҢГЕЙДЕГІ ДЕТЕРМИНАНТТАРЫ

Аңдатпа

Бұл зерттеу гринфилд инфрақұрылымдық жобалардағы жоба сипаттамалары мен инвестиция көлемі арасындағы байланысты талдауға бағытталған. Қолданыстағы тікелей шетелдік инвестициялар жөніндегі зерттеулер негізінен макроэкономикалық факторларға назар аударса, жобаға тән сипаттамалардың рөлі жеткілікті деңгейде зерттелмеген. Зерттеуде Дүниежүзілік банктің Private Participation in Infrastructure (PPI) дерекқорынан алынған 131 инфрақұрылымдық жоба негізінде көптік сызықтық регрессия әдісі қолданы-

лады. Талдау барысында физикалық активтер, жоба қуаттылығы, бәсекелестік шарттары, қаржыландыру құрылымы және елдік факторлардың инвестиция көлеміне әсері бағаланады. Нәтижелер физикалық активтердің инвестиция көлеміне оң және статистикалық маңызды әсер ететінін көрсетеді, бұл инфрақұрылымдық жобалардың капитал сыйымдылығын растайды. Ал жоба қуаттылығы кері бағыттағы маңызды байланыс көрсетеді, бұл ауқым тиімділігі немесе өнімділіктің артуымен түсіндірілуі мүмкін. Қалған айнымалылар, соның ішінде бәсекелестік деңгейі, қаржылық құрылым және елдік факторлар статистикалық маңызды әсер көрсетпейді. Зерттеу нәтижелері гринфилд жобалардағы инвестициялар көбіне сыртқы жағдайларға емес, жобаның ішкі құрылымына тәуелді екенін көрсетеді. Бұл макроэкономикалық факторлардан гөрі жобалық деңгейдегі талдаудың маңыздылығын арттырады. Практикалық тұрғыдан алғанда, нәтижелер мемлекеттік органдар мен инвесторларға инвестиция тартуда макроэкономикалық жағдайларға ғана емес, жобаның техникалық құрылымы мен сапасына басымдық беру қажеттігін көрсетеді.

Түйін сөздер: гринфилд инвестициялар, жоба сипаттамалары, инфрақұрылымдық инвестициялар, инвестиция детерминанттары, жобаны жобалау, көптік сызықтық регрессия.

[1]*Рыскулбекова М.М.,
исследователь, ORCID ID: 0009-0008-2979-7857,
*e-mail: maralryskulbekova.98@gmail.com

[1]ТОО «Nurstroy Yug», г. Шымкент, Казахстан

ДЕТЕРМИНАНТЫ ОБЩЕГО ОБЪЕМА ИНВЕСТИЦИЙ В ГРИНФИЛД ИНФРАСТРУКТУРНЫХ ПРОЕКТАХ НА УРОВНЕ ПРОЕКТА

Аннотация

Данное исследование рассматривает взаимосвязь между характеристиками проектов и общим объемом инвестиций в greenfield инфраструктурные проекты. В то время как существующая литература по прямым иностранным инвестициям в основном сосредоточена на макроэкономических и институциональных факторах, проектные характеристики остаются сравнительно недостаточно изученными. На основе выборки из 131 инфраструктурного проекта, полученной из базы данных Всемирного банка Private Participation in Infrastructure (PPI), в исследовании применяется множественный линейный регрессионный анализ для оценки влияния физических активов, мощности проекта, условий закупок, финансовой структуры и страновых характеристик на объем инвестиций. Результаты показывают, что физические активы оказывают положительное и статистически значимое влияние на общий объем инвестиций, что подтверждает капиталоемкий характер greenfield инфраструктурных проектов. В то же время мощность проекта демонстрирует значимую отрицательную взаимосвязь, что может свидетельствовать о наличии операционной эффективности или эффекта масштаба. Другие переменные, включая конкурентность закупок, финансовую структуру и страновые условия, не показали статистически значимого влияния. Полученные результаты подтверждают, что объем инвестиций в greenfield инфраструктурные проекты в большей степени определяется внутренними характеристиками проекта, чем внешними условиями. Исследование вносит вклад в литературу по инвестициям в инфраструктурные проекты и подчеркивает важность технического планирования, конфигурации инфраструктуры и операционной оценки при принятии инвестиционных решений.

Ключевые слова: greenfield инвестиции, инвестиции в инфраструктуру, множественная линейная регрессия, проектирование проекта, проектные характеристики, факторы инвестиционной привлекательности.