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MASTER'S DISSERTATION

**«DEVELOPMENT OF PUBLIC PRIVATE PARTNERSHIP IN THE REPUBLIC OF
KAZAKHSTAN»**

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Written by: Nurzhan Shynbergenov

Supervisor: Saule Kemelbayeva

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Abstract of
The development of Public Private Partnership in the Republic of Kazakhstan
By Nurzhan Shynbergenov
ISE MNU
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This thesis investigates the influence of various characteristics on project costs and the volume of attracted investments in Public-Private Partnerships (PPPs) in Kazakhstan. Using a comprehensive dataset compiled from numerous PPP projects within the country, the study employs Ordinary Least Squares (OLS) regression analysis to explore how factors such as project level, object type, economic sphere, and type of initiative impact the financial metrics of these projects.

The quantitative analysis reveals significant findings about how these variables affect project costs and investment attraction. For instance, projects at the national level tend to have higher costs but also attract more significant investments compared to local projects, likely due to the scale of the projects and government backing, which reduces perceived investor risk. High-tech projects are shown to be more expensive, highlighting the need for specialized investment in technology-driven sectors. The analysis also points out that the economic sphere of a project has varying impacts on its ability to attract investments; projects in sectors with government guarantees, regardless of the economic sphere, tend to attract more investments.

Qualitative interviews with key stakeholders—including representatives from the government, private investors, and a PPP development center—complement the quantitative findings. These interviews underscore the importance of strategic government support and the need for balanced regulatory frameworks to foster a conducive environment for PPP development. Stakeholders emphasize the necessity of adopting international best practices and adapting them to the local context to enhance the effectiveness of PPP projects in Kazakhstan.

The study concludes that both the government and private sectors must collaborate more closely to leverage the full potential of PPPs. Recommendations for policy adjustments are

provided, focusing on improving legal frameworks, increasing transparency, and strengthening government commitments to PPP projects. This research contributes to a deeper understanding of how different project characteristics influence the economic outcomes of PPPs and offers insights into strategic decision-making for future PPP initiatives in Kazakhstan.

This thesis not only contributes to academic knowledge by filling gaps in existing research on PPPs in Kazakhstan but also offers practical recommendations that could help in refining the approaches to PPP implementation, ensuring that these projects are both cost-effective and attractive to investors, thereby facilitating sustainable economic development.

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Introduction

In the quest for sustainable development and efficient public service delivery, the Republic of Kazakhstan has increasingly turned to Public-Private Partnerships (PPP) as a strategic approach to infrastructure development and service provision. This pivot towards PPP models reflects a broader global trend where public and private sectors collaborate to leverage each other's strengths, optimizing resource utilization, innovation, and operational efficiency. The unique geopolitical and economic context of Kazakhstan, characterized by its vast natural resources, strategic position along the Silk Road, and ambitious development agendas, presents both opportunities and challenges for the implementation of PPP projects.

PPP projects, by their nature, involve complex financial structures, requiring substantial capital investments and meticulous planning to ensure their viability and success. The project cost and the ability to attract investments are pivotal factors that determine the feasibility and attractiveness of these projects. Consequently, understanding how various project characteristics—such as project level, object type, economic sphere, and type of initiation—affect these financial aspects becomes crucial. This understanding not only aids in the strategic planning and execution of projects but also in attracting both domestic and international investors by aligning project features with market expectations and investment criteria.

This thesis, titled "The Development of PPP in the Kazakhstan Republic," aims to delve into these dynamics, focusing on how different characteristics influence project costs and the volume of attracted investments in PPP projects within Kazakhstan. The research is predicated on the hypothesis that insights gained from analyzing the impact of project characteristics on costs and investment attraction can significantly guide strategic decisions in the development and financing of PPP projects. Such insights are invaluable for identifying high-potential projects from an investment perspective and pinpointing areas where cost management could enhance project feasibility and attractiveness.

To this end, the study will systematically examine the correlation between specific project characteristics and their financial implications, utilizing empirical data and analytical frameworks to uncover patterns and relationships. By doing so, the research seeks to contribute to the broader understanding of PPP development in Kazakhstan, offering evidence-based recommendations to policymakers, investors, and project developers. Through a meticulous investigation of the factors that influence project costs and investment attraction, this thesis endeavors to provide a comprehensive overview of the PPP landscape in Kazakhstan, highlighting the pathways to successful project implementation and the role of strategic financial planning in achieving development objectives.

As Kazakhstan continues to evolve and seek efficient mechanisms for infrastructure development and public service enhancement, the role of PPPs becomes increasingly central. This thesis aims to shed light on the intricacies of financing and developing PPP projects, offering insights that could shape the future of public infrastructure and services in Kazakhstan.

Literature review

Since gaining independence, Kazakhstan has come a long way in building a modern budget system aimed at choosing the management of public finances and focused on choosing the priority tasks of the country's socio-economic development. In 1991, on December 17, the first budget system of independent Kazakhstan was adopted, which included the main two segments as the republican budget and the local budget. However, after the adoption of new constitutions in 1995, the budgetary system also took on a new look (Issatayeva, Adambekova, 2016).

Sadykova (2020) highlights the transformative potential of PPPs in fostering innovative development within Kazakhstan. The study underscores that PPPs are pivotal in mobilizing private sector expertise and capital, particularly in sectors requiring significant innovation and technological advancement. Sadykova argues that PPPs in Kazakhstan have been instrumental in addressing infrastructure deficits and promoting sustainable development through innovative solutions. The research emphasizes the need for a conducive policy environment to maximize the benefits of PPPs in fostering innovation.

Panzabekova (2019) delves into the sector-specific challenges and opportunities presented by PPPs, pointing out that while PPPs have been successful in certain sectors such as transportation and energy, there are significant challenges in the innovation sphere. The study highlights issues such as inadequate regulatory frameworks, lack of skilled human resources, and limited private sector participation as key impediments. Panzabekova suggests that enhancing regulatory clarity and fostering a collaborative ecosystem between public and private entities are crucial for the success of PPPs in the innovation sector.

Yeshimova, Amanbaev, and Kapysheva (2018) explore the legislative aspects of PPP management, providing a comprehensive overview of the existing legal framework governing PPPs in Kazakhstan. The authors argue that while the legislative framework has evolved significantly, there are still gaps that need to be addressed to improve the effectiveness and

efficiency of PPP projects. The study suggests reforms aimed at simplifying administrative procedures, enhancing transparency, and ensuring better risk allocation between public and private partners.

Fleta-Asín and Muñoz (2019) examine the impact of risk transference on the success of PPP projects. Their empirical analysis reveals that appropriate risk allocation is critical for the success of PPP projects. The study highlights that transferring excessive risk to private partners can lead to project failures, while balanced risk-sharing mechanisms enhance project outcomes. Their findings underscore the importance of developing robust risk management frameworks that align the interests of both public and private partners.

Kazakhstan has utilized Public-Private Partnerships (PPPs) to deliver economic and social infrastructure across various sectors, including education, healthcare, transport, power, housing, and public utilities, both at the central (republican) and local (regional) levels. However, at the republican level, only a limited number of PPP projects have successfully reached financial close, primarily due to issues related to their bankability. The country's primary experience with PPPs lies in transport, information and communication technology (ICT), and public services. To support PPP implementation, Kazakhstan has established a regulatory and institutional framework that underscores the government's commitment to using PPPs as a procurement modality. Despite notable progress in creating this enabling environment, there is a significant gap between intent and execution. Specifically, only one project, the Big Almaty Ring Road (known locally as "BAKAD"), is recognized as an internationally tendered long-term PPP that has achieved financial close with the involvement of foreign banks. This is consistent with Infrascope's 2019 assessment, which categorizes Kazakhstan as "low" on the "PPP Maturity" dimension. Although the country demonstrates strong political will for PPP pursuits, the low maturity score suggests a disconnect between intention and execution, potentially pointing to systemic impediments that hinder private

interest in infrastructure PPPs. (Asian Development Bank, “PPP Monitor in Kazakhstan, December 2022”, 2022)

Theoretical Framework and Methodology

Theoretical Framework

The development and successful implementation of Public-Private Partnerships (PPP) in infrastructure and service delivery are predicated on a robust theoretical framework that encapsulates the principles of economics, finance, and public policy. This section outlines the theoretical underpinnings that guide the analysis of how project characteristics influence the project cost and the volume of attracted investments in PPP projects, specifically within the context of the Republic of Kazakhstan.

Economic Rationale for PPP

Public-Private Partnerships are grounded in the economic theory of leveraging comparative advantages. The public sector, with its mandate to provide public goods and services, often lacks the efficiency, innovation, and capital that the private sector can provide. Conversely, the private sector, driven by profit motives, can benefit from the stable revenue streams and risk mitigation offered by government partnerships. The marriage of these two sectors under PPP arrangements is designed to optimize resource allocation, minimize costs, and enhance service delivery quality.

Risk Sharing and Financial Structuring

At the heart of PPP projects lies the concept of risk sharing between the public and private sectors, a principle deeply rooted in financial theory. The allocation of risks—ranging from financial, operational, to environmental—is carefully structured to align with the party best suited to manage each risk. This allocation impacts the project's financial viability and its attractiveness to investors. The Modigliani-Miller theorem, which suggests that the valuation of a project is independent of its financing structure under perfect market conditions, is nuanced in the context of PPPs by the reality of market imperfections, necessitating optimal risk-sharing mechanisms to enhance project value.

Investment Attraction in Emerging Economies

The ability to attract investments, particularly in emerging economies like Kazakhstan, is influenced by a myriad of factors including political stability, regulatory frameworks, market potential, and economic policies. The theory of Foreign Direct Investment (FDI) attraction elucidates the importance of these factors in influencing investment decisions. Moreover, the concept of "country risk" highlights how geopolitical and economic uncertainties can affect the perceived risk of investments in PPP projects, thereby affecting the cost of capital and investment flows.

Project Cost Determinants

Understanding the determinants of project costs in PPP arrangements involves examining the interplay between construction economics, life-cycle costing, and the theory of contracts. Construction economics provides insights into the cost drivers in project development, including labor, materials, and technology. Life-cycle costing emphasizes the importance of considering the total cost of ownership, encouraging a focus on long-term value rather than just upfront costs. Contract theory, particularly the Principal-Agent problem, explores the challenges in aligning the interests of the public sector (principal) and private sector (agent), impacting project costs and execution.

Research Application

This theoretical framework serves as the foundation for analyzing the specific characteristics of PPP projects in Kazakhstan and their impact on project costs and investment attraction. By applying these theoretical lenses, the research seeks to unravel the complex dynamics at play, offering insights that can inform policy-making, project design, and investment strategies. Through empirical analysis and data-driven inquiry, the study aims to contribute to the evolving discourse on PPP development, bridging theory with practical implications for the advancement of public infrastructure and services in Kazakhstan.

Methodological Approach

Data Source and Collection

The empirical foundation of this study on Public-Private Partnerships (PPPs) in Kazakhstan is anchored in comprehensive data sourced from the Kazakhstan PPP Center. This pivotal institution serves as the repository and analytical hub for all PPP projects initiated in the country since the formal adoption of PPP frameworks in 2008. The Kazakhstan PPP Center's database represents a centralized collection of project-specific information, mandated by the Acting Order of the Minister of National Economy of the Republic of Kazakhstan dated November 25, 2015, No. 725. This directive requires regional local executive bodies (akimats) and central executive bodies (ministries) to periodically submit updated and actualized data on their respective PPP projects to the PPP Center.

This centralized database is meticulously curated by experts at the PPP Center, who compile, verify, and consolidate information from diverse governmental sources into a unified dataset. The database encompasses a wide range of project attributes, including but not limited to, project scale, sectoral categorization, implementation status, financial metrics, and timelines. The availability of this data to the public and researchers underscores Kazakhstan's commitment to transparency and accountability in its PPP endeavors.

For this study, the PPP Center's database is utilized as the primary data source, offering an unparalleled lens through which the landscape of PPP projects in Kazakhstan can be examined. This rich dataset not only facilitates a granular analysis of project-specific characteristics and their impact on investment attraction but also enables the exploration of broader trends and patterns within the country's PPP framework. The comprehensive nature of this data, combined with its official and systematic collection process, ensures a robust empirical basis for the study's subsequent analyses and findings.

Analytical Techniques and Empirical Findings

This thesis adopts a mixed-methods approach, incorporating both quantitative and qualitative research methodologies, to provide a comprehensive analysis of Public-Private Partnership (PPP) projects in Kazakhstan. This dual approach is instrumental in addressing the multifaceted nature of PPPs, allowing for a holistic understanding of the factors influencing project outcomes.

In the quantitative research methodology, utilizing Ordinary Least Squares (OLS) regression analysis to investigate the relationship between project characteristics and two main outcomes: the project cost and the volume of attracted investments. The OLS method is selected for its robustness in estimating the linear relationships between independent variables (project level, object type, economic sphere, and type of initiation) and dependent variables (project cost and volume of attracted investments).

Dependent Variables:

Project Cost: The total financial cost required to complete the PPP project.

Volume of Attracted Investments: The total amount of private investments attracted to the PPP project.

Independent Variables:

Project Level: Categorical variable indicating whether the project is local or republican.

Object Type: Categorical variable describing the sector or type of the project (e.g., infrastructure, healthcare).

Economic Sphere: Categorical variable indicating the economic domain of the project (e.g., transportation, healthcare).

Type of Initiation: Categorical variable showing the initiation type of the project, either public or private.

The OLS regression analysis will be performed separately for each dependent variable. Prior to conducting the OLS regression, diagnostic tests will be conducted to ensure there are no

violations of OLS assumptions, such as multicollinearity, heteroscedasticity, and normality of residuals. If necessary, transformation of variables or adoption of robust standard errors will be considered to address any issues.

The OLS regression analysis is expected to reveal significant determinants of project cost and the volume of attracted investments in PPP projects in Kazakhstan. Identifying these factors will provide valuable insights for policymakers, investors, and stakeholders involved in the planning and execution of PPP projects, enabling them to make informed decisions to enhance the attractiveness and financial feasibility of future projects.

This methodological approach, centered around the OLS regression analysis, provides a structured framework for assessing the impact of project characteristics on the cost and investment attractiveness of PPP projects in Kazakhstan. The findings from this study are anticipated to contribute to the existing literature on PPPs and offer practical recommendations for the successful implementation of PPP projects in the country.

Qualitative Research

In parallel, the qualitative research component encompasses semi-structured interviews with key stakeholders in Kazakhstan's PPP landscape. Interviewees include:

- *The Deputy of Chairman of the Board of the PPP Center of Kazakhstan*
- *The Head of the PPP Development Department at the Ministry of National Economy of Kazakhstan*
- *A Representative from the PPP Sector of the Asian Development Bank in Kazakhstan*

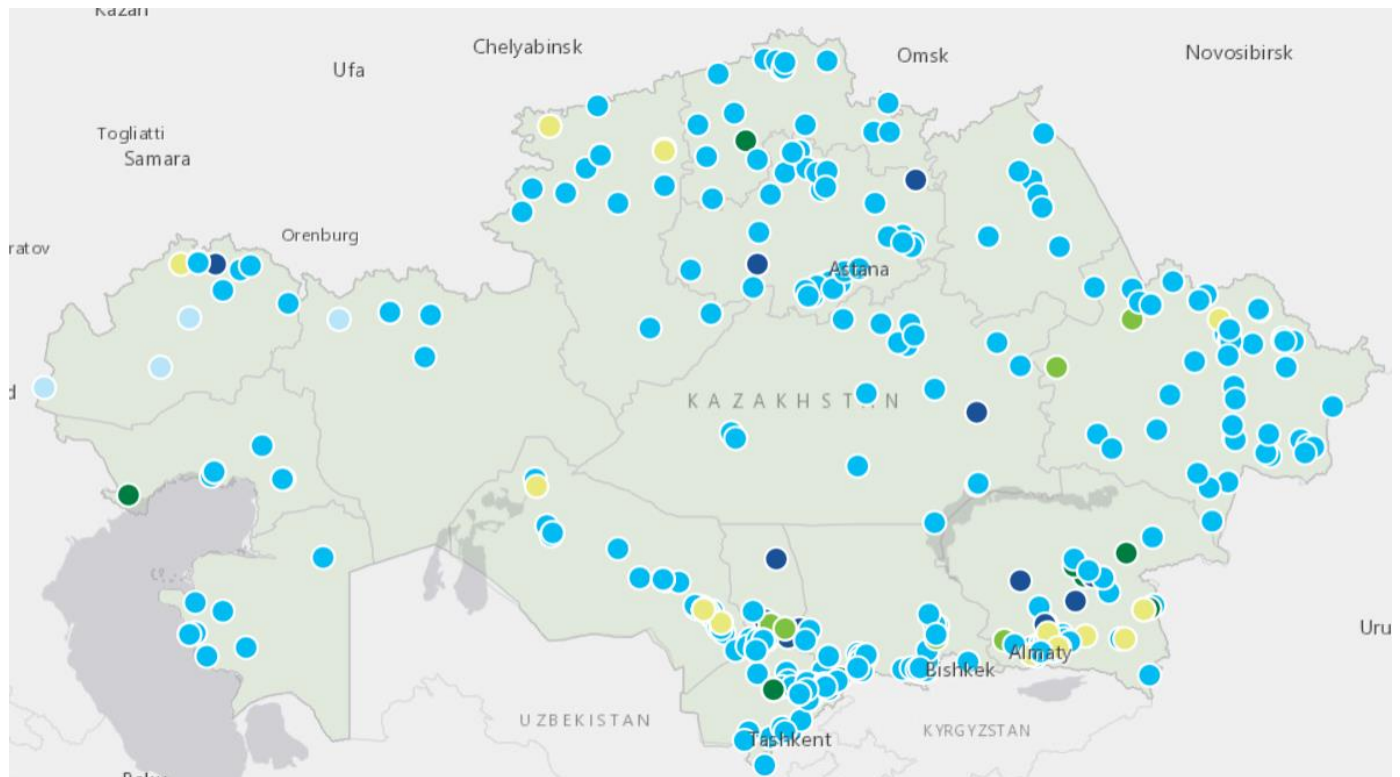
These interviews are designed to gather insights into the operational, regulatory, and strategic dimensions of implementing PPP projects. Stakeholder perspectives will enrich the analysis by providing context to the quantitative findings, revealing challenges and opportunities within the PPP framework that are not readily apparent through statistical models alone.

Data Analysis

Data Analysis: Descriptive Statistics

This section provides a comprehensive overview of the descriptive statistics for the dataset comprising 1,352 Public-Private Partnership (PPP) projects across Kazakhstan from 2008 to 2023. These projects span 20 regions and are managed by 7 ministries, illustrating the broad geographic and administrative scope of PPP initiatives in the country.

Map 1 The location of PPP projects in The Republic of Kazakhstan



Overview of PPP Projects

Project Distribution: Out of the total projects, 30 are classified at the republican level, with the remaining 1,322 being local projects. This distinction underscores the predominance of PPP initiatives at the local level, targeting region-specific needs and development goals.

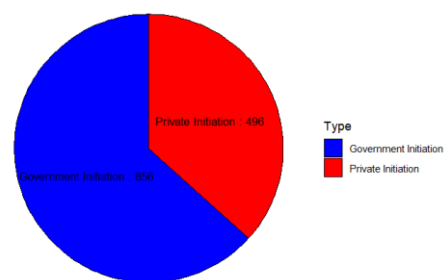
Object Types: The dataset reveals a diverse range of project types, with 61 different object types identified. The three most common types are Canteens, Kindergartens, and Medical organizations, indicating a strong focus on social infrastructure within the PPP framework.

Project Status: A significant portion of the projects (756) are in the "Implemented: operation" phase, while 318 projects have been completed. This status distribution highlights the ongoing nature of many PPP initiatives and their role in sustained infrastructure development.

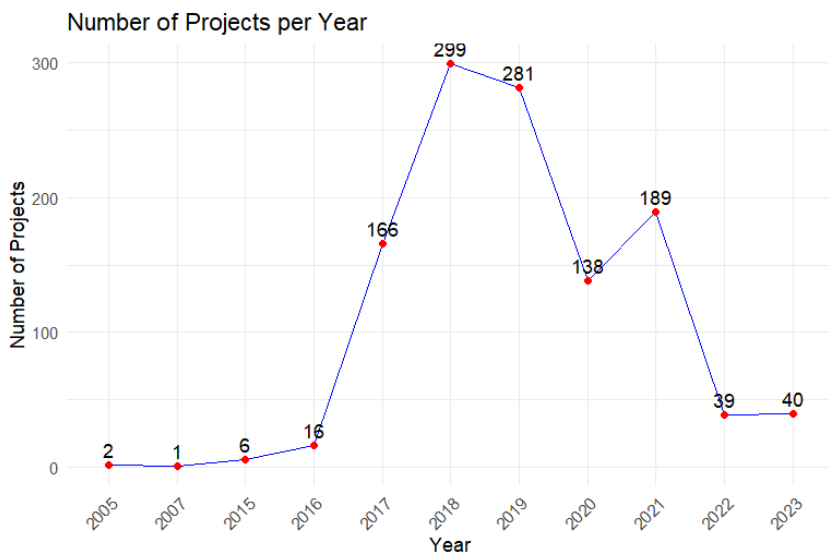
Economic Spheres: PPP projects span across 10 economic spheres, with Education (781 projects), Health and Social Services (236 projects), and Energy and Housing and Communal Services (166 projects) being the most prominent. This distribution emphasizes the government's prioritization of critical sectors for PPP investment.

Initiation Type: The initiation of PPP projects is predominantly from the government side (856 projects), reflecting a proactive approach by public authorities in leveraging PPPs for infrastructure and service delivery enhancements.

Project Initiation by Type



Temporal Trends

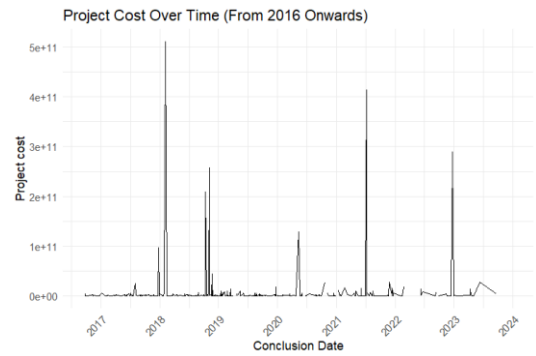


Agreement Dates and Trends:

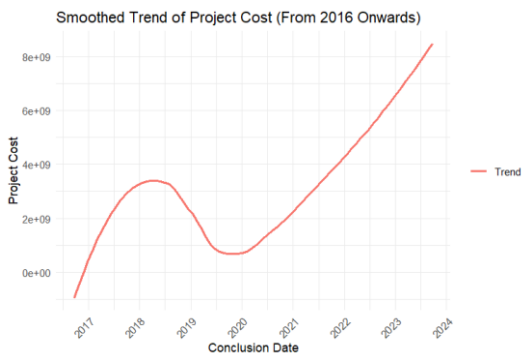
The dataset shows a gradual increase in the number of PPP agreements, peaking in 2018 with 299 projects. This upward trend, however, faced a setback in 2020, with the number of projects dropping to 138, likely due to the impact of COVID-19.

The subsequent years (2021-2023) show a partial recovery but remain below the peak levels, indicating the pandemic's lasting impact on PPP project initiation.

Project Costs: The total cost of all projects amounts to 3.2 trillion tenge, with an average project cost of 2.5 billion tenge. The median project cost stands at 70 million tenge, highlighting significant variability in project scales and investments. The standard deviation of project costs is 23 billion tenge, further underscoring this variability.



Investment Volumes: The volume of attracted investments totals 1.6 trillion tenge, representing approximately half of the overall project costs. The average investment attracted per project is 2.1 billion tenge, with a median of 82 million tenge and a standard deviation of 15 billion tenge. This financial data reflects the substantial investment mobilization capacity of PPP projects in Kazakhstan.



The descriptive analysis reveals significant variability in project characteristics, from their geographical distribution and sectoral focus to their financial metrics.

This descriptive statistical overview provides a foundational understanding of the PPP landscape in Kazakhstan, setting the stage for further econometric analysis of the factors influencing project costs and investment attraction within the PPP framework.

Model Description

This section delineates the outcomes of two Ordinary Least Squares (OLS) regression analyses conducted to evaluate the determinants of project cost and the volume of attracted investments in Public-Private Partnership (PPP) projects in Kazakhstan. The analyses focus on the impact of project characteristics such as project level, object type, economic sphere, and type of initiative.

Model 1: Project Cost

The first model examines how these characteristics influence the overall cost of PPP projects. The regression equation for project cost is given by:

$$\text{Project Cost} = \beta_0 + \beta_1(\text{Project Level}) + \beta_2(\text{Object Type}) + \beta_3(\text{Economic Sphere}) + \beta_4(\text{Type of Initiative}) + \varepsilon$$

Project Level: Projects categorized under the local level showed a significant decrease in cost, with an estimate of -\$122.7 billion ($p < 0.01$), indicating that local-level projects tend to be less expensive than their national counterparts.

Object Type: The analysis highlighted substantial cost variances across object types. Specifically, "Thermal Power Engineering" projects emerged as notably costly, with an estimate increase in cost by \$261.5 billion ($p < 0.01$), underscoring the substantial financial commitment required for these ventures.

Economic Sphere: Projects within the "Health and Social Services" sphere showed a positive coefficient, suggesting higher project costs compared to other sectors.

Model 2: Volume of Attracted Investments

The second model assesses the impact of the same set of characteristics on the volume of investments attracted to PPP projects:

$$\text{Volume of Attracted Investments} = \beta_0 + \beta_1(\text{Project Level}) + \beta_2(\text{Object Type}) + \beta_3(\text{Economic Sphere}) + \beta_4(\text{Type of Initiative}) + \varepsilon$$

Project Level: Similar to the project cost model, the local-level projects were associated with a reduction in the volume of attracted investments, with an estimate of -\$61.92 billion ($p < 0.01$).

Object Type: "Thermal Power Engineering" projects stood out again, not just for their high costs but also for their high investment attraction, with an increase in investment volume by approximately \$260 billion ($p < 0.01$). This indicates a strong investor interest in energy sector projects despite their high costs.

Economic Sphere: The "Health and Social Services" and "Education" spheres showed significant positive impacts on investment volume, suggesting these areas are particularly attractive to investors within the context of PPP projects in Kazakhstan.

Comparative Insights and Specific Numerical Highlights

The comparison between the two models elucidates the nuanced dynamics between project characteristics and their implications on cost and investment attraction. The significant decrease in project cost and investment attraction at the local level across both models (-\$122.7 billion and -\$61.92 billion, respectively) highlights the crucial influence of project scale on financial outcomes.

The distinct appeal of "Thermal Power Engineering" projects, which command both high costs (\$261.5 billion) and attract substantial investments (\$260 billion), reflects a high-stakes investment environment where high costs are counterbalanced by potential high returns.

These analyses underscore the complexity of funding and investing in PPP projects, where various factors including project type, scale, and sector significantly influence cost and investment attraction. The detailed numerical insights provide a grounded basis for policymakers and investors to navigate the PPP landscape in Kazakhstan, enabling informed decisions that align with strategic economic and developmental goals.

Results

I construct a simplified table based on the significant variables of regression output data. This table will include only variables with significance ($p < 0.05$)

Table 1: Summary of Significant Regression Model Estimates

Variable	Estimate	Std. Error	t-value	p-value	Significance
PPP Project Level (Republican)	1.227e+11	5.298e+09	23.165	<2e-16	***
Object Type: Airport	1.072e+11	1.572e+10	6.819	1.46e-11	***
Object Type: Educational services	- 7.201e+10	1.380e+10	-5.219	2.13e-07	***
Object Type: Information system	- 6.223e+10	1.029e+10	-6.049	1.95e-09	***
Object Type: ORC	2.933e+11	2.340e+10	12.532	<2e-16	***
Object Type: Thermal power engineering	2.615e+11	1.633e+10	16.015	<2e-16	***
Economic Sphere: Public order	- 4.641e+10	2.051e+10	-2.263	0.023842	*

Economic Sphere:					
Transport and infrastructure	- 3.827e+10	1.859e+10	-2.058	0.039790	*
Type of Initiative:					
Private	7.610e+07	1.050e+09	0.072	0.942	

Adjusted R-squared: 0.6079

F-statistic: 30.56 on 65 and 1174 DF, p-value: < 2.2e-16

Interpretation:

The significant positive estimate for "PPP Project Level (Republican)" indicates that Republican projects have a higher cost compared to the base level (in this case, presumably local projects).

Certain "Object Types," like airports, ORCs, and thermal power engineering, have significantly higher costs associated with them, possibly due to their scale and complexity.

Conversely, "Educational services" and "Information systems" show significant negative estimates, suggesting these project types may have lower costs relative object types.

The negative estimates for "Economic Sphere" categories like "Public order" and "Transport and infrastructure" suggest these areas might have specific challenges or efficiencies leading to lower project costs.

Type of Initiative: The coefficient for private initiatives is not statistically significant, indicating that the type of initiative (private or governmental) does not have a significant impact on the cost of PPP projects.

The overall model explains a significant portion of the variability in PPP project costs (Adjusted R-squared: 0.6079), indicating a high explanatory power of the model. The F-statistic shows that the model is overall significant.

This regression analysis aims to unravel the determinants influencing the volume of attracted investments in PPP projects in Kazakhstan, considering variables such as PPP project level, object type, economic sphere, and type of initiative. The table presented below offers a concise summary of the regression model's estimates, standard errors, t-values, and significance levels for the variables that significantly affect the volume of attracted investments.

Table 2: Regression Model Estimates for Volume of Attracted Investments in PPP Projects in Kazakhstan

Variable	Estimate	Std. Error	t value	p value	Significance
PPP Project Level (Local)	- 6.192e+10	3.139e+09	-19.725	< 2e-16	***
Object Type: Airport	5.390e+10	9.285e+09	5.805	9.88e-09	***
Object Type: Educational Services	- 3.822e+10	8.199e+09	-4.662	3.77e-06	***
Object Type: Information System	- 3.413e+10	6.289e+09	-5.428	7.93e-08	***
Economic Sphere: Health and Social Services	3.605e+10	6.122e+09	5.889	6.11e-09	***

Interpretation of Results

PPP Project Level (Local): A significant negative coefficient for local-level projects indicates a substantial decrease in the volume of attracted investments compared to republican-level

projects, suggesting that larger, possibly national-scale projects are more likely to attract significant investments.

Object Type: Specific types of projects, such as airports, demonstrate a significantly higher volume of attracted investments, likely due to their strategic importance and potential for revenue generation. Same like the Project cost, sectors like educational services and information systems are associated with lower investment volumes, possibly reflecting different priorities or scales of operation.

Economic Sphere: The positive coefficient for the health and social services sphere suggests that projects within this category are particularly effective in attracting investments, potentially due to the high demand and social value associated with health infrastructure.

Overall Model Performance

The model's adjusted R-squared value of 0.7162 indicates that approximately 71.62% of the variability in the volume of attracted investments is explained by the included factors. This high explanatory power, coupled with the F-statistic and its associated p-value, confirms the statistical significance of the model, highlighting the importance of project level, object type, and economic sphere in influencing investment volumes in Kazakhstan's PPP projects.

Comparing the outputs of the OLS models for "Project Cost" and "Volume of Attracted Investments" in Public-Private Partnership (PPP) projects in Kazakhstan:

Key Variables and Their Impacts:

PPP Project Level (Local): Both models indicate a significant impact of the project level (local vs. republican) on the outcomes. For project costs, local projects are associated with a decrease, suggesting larger projects might have economies of scale that reduce average costs. For attracted investments, local projects also see a significant decrease, potentially indicating that larger, possibly more strategic projects at the republican level are more attractive to investors.

Object Type: Specific object types like airports show significant positive impacts on both project costs and attracted investments, emphasizing their strategic importance and potential for high costs and high investment attraction. However, the impact varies across different types of projects, highlighting the sector-specific dynamics in costs and investment attraction.

Economic Sphere: The health and social services sector shows a positive impact on attracted investments, suggesting projects in this sector are capable of drawing significant funding, possibly due to their perceived social value and potential for stable returns.

Statistical Significance and Model Fit:

The adjusted R-squared values are notably high in both models (0.6079 for project cost and 0.7162 for volume of attracted investments), indicating that the models explain a significant portion of the variability in the outcomes. This underscores the models' effectiveness in capturing the key factors influencing project costs and investment volumes.

The F-statistic and associated p-value ($< 2.2e-16$ in both models) demonstrate the overall statistical significance of both models, confirming that the variables included collectively have a significant impact on both project costs and the volume of attracted investments.

Important Observations:

The significant variables across both models are not entirely the same, which suggests that the factors driving project costs can differ from those influencing the volume of attracted investments. This implies that stakeholders need to consider different strategies when planning and financing PPP projects.

The presence of singularities in the volume of attracted investments model (not defined coefficients) for some categories within the economic sphere suggests a collinearity issue or insufficient data for those categories, which did not appear in the project cost model. This might reflect the complex nature of investment decisions compared to cost estimations.

The qualitative research results.

The qualitative research in this thesis aims to explore the perspectives of key stakeholders involved in public-private partnership (PPP) mechanisms in Kazakhstan. Through in-depth interviews with experts representing different facets of the PPP framework, we gained valuable insights into various critical aspects that are not fully captured through quantitative methods.

Methodology

For data collection, in-depth interviews were conducted with three primary stakeholders in the PPP mechanism in Kazakhstan:

A. Khamzin, Head of the PPP Development Department, Ministry of National Economy.

B. Vaisova, PPP Project Consultant for Kazakhstan, Asian Development Bank.

A. Kobetov, Deputy Chairman of the Board, Kazakhstan PPP Center.

The interviews were structured to cover the experts' opinions on a range of issues related to project levels, types of objects, economic sectors, and types of initiatives.

Key Outcomes from Interviews

1. Project Level

Republic projects generally cost more than local projects. This is due to the larger scale of these projects and the government's responsibility for fulfilling obligations. Republic projects are also more attractive to investors because of their size, less competition, and the assurance of returns on investment. Local projects, while important, often face difficulties in attracting investments due to their smaller scale and perceived higher risk.

2. Types of Objects

High-tech (Hi-Tech) projects are significantly more expensive than ordinary infrastructure projects. This is attributed to the use of advanced technologies and the need for specialized knowledge. These projects are more attractive to investors seeking innovative and high-return

opportunities. However, traditional infrastructure projects remain crucial for long-term economic development.

3. Economic Spheres

For investors, the specific economic sphere of a project is not as critical as the guarantees and risk-sharing mechanisms provided by the government. For the government, it is essential to maintain high levels of education and healthcare, as these sectors are of critical social importance.

4. Type of Initiatives

Government-initiated projects are more successful in attracting large international investors due to their reliability and stability. Private initiatives were introduced to attract local investors initially but can lead to defaults due to the large number of obligations.

Effects of Experts' Opinions on Research

Interviews highlighted the need for significant improvements at the planning stage of PPP projects. Proper structuring of projects is crucial for their success. There is also a need to encourage local large companies to participate in major projects, as Kazakhstan's companies are ready for this. Additionally, the type of compensation for private partners should shift towards self-financing, as requested by the President.

Recommendations

Regulation of Specialists: Create a national certification system for PPP specialists through an independent body (National Test Center), including comprehensive tests for specialists and accreditation of organizations by the Ministry of National Economy.

Support for Local Investors: Introduce legislative incentives or additional points for local competitors with their own equity to enhance their participation in large projects.

Project Comparison: Establish a budget comparator for projects and include the comparison of financial models in the law.

Attracting International Investors: Modify the pipeline of PPP projects to make them more attractive to international investors, improving their structure and presentation.

The qualitative research provided important insights that complement the quantitative analysis. Experts emphasized the need for better planning and structuring of PPP projects and highlighted the importance of providing guarantees to investors. The recommendations based on the interview results aim to improve PPP mechanisms and increase the participation of both local and international investors. These measures will help Kazakhstan unlock the full potential of PPP for the country's socio-economic development.

Significance and Conclusion

This thesis provides a comprehensive analysis of the factors influencing project costs and the volume of investments attracted in Public-Private Partnership (PPP) projects within Kazakhstan. By integrating findings from both quantitative analysis using Ordinary Least Squares (OLS) regression and qualitative insights from key stakeholders, this research offers a multifaceted understanding of the complexities involved in PPP projects. These insights are crucial for policymakers, investors, and stakeholders, providing actionable data and strategic directions for optimizing the development and management of PPP initiatives.

For Policymakers: The research underscores the need for more nuanced policy frameworks that accommodate both the economic scale of PPP projects and the specific sectors they encompass. This includes adjusting policies to attract more substantial investments at the republic level, where projects are more appealing due to government backing and lower competition, and ensuring that essential social sectors like health and education do not suffer from underfunding.

For Investors: The findings clarify the types of projects that offer the most promise for investment returns, such as high-tech projects, which, despite their higher costs, provide substantial investment attractions due to government guarantees. This information can help investors to strategically position their portfolios for higher returns while mitigating risks associated with different project types and scales.

For PPP Stakeholders: The study highlights the crucial role of project attributes in influencing both costs and investment potential. Stakeholders can utilize this information to enhance project structuring, align investment appeals with project specifics, and foster better negotiation outcomes based on proven project performance metrics.

Project Level Dynamics: The research identified that projects at the national level attract more investments compared to local projects, primarily due to stronger government support and larger project scopes which reduce competitive pressures and enhance investment security.

Sector-Specific Recommendations: The analysis revealed significant sectoral differences in how PPP projects are perceived and funded. Thermal power projects, for instance, although expensive, attract considerable investments due to their long-term viability and essential service provision.

Investment Attraction Insights: The qualitative findings augment the quantitative data by suggesting that beyond economic factors, investor confidence is heavily influenced by the government's role in providing guarantees and the strategic importance of maintaining robust infrastructure in health and education.

Conclusion

The comprehensive approach of this thesis elucidates the dual impact of project characteristics and stakeholder perceptions on the success and sustainability of PPP projects in Kazakhstan. By bridging the gap between theoretical analysis and practical stakeholder insights, the research provides a robust platform for enhancing the effectiveness and attractiveness of PPPs as a developmental tool. This not only advances the academic discourse on PPPs but also catalyzes policy refinement and investment strategies conducive to national infrastructure growth. As Kazakhstan continues to expand its PPP framework, leveraging both local and international experiences and integrating stakeholder feedback will be essential in sculpting an effective PPP landscape that aligns with national development goals and global best practices.

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