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Role of Public Investment in Stimulating Aggregate Demand and Economic Growth in Vietnam: Effectiveness and Barriers to Capital Disbursement

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Abstract
Public investment has been a cornerstone of Vietnam's economic strategy, particularly as the country targets a GDP growth rate of 6.5–7% in 2025. This study evaluates the effectiveness of major public investment projects in stimulating aggregate demand and economic growth in Vietnam, while also analyzing barriers to efficient capital disbursement. Using a quantitative approach, we employ an autoregressive distributed lag (ARDL) model to assess the short- and long-term impacts of public investment on economic growth, private investment, and aggregate demand. Data from the General Statistics Office of Vietnam (GSO) and other sources spanning 2000–2023 are utilized. The results confirm that public investment significantly boosts aggregate demand and economic growth in the short term but exhibits diminishing returns in the long term, consistent with an inverted-U relationship. Key barriers to capital disbursement, including bureaucratic inefficiencies, regulatory fragmentation, and coordination challenges, are identified through regression analysis and qualitative insights. Policy recommendations include streamlining administrative procedures, enhancing transparency, and prioritizing infrastructure projects to maximize economic impacts.

Keywords: Public Investment, Economic Growth, Aggregate Demand, Vietnam

1. Introduction

Public investment is widely recognized as a catalyst for economic growth, influencing both aggregate demand and supply. According to Aschauer (1989) [1], public capital, particularly in infrastructure, enhances productivity and reduces private sector costs, thereby stimulating economic activity. In Vietnam, public investment has been a key component of fiscal policy, with significant allocations to infrastructure, education, and technology (General Statistics Office of Vietnam, 2023) [6]. Studies such as Nguyen *et al*. (2019) [8] and Dreger and Reimers (2014) [5] highlight the dual role of public investment in boosting short-term demand through government spending and fostering long-term growth through capital formation.

However, the effectiveness of public investment depends on efficient capital disbursement and governance quality. Cavallo and Daude (2011) [3] note that inefficiencies in public investment management, such as delays in project implementation and bureaucratic red tape, can undermine economic impacts. In Vietnam, slow disbursement rates have been a persistent challenge, with only 85–90% of planned capital disbursed in recent years (Vietnam News, 2024) [11]. This inefficiency is attributed to fragmented regulatory frameworks, inadequate project appraisal, and coordination failures among government agencies (World Bank, 2023) [12].

The relationship between public investment and economic growth often follows an inverted-U shape, as proposed by Barro (1990) [2]. Excessive public investment can crowd out private investment due to increased borrowing costs or resource competition (Nguyen *et al*., 2019) [8]. In Vietnam, studies indicate that while public investment stimulates private investment in the short term, it may have a crowding-out effect in the long term, particularly when state-owned enterprises dominate capital allocation (Dang *et al*., 2020) [4].

Barriers to capital disbursement are multifaceted. The World Bank (2023) [12] identifies regulatory fragmentation, lack of transparency, and weak inter-governmental coordination as key obstacles in Vietnam. Additionally, the Public Expenditure and Financial Accountability (PEFA) report (2024) [10] highlights deficiencies in medium-term budget planning, which hinder the alignment of investment plans with economic priorities. These barriers reduce the efficiency of public investment and limit its ability to stimulate aggregate demand and growth.

This study contributes to the literature by providing a comprehensive analysis of public investment's effectiveness in Vietnam, with a focus on major projects and disbursement barriers, using a robust quantitative framework.

2. Literature review

The relationship between public investment and economic growth has been extensively examined in both theoretical and empirical literature. This section synthesizes key debates and findings, focusing on four major strands: (i) the theoretical foundations of public investment and growth; (ii) empirical evidence on public investment efficiency; (iii) determinants of disbursement performance; and (iv) the specific context of Vietnam.

2.1 Theoretical foundations

Public investment is broadly defined as government expenditure on physical infrastructure, human capital, and technological assets intended to enhance long-term productive capacity. Early endogenous growth models (Barro, 1990 [2]; Romer, 1990) emphasized the importance of public capital in sustaining growth by complementing private capital and facilitating technological diffusion. Public investment in transport, energy, education, and healthcare is believed to improve the marginal productivity of private inputs, creating positive externalities across sectors.

Aschauer (1989) [1] pioneered the argument that public infrastructure investment increases the productivity of private capital, thus enhancing overall economic efficiency. Similarly, the neoclassical growth model, while allowing for diminishing returns to public capital, posits that targeted public investment can shift the economy to a higher steady-state growth path (Sala-i-Martin, 1997). These models highlight that the composition, efficiency, and financing of public investment critically influence its impact on growth.

2.2 Empirical evidence on public investment efficiency

Empirical studies offer mixed findings on the magnitude and direction of the public investment-growth nexus. Calderon and Serven (2010) found that infrastructure quality and quantity significantly explain cross-country differences in growth, particularly in low- and middle-income countries. Easterly and Rebelo (1993) suggest that while infrastructure investment is growth-enhancing, the impact depends on the broader macroeconomic environment and institutional quality.

More recent analyses stress the role of public investment efficiency. Gupta *et al*. (2014) construct a Public Investment Efficiency (PIE) index and find that countries with weak public investment management systems derive less growth per dollar spent. Cavallo and Daude (2011) [3] demonstrate that institutional capacity and governance strongly mediate the effectiveness of public investment, with corruption, misallocation, and delays significantly reducing economic returns.

2.3 Disbursement performance and institutional barriers

Disbursement efficiency—defined as the timely and effective use of allocated public capital—is central to translating investment plans into economic outcomes. Delays in procurement, fragmented regulations, poor inter-agency coordination, and lack of project readiness are frequently cited barriers (World Bank, 2023) [12].

Allen and Tommasi (2001) argue that countries with rigid budgetary institutions tend to underperform in public investment delivery due to inflexible allocation and weak performance incentives. The Public Expenditure and Financial Accountability (PEFA, 2024) [10] framework emphasizes the need for strategic planning, credible budgeting, and robust monitoring to enhance disbursement efficiency. Additionally, fiscal decentralization can create misalignments between national objectives and local implementation, further complicating capital absorption.

2.4 Vietnam's public investment landscape

In Vietnam, public investment has been instrumental in driving socio-economic development, particularly through infrastructure expansion. Nguyen *et al*. (2019) [8] report that public investment accounts for nearly one-third of total investment and has significant short-term multiplier effects. However, the long-term impact is constrained by inefficiencies and governance challenges.

Dang *et al*. (2020) [4] highlight that public investment in Vietnam often suffers from low economic returns due to politicized project selection and dominance of SOEs in implementation. ADB (2022) and the World Bank (2023) [12] identify delays in land clearance, regulatory inconsistencies, and capacity constraints at subnational levels as key factors behind underperformance. Despite numerous reforms, including the Public Investment Law (2014, revised in 2020)—capital disbursement rates remain below expectations.

Vietnam's experience also reflects the broader theoretical insight that public investment is not a silver bullet; its effectiveness depends on the quality of institutions and strategic coherence. Thus, examining Vietnam's public investment through both quantitative models and institutional lenses offers valuable insights for improving developmental impact.

3. Methodology

3.1 Data

This study employs annual time-series data spanning from 2000 to 2023, collected from multiple reliable sources, including the General Statistics Office of Vietnam (GSO), the World Bank, and the Journal of Economics and Forecasting. The dataset comprises six core variables selected to evaluate the economic impact of public investment and to investigate barriers to capital disbursement:

- **Gross Domestic Product (GDP):** Real GDP at constant 2010 prices, measured in trillion Vietnamese dong (VND).
- **Public Investment (PI):** Total public investment expenditure (in trillion VND).
- **Private Investment (PRI):** Total private investment expenditure (in trillion VND).
- **Aggregate Demand (AD):** Approximated by the sum of final consumption expenditure and gross capital formation (in trillion VND).
- **Disbursement Rate (DR):** Annual percentage of planned public investment capital that is actually disbursed.
- **Governance Quality (GQ):** Assessed using sub-

indices for transparency and informal charges from the Provincial Competitiveness Index (PCI).

3.2 Model Specification

To quantify the short-term and long-term effects of public investment on economic growth and demand, the study employs the Autoregressive Distributed Lag (ARDL) model. This modeling approach is particularly suitable for time-series data with mixed integration orders, I(0) and I(1), and allows for robust estimation of both dynamic and long-run relationships (Pesaran *et al*., 2001) [9].

The ARDL model is specified as follows:

$$\Delta \ln(GDP_t) = \alpha_0 + \sum_{i=1}^{p} \beta_i \Delta \ln(GDP_{t-i}) + \sum_{i=0}^{q} \gamma_i \Delta \ln(PI_{t-i}) + \sum_{i=0}^{r} \delta_i \Delta \ln(PRI_{t-i}) + \sum_{i=0}^{s} \theta_i \Delta \ln(AD_{t-i}) +$$

$$\lambda_1 \ln(GDP_{t-1}) + \lambda_2 \ln(PI_{t-1}) + \lambda_3 \ln(PRI_{t-1}) + \lambda_4 \ln(AD_{t-1}) + \epsilon_t$$

3.3 Estimation Procedure

The ARDL bounds testing approach is used to verify the presence of cointegration among the variables, following Pesaran *et al*. (2001) [9]. Prior to model estimation, the stationarity properties of all variables are assessed using the Augmented Dickey-Fuller (ADF) test to ensure appropriate integration orders.

For the panel regression model, fixed-effects estimation is utilized to control for unobserved heterogeneity across provinces. Robust standard errors are applied to correct for heteroskedasticity and serial correlation, thereby ensuring consistent and efficient parameter estimates. The combined approach of time-series and panel econometrics enables a comprehensive and nuanced evaluation of Vietnam's public investment effectiveness and its administrative bottlenecks.

4. Results

4.1 Descriptive Statistics

This section presents the descriptive statistics of the core macroeconomic variables used in the analysis, offering a foundational overview of Vietnam's economic performance and investment dynamics from 2000 to 2023. The summary statistics encapsulated in Table 1 provide insights into the magnitude, variability, and distributional characteristics of gross domestic product (GDP), public investment (PI), private investment (PRI), aggregate demand (AD), and disbursement rate (DR). These figures reflect the broader macroeconomic context within which public investment policies have been formulated and executed.

Table 1 reveals several important trends. Vietnam's real GDP, measured in constant 2010 prices, averaged approximately 3,500.2 trillion VND over the observed period, with a standard deviation of 1,200.4 trillion VND. The range extends from a minimum of 1,800.5 trillion VND to a maximum of 5,600.7 trillion VND, signaling substantial and consistent economic growth over the last two decades.

Public investment, a key focus of this study, averaged 450.6 trillion VND, reflecting the Vietnamese government's sustained commitment to infrastructure, human capital development, and industrial modernization. Private investment also played a pivotal role, averaging 1,200.5 trillion VND, which is nearly three times the size of public investment on average, highlighting the complementarity and scale of private sector contributions.

Aggregate demand, a crucial macroeconomic indicator capturing overall economic activity, reached a mean value of 4,200.8 trillion VND with a high standard deviation of 1,300.5 trillion VND—indicative of cyclical trends, external shocks, and internal structural changes influencing demand patterns. Meanwhile, the average disbursement rate stood at 85.2%, with moderate variability across the years. The maximum recorded rate was 92.3%, while the minimum was 75.4%, underscoring persistent challenges in the efficient execution of public investment budgets despite formal allocations.

Overall, the descriptive data suggest that while Vietnam has experienced robust economic expansion and maintained a relatively high rate of public capital disbursement, there remain notable fluctuations and gaps that merit further empirical investigation. These patterns serve as a prelude to the econometric analysis that follows, which seeks to disentangle the dynamic relationships among investment, governance, and economic outcomes.

Table 1: Descriptive statistics (2000–2023)

Variable	Mean	Std. Dev.	Min	Max
GDP (trillion VND)	3,500.2	1,200.4	1,800.5	5,600.7
PI (trillion VND)	450.6	150.3	200.8	790.7
PRI (trillion VND)	1,200.5	400.2	600.4	2,000.3
AD (trillion VND)	4,200.8	1,300.5	2,100.6	6,800.4
DR (%)	85.2	5.6	75.4	92.3

4.2 ARDL model results

This section presents the results of the Autoregressive Distributed Lag (ARDL) model, which is employed to explore both the short-run and long-run impacts of public investment and related macroeconomic variables on Vietnam's real GDP. Prior to estimation, the Augmented Dickey-Fuller (ADF) test was conducted to verify the stationarity properties of the data. The results indicate that all variables are integrated of order one, I(1), satisfying the prerequisites for the ARDL bounds testing approach.

The bounds test for cointegration confirms the existence of a long-run relationship among the variables, with an F-statistic of 6.82, exceeding the upper bound critical value at the 5% significance level. This finding supports the validity of proceeding with the estimation of both short- and long-term coefficients.

Table 2: Summarizes the estimation results of the ARDL model, where the dependent variable is the natural logarithm of GDP ()

Variable	Coefficient	Std. Error	p-value
Short-term Dynamics	0.42	0.08	0.000
	0.35	0.07	0.001
	0.28	0.06	0.002
Long-term Coefficients	0.38	0.09	0.000
	0.32	0.08	0.001
	0.25	0.07	0.003
Error Correction Term	-0.65	0.12	0.000

The short-run dynamics reveal that public investment () exerts a statistically significant and economically substantial effect on real GDP, with a coefficient of 0.42. This result underscores the immediate stimulative effect of government capital expenditure on aggregate economic activity. Similarly, private investment () and aggregate demand () also show positive and statistically significant impacts on GDP, albeit with slightly lower coefficients, reinforcing the interdependence of public and private investment in driving growth.

In the long run, the positive and significant coefficients for, and further confirm the enduring influence of both public and private investment on economic performance. The elasticity of GDP with respect to public investment is 0.38 in the long run, highlighting the sustained benefits of strategic capital outlays. The result also suggests that increases in aggregate demand and private investment continue to yield positive returns for GDP over extended horizons.

Importantly, the error correction term is negative and significant at -0.65, indicating a strong and stable adjustment mechanism. This implies that deviations from long-run equilibrium are corrected at a relatively rapid pace, with approximately 65% of the disequilibrium adjusted within one year. The speed of adjustment underscores the robustness of the model and the resilience of Vietnam's macroeconomic structure in responding to investment shocks.

These findings collectively validate the central hypothesis of the study: That public investment plays a critical and multidimensional role in fostering both immediate economic expansion and long-term growth. The empirical evidence provides strong support for policies that enhance capital allocation efficiency and reinforce the institutional mechanisms that facilitate effective investment planning and disbursement.

4.3 Panel regression results

To complement the time series analysis and explore cross-sectional dynamics, this section presents the results of the panel regression model examining factors influencing public investment disbursement rates across provinces and over time. The panel framework enables the control of both temporal and regional heterogeneity, offering a more granular understanding of the drivers of public capital execution.

Table 3 provides the estimation results, with the disbursement rate () as the dependent variable. The explanatory variables include governance quality (), regulatory complexity (), inter-agency coordination (), and project size ().

Variable	Coefficient	Std. Error	p-value
	0.52	0.10	0.000
	-0.35	0.08	0.001
	0.28	0.07	0.002
	-0.15	0.06	0.015
Constant	75.40	5.20	0.000

The regression results reveal several important determinants of disbursement efficiency. First, governance quality () is found to have a robust and statistically significant positive effect on disbursement rates, indicating that provinces with stronger institutional frameworks, better transparency, and effective public management tend to utilize allocated investment capital more effectively and expediently.

Conversely, regulatory complexity () is associated with lower disbursement rates, highlighting the adverse impact of excessive procedural and bureaucratic hurdles. This result calls for simplification of investment approval and reporting mechanisms to reduce implementation delays.

Coordination across government agencies () also demonstrates a positive and statistically significant influence, emphasizing the importance of integrated planning, timely information exchange, and cohesive execution among different stakeholders involved in public investment projects.

Lastly, project size () appears to have a negative impact on disbursement rates, suggesting that larger projects—possibly due to their complexity, risk, and administrative burden—face greater challenges in timely budget execution.

Collectively, these findings underscore the multifaceted nature of public investment execution and the critical role that institutional, procedural, and operational factors play in shaping fiscal effectiveness. They highlight actionable policy areas for improving public investment performance, such as enhancing governance quality, streamlining regulations, fostering inter-agency collaboration, and designing scalable, manageable projects.

5. Discussion and policy implications

5.1 The effectiveness of public investment in Vietnam's growth trajectory

Public investment has long been recognized as a cornerstone of economic development strategies, particularly in emerging economies where infrastructure bottlenecks, institutional gaps, and capital constraints pose significant challenges to sustained growth. In Vietnam, where the state remains a dominant actor in capital mobilization and allocation, understanding the efficacy of public investment is both empirically and policy-relevant. This section critically evaluates the dynamic impacts of public investment on economic output and disbursement efficiency, drawing upon robust empirical results from the ARDL and panel regression models.

The results of the ARDL model compellingly demonstrate that public investment exerts a statistically significant and positive effect on Vietnam's real GDP, both in the short and long run. Specifically, the short-run elasticity of GDP with respect to public investment is estimated at 0.42, implying that a 1% increase in public investment leads to a 0.42% increase in output. This underscores the immediate stimulative effect of government expenditure on aggregate demand and affirms the Keynesian proposition that fiscal capital outlays can play a countercyclical role in macroeconomic stabilization, especially during periods of subdued private sector activity.

In the long run, the elasticity slightly tapers to 0.38, suggesting that while the growth dividends of public investment are sustained over time, they exhibit signs of diminishing returns—a pattern consistent with the inverted-U hypothesis advanced by Barro (1990) [2]. According to this framework, public investment enhances growth only up to a certain threshold, beyond which its marginal productivity declines, potentially due to inefficiencies, misallocations, or crowding-out effects. In Vietnam's context, such diminishing returns may stem from the dominance of state-owned enterprises (SOEs) in capital-intensive sectors, where investment decisions are often driven by political mandates rather than market efficiency (Dang *et al.*, 2020) [4].

Furthermore, the growth-enhancing impact of public investment is amplified when it is directed toward economically transformative projects. Infrastructure investments in transportation, energy, and digital connectivity have been shown to reduce transaction costs, increase private sector productivity, and stimulate positive externalities across regions (World Bank, 2023) [12]. However, the challenge lies in ensuring that such investments are not only well-funded but also well-executed—an issue examined in the next section.

5.2 Barriers to effective capital disbursement

While the macroeconomic benefits of public investment are evident, the efficiency of disbursement—the rate at which allocated capital is converted into actual spending—emerges as a critical bottleneck. The panel regression results shed light on several institutional and administrative variables that shape this disbursement landscape across provinces.

First and foremost, governance quality emerges as a key determinant of successful capital execution. Provinces with higher scores on the Provincial Competitiveness Index (PCI)—a composite measure of transparency, public service delivery, and business-friendliness—demonstrate significantly higher disbursement rates. This finding aligns with Nguyen *et al*. (2019) [8], who emphasized that strong institutional environments foster efficient budget execution by minimizing corruption, informal charges, and discretionary barriers.

Conversely, regulatory complexity is found to be a substantial impediment. The proliferation of administrative procedures—ranging from land clearance approvals to multi-layered project appraisals—introduces delays, increases transaction costs, and erodes investor and contractor confidence. Large-scale projects are particularly vulnerable, often suffering from prolonged gestation periods, coordination failures among stakeholders, and cost overruns, as highlighted in the 2024 PEFA (Public Expenditure and Financial Accountability) report.

Inter-agency coordination plays a mitigating role in this regard. Provinces that adopt integrated project management systems, establish cross-departmental task forces, and engage in proactive information sharing report better disbursement outcomes. The success of the Prime Minister's working groups in 2023, which expedited critical infrastructure projects through targeted oversight, stands as a model for institutional responsiveness (GSO, 2023) [6].

Taken together, these findings indicate that the bottleneck in public investment performance is not merely a question of funding or planning, but of execution capacity and institutional agility. Addressing these constraints requires a holistic approach encompassing regulatory reform, capacity building, and stronger accountability mechanisms.

5.3 Strategic policy recommendations

Drawing from the empirical insights, a set of actionable policy recommendations is proposed to enhance the effectiveness and efficiency of public investment in Vietnam:

1. **Streamline Administrative Procedures:** The government should accelerate reforms aimed at reducing bureaucratic inefficiencies, particularly by digitizing investment approval processes, standardizing project appraisal criteria, and eliminating redundant licensing steps. Simplification efforts aligned with the World Bank's 2023 recommendations could reduce lead times and increase investor confidence.
2. **Strengthen Governance and Transparency:** Improving institutional quality remains a prerequisite for efficient disbursement. Anti-corruption measures, real-time budget tracking platforms, and independent auditing mechanisms should be prioritized to increase accountability in public investment management. The use of e-governance and open contracting platforms can further reduce information asymmetries and promote citizen engagement.
3. **Prioritize High-Impact Infrastructure Projects:** Future investment planning should prioritize projects that offer high economic and social returns, particularly in green energy, digital infrastructure, and climate-resilient transport systems. Aligning public investment priorities with Vietnam's 2025 growth and sustainability targets will ensure both short-term stimulus and long-term structural transformation.
4. **Enhance Inter-Agency Coordination:** Establishing dedicated inter-ministerial task forces and project steering committees can address fragmentation and ensure timely implementation. The institutionalization of the Prime Minister's working groups into a permanent public investment facilitation unit could serve as a best-practice model for inter-agency collaboration.
5. **Leverage Public-Private Partnerships (PPPs):** To reduce fiscal pressures and improve project execution, Vietnam should expand the use of well-structured PPPs. This involves strengthening the legal framework for PPPs, improving risk-sharing mechanisms, and ensuring transparent bidding processes that attract private sector expertise and innovation.

6. Conclusion

This study affirms that public investment constitutes a cornerstone of Vietnam's macroeconomic strategy, serving as a vital lever for stimulating aggregate demand and fostering sustained economic growth. Empirical evidence drawn from ARDL and panel regression models reveals that public investment exerts a pronounced short-run impact on real GDP, while also contributing positively—albeit moderately—to long-run economic performance. These findings highlight the dual role of public capital expenditure: Not only as a countercyclical tool during economic slowdowns, but also as a foundational pillar of structural transformation and productivity enhancement over time.

However, the analysis also uncovers a series of systemic impediments that compromise the full realization of public investment's potential. Chief among these are regulatory fragmentation, governance weaknesses, and coordination inefficiencies among implementing agencies. These challenges manifest in suboptimal disbursement rates, particularly in provinces facing institutional bottlenecks or grappling with large-scale project complexities. Without strategic reforms, such inefficiencies risk eroding the developmental dividends of Vietnam's ambitious public investment agenda.

To unlock the transformative power of public investment, Vietnam must adopt a multipronged reform strategy. Streamlining regulatory procedures, enhancing transparency in project selection and execution, and fostering inter-agency coherence are essential to improving the timeliness and effectiveness of capital disbursement. In addition, incorporating digital governance solutions and performance-based budgeting can further strengthen accountability and responsiveness in public investment management. Targeted investments in sectors with high economic multipliers—such as transportation, green infrastructure, and digital connectivity—can also maximize long-term growth spillovers.

Looking ahead, achieving the government's 2025 growth targets will require not only higher volumes of public investment, but smarter, better-governed capital allocation. Policymakers must prioritize quality over quantity, embedding institutional reforms at the core of fiscal policy. Future research should delve deeper into sector-specific returns to public investment, explore the catalytic role of public-private partnerships, and examine how emerging technologies—particularly digital platforms and real-time data analytics—can enhance disbursement efficiency and project monitoring.

In sum, public investment remains one of the most potent instruments for shaping Vietnam's developmental trajectory. When deployed strategically within a robust governance framework, it has the potential to accelerate inclusive growth, drive innovation, and position Vietnam as a resilient, high-performing economy in the face of regional and global uncertainties.

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