Infrastructure Investment and Economic Growth in Developing Countries

# Proposal

## Introduction

Infrastructure can connect cities, populations and cultures. It is a critical component of the economic development of a country, especially the developing ones, which are on their rise and evolution. Deficits on roads, water systems and electricity can significantly decrease economic growth. Investing in infrastructure can enhance productivity, ease and create jobs that will eventually help the economy grow. This research proposal aims to investigate the impact of infrastructure investments on GDP growth rates in developing countries, with a particular focus on key sectors such as transportation, energy, and water systems.

## Background and Research Question

Developing countries often face infrastructure gaps which prevents them from rapid growth, reducing productivity and economic activities. Even though infrastructure investment is ~~very~~ important for economic growth, {Esfahani and Ramírez (2003)} show that it is even more important for the infrastructure to be effective, which highly depends on the quality of institutions governing the allocation and maintenance of such investments. The evolution of infrastructure will help economic growth in the short-term but the way these projects are financed, constructed, and maintained is critical for their long-term success, like {Straub (2008)} stated. We will be able to touch on that since the research will also look into the short term and long term impact on economic growth. This will provide us insight on which developing country is able to sustain long term growth through sustainability and maintenance of infrastructure. {Munnell (1992)} argues ~~through his article on a historical perspective~~ that investment in infrastructure directly boosts private sector productivity by reducing costs, improving market access, and enhancing the overall business environment.

However, without the correct management and policies certain sectors fall into overcapacity. Given these approaches, this study is trying to take a closer look into the impact that this kind of investment has in economic growth, focusing on electricity, transportation and water systems in developing countries.

My research question is: How does investment in infrastructure impact GDP growth in developing countries?

## Secondary Research Questions

1. Which type of infrastructure investment (roads, electricity, or water systems) has the most significant effect on GDP growth?
2. In which developing countries is the impact of infrastructure investment on GDP growth more pronounced? Why is that?

## Potential Data Sources

**1.4.1 Infrastructure Investment Data**

World Bank’s Private participation in infrastructure which will provide us with data on the private investment in infrastructure. Moreover, to look specifically into countries we ~~would need to~~ use the Asian, European and African Development and Investment Bank for infrastructure reports.

**1.4.2 GDP Growth Rate:**

OECD Stat which will offer us GDP data with long-term economic indicators for developing countries.

**1.4.3 Macroeconomic Data:**

Global Competitiveness Index (GCI) through the World Bank DataBank

## Potential Approach

For the research we will employ a time-series analysis to explore the relationship between investment in infrastructure and GDP growth rates of developing countries. We will obtain data from certain developing countries over a period of 30 years, so we have a clear picture of the effects on the short and long run. A Dynamic panel data model will also be applied so we can control for specific characteristics and unobserved heterogeneity. Additionally, we will control factors such as institutional quality, government spending efficiency, and the level of industrialization, because they can impact the efficacy of infrastructure investment in influencing growth.

## Expected Findings

We expect that infrastructure investment will have a positive and significant effect on GDP growth rates in the developing countries. Most specifically, investments in electricity and transportation infrastructure are going to have the most pronounced effects on economic growth. Moreover, we anticipate that those countries with better governance and institutional quality will have a bigger and faster growth compared to the weaker ones. However, those are only expected findings that can easily be influenced by several variables like the existing economic structure, the industrial capacity and the existing infrastructure.

## Conclusion

The purpose of this study is to add to the existing body of research and discussion about the role that infrastructure investment, particularly in developing countries, plays in promoting economic growth. Governments and policymakers should be able to benefit from the findings, which offer insightful information on what kind of infrastructure is most beneficial and produces the largest economic returns, as well as how institutional factors may either increase or decrease these impacts. The research will assist maximize the returns on these investments for long-term, sustainable economic growth.

## References

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# Literature Review (So Far)

Infrastructure investment still holds a critical role in stimulating economic growth, especially in developing countries, but its effectiveness also depends on multiple other factors, like the type of infrastructure, the methodology and the regional context. Even though in the early stages of development it can increase growth and productivity, its effectiveness and importance slowly diminishes as economies become more advanced. That’s where it becomes challenging since policymakers have to adjust and consider the specific needs of their economy when building up the infrastructure sector with designing strategies to maximize their economic growth potential.

I have used 3 papers so far to base my literature review on. The first one is “Infrastructure and Economic Growth in East Asia” by Stéphane Straub, Charles Vellutini, Michael Warlters. This paper tried to examine the role that infrastructure played on the rapid growth of the economy in East Asia. They used cross-country regression methods, finding different results depending on the infrastructure type and the country. The main take away from this paper is that as we look into the more developed countries, the role of infrastructure diminishes, and factors like human capital and innovation are more dominant. Even though infrastructure investment plays a strong role in economic growth in the beginning of the process, as countries develop, its role slowly diminishes. In the second paper, “Socio-Economic Impact of Infrastructure Investments in the Baltic States” by Snieska and Simkunaite, they used both time-series data and cross-sectional data. The paper showed that transportation was the only type of infrastructure out of the three that had a positive and significant impact, while the other two (telecommunication and sanitation) showed negative results. Similarly to Stéphane Straub, Charles Vellutini and Michael Warlters, the paper suggested that infrastructure investment is highly context-dependent, meaning that every region has different needs and the infrastructure investment affects GDP growth differently. As a result, simple models provide limitations since they fail to account for those details. The final paper that I have used so far was from Dushko Josheski called “Infrastructure Investment and GDP Growth: A Meta-Regression Analysis”, which mainly focused on the literature around this topic, suggesting that infrastructure investment and GDP have a positive relationship but with some limitations that the literature showed. It concludes that Developing countries benefit more from infrastructure investments than already developed ones, relative to what the other two papers suggested, however Dushko also touched on the biases of those researches in publication and endogeneity control that can distort the strength of their relationship. Overall as mentioned above, infrastructure investment plays a dominant role in a developing country’s GDP growth, especially in the early stages of development, while also taking into consideration the details that those authors mentioned.

# Update on progress, challenges faced, and next steps

The challenges that i have faced so far are mostly based on the relationship that my variables show with GDP growth rate. If i am not mistaken infrastructure doesn’t have a strong relationship at all from running those simple models. Moreover, GDP has given me a hard time to analyse it through the graphs because of its density. Moving forward I want to either adjust and look for different variables that can affect GDP growth in the infrastructure sector. This will come from ideas that i will gain from more literature review, understanding what worked and didn’t work for other papers

in this field.

# Methodology

I am considering working with a ordinary least squares (OLS) regression to test the relationship of our dependent variable (GDP) with the independent variables.

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