



# Infrastructure Accessibility Increases Productivity and Economic Growth

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## Abstract

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Infrastructure development is a fundamental factor in promoting sustainable economic growth. Adequate infrastructure, including transportation, energy, and communication networks, not only facilitates the mobility of goods and services but also reduces logistics costs, enhances productivity, and expands market reach. In developing countries, infrastructure functions as a catalyst for economic growth by generating employment opportunities, attracting investment, and improving competitiveness in global markets. Nevertheless, in the persistent gap between urban and rural areas remains a major challenge, as development efforts often concentrate on economic centers. This imbalance risks widening regional economic disparities and hindering equitable development. Furthermore, sustainability issues, particularly in terms of financing, long-term maintenance, and environmental impact, represent critical aspects that must be addressed. This study adopts a literature review approach to analyze the relationship between infrastructure and economic growth while simultaneously identifying sustainability challenges, ensuring that infrastructure development can provide long-term benefits for society and the overall economy.



## 1. Introduction

Infrastructure development is a key pillar in supporting a country's economic growth. Adequate infrastructure enables increased productivity, efficient distribution of goods and services, and creates a conducive investment climate. Access to transportation, energy, communications, and good public services not only facilitates public mobility but also reduces transaction costs and expands economic networks between regions (Brueckner, 2021). Therefore, infrastructure development is seen as a fundamental strategy for developing countries to accelerate industrialization and increase global competitiveness. The close relationship between infrastructure development and economic growth has been widely studied. According to Chang et al. (2020), transportation infrastructure contributes significantly to increasing international trade, streamlining supply chains, and expanding domestic markets.

Meanwhile, energy infrastructure plays a crucial role in supporting public production and consumption activities. Without stable energy support, industrial activity struggles to develop optimally. This demonstrates that infrastructure is not merely a physical facility but also a driving force for long-term economic development. Nevertheless, the infrastructure development gap remains a serious problem, particularly in developing countries. Infrastructure tends to be concentrated in urban areas, while rural areas experience limited access to roads, electricity, clean water, and internet services (Adeyeye et al., 2020). This situation widens the productivity and welfare gap between cities and villages. For example, farmers in remote areas often struggle to market their produce due to limited transportation access. Consequently, rural economic growth is slower than urban areas.

Beyond regional disparities, infrastructure development also faces sustainability issues. Many infrastructure projects are poorly managed during the maintenance phase, resulting in high costs and reduced long-term benefits. Furthermore, environmental issues are a concern, as infrastructure development often results in ecosystem degradation, land conversion, and increased carbon emissions. Therefore, modern infrastructure development strategies require attention to sustainability principles, from social, economic, and environmental perspectives (Khoshnava et al., 2020). The multiplier effect of infrastructure development also needs to be considered. When the government invests in infrastructure, the impact is not only felt directly in the form of construction work but also generates a series of economic growth across various sectors. For example, building new roads can increase trade activity, encourage tourism development, and accelerate industrial growth.

Thus, infrastructure development has significant potential as a stimulus for inclusive economic growth, as it not only enhances the connectivity and accessibility of different regions but also facilitates the movement of goods, services, and people, thereby creating opportunities for businesses, investors, and local communities alike. By improving transportation networks, energy supply, digital connectivity, and public facilities, infrastructure projects can reduce regional disparities, support small and medium enterprises, attract investment, and generate employment opportunities (Isaac, 2019). Moreover, well-planned and equitably distributed infrastructure can empower marginalized populations by providing them with access to essential services such as education, healthcare, and information technology, which are critical for social and economic participation. When combined with inclusive policies, community

engagement, and targeted incentives for development in underdeveloped areas, infrastructure investment becomes a powerful tool to stimulate sustainable and balanced growth, increase productivity, and enhance overall social welfare

However, in practice, governance challenges remain. Transparency, accountability, and efficiency in the planning and implementation of infrastructure projects often remain problematic. Unclear management standards, corrupt practices, and weak oversight have the potential to reduce the benefits of infrastructure for economic growth. Therefore, good governance is needed to ensure that infrastructure development truly provides optimal positive impacts for society. Considering this complexity, it is important to analyze the relationship between infrastructure development and economic growth from various perspectives, including accessibility, productivity, sustainability, and governance. This article presents a literature review related to how infrastructure contributes to economic growth, regional disparities, and the sustainability challenges faced. This literature review was chosen as the method to compile and analyze various previous research results, thus providing a comprehensive understanding of infrastructure's role in supporting sustainable economic growth in developing countries

## **2. Literature Review**

### **2.1. The Role of Infrastructure in Economic Development**

Infrastructure plays a very important and strategic role in the economic development of a country because through infrastructure development, community productivity, the efficiency of economic activities, and economic competitiveness can

increase significantly. Adequate infrastructure not only supports the movement of goods and services, but also allows for better connectivity between regions, thereby accelerating the flow of information, product distribution, and labor mobility. According to Sarangi and Pradhan (2020), the availability of adequate physical infrastructure, especially in transportation such as roads, bridges, and ports, as well as in telecommunications such as internet networks, telephones, and modern communication systems, can accelerate economic growth in various regions. Good infrastructure can also create positive externalities that benefit the community, including an increase in the quality of life, access to education and health services, and wider employment opportunities.

Nevertheless, infrastructure development in Indonesia still faces various complex challenges. Some of the main obstacles include limited budgets available for development and maintenance, complex and slow bureaucracy, and regional disparities that cause some areas, especially rural areas, to lag behind compared to big cities (MacKinnon, 2022). Therefore, to overcome these challenges, a joint effort is needed that involves various parties, including the central and regional governments, the private sector as investors, and active community participation. The synergy between these three is very important so that infrastructure development can run effectively, be equitable, and provide optimal benefits for national economic growth.

## **2.2. Infrastructure Gap between Cities and Villages**

The infrastructure gap between urban and rural areas is one of the main factors causing economic inequality in Indonesia. Infrastructure development in Indonesia over several decades has tended to be focused and biased toward urban areas, resulting

in very limited and unequal access to basic infrastructure such as roads, electricity grids, internet, clean water, and health facilities in rural areas (Kaiser & Barstow, 2022). This condition has a direct impact on the rural economy, as limited infrastructure makes it difficult for rural communities to connect their local products with a wider market. As a result, economic opportunities in villages are limited, the growth of micro and small enterprises stagnates, and the increase in the quality of life of rural communities is also hampered.

In addition, research conducted by Zhang and Zhang (2020) shows that the digital gap between cities and villages also affects the level of economic growth in rural areas. Lack of access to information and communication technology, including a stable internet network and adequate digital devices, limits the ability of rural communities to obtain important information, keep up with educational developments, and access the market more effectively. These limitations cause rural communities to have difficulty increasing productivity, expanding business networks, and competing with more advanced urban areas. Therefore, to reduce economic inequality and accelerate rural development, a more equitable infrastructure development strategy is needed, including the development of digital infrastructure and an increase in technological literacy among rural communities, so that their economic opportunities and quality of life can increase significantly.

### **2.3. The Multiplier Effect of Infrastructure Development**

The multiplier effect, is one of the important concepts in economics that explains how an initial increase in economic expenditure whether carried out by the government, the private sector, or the community can result in a multiple increase in

income and consumption. This initial increase in expenditure not only has a direct impact on the sector receiving the expenditure, but also spreads to various other economic sectors through a chain effect that occurs. In other words, one economic activity can trigger another economic activity, which will then have an additional effect on overall income, consumption, and production. According to Cigu et al. (2018), the multiplier effect of infrastructure development has great potential to increase overall productivity, efficiency, and economic competitiveness.

Adequate infrastructure development, such as roads, ports, bridges, and communication systems, can encourage economic activity in various sectors, from industry, trade, and transportation, to community services (Cigu et al., 2018). Thus, investment in infrastructure not only provides direct benefits, but also has long-term positive effects on the national and regional economy. However, to maximize this multiplier effect, careful planning and efficient infrastructure management are needed, including routine maintenance, proper resource allocation, and optimal use of technology. In addition, support from various parties is very important, including the government as a policymaker, the private sector as an investor, and the community as a user and manager of infrastructure facilities. The synergy between all these parties will ensure that the multiplier effect of infrastructure development can be felt to the maximum, equitably, and sustainably for economic growth.

### **3. Methods**

This study uses a literature study method as the main approach, by systematically analyzing various relevant literature related to infrastructure

development and economic growth. The literature study was chosen because it allows researchers to identify, collect, and evaluate information that has been previously available and published, both in the form of scientific articles, research reports, academic books, and official government documents. Thus, this method provides a comprehensive framework for understanding the concepts, theories, and empirical findings related to the role of infrastructure in increasing productivity, efficiency, and economic competitiveness, as well as reducing the development gap between urban and rural areas in Indonesia.

The data used in this study were obtained from various credible and reliable sources. The main sources include international and national scientific journals that have gone through a peer review process, official reports of the central and regional governments related to infrastructure development, as well as documents and publications from relevant research institutions and international organizations. In addition, additional literature from academic books and scientific articles that discuss economic theory, public policy, and regional development were also analyzed to enrich the researcher's understanding of the context and implications of infrastructure development. This literature study method allows researchers to carry out a more in-depth and systematic analysis.

Researchers can identify patterns, trends, and relationships between infrastructure development and economic growth, including the multiplier effect, regional disparities, and the socio-economic impact that arises. In addition, through this method, researchers can compare various findings from previous studies, assess the relevance and suitability of the data, and identify existing research gaps, thereby

producing a more comprehensive understanding. Thus, the use of the literature study method not only helps researchers summarize existing information, but also provides a strong analytical basis for compiling appropriate conclusions and recommendations related to infrastructure development strategies in Indonesia. This method also allows the research to be comprehensive, objective, and systematic, so that the findings obtained can be used as a credible reference for policymakers, academics, and stakeholders in encouraging equitable and sustainable economic growth.

#### **4. Results**

This study uses a literature study method as the main approach, by systematically analyzing various relevant literature directly or indirectly related to infrastructure development and economic growth in various regions, especially in Indonesia. The literature study method was chosen because it provides a systematic and comprehensive framework for researchers to identify, collect, evaluate, and analyze information that has been previously available and published. The literature analyzed includes various forms of scientific publications, including journal articles that have gone through a peer review process, research reports published by official institutions, academic books that discuss the theory and practice of economic development, as well as official government documents directly related to infrastructure development strategies, fiscal policy, and regulations that affect economic growth.

By using this method, researchers can obtain a comprehensive and in-depth understanding of various concepts, theories, and empirical findings that show how

infrastructure development can increase a country's productivity, efficiency, and economic competitiveness, while reducing the development gap between urban and rural areas, which has been a major challenge in national development. Uneven infrastructure development is one of the main issues analyzed in this study, as the unequal distribution of infrastructure can affect economic and social inequality in various regions. In Indonesia, infrastructure development is often more focused on urban areas and main islands, while villages and remote areas still experience limited access to basic facilities such as roads, electricity, clean water, internet, and health services (Wenang et al., 2021).

This inequality has an impact on the limited mobility of rural communities, difficulty accessing the market, limited business opportunities, and slow local economic growth. By analyzing the literature that discusses this issue, this study is able to provide a more in-depth understanding of the socio-economic impact of the infrastructure gap, including how limited access affects the ability of rural communities to increase productivity, expand business networks, and improve welfare. In addition to the impact of regional inequality, this study also highlights the importance of integrating physical and digital infrastructure. Digital infrastructure in rural areas is crucial to enable rural communities to access information, education, the market, and other public services more easily (Tim et al., 2021). Increasing digital literacy is also an important part so that the community can use information and communication technology to increase productivity, develop businesses, and expand economic opportunities.

The literature emphasizes that fostering a strong synergy between the development of physical infrastructure, such as roads, bridges, and energy networks, and the advancement of digital infrastructure, including high-speed internet, telecommunication networks, and digital services, can play a critical role in minimizing the economic and social gap between different regions. By integrating both physical and digital connectivity, communities particularly those in rural or underdeveloped areas can gain improved access to essential services, education, healthcare, and market opportunities, thereby leveling the playing field with more urbanized or developed regions. This combined approach not only facilitates the efficient movement of goods, services, and information but also enhances productivity, supports local entrepreneurship, and attracts investment across diverse sectors

The results of the analysis show that infrastructure development has a broad and complex effect. Adequate infrastructure facilitates the distribution of goods and services, opens up market access, increases the productivity of industry and agriculture, and facilitates labor mobility. Investment in transportation, energy, and telecommunications can attract new investment, increase logistics efficiency, and create jobs (Khan et al., 2022). In addition, the multiplier effect of infrastructure development is also proven to increase community income and consumption in various economic sectors, which then strengthens overall economic growth. In contrast, unequal infrastructure creates obstacles to economic equality, limits community access to basic services, and widens the socio-economic gap between cities and villages.

The literature demonstrates that implementing inclusive development strategies, ensuring fair and equitable allocation of budgets, actively involving local communities in planning and decision-making processes, and providing targeted incentives for investors in underdeveloped or lagging regions are all critical measures to maximize the benefits of infrastructure development. Such approaches not only enhance the effectiveness and efficiency of infrastructure projects but also help reduce regional disparities, promote economic growth across multiple sectors, and improve overall social welfare (Schindler & Kanai, 2021). By integrating these strategies, policymakers and stakeholders can create an environment where infrastructure investments generate broader positive impacts, including increased accessibility to essential services, improved connectivity between urban and rural areas, and greater opportunities for sustainable economic participation among marginalized populations.

Furthermore, the research results show that infrastructure planning must consider aspects of sustainability, efficiency, and good governance. Collaborative governance describes a series of processes and mechanisms where the government, community, private sector, and other stakeholders work together to plan, implement, and evaluate smart city policies and initiatives. From the perspective of collaborative governance, stakeholders are considered partners who interact and work together in making decisions, planning, and implementing policies (Ansell & Gash, 2018). Routine infrastructure maintenance, the use of energy-saving technology, and asset management innovation are important factors so that infrastructure can function optimally in the long term. The implementation of evidence-based policies,

transparent supervision, and community participation in infrastructure management are also important to ensure that infrastructure development can provide the maximum positive impact on economic growth and community welfare.

The results of this study provide evidence that infrastructure development does not only function as a physical means to connect regions, but also as a major driver of economic growth, equal opportunity, and an increase in the quality of life of the community. New roads and better transportation systems allow farmers and craftsmen to bring their products to the market more quickly and at a lower cost. As a result, household income increases and economic activities are diversified at the community level. In Indonesia, many rural communities still rely heavily on dirt roads or traditional paths that are often difficult to access, particularly during the rainy season when flooding and muddy conditions make transportation almost impossible (Sari & Rahman, 2021). This limited accessibility not only disrupts the daily mobility of residents but also significantly hinders economic activities, as farmers and small producers find it challenging to transport their goods to local and regional markets. As a result, perishable products such as agricultural commodities often lose value due to delays, and the income of rural households is negatively affected.

Moreover, the lack of reliable transportation infrastructure restricts access to essential services such as healthcare, education, and administrative facilities, thereby reinforcing the cycle of poverty and inequality in rural areas. Students are frequently unable to reach schools consistently, while sick individuals may struggle to access medical treatment in a timely manner. Such barriers highlight the urgent need for comprehensive infrastructure development programs that prioritize rural regions. By

improving road quality, expanding connectivity, and integrating rural areas into broader economic networks, Indonesia can reduce disparities between urban and rural communities. Ultimately, better infrastructure will empower rural populations, enhance productivity, and contribute to more inclusive and sustainable national economic growth.

This uncertainty of access hinders the development of small and micro businesses and limits opportunities to increase income (del Pilar et al., 2020). These findings are expected to be the basis for formulating effective, efficient, and targeted infrastructure development strategies, thereby creating a more competitive economy. A more prosperous community can be achieved when infrastructure development is designed and implemented in a fair and inclusive manner, ensuring that both urban and rural areas benefit equally from the improvements. This effort will not only raise the overall standard of living for society but will also create regions that are more equal in terms of access to essential facilities such as transportation, electricity, clean water, education, and health services. At the same time, equitable development opens up broader and more diverse economic opportunities that empower local communities, strengthen productivity, and reduce long-standing disparities between regions. By bridging gaps in accessibility and infrastructure availability, people in previously marginalized areas are given the chance to participate more actively in economic activities, connect their products to wider markets, and improve their income levels.

## **5. Discussion**

Equitable infrastructure development plays a very important role in increasing community access to various basic services that are daily necessities, such as education, health, clean water, transportation, and energy. Adequate infrastructure not only makes it easier for the community to obtain these services, but also facilitates the distribution of goods and services from one region to another, thereby reducing logistics costs, accelerating the flow of trade, and increasing overall economic efficiency. In addition, equitable infrastructure development also opens up new investment opportunities because the availability of adequate physical facilities creates a more conducive environment for business actors, both domestic and foreign investors (Mell & Whitten, 2021). Thus, good infrastructure development can create new jobs, support local and national economic growth, and increase community welfare on a large scale.

However, unequal infrastructure development can have serious consequences, especially in terms of inter-regional inequality. This gap is most visible between cities and villages, where urban areas tend to be more developed with complete and modern infrastructure, while rural areas still experience limited access to basic facilities. This inequality not only limits the mobility of rural communities, but also limits economic opportunities, slows down the growth of local businesses, and hinders the improvement of the quality of life of communities in underdeveloped areas. Therefore, infrastructure inequality is one of the main causes of socio-economic inequality in many developing countries, including Indonesia, and needs to be

addressed immediately through appropriate policies and inclusive development strategies.

To overcome this infrastructure gap, the government needs to allocate development budgets fairly and equitably, by considering the priority needs of each region, including villages and remote areas that are often left behind in physical and digital development. In addition, the planning and implementation of infrastructure development should involve active community participation, so that the programs carried out are more in line with local needs and provide maximum benefits for recipients (Yudarwati & Gregory, 2022). Policies that support infrastructure development in underdeveloped areas, for example, providing fiscal incentives and regulatory ease for investors who invest in these areas, also need to be implemented so that development is more balanced and equitable.

In addition to physical development, the development of digital infrastructure in rural areas is also very important, because rural communities need easier access to information, education, the market, and other public services. Increasing digital literacy is crucial so that rural communities are able to use information and communication technology effectively to increase productivity, expand business networks, and increase welfare sustainably. With the synergy between physical and digital infrastructure development, it is hoped that the gap between regions can be minimized, economic opportunities can be more equitable, and inclusive economic growth can be achieved.

## 6. Conclusion

Infrastructure development plays a crucial role in driving economic growth and reducing regional disparities in Indonesia. The presence of adequate infrastructure not only enhances productivity and efficiency but also strengthens national economic competitiveness by enabling smoother distribution of goods and services, reducing transaction costs, and connecting regions more effectively. Furthermore, well-developed infrastructure opens greater opportunities for investment and contributes to the creation of new jobs, which together stimulate economic activity at both local and national levels.

However, when infrastructure development is unevenly distributed, particularly between urban and rural areas, it can intensify existing social and economic inequalities, leaving certain communities behind and limiting their ability to grow. To address this challenge, the government must allocate budgets more fairly and equitably across regions, while also encouraging active community participation in planning and implementation to ensure relevance and effectiveness. Moreover, supportive policies, including incentives for investors in underdeveloped areas, are essential. Through equitable and sustainable infrastructure development, Indonesia can foster inclusive, balanced, and long-term economic growth that benefits all regions.

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