

Infrastructure Development Making in India: Challenge and Opportunities

Abstract

The paper investigates the role of infrastructure in promoting economic growth in India. Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country. Indeed, the nation's infrastructure challenges are a major drag on economic growth. Yet India's vast infrastructure needs are expanding all the time, and this presents enormous opportunities. The country's recent focus on easing and enabling the requisite infrastructure and regulatory frameworks, which includes both manufacturing as well as market access, is an opportunity for all entrepreneurs and companies to participate and contribute to the Indian growth story. It is necessary to design an economic policy that improves the physical infrastructure as well as human capital formation for sustainable economic growth in India.

Keywords: Global Economic, Infrastructure, Policies, Regulatory Frameworks, Entrepreneurs, Economic Growth.

Introduction

The world is looking at India as it begins a global economic powerhouse. India is the fourth largest economy in the world, Infrastructure sector is a key driver for the Indian economy. India's economy has grown very rapidly in recent years. Since 1991 it has been among the top 10% of the world's countries in terms of economic growth. India needs to invest 3-4% more of its GDP on infrastructure to sustain 8% growth. The private sector can play an important role in investing in infrastructure, including through public private partnerships. Improving the country's capacity to implement infrastructure projects will be as important as increasing the amount of investment available. Investments should improve the delivery of services, and service providers need to be made more accountable to consumers. Fast growth of the Indian economy in recent years has placed increasing stress on physical infrastructure, such as telecommunications, electricity generation, oil gas pipelines, railways, roads, ports, airports, irrigation, water supply, and sanitation systems, all of which already suffer from a substantial deficit.

In the World Economic Forum's Global Competitiveness Report for 2011-2012, India ranked 89th out of 142 countries for its infrastructure. The report criticized its transport, ICT and energy infrastructure as "largely insufficient and ill-adapted to the needs of business," adding: "The Indian business community continues to cite infrastructure as the single biggest hindrance to doing business in the country." Indeed, the nation's infrastructure challenges are a major drag on economic growth. During the halcyon years of India's boom, it was easier to overlook this threat.

The Twelfth Plan intends to continue increasing the pace of investment in infrastructure as this is critical for sustaining and accelerating growth. The Planning Commission in its Twelfth Five Year Plan Document (2012-17) expects investments in infrastructure projects to be worth US\$ 1 trillion over the five years of the Plan. Total investment as a percentage of GDP is expected to be in the range of 7-9 percent. While public investments in infrastructure have been the dominant form of infrastructure financing in India, investment from the private sector is expected to increase in the coming years. It will be necessary to review the factors which may be constraining private investment, and steps will need to be taken to rectify them. PPPs, with appropriate regulation and concern for equity, need to be encouraged in social sectors such as health and education. Several state governments are already taking steps in this direction.

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The need to upgrade India's infrastructure is especially acute in huge cities such as Mumbai, New Delhi, Kolkata and Bangalore. India's urban population of around 375 million is projected to reach 500 million by 2017. By 2030, the country is expected to have 68 cities with over 1 million residents. This torrid rate of urbanization means that massive investment will be required in everything from metro systems to clean water supplies, power generation to affordable housing.

The Indian government is taking steps to reduce red tape. Reforms enacted in 2013 improved company incorporation, governance and regulation and new land acquisition laws should expedite the acquisition process. Among the many campaigns launched by His Excellency Mr. Narendra Modi, Prime Minister of India perhaps the most high-profile has been the Make in India campaign. Our government has already taken important steps to improve the regulatory climate, to enable manufacturing and to open Foreign Direct Investment in key sectors, i.e., the three pillars to bring about a positive transformation in manufacturing. Important sectors like defense production, civil construction and railways have been opened to greater foreign investment by the government. The process of applying for industrial licenses has been greatly simplified and made online. Earlier in 2015, Prime Minister Narendra Modi said his Government is "cutting down on multiple clearances that choke investment. Our complex tax system is crying for reform which we have initiated."

The role of infrastructure in enhancing economic development has been well documented both in the academic literature and in the policy debate (Aschauer, 1989; Munnell, 1990; World Bank, 1994; Calderon and Servén, 2003; Estache, 2006; Sahoo, 2006; Sahoo and Dash, 2010; and 2011). More recently, increasing attention has also been paid to the impact of infrastructure on poverty and inequality (World Bank, 2006). Further, it has been found that social infrastructure such as education, health, and housing are essential to promote better utilization of physical infrastructure and human resources, thereby leading to higher economic growth and improving quality of life (Hall and Jones, 1999).

Previous literature on the growth effects of infrastructure has focused on one single infrastructure sector/indicators or public expenditure/ infrastructure investment as proxy for infrastructure where as the present study develops a composite index of a stock of leading physical infrastructure indicators to examine the impact of infrastructure development on output growth. In addition to this, the present paper also provides the direction of causality between infrastructure and growth which is more relevant for policy implication.

The Problem / Objective of the Study

There are infrastructure constraints in terms of lack of basic amenities, proper transportation facility and connectivity. Further, the administrative procedures are complex and time consuming. There is no single window mechanism in practice and hence taking licenses from various government departments leads to delays in process thereby increasing the costs of doing business in the country. There are many problems in urban infrastructure such as roads,

the water supply, and the electricity system. Yet India's vast infrastructure needs are expanding all the time, and this presents enormous opportunities. The population has already surpassed 1.2 billion, and it continues to grow at a heady rate. Global trade is placing acute pressure on India's inefficient ports. Rapid industrialization is intensifying the strain on the nation's unreliable networks for electricity and water. The railway system-already infamously overcrowded - faces rising demand for freight capacity.

Foreign investors face unpredictable regulations, caps on foreign investment, long delays in project approvals and difficulty in obtaining land rights. Navigating government decision-making can result in delay and costs overruns. Further, the resolution of disputes in the legal system is notoriously slow and enforcement of arbitration agreements can be difficult. Corruption is also a concern. Transparency International ranked the country 85th of 175 countries in its 2014 Corruption Perceptions Index.

Review of Literature

Hulten (1997) and Canning and Pedroni (2004) show that optimal and efficient use of infrastructure is important for growth. Rioja (2001) has developed a general equilibrium model of a small open economy to study the effects of public infrastructure on output, private investment and welfare for three Latin American countries: Brazil, Mexico, and Peru. Results show that infrastructure can have positive effects on output, private investment and welfare. However, raising public infrastructure investment past a certain threshold can be detrimental.

In a recent study, Pereira and Pihno (2011) examine the impact of public investment on long-term output for the period 1980-2003 for 12 European countries. The results reveal that productive public investment has strong positive effect on growth for eight of the twelve euro area countries. The industry specific and country specific study by Pereira and Andraz (2007), finds that public investment has a positive effect on both private inputs as well as on private output and that it affects labor productivity positively for eighteen industries in the Portuguese economy. The wide range of estimates makes the results of these studies almost irrelevant from a policy perspective. However, the study by Romp and De Haan (2007) summarizes earlier studies and suggests that public capital may, under specific circumstances, raise income per capita in general. However, most of the studies find positive long-run effect of infrastructure on output, productivity, or their growth rate using physical indicators of infrastructure stocks, but results are mixed or even negative among the growth studies using measures of public capital stocks or infrastructure spending flows (Straub, 2007). There are also studies like by Bose and Haque (2005) which evaluates the direction of causality between public investment in the transport and communication sector and economic growth for a set of 32 developing countries. The analysis suggests one way feedback from growth to investment in the transport and communication sector and not vice-versa. Further, However, Huang (2006) shows that public

expenditure including investment in infrastructure always does not lead to economic growth.

On the issue of human capital, studies by Mankiw, Romer, and Weil (1992) and Barro (1991) have shown that accumulation of human capital improves economic growth through many channels and externalities. Lucas (1988) was one of the first authors that considered human capital as an alternative to technological process to improve growth. Social infrastructure such as education, health, and housing is essential to promote better utilization of physical infrastructure and human resources, thereby leading to higher economic growth and improving quality of life (Hall and Jones, 1999).

Khan (2011) at the Diamond Jubilee International Conference on Frontiers of Infrastructure Finance 2011 stated that takeout financing offers an opportunity to the banks to free their balance sheet from exposure to infrastructure loans, lend to new projects, and enable better management of the asset liability position. The WSGI (2012-17) has opined that this rapid growth in bank credit to infrastructure has resulted in a greater concentration of risks in banks, due to Asset and Liability Management (ALM) mismatch and reaching exposure ceilings. The WSGI has a view that the banks have prudential exposure caps for infrastructure sector lending as a whole as well as for individual sectors. Most of the banks have almost reached the prudential caps for power sector; other sectors like roads may not be far behind.

The Asian Development Bank estimates the demand at USD730 billion each year for the next decade. In South East Asia alone an estimated \$2.5 trillion in investment will be needed over the next ten years, with one third to be spent on transport, one third on electricity, and the remainder on water supply and sanitation, solid waste management, telecommunications and irrigation. The appetite for infrastructure makes Asia a key region for infrastructure investors—offering significant opportunities for growth over the short, long and medium terms. Overall, the brief review suggests that the effect of public capital or infrastructure differs across countries, regions, and sectors depending upon quantity and quality of the capital stock and infrastructure development. In this context, we examine the contribution of infrastructure and human capital to economic growth in India at macro level.

Concepts and Hypothesis

Existing empirical studies on the contribution of infrastructure to economic growth are essentially based on the production function framework and closely related to a literature concerned with the macroeconomic role of productive public expenditure. Arrow and Kurz (1970) were the first to provide a formal analysis of the effects of public capital on output. Assuming a generalized Cobb-Douglas production and extending the neoclassical growth model to include infrastructure stock/public capital as an additional input of the production function along with private capital and labour, the production function is written as follows:

$$Y_t = t(K_t^{pvt} / pub) L F_t, I_t$$

where Y_t is real gross output produced in an economy using inputs such as private and public capital (K_t^{pvt} / pub), labour force ($L F_t$) and supporting

infrastructure stock (I_t). This generalized form of Eq is open to the possibility of constant returns to scale as suggested by Solow-type models (Solow, 1956).

The possibility of a long-run impact of infrastructure on income depends on whether the data are generated by a neoclassical growth model or an endogenous growth model. In the exogenous growth model wherein technical progress drives long-run growth, shocks to the infrastructure stock can only have transitory effects. However, shocks to infrastructure can raise the steady-state income per capita in an endogenous growth model. Besides, social capital and human capital are also important for economic growth (Lucass, 1988; Barro, 1991). Higher public expenditure on social infrastructure induces more literacy, better health and manpower skill, which leads to higher productivity and growth. In order to assess the impact of human capital on growth, we consider public expenditure on health and education.

To overcome this problem, we develop a composite index of major infrastructure indicators to examine the impact of infrastructure development on growth. Principal Component Analysis (PCA) is used to create the infrastructure index by taking six major infrastructure indicators such as (1) Per capita Electricity Power consumption; (2) Per capita Energy use (kg of oil equivalent); (3) Telephone line (both fixed and mobiles) per 1000 population; (4) Rail Density per 1000 Population; (5) Air Transport, freight million tons per kilometer; and (6) Paved road as percentage of total road. Therefore, our infrastructure index is mixed of both quality and quantity.

Research Design

The present study is completely based upon secondary sources of data which are extracted from different sources of Government of India. The Central Statistic Office (CSO) is the principal source of data related to the infrastructure information. The website of CSO has been used to collect information on current status of infrastructure development in India. The data on total infrastructure development in terms of quantity and quality value. Six Infrastructure variables used for constructing infrastructure index are compiled from various issues of World Development Indicators.

Socio-economic wellbeing and quality of living are considered as indicators of development. Improvement in the socio-economic condition as well as the quality of life indicates that society is on the path of sustainable development. Data relating to the socio economic and quality of life indicators have been collected from different publications of various Government departments and agencies.

Findings and Suggestion

Development of infrastructure is important for sustainable and all-inclusive economic growth. The total investment in infrastructure is estimated to increase from 5.7% of GDP in the base year of the Eleventh Plan to around 8% in the last year of the Twelfth Plan. Share of private investments in infrastructure investment increased to 38% in the Eleventh Plan and is expected to be about 48% during the Twelfth Five Year Plan.

Recognizing these almost limitless requirements, the government has called for \$1 trillion in infrastructure spending in the five years through

2017. The priorities include three airports, two ports, an elevated rail-corridor in Mumbai, and almost 6,000 miles of new roads. The Ministry of Road Transport outlined plans for \$120 billion worth of road widening projects, with 65% of this money targeted to come from the private sector. There are also plans for \$60 billion to be invested in India's ports by 2020. The Indian Planning Commission has estimated that the country will need 180 additional airports in the next decade. And the government has set ambitious goals for wind, solar and nuclear energy, all of which will be needed to supplement power from coal and gas.

We would like to suggest some reforms that need, Revisit the Land Acquisition Act, a robust land acquisition policy which eases the process of acquisition is essential for Investment in Infrastructure and Manufacturing. Overall re-hauling of transport system through increasing the capacity of railways, highways and expressways. Physically linking every corner of the country to domestic and international markets through roads, railways, ports and airports. Digitization of all the government departments to improve the ease of doing business. Strengthening the corporate R&D activity in the country to further the international competitiveness of national enterprises.

Developing nations like India need to seek huge foreign investment and huge debt from abroad to build our infrastructure, then make ourselves more productive and competitive on a global scale, sell more, then pay back these loans. There's no other model in the world. I've seen a new sense of confidence and hope amongst Indians in the last 12 years as they've watched our country moving forward, our GDP growth rates increasing, our software companies succeeding, our banks becoming smarter and smarter. Even though we have problems, there's confidence today that we'll be able to solve these problems -if not tomorrow, then at least the day after.

Conclusion

Absolutely, he's right. I do think that India has done well to get to the current orbit. But for us to move to the next orbit, we need good leadership. For us to bring prosperity to the vast majority of Indians and to enjoy inclusive growth, we will have to enhance our governance system, enhance our transparency and accountability, combat corruption, and enhance our infrastructure. The launch of Make in India programme would go a long way to establish India as a major manufacturing hub that will generate millions of employment opportunities and push India on a high and sustainable growth trajectory in the coming times, Which is dependes world class infrastructure..

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