Chapter 1
Infrastructure, Education, and Economic Development in India:
A State Level Analysis

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ABSTRACT

A large number of studies reveal that regions with larger stocks of physical infrastructure and human capital often are associated higher level of economic development. The present chapter attempts to find whether this is valid for India. Factor Analysis has been used to find the index of scores of infrastructure of the selected 20 major states of India. We have then used regression analysis to find the impact of infrastructure and education on economic development of the states. The results indicate that there is huge variation of infrastructure development across the states in India. The findings also indicate the significant impact of infrastructure development and education on economic development of the state, measured in terms of Per Capita Net State Domestic Product (PCNSDP).

INTRODUCTION

Development and economic growth of a region depends very much on its infrastructure including physical and human capital. Sound infrastructure of a region plays a key role in the economic development of a region. Infrastructure facilities may be of various types like physical (like power, irrigation, transport and communications), social (education and health) and economic (like banks). All these are important for the pursuit of the country's development goals. On the contrary, inadequate infrastructure and services result in increased costs of production and transaction, which reduce competitiveness and make it more difficult to achieve overall development goals. Infrastructure has various effects on the economy (Yoshino and Nakahigashi, 2000). Infrastructure affects growth in a complex way because the effects are both direct and indirect (Ghosh & De, 2004). Several studies have examined the role of infrastructure

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and an educated workforce in regional economic development such as Fullerton et al (2010), Almada et al. (2006), Wang (2002), Aboudou (2011), Das (2012), Montgomery (2008), Novianti (2014), Owolabi-Merus (2015), Sawada (2015), De (2008), Bhandari and Gupta, (2011), Jana et al., (2012), Jana (2014).

Infrastructure determines directly and indirectly economic development. On the demand side, it opens up possibilities of investment by making available a number of necessary inputs and services, opening up the size of the market as well as increasing the supply elasticity and efficiency of factors of production. On the supply side, the development of infrastructure helps in mobilizing potential saving and channelizing them into productive investment. Adequate quantity, quality and reliability of infrastructure are keys to the growth of any economy (Mohan, 2003, 2016). It has been found that interstate disparities in physical, social and economic infrastructure facilities have high impact on productivity. The 11th five year plan in India laid special emphasis on the development of infrastructure and proposed strategies for better investment in infrastructure. With a projected GDP growth averaging 9% per year for the Eleventh Plan, the plan document estimated almost doubling infrastructure spending from 5% of GDP in 2006-07 to 9% by 2011-12.

The importance of access to electricity to economic and human development has been well documented in a large number of studies across regions. Most of these studies on developing countries find a positive impact of energy infrastructure on output/growth (Estache & Garsous, 2012). Laxmi and Sahoo (2013) described health infrastructure index as a "weighted average of various components". They have taken the number of hospitals and dispensaries, the number of beds and number of doctors etc. for constructing index using Principal Component Analysis (PCA). Hati and Majumder (2013) constructed a health infrastructure index by combining three components of healthcare namely preventive, curative and promotional health infrastructure. Kumari and Raman (2011) used Maher's methodology to standardize 8 indicators for the health attainment and 13 for educational attainment and then applied principal component analysis to compute the composite indices and found wide disparity among the districts in Uttar Pradesh. The objective of this study by Lyngdoh (2015) was to understand the rural public health care system in North East India. Walke et al (2015) used Aggregate production functions in order to analyze the determinants of economic performance across Mexican states and their results indicate that regional-level investments in transportation infrastructure and education facilitate economic growth in Mexico.

OBJECTIVE OF THE STUDY

The major objectives of the present study are as follows:

1. Status of infrastructure development across different states in India.
2. Ranking of States in respect of infrastructure development.
3. Impact of education and infrastructure on economic development of the states in India.

STATUS OF INFRASTRUCTURE DEVELOPMENT IN INDIA

The present study is based on secondary information collected from different sources. At present there are 29 states and 7 union territories in India. We have selected 20 major states for our study. These are Andhra Pradesh (A.P.), Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh (H.P.), Jammu &