

Highway network system in India

¹N.Abhilash & ²Ch.Samyuktha

1. ASSISTANT PROFESSOR Bomma Institute of Technology and Science, Allipuram, Khammam, Telengana, INDIA - 507318
2. M.Tech., Bomma Institute of Technology and Science, Allipuram, Khammam, Telengana, INDIA – 507318

ABSTRACT:-

This feature allows for a difference-in-difference estimation strategy, implemented using data from the 2002 and 2005 rounds of the World Bank Enterprise Surveys for India. Firms in cities affected by the Golden Quadrilateral highway project reported decreased transportation obstacles to production, reduced average stock of input inventories (by about a week's worth of production), and a higher probability of having switched the supplier who provided them with their primary input.

INTRODUCTION

1.1. Background

Road Transportation occupies a very dominant position in the overall transportation system of India. The growth of road traffic in the post independence era has been quite unprecedented both in terms of goods and passenger traffic. The vehicular traffic has increased from 3 lakh to 430 lakh during the period 1951-2001. But unfortunately, the corresponding growth in the road network has not been commensurate with the huge growth in vehicular population, which has increased from 4-lakh km to 33-lakh km during the same period. The traffic loadings have also been much heavier than the specified limit of 10.2 tonnes. Without adequate and timely maintenance, roads deteriorate excessively, leading to higher vehicle operating costs, increased number of accidents and reduced reliability of transport services. Thus, there is a need of developing a scientific approach towards determining the maintenance and rehabilitation requirements of pavements. Efforts are also needed to develop road management and planning tools to improve upon the existing highway network. These tools are essential for

assessing the financial needs, evaluating the alternative maintenance strategies and prioritizing the work programs. In such a situation, development and practice of an efficient Pavement Management System (PMS) would provide objective information and useful analysis to ensure consistent, and cost-effective decisions related to preservation of the highway networks.

1.2. Objectives and Scope of Study

The objective of the study is to develop a PMS for an identified national highway network. The scope of work encompasses the following:

- Comprehensive review of research literature on development of pavement management system in India and different parts of the world.
- Study and use of World Bank's highway project appraisal model HDM-4.
- Development of a time series database consisting of pavement condition data, traffic data and other necessary data on the selected highway network to provide necessary inputs for executing the HDM-4 model.



- Collection of other data such as road user cost data and costs of different types of maintenance activities and defining the intervention levels for maintenance activities.
- To calibrate the pavement deterioration models of HDM-4 using the collected data from the identified highway network.
- To validate the models using the data collected from the field.
- To develop the PMS methodology at Project/Network level.

This paper studies the response of in India to an ambitious program of highway improvements in order to measure the economic effects of infrastructure investments, an issue that has received widespread attention both in the context of developing countries such as India and more generally. It is motivated by, and contributes to, two strands in the literature. The first is the literature on the role of the private sector in economic development, and particularly effects of government policies in enabling, constraining or retarding how the private sector performs (for example, Djankov et al. 2008, Knittel 2002). Within this literature, the Indian case has been the subject of a growing literature.

Several issues complicate the estimation of the economic effects of infrastructure. First, while a variety of studies have found positive correlations between the level of infrastructure in an area and economic outcomes of interest, such as growth, endogenous placement of new infrastructure makes it difficult to clearly quantify the causal effects on economic outcomes of interest.

In the case of highway construction, both Chandra and Thompson (2000) and Michaels (2007) use a feature of the US Interstate Highway construction program that allows them to treat it as a natural experiment for counties through which the new interstate highways (did not) pass. The idea derives from the nature of the highway-building exercise: when a highway is built to connect cities A and B, it must pass through areas that lie in between the two, thus contributing to improved infrastructure in places that happen to lie in between the (possibly endogenously chosen) points that the highway is built to connect. These latter two effects can, I argue, be interpreted as showing that firms that gain access to higher-quality highways are able to produce more efficiently (as captured by their inventory management becoming leaner) than in the absence of the improved highways, and to exploit opportunities that may earlier have been unfeasible, which we argue are unambiguously economically beneficial to these firms. I find that the results are robust to the exclusion of firms in the 4 nodal metropolitan cities (Delhi, Mumbai, Kolkata and Chennai), whose status as non-Golden Quadrilateral cities was a matter of design rather than fortuitousness. Viewed together, these results support the idea that the highway construction project eased the extent to, and channels through, which transportation infrastructure constrains firms.

The Need for Integrated Transport System

Recent liberalization of the Indian economy has brought home the urgency of developing an efficient transport system for increasing productivity and enabling the country to compete effectively in the world market. Adequacy and reliability of transport infrastructure and services are important factors which contribute towards



the ability of the country to compete in the field of international trade and attract foreign direct investment. The Government has a major role to play in this sphere. Even in a market economy, the framework that national Government provide for the transport sector largely determines the level of cost and transport operations. It is, therefore, necessary to create a policy environment that encourages competitive pricing and coordination between alternative modes in order to provide an integrated transport system that assures the mobility of goods and people at maximum efficiency and minimum cost. According to Tenth Five Year Plan .

Importance of Road Transport for Indian Economy

Road transport is quicker, more convenient and more flexible. It is particularly good for short distance travel for movement of goods. Motor vehicles can easily collect passengers and goods from anywhere and take them to wherever they want to be dropped. Door-to-door collection and delivery are possible in the case of road transport. But in the case of railways, the lines are fixed and the railways do not have the flexibility of the roadways. Passengers and goods will have to be taken to the railway stations.

Roads are a necessary complement to railways. India is a country of villages and it is only roads which can connect villages and railways can connect towns. The railway stations will have to be properly served by a network of feeder roads. Only through these roads the railways can receive their passengers and goods. If railways are essential for the movement of goods and people for long distances, road transport is essential for such movement for short distances.

Roads and railways are, therefore, not competitive but complementary.

National Highways Development Programme (NHDP):-

The largest highway project ever undertaken in the country is implemented by the National Highway Authority of India (NHAI) which was constituted under the National Highway Authority of India Act, 1988 and was made operational in February 1995. Initially it was entrusted with the task of implementing five externally aided National Highways' improvement projects. Subsequently it was asked to implement several other projects including some BOT projects on National Highways. The NHAI has been mandated to implement National Highways Development Programme (NHDP) which constitutes 4/6 laning of Golden Quadrilateral connecting Delhi – Mumbai – Chennai – Calcutta – Delhi and North-South and East-West Corridors connecting Kashmir in the North to Kanyakumari in the South and Silchar in the East to Saurashtra in the West. The Golden Quadrilateral is over 5800 kms. Under the Port Connectivity Project – roads connecting 12 major ports (380 kms) and other projects (962 kms) will be improved

- a) Declaring the road sector as an Industry.
- b) Providing capital subsidy up to 40% of the project cost to make projects commercially attractive.
- c) 100% tax exemption in any consecutive 10 years out of the first 20 years of the project.
- d) Government will pay all expenses relating to land and other preconstruction activities.

- e) Foreign Direct Investment up to 100% in the road sector.
- f) Easier rules for external commercial borrowings.
- g) Higher Concession period (up to 30 years).
- h) Right to collect and retain toll.

CONCLUSION:-

Firms in cities that lay along one of the four national highways connecting the four largest cities in India that the Indian government upgraded as part of its Golden Quadrilateral report holding about a week's worth of production less of input inventories in 2005, when much of the project had been implemented than in 2002, when work had just begun, while Firms which lay in cities off the Golden Quadrilateral highways report no such change. These Firms also became much less likely to report that transportation was a major or severe obstacle to production in 2005 relative to their responses to the same question in 2002. Firms on the upgraded highways also show a greater propensity to change suppliers between the two years, suggesting that they found more suitable suppliers at a greater rate than Firms in cities unaffected by the highway project. Seen together, these pieces of evidence substantiate the idea that improved highways facilitated productive choices which Firms may have wanted to make even earlier, but were constrained from being able to make by the quality of highways available to them.

REFERENCES:-

- [1] Duáo, Esther and Rohini Pande. *íDamsí. MIT Department of Economics, Mimeo. Fernald, J.G. 1998. íRoads to Prosperity? Assessing the Link between Public Capital and Productivityí. AER 89:619-38.*
- [2] Gulyani, Sumila. 2001. *ëEffects of Poor transportation on Lean Production and Industrial Clustering: Evidence from the Indian Auto Industryí. World Development 29(7): 1157-77*
- [3] Holl, Adelheid. 2004. *ëManufacturing location and impacts of road transport infrastructure: empirical evidence from Spainí. Regional Science and Urban Economics. 34: 341-63*
- [4] Michaels, Guy. 2007. *ëThe Effect of Trade on the Demand for Skill ñEvidence from the Interstate Highway Systemí. Mimeo, LSE*
- [5] Munnell, A.H. 1980. *ëPolicy Watch: Infrastructure Investment and Economic Growthí. Journal of Economic Perspectives 6(4): 189-98*