

**ICT USE AND FIRM EFFICIENCY:
A STUDY OF INDIAN PUBLIC SECTOR
ENTERPRISES**

by

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Submitted

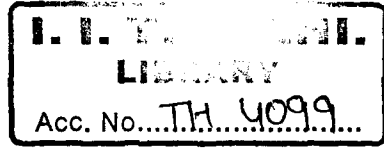
**in fulfillment of the requirements of the degree of
Doctor of Philosophy**

to the



**Indian Institute of Technology, Delhi
May, 2011**

public sector enterprises; information communication
technology.



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658.115 : 681.3(540)
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CERTIFICATE

Certified that Mr. Sanjeev Ranjan was permitted to work for his Ph.D. degree in Economics at IIT Delhi, on the problem entitled “**ICT use and Firm Efficiency: A Study of Indian Public Sector Enterprises**”. He has faithfully carried out his study under my guidance and supervision and the accompanying thesis is his genuine and original work.

The results contained in this thesis have not been submitted, in part or full, to any other university or institute for the award of any degree or diploma.

Mr. Sanjeev Ranjan has completed necessary course work and put in the required attendance in this Department.



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Acknowledgement

It would like to express my deep gratitude to my supervisor Prof. V. Upadhyay whose sagacity and vision along with his constant encouragement and support helped me at every step and through the entire research work. His valuable guidance helped find solutions and instill valuable confidence particularly when the going got tough.

I am grateful to all the executives of the Public Sector Enterprises who spared valuable time in providing me useful data and information required for the study.

My heart-felt thanks to my wife Sandhya, my son Sachin and my daughter Surbhi and other family members for the constant moral support, encouragement and all the patience.

I am ever indebted to my parents for the values imparted, which made me undertake this work.

I solely remain responsible for errors, if any, in the study.


Sanjeev Ranjan

ABSTRACT

Enterprises have been increasingly investing in information and communication technology (ICT) but earlier empirical studies investigating investments in ICT have showed mixed results and convincingly not established corresponding improvements in efficiency and business performance. Studies conducted in developed countries starting from the mid 90s which address the shortcomings of the past studies provided evidence of the positive contribution of ICT investment for some measures of business performance but mixed empirical results of such relationship in respect of developing countries call for studies that analyze the impact of ICT in less developed countries. Internet and computer network technology have also come to be adopted by businesses but there is a lack of empirical research on the impact of internet use on firms in India.

In the present study a framework for evaluating the impact of ICT use on firm efficiency that addresses the shortcomings of the earlier studies using Data Envelopment Analysis (DEA) has been used. Instead of an aggregate measure for ICT investment, firm-level data on use of computers, internet and computer network applications was collected through a questionnaire-based survey in respect of Indian Public Sector Enterprises (PSEs) and the trends in use of computers, internet and computer network applications analysed.

After evaluating the technical efficiency scores of the PSEs using DEA, in the second stage the relationship of the firm efficiency with the use of computers, internet and computer network applications is examined. The results indicate that the use of internet by employees and computer network in key activities like purchases and production/operations have a significant positive relationship with technical efficiency in the India PSEs. The data compiled in the study and the ensuing analysis on ICT use in PSEs and relationship with efficiency aims to provide policymakers with inputs for better design and evaluation of the ICT strategies by the PSEs in India.

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