

Public Disclosure Authorized

INDIA'S Investment Climate

46828

Public Disclosure Authorized

Voices of Indian Business

Public Disclosure Authorized

Public Disclosure Authorized



Aurora Ferrari and
Inderbir Singh Dhingra



THE WORLD BANK

India's Investment Climate

India's Investment Climate

Voices of
Indian Business

Aurora Ferrari and
Inderbir Singh Dhingra



THE WORLD BANK
Washington, D.C.

© 2009 The International Bank for Reconstruction and Development /The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org
E-mail: feedback@worldbank.org

All rights reserved.

1 2 3 4 12 11 10 09

This volume is a product of the staff of the International Bank for Reconstruction and Development/The World Bank. The findings, interpretations, and conclusions expressed in this volume do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgement on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development/The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; telephone: 978-750-8400; fax: 978-750-4470; Internet: www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2422; e-mail: pubrights@worldbank.org.

ISBN-13: 978-0-8213-7757-4
eISBN: 13: 978-0-8213-7808-3
DOI: 10.1596/978-0-8213-7757-4

Cover design by Candace Roberts, Quantum Think, Philadelphia, PA, United States.

Library of Congress Cataloging-in-Publication data has been applied for.

Contents

Foreword [xiii](#)

Acknowledgments [xv](#)

Abbreviations [xvi](#)

1 Overview [1](#)

The Indian Economy: Robust Growth but Challenges Remain [1](#)

Manufacturing: Investment Climate Obstacles to Productivity Growth and
Employment Generation [2](#)

Retail Sector: Facilitating the Emergence of Large Players to Boost Productivity
and Employment [5](#)

Software and ITES Sector: Productivity Improvements Key to Continued
Growth and Competitiveness [6](#)

Reducing Inequalities between States by Improving the Investment Climate [8](#)

Conclusions [9](#)

2 The Indian Economy: Robust Growth, but Challenges Remain [11](#)

Trends in the Economy [11](#)

Key Growth Drivers in the Economy [12](#)

Challenges in the Way Forward [19](#)

Focus of the Report [23](#)

Notes [27](#)

3 Manufacturing: Investment Climate Obstacles to Productivity Growth and Employment Generation [29](#)

The Manufacturing Sector: A Potential Driver of Growth [29](#)

Firms' Perceptions of Investment Climate Constraints: Power, Taxes, and Lack
of Skilled Workforce [31](#)

Productivity Analysis of the Investment Climate and Firms' Perceptions
of Key Obstacles [35](#)

Impact of Investment Climate Obstacles on Growth Across Groups
of States [37](#)

The Investment Climate for Exporting Manufacturing Firms [40](#)

Conclusions [45](#)

Notes [46](#)

Annex 3.A Obstacle Case Study—Power [47](#)

Annex 3.B Obstacle Case Study—Corruption [50](#)

-
- 4 Unorganized Manufacturing: Facilitating Entry to the Formal Sector by Removing Obstacles to Growth and Productivity 53**
- Importance of Unorganized Manufacturing 53
 - Low Productivity, Low Wages, Weak Skill Levels, and Limited Integration with Large Supply Chains in Unorganized Manufacturing 54
 - Benefits of Becoming Organized and Why Some Firms Remain Unorganized 56
 - Access to Finance and Power Supply: Largest Constraints to Higher Productivity and Growth 61
 - Conclusions 65
 - Notes 66
 - Annex 4.A Obstacle Case Study—Access to Finance 67
- 5 Retail Sector: Facilitating the Emergence of Large Players to Boost Productivity and Employment 69**
- Two Sharply Contrasting Segments: Small Stores and Large Chains 69
 - Sector Performance: Low Productivity and Modest Employment Growth 70
 - Government Reform Efforts to Improve the Investment Climate 73
 - Effect of the Investment Climate on Modern-Format Stores 74
 - Obstacles to Increased Productivity and Employment Generation for Modern-Format Stores 77
 - Conclusions 79
 - Notes 79
 - Annex 5.A Obstacle Case Study—Taxes 81
 - Annex 5.B Obstacle Case Study—Access to Land 83
- 6 Software and ITES Sector: Productivity Improvements Key to Continued Growth and Competitiveness 87**
- The Software and ITES Sector: An Indian Success Story 87
 - Favorable Conditions Underpinning the Software and ITES Success Story 89
 - The Potential for Greater Productivity 91
 - The Importance of Productivity Gains as Favorable Conditions Erode 93
 - Conclusions 96
 - Notes 97
 - Annex 6.A Obstacle Case Study—Skill Shortages 98
- 7 Reducing Inequalities between States by Improving the Investment Climate 101**
- Importance of Measuring the Investment Climate at the State Level 101
 - The ICI: Methodology 102
 - ICI State Rankings 102
 - Identifying the Key Investment Climate Differences between Low-Growth and High-Growth States 107
 - Conclusions 109
 - Notes 109

8 Conclusions 111

Power 111

Access to Land 112

Access to Finance 112

Taxes 112

Skilled Labor 113

Three Challenges 113

Appendix A Investment Climate Surveys 115

Manufacturing ICS 115

Unorganized Manufacturing ICS 117

Retail ICS 119

Software/ITES ICS 121

Notes 123

Appendix B Econometric Analysis of the Effect of Investment Climate on Firm Performance 125

Manufacturing Sector 129

Unorganized Manufacturing Sector 135

Retail Sector 137

Software and Information Technology–Enabled Services Sector 140

Notes 145

Appendix C Investment Climate Index Methodology 147

Note 149

References 151

Index 155

Boxes

- 2.1 Reforms and TFP during the 1990s 18
- 2.2 International Comparisons of Income Gaps between States 25
- 4.1 What Constitutes Unorganized Manufacturing in India? 54
- 4.2 Understanding the Problem of Access to Finance 61
- 5.1 Effect of Investment Climate on Labor Productivity and Employment
Generation for Traditional Retail Stores 74
- 6.1 Comparing Perceived Obstacles for Software and ITES Exporters and
Manufacturing Exporters 89
- 7.1 ICI Reliability 103
- 7.2 Comparing the ICI with the World Bank's *Doing Business* Study
and the Government of India's Infrastructure Quality Index 105
- C.1 Formulas Used to Construct the ICI 149

Figures

- 2.1 Real GDP Growth, by Sector, in India, 1990/91–2007/08 12
- 2.2 Structural Change in India, 1950/51–2005/06 13
- 2.3 Real GDP Composition, 2007/08 13
- 2.4 Savings and Investments, 1950/51–2005/06 14
- 2.5 Savings as a Percentage of GDP, 1965/66–2005/06 15
- 2.6 Trends in Consolidated Fiscal Deficit and Public Debt Stock,
1991/92–2006/07 16
- 2.7 Formal and Informal Labor Force, 1990 and 2003 19
- 2.8 Evolution of the Labor Force Distribution, by Sector, 1983/84–2004/05 20
- 2.9 Productivity Growth and Labor Reallocation in India, 1983–2002 22
- 2.10 States' Growth in Per Capita Income, 1980s and 1990s 23
- 2.11 Decomposition of Differences in Per Capita Income Growth across Groups
of States, 1983–2004 24
- 2.12 Relative Sector Productivities and Potential 26
- 2.13 Labor Force Distribution, 2004 26
- 3.1 Proportion of Firms Reporting Each Obstacle as Major or Severe,
2003 and 2006 32
- 3.2 Firms Perception of Investment Climate Variables as the Most Important
Obstacle or as a Major or Very Severe Obstacle, 2006 33
- 3.3 Impact of Corruption, by Firm Size, 2006 34
- 3.4 Percentage of Firms Rating Labor Regulations as a Major or Very Severe
Obstacle, 2006 35
- 3.5 Proportional Impact of Investment Climate Variables on Firm TFP,
Employment, Real Wages, Exports, and FDI, 2006 36
- 3.6 Deviation from the National Average of Percentage of Firms Reporting
Each Obstacle as Major or Very Severe in 2006, by Income Level
of States, 2006 38
- 3.7 Change in the Percentage of Firms Identifying Factor as a Major or Very
Severe Obstacle between 2003 and 2006, by Income Level of States 39

- 3.8 Trade Competitiveness: Growth of Indian Exports and Worldwide Exports for the Sectors with the Largest Share of Total Indian Exports, 2001/02–2006/07 42
- 3.9 Importance of Largest Manufacturing Export Sectors in the Indian Export Basket and Growth of Sectors' Market Share in the World Export Market, 2001/02–2006/07 43
- 4.1 Per Capita Manufacturing Output, Organized and Unorganized Manufacturing, 2004 55
- 4.2 Management Qualifications and Experience, by Industry, 2006 57
- 4.3 Full-Time and Part-Time Workforce, by Industry, 2006 58
- 4.4 Surveyed Firms Reporting Themselves as Registered, 2006 59
- 4.5 Enterprises Reporting Employment Growth, by Age, 2006 60
- 4.6 Major Constraints to Normal Functioning Identified by Unorganized Enterprises 63
- 4.7 Effect of Power Outages on Unorganized Firms 64
- 5.1 Growth Rate of Selected Services Sectors, 1990/01–2006/07 71
- 5.2 Labor Productivity in Retail Relative to the United States, 2001 71
- 5.3 Overall Productivity in Selected Segments of the Indian Services Sector Relative to the U.S. Sector, 2001 72
- 5.4 Olley and Pakes Decomposition of Aggregate Labor Productivity for the Retail Segments and for the Retail Sector, 2006 72
- 5.5 Perceived Major or Very Severe Investment Climate Obstacles, 2006 75
- 5.6 Differing Cost Structures for Traditional and Modern-Format Food Retail Stores 76
- 5.7 Perceived Most Serious Investment Climate Obstacles for Modern Format Store, 2006 78
- 5.A.1 Tax Payments in India and OECD Countries: Number of Payments, Time Needed, and Tax Rates, 2006 82
- 5.B.1 Cost and Rent of Land Relative to GDP per Capita, Various Years 84
- 5.B.2 Cost and Time of Registering Property across India 85
- 6.1 Distribution of Software and ITES Firms and Contribution to the Overall Sector Revenue, 2006 88
- 6.2 Labor Productivity Growth across Services Sectors, 1982–90 and 1992–2002 91
- 6.3 Overall Labor Productivity in Software Sector Indexed to U.S. Average, 1998 92
- 6.4 Most Important Perceived Obstacle, 2006 94
- 6.5 Average Number of Weeks to Fill Position, 2006 95
- 6.6 Average Annual Percentage Change in Average Wages by Type of Skills, 2003–06 95
- 7.1 ICI Ranking of Business Climate in 16 Indian States, 2006 106
- 7.2 Relative Effect of Infrastructure Indicators on the Overall ICI and on Low-Investment and Low-Growth States 108
- 7.3 Relative Impact of Institution Indicators on Overall ICI and on Low-Investment and Low-Growth States 109

Tables

- 1.1 Main Investment Climate Obstacles, Identified and Ranked by Sector 9
- 2.1 India Total Factor Productivity Estimates 17
- 2.2 Labor Productivity and Employment Shares 21
- 3.1 Contribution of Manufacturing to GDP in Selected Countries and Regions, 2005 30
- 3.2 Top 15 Manufacturing Exports, 2006/07 41
- 3.3 Value Added per Unit Labor Cost 44
- 3.4 Indirect Costs for Exporting and Nonexporting Firms in India and China 44
- 6.1 Corruption for Exporters and Nonexporters, 2006 96
- 8.1 Main Investment Climate Obstacles, Identified and Ranked by Sector 112
- A.1 Allocation of Manufacturing ICS 2006 Sample: Bihar, Jharkhand, Orissa, and Rajasthan 116
- A.2 Sample Allocation and Actual Coverage of Manufacturing ICS 2006, by State 117
- A.3 Industry Sectors Identified for the Unorganized ICS 2006 Compared with Industry Sectors Covered by National Sample Survey's 56th Round 118
- A.4 Sample Allocation and Actual Coverage of Unorganized Manufacturing ICS 2006, by City and Manufacturing Subsectors 120
- A.5 Sample Allocation, Actual Coverage, and Distribution of Retail ICS 2006, by Sector 121
- A.6 Actual Coverage and Distribution of Software/ITES ICS 2006, by Subsector 122
- A.7 Actual Coverage and Distribution of Software/ITES ICS 2006, by City 122
- A.8 Actual Coverage and Distribution of Software/ITES ICS 2006, by State 122
- B.1 Definitions of Firm Performance Variables 126
- B.2 Manufacturing Investment Climate Elasticities and Semielasticities with Respect to Productivity, Unrestricted Estimation 127
- B.3 Manufacturing Two-Stage Least Squares Estimation of Employment Equation 132
- B.4 Manufacturing Two-Stage Least Squares Estimation of Real Wages Equation 133
- B.5 Manufacturing Two-Stage Least Squares Estimation of Probability of Exporting Equation 134
- B.6 Manufacturing Two-Stage Least Squares Estimation of Probability of Receiving FDI 135
- B.7 Unorganized Sector Investment Climate Elasticities with Respect to Log of Labor Productivity 137
- B.8 Unorganized Sector Investment Climate Elasticities with Respect to Employment Demand 138
- B.9 Retail Investment Climate Elasticities and Semielasticities with Respect to Log of Labor Productivity 139
- B.10 Software and ITES Investment Climate Unrestricted Elasticities and Semielasticities with Respect to Productivity 140

Contents

- B.11 Software and ITES Two-Stage Least Squares Estimation of Employment Equation 141
- B.12 Software and ITES Two-Stage Least Squares Estimation of Real Wages Equation 142
- B.13 Software and ITES Two-Stage Least Squares Estimation of Probability of Exporting Equation 143
- B.14 Software and ITES Two-Stage Least Squares Estimation of Probability of Receiving FDI 144
- C.1 Variables Used in the Construction of the Composite ICI 148

Foreword

India has grown impressively in recent years and is emerging as a major world economic power. The economy has surged over the last decade, posting an average annual GDP growth of 8.5 percent since 2005, after two relatively slow decades in the 1980s and the 1990s when growth averaged about 4-5 percent a year. Greater investment, increased productivity, and deeper integration in the world economy have been the key growth drivers. The current challenge is to maintain medium-term growth potential and provide benefits, as well as economic opportunities, to ever larger segments of the population.

Strong and more inclusive growth should form the basis for India's economic stability going forward, and will be critical for garnering political support for growth-oriented reforms, given concerns over widening inequality. Nonetheless, three main challenges remain: insufficient job creation in the formal sector; large and growing disparities between states; and increasing, but still low, productivity. The current global financial crises, and downward revisions of India's growth forecast, only highlight the need to bolster internal reform efforts in order to increase the resilience of the economy.

This book identifies key investment climate bottlenecks that slow down growth and poverty reduction. Based on face-to-face surveys of owners and managers of firms, combined with extensive dataset analysis, backed by secondary sources, the study analyses the critical factors that influence day-to-day decisions by firms on how to invest. As a result, it identifies growth-enabling reforms that cover macroeconomic policies, governance, institutions, and infrastructure.

To get an understanding of investment climate constraints for the entire economy, the book focuses on four key sectors. The manufacturing sector, both organized and unorganized, is important in that it not only contributes a significant share of the overall GDP, but it is also critical for employment generation and to the growth of the "lagging" states. Similarly, the retail sector is an important part of the overall economy in its contribution to GDP and to employment. Finally, the ICT sector, though a small part of GDP, has been leading India's services success story and serves as a good example from which we may learn. The book presents illustrative case studies of the key constraints identified, and the efforts to address them, along with policy recommendations.

Furthermore, the book identifies a number of issues that require further analysis; in those instances the book should be viewed as a first step to bringing the issues into the forefront. The World Bank Group stands ready to work with the government, private sector, and other stakeholders in taking forward this work to help generate real impact on the ground.

Rachid Benmessaoud
India Acting Country Director
South Asia Region

Ernesto May
Sector Director, Poverty Reduction,
Economic Management, Finance and
Private Sector Development
South Asia Region

Acknowledgments

This report was prepared by a World Bank team led by Aurora Ferrari and Inderbir Singh Dhingra. Marina Wes was the main author of chapter 2, Inderbir Singh Dhingra and Ashish Narain of chapter 3, Ashish Narain of chapter 4, Aurora Ferrari of chapter 5, Aurora Ferrari and Suhail Kassim of chapter 6, and Giuseppe Iarossi of chapter 7. The team was composed also of Angelica Salvi, Alvaro Escribano, Taye Mengistae, Manuel de Orte Ramírez, Jorge Pena, Shanthi Divakaran, Pooja Churamani, and Giovanni Tanzillo.

Background papers for this report were prepared by Evaluserve New Delhi, Alvaro Escribano and Manuel de Orte Ramírez, Taye Mengistae and Maddalena Honorati, Mahesh Uttamchandani and Raha Shahid-Saless, Rohit Mittal, Surbhi Goyal, Kwawu Mensan Gaba, and Ashish Khanna.

The Investment Climate Surveys that underpin the analysis were conducted in cooperation with the Confederation of Indian Industries (manufacturing and information communications technology), ACNielsen India (retail), and Marketing & Development Research Associates (unorganized manufacturing).

Administrative support was provided by Syed Hye and Vinod Satpathy. The report was edited by Linda Moll.

Overall guidance for the project was provided by Simon Bell, Priya Basu, John Speakman, Ernesto May, Fayez Omar, and Isabel Guerrero. The team also benefited greatly from the extensive advice and guidance of the peer reviewers Mary Hallward-Driemeier, Lili Liu, and Vincent Palmade.

In addition, the report incorporates suggestions and comments received from Ahmad Ahsan, Nagavalli Annamalai, Andreas Blom, Hooman Dabidian, Klaus Deininger, Mark Dutz, Rajni Khanna, Mani Khurana, Leora Klapper, William Mako, Jana Malinska, Varsha Marathe, Vikram Menon, Deepak Mishra, Rita Ramalho, Binyam Reja, Deepa Sankar, Stefka Slavova, Natalya Stankevich, Randeep Sudan, Zenaida Hernández Uriz, and Niraj Verma. Useful suggestions and materials provided by Asitava Sen from the consulting firm Technopak have also been incorporated. The report has also benefited from pre-survey consultations with the National Investment Commission, National Commission for Enterprises in the Unorganized Sector, and National Manufacturing Competitiveness Council of the government of India.

Abbreviations

AETR	average effective tax rate
APDRP	Accelerated Power Development and Reform Program
ASI	Annual Surveys of Industry
CIBIL	Credit Information Bureau (India) Limited
FDI	foreign direct investment
FMCG	fast-moving consumer goods
GDP	gross domestic product
ICA	Investment Climate Assessment
ICI	Investment Climate Index
ICOR	incremental capital output ratio
ICS	Investment Climate Survey
ICT	information and communication technology
IT	information technology
ITES	information technology-enabled services
METW	marginal effective tax wedge
NSSO	National Sample Survey Organisation
OECD	Organisation for Economic Co-operation and Development
OLS	ordinary least squares
R&D	research and development
SEB	State Electricity Board
SRFAESI	Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act 2002
TFP	total factor productivity
VAT	value added tax

Overview

The Indian Economy: Robust Growth but Challenges Remain

India has emerged in the past few years as one of the world's fastest growing economies. Gross national income per capita has nearly doubled since 2001/02, going from about US\$400 to about US\$800. Over the past two decades, the growth of the economy has increasingly been driven by the services sector and the industry sector. This trend has changed the structure of the economy. Currently, the services sector accounts for 53 percent of gross domestic product (GDP), industry for 29 percent, and agriculture for 18 percent.

The key growth drivers remain the high level of investment and domestic private consumption, but increased productivity and a deeper integration in the global economy have also played a role.

Despite considerable achievements, India will need to overcome three challenges to maintain growth: pressure on formal sector employment from demographics, rising inequalities between states, and future growth's increasing dependency on productivity gains.

1. *Creating employment growth in the formal sector.* Employment growth has not kept pace with GDP growth, and the composition of employment has been slow to change even as the economy has seen relatively significant structural changes. As a result, most new jobs have been created in the informal services sector, and agriculture still employs 57 percent of the population, although it contributes only 18 percent of GDP. Given the volatility and low growth of agriculture, the current employment composition has significant implications for income distribution. Jobs in the informal sector, which in India are called "unorganized" jobs, are less secure, give no right to social security, and are not under the purview of the labor laws.

2. *Reducing inequalities between states.* The disparities in the growth performance of Indian states are large and growing. If these differences were to be sustained over time, they could translate into vast differences in material well-being. A decomposition of the growth of per capita income reveals that labor productivity growth accounts for most of the differences in growth rates between richer and poorer states. This finding highlights the importance of the investment climate.
3. *Accelerating productivity growth.* Overall economic growth will depend on either (a) capital accumulation through greater investment or (b) productivity enhancements. However, private savings and investment are already at a record high, and public savings have benefited from an impressive fiscal consolidation process. Hence, productivity is key to sustaining current growth rates, especially as sector studies have revealed that the potential to increase productivity is high.

This report seeks to show how investment climate improvements in key sectors will assist the Indian economy in overcoming these three challenges. The key sectors are organized and unorganized manufacturing, retail, and software and information technology-enabled services (ITES). The report focuses on external factors and does not include operational analysis of the sectors. Moreover, the analysis is based on datasets of new and existing firms and not of firms that exited the market.

Manufacturing: Investment Climate Obstacles to Productivity Growth and Employment Generation

Organized manufacturing is the largest subsector contributor to GDP after agriculture. However, its share as a percentage of GDP has been decreasing and is much lower than that of other developing countries, suggesting potential for growth. Moreover, unusual for a developing country, excess labor from agriculture is being absorbed more by the services sector—especially the informal services sector—than by manufacturing, which usually plays a bigger role in creating jobs for semiskilled labor.

Productivity is important for the growth and the competitiveness of the manufacturing sector, but the sector is characterized by low productivity. Indian manufacturing performs poorly both compared with other sectors of the Indian economy—average total factor productivity (TFP) is 4.3 in the manufacturing sector and 35.6 in the software and ITES sector—and with other developing countries. (With a US\$7,011 value added per worker in 2005, Indian manufacturing was well below that of China at US\$13,182 and that of Turkey at US\$10,186.) To understand what holds back the productivity of the manufacturing sector, the World Bank conducted two nationally representative surveys—the Manufacturing Investment Climate Surveys (ICSs)—the first in 2003 and the second in 2006.

Overall, firms perceived the investment climate to be less of a problem in 2006 than in 2003. Perceptions worsened, however, with respect to the specific areas of electricity, taxes, corruption, and workforce skills.

Electricity shortages, tax rates and administration, and corruption were the biggest obstacles identified by manufacturing firms, being rated as the most important obstacle by 32, 23, and 10 percent of the respondents, respectively. Half of all manufacturing firms had a backup generator because of the poor supply of electricity, and 5 percent of annual sales were lost because of power outages. In terms of high tax rates and burdensome tax administration, data from *Doing Business 2008* (World Bank 2007a) confirm that a representative limited liability company has to pay almost 71 percent of its profits as taxes—much more than in other developing countries. Tax administration is also costly: a representative company needs to make 60 payments a year and will spend 271 hours doing so. Informal payments are widespread, and dealing with government officials is also time consuming: firms pay, on average, 4.9 percent in bribes, and managers spend, on average, 12.6 percent of an average week dealing with government officials.

The econometric analysis supports the firm identification of investment climate obstacles: 76 percent of the explainable intrafirm variability in TFP can be explained by differences in investment climate. Red tape, corruption, and crime had the largest negative impact on firm productivity, real wages, and exports. It accounted for percentages ranging from 16 to 28 percent. Poor infrastructure was the second-largest investment climate obstacle, affecting the most productive firms relatively more. It accounted for as much as 23 percent of explained intrafirm productivity differentials in the manufacturing sector. Labor skills, quality, and innovation have a smaller effect on productivity but are more important for efficient firms. Improving the labor quality available to enterprises and stimulating innovation has the potential to raise productivity by as much as 15.5 percent.

There are large differences across states in the investment climate variables that firms find constraining. Firms in low-income states were more likely to complain about the power situation. Firms in middle-income states, in contrast, were more likely to complain about access to land, access to finance, labor regulations, and worker skills. In high-income states, relative to the national average, the major issues were corruption and the possibly closely related area of high taxes and tax administration. The differences are most pronounced in areas that are more directly affected by state-level policies, such as power, in that firms in low-income states complained more than national average and those in high-income states complained less.

When comparing firms' perceptions and objective indicators for 2003 and 2006, one finds that the investment climate at the state level has improved for middle-income states on all fronts. The investment climate has worsened moderately for high-income states, except for corruption, transport, and licensing, and it has worsened substantially, on all fronts, for low-income states, especially with respect to power, tax administration, corruption, and transport.

India's export performance in manufactured goods has been modest compared with the growth of overall exports, which instead have been dominated by the services sector. Moreover, the majority of India's exports are concentrated in lower-growth segments worldwide, and the sectors in which India has the largest share of world exports are losing market share worldwide or improving only moderately.

When the competitiveness of the manufacturing sector of India is compared with that of China by measuring the value added per unit labor cost, China is found to be more competitive than India both in the sectors in which India is gaining world market share and in those in which India is not. The poor performance of the Indian manufacturing sector can partly be explained by the very high indirect cost that Indian firms have to face—much higher, for example, than Chinese enterprises.

Unorganized Manufacturing: Facilitating Entry to the Formal Sector by Removing Obstacles to Growth and Productivity

Unorganized manufacturing employs the vast majority of India's manufacturing workforce. In 2000/01, almost 99 percent of manufacturing enterprises and 74 percent of the manufacturing workers were in the unorganized sector. In addition, unorganized manufacturing is more evenly distributed across low-, middle-, and high-income states. To understand what hampers the productivity of the sector and whether these firms avoid becoming organized and growing, the World Bank conducted the Unorganized Manufacturing ICS in 2006 in five major industrial clusters.

There is significant scope for improving productivity and wages in unorganized manufacturing, where firms are characterized by low productivity relative to organized manufacturing. Differences in performances between organized and unorganized manufacturing are to be expected, but in India they are large, on the order of 8 to 1, compared with 3 to 1 in Japan before its era of post–World War II growth or in the Republic of Korea during its early stages of development. It is estimated that, after human capital attributes are controlled for, workers in larger enterprises earn three times more than similar workers in the unorganized sector.

Unorganized manufacturing firms are not integrated into the supply chain, thus limiting the transfer of technology. Possibly because of the legacy of the small-scale reservation policy, much of the manufacturing activity in the unorganized sector is geared toward producing final products for the consumer market, rather than intermediate products and parts for the organized sector.

Being part of the organized sector—often referred to as the *formal sector*—increases a firm's bargaining power (for example, the firm has easier access to finance). However, international experience suggests that despite the advantages, unorganized enterprises often wish to remain informal because organized firms are subject to more regulations. In India the 10-worker threshold is especially important because labor laws on wages and benefits apply to units above this size. Firms can avoid being part of the organized sector in two ways: (a) by operating “under the radar” by simply not registering or (b) by not growing.

Nonetheless, fear of formalization has not prevented firms from growing. A large number of unorganized manufacturing firms were registered with some government authority and had declared most workers and sales for tax purposes. A relatively large number also crossed the threshold into organized production; around 46 percent of enterprises interviewed in the context of the (formal) Manufacturing ICS started off

as unorganized manufacturing firms. Unorganized firms stand to benefit in terms of productivity and bargaining power from raising their scale, and investment climate variables were identified as obstacles to growth in the sector.

Access to finance was identified as the single biggest obstacle to firm growth. Although most firms had a bank account, very few had a loan. Getting a loan from a bank took almost a month on average after all the documents had been submitted. Moreover, it required significant immovable assets, whereas unorganized firms had mainly movable assets. Firms that were able to borrow from formal financial institutions had 37 percent higher labor productivity than firms that were not. Borrowing from informal sources is not strongly associated with any similar positive effects, maybe because the bulk of informal loans are short term and are used for financing working capital and maintaining operations rather than for making fixed investments.

Power availability is identified as the second-biggest constraint for unorganized manufacturing. Nonetheless, power outages appear to have no effect on productivity, possibly because they push enterprises to develop coping strategies based on employing more labor.

Retail Sector: Facilitating the Emergence of Large Players to Boost Productivity and Employment

The retail sector is the fourth-largest contributor to GDP, after agriculture, manufacturing, and the financial sector, and its share is growing. Moreover, the structure of the retail sector affects the performance of the domestic supplying industries and agricultural producers. Finally, given the limited capital, land, and skills required, small-scale retailing is often the default employer for people who cannot find employment in the formal manufacturing sector.

The retail sector is made up of two sharply contrasting segments: the large chain outlets and a multiplicity of small traditional retail stores. Despite fast growth among large chain outlets, traditional retail stores still dominate and accounted for 97 percent of total retail in 2005.

Although the retail sector has been growing, its growth has been modest relative to the whole services sector. Employment growth has also been limited. Moreover, the retail sector in India has been characterized by low labor productivity when compared with the retail sector in other countries. To understand the sector, the World Bank conducted a nationally representative survey in 2006, the Retail ICS.

The survey data show that low labor productivity is attributable to the large presence of small outlets, which have a labor productivity that is much lower than that of modern-format stores. The labor productivity decomposition confirms this finding by showing that the most productive outlets in India are the single stores with the largest market share. Employment data for the past three years show that modern-format stores also create more jobs (albeit from a very low base) than do small outlets, and the growth of modern retailers has not had an adverse impact on

the latter in the medium term. To increase productivity and promote employment generation in the retail sector, policy makers need to facilitate the growth of the largest market players.

In recent years, central and state governments have adopted a number of policies to facilitate the growth of the retail sector—particularly that of the modern-format stores. Despite these efforts, the investment climate is a bigger problem for large retailers than for small ones. This outcome is mainly the result of two facts. First, the existing legal framework is more favorable to small stores. For example, the cost structure analysis for the two segments revealed that small retailers are charged lower (residential) rates for key inputs, such as power and land. Hence, although the cost of goods is lower for large chains, the profit margins of small retailers are higher. Second, even when the legal framework is the same, small stores can operate more easily outside the framework. The labor productivity analysis supports this finding by showing that the investment climate and control variables explain 44 percent of the variability of labor productivity for large chains versus 22 percent for small retailers.

Electricity shortages, corruption, tax rates, and lack of access to land are the biggest obstacles to large chain outlets. Power shortages occur daily, and even though these stores have generators, they suffer a 3.1 percent loss of sales. Although informal payments are small (less than 1 percent of total annual sales), dealing with government officials is time consuming; on average, retail managers spend 5 percent of their time dealing with officials. The issue of taxes needs to be analyzed in terms of the uneven playing field between organized and unorganized retail segments. This discrepancy is caused by different tax rates applicable to the two segments and by a complex tax system that, although improving, still penalizes large stores that operate across different states. Finally, only half of the stores that tried to expand were successful, mainly because of land unavailability. The perceptions of the managers are supported by productivity analysis: infrastructure problems and problems with red tape and corruption each accounted for 15 percent of the impact of the investment climate on the average labor productivity for modern-format stores.

Software and ITES Sector: Productivity Improvements Key to Continued Growth and Competitiveness

Software and ITES has been the fastest growing sector and is the largest contributor to exports. In a sense, the sector represents the success story of the liberalization of the 1990s. Hence, an understanding of what has supported this success is crucial to supporting enhanced productivity in the other sectors. To understand the sector's success and the future challenges, the World Bank conducted a national survey, the Software/ITES ICS 2006.

The success of the sector is based on a rare set of market conditions: a favorable domestic investment climate and a large demand from Western companies seeking to reduce costs, although their computer systems still required labor-intensive support. The favorable investment climate translated into cost advantages. India had

relatively large numbers of English-speaking engineers, who were less expensive than their Western counterparts. The sector had been almost completely liberalized, allowing for technology transfer. Moreover, companies located in software technology parks enjoyed a full tax holiday on profits from exports. Finally, unlike the manufacturing industry, software and ITES were not subject to stringent labor laws, and because of its features, the sector was less reliant on infrastructure.

However, these favorable conditions have allowed productivity in the software and ITES sector to lag its potential. Part of the explanation for lagging productivity can be traced to operational factors, such as individual organization of functions within firms, product mix, and lack of brand name. There have also been external barriers to productivity growth, such as lack of a sophisticated end-user market and low wages. The large supply of English-speaking information technology engineers has, until recently, kept wages in the sector relatively low compared with the world average. This trend has allowed India to compete effectively in the outsourced services market, but it has also meant that most companies continued to focus on these low-value segments using fairly basic processing engineers. Firms have tended to respond to increased demand for their products by their increasing staffs. Consequently, productivity gains, which are harder to achieve, were not essential to maintaining growth.

Changing conditions, on both the supply and the demand sides, have the potential to hurt India's competitiveness. On the supply side, the shortage of trained professionals is beginning to bite and can be seen in the wage data. Moreover, the benefits conferred by the tax breaks for companies located in software technology parks are due to expire. All these factors are contributing to a decrease in profits. On the demand side, given the weight of the U.S. market in the firms' exports, a medium-term slowdown of the U.S. economy is likely to adversely affect the Indian software and ITES sector.

As cost advantages are being eroded, productivity gains will become more important. Higher wages will erode the sector's competitiveness in the low-value segment of the world software and ITES market, which has been the focus of Indian firms. This development highlights the importance of increasing productivity so that firms can operate in high-value segments.

The investment climate has a significant effect on the potential productivity growth of firms in the sector. The productivity analysis shows that, for the overall software and ITES sector, investment climate and control variables explain 27 percent of the variation in TFP.

Limited skills in the workforce, electricity shortages, and corruption are the biggest obstacles for exporters, whereas corruption, electricity shortages, and access to land are the biggest obstacles for nonexporters. The perceptions of the managers are supported by productivity analysis: infrastructure accounts for 38 percent of the variations in intrafirm TFP; quality, innovation, and labor force skills account for 23 percent; and red tape and corruption account for 20 percent.

The workforce shortage is likely to become more acute as India further positions itself as major player in the high-value segment. In the past three years, a shortage of

skilled labor has caused wages to increase by significantly more than nominal GDP. Regarding corruption, though informal payments are small (2.2 percent of sales), the time managers spend dealing with government officials is substantial (8.1 percent of an average week). As far as power is concerned, a third of the firms rely on a power backup source (with a much higher incidence among exporters), and 18 percent of all energy requirements of the sector are provided by generators. Of the 30 percent of exporters and 16 percent of nonexporters who tried to acquire land in the three years before the survey, only 65 and 61 percent of them, respectively, were successful. Unavailability of land, unclear ownership, and difficulties involved in registering or obtaining permits were given as significant reasons.

Reducing Inequalities between States by Improving the Investment Climate

Investment climate reforms by Indian states have yielded tangible results. Liberalization policies of the early 1990s have allowed states to play a larger role in determining their development path. As a result, growth accelerated in all the states, but at a faster pace in middle-income states. This trend has resulted in increasing divergence between low-income states on the one hand and middle- and high-income states on the other.

In economic matters, states have substantial autonomy over the reform agenda. Broadly speaking, land and licensing matters are within the realm of state jurisdictions. Infrastructure, labor laws, and vocational education are part of the joint jurisdiction. Telecommunications, the financial sector, customs, environmental regulations, and judicial reforms are under the purview of the union.

States can undertake only so many reforms at a given time; hence, it is crucial to understand which aspects of the investment climate matter most. A comprehensive Investment Climate Index (ICI) was created to help pinpoint the crucial obstacles. The ICI was created as a composite indicator of microlevel investment climate variables drawn from the ICS datasets. These variables measure both the cost and the perception of the investment climate as experienced by small and medium manufacturing and retail entrepreneurs operating in the state.

The ICI compared the 16 states on the basis of their investment climate features and identified three groups of states: best performers (with lower value in the index), average performers, and worst performers. According to the ICI ranking, the states with the best investment climate are Karnataka and Kerala. The average performers are Gujarat, Andhra Pradesh, Haryana, West Bengal, Maharashtra, and Delhi. The worst investment climate is found in Bihar, Uttar Pradesh, and Rajasthan.

The decomposition of the ICI also shows that the main drivers of a better business environment in India are represented by variables associated with infrastructure and institutions. Within infrastructure, power outages emerge as the single biggest constraint, followed by transport problems. Corruption, tax regulations and administration, and security are the biggest institutional constraints. The impact of each

investment climate variable varies by type of state; infrastructure matters most in low-growth and low-investment states, whereas institutions matter equally for low-growth and low-investment states and for high-growth and investment states.

Conclusions

The analysis of manufacturing, retail, and software and ITES firm-level data identified power shortages, lack of access to land and finance, taxes, and skilled labor shortages as the major investment climate obstacles to increased productivity and employment (see table 1.1).

These obstacles have a direct bearing on the three challenges facing the Indian economy:

1. *Formal sector employment* would be greatly enhanced by removing obstacles to productivity and growth in the unorganized manufacturing sector, which employs the vast majority of India's workforce. The analysis suggests that these firms would be willing to become formal if growth were facilitated. The greatest obstacles in this respect are lack of access to finance and unreliable power supply. Moreover, facilitating the emergence of larger retail stores by tackling access to power and land, reducing corruption, and leveling the playing field with respect to taxes will accelerate job creation in the formal sector.
2. *The rising inequalities between states* can be traced to the positive effects of liberalization and investment climate improvement in the fastest-growing states, which have attracted a higher concentration of productive firms. Mirroring these reforms in backward states will be an important step in reducing the inequality. The decomposition of the state-level ICI confirms that variables associated with infrastructure (power, in particular) are key drivers of a better investment climate in India. The analysis also shows that the effect of investment climate variables varies by type of state; infrastructure is particularly important in low-growth states. Moreover, facilitating the formalization of unorganized manufacturing, which is present in most regions, will help reduce disparities.

Table 1.1 Main Investment Climate Obstacles, Identified and Ranked by Sector

Sectors \ Obstacles	Power	Tax rates and administration	Corruption	Skilled labor	Access to land	Access to finance
Organized manufacturing	1	2	3			
Unorganized manufacturing	2					1
Retail	2	3			1	
Software and ITES	2		3	1		

Sources: Manufacturing ICS 2006; Unorganized Manufacturing ICS 2006; Retail ICS 2006; Software/ITES ICS 2006.

3. *Productivity gains* among small, unorganized firms are limited because of the firms' inability to access finance for productivity-enhancing investment. In the software and ITES sector, a shortage of skilled labor and infrastructure are the greatest barriers to moving up the value chain and enhancing productivity. For formal manufacturing firms, red tape, tax and corruption, followed by infrastructure, had the biggest impact on TFP, accounting for 27 percent and 23 percent of the observed variability respectively.

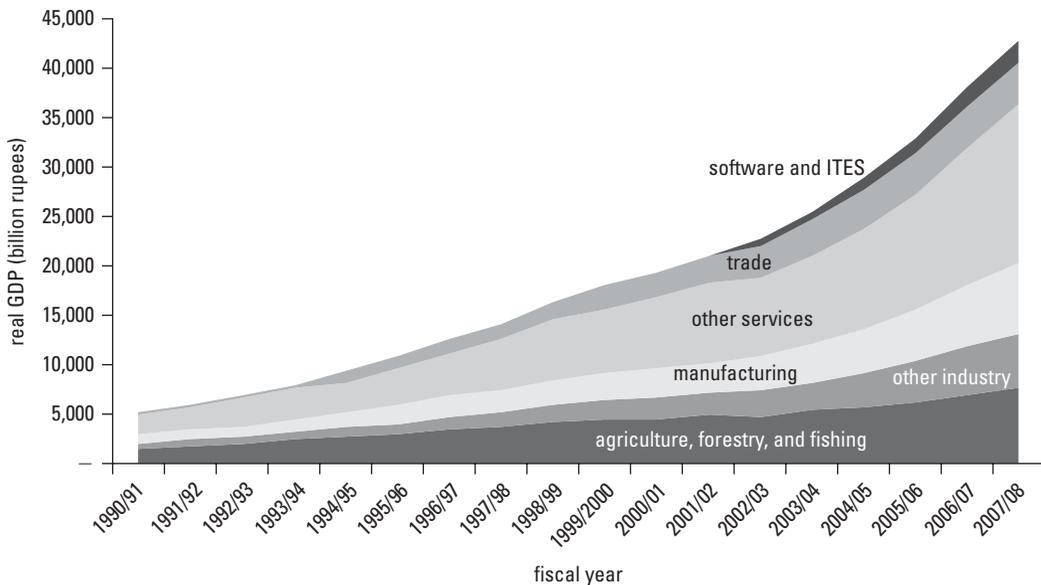
The Indian Economy

Robust Growth, but Challenges Remain

Trends in the Economy

India has emerged in the past few years as one of the world's fastest-growing economies. Gross national income per capita has nearly doubled since 2001/02, going from about US\$400 to about US\$800 (measured using the Atlas method). India has transformed from the world's 50th-ranked economy in nominal U.S. dollar terms in 1980 to the 10-largest economy today. In terms of purchasing power parity, the Indian economy occupies fourth place in the world, after the United States, Japan, and the Russian Federation. Real gross domestic product (GDP) growth for 2006/07 was 9.7 percent, and the advance estimate for 2007/08 is 8.7 percent (figure 2.1). Various observers (for example, Poddar and Yi 2007) estimate that India's potential growth rate is now 8 percent, following a rate of 5 to 6 percent during the previous two decades. A number of important characteristics of India's rapid growth are discussed in this chapter.

The growth of the Indian economy has increasingly been driven by the services and industry sector over the past two decades. Between 2002 and 2006, the real growth of the services and industry sectors averaged around 10 percent, higher than real GDP growth of 9 percent. In the 1990s the services sector grew at an average annual rate of 9 percent, contributing nearly 60 percent of the overall growth of the economy. This growth was led by a continued uptrend in telecommunications subscribers, financial services, tourism, software and information technology-enabled services (ITES), and freight traffic. The services sector now accounts for more than half of total value added and GDP in India, well ahead of China and of most other countries with a similar income level. Industrial growth has also accelerated and is now around 10 percent.

Figure 2.1 Real GDP Growth, by Sector, in India, 1990/91–2007/08

Source: Authors' calculations based on Central Statistical Office 2007.

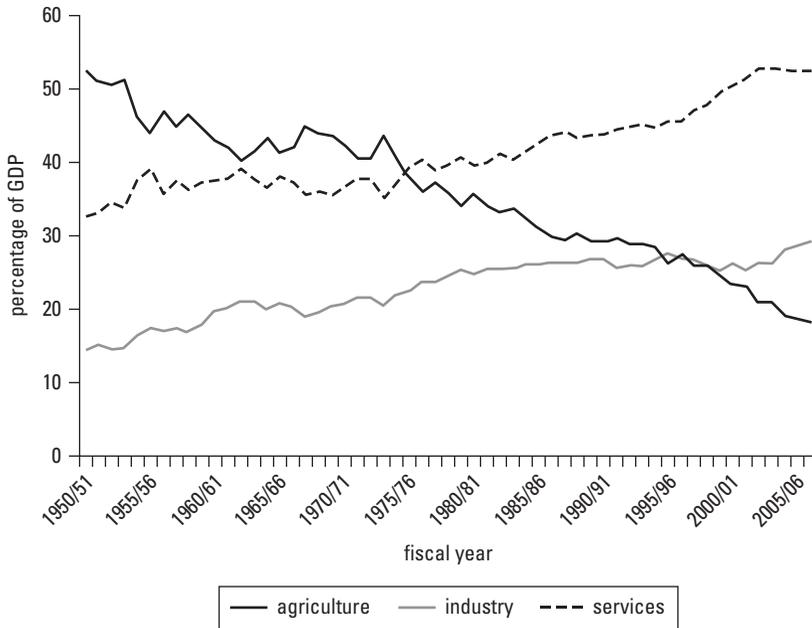
Industry's growth has been led by positive trends across a diverse range of sectors and by the emergence of many new capacities. Following the slowdown of the late 1990s—and especially since 2003—manufacturing growth has resurged within the industry sector, supported by domestic as well as export demand, strong corporate profitability, and resilient business confidence. From 2004 to 2005, manufacturing has posted a growth of more than 10 percent, a substantial improvement from the growth of less than 5 percent in the 1990s. Although the services sector growth rate has been most stable, industrial growth has also become significantly less volatile in recent years.

The industry and the services sectors now account for more than 80 percent of GDP. The growth of services and industry has changed the structure of the economy (figure 2.2). Advanced estimates for 2007/08 show that services (including trade and software and ITES) account for around 53 percent of GDP (figure 2.3). Agriculture is expected to account for 18 percent of GDP in 2007/08; industry (including manufacturing) is expected to account for 29 percent. As the importance of manufacturing and services increases and foreign demand becomes more significant, the growth of the Indian economy depends less and less on the performance of the agricultural sector (see figure 2.2). The agricultural sector, though, cannot be ignored because it still employs more than half of the labor force.

Key Growth Drivers in the Economy

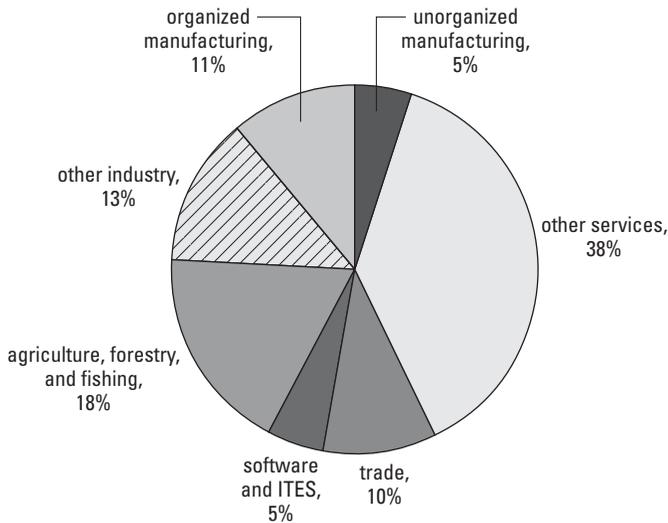
India's overall GDP growth has so far been resilient—with falling volatility—in the face of higher oil prices, rising interest rates, and slowing U.S. growth. The key

Figure 2.2 Structural Change in India, 1950/51–2005/06

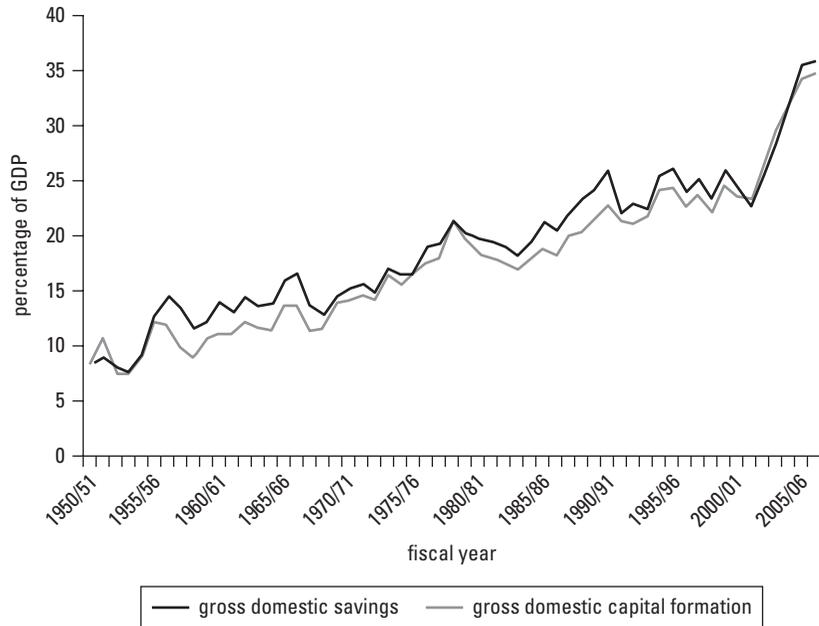


Source: Authors' calculations based on Central Statistical Office 2007.

Figure 2.3 Real GDP Composition, 2007/08



Source: Authors' calculations based on Central Statistical Office 2007.

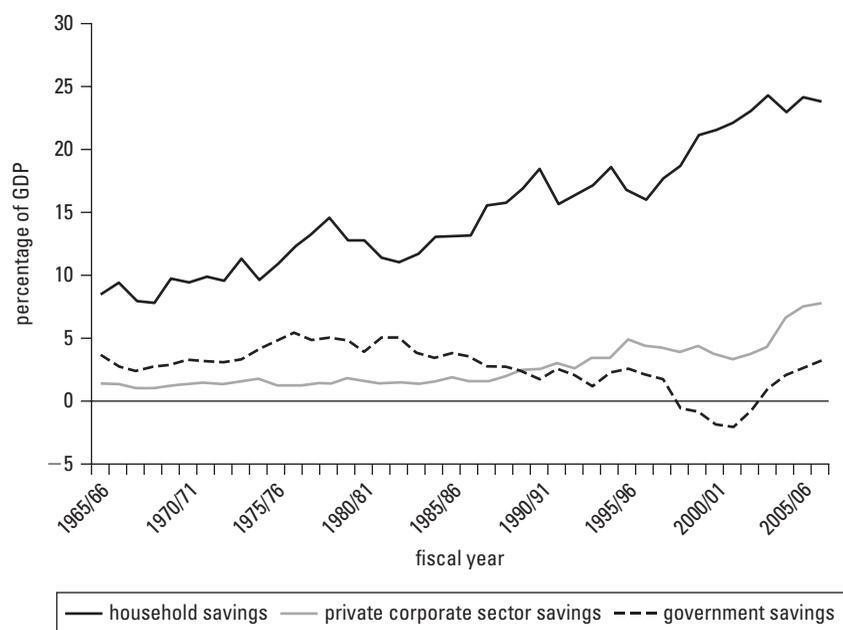
Figure 2.4 Savings and Investments, 1950/51–2005/06

Source: Authors' calculations based on Central Statistical Office 2007.

growth drivers remain the high level of investment and domestic private consumption, but increased productivity and a deeper integration in the global economy have also played a role.

Capital resources committed to India's growth have been on the rise because investments as a share of GDP have increased continually from 2001/02. Following a period of corporate restructuring, investment has boomed on the back of buoyant corporate profits; profitability has recorded growth in the 25 to 60 percent range on a year-to-year basis since 2002/03. The investment rate increased to 33.8 percent of GDP in 2005/06, up from 22.9 percent in 2001/02 (figure 2.4). Sectorally, infrastructure is dominating the scene, with its share in total capital investment being about one-third in recent years. Investment in the manufacturing sector remains strong, and the share of services sector industries in total capital expansion is increasing and accounted for about 15 percent in 2005/06. Investments continue to be driven by the private and household sectors, which now account for 24 percent of GDP, whereas public sector investments have stayed roughly constant at 7 percent of GDP.

Investments have been supported by domestic savings, which are estimated at 32.4 percent of GDP in 2005/06, up from 23.4 percent in 2001/02. This increase is explained largely by the buoyancy of private corporate sector savings (which rose from 3.4 percent in 2001/02 to 7.8 percent in 2006/07). The increase in corporate sector savings is linked to sustained improvements in corporate profitability and

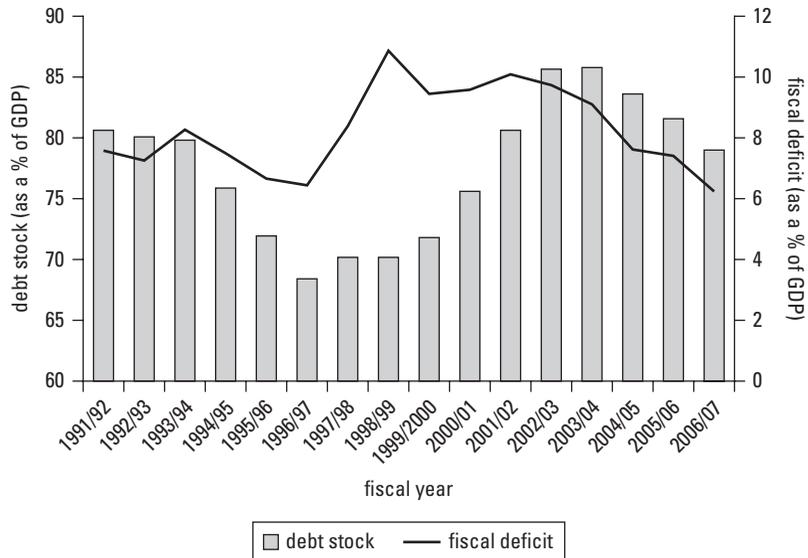
Figure 2.5 Savings as a Percentage of GDP, 1965/66–2005/06

Source: Authors' calculations based on Central Statistical Office 2007.

internally generated resources. Household savings, which were already among the highest in the world, have also grown during the past decade, and savings in bank deposits are rising rapidly; they are estimated to account for nearly 50 percent of all savings in 2006/07, up from 37 percent in 2005/06 because of higher interest rates and the deepening of financial markets (figure 2.5). Investments in equities as a share of financial assets are also rising, although ample room remains for further increases.

A turnaround in public savings (reflecting the fiscal consolidation process) has also played an important role, with a reduction of the budget deficit from 9.5 percent to 6.2 percent of GDP between 1999 and 2007. India's fiscal position remains tight but has shown solid improvements. Although at 6 percent of GDP (2006/07 estimates), the consolidated fiscal deficit¹ is well below its peak of 10 percent (figure 2.6), the debt overhang implies that one-third of revenue is diverted to debt servicing. Fiscal consolidation appears to have taken hold in India through both revenue enhancements and selected expenditure restructuring—at both the center and the state levels—and the Fiscal Responsibility and Budget Management Act targets are on track. Monetary policy has also supported growth, and since mid 2006, all three major credit-rating agencies have upgraded India to investment grade.

Indicative analysis suggests that the acceleration in economic growth in India is increasingly owed to greater productivity growth, rather than just greater use of inputs. There is evidence of a turnaround in productivity levels in manufacturing

Figure 2.6 Trends in Consolidated Fiscal Deficit and Public Debt Stock, 1991/92–2006/07

Sources: Data from the Reserve Bank of India, World Bank Live Database, and Ministry of Finance of India.
 Note: Consolidated fiscal deficit combines states and center budget financing. Data for 2006/07 are estimated.

since 2003. This turnaround is related to the increased efficiency of private sector firms in the face of heightened competition, which has been crucial in raising India's underlying trend growth rate (see International Monetary Fund 2006). Bosworth, Collins, and Virmani (2007) suggest that total factor productivity (TFP) accounted for the bulk of the increase in output per worker in India during 1980 to 2000, higher than in all other regions of the world except China. From a comparative perspective, India has enjoyed better growth in output per worker than have many parts of the world in recent decades. Other studies, summarized in table 2.1 and in box 2.1, also suggest that productivity increases are playing an increasing role in driving India's growth. Despite recent improvements, productivity in many sectors in India is still low compared with other countries and with viable best-practice potential.

Goldman Sachs (2007) suggests that the turnaround in manufacturing productivity has been central to the ratcheting up of productivity growth and that the increased efficiency of the private sector was the principal driver of this turnaround in the face of increased competition and a decade of reforms.² There is also evidence of a steadily declining ratio of net capital stock to value added in industry and of a widening and deepening of the financial sector.

Growth in India has been less capital intensive than in many other countries, partially because it has been led by the services sector, which relies more heavily on labor inputs and less on capital. The productivity of capital use, as measured by the

Table 2.1 India Total Factor Productivity Estimates

Source	Annual average growth (%)			
	1950/51– 1966/67	1967/68– 1980/81	1981/82– 1990/91	1991/92– 1999/2000
GDP	3.8	3.4	5.3	6.5
TFP	1.4	0.7	2.0	2.6
Proportion of GDP growth explained by TFP	38	21	38	40
Virmani 2004	1950–80		1980–2003	
Net domestic product per worker	1.3		2.4	
TFP	0.7		2.4	
Proportion of per worker net domestic product growth explained by TFP	54		69	
Bosworth and Collins 2003	1960–70	1970–80	1980–90	1990–99
GDP per worker	1.9	0.7	3.9	3.3
TFP	0.7	–0.5	2.5	1.6
Proportion of per worker GDP growth explained by TFP	40	negative	64	48
Rodrik and Subramanian 2004	1960–70	1970–80	1980–90	1990–99
GDP per worker	1.8	0.9	3.7	3.3
TFP	1.2	0.5	2.9	2.4
Proportion of per worker GDP growth explained by TFP	67	56	78	73

Sources: Ahmad 2006 and other sources as listed in table.

incremental capital output ratio (ICOR), has been high by Asian standards but is now also showing a downward trend, which reflects an improvement in the productivity of capital.³

India is benefiting from its increasing integration into the global economy. The share of exports and imports⁴ in GDP increased from 17 percent in 1990/91 to around 50 percent in 2006/07. Trade barriers have come down significantly, and Indian exports have increased rapidly over the past 10 years. Exports in India have been growing strongly since 2000/01, posting a 19 percent growth in 2005/06.⁵ Over the same period, the composition of export has also changed; although growing in absolute terms, the share of manufacturing goods in total exports has been declining, from 56 percent to 44 percent because of the rise in service exports. Despite increased integration into the global economy, the share of exports and imports in India's GDP today is only 2.5 percent, compared with China's 10.5 percent. In the future, provided that some of the constraints in this report are addressed, India is well placed to be a much more significant presence in the world market for exports.

Capital flows to India have increased very rapidly, especially in the past two years. Inward foreign direct investment—channeled mainly into financial services, manufacturing, banking and information technology (IT) services, and

Box 2.1 Reforms and TFP during the 1990s

Several studies have found that the effect that the market opening after 1991 had on TFP of firms was positive.^a In a study of 131,558 factories, based on the Annual Survey of Industries, Tata Services Limited (2003) found that TFP growth increased from 0.68 percent per year during the prereform period (1981/82–1992/93) to 0.97 percent during the postreform period (1993/94–2001/02). Similar findings were reported in Unel (2003). The contribution of TFP growth to real output growth has increased as has labor productivity growth.

Pattnayak and Thangavelu (2003) found that reforms in India in the 1990s raised TFP in 10 out of 13 key industries, such as leather and leather products, chemical and chemical products, metal products and parts, machinery and equipment, and electrical and related parts. In comparison, TFP growth in traditional industries, such as food, beverage, basic metal and alloys, wool, silk and humanmade fibers, textiles, and nonmetallic minerals, has either remained constant or declined. Pattnayak and Thangavelu's comparison of technical change before and after the 1991 reforms suggests that the TFP trend in most of the sectors is significantly higher after the 1991 reforms.

There are also indications that productivity has increased most in those sectors that have opened up to the global markets. Topalova (2004) and Goldar and Kumari (2003) found that reductions in trade protectionism led to higher growth of firm productivity. Interestingly, Topalova (2004) showed that while this effect is robust and highly statistically significant for private companies, there is no evidence that trade liberalization leads to any productivity improvements for government-owned companies. This finding suggests that private companies are better able to take advantage of the new opportunities.

Further evidence of the links between productivity and reform has been provided in Dollar, Iarossi, and Mengistae (2002) and in Veeramani and Goldar (2004), who analyzed the influence of investment climate on TFP in Indian states. Using a survey of more than 1,000 manufacturing establishments and controlling for establishment size and industry, Dollar, Iarossi, and Mengistae found that value added per worker is about 45 percent lower in states that business managers consider to possess a relatively poor investment climate. Most of this gap is a result of the lower TFP of firms in these states. The average rate of net fixed investment is less than 2 percent for firms from states with a poor investment climate in contrast to 8 percent for firms in states with a good investment climate.^b

Sources: Dollar, Iarossi, and Mengistae 2002; Goldar and Kumari 2003; Pattnayak and Thangavelu 2003; Topalova 2004; Unel 2003; Veeramani and Goldar 2004.

a. Goldar (2004) and a number of other authors found that TFP growth in the 1990s decelerated. Goldar and Kumari (2003) suggested that gestation lags in investment projects and slower agricultural growth in the 1990s had an adverse effect on productivity growth. The analysis reveals that underuse of industrial capacity was an important cause of the productivity slowdown.

b. Dollar, Iarossi, and Mengistae (2002) found that one-fourth of the TFP gap can be traced to inferior power supply and weak Internet connectivity in states with a poor investment climate. About one-tenth of the gap is due to a higher regulatory burden in those states.

construction—touched nearly US\$20 billion in 2006/07, up from its historic US\$3 billion to US\$4 billion range. Foreign institutional investors made record purchases in the Indian stock market 2007 as the Bombay Stock Exchange's Sensex continued to attain new highs (it was the fourth best-performing market globally in 2007).

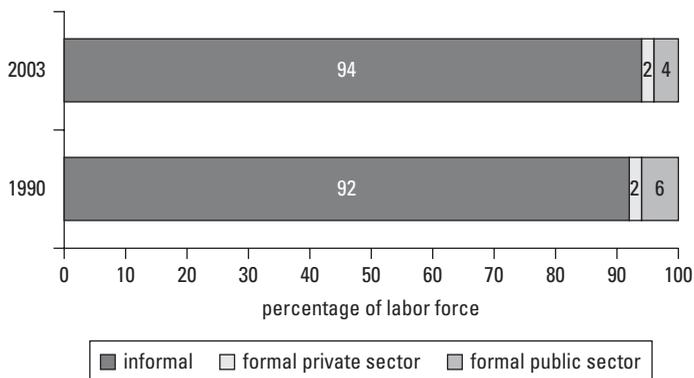
Challenges in the Way Forward

Creating employment in the formal sector, reducing inequalities between states, and accelerating the growth of productivity are the key challenges ahead. Despite its considerable achievements, India will need to overcome significant challenges to maintain growth. Formal sector employment is under pressure from demographics, and inequalities between states are on the rise. Given the record-high investment levels, future growth will depend increasingly on productivity gains.

Creating Employment in the Formal Sector

Employment growth has not kept pace with GDP growth, and most newly created jobs are in the informal sector. Although GDP increased at about 6 percent per year in real terms between 1999/2000 and 2004/05, the annual growth rate in employment for the same period was around 3 percent (NSSO 1984, 1994, 2000, 2005). Moreover, the informal sector continues to generate more jobs than the formal one, with 94 percent of the jobs in the informal sector (figure 2.7). The formal sector share of jobs has been decreasing because of a reduction in public sector employment and sluggish growth in the formal private sector. Jobs in the informal sector, which in India are called “unorganized” jobs, are less secure, give no right to social security, and are not under the purview of the labor laws.

Figure 2.7 Formal and Informal Labor Force, 1990 and 2003



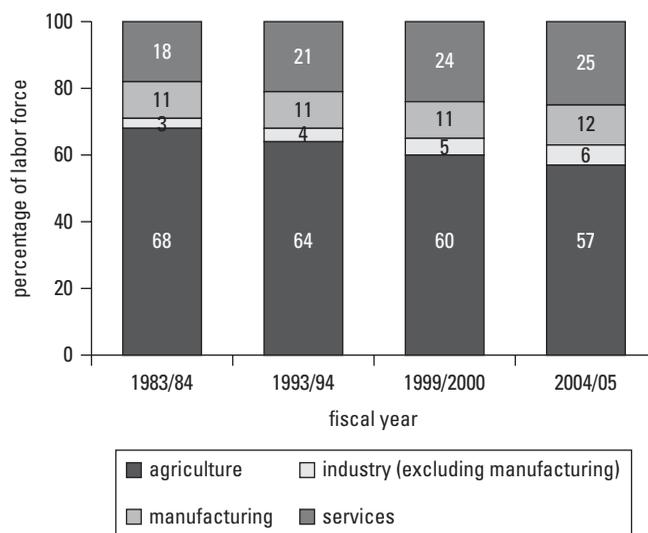
Source: OECD 2007.

Increases in the working-age population and the overall number of employed women put additional pressure on the labor market. Over the past 20 years, the working-age population has increased by more than 60 percent. During the same period, the number of employed women has increased by 47 percent. It is estimated that more than 10 million people will join the workforce between 2005 and 2015.

The composition of employment in India has been slow to change even while the economy has seen relatively significant structural changes. The decline in the contribution of agriculture to the GDP has not been accompanied by a comparable decline in the number of people employed by the sector (figure 2.2). In fact, agriculture is only 18 percent of GDP, but it still employs 57 percent of the working population. In addition, the decline in the share of agricultural employment (from 68 percent to 57 percent) has not been accompanied by an increase in the share of manufacturing employment (figure 2.8; World Bank 2007b). Volatility and low growth of the agricultural sector remain particularly worrisome because almost two-thirds of India's people still depend on the rural sector for their livelihoods.

The reallocation of the labor force from the agricultural sector to other sectors has resulted in increased total productivity because productivity of labor in the informal agricultural sector was far lower than in all other sectors (see table 2.2). In particular, employment growth picked up in the construction and trade sectors as well as in the financial sector, which has high productivity but also limited effect on the overall productivity of Indian labor because it accounts for a small share of employment (see figure 2.9). Much of the labor force, however, moved to informal employment, where the average productivity is still lower than that of formal employment (see table 2.2). More specific information about reallocation of the

Figure 2.8 Evolution of the Labor Force Distribution, by Sector, 1983/84–2004/05



Sources: Authors' calculations based on Guruswamy and others 2005; National Commission for Enterprises in the Unorganised Sector 2007; NSSO 1984, 1994, 2000, 2005.

Table 2.2 Labor Productivity and Employment Shares

	Share of employment (%)		Level of productivity (1999/2000 Rs)	
	1993	2003	1993	2003
Informal sector:	92.6	94.0	20,721	27,958
Agriculture	63.9	57.7	14,745	17,431
Informal other	28.8	36.3	33,989	44,674
Formal sector:	7.4	6	139,663	308,099
Private companies	2.1	1.9	174,220	431,699
Public enterprises	2.7	2	148,215	319,883
Public services	2.5	2.1	101,756	186,891
Whole economy	100.0	100.0	29,475	44,706

Source: OECD 2007 (table 2.1).

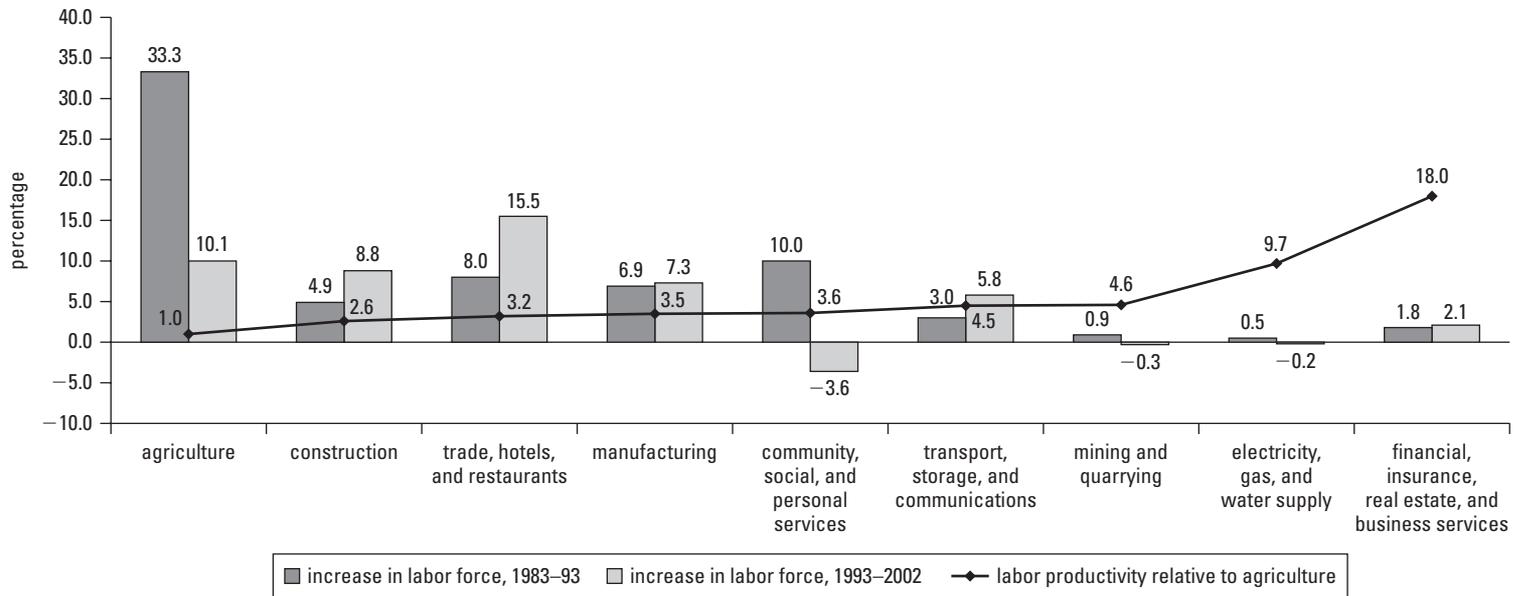
Note: Productivity is computed as net product per person.

labor force in nonagricultural sectors is provided by figure 2.9, which shows that from 1993 to 2002 growth in employment became concentrated in sectors with higher productivity.

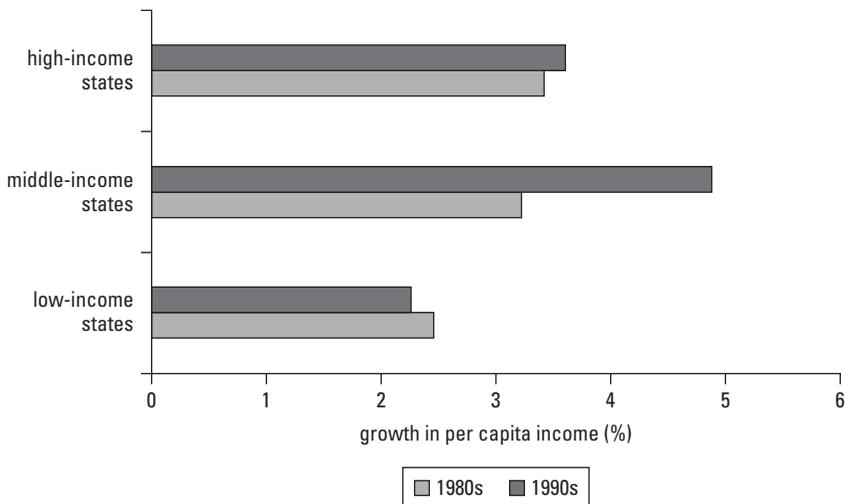
Reducing Inequalities between States

The disparities in the growth performance of Indian states are large and growing. If these differences are to be sustained over time, they could translate into vast differences in material well-being. India's average growth performance conceals very different growth experiences across states. Introduced in the 1990s, the reforms (which liberalized the choice of location for private Indian firms and dismantled investment licensing) were accompanied by a significant shift in growth patterns, which led to a large gap in per capita income growth between the high- and middle-income states on the one hand and the low-income states on the other (figure 2.10). Although growth in the poorer states as a whole did not change much, growth picked up in the high-income states and accelerated significantly in every middle-income state, thanks to continued reforms. In fact, these reforms resulted in a concentration of skill-intensive firms within manufacturing and services in those states that had a better investment climate and that already had industrial agglomerations. Such states thus experienced acceleration in their economic growth (Kochhar and others 2006; World Bank 2008). Lagging states, in contrast, continue to be characterized by low-productivity and small-scale activities, subsistence agriculture, and little urbanization. If these large differences in growth rates between rich and poor states were to be sustained over long stretches of time and low-income states kept falling behind, however, disparities in growth could eventually translate into vast differences in material well-being (most socioeconomic indicators are explained overwhelmingly by income) and possibly social unrest.

Figure 2.9 Productivity Growth and Labor Reallocation in India, 1983–2002



Source: World Bank 2007b.

Figure 2.10 States' Growth in Per Capita Income, 1980s and 1990s

Source: World Bank 2008.

Note: Low-income states are Bihar, Jharkhand, Madhya Pradesh, Orissa, and Rajasthan, and Uttar Pradesh. Medium-income states are Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and West Bengal. High-income states are Delhi, Gujarat, Haryana, Maharashtra, and Punjab.

The growth of labor productivity accounts for most of the differences in growth rates between richer and poorer states; hence, the investment climate matters. If the growth of per capita income is decomposed into its sources, labor productivity growth is found to account for 80 percent of the differences between lower- and higher-income states for the period from 1983 to 2004 (figure 2.11). The effects of the employment rate growth and demographic changes on per capita income growth have been much smaller.

A comparison of the income gap between rich and poor states or provinces in various countries is provided in box 2.2.

Accelerating the Growth of Productivity

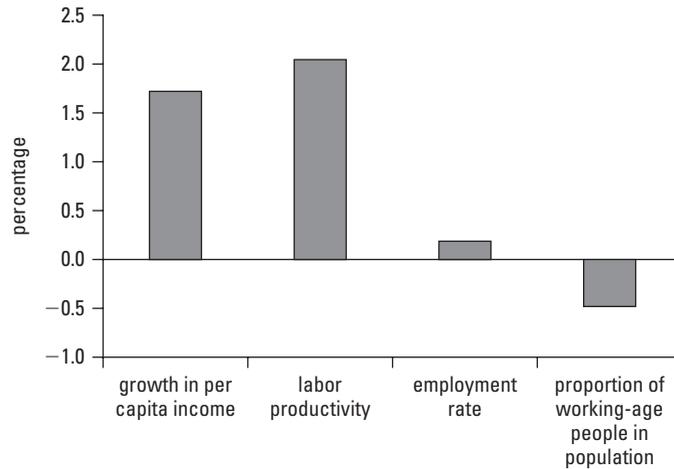
Accelerating productivity growth will be a key factor in sustaining current growth rates. Overall economic growth will depend on either (a) capital accumulation through greater investment or (b) productivity enhancements. However, private savings and investment are already at a record high, and public savings have benefited from an impressive fiscal consolidation process. Nonetheless, the potential to increase productivity is high (figure 2.12).

Focus of the Report

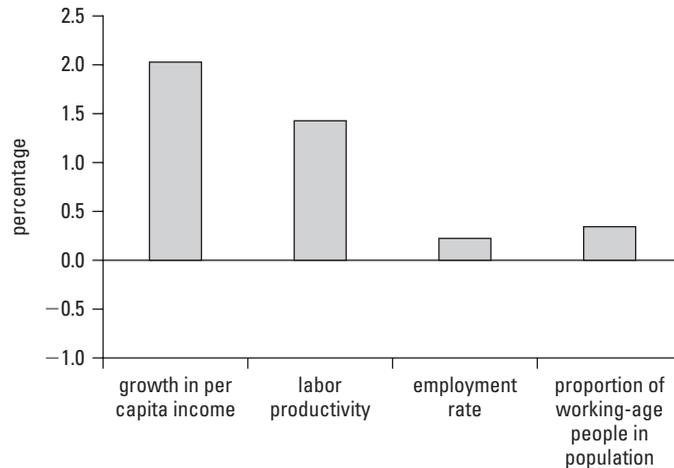
This report focuses on four sectors that are critical to the challenges of increasing employment in the formal sector, reducing inequalities among states, and improving productivity:

Figure 2.11 Decomposition of Differences in Per Capita Income Growth across Groups of States, 1983–2004

a. difference between high-income states and low-income states



b. difference between middle-income states and low-income states



Source: World Bank 2007b.

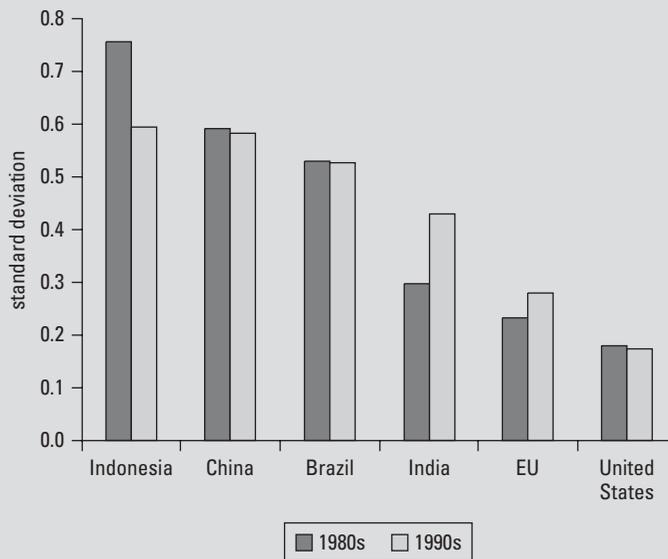
1. *Organized manufacturing.* Manufacturing is the largest subsector contributor to GDP after agriculture. However, its share as a percentage of GDP is much lower than that of other developing countries (for example, 33 percent in China and 35 percent in Thailand), suggesting potential for growth. Moreover, unusual for developing countries, excess labor from agriculture is being absorbed more into services, especially informal services, than into manufacturing, which usually plays a bigger role in creating jobs for semiskilled labor.

Box 2.2 International Comparisons of Income Gaps between States

The comparison between India and other regions is interesting. Even with the increase in income, the current gap in income between the richest and poorest Indian states is much smaller than that of other large federal countries. A comparison of the standard deviation in per capita output among internal provinces, states, or counties within Brazil, China, India, Indonesia, the United States, and the 12 states of the European Union as of 1986 (that is, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom)—all regions with more than 200 million people—reveals that, while the variation in output across states increased in India, it is still substantially smaller than in Brazil, China, and Indonesia, but strikingly larger than the cross-state differences in the United States or the cross-country differences in the European Union (see accompanying figure).

Source: World Bank 2006b.

Standard Deviation of GDP Per Capita in India and Comparator Countries, 1980s and 2000s

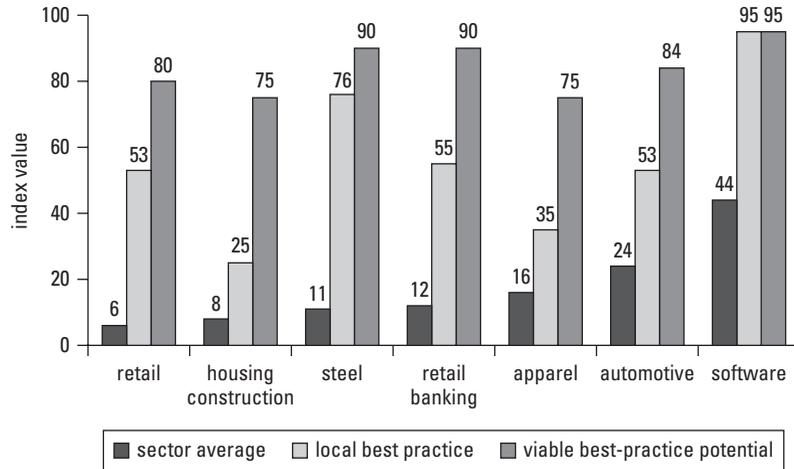


Source: World Bank 2006b.

Note: EU = Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.

2. *Unorganized manufacturing.* Unorganized manufacturing (firms employing fewer than 10 workers—fewer than 20 if the firm does not use power) is particularly important for employment in the manufacturing sector; 74 percent of the manufacturing workers are in the unorganized segment (figure 2.13). In addition, unorganized manufacturing is more evenly distributed across low-, middle-, and high-income states. In 2005, 10 districts alone accounted for 49 percent of

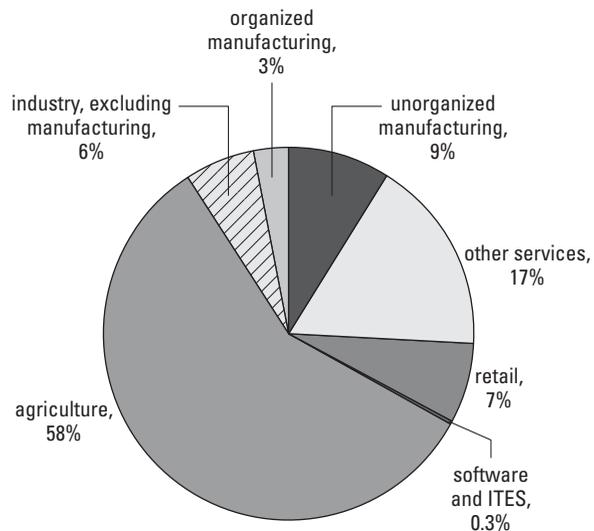
Figure 2.12 Relative Sector Productivities and Potential



Source: McKinsey Global Institute 2001.

Note: The viable local good practice is based on an estimate of how much the productivity of the current good practice in India could be improved by further improving the organization of functions and tasks, larger scale of operations, and so forth. Reported values are indexed to the U.S. productivity level set at 100 for each sector.

Figure 2.13 Labor Force Distribution, 2004



Sources: Authors' calculations based on Guruswamy and others 2005; NASSCOM 2007; National Commission for Enterprises in the Unorganised Sector 2007; NSSO 2005; OECD 2007.

national investment in manufacturing, while in the same year, high-income states accounted for less than half of estimated investments in unorganized manufacturing across all the states. Facilitating the growth of this subsector to organized manufacturing could help promote growth and employment in the poorer states.

3. *Retail*. The retail sector is the fourth-largest contributor to GDP after agriculture, manufacturing, and the financial sector, and its share is growing. Moreover, the structure of the retail sector affects the performance of the domestic supplying industries and agricultural producers. Finally, given the limited capital, land, and skills required, small-scale retailing is often the default employer for people who cannot find employment in the formal manufacturing sector.
4. *IT and ITES*. The fastest-growing sector in recent years has been IT and ITES, and average labor productivity in the sector is much higher than in the other main sectors. Thanks to this growth, the sector is the largest contributor to exports, and in 2005, India became the world's largest exporter of IT- and ITES-related services. In a sense, the sector represents the success story of the liberalization of the 1990s. Hence, an understanding of what has supported this success is crucial to supporting enhanced productivity in the other sectors. This report focuses on ITES and a subsector of IT—namely, software.

Notes

1. Combined for the central government and states.
2. According to Bosworth and Collins (2007), faster growth during 1993/94 was mainly attributable to more rapid accumulation of physical capital stocks (growth at 1.8 percent in 1993/94 compared with 1.0 percent in 1978 to 1993) and stronger TFP growth (2.3 percent compared with 1.1 percent).
3. See Reddy (2006). ICOR is defined as the ratio of incremental capital to incremental output.
4. That is, the sum of export and imports of goods and nonfactor services over GDP at factor cost, measured in current rupees.
5. That is, exports of goods and nonfactor services measured in constant rupees.

Manufacturing

Investment Climate Obstacles to Productivity Growth and Employment Generation

The contribution of manufacturing to employment and gross domestic product (GDP) remains limited in India, and the sector is characterized by growing but still low productivity when compared to the situation in other countries and in other sectors in India. Improving the investment climate is key to increasing productivity. Although the investment climate has improved in recent years, with middle-income states seeing the largest improvement, enterprises nevertheless identified four key constraints to growth: electricity, taxes, tax administration, and corruption. The impact of investment climate obstacles on growth varies across groups of states; differences are most pronounced in areas that are more directly affected by state-level policies, such as power. The investment climate also limits the competitiveness of Indian export manufacturing firms, which face much higher indirect costs than, for example, their Chinese competitors. The analysis draws from the results of the 2003 and 2006 Manufacturing Investment Climate Surveys (ICSs) and data from secondary sources.¹

The Manufacturing Sector: A Potential Driver of Growth

The low share of manufacturing in GDP and manufacturing's limited contribution to employment remain a concern. Within industry, manufacturing's share has decreased from 18 percent of GDP in 1995/96 to 16 percent in 2005/06. This share is much lower than that in other developing and East Asian countries (table 3.1), suggesting room for further growth that could lead to more jobs and greater productivity. The share of manufacturing employment is also low, at less than 15 percent of all employment. Atypically for developing countries, excess labor from agriculture is being absorbed more into the services sector—especially informal services—than

Table 3.1 Contribution of Manufacturing to GDP in Selected Countries and Regions, 2005

Country or Region	Manufacturing, value added (% of GDP)
China	33
India	16
Mexico	18
Thailand	35
East Asia and the Pacific	32
South Asia	16

Sources: Ministry of India 2008; World Bank 2007c.

into manufacturing, which usually plays a much bigger role in creating jobs for the semiskilled. The National Strategy for Manufacturing (National Manufacturing Competitiveness Council 2006) estimates that if manufacturing sector growth can be pushed up to 12 percent, it can generate some 1.6 million jobs annually directly and two to three times this number indirectly.

Productivity is important for increased growth in the manufacturing sector. According to economic theory, economic growth can come from increases in the factors of production, such as labor supply and capital, or from increased total factor productivity (TFP). Virmani (2004) shows that the contribution of TFP growth to economic growth in India fell progressively from 85 percent in 1951/52 to a little more than 25 percent in 1991/92 and then rose sharply to almost 50 percent in 2003/04. As explained by Easterly and Levine (2001), a large body of literature indicates that internationally the bulk of economic growth differences are explained by differences in TFP rather than by differences in physical and human capital accumulation.

To understand what holds back the growth of the manufacturing sector, the World Bank conducted two nationally representative surveys in 2003 and in 2006. The Manufacturing ICS 2003 covered 1,827 firms across 11 industries (garments, textiles, leather goods, pharmaceuticals, consumer electronics, white goods, machinery, auto parts, metal products, chemicals and plastics, and food processing) and 40 cities in 12 states (Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh, and West Bengal). The 2006 ICS covered the same sectors and cities and expanded the sample to include more than a dozen new cities from four additional states (Bihar, Jharkhand, Orissa, and Rajasthan) for a total of nearly 2,300 firms. All the data presented in this chapter refer to data collected through this survey except when otherwise indicated. (Appendix A describes the survey methodology.)

The sector is characterized by low productivity. This situation is particularly problematic for exporters that need to be globally competitive. The labor productivity of the Indian manufacturing industry is low when compared to U.S. levels: the labor productivity of the Indian apparel, steel, and automotive sectors is at 26, 11, and 24 percent, respectively, of that of the United States (McKinsey Global Institute

2001: exhibit 1.10). The Indian manufacturing sector also performs poorly compared with that in other developing countries: in 2006, the value added per worker in India (US\$8,274) was well below the value added per worker in China (US\$12,367) and in Turkey (US\$10,186). The productivity of the manufacturing sector is also very low when compared with that of the Indian software and information technology-enabled services (ITES) sector: average TFP in the manufacturing sector is 4.3, while average TFP in the software and ITES subsector is 35.6.²

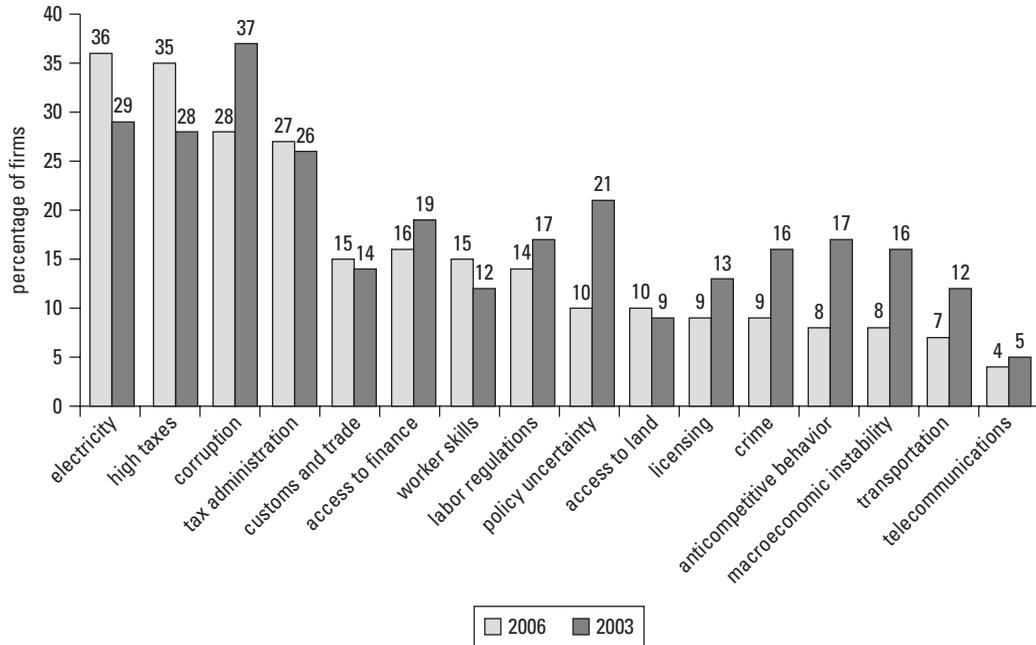
Investment climate matters for productivity growth. It is now well documented that the investment climate of a country can significantly affect productivity: an unfavorable investment climate results in less value added being produced for a given level of human and physical capital (see, for example, Dollar, Hallward-Driemeier, and Mengistae 2005; Escribano and Guasch 2005; Rodrik and Subramanian 2004). Returns to inputs are larger when the investment climate is better, stimulating further accumulation of capital. A favorable investment climate therefore promotes economic growth through a positive influence on productivity.

Firms' Perceptions of Investment Climate Constraints: Power, Taxes, and Lack of Skilled Workforce

With a few exceptions, firms responding to the 2006 survey were less likely to report most investment climate variables as severe problems than those responding to the 2003 survey. This finding suggests that progress has been made on such issues as cost of and access to finance and telecommunications—probably the outcome of reforms in the telecommunications sector and the gradual opening up of the financial sector (figure 3.1). Improvements in access to finance are encouraging because analysis suggests that ability to obtain financing has a large effect on both employment generation and the probability of receiving foreign direct investment (FDI). In 2006, businesses were less likely to be worried about economic policies and macroeconomic stability. They were also, on average, less concerned about corruption and crime. Backing this perception was the fact that the incidence of firms reporting giving “gifts” or “informal” payments to public officials to facilitate business fell from 62 percent in 2003 to 49 percent in 2006. This trend is consistent with that from other sources such as Transparency International’s Corruption Perceptions Index. India’s score on this index improved from 2.7 (out of 10.0) in 2002 to 3.5 in 2007.

Nonetheless, perceptions have worsened with respect to electricity, tax rates, and workforce skills. Electricity was rated a major or severe constraint by 36 percent of respondents in 2006—a sharp increase from 2003. Backing the perception of more significant power shortages is the fact that, for the firms in the survey, as much as 22 percent of all energy requirements came from generator-captive power in 2006, up from 19 percent in 2003. This problem is widespread and not confined to a few states. High taxes were a close second to electricity in terms of obstacles; in 2006, 35 percent of respondents believed taxes were a major problem for growth. Although only 15 percent of businesses listed workforce skills as a major obstacle, this figure represents a

Figure 3.1 Proportion of Firms Reporting Each Obstacle as Major or Severe, 2003 and 2006



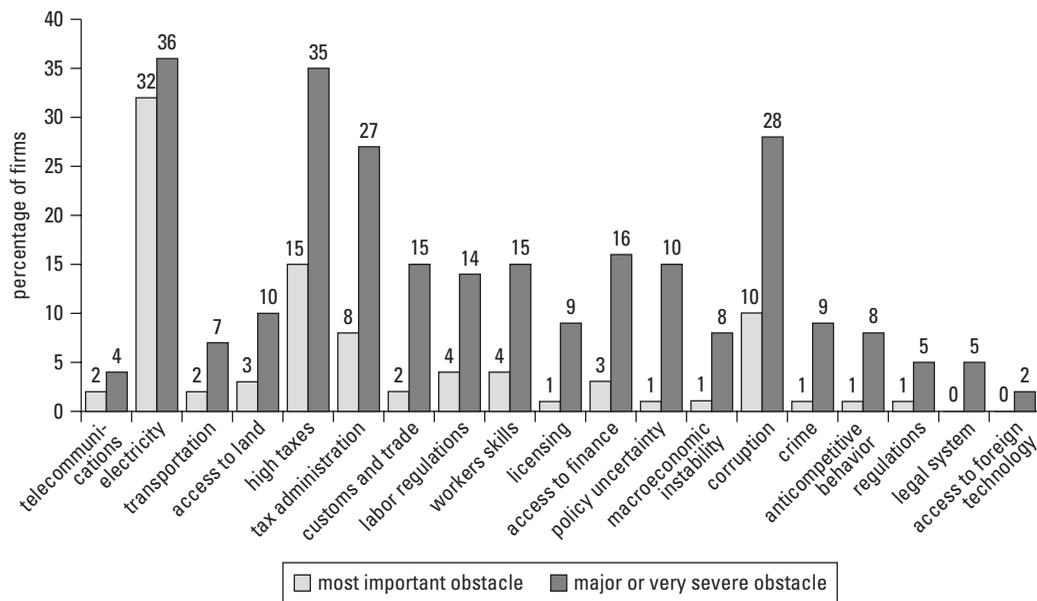
Source: Manufacturing ICS 2003; Manufacturing ICS 2006.

steep increase from 2003; 24 percent of respondents reported unavailability of required skills in the market, and 34 percent of all firms claimed that finding an adequately skilled employee is a lengthy process. These results bring into focus that skill shortages are becoming more pressing with the rapid growth of the Indian economy. Finally, more than a quarter of businesses identified corruption as a major obstacle (figure 3.2).

Electricity, tax rates and tax administration, and corruption are the biggest obstacles identified by manufacturing firms. When asked to name the most important obstacle to growth, 32 percent of managers identified electricity, 15 percent high taxes, 8 percent tax administration, and 10 percent corruption (figure 3.2). A study by McKinsey Global Institute (2001) also identified similar issues as obstacles to growth.³

The key challenges facing the power sector in India are insufficient generation and inefficient and poorly governed distribution, which together lead to low access. On average, firms reported facing power outages 122 times a year, and the median firm reported losing 5 percent of its sales revenue because of this problem. More than half of all enterprises relied on a backup energy source. The situation was worse in the poorer states of India; on average, these firms lost almost 10 percent of their sales because of power shortages, and more than a quarter of their electricity requirement came from their own or shared generators. Public grid power outages raise costs for firms because private sector backup sources cost almost twice as much. Because they invest less in mitigating measures, small and medium enterprises

Figure 3.2 Firms Perception of Investment Climate Variables as the Most Important Obstacle or as a Major or Very Severe Obstacle, 2006



Source: Manufacturing ICS 2006.

suffered higher losses from power outages and surges (only 35 percent of firms with fewer than 20 workers owned generators compared with 85 percent of firms employing more than 100 workers). The average small firm lost 9 percent of its sales because of this problem alone, compared with about 5 percent for the typical large firm.

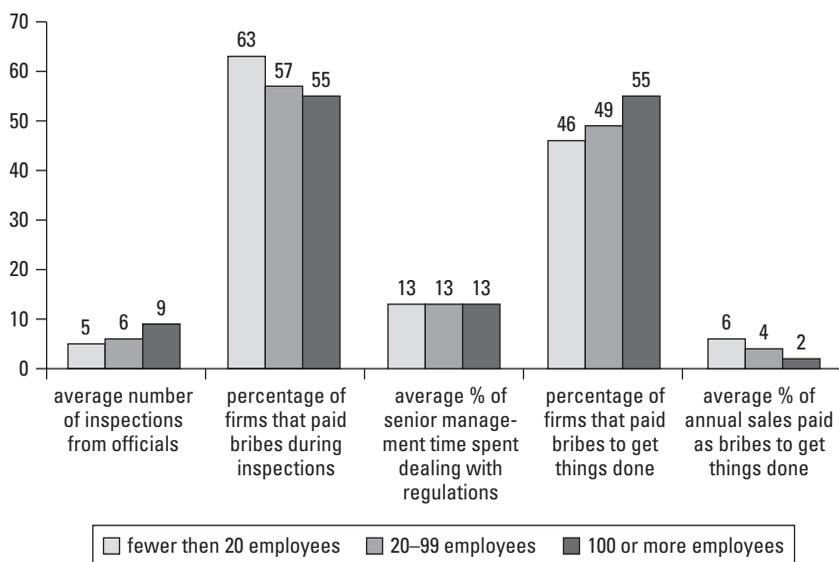
Firms cite high tax rates and inefficient tax administration as a key obstacle to growth. *Doing Business 2008* (World Bank 2007a) provides an additional reason for concern. It finds that taxes are high in India in an international context. A representative limited liability company in India has to pay almost 71 percent of its profits as taxes⁴—a much higher percentage than found in other developing countries, such as Pakistan (40.7 percent) and the Arab Republic of Egypt (47.9 percent). Tax administration is also costly for firms. A representative company in India needs to make 60 payments a year and will spend 271 hours doing so, compared with just 12 hours in a country like the United Arab Republic. Notably, in the Manufacturing ICS 2006, enterprises that complain about tax administration are also very likely to complain about corruption. There has been little reform on this front, yet the issue is important because international evidence at the firm level shows that higher taxes and poor tax administration have an adverse effect on growth and distort financial and investment decisions. High tax rates contribute to the growth of a shadow economy, which carries costs in terms of forgone tax receipts and lower productivity.

Red tape and corruption affect businesses both in terms of how often and how much they have to pay and in terms of the amount of management time spent in

dealing with officials. Informal payments are common for accessing basic services, permits, and licenses from the government. Gifts or informal payments were required in 39 percent of cases for an electrical connection and 27 percent of cases for a water connection. For permits and licenses, informal payments were made in as much as 68 percent of cases for construction-related permits, 46 percent of cases for import licenses, and 55 percent of cases for a main operating license. The typical value of the gift or informal payment expected to secure any government contract stood at 6.6 percent of the contract value. Gifts or informal payments were requested or expected during inspections by 54 percent of tax inspectors, 56 percent of labor officials, 48 percent of fire and building safety officials, 54 percent of sanitation and epidemiology officials, and 59 percent of police officials. Overall, manufacturing firms paid on average 4.9 percent of total sales in bribes. Additionally, senior management spends a substantial amount of time dealing with government officials. Overall, managers of manufacturing firms spent on average 12.6 percent of their work week dealing with government officials.

Corruption hits smaller firms harder. First, though smaller firms are less likely to be inspected, when they are, they are more likely to end up paying bribes (figure 3.3). Second, informal payments often need to be made to “get things done.” Smaller firms are less likely to opt for this route, compared with larger firms, because they are more financially constrained. Their smaller size also means that, relative to sales, the impact of bribes is larger. In the ICS, though larger firms reported paying about 2 percent of their annual sales as bribes, the impact on smaller firms was more than three times that percentage (6 percent).

Figure 3.3 Impact of Corruption, by Firm Size, 2006



Source: Manufacturing ICS 2006.

Figure 3.4 Percentage of Firms Rating Labor Regulations as a Major or Very Severe Obstacle, 2006



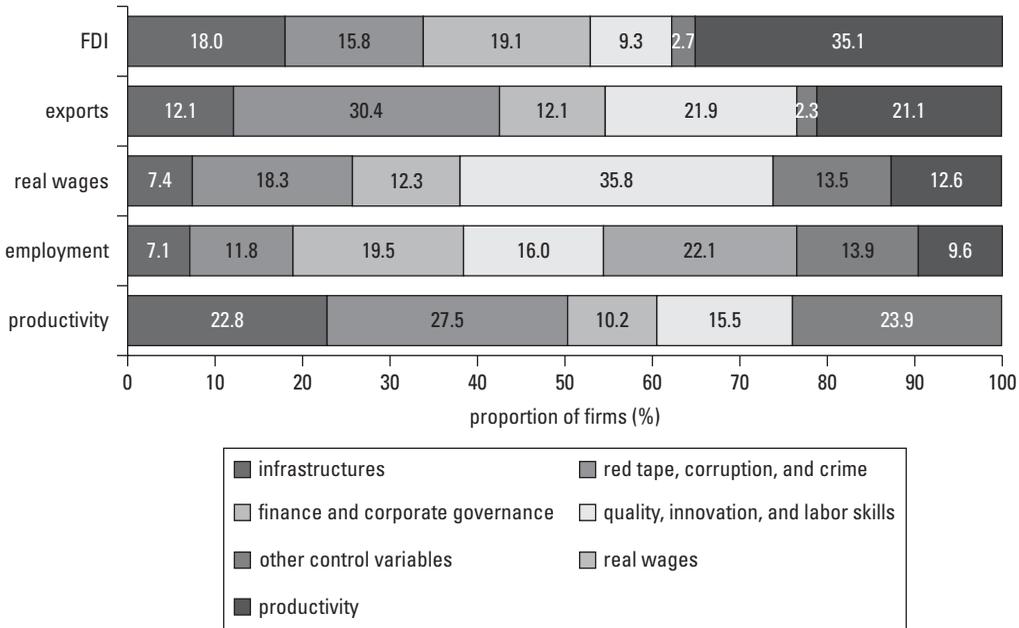
Source: Manufacturing ICS 2006.

Only 4 percent of the firms identify labor regulations as a major obstacle, but the problem is more acute for labor-intensive industry and large firms. On the whole, the proportion of respondents rating labor regulations as the biggest obstacle was low, at 4 percent in 2006. However, almost one-fifth of the smaller (fewer than 100 employees) labor-intensive firms and almost one-quarter of the larger labor-intensive firms reported labor regulations as a major concern (figure 3.4). These regulations also seem to work to restrict workforce growth. Although a very small percentage (less than 3 percent) of firms reported wanting to downsize, almost 16 percent of respondents wanted to expand their current workforce. For enterprises in labor-intensive sectors, this figure was as high as 21 percent. However, among the firms that wanted to hire workers, almost a quarter said they were deterred from doing so by laws and regulations relating to hiring and firing of workers. A further 8 percent were deterred by the mandatory benefits they would have to offer new workers. It thus appears that, in periods of upturn in manufacturing activity, labor regulations serve to dampen employment growth.

Productivity Analysis of the Investment Climate and Firms' Perceptions of Key Obstacles

Econometric analysis provides strong support to the firms' identification of investment climate obstacles. An econometric estimate of the effect of investment climate variables on TFP, employment, wages, probability of exporting, and probability of receiving FDI highlights the importance of investment climate (see appendix B for the methodology). The econometric analysis of the effect of investment climate on firms' performance suggests that a large part (76 percent) of the explainable intrafirm

Figure 3.5 Proportional Impact of Investment Climate Variables on Firm TFP, Employment, Real Wages, Exports, and FDI, 2006



Source: Manufacturing ICS 2006.

Note: The proportional impact of the investment climate and control variable groups is measured by evaluating each estimated equation (productivity, employment, wages, exports, and FDI) at the sample mean while taking the absolute value of the estimated coefficients.

variability in TFP can be explained simply by the differences in the investment climate that firms face. Firm-level characteristics are much less important (figure 3.5).

Red tape, corruption, and crime had the largest negative impact on firm productivity, real wages, exports, and possibility of getting FDI. These factors also are the hardest to circumvent. Red tape and corruption are effectively like taxes, which all businesses end up paying. The costs of red tape and corruption can be high; these investment climate variables explained 27.5 percent of observed productivity differentials among manufacturing establishments (figure 3.5). Productivity was negatively affected by informalities in the relations between firms and the government, such as making informal payments and incomplete tax declarations. Crime also hurts productivity: firms that reported having to hire security generally had lower productivity. Economic theory shows that taxes on firms also end up affecting workers; the analysis of this study confirms that corruption ends up hurting real wages. To the extent that it raises the costs of doing business, corruption also reduces the competitiveness of Indian products abroad and hurts exports. In fact, it is the single biggest investment climate variable affecting export possibility. Red tape also reduces the possibility of attracting FDI.

Poor infrastructure was the second-largest investment climate obstacle, and it affected the most productive firms relatively more. Poor infrastructure accounted for

as much as 23 percent of explained intrafirm productivity differentials in the manufacturing sector. Key variables included the number of days taken to clear customs, power shortages, and inadequate water supply from public sources. However, unlike red tape and corruption, which affected all firms equally, poor infrastructure hits the more efficient firms even harder. It also damages the economy because FDI is less likely to flow to areas with poor infrastructure.

Labor skills, quality, and innovation have a smaller effect on productivity but are more important for the more efficient firms in the economy. Improving the labor quality available to enterprises and stimulating innovation have the potential to raise productivity by as much as 15.5 percent. Firms that trained their workforce, used computers, undertook research and development activities, or accessed technology licensed by foreign companies were on average more productive. This fact was also reflected in the finding that firms better endowed in this respect paid higher wages to workers and were more likely to be exporters.

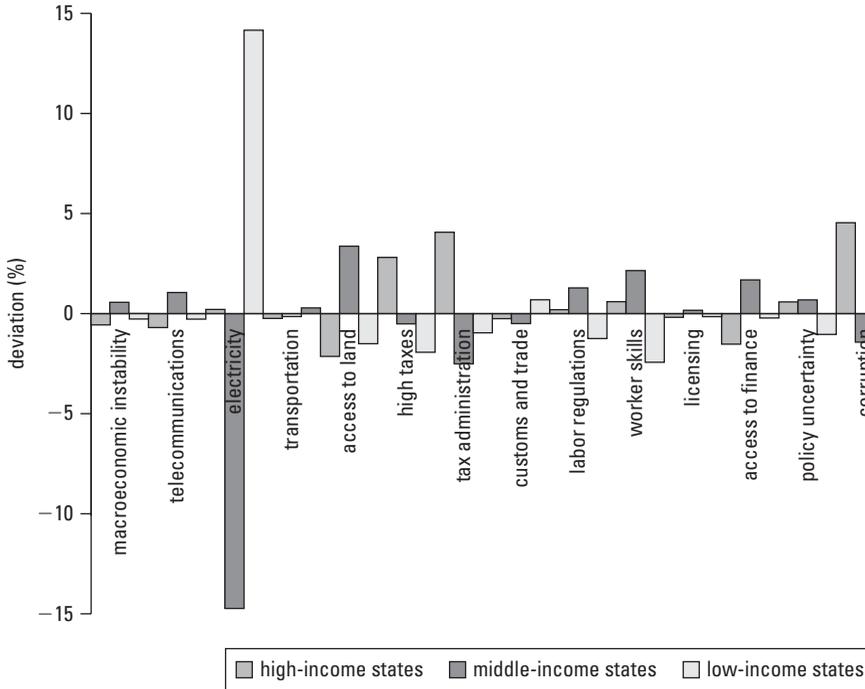
Poor access to finance and corporate governance are associated with relatively small productivity impacts, but they have a large impact on employment growth and the possibility of attracting FDI. The productivity of firms is affected by whether the firms belong to a trade association, have been given a loan, or have had an external audit done. The effects of access to finance and corporate governance on employment generation and on the probability of receiving FDI were large compared with those of other investment climate factors. Firms with better access to finance and corporate governance on the whole had higher employment and were more likely to receive FDI.

Impact of Investment Climate Obstacles on Growth Across Groups of States

The surveys showed large differences across states in the investment climate variables that firms find constraining. Firms in low-income states were more likely to complain about the power situation and less likely to complain about corruption, worker skills, taxes, and access to land than the national average (figure 3.6). Firms in middle-income states, in contrast, were less likely than those in low-income states to complain about power: 14 percent and 58 percent, respectively, make such complaints. They were, however, more likely to complain about issues such as access to land, access to finance, labor regulations, and worker skills. In fact, firms in middle-income states were more likely to complain about tax administration issues and were about as likely to consider labor regulations and labor skills as obstacles as the power situation. In high-income states, relative to the national average, the major issues were corruption and the possibly closely related issues of high taxes and tax administration.

The differences are most pronounced in areas that are more directly affected by state-level policies, such as power. Issues for which there are large differences in perceptions among states are mainly areas that are the domain of the states (figure 3.6). These areas include power, access to land, tax administration, and corruption, which is possibly related to tax administration and inspections. Substantial differences in

Figure 3.6 Deviation from the National Average of Percentage of Firms Reporting Each Obstacle as Major or Very Severe in 2006, by Income Level of States, 2006



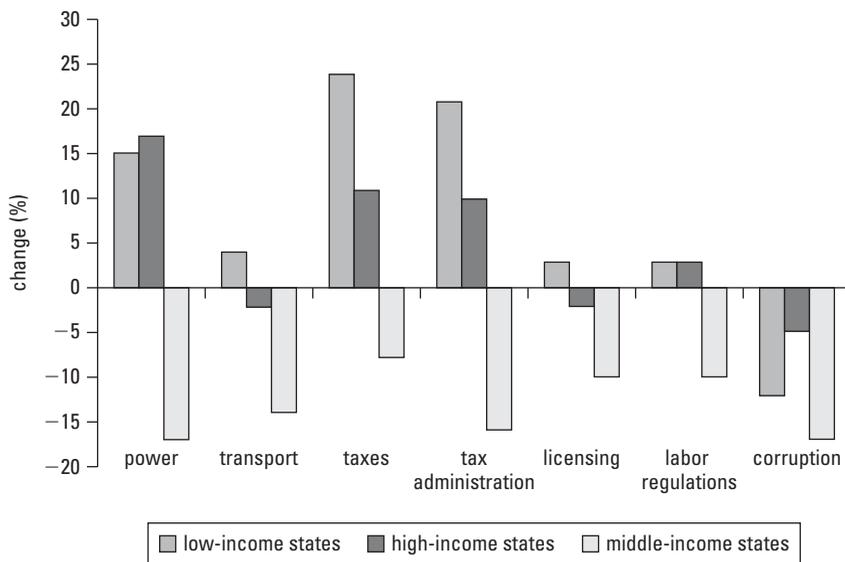
Source: Manufacturing ICS 2006.

access to land and workers' skills are also explainable on the basis of the fast growth of middle-income states in recent years.

Investment climate improvements in the middle-income states drove many of the perceived national improvements. When the 2003 and 2006 surveys are compared, it is clear that all states have benefited from macroeconomic stability. Perceptions have also improved across the board in terms of corruption, crime, theft, and disorder. The effect of financial deregulation—a central subject—has been more mixed; although high- and middle-income states appear to have benefited, enterprises in low-income states still complain more about access to finance. Differences between states were less stark in 2003. However, between 2003 and 2006, middle-income states saw the largest improvements in investment climate variables amenable to state policy. For example, the percentage of firms reporting electricity to be a major issue in middle-income states more than halved, from 31 percent in 2003 to 14 percent in 2006. Perceptions also improved significantly in other areas, such as transport, taxes and tax administration, licensing, labor regulations, and corruption (figure 3.7). In contrast, perceptions on all these factors, except for corruption, worsened (or increased only marginally) both for the low-income and the high-income states.

Objective indicators support the perceived changes in most investment climate variables reported by firms across states. In middle-income states, firms reported

Figure 3.7 Change in the Percentage of Firms Identifying Factor as a Major or Very Severe Obstacle between 2003 and 2006, by Income Level of States



Source: Manufacturing ICS 2003; Manufacturing ICS 2006.

improvements in power, transport, tax, and corruption obstacles, while in low-income states, they perceived a worsening power situation and modest improvements in tax administration. These perceptions are supported by objective indicators that show that the number of power outages faced by interviewed firms in middle-income states decreased from 2003 to 2006 (67 versus 57 percent for national average) and the reliance on generators also decreased (35 percent versus 12 percent for the national average). In low-income states, the average number of power outages decreased by less than the national average (that is, 52 percent) and percentage of electricity provided by generators increased substantially (68 percent). In terms of transport, over the period from 2004 to 2006, middle-income states had the largest highway development, with an average of 316 kilometers added per state.⁵ In tax administration, the number of tax inspections faced each year by interviewed firms in middle-income states decreased from six to three between 2003 and 2006. The average number of tax inspections per year in low-income states also decreased, but by less than the national average (from four to three). The data on informal payments were not comparable across time; however, data on number of inspections, which are often associated with informal payments, show a clear improvement for middle-income states (from 10 to 5 inspections per year). The average amount of management time spent dealing with bureaucracy also decreased substantially in these states, from 27 to 15 percent.

Improvements in the middle-income states in infrastructure are a direct outcome of policy initiatives. Improvements in the power situation of middle-income states

are most likely the result of the unbundling of some State Electricity Boards (SEBs) in such states as Andhra Pradesh and Karnataka and because of the thorough implementation of the Accelerated Power Development and Reform Program (APDRP) in states such as Kerala, Tamil Nadu, and West Bengal. The unbundling of SEBs into separate entities has helped each entity to concentrate on a particular function, to increase efficiency, and to cut commercial losses. Although the APDRP is a national program aimed at increasing investment in power generation and at providing incentives to states that reform the sector, some states have progressed much faster and more thoroughly than others with the reform. As a result of these new policies, and over the period from 2003 to 2006, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and West Bengal have recorded a decrease in aggregate technical and commercial losses higher than the national average: from 36.1 percent to 27.2 percent, from 45.7 percent to 34.7 percent, from 36.2 percent to 32.1 percent, from 20 percent to 18.8 percent, and from 26.6 percent to 23.9 percent, respectively. Improvements in the transport system of middle-income states can be attributed to an increase in capital spending in the road sector.⁶ Middle-income states have spent on average 27 percent of the state's total capital spending in the road sector (as opposed to 12 percent and 13 percent for low- and high-income states, respectively) during the period from 2000 to 2005. In absolute terms, most middle-income states have invested twice as much as low-income states in the road sector during the same period. Such states as Andhra Pradesh, Karnataka, and Tamil Nadu have even higher capital investments in the road sector than some high-income states.

The Investment Climate for Exporting Manufacturing Firms

India's integration in the global economy has increased in the past two decades but is lower than in comparator countries. Exports posted a strong 19 percent growth between 2000/01 and 2005/06. However, integration, as measured by the trade to GDP ratio, is still lower than in other comparator countries, such as China, Mexico, and Turkey, for which trade accounted for 72, 65, and 64 percent of GDP, respectively.

India's integration is also the result of reduced trade barriers. Reforms of the early 1990s reduced licensing requirements, small-scale reservation lists, and tariffs. FDI requirements have been lowered by introducing automatic clearing of FDI inflow and by allowing 100 percent foreign ownership in a number of manufacturing sectors. As a result, FDI inflows had a threefold increase between 2003/04 and 2006/07. The number of sectors reserved to small firms (that is, the so-called small-scale reservation policy) was also significantly reduced—to 35 items in 2006 from 873 in 1990. Finally, tariff rates have been progressively lowered; the highest standard tariff rate for nonagricultural products, for example, was brought down from 35 percent in 2001 to 10 percent in 2007. Despite these improvements, India has still relatively high import tariff rates. The reduction in trade barriers has resulted in a worsened perception of the investment climate in terms of customs and trade (22 percent

of exporters reported trade and customs to be a major or severe obstacle in 2006, while 17 percent did in 2003) because firms are less protected from international competition.

India's export performance in manufactured goods has been modest when compared with the growth of overall exports. Although exports in India have posted strong growth rates since 2000/01, the growth of manufactured goods exports decelerated sharply, posting a 4 percent per year growth in the 2000/01 to 2004/05 period, compared with 14 percent in the 1990/91 to 2000/01 period. As a result, the share of manufactured goods in total exports declined from 56 to 44 percent (World Bank 2007c). Over the same period, exports of nonfactor services grew by 28 percent a year; the segment posting the highest growth was software, which increased its share from 10 to 13 percent of total exports.

The composition of the Indian manufacturing sector changed considerably over the past two decades. Table 3.2 presents the 15 most important manufacturing segments for Indian exports, based on share of total exports in 2006/07; overall they accounted for 70.7 percent of total exports. The sectors with the largest share of world exports in 2006/07 were mineral fuels, pearls and gems, and textile articles (the last sector includes both apparel categories described in the table and "other made textiles," which are not included in the top 15 export manufacturing sectors).

Table 3.2 Top 15 Manufacturing Exports, 2006/07

Industry	Exports share of total exports (%)	Exports share of world exports (%)
Mineral fuels, oils, distillation products, and so forth	14.96	1.07
Pearls, precious stones, metals, coins, and so forth	12.72	6.81
Organic chemicals	4.54	1.92
Iron and steel	4.43	1.70
Articles of apparel and accessories, not knitted or crocheted	4.18	3.32
Boilers, machinery, nuclear reactors, and so forth	4.03	0.32
Ores, slag, and ash	3.86	5.09
Electrical and electronic equipment	3.25	0.25
Cotton ^a	3.11	7.86
Vehicles other than railways, tramways	2.98	0.38
Articles of apparel and accessories, knitted or crocheted	2.86	2.48
Articles of iron or steel	2.69	1.64
Pharmaceutical products	2.52	1.10
Copper and copper articles	2.41	2.25
Plastics and plastic articles	2.17	0.71

Source: United Nations Comtrade Database, <http://comtrade.un.org/db/>.

Note: The graph is limited to the top 15 segments in terms of share in total exports.

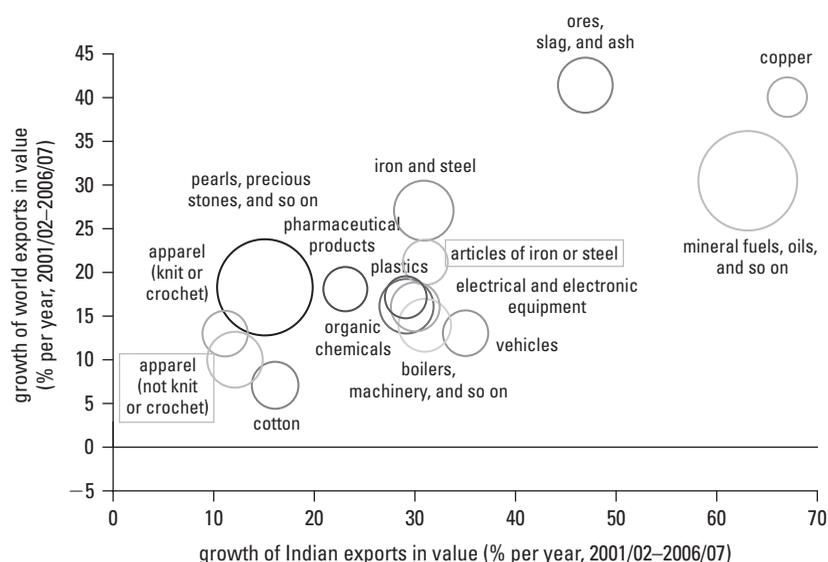
a. This category includes cotton products from uncarded cotton, not combed to cotton yarn. It does not include any textile or apparel products woven with cotton yarn or thread.

Since 2003/04, the mineral fuels and oil sector has gained shares dramatically (from 6 to 15 percent) thanks to the global increase in demand for oil. In contrast, pearls, gems, and precious stones declined appreciably, from 17 to 13 percent, over the same period.

The mix of the top Indian manufacturing exports is dispersed and not focused on unskilled labor-intensive products, where the country has a comparative advantage. India's top manufacturing exports are distributed across many sectors. In fact, India's top nine exporting sectors account for more than 3 percent of total exports; by comparison, China's exports are much more specialized, with five sectors accounting for more than 3 percent of exports (see Kumar and Sen Gupta 2008; Panagariya 2007). Moreover, India's main exports are either capital intensive (for example, mineral fuels or iron and steel) or skilled labor-intensive (such as pearls and precious stones), and most products have low value added.

The majority of India's exports are concentrated in lower growth segments. Figure 3.8 compares each sector's performance in terms of export growth for India with its performance in terms of world exports. The size of each circle represents the sector's export share of India's total export and, therefore, the importance of the sector for the country's exports. The figure shows that most exports, including many important ones, are concentrated in sectors where global trade is growing more slowly, except for mineral fuels and oil.

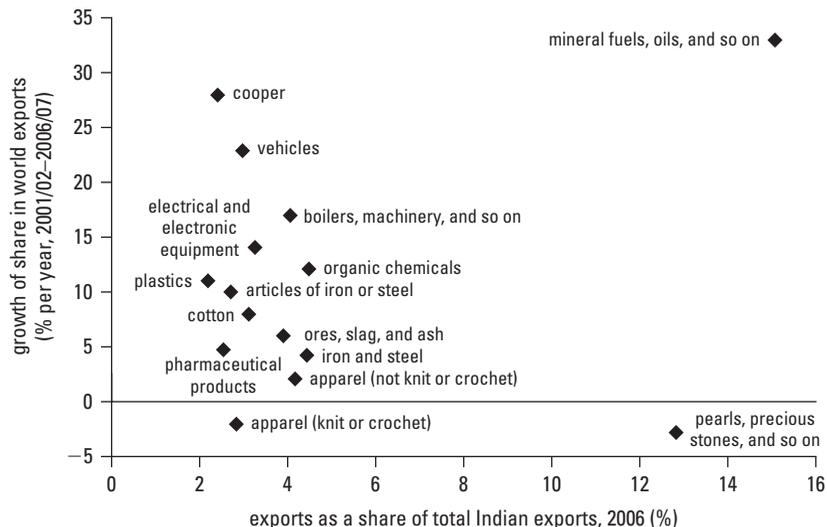
Figure 3.8 Trade Competitiveness: Growth of Indian Exports and Worldwide Exports for the Sectors with the Largest Share of Total Indian Exports, 2001/02–2006/07



Source: UN Comtrade database, <http://comtrade.un.org/db/>.

Note: The graph is limited to the top 15 sectors in terms of share in total exports. Growth refers to the 2001/02 to 2006/07 period.

Figure 3.9 Importance of Largest Manufacturing Export Sectors in the Indian Export Basket and Growth of Sectors' Market Share in the World Export Market, 2001/02–2006/07



Source: UN Comtrade database, <http://comtrade.un.org/db/>.

Note: The graph is limited to the top 15 sectors in terms of share in total exports. Growth refers to the 2001/02 to 2006/07 period.

Moreover, the sectors for which India has the largest share of world exports are losing market share worldwide or improving only moderately. The pearl and precious stone sector and the knitted apparels sector are losing market share; the cotton sector and the ore, slag, and ash sector are increasing at the pace of the sector's worldwide growth or by much less (figure 3.9). Other segments in which India has increased its share in world exports have a relatively small share in domestic exports (copper and vehicles).

The competitiveness of Indian manufacturing firms is assessed for sectors that are performing well in exports and for sectors that are not performing well by comparing their performance with that of the same sectors in other countries. Productivity and costs of exporting manufacturing firms in India are compared with those of other countries to explore whether India's export performance is determined by low competitiveness. The data are drawn from the Manufacturing ICS for India for 2006 and the Manufacturing ICSs for China for 2002 and 2005. The sectors have been selected on the basis of two criteria: sectors in which India's share in world export has been growing (or falling) and sectors that were also included in the ICS of other comparator countries. According to this definition, India is gaining market share in electrical equipment, chemicals, plastics, and vehicles, but not in apparel and leather.

When compared with China's manufacturing sectors, India's sectors are not competitive. Labor productivity and labor costs are summarized in table 3.3 by the ratio

Table 3.3 Value Added per Unit Labor Cost

Sector	Ratio (China/India)
<i>Sectors not gaining market shares in world exports for India</i>	
Garments	1.4
Leather and leather products	2.4
Textiles	81.7
<i>Sectors gaining market shares in world exports for India</i>	
Electric appliances	1.5
Pharmaceuticals	5.0
Plastics and plastic products	14.4
Other chemicals	50.2

Source: Manufacturing ICS 2006 for India; Manufacturing ICS 2005 for China.

Table 3.4 Indirect Costs for Exporting and Nonexporting Firms in India and China

Indirect cost	India (2006)	China (2002)
Losses from power outages (% of sales)	5.0	1.9
Losses in transit (% of average cargo value)	0.5	1.0
Unofficial payments to get things done (% of sales)	3.0	1.1
Losses from theft, vandalism, and arson (% of sales)	1.3	0.1
Cost of providing security (% of sales)	0.5	0.5

Source: Manufacturing ICS 2006 for India; Manufacturing ICS 2002 for China.

of value added per worker to unit labor cost. This ratio accounts for the fact that value added per worker may not be the only indicator of the competitiveness of a country because a certain level of productivity could be matched by an even lower unit labor cost, which would make the country a competitive location for production. By this measure, China is found to be more competitive in all sectors—both those in which India is gaining world market share and those in which India is not.

The poor performance of labor-intensive Indian exports can be explained by the small scale of operations of the vast majority of firms and by stringent labor regulations. The virtual absence in India of the large-scale labor-intensive manufacturing firms that are often found in China results in much lower productivity. The reason for this absence is found in the legacy of small-scale industry reservation and in India's labor laws. In fact, labor regulations are reported as major obstacles by 26 percent of India high labor-intensity exporting firms, but only 12 percent of other firms.

Higher indirect costs also constrain Indian export manufacturing firms more than Chinese firms. Costs borne by exporting manufacturing firms in terms of percentage of sales lost to power outages, losses from theft or vandalism, and bribes paid by firms are larger in India than in China (table 3.4). The investment climate therefore hampers the competitiveness of India's export-oriented manufacturing industry.

Further analysis of competitiveness of Indian exports is needed. The analysis presented in this section is only preliminary, and it aims to draw attention to the important challenges that face the Indian manufacturing sector and that need more detailed study.

Conclusions

Action to improve the investment climate is necessary for manufacturing growth that will support India's growth trajectory and create employment for an expanding labor force. This growth is possible only if both investment and productivity growth in the sector can be increased. In turn, such growth depends on fostering a better investment climate. Investors will be less willing to enter if the general environment is not conducive to allowing them to function in a normal and productive manner. The analysis suggests that almost 76 percent of explained productivity differentials among firms can be traced to the investment climate. Most of these factors, such as infrastructure, the regulatory environment, and the supply of inputs like finance and labor, are beyond the control of individual firms. Improvements in these areas require public sector action.

Despite improvements, businesses continue to complain about poor power availability, high taxes, inefficient tax administration, and red tape and corruption. Compared with 2003, in 2006 enterprises were less likely to complain about macroeconomic instability, corruption, and crime. Their perceptions about telecommunications and the availability of finance also improved. This improvement shows that deregulation and other reforms in these sectors have started to have an influence. However, perceptions have worsened with respect to electricity and tax rates. Another area in which deterioration has been sharp is workforce skills; 24 percent of respondents reported unavailability of required skills in the market, and 34 percent of all firms claimed that it takes too long to find an adequately skilled employee. These areas should now be the focus of attention for policy makers.

Improvements in the investment climate can also help in promoting more inclusive growth by narrowing interstate differences. Differences in manufacturing growth have been important drivers of the divergence in economic growth seen in the 1990s among Indian states. The analysis shows that improvements in the middle-income states drove much of the improvement of the overall perception of the investment climate. The experience of the middle-income states (Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and West Bengal) suggests that this type of improvement is indeed possible.

A better investment climate could also enhance the competitiveness of exporting Indian manufacturing firms. When compared with the manufacturing sector in China, the Indian manufacturing sector is not competitive. The lower competitiveness of Indian firms can partly be attributed to a worse investment climate, as shown by the very high indirect costs faced by Indian firms.

The productivity impacts of a poor investment climate are large. Although poor infrastructure often dominates the public discourse, the analysis shows that red tape,

corruption, and crime had the largest negative impact on firm productivity, real wages, exports, and the possibility of getting FDI. Poor infrastructure came second and accounted for as much as 23 percent of intrafirm productivity differentials. Notably, poor infrastructure availability affected the more productive firms relatively more. Similarly, labor skills, quality, and innovation had smaller effects on productivity but were more important for the more efficient firms in the economy. Poor access to finance and corporate governance had a large impact on employment growth and the possibility of attracting FDI.

Notes

1. The 2006 ICS was conducted in connection with this study. See appendix A for more information.
2. These figures are authors' calculations based on data from the 2006 Manufacturing ICS for India, the 2002 and 2005 Manufacturing ICS for China, and the 2005 Manufacturing ICS for Turkey, as well as from the 2006 software and ITES ICS for India.
3. McKinsey Global Institute (2001) looked at labor productivity rather than TFP and identified red tape, corruption, and crime; labor regulations; and infrastructure as major constraints across the four manufacturing sectors covered by the study. Other obstacles were government ownership (in the automotive and steel sectors), poor governance of state-owned banks, and lack of enforcement of minority shareholder rights (steel sector).
4. Taxes and contributions are measured at all levels of government and include corporate income tax, turnover tax, all labor contributions paid by the company (including mandatory contributions paid to private pension or insurance funds), property tax, property transfer tax, dividend tax, capital gains tax, financial transactions tax, vehicle tax, and other small taxes (such as fuel tax, stamp duty, and local taxes). A range of standard deductions and exemptions are also recorded.
5. This figure is from Indiatat.com, accessible at <http://www.indiatat.com>.
6. Spending in the road sector typically represents 75 to 90 percent of the total spending in the transport sector.

Annex 3.A Obstacle Case Study—Power

The key challenges facing the power sector in India are insufficient generation, limited interstate and regional transmission capacity, and inefficient and poorly governed distribution leading to low access. Although GDP growth has been impressive, inadequate electricity services and power infrastructure compromise India's poverty alleviation efforts, its economic competitiveness, and private investment in energy-dependent industries. Currently, total generating capacity connected to the grid is 140,000 megawatts (out of which 50,000–60,000 megawatts need rehabilitation), but this capacity is insufficient to meet the connected demand for electricity. Captive generation capacity is estimated to be 40,000 megawatts and is generally owned by large firms. Transmission bottlenecks limit interstate trade to 11,000 megawatts, meaning that surplus power from one region cannot easily be transferred to deficit regions. State distribution systems are unable to meet demand. Moreover, there are high system losses (around 40 percent of electricity produced is “lost”). As a result, consumers experience significant shortages and poor supply. Reported peak and shortages (13.8 percent and 9.6 percent, respectively) are higher than five years ago and understate actual shortages (for example, scheduled load shedding is not included). In addition, many people are still not connected; 30 percent of villages and 44 percent of the population still lack electricity.

Lack of investment, unpredictability of fuel supplies and pricing, and limited competition have led to erratic and insufficient power supply, which is cited as the biggest bottleneck to generation capacity expansion. Against a target of capacity addition of 41,110 megawatts during the 10th five-year plan (2002–07), only about 21,000 megawatts were added, and the private sector added only 27 percent of what was expected. In addition, unpredictability in quantity of reserves (attributable to a lack of reliable data and the absence of recent geological surveys) and long time frames involved in the commercial supply of fuels, particularly of coal and gas, are serious barriers to scaling up generation investments. Similarly, long-term clarity on principles for pricing these fuels, determined through a transparent regulatory process, is needed. As a consequence, 60 percent of Indian firms rely on captive or backup generation (compared with 21 percent of firms in China).

In India, the distribution business is largely state owned and undermaintained because of inadequate financial resources. Only in Orissa and Delhi has distribution been privatized. The distribution business suffers from complex challenges of high system losses, political economy issues in tariff revisions, and agriculture metering. As a result, it is unable to fully recover costs, leading to undermaintenance of assets and insufficient new investments. The public sector utilities depend on subsidies from the government budget, thereby adding to the fiscal strain. In 2006/07, the losses in the sector were around US\$6.2 billion.

In addition, weak governance, poor cost recovery, and lack of autonomy are holding back modernization of the energy sector. The system has high distribution losses, and even among relatively advanced reformers (Andhra Pradesh, Karnataka) only 55 to 60 percent of supply is metered. Tariffs are above cost for several consumer categories (industry and commercial entities). However, tariffs are significantly below cost for other categories (agriculture and

households), which represent the biggest share of the customer base. The subsidy benefits are largely untargeted and enjoyed by all consumers within these subsidized categories, irrespective of their income level; this problem has contributed to the deterioration of the financial position of the utilities. Moreover, the majority of the power sector continues to be under state ownership (more than 80 percent across the value chain), with existing state-owned entities not empowered to act autonomously (for example, they cannot set up performance-based remuneration systems or provide market-linked compensation to new employees).

The government of India has recognized the severity of the problems in the sector and has begun to design and implement policies to address them. It has underpinned these policies with financial incentives to (a) improve the efficiency, accountability, and quality of electricity distribution services (contributing to notable improvements in several states); (b) improve the reliability of old thermal power plants; (c) expand investment in renewable energy (growth in wind power is an example); and (d) expand rural access. It has also initiated the preparation of ultra-mega coal-based plants (4,000 megawatts each) for competitive tendering to the private sector.

Going forward, the Indian government intends to increase the rate of investment in the sector, enhance market mechanisms, and modernize distribution. It is framing an ambitious plan of attracting Rupees 120,000 crore (US\$30 billion) of investments per year from 2007/08, seeking to draw an increased portion from the private sector in the form of equity and debt. Under the 11th five-year plan (2007–12), the government expects to facilitate the addition of 78,000 megawatts of generation capacity (including 16,000 megawatts of hydropower), expand interstate transmission capacity from 11,000 megawatts to 37,000 megawatts, assist states in expanding and modernizing their distribution networks, and improve sector governance and finances. Progress in setting up an electricity trading market and in enhancing the entry conditions for large-scale project development (especially the issuance of necessary clearances and easements) before projects are awarded to the successful bidder has lowered the risk for project developers and investors. Moreover, the presence of private distribution licensees in select areas (Ahmedabad, Greater Noida, Kolkata, Mumbai, and Surat) and the recent introduction of franchisees signal a shift in electricity delivery mechanisms, with an added focus on service quality and reduction of commercial losses.

These efforts are beginning to yield results, and the sector's financial performance is showing signs of improvement. Well-structured market transactions for three of the ultra-mega power plants have resulted in significantly more competition than in the past. More villages have been electrified under the 10th five-year plan than under the 8th and 9th plans combined. Availability-based tariffs and tighter performance norms have improved usage factors (plant load factors) of private and central public sector generators. System losses in several states have been brought below 20 percent. First-generation reforms—unbundling, corporatization, and independent regulation—have increased transparency, quality of data, and public awareness of sector performance. Although the level of commitment varies, state authorities are taking the lead in advancing the reform of state utilities and helping state electricity regulatory commissions to strengthen their capacity. Although some states have brought system losses down and improved commercial practices, others have relied more on tariff measures and growth in profitable sales to commercial customers.

However, more needs to be done if India's impressive growth rate is to be sustained. The following steps are essential:

1. *Enhance human capacity across the energy sector value chain.* Power sector investments are expected to increase from current levels of around US\$7 billion per year to around US\$30 billion to US\$40 billion per year by 2012. Efficient project execution of such a quantum leap, backed by an ability to collect money for these additional investments, requires a skills upgrade in the sector. This upgrade is also important given that a number of utilities have had a recruitment freeze since the 1980s, and senior managers in these utilities are likely to retire in the near future, leaving a management void.
2. *Strengthen utility governance and institutional capacity.* Most states have unbundled their power sector or corporatized previously vertically integrated power utilities, set up autonomous regulatory agencies, and in some cases even privatized the distribution business (Orissa and Delhi). However, many newly formed utilities (as a result of the unbundling process) are still not empowered to act autonomously and suffer from severe institutional capacity constraints. In addition, their accountability, efficiency, and customer service are well below industry benchmarks.
3. *Improve targeting of subsidies.* With 40 percent technical and commercial losses, tariff measures need to be accompanied by improved efficiency and accountability, plus a better targeting of subsidies to allow distribution companies (especially private ones) to recover their costs and earn an acceptable return on investments. Low return on investments is one of the reasons (apart from the broader issue of political economy) private companies have shown limited interest in this sector, especially in the distribution segment.

Source: World Bank staff.

Annex 3.B Obstacle Case Study—Corruption

Although numerous administrative commissions have discussed the problem of corruption, there has been little rigorous assessment of its extent and scope. Microlevel studies that examine corruption across India are relatively few. A recent study of the public distribution scheme cited by India's former central vigilance commissioner found that Rs 50 billion of food grain and sugar meant for distribution was lost to corruption, which amounts to just over one-third of the total food grain subsidy for India.

India ranks 88th out of 158 countries on the Transparency International's Corruption Perception Index for 2002 through 2005 and 10th among 15 Asian countries, above only Nepal, Vietnam, Pakistan, Indonesia, and Bangladesh. The report (Transparency International 2005) is the first national-level study on the topic. It assesses the perception of corruption across a range of government services (including police, judiciary, land administration, municipal services, government hospitals, electricity, public distribution systems, income tax, water supply, schools, and rural financial institutions) and tries to quantify the amount of corruption. The survey on which the report is based found that citizens pay bribes amounting to Rs 210.68 million while accessing one or more of these services. As many as 62 percent of the citizens reported firsthand experience of paying bribes and using "contacts" to complete a task at a government office, and three-fourths of citizens believed that corruption had increased in public life over the previous year.

Need-based services are more corrupt than basic services. The study concludes that need-based services (such as income tax, judiciary, and police) are more corrupt than basic services (such as health and education), thanks to the monopolistic nature of provisioning and the fact that officials connected with need-based services are vested with substantial powers, which makes the repercussions of not paying bribes more serious. According to the study, of the services included in the survey, the police in India are seen as the most corrupt, with 80 percent of respondents claiming they had paid bribes. In the judiciary, 41 percent of those who paid bribes did so to influence judgments, 31 percent to speed up or delay judgments, and 28 percent to get routine jobs done, such as listing of cases and gaining copies of documents. According to the survey, the total monetary value of petty corruption is more than Rs 210 billion annually, or approximately 0.75 percent of current national GDP. For perspective, consider that this amount, if distributed equally among the poor, could raise the annual income of each poor person by approximately Rs 850 and approximately halve the national poverty headcount ratio.

Many incentives in the system facilitate corruption. Although human greed is the obvious driver of corruption, structural incentives, such as the following, facilitate it:

- *Complex and nontransparent administrative systems of command and control.* For example, official bodies responsible for investigating corruption allegations are typically part of the administration and thus are widely perceived to lack independence and autonomy; investigation of senior officials requires permissions that amount to interference; and resources invested against corruption are too limited.

- *Poor enforcement systems.* For example, the Central Vigilance Commission, which is the main agency of enforcement in the central government, remains constrained by the limitations imposed on it by the Central Vigilance Act and the jurisdiction of the government of India under the constitution, wherein law and order is a state subject. One result is that the Central Bureau of Investigation has filed more than 6,000 cases, of which about 50 percent have been pending for more than five years, while the criminal rate of conviction in India is about 6 percent.
- *Weak notion of citizens' rights.* For example, laying down a statutory right to information has been a very significant reform in public administration in India, but its implementation across the country is facing a number of constraints, given the vested interests at every level.

Sources: Chand 2006; Transparency International 2005.

Unorganized Manufacturing

Facilitating Entry to the Formal Sector by Removing Obstacles to Growth and Productivity

The unorganized manufacturing sector in India employs a vast majority of the manufacturing workforce, but it is characterized by low productivity and wages. A survey conducted for this study shows that there is considerable potential to improve both employment and productivity in this sector. Access to finance remains the major constraint to the operation of firms. As a result, enterprises are credit constrained and have difficulty investing in machinery and equipment. Analysis of the survey results shows that firms that are able to borrow from formal sources have 37 percent higher labor productivity than firms that cannot. Lack of a reliable power supply is the second-largest constraint. Firms get around this problem by employing more workers but pay a price in terms of profitability.

Importance of Unorganized Manufacturing

Unorganized manufacturing employs the vast majority of India's manufacturing workforce. In 2000/01, almost 99 percent of manufacturing enterprises and 74 percent of the manufacturing workers were in the unorganized sector (see box 4.1 for a definition of *unorganized sector* in India). Employment and wages in the unorganized sector grew over the 1990s, while they stagnated in the organized sector (Malhotra and others 2006).

Unorganized manufacturing is also more evenly distributed regionally than organized manufacturing. Large-scale organized manufacturing activity is highly agglomerated in a few areas and has become even more concentrated since the reforms of the 1990s. In 2005, 10 districts alone accounted for 49 percent of national investment in manufacturing (Chakravorty and Lall 2006). New investment has favored states with large manufacturing bases (Bhaumik, Gangopadhyay, and

Box 4.1 What Constitutes Unorganized Manufacturing in India?

The most commonly used definition of the *unorganized sector*—the definition used in this report—flows from the Indian Factories Act, 1948, which requires that an enterprise register with the state government if it employs 10 or more workers and uses power or employs 20 or more workers and does not use power. Units that do not come under the purview of this law constitute the unorganized sector.

Businesses that are organized are required to comply with health, safety, and welfare requirements. Firms are required to contribute toward insurance against sickness, disability, and maternity and to deposit linked provident funds or pension schemes. The state monitors compliance through a system of inspections. Unorganized firms largely fall outside this system, except for a few omnibus regulations pertaining to use of child labor, minimum wages, and workplace safety.

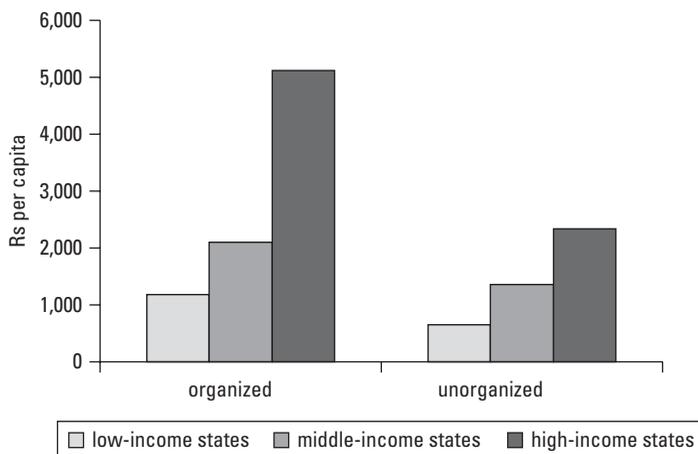
Krishnan 2006), existing industrial clusters, and locations with easy access to the coast (Chakravorty and Lall 2006).

Low Productivity, Low Wages, Weak Skill Levels, and Limited Integration with Large Supply Chains in Unorganized Manufacturing

Unorganized manufacturing performs worse than organized manufacturing in terms of productivity and, hence, jobs and wages. Differences in performance between organized and unorganized firms are to be expected, but the peculiarity of India is the large productivity differential between the largest and the smallest groups. These differentials are of the order of eight to one, compared with three to one in Japan before its post–World War II era growth or in the Republic of Korea during its early stage of development (World Bank 2007b). Productivity is often a good proxy for assessing how well enterprises use existing knowledge. Firms with higher productivity presumably have absorbed or developed superior production and management technology. Thus, absorption needs appear greatest among small enterprises. Productivity differentials are also reflected in wage differentials. Little, Mazumdar, and Page (1987) estimate that after controlling for human capital attributes, workers in larger enterprises earn wages three times higher than those of similar workers in the unorganized sector.

Per capita output across states varies more in organized manufacturing than in unorganized manufacturing (figure 4.1). This finding may be related in part to the fact that the relatively lower capital requirements for starting an unorganized enterprise allow a larger pool of entrepreneurs to start businesses. It also may be that agglomeration externalities (that is, the gains from concentration in a cluster) are less important for the smaller manufacturing firms. Nonetheless, interstate differences in the size of unorganized manufacturing are still quite large, suggesting

Figure 4.1 Per Capita Manufacturing Output, Organized and Unorganized Manufacturing, 2004



Sources: Central Statistical Office and World Bank estimates.

that state-level policies and the prevailing investment climate have an effect even on this sector.

To understand what hampers the productivity of the segment and whether firms avoid becoming organized and growing, an enterprise survey was conducted in 2006. The Unorganized Manufacturing Investment Climate Survey (ICS) covered 1,500 enterprises in five major industrial clusters in India: the Delhi–national capital region, Howrah, Hyderabad, Ludhiana, and Mumbai (see appendix A for a full description of the data and methodology). Enterprises have been divided into three subcategories: *household* (enterprises operating out of a home and employing hired workers), *tiny* (enterprises employing fewer than 6 workers), and *micro* (enterprises employing 6–10 workers). All the data presented in this chapter refer to data collected through this survey except when indicated otherwise.

The average age of firms in the sample was around 13 years, though there was some variation across industries. At the same time, more than 50 percent of firms in the sample were less than 10 years old, which suggests that a large number of firms tend to fail within the first 10 years. The data also show that a significant proportion of older, more established enterprises tend not to grow above the 10-worker threshold. More than 90 percent of the firms in the sample were single proprietorships, and the remaining 10 percent were partnerships. The incidence of female ownership was low in the sample group—only around 7 percent—and was highest among household enterprises.¹

Most enterprises were operated out of fixed premises, with unclear land titles being less of an issue. In India, a nationwide survey of unorganized manufacturing in 2001 conducted by the National Sample Survey Organisation (NSSO) found that almost 94.5 percent of urban unorganized manufacturing enterprises operated out of permanent structures and from fixed locations (NSSO 2001). The current ICS

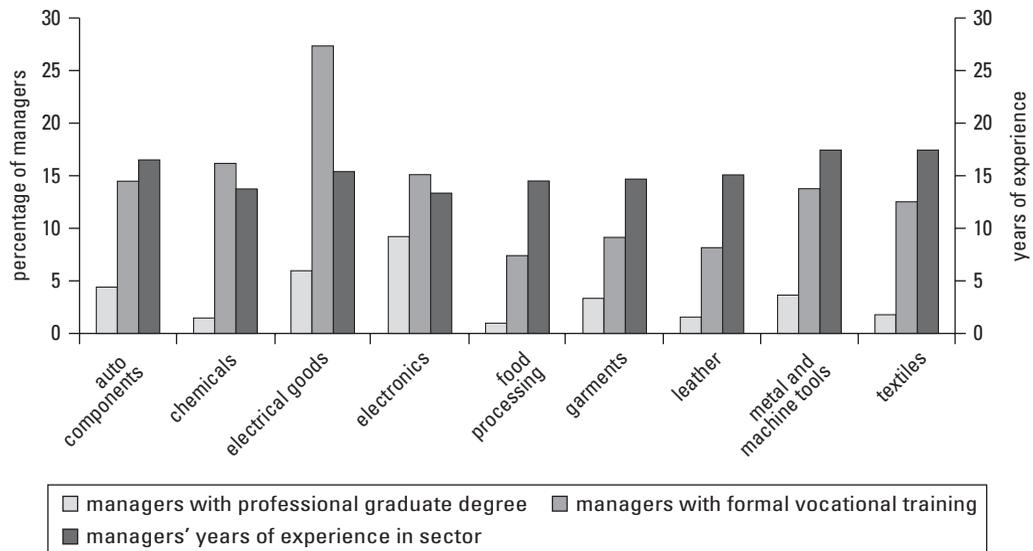
also found that most enterprise owners either owned (51.3 percent) or leased (47.5 percent) their premises. Out of the total sample of 1,500 enterprises, there were only six cases in which ownership of land was reported to be unclear.

Small enterprises catered mostly to other small firms and were not well connected with larger firms. Links between large and small enterprises can lead to productivity gains through technology transfer. Traditionally, however, the links between the organized and unorganized segments in India have been weak. Much of the manufacturing activity in the unorganized sector is geared toward producing final products for the consumer market rather than intermediate products and parts for the organized sector (Papola 1991). ICS results show that only 4.6 percent of firms reported that their main clients were larger firms. For 80 percent of firms, the main clients were either other small firms or individuals. This situation could also be explained in part by the small-scale reservation policy, which aimed to expand employment opportunities and production of consumer goods in the small sector. On the basis of this policy, the government restricted the entry of large players for as many as 873 items. The government has been phasing out this policy, and 35 items are still on the reserved list. Nevertheless, reversing the impact of the policy on links between firms will take some time.

With respect to education, most owners had not received formal training, the workforce in the enterprises was reasonably well educated, and part-time workers were used to deal with seasonality. In the ICS, 42 percent of owners were high school educated, and another 19 percent had general graduate or postgraduate degrees. Only 3 percent had professional graduate degrees. Formal vocational training was not common: only 12 percent of owners had received any formal training, mostly in technology-intensive industries, such as electrical goods and chemicals (figure 4.2). At the same time, the average manager reported around 16 years of experience, which did not vary much by industry. Years of managerial experience in the sector generally exceeded the age of the firm, suggesting that most owners had some experience before they set up their own enterprise. Half of the enterprises (50.3 percent) reported that their average worker had 7 to 12 years of education (that is, a secondary school-level education). On average, female, full-time employees constituted less than 5 percent of the total workforce, with the highest percentage in the garments and electronics industries. Family labor was important only in the garments and leather industries, and it was lowest in the chemicals industry (figure 4.3, panel a). Activity in many sectors varied over the year, and firms seemed to use part-time workers to deal with this seasonality.² There is a very close correlation between reported output variability and the use of part-time workers (figure 4.3, panel b).

Benefits of Becoming Organized and Why Some Firms Remain Unorganized

Being part of the organized sector, often referred to as the *formal sector*, has its benefits. However, international experience suggests that, despite the advantages,

Figure 4.2 Management Qualifications and Experience, by Industry, 2006

Source: Unorganized Manufacturing ICS 2006.

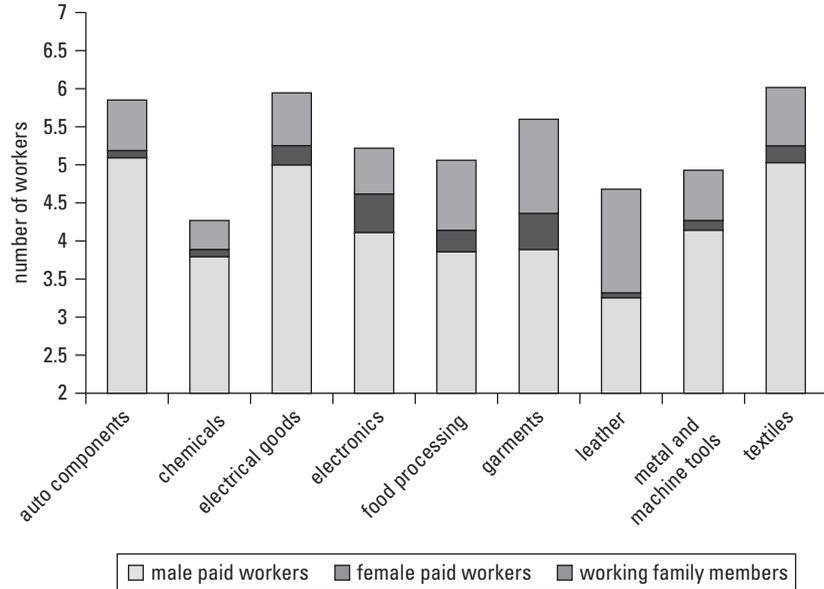
unorganized enterprises often wish to remain informal. Firms that are not registered with government authorities often suffer because of lack of legal status and bargaining power. Consequently, they may have less access to finance or can get it only at a high cost. They may also face difficulties in accessing business services, such as insurance or legal services. However, firms often prefer not to register or grow because they must then pay taxes and be subject to environmental and health and safety regulations. Sometimes larger firms are also more subject to bribes as they become more visible. In India, the 10-worker threshold is especially important because labor laws on wages and benefits are applied to units *above* this critical size. Enterprises graduating out of the unorganized sector thus face extra costs and lower flexibility, which encourage them to remain under the limit.

Firms can avoid being part of the organized sector in two ways: (a) by operating without detection by simply not registering or (b) by not growing. In India, firms with more than 10 employees must register with the state government if they are to comply with labor laws. In addition, all businesses need to register with the municipality to get industrial and electrical connections and to pay excise taxes.

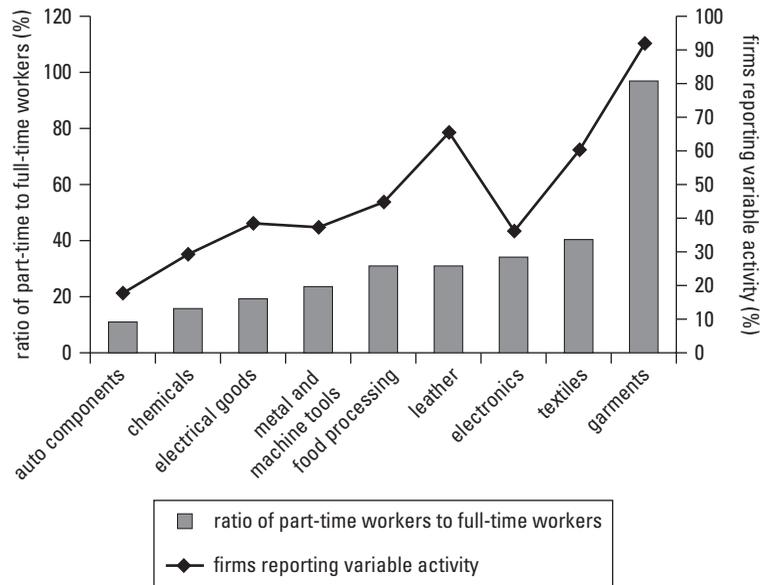
Nonetheless, a large number of firms were registered with some government authority and hence were not strictly beyond detection. Registration with tax or municipal authorities confers a measure of visibility to firms. About 41 percent of surveyed household enterprises reported being registered with a municipal agency, and 38 percent reported being registered with a tax authority. Almost three-fourths of microenterprises were registered with some municipal agency, with the relevant tax authorities, or with both (figure 4.4). This finding is at variance with the NSSO survey, which found overall that 80 percent of unorganized enterprises were

Figure 4.3 Full-Time and Part-Time Workforce, by Industry, 2006

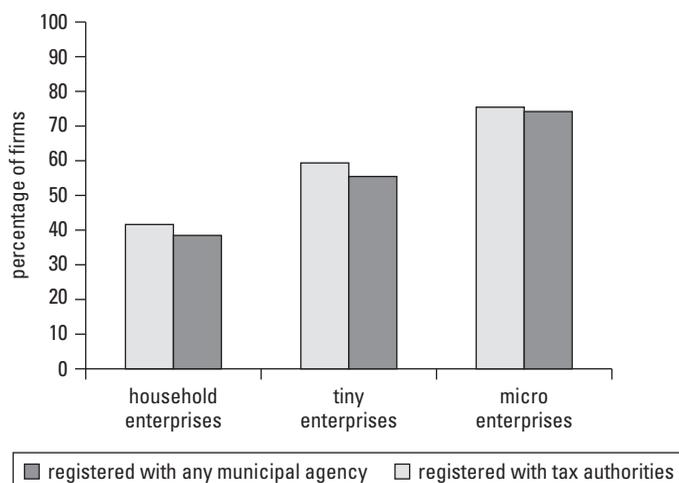
a. Full-time workforce



b. Ratio of part-time to full-time workers



Source: Unorganized Manufacturing ICS 2006.

Figure 4.4 Surveyed Firms Reporting Themselves as Registered, 2006

Source: Unorganized Manufacturing ICS 2006.

unregistered (NSSO 2001). The apparent difference between the two surveys may be because the ICS covered enterprises in major industrial clusters in urban locations, whereas the NSSO survey also covered rural enterprises. The chosen clusters were also often in states that did better even in the NSSO survey. Interestingly, most of the enterprises that reported themselves as not registered (83 percent) claimed that they did not think that they were required to do so. These two points suggest that a significant number of eligible enterprises are willing to be registered.

Moreover, the vast majority of unorganized establishments declare most workers and sales for tax purposes. Between 64 percent and 78 percent of unorganized firms in the ICS reported that a typical establishment declares 80 to 100 percent of sales, and between 77 percent and 89 percent of those firms reported that a typical establishment declares 80 to 100 percent of the workers. This result, which is somewhat at odds with the common perception of the unorganized sector, may reflect, in part, the fact that the sample was drawn from large industrial clusters. The surveyed firms may be more growth oriented and less survivalist than the average unorganized firm—and possibly more visible than enterprises located outside such clusters.

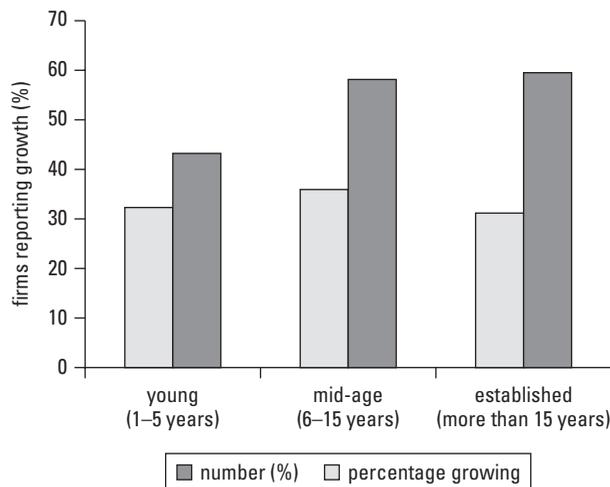
Firms that did not register failed to do so mainly because they lacked information or because the process took too long. Despite knowing that they were required to register, the largest percentage of firms attributed their unregistered status to lack of information about the process. Firms also did not register when it was costlier for them to do so, in terms of either resources or time (the average time to obtain an operating license varied from a low of five days in Ludhiana to about 67 days in Delhi). Registration rates were strongly negatively correlated with this timing (correlation of -0.58). Finally, a small proportion also reported that they failed to register because they wanted to avoid paying taxes.

A large number of enterprises started on a small scale and grew into organized manufacturing. The survey instrument for organized manufacturing firms asked respondents the workforce size when the enterprise began its operations, as well as the current workforce size. This information provides an opportunity to track firms' growth: a relatively large number of organized enterprises started life as small units, around 30 percent of organized enterprises started as microenterprises, 16 percent began as tiny enterprises, and 1 percent began as household enterprises.

Unorganized enterprises also stand to benefit from scaling up. An analysis of Indian firms' productivity and employment from the Unorganized Manufacturing ICS shows that a 1 percent increase in labor productivity, if the rest of the variables are kept constant, will generate a 0.91 percent increase in employment hours (see appendix B). The implication is that firms that become more productive tend to expand and employ more people. The survey shows that older, more established enterprises do tend to grow (figure 4.5). Around 58.5 percent of the interviewed firms reported having grown in terms of employment from the time they started operations.³ On average, growing enterprises added 2.6 full-time, paid workers to their payroll.

The investment climate is an important factor affecting the potential productivity growth of unorganized manufacturing. The productivity analysis shows that investment climate and control variables explain 19 percent of the variation in labor productivity. This relatively low contribution of investment climate variables reflects the fact that the explanatory power of the model is limited because unorganized manufacturing firms, thanks to their size, can operate outside of the investment climate and because unobservable factors, such as labor and managerial quality, play

Figure 4.5 Enterprises Reporting Employment Growth, by Age, 2006



Source: Unorganized Manufacturing ICS 2006.

a big role in the productivity of the sector. Although these factors are important for the sector, they are unobservable and are covered by other reports. Therefore, they are not discussed in the subsequent analysis, which instead focuses on the investment climate.

Access to Finance and Power Supply: Largest Constraints to Higher Productivity and Growth

By a wide margin, firms surveyed identified access to finance as the single biggest obstacle to their growth (box 4.2). More than a third of respondents identified this issue as their single, largest concern (figure 4.6). The availability of electricity was the

Box 4.2 Understanding the Problem of Access to Finance

The vast majority of the enterprises surveyed for the Unorganized Manufacturing ICS 2006 had a bank account, but very few had a loan and, of those that did, very few received it from a bank. Indeed, 89 percent of small enterprise owners had accounts in banks, and 58 percent of them used those accounts for business purposes. However, only 20 percent of unorganized enterprises borrow from either formal or informal sources. Of these enterprises, fewer than 10 percent had taken either a term loan or an overdraft from a bank (see the accompanying table).

Proportion of Enterprises with a Bank Account, by Enterprise Size, 2006

Type of enterprise	Enterprises with no loans from any source (%)	Borrowing enterprises (%)	Enterprises with informal loans (%)	Enterprises with loans from any financial institution (%)	Enterprises with loans from banks (%)
Household	79	21	15	8	6
Tiny	83	17	11	8	7
Micro	78	22	13	10	9

Source: Unorganized Manufacturing ICS 2006.

Getting a loan from a bank is a lengthy endeavor, and it requires large amounts of immovable collateral. On average, it took surveyed enterprises 25 days to get a loan from a bank after all the documents had been submitted. Usually, an immovable asset of the enterprise (60 percent of cases) or personal asset of the owner (25 percent of cases)—and likely immovable assets as well—was required as collateral. At the same time, immovable assets accounted for a relatively small percentage of total asset value of the unorganized firms. Moreover, in about half of these cases, the collateral was more than double the amount of the loan.

(continued)

Box 4.2 continued

Informal finance is preferred for its flexibility. Interviews with a focus group suggested that informal borrowing offers features that the formal banking sector in India does not offer. Informal loans do not require any sort of collateral, and even where it is required, the loan is usually made against accounts receivable and inventories. Most important is the flexibility that informal sources provide in determining the payment schedule (small fixed installments collected daily or weekly, rather than large monthly payments); in structuring or restructuring repayment schedules and amounts; and in taking account of past credit history with the informal lender. Flexibility is especially important for small enterprises with seasonal activities and cash flow.

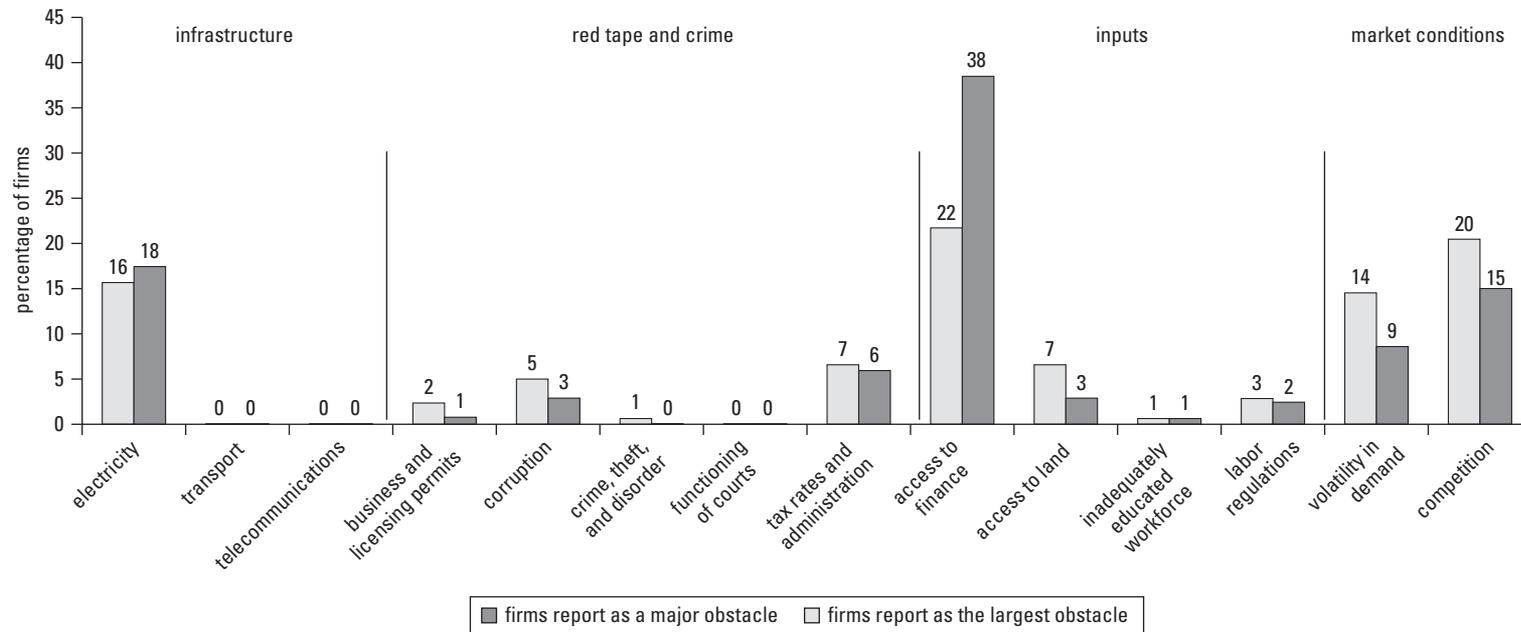
However, neither formal nor informal loans sufficiently meet the needs of the unorganized sector. Formal credit markets are difficult for small firms to access, while informal loans are based on personal relationships, are short term, and often attract high interest rates. Most enterprises surveyed preferred not to expand their activities until they had built up internal resources: 93 percent of enterprises said they usually used internal funds for making fixed investments, and 99 percent financed their working capital from the same source. Only 7 percent of enterprises had borrowed any amount from banks for working capital requirements, and just 9 percent had borrowed for a fixed investment.

The inability of the formal financial system to meet the needs of this sector has implications. First, it places a limit on firms' ability to invest in productive growth opportunities. Second, tax laws in India are such that the highest burden falls on investment financed out of own funds. Hence, inability to access debt from formal institutions places small enterprises at a significant disadvantage.

second, with 18 percent of enterprises saying that this was the most significant constraint. These findings contrast with the responses from larger firms in the manufacturing sector (as discussed in chapter 3), where availability of electricity is the largest issue. Among other constraints highlighted by the unorganized sector, market conditions, such as competition and volatility of demand, were considerable problems. Other factors appeared less important, though 7 percent of firms surveyed felt that tax rates and tax administration posed a major problem for them. The findings of the ICS echo those emerging from the NSSO (2001) survey.

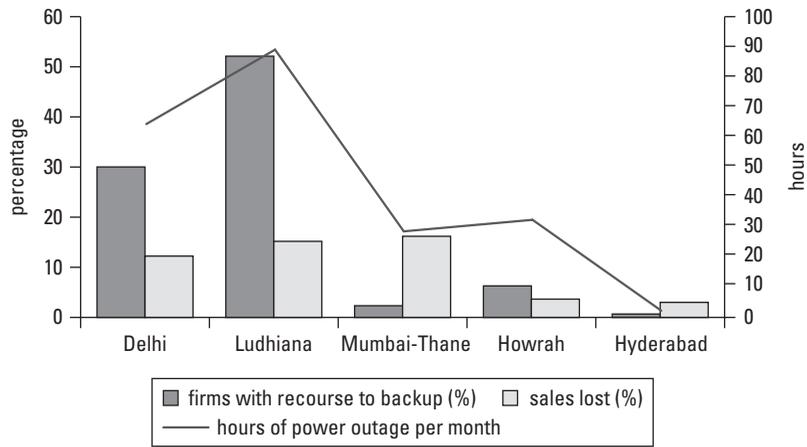
Access to formal finance is associated with significantly higher labor productivity, and informal finance is a poor substitute for productivity- and growth-enhancing investments. The econometric analysis of the effect of investment climate on unorganized firms also shows that firms that were able to borrow from financial institutions had 37 percent higher labor productivity than firms that could not, after controlling for other factors (see appendix B). This factor possibly reflects that cash-constrained unorganized enterprises use these short-term financial instruments to supplement their own resources for financing new productivity-enhancing fixed investments. Borrowing from informal sources is not strongly associated with any similar positive effects.⁴ The difference may be because the bulk of informal loans

Figure 4.6 Major Constraints to Normal Functioning Identified by Unorganized Enterprises



Source: Unorganized Manufacturing ICS 2006.

Figure 4.7 Effect of Power Outages on Unorganized Firms



Source: Unorganized Manufacturing ICS 2006.

(93 percent) are used for financing working capital and maintaining operations rather than for making fixed investments. A variety of reasons may limit their usefulness in financing the latter. Informal loans are likely to be of shorter duration, and they may not be available at the time they are needed or in the amount required. Consequently, their effect on labor productivity is lower. The result is in line with international evidence that suggests that informal lending can only partially substitute for formal lending in very poor countries.

Power availability is another major constraint for small enterprises, with arguably greater impact on growth and productivity. As with the larger manufacturing firms in the ICS, unorganized firms also had to contend with power outages. Power outages averaged as high as 89 hours (about nine working days) a month in Ludhiana. The relatively small scale of operation probably limited recourse to expensive backup options, such as generators and invertors, and few enterprises reported having them (figure 4.7). Outages were costly: on average, enterprises reported huge losses—11.3 percent of annual sales—because of outages. One must also keep in mind that unreliable power supply is likely to deter firms from growing and investing in new technology to the extent that such technology requires assured power supply. Hence, unreliable power sources might keep firms trapped in a lower-scale, low-productivity, and labor-intensive mode of production.

Nonetheless, power outages appear to have no effect on productivity, possibly because they push enterprises to adopt coping strategies based on employing more labor. Anecdotal evidence suggests that firms deal with outages by either employing more workers or enforcing longer shifts in order to finish orders. This hypothesis is borne out in the data to the extent that power outages are not negatively correlated with employment: more power outages lead enterprises to employ more labor, if other factors are held fixed. However, as discussed earlier, the loss of sales as a result of power outages is still quite significant at more than 11 percent.

Almost no enterprise identified transportation, telecommunications, law and order, the functioning of the courts, or labor force skills as a severe problem in the operation of their establishments. In some areas, such as telecommunications, this identification owes to the rapid progress India has made, especially in urban areas. In other areas, such as transportation or courts, it may reflect that these factors are not very important in the context of small firms. Unorganized firms probably do not supply across large distances and may rely only on local transport infrastructure. Similarly, very few firms ever use courts to settle disputes (only about 1 percent). Unlike larger firms, unorganized firms also do not rate labor regulations as a major problem. Again, this finding is to be expected because small enterprises are outside the purview of most labor laws. More than 54 percent of firms did not know or could not answer a question about which labor regulations they found most difficult to follow.

Although transport and corruption are not identified as a constraint by firm management, empirical analysis shows that both the short-term impact of transport problems and the long-term impact of corruption on productivity are considerable. Although only about 9 percent of firms reported difficulties in making timely deliveries to customers or receiving supplies because of transport-related issues, those that did report such difficulties had about 13 percent lower labor productivity. These firms also employed more workers, possibly to cope with these difficulties, but suffered nonetheless. Similarly, only 3 percent of firms ranked corruption as their foremost problem, and 5 percent ranked it as one of their three biggest problems; bribes were a small percentage of annual sales. This finding was expected because invisibility is one known advantage of small firms. However, corruption may also induce firms to remain small, which could have long-term impacts on their productivity. The amount of bribes a firm pays can be expected to be closely related to the number of inspections it faces, which, in turn, is closely related to its annual turnover, the number of workers it employs, and whether it is registered. This situation creates incentives for the firm to remain small, unregistered, and inconspicuous. The analysis also shows that when the reverse link between bribes and productivity is controlled for, paying bribes has a negative effect on firm productivity. A 0.1 percent increase in the amount of bribes paid (as a ratio to annual sales) is associated with a 3.4 percent decrease in the firm's labor productivity.

Conclusions

There is significant scope for improving productivity and employment in unorganized manufacturing. An analysis of survey results shows that firms in this sector face increasing returns from scaling up and that they thus have a strong incentive to grow. Consequently, many firms appear willing to grow but are held back by investment climate obstacles. Some successful firms, in fact, do grow—some even beyond the 10-worker limit that pushes them into the organized sector. At the same time, a very large number do not. The survey provides evidence of why they do not grow.

Access to finance is the biggest investment climate obstacle facing firms. This finding is apparent both from the firms' own perceptions and from the analysis of

their productivity and employment. Firms that are not able to access financing from formal financial institutions have almost 37 percent lower productivity than those that can access such financing. Interest rates are not the problem. Enterprises are deterred from seeking such loans because of stringent collateral requirements, necessary documentation, and the time it takes to process their application. Loans from informal sources are inadequate substitutes; they are more suited to meeting working capital requirements than to making fixed investments. Enterprises are thus forced to rely mostly on internal funds for such investments. Improving the situation does not require the government's direct intervention in the form of subsidies, but rather its facilitation of the development of an enabling financial infrastructure and its efforts to build good institutions.

Enterprises are also hampered by poor infrastructure and by their limited ability to invest in mitigating mechanisms. Expectedly, power is a problem, although a much smaller one than finance. In this respect, the unorganized sector differs markedly from organized manufacturing. Enterprises cope sometimes by investing in costly backup sources, but mostly by employing more workers and presumably enforcing longer working hours. The transport infrastructure is less problematic, and almost no firm in the survey identified it as a major constraint. However, econometric analysis shows that firms that reported being unable to make timely deliveries had significantly lower labor productivity. The high losses incurred because of poor infrastructure (more than one-tenth of annual sales because of power alone) reduce profitability and, consequently, firms' incentives to invest and to improve scale and productivity.

The various constraints discussed in this chapter may interact with each other, and action may need to be taken simultaneously on many fronts. For example, unless enterprises receive adequate financing, they will be limited in their ability to make productivity-enhancing investments. However, unless they also have access to a reliable power supply, the gains from investing in technology will also be lower. Improving access to finance thus will have only limited effect. If such investments make enterprises more vulnerable to rent-seeking, their incentive to grow will be reduced. A better understanding of these factors, the ways they interact with each other, and their impact on technology adoption and productivity is thus very necessary.

Notes

1. These results match the National Sample Survey 56th Round Survey, which found that 97 percent of urban, nonhousehold enterprises were proprietary, and of these only 5 percent had female owners. These results are also consistent with surveys in other developing countries, which found that firms operating out of the home were overwhelmingly female owned and that enterprises in commercial districts, industrial sites, and traditional marketplaces were mostly male owned (Ingram, Ramachandran, and Desai 2006).
2. *Part-time workers* are both those who work fewer than eight hours per day on all workdays and those who work for only a part of the year.
3. *Employment* refers to the number of paid, full-time employees.
4. The effect is positive but is not statistically significant at the 10 percent level.

Annex 4.A Obstacle Case Study—Access to Finance

The government of India's fiscal policies often crowd out lending to the private sector, hence limiting firms' access to finance. Although access to finance is an issue for all businesses, the problem is more acute for small businesses. High fiscal deficits have led the government to appropriate a large share of financial savings for itself, thus displacing credit to the private sector. As of 2006, total loans and advances for scheduled commercial banks amounted to 54.4 percent, with most of the other assets kept in liquid assets, including government securities. As a result, the ratio of private credit to gross domestic product is less than 40 percent (compared with more than 100 percent for such countries as the Republic of Korea and Malaysia), and much of this private credit takes the form of relatively safe lending to large corporations and consumer loans to high-income individuals. In fact, although banks are required to direct 40 percent of their lending to the "priority sector," which includes small firms, most get around this requirement by subscribing instead to other eligible instruments (for example, bonds issued by apex banks, such as the National Bank for Agriculture and Rural Development and the Small Industries Development Bank of India) (Reserve Bank of India 2005). Competition in the small business segment is still quite limited, and financial institutions have not yet developed appropriate products and procedures to serve the segment profitably, which requires large volumes, efficiency, and very high portfolio quality. In addition, the legal regulatory regime, although improving, still does not facilitate lending to the extent that it could, especially for small businesses.

Access to finance is also hampered by the high costs and lengthy enforcement procedures for immovable collaterals. Stamp duties for mortgage registration vary across states, ranging from 3 percent to 14 percent. At the same time, enforcement procedures for registered mortgages can take up to four years. As a result, the majority of the mortgages are unregistered (so-called equitable mortgages). Under an equitable mortgage, the debtor deposits the title deed with the creditor and this act creates the security. The mortgage might be a purely oral arrangement, and in most states no registration or stamp duty is required. However, because the title deeds are physically deposited with the creditor, the debtor can have only one mortgage on the entirety of the assets. Hence, businesses cannot fully leverage their collateral, leading de facto to a higher level of collateralization.

Despite improvements in the legal regulatory framework, it is still difficult for small businesses to use movable assets as collateral. The movable collateral regime for financial institutions is regulated by the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act 2002 (SRFAESI), which substantially improved the enforcement of securities over movables because it introduced out-of-court execution. SRFAESI also mandated the creation of a central registry for liens on movable assets, thereby making it easier, in theory, for the creditor to conduct searches. In practice, no central registry has been created. Hence, as in the past, liens on movable assets of incorporated businesses are registered in the company registry, except for liens on assets that must be registered in a particular registry (for example,

cars). SRFAESI has not improved the situation for small businesses, many of which are unincorporated and have mainly movable assets (as opposed to immovable assets). In fact, SRFAESI does not mandate any registration for assets pledged by unincorporated businesses (for example, partnerships and sole proprietorships), which make up the bulk of small businesses. This circumstance means that the registration is not a requirement for perfection of a security interest over a movable asset of an incorporated business. Hence, a lender has no means of conclusively determining whether the asset being offered as collateral has already been pledged. The effect of this ambiguity is to leave small businesses underleveraged because their assets cannot safely be offered as security.

The establishment of the Credit Information Bureau (India) Limited (CIBIL) and the approval of the Credit Information Companies Act have substantially improved the credit information system. However, much remains to be done to enhance the quality of the data collected and to facilitate a more extensive use of the bureau. A number of facts explain the limited reliability of the data collected by CIBIL. First, the data provided to CIBIL by financial institutions, especially state-owned organizations, are of variable quality and are often submitted a few months after the loan has been issued. Many state-owned banks, which account for the greater part of the retail financial sector, are not yet fully computerized. As a result, transcription errors occur often. Lack of computerization also affects the timeliness of the data reported by this segment of banks, which often report on only a quarterly basis. Second, some operating rules of the registry make it difficult to verify information. For example, there is a very high level of anonymity in the credit reports (for instance, the name of the reporting bank is not included in the report). Unlike other credit bureaus around the world, CIBIL does not verify information using third-party sources, such as courts, government registration departments, or company registries. Finally, in India, there is no unique identification number for customers. Although these issues affect the reliability of the data on all borrowers, the problem is particularly acute for small businesses, which are mainly served by state-owned banks.

Under the Credit Information Companies Act, credit bureaus can collect information only from financial institutions. This provision disadvantages small businesses, which often have limited credit histories with financial institutions. Unlike other bureaus, CIBIL can collect information only from financial institutions and not from utilities or mobile phone companies. This provision excludes important sources of credit history data, especially for small businesses, which often have limited credit history with financial institutions but are users of mobile phones and clients of utilities companies.

Source: World Bank 2004a.

Retail Sector

Facilitating the Emergence of Large Players to Boost Productivity and Employment

This chapter analyzes productivity and employment growth in India's retail sector. The sector is composed of small retail stores at one extreme and large modern-format stores at the other. The analysis shows that larger stores are more productive and have had a faster rate of growth in employment in recent years. Thus, removing obstacles—especially power outages, taxes, corruption, and lack of access to land—will facilitate the productivity of the largest stores and contribute to growth and employment generation for the entire sector. The chapter presents the results of the nationwide Retail Investment Climate Survey (ICS) 2006 and data from secondary sources.

Two Sharply Contrasting Segments: Small Stores and Large Chains

The retail sector comprises two sharply contrasting segments: the large chain outlets and a multiplicity of small, traditional retail stores. Retail in India is highly fragmented and is dominated by the traditional retail sector—that is, retail shops run by the owner or the caretaker of the store. These shops include most of the fast-moving consumer goods (FMCG) stores.¹ India has one of the highest retail densities in the world—around 6 percent, or 12 million retail shops for 209 million households (Ernst & Young 2006). The dominance of the traditional retail sector is also evident from its share in total retail sales in India, accounting for 97 percent of such sales in 2005 (Ernst & Young 2006). Henceforth, the terms *traditional retail sector* and *FMCG stores* will be used interchangeably, as will *modern-format stores* and *large chain outlets*.

To understand what hampers the growth of the sector, the World Bank conducted a nationally representative survey in 2006 in connection with this report. The Retail ICS 2006 covered 1,433 outlets in 41 cities (see appendix A for a full description of

the data and methodology). All the data presented in this chapter refer to data collected through this survey except when indicated otherwise.

Small stores are mainly sole proprietorships (more than 93 percent). Small stores have, on average, two workers, usually the owner and an employee. The average small store has been operating for 13 years. This period coincides with the average number of years of experience of managers of small stores, suggesting that such stores have been managed since their inception by the same individual.

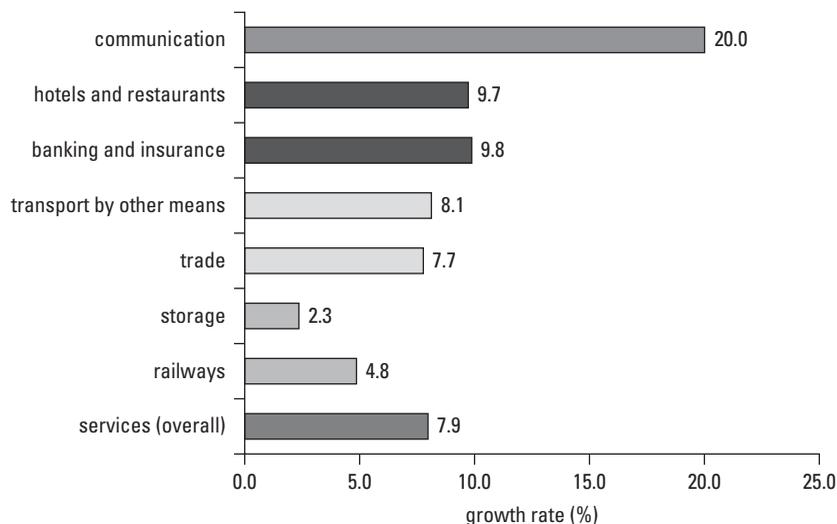
Although still limited in size, organized retail is growing fast. Modern-format stores began appearing in South India in the late 1980s. Though such stores accounted for only 3 percent of total sales in 2005, the segment is expanding rapidly (Ernst & Young 2006): between 2003/04 and 2006/07, total sales by small retailers grew by 11 percent per year, while sales of modern-format stores grew by about 20 percent per year (Joseph and others 2008). The Retail ICS shows that growth in sales is strongly correlated with growth in employment, with a correlation between the two of 0.88. Modern-format stores in urban areas employed, on average, 37 employees, and 37 percent of such stores are publicly listed companies. Private companies, partnerships, and sole proprietorships represent the balance of the modern-format stores.

Sector Performance: Low Productivity and Modest Employment Growth

Although the retail sector has been growing, its growth has been slightly below average when compared with that of the wider services sector. The trade sector, including both retail and wholesale, has been growing at 7.7 percent over the period from 1990/01 to 2006/07, while the average rate for the services sector has been 7.9 percent (figure 5.1). Moreover, the growth of employment in the trade sector has been around 2.7 percent per year over the period from 1999/2000 to 2004/05—a modest rate when compared with that of the entire services sector (7.6 percent).

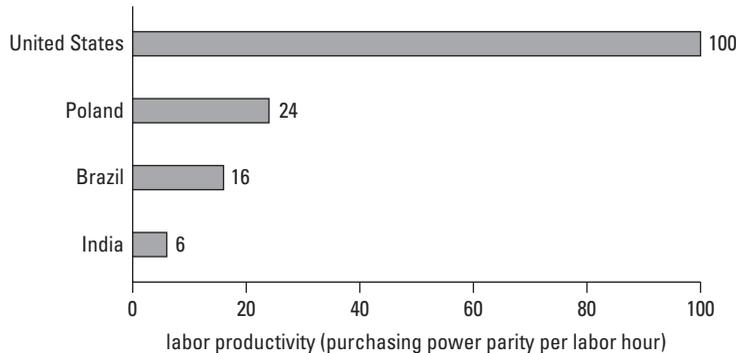
Labor productivity in the retail sector is low. A study (McKinsey Global Institute 2001) comparing labor productivity in the Indian retail sector with that in the U.S. retail sector found that Indian levels of productivity were only 6 percent of U.S. levels (see figure 5.2).² The United States was used as a comparator because labor productivity in the services sector there is among the highest in the world. In addition, India's average labor productivity in retail, as a percentage of U.S. productivity in the same sector, fares badly when compared with other Indian services sectors, such as telecommunications, software services and products, and banking (figure 5.3).

Low labor productivity is attributable to the large presence of small, less productive stores. In line with secondary data, the results of the labor productivity analysis for the sample show that traditional FMCG stores are the least productive types of outlets. The productivity of the average FMCG store is only about half that of the average modern-format store, or US\$3.60 per hour worked versus US\$7.60 (figure 5.4).

Figure 5.1 Growth Rate of Selected Services Sectors, 1990/01–2006/07

Sources: World Bank 2004b; Central Statistical Office 2007.

Note: The figure reflects constant prices and compound annual growth rates.

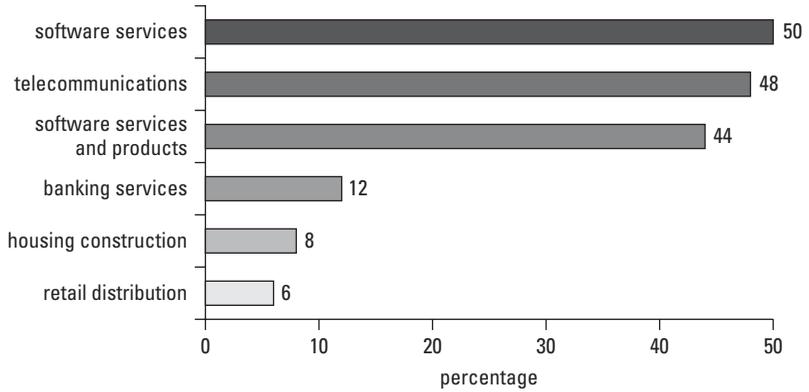
Figure 5.2 Labor Productivity in Retail Relative to the United States, 2001

Source: McKinsey Global Institute 2001.

Note: For developing countries, years of productivity vary, depending on the year in which the McKinsey Global Insight study was conducted in the country.

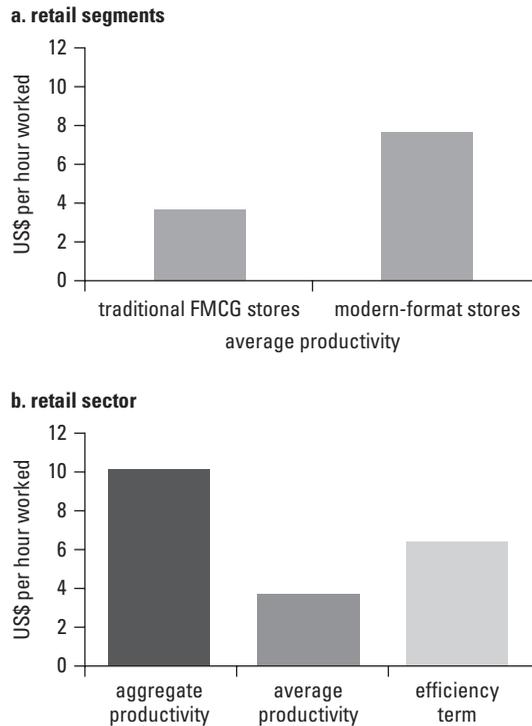
The labor productivity decomposition shows that the most productive outlets in India are the single stores with the largest market share. These findings are consistent with the results of the productivity analysis. The aggregate productivity, which measures the total productivity of the sector, is the sum of the efficiency terms and the average productivity. The efficiency term measures the efficiency in the allocation of resources: a large and positive efficiency term (61 percent of the aggregate productivity for the retail sector) indicates that in India the most productive retailers are the individual stores with the largest market share. The overall productivity of the retail sector can therefore be increased by letting the most productive outlets acquire an even larger market share.

Figure 5.3 Overall Productivity in Selected Segments of the Indian Services Sector Relative to the U.S. Sector, 2001



Source: McKinsey Global Institute 2001.

Figure 5.4 Olley and Pakes Decomposition of Aggregate Labor Productivity for the Retail Segments and for the Retail Sector, 2006



Source: Retail ICS 2006.

Employment data for the past three years show that modern-format stores also have a higher average growth rate in employment. Although starting from a much lower base, the modern-format stores' average employment growth has been five times higher than that of FMCG stores in the past three years.

Thus, to increase productivity and promote employment generation in the retail sector overall, the Indian government should promote an environment that facilitates the growth of the largest market players, which are the most productive ones. Hence, the analysis of the effect of investment climate variables on the sector productivity and employment generation focuses on modern-format stores, which are predominantly those that have the largest market share. A description of the effect of investment climate variables on labor productivity and employment generation for FMCG stores is presented in box 5.1. The recent report on the effect of modern-format retailers on the traditional retail segment (Joseph and others 2008) finds a marginal increase in employment in the latter for the period during which modern-format stores covered by the survey existed (on average, 21 months), indicating that an expansion of larger stores does not have to come at the cost of unorganized retailing.

Government Reform Efforts to Improve the Investment Climate

In recent years, state governments have adopted a number of policies to facilitate the growth of the retail sector, particularly of the modern-format store. These policies cover such issues as real estate, opening hours for shops, agricultural marketing, and foreign direct investment (FDI) in the sector. Examples of state governments' efforts to facilitate the growth of the retail sector include the following:

- The state governments of Delhi, Karnataka, and Maharashtra have increased the land available for commercial purposes by allowing land formerly designated for residential use to be used for commercial purposes and by releasing unused state-owned company land.
- In Bangalore, Delhi, Kolkata, and Mumbai, the state governments have permitted flexibility in the use of labor and have allowed retail outlets to operate seven days a week.
- States such as Haryana, Himachal Pradesh, Madhya Pradesh, Punjab, and Rajasthan have amended the Agricultural Produce Marketing Committee Act to permit implementation of "modern forms of distribution" for agricultural produce. The amendment allows farmers to sell directly to companies instead of requiring them to sell in the *mandis* (market centers).

The central government has partially liberalized FDI in the retail sector and introduced the value added tax (VAT). To facilitate FDI inflow, the central government has allowed FDI of up to 51 percent, with prior government approval, in "single brand" products and FDI of up to 100 percent, without government approval, for cash-and-carry wholesale trading and export trading. Although not specifically aimed at promoting organized retail, the VAT could indirectly facilitate its growth.

Box 5.1 Effect of Investment Climate on Labor Productivity and Employment Generation for Traditional Retail Stores

Overall, investment climate matters less for the labor productivity of traditional retailers than for that of modern format stores. All the investment climate and control variables together are able to explain 22 percent of the observed variability of labor productivity for the FMCG segment (compared with 44 percent for the modern-format segment).

In terms of the factors identified by store managers as severe obstacles to growth, the main difference noted is that 18.09 percent of managers of traditional stores identified access to finance as a severe obstacle, whereas a much smaller percentage of modern-format stores did so. The findings of the productivity analysis confirm this difference, with finance and accountability having the largest effect on average productivity among the investment climate variables for FMCGs. In particular, possession of a current account in formal financial institutions comprises 28 percent of average productivity.

For traditional stores, internal funding is by far the most important source of funding for working capital (81 percent of working capital value) and even more so for fixed assets (83 percent of fixed asset value). Because of the very high immovable collateral requirement (190 percent of the loan value), only 7 percent of traditional stores applied for a loan in the before year the survey was conducted. When stores borrow from formal sources, state banks are the most frequent providers. Borrowing from informal sources has a very small effect on productivity, probably because informal sources are used primarily for financing working capital and maintaining operations, rather than for maintaining fixed investments.

Improvements in the investment climate are also associated with an increased demand for labor by the traditional retail sector, with the finance and accountability category being the most important. Retail outlets that have a current account and an external audit implement more workforce hours than firms without, 11 percent and 29 percent, respectively. Presumably, this finding is because these outlets are able to access the financing necessary to invest and expand. Also, firms that have an external audit have a reduced incentive to use informal labor, which may be reflected in higher observed employment. Stores that finance themselves with internal funds are associated with lower labor demand.

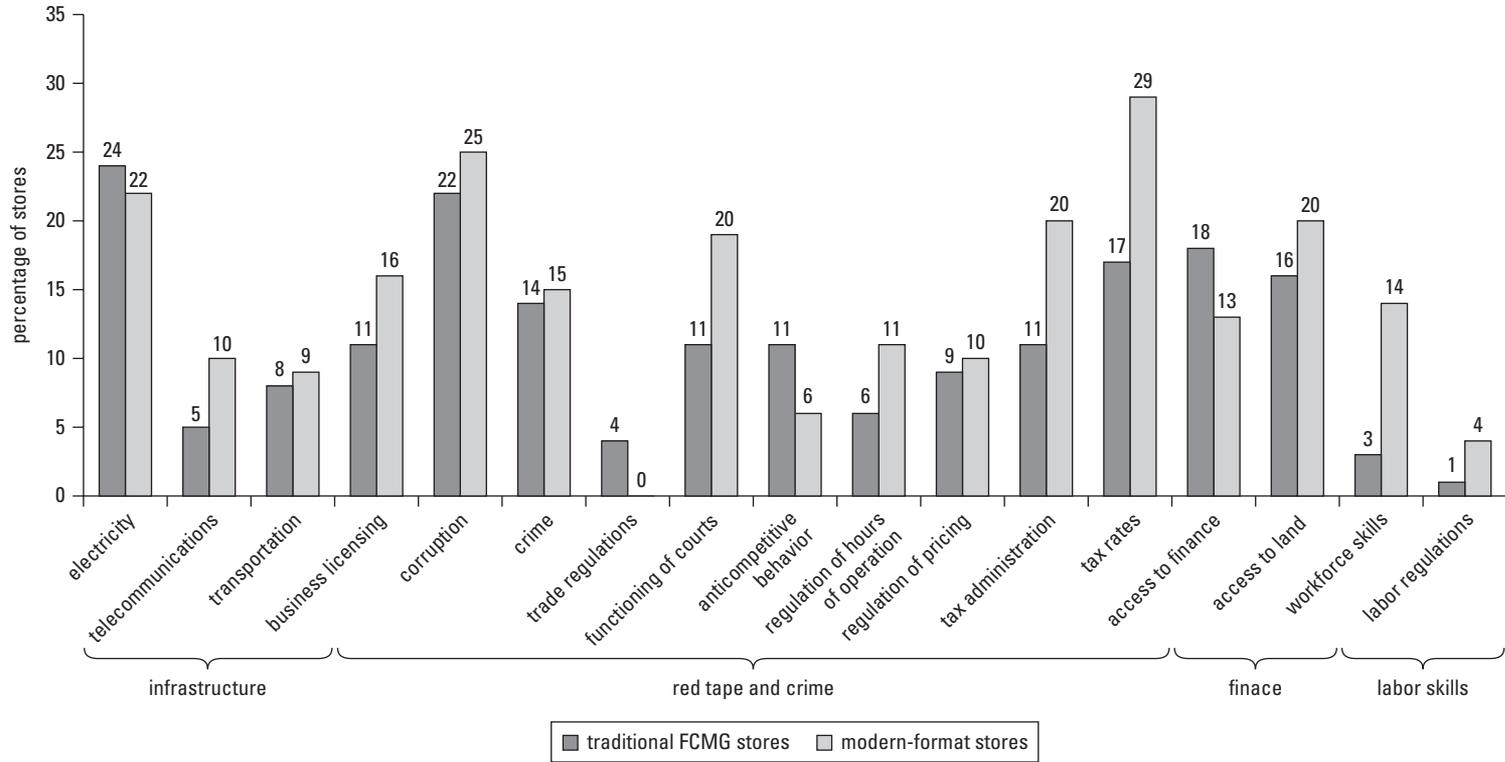
Source: Retail ICS 2006.

By levying a tax on value added at each stage of sale, the VAT system should bring all retailers, including small ones, under the tax regime. However, if not evenly implemented, the VAT could create a very uneven playing field between the modern-format and small store segments.³

Effect of the Investment Climate on Modern-Format Stores

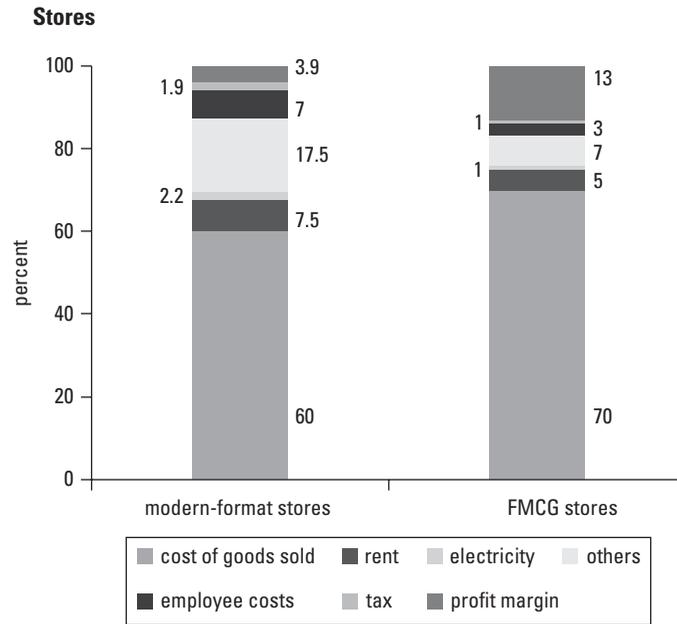
Despite these efforts, investment climate is a bigger problem for large retailers than for small stores. Modern-format stores perceive the investment climate as more of an obstacle to their business than do unorganized stores (figure 5.5) in all areas

Figure 5.5 Perceived Major or Very Severe Investment Climate Obstacles, 2006



Source: Retail ICS 2006.

Figure 5.6 Differing Cost Structures for Traditional and Modern-Format Food Retail



Source: Evalueserve data.

except the following: trade regulations, practices of informal competitors (defined as street sellers or sellers of spurious goods), access to finance, and to a lesser extent, electricity.

This difference in perception exists mainly because the current regulations are more favorable for small retailers. Because of their different legal status and location, small retailers enjoy lower rates for inputs, such as power and land. In fact, small retailers normally pay lower land rents (because of their location in residential areas, which have lower rentals) and lower power prices (because most of them pay residential rates, which are not quite half of the commercial rates paid by the modern retail chains). Small stores are also subject to a lower tax. Such differences affect the profitability of the larger stores (figure 5.6).

In addition, given their size, small retailers can operate outside of the investment climate. The labor productivity analysis shows that the effect of the investment climate is larger for modern-format stores than for the small retailers. The econometric analysis confirms a strong association between investment climate factors and labor productivity for the retail sector (see appendix B for a full analysis of productivity and employment). According to the results of this regression, the investment climate and control variables explain 22 percent of the observed variability of labor productivity of small retailers and 44 percent of the observed variability of the modern-format stores. This difference can be attributed to the fact that small stores, thanks to their size, can operate outside of the investment climate more easily.

Obstacles to Increased Productivity and Employment Generation for Modern-Format Stores

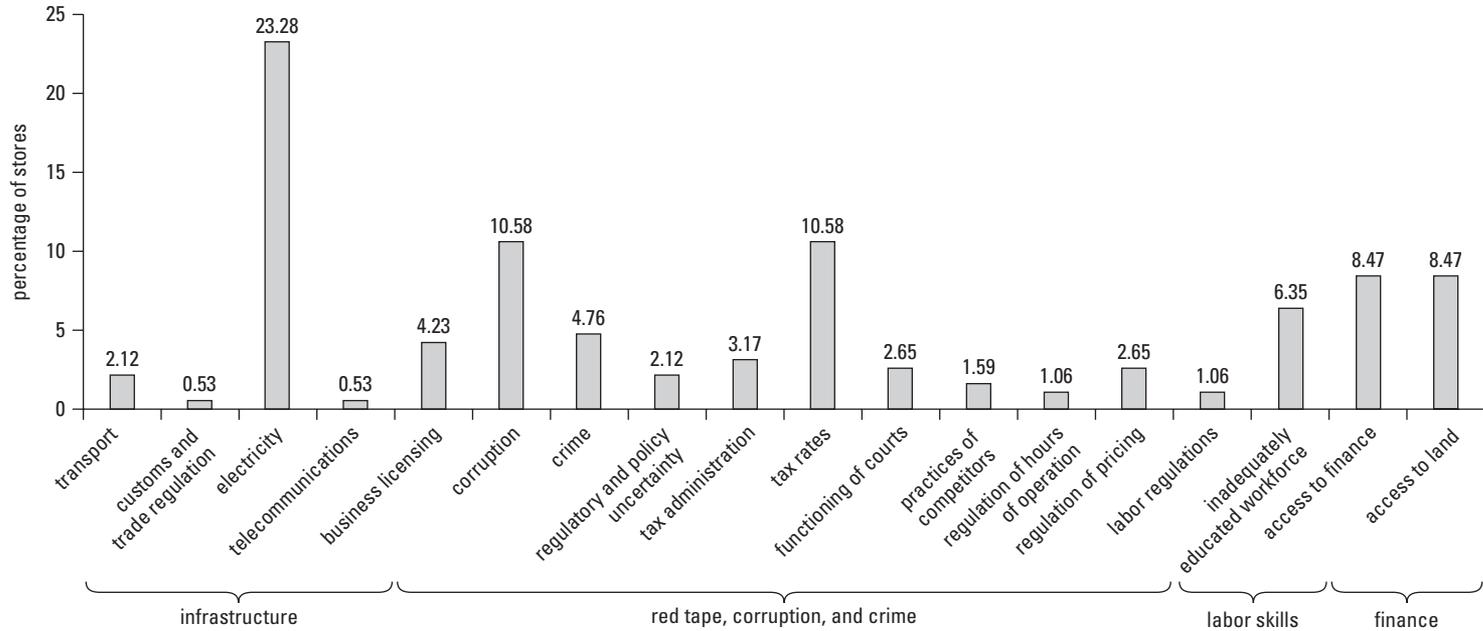
Electricity, corruption, tax rates, and access to land remain the biggest obstacles to increased productivity and employment. When asked, 23.28 percent of the managers of modern-format stores identify electricity as the main obstacle to their growth and 10.58 percent identify both tax rates and corruption (figure 5.7). Although access to land was identified as the biggest obstacle by only 8.47 percent of the store managers, its magnitude was underrepresented in the survey, as explained subsequently. The obstacles identified by store managers are relevant also in the productivity analysis. The infrastructure and the red tape, corruption, and crime categories of obstacles each accounted for roughly 15 percent of the total effect of investment climate on the average labor productivity of modern-format stores.⁴

Power shortages occur daily, disrupting the business operations for two hours on average, and despite the presence of generators, a considerable part of sales are lost. Obtaining a power connection is a lengthy endeavor; retail stores wait an average of 53 days to obtain it. Having a connection does not, however, ensure receiving electricity. In fact, 80 percent of the respondent stores experienced power outages in the year prior to the survey—averaging more than one per day and two hours in length. To cope with the shortages, 70 percent of large stores own a generator. Despite the alternative arrangements, modern-format stores estimate that they lose 3.3 percent of their annual sales because of power outages.

Tax rates and corruption is a major obstacle. It is identified by almost 11 percent of the surveyed firms as the most severe obstacle to their growth. Stores report that they regularly pay informal gifts to get connected to the electricity grid, water system, and so forth and to pass inspections. Although the amounts paid are small (on average, equivalent to less than 1 percent of annual sales), dealing with government agencies is also time consuming: managers of organized retail stores spend, on average, 5 percent of the workweek dealing with government officials, and almost 60 percent of the modern-format stores are visited, on average, six times per year. Managers of modern-format stores spend more time dealing with government officials than do their counterparts in small stores.

The issue of tax must be analyzed in terms of a level playing field between the organized and unorganized segments. First, the majority of modern-format stores are subject to the corporate income tax regime, which is higher than the individual income tax that is paid by unorganized retailers. Second, because organized retailers are larger, it is more difficult for them to evade taxes. When asked to estimate the percentage of total annual sales reported for tax purposes by stores similar to their own, unorganized retailers reported 70 percent on average, whereas managers of modern-format stores reported 85 percent. Third, although the elimination of sales tax and the *octroi*⁵ and the introduction of VAT have simplified the tax regime and could bring many unorganized retailers into the tax net, the existing tax regime nevertheless creates difficulties for stores operating across various states. In fact, various states

Figure 5.7 Perceived Most Serious Investment Climate Obstacles for Modern Format Store, 2006



Source: Retail ICS 2006.

have different VAT rates, and the central sales tax, a central levy on interstate sales, has not yet been abolished.⁶

Access to land was identified as a major problem by 8.47 percent of the modern-format stores. However, this statistic underrepresents the magnitude of the problem.⁷ Of the survey respondents who tried to acquire land or buildings during the year prior to the survey, only 60 percent were successful.⁸ The majority attributed the failure to expand to the impossibility of obtaining land in the desired zone, while a smaller percentage reported that the municipality did not provide the required infrastructure for the desired site.⁹ Limited land availability in urban areas forces larger stores out of urban areas, which are difficult for consumers to access because of poor roads. Even when suitable land is identified, the transaction process is very long. On average, the survey respondents who tried to expand found that it took four months to formally take ownership of the property once they had identified it. Because of the lengthy and complex land transfer process, informal payments to get transactions completed are considerable, estimated at 8 percent of the total costs.

Conclusions

To increase productivity and promote employment generation in the retail sector overall, policy makers should facilitate the growth of the largest players. In line with secondary data, the results of the labor productivity analysis for the sample show that traditional FMCG stores are the least productive types of outlets. In fact, the labor productivity decomposition shows that the most productive outlets in India are the individual stores that have the largest market share—namely, the modern-format stores. Employment data for the past three years for the sample also show that with the same growth in sales, modern-format stores generated more employment than other types of stores. Hence to increase productivity and promote employment generation in the retail sector, the Indian government should facilitate the growth of the largest players.

The labor productivity analysis shows that the effect of the investment climate on the modern-format segment is considerable. In particular, both the perceived obstacles and the productivity analysis show that unreliable infrastructure (power shortages in particular), tax rates, corruption, and land access are the largest obstacles to the growth of the sector. The issue of tax rates must be analyzed in terms of uniform application and a level playing field with small retailers, which, in practice, are subject to more favorable conditions. (Reforms to the tax regime that took place after the ICS was conducted, however, have reduced the discrepancy between the FMCG stores and modern-format tax regimes.) Finally, with respect to land, the problem lies both with land availability and with the complex and costly land transfer process.

Notes

1. FMCG stores include grocers, general stores, pharmacies, food stores, and cosmetic stores.
2. McKinsey Global Institute (2001) measured labor productivity as value added per number of hours worked. Value added, in turn, was calculated as value of sales net of value of goods sold.

Productivity estimates were obtained through interviews with more than 250 retailers in four cities and in both the food and the nonfood sectors.

3. See, for example, the analysis of the effects of VAT introduction on the retail sector in Brazil (McKinsey Global Institute 2003).
4. For practical reasons, the investment climate obstacles have been grouped into five categories: infrastructure; red tape, corruption, and crime; finance and accountability; labor skills; and other variables. Labor skills is the investment climate variable with the largest effect on aggregate labor productivity (32 percent contribution to average productivity), with experience of the manager being the largest contributor. The discrepancy between the perceived obstacle (labor skills—especially an inadequately educated workforce—was identified as a major obstacle by only 6.35 percent of the respondents) and the results of the productivity analysis can be explained by two factors. First, the perception variable for labor skills referred to the education of the workforce, whereas the variable used in the productivity analysis referred to managerial skills because there were not enough observations in the dataset for the education of the workforce. Second, because the store managers were the survey's respondents, it is unlikely that they would report themselves as lacking managerial skills.
5. *Octroi* is a tax on movement of goods from one district to another, but it has largely been abolished.
6. Tax rates could not be studied in the productivity analysis because the dataset does not report quantitative information on tax rates.
7. The percentage is probably an underestimation because, again, the store manager was the respondent for the survey and might not have been aware of the chain's expansion plans.
8. Land availability could not be used in the labor productivity analysis because there were not enough observations (that is, too few modern-format stores attempted to acquire land or buildings).
9. The other possible reasons were the government's unwillingness to sell the land and an excessively long time to obtain required zoning approval.

Annex 5.A Obstacle Case Study—Taxes

The authority to levy taxes in India is divided between the central government and the state governments. The central government levies direct taxes, such as personal income tax and corporate income tax; indirect taxes, such as customs, excise duties, and a service tax; and a sales tax on interstate transactions. States levy a VAT on goods, state sales taxes, and various local taxes. Despite reforms, the tax structure in India remains dominated by indirect taxes.

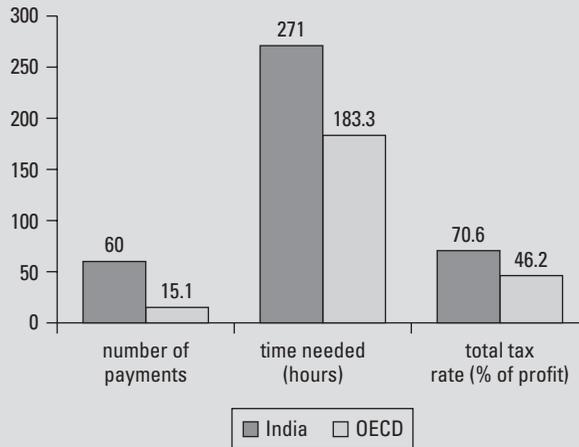
Because of high tax rates, compliance is limited. Despite the high rates, average effective tax rates (AETRs) are low compared with those of advanced economies and higher-income emerging markets in the region. The AETR is measured as the ratio of tax collections to the national tax base derived from national accounts, and it summarizes tax rates; the effective tax base (taking into account tax evasion, exemptions, and the extent of informal activity); and the quality of tax administration. The low AETR, despite the high tax rate, confirms the idea that revenue could be increased by expanding the taxpayer net, lifting exemptions, and stepping up tax administration.

Tax-induced distortions tend to be high, leaving scope for additional reforms. The marginal effective tax wedge (METW)—the difference between the pretax and posttax return on capital—summarizes the various tax effects, including corporate and personal tax rates on capital income, depreciation allowances, and the inventory valuation method. It measures the potential cost of taxation to investors, which, in turn, affects their decision to invest. The marginal tax burden in India is low, reflecting low personal taxes, including the elimination of tax on long-term capital gains in 2004/05. However, tax-induced distortions tend to be high. Inventory investment is treated more harshly than investments in machinery and buildings, so firms that need to carry more inventories—particularly large retail outlets—are penalized in India more than in other countries. Moreover, there is an uneven playing field across different economic actors in the same sectors, especially retail; the majority of modern-format stores are subject to the corporate income tax regime, whereas small stores are subject to the lower personal income tax regime. Personal income tax rates are 5, 20, and 30 percent, whereas the corporate income tax rate is 35 percent.

Firms that rely on internal financing and have limited access to debt financing are especially penalized in that they face a high effective marginal tax rate. The METW on new investments varies greatly depending on financing sources. The government effectively subsidizes marginal debt-financed investments because the METW on them is negative. Similarly, investments financed by new equity face a below-average tax wedge, thanks to relatively low dividend taxation. However, investments financed by retained earnings face a tax wedge in excess of 2.5 percent, compared with the Organisation for Economic Co-operation and Development (OECD) average of 2 percent. Smaller firms that face problems in borrowing and tend to depend more on internal sources of funds are thus disadvantaged in comparison with larger firms.

Reforms are needed on a number of fronts. Direct tax measures include further reductions in statutory rates: a reduction of the corporate income tax rate, a reduction to 15 percent of the

Figure 5.A.1 Tax Payments in India and OECD Countries: Number of Payments, Time Needed, and Tax Rates, 2006



Source: World Bank 2007a.

general depreciation rate, and the elimination of the withholding tax on distribution of dividends. The introduction of a goods and services tax and further reductions in customs duties are important proposed indirect tax reforms. There is scope for a significant increase in tax productivity through removal of exemptions and incentives, expansion of the taxpayer net, and increased reliance on information technology to improve tax administration and compliance. The planned introduction of large taxpayer units in major cities in 2006 has helped reduce compliance and transaction costs for large taxpayers.

The revenue administration system also places additional costs on firms that are not reflected in information on tax rates: a representative business in the manufacturing sector in India needs to make around 60 tax payments a year and spend 271 hours doing so (see figure 5.A.1), compared with just 12 hours for a similar firm in the United Arab Emirates.

Source: This annex draws extensively from Poirson 2006.

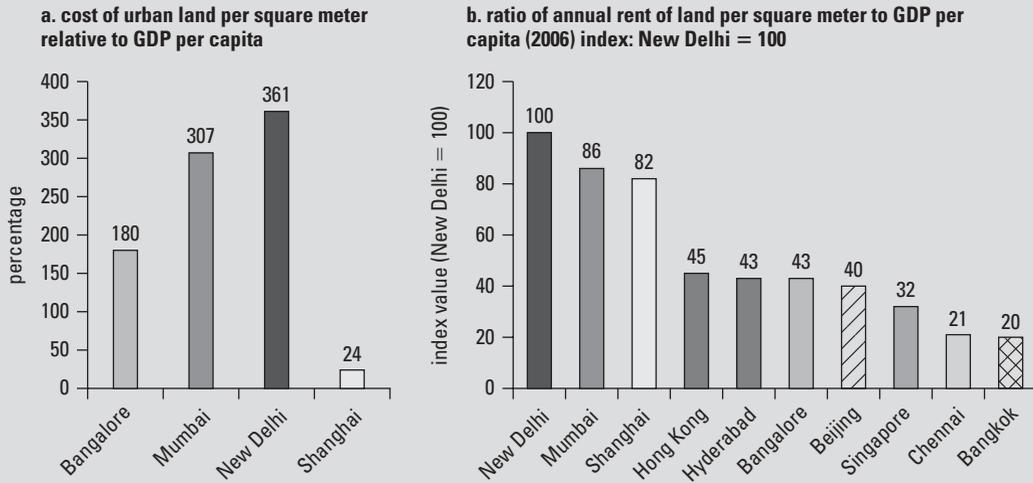
Annex 5.B Obstacle Case Study—Access to Land

The urban land market is constrained by limited supply and high fragmentation as a result of high population density, strict land ownership laws, and zoning laws. High land tenure fragmentation is partly the result of high population density and especially of a deliberate policy to prevent concentration of land in the hands of a few people. The central government enacted the Urban Land Ceiling Act in 1976, and the act was subsequently approved by many state legislatures. The law imposed a ceiling on land that individuals could hold, and land in excess of the limit needed to be surrendered to the government in exchange for monetary compensation. The law was enacted to prevent concentration of urban land in the hands of a few people and to ensure distribution of land to low-income households. The act did not achieve the desired outcome, and the government repealed it in 1999. However, some states, such as Maharashtra and West Bengal, still follow the law, although there are proposals for its repeal. It is estimated that repeal of the act might bring down the land prices in Mumbai by 30 to 40 percent by making available an additional area of roughly 7,284 hectares. Finally, zoning laws limit land-use transformation from agricultural to commercial use.

The rental market is restricted by stringent rent and tenancy laws that cap rents at very low levels and make eviction very difficult. In an effort to eliminate exploitation of tenants by landlords, the government passed a rent control act in 1947. Very little reform has occurred since then. Because the rental caps have not kept pace with inflation and the realty boom in urban areas and because it is very difficult to evict tenants, these laws have the net effect of subsidizing old tenants. Among the old tenants are many FMCG stores, which can overlook their operational inefficiency because of subsidized rent.

As a result, the cost of land is very high in India, compared with costs in other countries. The annual cost of land per square meter in Mumbai and New Delhi is more than three times gross domestic product (GDP) per capita, while in Shanghai it is only one-fourth of GDP per capita (see panel a of figure 5.B.1). Likewise, the ratio of annual rent of land per square meter in Delhi and Mumbai to GDP per capita is more than double that of Beijing (see panel b of figure 5.B.1).

Uncertainty surrounding property titles drives up the cost of land acquisition by limiting the supply of reliable investments. Such uncertainty is partly explained by the fact that in many states, land records and registration of deeds have not been computerized. Manual transcriptions are more prone to errors, and hard-copy files are more likely to be misplaced. Adding to the problem, certain types of transactions—inheritance being the most common—do not need to be registered under the existing law. Finally, the very high transfer costs drive a number of transactions into informality. These costs vary by state and amount on average to 10.5 percent of the property. Of these costs, stamp duties are the most significant and account for the greatest discrepancy across cities. For example, stamp duty varies from 4 percent of property value in Ranchi to 11 percent of property value in Bhubaneswar (see figure 5.B.2, panel a). The magnitude of informal transactions is considerable. In Mumbai alone, a recent reduction in stamp duty by half increased the revenue by 20 percent, most of which was generated by an increase in the number of transactions.

Figure 5.B.1 Cost and Rent of Land Relative to GDP Per Capita, Various Years

Sources: For panel a, data are from <http://www.globalpropertyguide.com>, <http://www.indianrealestateforum.com>, <http://www.indexmundi.com>, and <http://www.chinadaily.com>. For panel b, data are from Evalueserve.

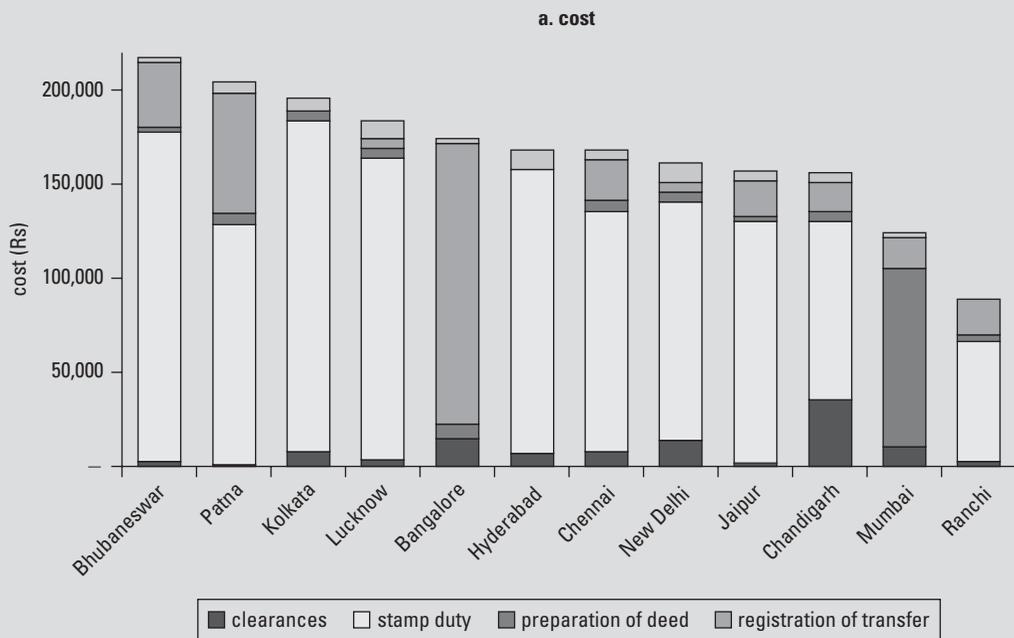
Note: In panel a, Bangalore, Mumbai, and New Delhi data are from 2007, and Shanghai data are from 2003. In panel b, annual rents are for second quarter, 2007, and GDP per capita is for 2006.

Although recent reforms at the state level have improved the transfer process in those states, in India overall it takes, on average, 87 days to register a property. Recent reforms include computerization of land records in Gujarat, Karnataka, Madhya Pradesh, Maharashtra, and Tamil Nadu and computerization of the registration of deeds in Andhra Pradesh, Karnataka, Maharashtra, Rajasthan, and Tamil Nadu. These reforms have led to substantial improvements. For example, in the cities of Bangalore and Hyderabad, it takes the least time to register a property—just more than one month. By comparison, in states where no reform has taken place, such as Kolkata, registration of a property can take more than five months (see figure 5.B.2, panel b).

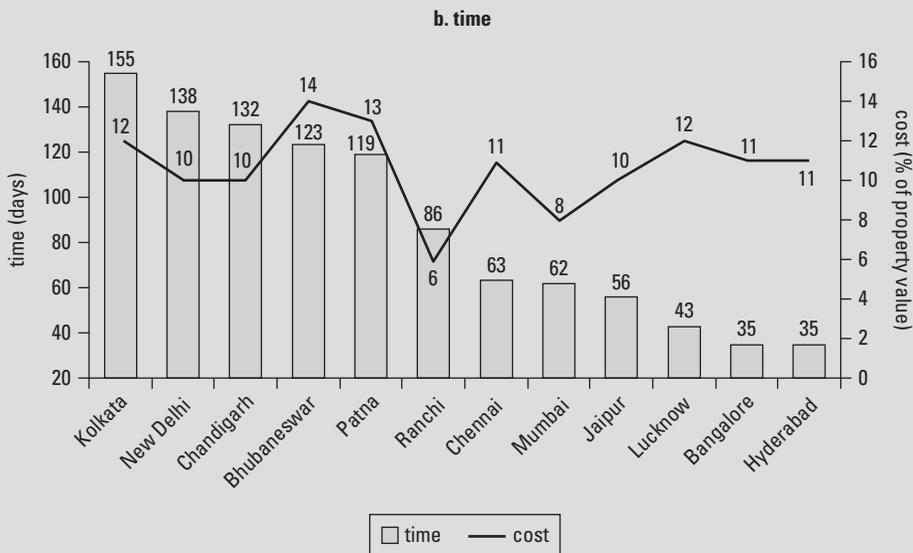
Because of the lengthy and complex land transfer process, informal payments are considerable. A survey from Karnataka estimates that the computerization of the land records saved Rs 800 million in bribes and Rs 66 million in waiting time. Similarly, stores responding to the Retail ICS 2006 paid an additional 8 percent of the total transaction cost to get things done.

Source: World Bank staff.

Figure 5.B.2 Cost and Time of Registering Property across India



Source: Doing Business in South Asia 2006.



Source: World Bank 2006c.

Source: World Bank 2006a.

Note: Data represented in the panel a use a property value of Rs 1,590,269.

Software and ITES Sector

Productivity Improvements Key to Continued Growth and Competitiveness

This chapter identifies the conditions that underpin the success story of the software and information technology-enabled services (ITES) sector—namely, a favorable domestic investment climate and a large demand from Western companies seeking to reduce costs. However, favorable conditions have allowed productivity to lag potential. As these favorable conditions erode, productivity gains become very important. Within the investment climate, shortages of labor skills and electricity, as well as corruption, are the biggest obstacles for exporters, while corruption, electricity shortages, and lack of access to land are the biggest for nonexporters. The analysis draws from the results Software/ITES Investment Climate Survey (ICS) 2006 and data from secondary sources.

The Software and ITES Sector: An Indian Success Story

The software and ITES sector in India witnessed strong growth between 2000 and 2007. It grew at a compound annual growth rate of approximately 29 percent and is estimated to generate revenues worth US\$47.8 billion in 2007. As a result, the sector's contribution to India's gross domestic product (GDP) also increased, from 2.8 percent in 2002 to 5.4 percent in 2007 (NASSCOM 2007).

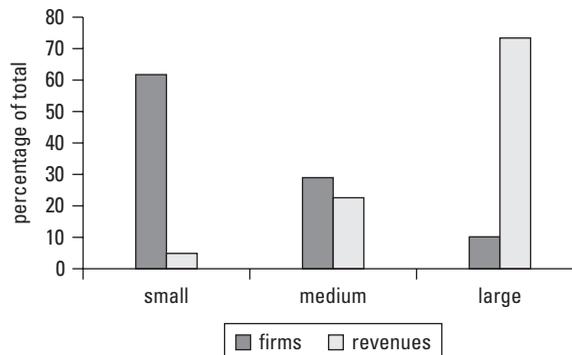
To understand the sector's success and the challenges going forward, the World Bank conducted a nationally representative survey in 2006. The Software/ITES ICS 2006 covered 273 firms in the software and ITES sector. The firms were located mainly in the seven largest cities, which had the highest concentration of software and ITES firms (see appendix A for a full description of the data and methodology). Most of the data presented in this chapter refer to data collected through this survey, although the analysis also draws on secondary sources.

The software and ITES sector is characterized by export-driven growth and considerable market concentration. The average annual growth rate of export revenues between 2000 and 2007 (34 percent) has been 1.6 times that of domestic market revenues in the same period. Revenues from exports (US\$31.9 billion in 2007) are almost double those of the domestic market (US\$15.9 billion in the same year) (NASSCOM 2007). Most companies that export rely on the export component of their business to generate more than half of their revenues, and in fact, 54 percent of them earn more than 75 percent of their revenues from exports. The software and ITES sector is highly concentrated in terms of contribution to the total industry revenue: 10 percent of the enterprises generate about 73 percent of all the revenues in the sector, and the top four software companies and some of their subsidiaries account for approximately 22 percent of total revenues (figure 6.1).

Employment in the sector has also grown fast, albeit starting from a very low base. The sector's contribution to employment in India has been steadily rising, and the number of individuals employed in the Indian software and ITES sector increased by 26 percent between 2006 and 2007. Because sector employment growth started from a very low base, employment in the sector as a percentage of total employment is still only at 0.3 percent of the total labor force. However, it is estimated that for every job created in the software and ITES sector, another three jobs are created in support services (transportation, catering, and so forth).

As a result, India has become the world's largest exporter of software and ITES. The share of services in total exports reached 37 percent in 2006, driven primarily by software and ITES, which accounted for 86 percent of total services exports (UNCTAD 2007). The main export markets for the Indian software and ITES industries are the United States, the United Kingdom, and—to a lesser extent—Western Europe. Traditionally, the sector has capitalized on its cost advantage and focused on the low-end, low value added segment. More recently, large exporting firms have

Figure 6.1 Distribution of Software and ITES Firms and Contribution to the Overall Sector Revenue, 2006



Source: Software/ITES ICS 2006.

Note: Small firms are those with revenues of less than Rs 60 million, medium firms are those with revenues between Rs 60 million and Rs 400 million, and larger firms are those with revenues of Rs 400 million or more.

started moving up the value chain and have begun focusing on high value added products and services (NASSCOM and Everest Group 2008).

Favorable Conditions Underpinning the Software and ITES Success Story

The success of the sector is based on a rare set of market conditions: a favorable domestic investment climate and a large demand from Western companies seeking to reduce costs. The favorable investment climate translated into large cost advantages. India had relatively large numbers of English-speaking engineers, who were less expensive than their Western counterparts. The sector had been almost completely liberalized—there is virtually no barrier to foreign direct investment (FDI)—allowing for technology transfer. Moreover, companies located in software technology parks enjoyed a full tax holiday on profits from exports. Unlike the manufacturing industry, software and ITES were not subject to stringent labor laws, and because of its features, the sector was less reliant on infrastructure (see box 6.1). In fact, telecommunications, which is the infrastructure on which the sector relies the most, was liberalized in the mid 1990s; since

Box 6.1 Comparing Perceived Obstacles for Software and ITES Exporters and Manufacturing Exporters

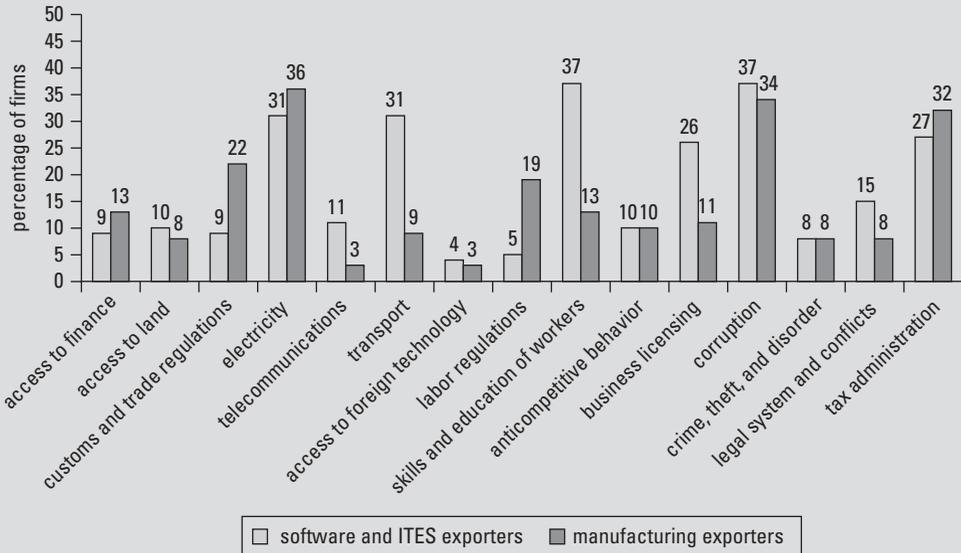
A comparison of the perceived investment climate obstacles by manufacturing exporters and software and ITES exporters revealed that the latter are less exposed to red tape and regulations. For example, because software and ITES firms export through the airwaves or optical fibers, customs and trade regulations are less of an issue. The decisions of software and ITES firms are also less affected by labor regulations than those of their manufacturing counterparts. Tax rates are less of a problem for software and ITES exporters, probably because 20 percent of the software and ITES firms in sample were located in software technology parks and, as such, were exempt from corporate income tax on exports.

Understandably, telecommunications failures are a bigger problem for software and ITES firms than for manufacturing ones. Although the shortage of skilled labor is starting to be an issue for the manufacturing sector, the magnitude of the problem is greater for the software and ITES sector because the latter has grown much faster than the former. The managers of software and ITES firms find transportation a bigger problem than do their manufacturing counterparts, probably because the former are located in the seven largest cities in the country (see appendix A for sample locations), which are affected by worse traffic. Such firms do not face problems transporting their goods; rather they have difficulty ensuring that their employees can reach the workplace. Finally, software and ITES firms complain more about business licensing than do their manufacturing counterparts, probably because the sample included a higher percentage of young firms, which have a more recent memory of the licensing process.

(continued)

Box 6.1 continued

Major and Very Severe Obstacles for Software and ITES Exporters and Manufacturing Exporters, 2006



Source: Software/ITES ICS 2006.

A summary comparison of the obstacles facing software and ITES exporters and manufacturing exporters is provided in the accompanying figure.

Source: Software/ITES ICS 2006.

then, the industry has grown fast, and the quality of the services has increased substantially. On the demand side, the Indian software and ITES industry has benefited from growing demand from Western companies that needed to cut costs, while their computer systems still required a lot of labor-intensive support.

Software and ITES firms benefit from a better investment climate than either the retail or the manufacturing sector. To analyze the investment climates for the different sectors, the study conducted a one-to-one comparison of the average value of key investment climate indicators for each sector.¹ The comparison between the software and ITES and retail sectors revealed that the investment climate is more favorable to the former in all but one of the investment climate categories.² The comparison between the software and ITES sector and the manufacturing sector has been done separately for the exporters and nonexporters because these two segments usually face different issues. For exporters, the investment climate for software and ITES is better in almost all dimensions.³ The comparison is slightly

less clear cut for nonexporters, but the dimensions in which the investment climate is better for software and ITES exceed the dimensions where the investment climate favors manufacturing.⁴

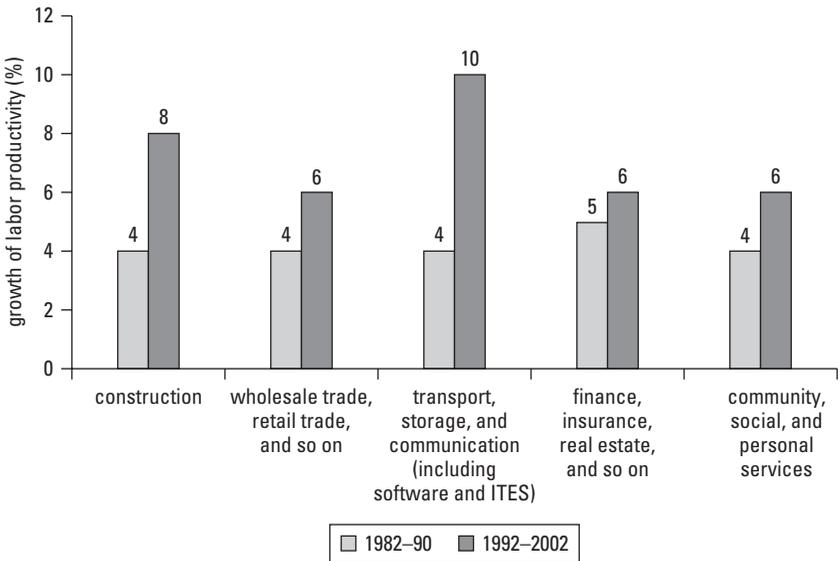
The Potential for Greater Productivity

The productivity of software and ITES companies lags that of the best performers. The favorable investment climate, liberalization of the sector, and subsequent exposure to other business methods and technology have allowed software and ITES firms to make greater productivity gains than other sectors over recent years (see figure 6.2). Consequently, the best Indian performers in this sector have productivity levels comparable to the U.S. software sector. Nonetheless, the average productivity of this sector is still significantly below its potential and below the averages in other countries (see figure 6.3). A comparison with other countries is particularly relevant with respect to information and communication technology (ICT) and ITES, because this segment competes with the rest of the world.

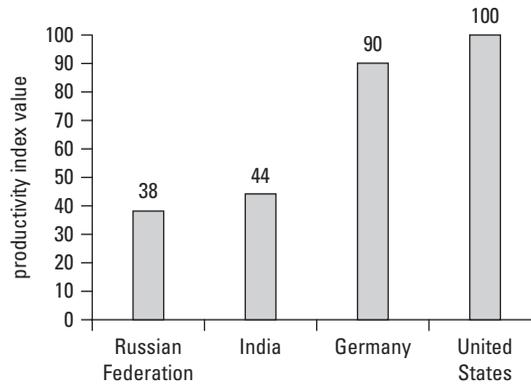
Part of the explanation for lagging productivity can be traced to operational factors, such as individual organization of function within firms, product mix, and lack of brand name. Three main internal operational factors affect productivity in the software service market:⁵

- 1. The organization of functions within Indian firms does not lead to efficient use of capacity. This problem is exacerbated by high turnover and a relative lack of senior information technology (IT) professionals.

Figure 6.2 Labor Productivity Growth across Services Sectors, 1982–90 and 1992–2002



Source: Kohli and Mohapatra 2007.

Figure 6.3 Overall Labor Productivity in Software Sector Indexed to U.S. Average, 1998

Source: McKinsey Global Institute 2001.

2. Indian companies have a high proportion of low value added services in their product mix. The ability of many Indian companies to move up the value added chain is constrained by the fact that international clients find it easier to outsource the lower parts of the value chain, such as maintenance of large mainframe and legacy systems, and so contracts can be more easily defined. The shortage of senior personnel also affects the product mix because companies are unable to provide high value added products, such as system design and strategy development.
3. Indian companies have found it hard to sell themselves as high-value producers because of weak sales teams and the perception of risk by firms in the West. Low productivity of companies in the goods market was largely attributed to their small size, which means they do not benefit from economies of scale (McKinsey Global Institute 2001).

There have also been external barriers to productivity growth, such as low wages and the lack of a sophisticated end-user market. The large supply of English-speaking IT engineers has kept wages in the sector relatively low compared with the world average, until recently. This situation has allowed India to compete effectively in the outsourced services market, but it has also meant that most companies have continued to focus on these low-value segments using fairly basic processing engineers. Firms have tended to respond to increased demand for their products by increasing their staffs, as confirmed by the 0.73 correlation between revenues and change in the number of permanent employees. Consequently, productivity gains, which are harder to achieve, have not been essential to maintaining growth. Moreover, the Indian end-user industry (for example, the financial sector) is not very sophisticated because of a relatively slow adoption of IT. The low-value requirements of domestic industries and government, such as basic data processing, further complicate the ability of the software and ITES companies to diversify their products up the value chain. Although some Indian companies have reached productivity levels comparable to global standards, the low barriers to entry in the Indian market mean that many

new entrants focus on low value added services and products, thus bringing the average sector productivity down.

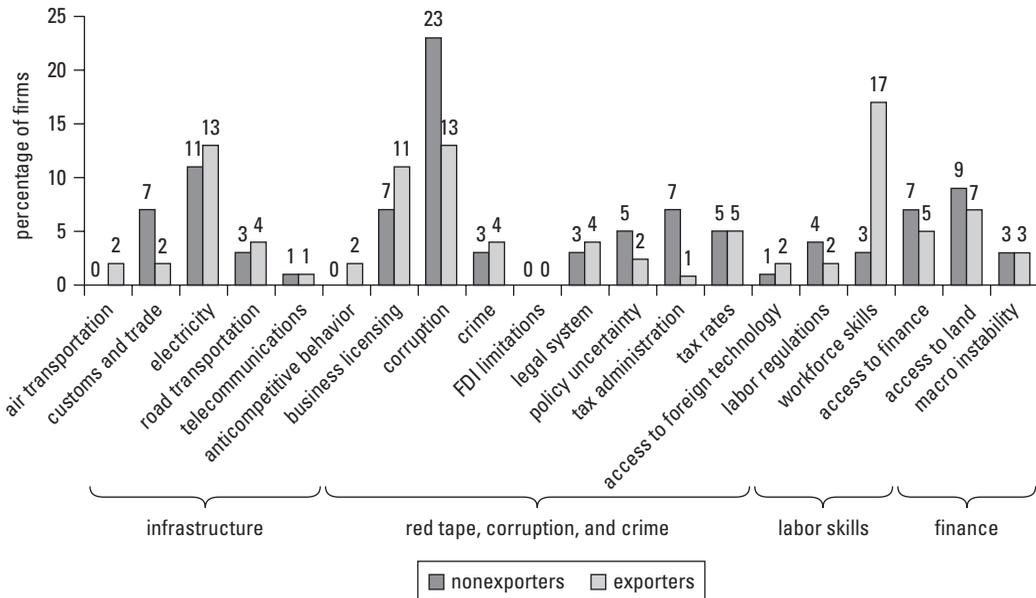
The Importance of Productivity Gains as Favorable Conditions Erode

Changes in favorable conditions on both the supply and the demand sides have the potential to hurt India's competitiveness. On the supply side, the shortage of trained professionals is beginning to affect the industry and can be seen in the wage data, discussed later. Moreover, the benefits conferred by the tax breaks for companies located in software technology parks are due to expire. All these factors are contributing to a reduction in profits. On the demand side, given the weight of the U.S. market in the sector's exports, a medium-term slowdown of the U.S. economy is likely to have an adverse effect. Although a short-term slowdown might actually favor India—because U.S.-based companies will explore opportunities to outsource work to low-cost destinations, such as India—a longer slowdown can have a serious impact, especially the small and medium-size companies. Moreover, increased domestic demand from real income growth and government expenditure have led to an appreciation of the rupee that may adversely affect India's competitiveness and may exacerbate the effect of labor shortages on wages. It is estimated that an increase of 1 percent in the value of the rupee versus the dollar leads to a decrease of 20 to 30 basis points in the profit margins of companies in this sector.⁶

As cost advantages are being eroded—especially wage advantages—productivity gains will become more important. Higher wages will erode the sector's competitiveness in the low-value segment of the world software and ITES market, which has been the focus of Indian firms. This development highlights the importance of increasing productivity so that firms are able to operate in high-value segments. As cost advantages are being reduced, part of the sector has already started refocusing on higher value-added segments. Thanks to the evolution of the domestic demand (attributable to the growth of the financial services and similar industries), the value added of products for the domestic market should also grow. This productivity growth will assist in offsetting the impact of the exchange rate on competitiveness.

The investment climate is an important factor affecting the potential productivity growth of firms in the software and ITES sector. The productivity analysis shows that for the overall software and ITES sector, investment climate and control variables explain 27 percent of the variation in total factor productivity (TFP). This relatively low contribution of investment climate variables reflects the fact that the explanatory power of the model is limited by a number of unobservable factors. For example, technological spillovers play a big role in the productivity of the sector; the relative productivity of firms focusing on exports and the domestic market is influenced by the sophistication of the end user. Organizational functions and tasks, which are hindered by high attrition rates of employees, also affect productivity. These factors are important for the sector, but they are unobservable and are covered

Figure 6.4 Most Important Perceived Obstacle, 2006

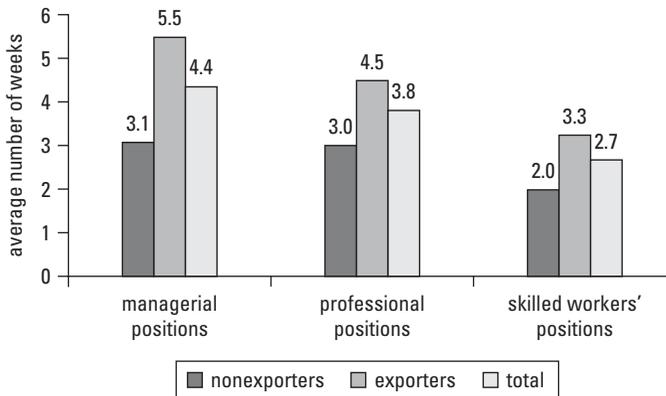


Source: Software/ITES ICS 2006.

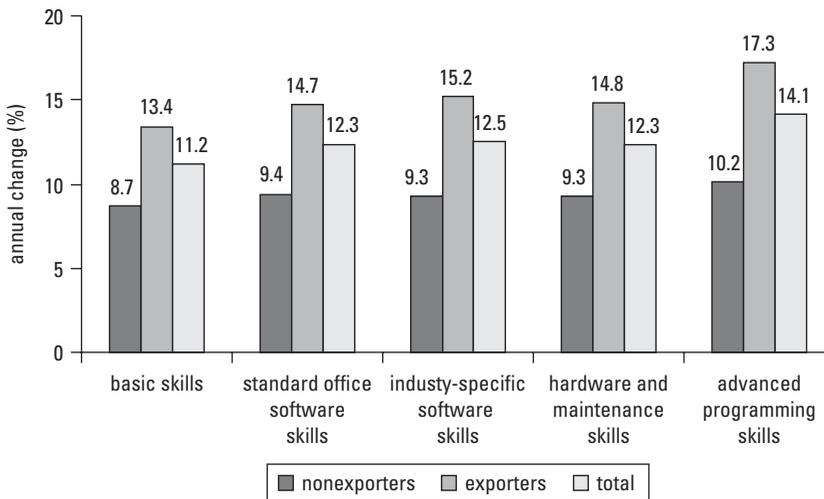
by other reports; thus, they are not discussed in the subsequent analysis, which instead focuses on the investment climate.

Limited skills in the workforce, electricity shortages, and corruption are the biggest obstacles for exporters, while corruption, electricity shortages, and lack of access to land are the biggest obstacles for nonexporters. When asked, 17 percent of the exporters identified shortage of qualified workforce as the biggest obstacle to growth, 13 percent said electricity shortages, and 13 percent said corruption (see figure 6.4). In contrast, 23 percent of nonexporters identified corruption as the biggest obstacle, 11 percent identified electricity shortages, and 9 percent lack of access to land. The perceptions of firms' management are supported by the productivity analysis. Infrastructure accounts for 38 percent of the variations in intrafirm TFP; quality, innovation, and labor force skills accounts for 23 percent; and red tape and corruption account for 20 percent.

The advantages the sector held in terms of workforce skills and low costs have already been eroded by labor shortages. According to the Software/ITES ICS 2006, 35 percent of the firms report facing shortages of workers with the necessary skills, but the proportion is much larger among exporters (55 percent) than among nonexporters (17 percent). This finding is reflected in the perception of obstacles to growth, where 17 percent of exporters reported lack of workforce skills as the most important obstacle, compared with 3 percent of nonexporters. Software and ITES firms need 4.4 weeks on average to fill managerial positions and 2.7 weeks to fill skilled worker positions (figure 6.5). Exporters need more than one extra week than nonexporters to fill professional and skilled worker positions and 2.4 extra weeks for

Figure 6.5 Average Number of Weeks to Fill Position, 2006

Source: Software/ITES ICS 2006.

Figure 6.6 Average Annual Percentage Change in Average Wages by Type of Skills, 2003–06

Source: Software/ITES ICS 2006.

managerial positions. As a consequence of labor shortages, firms report wages having increased on average between 11 and 14 percent per year between 2003 and 2006, and increases have been higher for more specialized classes of workers (figure 6.6). These averages hide large differences between exporters and nonexporters; the former have faced increases of between 13 and 17 percent per year in the past three years. By comparison, wages in the manufacturing sector over the 2002 to 2003 period grew by 5.5 percent.

To counteract the increasing high cost and to diversify its client base, the industry is repositioning itself in the high-end segment. This effort, however, is likely to make the workforce shortage more acute. In particular, as India further positions

Table 6.1 Corruption for Exporters and Nonexporters, 2006

Type of firm	Manager time spent with government officials on a weekly basis (%)	Share of total sales paid as bribe (%)
Nonexporter	5.8	3.0
Exporter	9.9	1.6
Total	8.1	2.2

Source: Software/ITES ICS 2006.

itself as major player in the high value added segment, the competition for highly skilled staff will increase even further.

Informal payments are small, but dealing with government officials is time consuming. The survey shows that the proportion of time that managers have to spend with government officials and the average number of inspections are larger for exporters than for nonexporters (table 6.1). The percentage of sales paid as bribes is larger for nonexporters than for exporters. However, because sales are on average lower among nonexporters than among exporters, the latter pay higher informal payments than nonexporters in absolute terms.

Generators provided a fifth of the energy required by the industry. A much larger share of exporters own a generator (75 percent) than nonexporters (31 percent), but the percentage of power coming from the generator is about the same—18 percent of all energy requirements.

A bit more than half of the firms that tried to expand managed to acquire the required land. Problems obtaining access to land are particularly acute for the software and ITES sector because most of these firms are located in large cities, where land is particularly scarce. Thirty percent of exporters and 16 percent of nonexporters tried to acquire land in the three years before the survey. Only 65 percent and 61 percent of them, respectively, were successful. When asked why they did not succeed in expanding, exporters mainly reported unavailability of land, while nonexporters identified problems concerning unclear ownership and difficulties involved in registration or obtaining permits as equally significant reasons. It is estimated that between 2006 and 2010, a workforce of 1 million people will join the IT and ITES industries in tier 1 Indian cities, such as Bangalore, Chennai, Hyderabad, Mumbai, and New Delhi (NASSCOM and McKinsey & Company 2005). This workforce will exert additional pressure on the already inadequate urban infrastructure facilities.

Conclusions

Favorable conditions have allowed productivity in the software and ITES sector to lag its potential. However, as these conditions erode, productivity gains take center stage. On the supply side, the shortage of trained professionals and the expiration of the tax breaks for companies located in software technology parks are contributing

to a reduction in profits. On the demand side, a medium-term slowdown of the U.S. economy is likely to adversely affect the Indian software and ITES sector. Moreover, increased domestic demand from real income growth and government expenditure have led to an appreciation of the rupee that may adversely affect India's competitiveness and may exacerbate the effect of labor shortages on wages. These developments highlight the importance of increasing productivity.

The investment climate is an important factor affecting the potential productivity growth of firms in the sector. The productivity analysis shows that, for the overall software and ITES sector, investment climate and control variables explain 27 percent of the variation in TFP. When asked, exporters identified a shortage of qualified workforce, electricity shortages, and corruption as the biggest obstacles to growth. Nonexporters identified corruption, electricity shortages, and problems gaining access to land as the biggest obstacles.

Notes

1. These indicators include the proportion of firms that paid for security, the percentage of monthly private sales that were never paid and the number of days it took to resolve an overdue payment, the proportion of firms with an overdraft facility, the proportion of firms that spent on research and development, the proportion of firms that paid for royalties, the proportion of firms that gave in-house training, the proportion of firms involved in court cases and the number of weeks it took to resolve cases in courts, the proportion of firms experiencing power outages, the percentage of firms that failed to acquire land, the number of weeks it took to complete an acquisition of land, the percentage of senior management time spent dealing with government officials, the number of inspections received, and the time required to clear customs for imports.
2. The only exception is percentage of management time spent dealing with bureaucracy.
3. Manufacturing has a better investment climate only in terms of percentage of firms that failed to acquire land, the proportion of firms that paid for security, and the number of weeks it took to resolve cases in courts. With respect to access to land, note that the software and ITES firms were sampled in the seven largest cities (which had the highest concentration of ICT firms). Hence, it is understandable that access to land for software and ITES firms is more problematic.
4. In addition to the variables listed in note 3, the manufacturing investment climate seems to be better for the following variables: percentage of monthly private sales that are never paid, proportion of firms with an overdraft facility, and time required to clear customs for imports.
5. Software services include maintaining mainframe systems at the low-value end and developing IT strategies or specifying design parameters at the high-value end. The software goods market includes programs such as operating systems, network systems, utility programs, and application software.
6. The estimate was provided by Evalueserve.

Annex 6.A Obstacle Case Study—Skill Shortages

Skilled labor, which has been key to India's growth, is in increasingly short supply. Rising levels of education and skills have been critical factors in India's sustained economic growth; India's rapid growth over the past few years has been led by the services sector in general and by relatively skill-intensive services in particular. Recent industrial growth has also come mainly from relatively skill-intensive and capital-intensive sectors. Not surprisingly, therefore, the demand for educated and skilled workers is rising, and the premium on these workers has increased. Returns to secondary education are particularly high. However, the supply of these workers has not kept pace with demand, and this shortage has the potential of becoming a constraint to further growth. The Federation of Indian Chambers of Commerce and Industry and PHD Chamber of Commerce and Industry estimate that there will be a shortage of 5 million to 6 million skilled professionals from 2007 to 2012 and that the biggest shortage will be concentrated in the manufacturing and services sectors (FICCI 2007).

Skill shortages are more acute in sectors that have been growing fast and whose growth has been led by relatively skill-intensive services. Firms across the board are now reporting difficulty recruiting skilled workers: the IT sector reports a shortage of half a million engineers, the banking and finance sector faces an estimated 50 to 80 percent personnel shortage, and the food processing industry is dealing with a 65 to 70 percent shortage of mechanics and food safety personnel (FICCI 2007). Signs of skill shortages can also be seen in wage data; recent real wage growth in managerial and executive ranks—at about 10 percent—has been the highest in the region.

Lack of facilities, shortage of quality human resources, and a weak accountability framework result in poor service delivery and uneven quality of elementary education. These problems with the education system lead to a large number of children dropping out, and those who stay often do not attain the desired learning levels. For example, India has a shortage of almost 1 million classrooms, teacher attendance stood at 82 percent in 2007, and the student dropout rate at primary level was 29 percent in 2004/05. As a result, India is home to more than a third of the world's illiterate population. Moreover, of the small percentage of people who completed postsecondary education (just 5 percent of the adult population in 2004), many are not well trained because of a secondary education system often characterized by rote learning and outdated curricula that preclude innovative methods of teaching.

In addition, India's vocational education and training system is not aligned to emerging market needs. Despite the high dropout rate from secondary education, fewer than 3 percent of students in grades 11 and 12 are enrolled in vocational education. Generally, the students who enter vocational education programs are those who perform poorly academically. Consequently, the relevance and quality of India's vocational training programs is questionable.

Except for islands of excellence in higher education, India's education and vocational system is not producing enough workers with key research and engineering skills. Rigid curriculum policies and a lack of incentives to modernize curricula have led to limited innovation in the education system. Universities find it hard to retain good faculty and the best researchers, given

competitive private sector salaries and an inclination to go abroad for postgraduate studies (87,900 postgraduate students went abroad to study in 2002/03, up from 51,400 in 1999/2000).

The market gap is not filled by private providers, because a number of regulations limit the financial viability of private colleges. By law, private higher education should not amount to profiteering or commercialization of education. The supreme court has interpreted this statute as “private colleges can earn a reasonable surplus on invested capital,” leaving the state to interpret what “reasonable surplus” means. As a result, each year, private colleges need to submit a business plan (including fees that they intend to charge) to the state audit committee, which then decides whether the proposed fees generate a “reasonable surplus on invested capital.” The business plan of a potential private provider needs also to take into account myriad norms for providing private education. These regulations determine other key aspects of education provision, such as permissible annual intake, land requirements, classroom areas, computer and software requirements, library resources, and requirements for faculty. In contrast, important outcomes, such as graduation rates, student learning, scientific output, accreditation, and employment rates are not measured.

Reducing Inequalities between States by Improving the Investment Climate

This chapter explores the business climate characteristics that explain the differences in performance of individual states in terms of investment and growth. To this end, an Investment Climate Index (ICI)—a first for India—has been built. The index summarizes the different aspects of the business environment that entrepreneurs look at when deciding whether to invest. The analysis shows that infrastructure (mainly power and transportation) and institutions (corruption, tax, and security) are the main bottlenecks to private sector development in India. However, while institutions affect high-growth and low-growth states almost equally, infrastructure affects low-growth states much more than it affects high-growth states.

Importance of Measuring the Investment Climate at the State Level

Investment climate reforms by Indian states have yielded tangible benefits. As a result of state-level reforms, some states have grown faster than others. Thanks to the liberalization policies of the early 1990s, states have been allowed to play a larger role in determining their development paths. As a result, growth has accelerated in all states, but at a faster pace in middle-income states. This trend has brought an increasing divergence between the low-income states and the middle- and high-income states.

In economic matters, states have substantial autonomy over the reform agenda. Broadly speaking, land and licensing matters are within the realm of state jurisdiction. Infrastructure, labor laws, and vocational education are part of the joint jurisdiction. Regulation of the telecommunication and financial sectors, customs activities, environmental regulations, and judicial reforms are the responsibility of the union.

A comprehensive ICI can help pinpoint the crucial obstacles. The investment climate covers a broad spectrum, but governments have limited resources, and India's states can undertake only so many reforms at a given time. Therefore, it is crucial to understand which aspects of the investment climate matter most. Such an understanding requires unbundling the investment climate into its components and determining which components are key to growth. By building a comprehensive ICI and comparing the states' performance on the basis of different ICI rankings, one can identify the key constraints for the worse-performing states.

The ICI: Methodology

The ICI is a composite indicator of microlevel investment climate variables drawn from the Investment Climate Survey (ICS) datasets. These variables measure both cost and perception. When making an investment decision, entrepreneurs look at a host of factors, ranging from cost of inputs, to reliability of infrastructure, to quality of institutions.¹ A sound investment climate index should take into account as many of these factors as possible. The ICI has been built on approximately 45 investment climate variables collected in the Manufacturing ICS 2006 and Retail ICS 2006.² These variables measure inputs, infrastructure, and institutions and include both objective (cost) and subjective (perception) indicators. They reflect the perception of mainly small and medium entrepreneurs because those entrepreneurs constitute most of the sample. Appendix C provides a full description of the methodology used to build the index. The index has also been tested for reliability (see box 7.1).

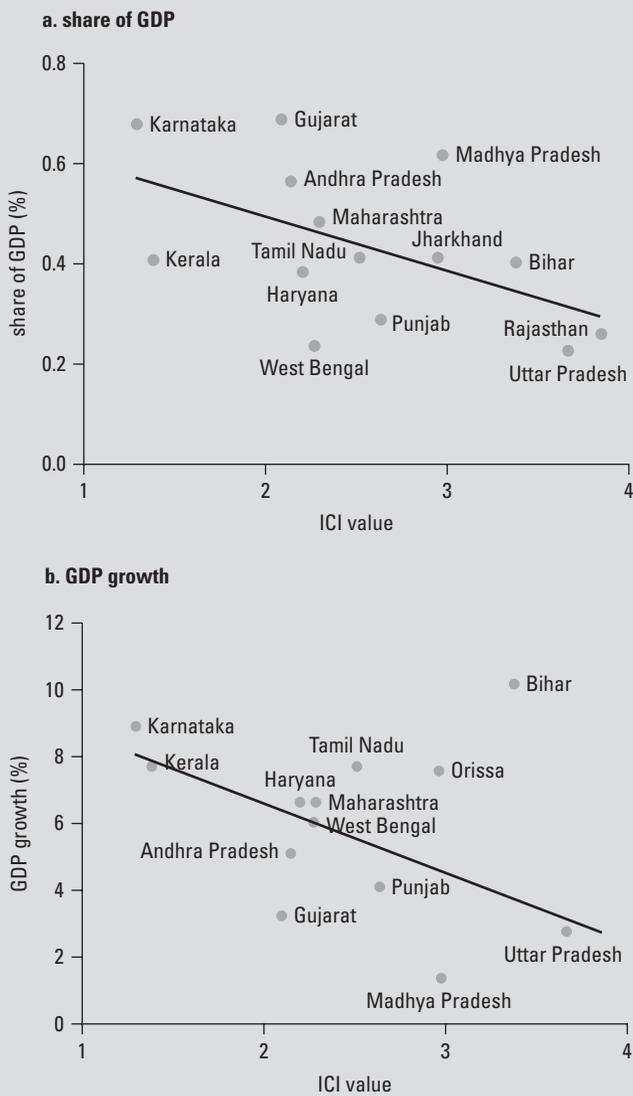
ICI State Rankings

The ICI ranks the 16 states on the basis of their investment climate features and identifies three groups of states: best performers, average performers, and worst performers. The best performers have the lowest score value. When reading this ranking, one must remember that the ICI is useful in highlighting broad patterns but should not be taken as an indicator of the exact ordinal position of any individual state in the ranking. Because the ICI is a linear combination of factors estimated from a sample of the population, the value of each index has a margin of error. Consequently, values that are very close to each other need not be considered as representing the exact position of a state. For instance, the differences among Jharkhand, Madhya Pradesh, and Orissa in the rankings are so small that it may not be correct to assume that the exact ranking of these three states is as the ICI shows. Rather, it is more appropriate to conclude that these three states have similar levels of investment climate. State rankings based on the ICI have also been compared with rankings based on the World Bank's *Doing Business* study (World Bank 2007a) and the Infrastructure Quality Index of the Government of India (Government of India 2000) (box 7.2).

Box 7.1 ICI Reliability

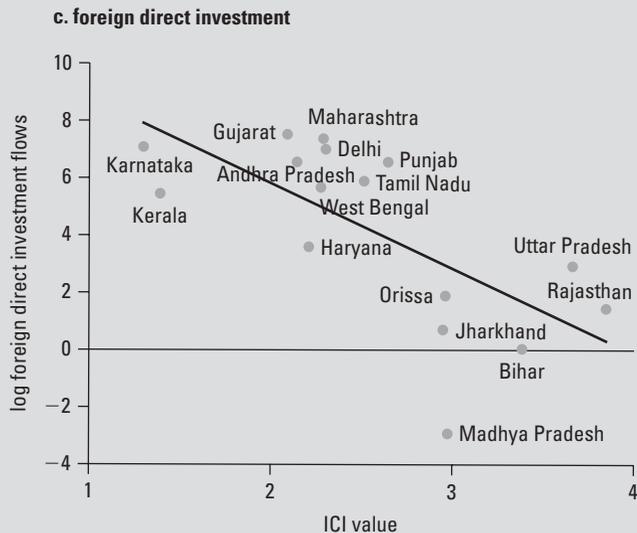
The composite ICI has been successfully tested for reliability: states with good investment climates have higher private domestic investment as a share of gross domestic product (GDP), higher GDP growth, and higher per capita GDP growth. Because there is no theoretical model on the estimation of the weights used in the construction of the index, the reliability of the ICI as a predictor of investment climate in India was tested. To this end, the ICI for each state has

Correlation of the ICI with Other Indicators



(continued)

Box 7.1 continued



Sources: Manufacturing ICS 2006; Retail ICS 2006.

been correlated with the state performance in terms of level of domestic private investment^a and GDP growth.^b The ICI showed clear and significant association with all these indicators at the state level (see the accompanying figure). These tests provide a degree of confidence that the composite ICI is a reliable indicator of the investment climate in India.^c

States with better investment climates also attract more foreign investment. Even though the sample interviewed in the Manufacturing ICS 2006 and Retail ICS 2006 included domestic firms, states with better investment climates attract more direct foreign investment (see panel c of the accompanying figure). Foreign investors share the view of domestic investors on the quality of investment climate in Indian states.

Sources: Manufacturing ICS 2006; Retail ICS 2006.

a. The correlation is significant at the 5 percent level. Delhi is omitted because data are not available, and Orissa is eliminated because it is an outlier.

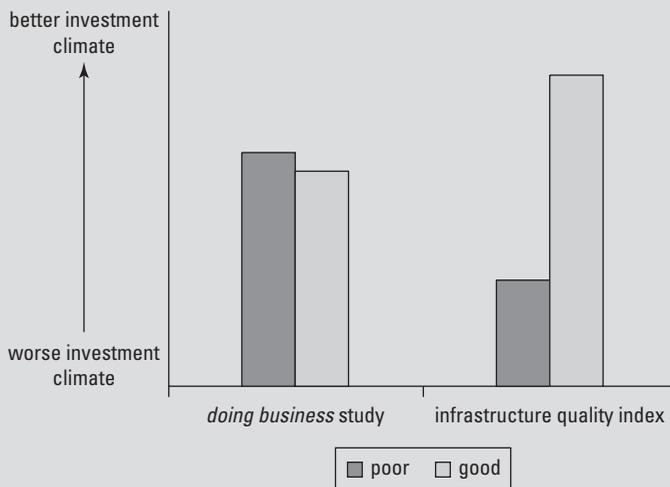
b. The correlation is significant at the 10 percent level. Ideally, one would like to test causality by correlating the ICI with subsequent growth. Unfortunately, at the time this book was finalized, data on 2006 GDP growth for the 16 Indian states analyzed were not available. In earlier work, in a set of 24 European and Central Asian countries, this relationship was shown to be significant (see Iarossi, Saliola, and Tanzillo 2007).

c. Similar significant results were obtained between the ICI and the "Investment Environment" ranking of Indian states reported in the September 26, 2006, issue of *India Today*.

According to the ICI ranking, the states with the best investment climate are Karnataka and Kerala, followed by Gujarat, Andhra Pradesh, Haryana, West Bengal, Maharashtra, and Delhi. The worst investment climate is found in Bihar, Uttar Pradesh, and Rajasthan (figure 7.1).

Box 7.2 Comparing the ICI with the World Bank’s *Doing Business* Study and the Government of India’s Infrastructure Quality Index

Investment Climate under the Doing Business Study and Infrastructure Quality Index



Sources: Government of India 2000; World Bank 2007a.

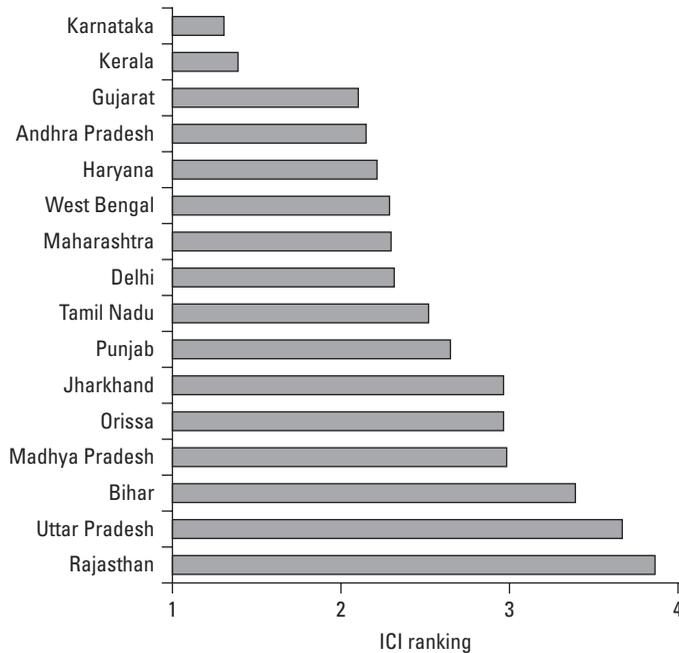
ICI rankings are compared with those of the World Bank’s *Doing Business* study and the Government of India’s Infrastructure Quality Index. Investigating the relationship requires classifying the 16 Indian states into two categories: (a) by ease of regulatory environment according to their rank in the *Doing Business* study (World Bank 2007a) and (b) by quality of infrastructure in accordance with their ranking in the Infrastructure Quality Index (Government of India 2000). For each category, the average value of the states’ ICI ranking has been estimated and compared. Consequently, the bars in the accompanying figure represent the average quality of the investment climate, as measured by the ICI, for the top and bottom performers in each of these two categories (the ICI is calculated for the top eight states and the bottom eight states).

The comparison reveals that an ICI ranking is more closely associated with the quality of infrastructure than with the quality of the regulatory environment as measured by the *Doing Business* study. According to the Infrastructure Quality Index developed by the government of India, states that show a good quality of infrastructure have a much better investment climate than do states with poor infrastructure. In contrast, states that perform poorly on the investment climate composite indicators show the same average ranking in the quality of their regulatory environment as do states that have a good investment climate.

Sources: Government of India 2000; World Bank 2007a.

Although it is not surprising to see Karnataka as one of the states with the best investment climate, the ranking of Kerala within the top tier merits further analysis.³ A closer examination of the data shows that Kerala consistently scores better than average on most objective and perception indicators. In objective indicators, Kerala

Figure 7.1 ICI Ranking of Business Climate in 16 Indian States, 2006



Sources: Manufacturing ICS 2006; Retail ICS 2006.

performs better than average in four out of five indicators, and in perception measures, Kerala performs better than average in all four indicators. In objective measures, only Karnataka and West Bengal perform better than Kerala in all five indicators. Punjab also performs above average in all indicators, but its performance is not as high as Kerala's. Within the perception variables, Kerala performs above average for all indicators, as do Karnataka, Andhra Pradesh, Tamil Nadu, and Orissa. Objective and perception data on the same investment climate dimensions in Kerala also overlap.⁴ Objective and perception data contradict themselves in only one of the indicators: transport. The reason for such apparent contradiction lies in the fact that 40 percent of firms in Kerala have their own means of transport—compared with 11 percent in the rest of India—so its firms perceive it as less of a problem simply because they are not relying on outside transport. However, objective data show that firms in Kerala suffer losses because international transport costs are three times higher for such firms than for other firms in India. So in the objective rating, Kerala rightly performs worse.⁵

West Bengal ranks high because of its good performance on objective indicators of the business environment. Objective indicators show a much lower incidence of power interruption, corruption, and government disservices in West Bengal than in the other 15 states in India. More specifically, West Bengal performs well on reliability of power and on cost of corruption, where it is the best performer. This good

rating compensates for its relative lower performance on perception indicators, such as access to land, crime, access to finance, and transport.

On the other side of the spectrum, Delhi and Tamil Nadu are ranked relatively low. Although both states have a similar performance with regard to infrastructure (corresponding to the average performance of the 16 states), Delhi scores poorly on institutions while Tamil Nadu scores very poorly on inputs. In particular, Delhi has the worst performance in terms of corruption among all 16 states, whereas Tamil Nadu shows a poor performance on access to finance, lack of skills, and availability of technology. In terms of infrastructure, both states have an average performance, but while Delhi performs badly on reliability of power, Tamil Nadu is among the top five states in the country.

The states at the bottom of the ranking—Bihar, Uttar Pradesh, and Rajasthan—perform poorly on all indicators of infrastructure, institutions, and inputs. Although Bihar and Uttar Pradesh perform worse mainly in infrastructure and less so in institutions and inputs, Rajasthan performs better than the other two on infrastructure but much worse on institutions and inputs. In Uttar Pradesh, the main bottleneck is power reliability, whereas in Bihar, telecommunications and transportation seem to be more of an obstacle. Rajasthan performs well on losses attributable to power failures and on losses attributable to transport failures, but particularly poorly on corruption, customs, access to technology, tax administration, and labor regulations.

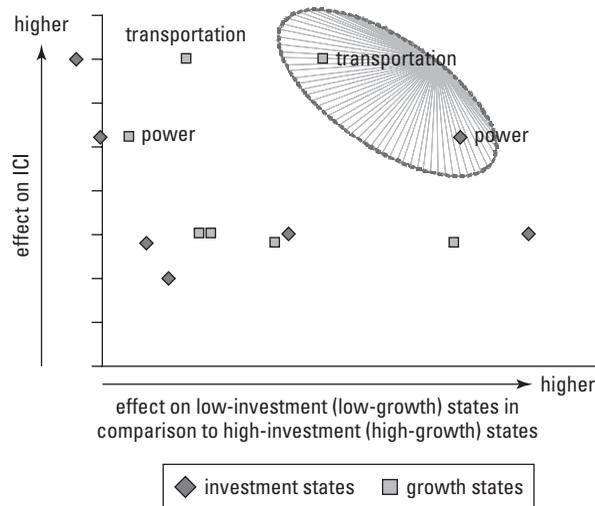
Identifying the Key Investment Climate Differences between Low-Growth and High-Growth States

The decomposition of the ICI shows also that infrastructure and institutions are the main drivers of a better business environment. Not only do these variables explain most of the variance of all the 46 variables representative of the investment climate in India (almost 60 percent), but infrastructure has the largest unweighted difference in indices between best and worst states. This result implies that infrastructure and institutions are the variables in which best- and worst-performing states most often differ and consequently explain most of the variation in the business environment between them.

Power emerges as the single most important infrastructure constraint, followed by transport. A further decomposition of the infrastructure subindexes to identify the indicators that have the highest weight shows that power—more specifically, the number of power outages and the losses attributable to power outages—is the single most important infrastructure constraint. This finding is true for both objective and subjective indicators. The second most important infrastructure constraint is transport. In the perception questions on transport, the bottom six states in the ICI ranking perform the worst. Rajasthan is an exception because it performs average on electricity; however, transport remains a key bottleneck there.

Corruption, tax regulations, tax administration, and security are the biggest institutional constraints. This finding is true for both perception and cost indicators in

Figure 7.2 Relative Effect of Infrastructure Indicators on the Overall ICI and on Low-Investment and Low-Growth States



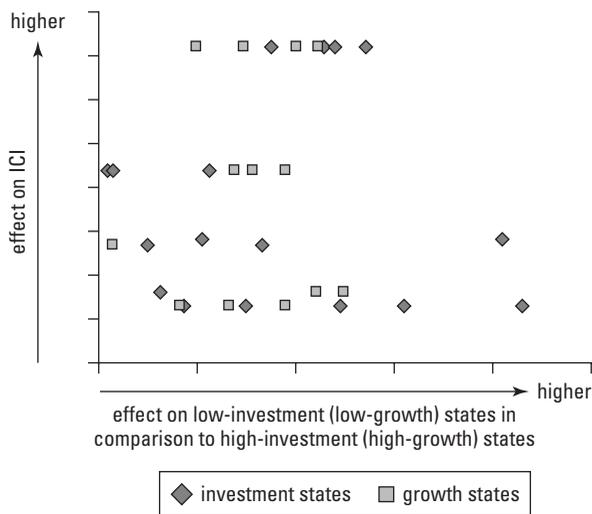
Sources: Manufacturing ICS 2006; Retail ICS 2006.

Note: Low-investment states are Bihar, Haryana, Kerala, Punjab, Rajasthan, Uttar Pradesh, and West Bengal. Low-growth states are Andhra Pradesh, Gujarat, Madhya Pradesh, Punjab, Rajasthan, and Uttar Pradesh.

both high- and low-growth states. Security, however, remains problematic for the states showing a poor investment climate ranking.

The effect of each investment climate variable varies across typology of states: infrastructure matters most in low-growth and investment states, whereas institutions matter equally for low- and high-growth and investment states. Figures 7.2 and 7.3 show the effect of each investment climate variable in low-investment or low-growth states, as compared with the effect in high-investment or high-growth states, as well as the weight associated with each variable in the construction of the composite index. The y axis represents the effect of such indicators on the overall ICI, while the x axis reports the difference in magnitude of such indicators between low- and high-growth (or low- and high-investment) states. The point in figure 7.2 labeled “power” shows that entrepreneurs in states with lower levels of private domestic investment complain more about the cost of power than those in states with higher levels of domestic investments.⁶ Similarly, the point labeled “transportation” shows that transportation appears to be more of a constraint to businesses in states that show lower levels of growth than in fast-growing states. Both of these indicators present the highest values on the y axis, meaning that they are the most important indicators in the construction of the overall ICI. In contrast, figure 7.3 shows that the most important institution bottlenecks in the construction of the ICI, such as corruption, crime, and tax regulations, are considered equally binding by managers in both slow-growth and low-investment states.

Figure 7.3 Relative Impact of Institution Indicators on Overall ICI and on Low-Investment and Low-Growth States



Sources: Manufacturing ICS 2006; Retail ICS 2006.

Conclusions

Infrastructure is the most binding constraint on low-growth states, whereas institutions equally affect high-growth (or high-investment) states and low-growth (or low-investment) states. The ICI identifies the two most critical investment climate causes of interstate differences as infrastructure and institutions. A closer analysis also reveals that within these two indicators, power, transport, corruption, tax regulations, and theft remain the major obstacles to growth. It is important to note that poor infrastructure is particularly binding on states that have a low level of investment and growth, whereas institutional difficulties appear to equally affect high-growth (or high-investment) states and low-growth (or low-investment) states. This finding has clear implication for policy makers, as it can guide them in the prioritization of reforms and investments.

Notes

1. Inputs include labor, access to finance, and raw materials.
2. The standardized methodology used to collect such information makes comparison across states possible and meaningful.
3. In an analysis of the distribution of investments by the private sector in 15 Indian states, the Centre for Monitoring Indian Economy ranked Karnataka 4th as of April 2006, while Kerala ranked 14th. See the Centre for Monitoring Indian Economy database for 2006 at <http://www.cmie.com/>.

4. In terms of the power indicator where in the objective data Kerala performs worst, the perception is the lowest of all states.
5. One could argue that there is no contradiction because two separate conditions are being measured.
6. Figure 7.2 shows on the x axis the difference in the level of each constraint between low-investment (or low-growth) and high-investment (or high-growth) states and on the y axis the importance of the indicators in the construction of the ICI (represented by the share of variance explained by each factor). Consequently, values at the top right of the figure represent business environment indicators that have the highest weight in the ICI and for which each category of states performs differently than the other.

Conclusions

India's progress has been remarkable. Because of the reforms of the 1980s and 1990s, India has emerged as one of the world's fastest-growing economies in recent years. Despite its considerable achievements, India will need to overcome three main challenges to continue to grow: (a) Pressure on formal sector employment from demographics; (b) rising inequalities between states and (c) given the record-high investment levels, future growth's increasing dependency on productivity gains.

The analysis of manufacturing, retail, and software and information technology-enabled services (ITES) firm-level data identified power shortages, lack of access to land and finance, taxes, and shortages of skilled labor as the major investment climate obstacles to increased productivity and employment (table 8.1). Infrastructure is a bigger problem for lagging states than for high-growth ones, whereas institutions matter equally for low- and high-growth states.

Power

Most firms rely on generators, and a substantial amount of sales are lost because of power outages. Half of the manufacturing firms had a generator, 22 percent of all energy requirements for manufacturing came from generators, and 5 percent of annual sales were lost because of power outages. Unorganized manufacturing firms suffered larger losses (11 percent of sales) because on average fewer of them had generators (20 percent). In retail, although the majority of modern-format stores had generators (70 percent), they still lost, on average, 3.3 percent of annual sales. Among the software and ITES firms, 75 percent of exporters owned a generator, whereas only 31 percent of the nonexporters did, but the percentage of power coming from the generators is about the same: 18 percent of all their energy requirements.

Table 8.1 Main Investment Climate Obstacles, Identified and Ranked by Sector

Sectors	Obstacles					
	Power	Tax rates and administration	Corruption	Skilled labor	Access to land	Access to finance
Organized manufacturing	1	2	3			
Unorganized manufacturing	2					1
Retail	2	3			1	
Software and ITES	2		3	1		

Sources: Manufacturing ICS 2006; Unorganized Manufacturing ICS 2006; Retail ICS 2006; Software/ITES ICS 2006.

Access to Land

Access to land is a constraint on firms' expansion, especially in the larger cities. In retail, only 40 percent of the modern-format stores that tried to acquire land succeeded; in 60 percent of those cases, land was not available in the desired sites. Even when the land was located, the transfer process was complex and lengthy (on average, it took firms four months to formally take ownership of a property once the land had been identified). Because of the lengthy and complex transfer process, modern-format stores spent on average 8 percent of the transaction cost on payments to officials to get things done. Software and ITES firms also identify access to land as a major problem. Thirty percent of exporters and 16 percent of nonexporters tried to acquire land in the three years before the survey, and only 65 percent and 61 percent of them, respectively, were successful. When asked why they did not succeed in expanding, exporters mainly reported unavailability of land, whereas nonexporters identified problems concerning unclear ownership and difficulties involved in registration or obtaining permits as equally significant reasons.

Access to Finance

Access to finance is a particular obstacle to the growth of unorganized manufacturing. Although the majority of unorganized manufacturing firms have a bank account, only 6 percent had a loan from a bank. Getting a loan from a bank takes on average 25 days, and it requires large amounts of immovable collateral, whereas unorganized forms have mainly movable assets.

Taxes

High taxes, uneven policies, and inefficient tax administration are a major problem for visible firms that are incorporated. Tax administration was identified as the main problem by 15 percent of manufacturing firms (the second-largest obstacles overall)

and 20 percent of modern-format stores. High taxes were considered the main obstacle by 8 percent of manufacturing firms (the fourth-largest obstacle overall) and 29 percent of modern-format stores. Most exporting software and ITES firms receive tax holidays on profits from export, provided that they are located in software technology parks. Indian firms need to make on average 60 tax payments a year. Total taxes (central, state, and local) for an average firm amount to 71 percent of profit. The playing field is not level for modern-format and small retailers. This differential treatment is due in part to enforcement and in part to different tax regimes (rates and applicable taxes), which penalize large retail chains operating across different states.

Informal payments are widespread, and dealing with government officials is also time consuming. Manufacturing firms pay on average 4.9 percent of annual sales in bribes, software and ITES firms pay 2.2 percent, and large retail stores pay 1 percent. Corruption also has costs in terms of senior management time spent dealing with government officials. Managers of manufacturing firms spend on average 12.6 percent of the workweek dealing with government officials, software and ITES managers spend 8.1 percent, and large retail store managers spend 5 percent.

Skilled Labor

Skilled labor shortages are eroding the competitiveness of software and information and communication technology (ICT) firms and are starting to emerge as an issue for manufacturing firms. More than one-third of software and ITES firms report a shortage of labor with the necessary skills. This shortage translates into high wage increases, especially for specialized personnel (up to 46 percent on average in the 2003–06 period), and replacing employees takes a long time. Although shortage of skilled labor is not yet one of the three main obstacles for the manufacturing sector, it is a growing problem: 15 percent of firms identify it as a major or very severe problem, and 24 percent report unavailability of required skills in the market. As the sector continues to grow, the problem is likely to become more acute.

Three Challenges

These obstacles have a direct bearing on the three challenges facing the Indian economy:

- *Formal sector employment* would be greatly enhanced by removing obstacles to productivity and growth in the unorganized manufacturing sector, which employs the vast majority of India's workforce. The analysis suggests that these firms would be willing to become formal if growth were facilitated. The greatest obstacles in this respect are lack of access to finance and unreliable power supply. Moreover, facilitating the emergence of larger retail stores by tackling access to power and land, reducing corruption, and leveling the playing field with respect to taxes will accelerate job creation in the formal sector.

- *The rising inequalities between states* can be traced to the positive effects of liberalization and investment climate improvement in the fastest-growing states, which have attracted a higher concentration of productive firms. Mirroring these reforms in backward states will be an important step in reducing the inequality. The decomposition of the state-level Investment Climate Index confirms that variables associated with infrastructure (power, in particular) are key drivers of a better investment climate in India. The analysis also shows that the effect of investment climate variables differs by type of state; infrastructure is particularly important in low-growth states. Moreover, facilitating the formalization of unorganized manufacturing, which is present in most regions, will help reduce disparities.
- *Productivity gains* among small, unorganized firms are limited because of the firms' inability to access finance for productivity-enhancing investment. In the software and ITES sector, a shortage of skilled labor and infrastructure are the greatest barriers to moving up the value chain and enhancing productivity. For formal manufacturing firms, red tape, tax, and corruption, followed by infrastructure, had the biggest impact on total factor productivity, accounting for 27 percent and 23 percent of the observed variability, respectively.

Sound technical analysis of the obstacles is a first step, but an ongoing dialogue on solutions is needed. The brief analysis of the investment climate obstacles presented in this report is intended to bridge the gap between the public and the private sector in terms of understanding the scope of market distortions and the required public sector inputs, such as infrastructure and regulation. Detailed policy prescriptions on how to address these issues are beyond the scope of this report. Although progress has been made in many of these areas, continued improvement will depend on processes and institutions that facilitate monitoring of these investment climate obstacles and development of flexible, rapid responses to the needs of both public and private sectors. To ensure that the right priorities are selected and that the implementation actually happens successfully, reformers around the world have focused their attention on creating institutions that engage the bureaucrats in ongoing dialogue of pertinent themes with the private sector (Hausmann, Rodrik, and Sabel 2007).

Investment Climate Surveys

As a background to this report, surveys of enterprises engaged in the manufacturing, retail, unorganized, and software and information technology-enabled services (ITES) sectors were conducted. The Investment Climate Surveys (ICSs) collected information on the investment climate constraints the sectors faced, such as infrastructure, access to land, relationship with the court system, crime, government administration, use of financial services, and labor force. In addition, the surveys collected basic information on the firms, such as ownership structure, number of years of operations, and revenues and costs. The surveys were conducted in 2006.

Manufacturing ICS

Sampling Frame and Selection Process

The Manufacturing ICS 2006 covered 16 states: Andhra Pradesh, Bihar, Delhi, Gujarat, Haryana, Karnataka, Kerala, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. Of these, only 12 were covered in the Manufacturing ICS 2003; Bihar, Jharkhand, Orissa, and Rajasthan were covered only in 2006.

Across these 16 states, samples were drawn from 13 industries—namely, textiles, garments, drugs and pharmaceuticals, chemicals, plastics and rubber, electronic consumer goods, electrical appliances, automotive parts, food processing, mineral processing, metal products, machinery, and leather and leather products. Each of these industries was chosen for coverage because it represents a significant source of industrial exports. Together the industries also represent the largest manufacturing industries in India in terms of employment and output shares.

Table A.1 Allocation of Manufacturing ICS 2006 Sample: Bihar, Jharkhand, Orissa, and Rajasthan

States	Allocation 1 (based on manufacturing employment)			Allocation 2 (based on manufacturing establishments)			Mean of allocations 1 and 2
	Number of workers under ASI 2001/02	Share of total (%)	Implied allocation	Number of establishments under ASI 2001/02	Share of total (%)	Implied allocation	
Bihar	51,375	12	70	617	15	88	79
Jharkhand	119,624	27	164	1,617	39	232	198
Orissa	89,349	20	122	807	19	116	119
Rajasthan	178,521	41	244	1,146	27	164	204
Total	438,869	100	600	4,187	100	600	600

Source: ASI 2001/02; Manufacturing ICS 2006.

The sample methodology used in 2003 was replicated in 2006 for the new states. The distribution of the overall sample was based on the share of each state in India's manufacturing gross domestic product (GDP) for 1998/99.

In view of the relatively small combined share of the states of Bihar, Jharkhand, Orissa, and Rajasthan in the share of national industrial output, it was decided to determine the allocation of the newly sampled enterprises, not on the basis of respective shares in manufacturing GDP, but on the relative sizes of the manufacturing sectors of the four states as inferred from the 2001/02 Annual Surveys of Industry (ASI) of the government of India. As shown in table A.1, one allocation of the sample of 600 firms between the four states of Bihar, Jharkhand, Orissa, and Rajasthan was based on relative share in manufacturing employment, and a second allocation was based on relative share in the number of manufacturing enterprises. Both allocations are based on the ASI. An average of the two allocations was taken because neither would be satisfactory on a stand-alone basis.

On grounds of practicality, a decision was made to limit sampling to the largest three or four industrial cities of each state. The sampling frames were consequently drawn up from official lists and directories of business establishments of the selected cities but restricted to the 12 surveyed industries and to enterprises with a minimum of 10 full-time employees. The lists were obtained from government offices and business associations.

Selection from each sample frame was done by systematically sampling one enterprise at a fixed interval, having arranged listings in descending order of employment size. This method was used to ensure sampling from the entire range of the frame, rather than exclusively from the lower end of the distribution, at which business size distributions tend to concentrate.

Sample Size

The sample size for the Manufacturing ICS 2006 was set at 2,460 establishments for the manufacturing sector. This decision was based on budgetary considerations.

Table A.2 Sample Allocation and Actual Coverage of Manufacturing ICS 2006, by State

States	Sample allocation	Actual coverage
Andhra Pradesh	179	160
Bihar	79	44
Gujarat	201	178
Haryana	103	107
Jharkhand	198	188
Karnataka	194	203
Kerala	78	66
Madhya Pradesh	138	123
Maharashtra	244	194
Orissa	119	122
Punjab	119	106
Rajasthan	204	174
Tamil Nadu	202	195
Uttar Pradesh	170	166
West Bengal	160	164
Delhi	88	92
Total	2,476	2,282

Source: Manufacturing ICS 2006.

Final Sample Summary

The distribution of the full (target) sample of the 2006 survey across the 16 states is shown in table A.2, along with the distribution of actual responses (coverage). The distribution of responses deviates substantially from the initial sample design because of low response rates in some areas being compensated for by planned coverage in high-response states.

Unorganized Manufacturing ICS

Sampling Frame and Selection Process

The closest and most relevant data on the unorganized sector was the 56th round of data provided by the National Sample Survey Organisation (NSSO). Hence, these data have been chosen as the base frame for sampling. The data were used to (a) select the cities to be covered under the survey and (b) provide an estimate of the sample size for each manufacturing sector to be sampled from that city. On the basis of the National Sample Survey's 56th round, various manufacturing subsectors were identified for the study (table A.3).

Table A.3 Industry Sectors Identified for the Unorganized ICS 2006 Compared with Industry Sectors Covered by National Sample Survey's 56th Round

Sector number	Industry sector identified by World Bank	Industry sectors covered in National Sample Survey's 56th round	National Industrial Classification code
1	Auto components	Not covered	
2	Drugs and pharmaceuticals	Not covered	
3	Chemicals	Chemicals and chemical products	24
4	Electrical goods	Electrical machinery, apparatus, and so forth	31
5	Electronics	Radio, television, and communication equipment and apparatus	32
6	Food processing	Food products and beverages	15
7	Garments	Garments (manufacture of wearing apparel, dressing and dyeing of fur)	18
8	Leather	Leather (tanning and dressing of leather; manufacture of luggage, handbags, saddles, harnesses, and footwear)	19
9	Metal and machine tools	(a) Fabricated metal products, except machinery and equipments	(a) 28
		(b) Machinery, equipment, and so forth	(b) 29
10	Sugar	Not covered	
11	Textiles	Textiles	17

Source: NSSO 2001; Unorganized Manufacturing ICS 2006.

In view of the objective of sampling enterprises in the unorganized sector (firms having 10 or fewer full-time paid employees) in urban areas, only data for urban areas were chosen.

The process adopted to select the cities to be surveyed is given below:

- *Step 1: Identification of states.* For each of the manufacturing subsectors, the seven states with the maximum number of manufacturing units were identified. Delhi, a city-state, was considered for selection despite having a relatively low proportion of units when compared with other, bigger states in the country.
- *Step 2: Selection of cities.* In each identified state, districts having a large number of manufacturing units in each subsector were identified.
- *Step 3: Selection of cities for each manufacturing subsector.* For final selection of districts for each manufacturing subsector, the following criteria were applied: (a) maximum availability of each specific manufacturing subsector in districts and (b) appropriate coverage of each region in the country—namely, north, east, west, and south. In this way, the following six cities across four regions were selected: north, Delhi and Ludhiana; west, Mumbai and Thane; east, Howrah; and

south, Hyderabad. Because certain manufacturing subsectors were underrepresented in the selected cities (for example, chemicals and leather), two additional cities were identified where these subsectors are easily available—namely, Bangalore and Kanpur. These two additional cities also served as reserve cities in case some manufacturing subsectors were not available in a sufficient number in the main cities.

Each city was split into clusters that were designated as *industrial clusters* or were places where these types of enterprises were most likely to operate. This identification was done through discussions with local municipal bodies, government bodies, trade bodies, chambers of commerce, and other experts. Once the clusters were identified, snowballing techniques were applied for identifying enterprises in various industry sectors.

After discussions with local trade bodies and experts, a quota was fixed for each of the three types of enterprises based on size: household enterprises, tiny enterprises (five employees or fewer), and microenterprises (more than 5 but no more than 10 employees).

Sample Size

The sample size for each manufacturing subsector in each of the selected cities was determined as follows:

- The proportion of each manufacturing subsector had to be met.
- The proportion of each manufacturing subsector in each of the selected cities had to be met.
- Some adjustments were made to ensure that there would be no oversampling in some cities and manufacturing subsectors and to include those subsectors that were not covered by the NSSO in the 56th round (auto components, drugs and pharmaceuticals, and so on). These adjustments were done on the basis of past experience and subjective judgments.

Final Sample Summary

The summary of the final sample is presented in table A.4.

Retail ICS

Sampling Frame and Selection Process

The sampling frame for the Retail ICS was the list of retail stores regularly interviewed by ACNielsen for inventory verification on behalf of distributors of branded goods. This list covered retail stores in 41 cities across India for two industry segments: fast-moving consumer goods (FMCG) stores and modern-format stores.¹

Table A.4 Sample Allocation and Actual Coverage of Unorganized Manufacturing ICS 2006, by City and Manufacturing Subsectors

Industry	Delhi		Ludhiana		Hyderabad		Mumbai		Howrah		Total	
	Sample	Actual	Sample	Actual	Sample	Actual	Sample	Actual	Sample	Actual	Sample	Actual
Auto components	30	31	30	38	0	0	10	11	10	9	80	89
Drugs and pharmaceuticals	10	0	0	0	30	0	0	0	0	0	40	0
Chemicals	10	12	10	9	5	14	10	19	5	14	40	68
Electrical goods	60	57	20	13	5	6	25	29	10	12	120	117
Electronics	20	34	40	11	10	11	20	25	10	8	100	89
Food processing	85	81	25	31	45	49	80	86	55	47	290	294
Garments	90	84	100	113	30	37	50	53	30	33	300	320
Leather	25	25	30	31	19	19	30	34	16	12	120	121
Metal and machine tools	50	61	30	39	10	20	60	66	60	61	210	247
Textile	10	20	15	25	40	42	75	83	60	38	200	208
Total	390	405	300	310	194	198	360	406	256	234	1,500	1,553

Source: Unorganized Manufacturing ICS 2006.

Note: The drugs and pharmaceuticals industry does not have firms of fewer than 10 employees; hence, this quota was shifted to the related chemicals industry.

FMCG stores include grocers, general stores, chemists, food stores, and cosmetic stores; most are small family businesses. Modern-format stores include outlets in the organized sector, such as Pantaloon and Reliance.

The sample was stratified according to segment-specific criteria. FMCG stores were stratified on the basis of turnover, number of salespeople, number of FMCG products, and presence of cooling equipment. Consumer durables and modern-format stores were stratified on the basis of turnover; however, high-end modern format stores² were completely enumerated.

Sample Size

The sample size was determined so as to minimize the standard error in the sample variables, given the available resources for each surveying stratum. Once the sample size was determined, the sample was allocated to strata using Neyman's allocation rule.

The resulting sample size was 1,482 stores; it covered 41 towns for FMCG stores and 29 towns for modern-format stores.³

Final Sample Summary

Because of the high nonresponse rate, the final sample consisted of 1,433 stores and was distributed across industry segments as shown in table A.5.

Software/ITES ICS

Sampling Frame and Selection Process

The Software/ITES ICS 2006 covered seven states: Andhra Pradesh, Delhi, Haryana, Karnataka, Maharashtra, Tamil Nadu, and Uttar Pradesh. Across the seven states, samples were drawn from two subsectors: software and ITES.

The frame used for the sampling was the National Association of Software and Services Companies business directory. Unlike the sample for the Manufacturing ICS, the software/ITES sample was allocated across major cities rather than across states.

Table A.5 Sample Allocation, Actual Coverage, and Distribution of Retail ICS 2006, by Sector

Type of store	Sample allocation	Actual coverage	Actual sample distribution (%)
FMCG	1,199	1,244	86.8
Modern format	283	189	13.2
Total	1,482	1,433	100.0

Source: Retail ICS 2006.

Sample Size

The target sample size was set at 364 firms across the seven states. The final number of acceptable survey returns was 273 (table A.6).

Table A.6 Actual Coverage and Distribution of Software/ITES ICS 2006, by Subsector

Subsector	Actual coverage	Actual sample distribution (%)
Software	213	74.4
ITES	60	25.6
Total	273	100.0

Source: Software/ITES ICS 2006.

Table A.7 Actual Coverage and Distribution of Software/ITES ICS 2006, by City

City	Actual coverage	Actual distribution (%)
Bangalore	29	10.6
Chennai	65	23.8
Delhi	45	16.5
Hyderabad	17	6.2
Kolkata	0	0.0
Mumbai	62	22.7
Pune	17	6.2
Other cities	38	13.9
Total	273	100.0

Source: Software/ITES ICS 2006.

Table A.8 Actual Coverage and Distribution of Software/ITES ICS 2006, by State

State	Actual coverage	Actual distribution (%)
Andhra Pradesh	17	6.2
Delhi	45	16.5
Haryana	25	9.2
Karnataka	29	10.6
Maharashtra	79	28.9
Tamil Nadu	68	24.9
Uttar Pradesh	10	3.7
Total	273	100.0

Source: Software/ITES ICS 2006.

Final Sample Summary

The actual sample was allocated between the largest cities with the highest concentration of software and ITES firms (table A.7). The resulting distribution across states is reported in table A.8.

Notes

1. The 41 cities covered by the survey are as follows: Ahmedabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Coimbatore, Cuttack, Delhi, Dhanbad, Faridabad, Ghaziabad, Greater Mumbai, Guntur, Gurgaon, Gwalior, Hubli-Dharwad, Hyderabad, Indore, Jaipur, Jalandhar, Jamshedpur, Kanpur, Kochi, Kolkata, Kota, Kozhikode, Lucknow, Ludhiana, Madurai, Mangalore, Mysore, Nagpur, Nashik, Noida, Patna, Pune, Surat, Vadodara, Vijayawada, and Visakhapatnam.
2. Those with sales exceeding Rs 500,000.
3. Modern-format stores are not covered in Dhanbad, Guntur, Gwalior, Hubli-Dharwad, Jalandhar, Jamshedpur, Kota, Mangalore, Mysore, Nashik, Noida, and Vijayawada.

Econometric Analysis of the Effect of Investment Climate on Firm Performance

The effect of investment climate on the performance of firms can be measured in a number of ways, depending on the chosen measure of performance. For the India Investment Climate Assessment (ICA), the effect of investment climate on productivity was measured in terms of all or some of the following economic performance measures: total factor productivity (TFP) or labor productivity, employment demand, wages, exports, and foreign direct investments. Five categories of investment climate variables are taken into account: (a) infrastructure; (b) red tape, corruption, and crime; (c) finance and accountability; (d) labor skills;¹ and (e) other control variables.

The methodology adopted to evaluate the effect of investment climate on productivity is that proposed by Escribano and Guasch (2005), which seeks to provide elasticities or semielasticities of investment climate variables on productivity that are robust (equal signs and of similar magnitudes) to different measures of productivity. The same methodology has been adopted for the productivity analysis of the ICA reports published by the World Bank for Chile, China, Colombia, Malaysia, Mexico, the Philippines, and Thailand.² The alternative productivity measures consider (a) using different functional forms of the production functions (Cobb-Douglas and Translog); (b) using different assumptions on technology and market conditions to get consistent estimators based on Solow residuals, ordinary least squares (OLS), or random effects; and (c) restricting or not restricting input-output elasticities to be the same across industries (see table B.1).

The choice of the econometric specification and the choice of the most appropriate measure of productivity, for all the sectors considered, had to take into account two types of problems. The first is the *endogeneity of the investment climate variables*. When any of the production function inputs is influenced by common causes affecting productivity, such as investment climate variables or other plant

Table B.1 Definitions of Firm Performance Variables

Measure of firm performance	Definition	Survey used
Labor productivity	Sales per employee	Unorganized Manufacturing ICS, Retail ICS
TFP—Solow residuals	TFP estimated using Solow residuals	Manufacturing ICS, Software/ITES ICS
TFP—Cobb-Douglas OLS	TFP estimated using Cobb-Douglas OLS estimator	Manufacturing ICS, Software/ITES ICS
TFP—Cobb-Douglas random effects	TFP estimated using Cobb-Douglas random effects estimator	Manufacturing ICS, Software/ITES ICS
TFP—Translog OLS	TFP estimated using Translog OLS estimator	Manufacturing ICS, Software/ITES ICS
TFP—Translog random effects	TFP estimated using Translog random effects estimator	Manufacturing ICS, Software/ITES ICS
Employment demand	Total number of full-time workers (permanent or temporary)	Manufacturing ICS, Unorganized Manufacturing ICS, Software/ITES ICS
Wages	Total expenditures on personnel (deflated by using the Producer Price Indexes, base 2002) divided by total number of permanent and temporary workers	Manufacturing ICS, Software/ITES ICS
Exports	Dummy variable that takes value 1 if exports are greater than 10 percent	Manufacturing ICS, Software/ITES ICS
Foreign direct investments	Dummy variable that takes value 1 if any part of the capital of the firm is foreign	Manufacturing ICS, Software/ITES ICS

Source: Authors' compilation.

characteristics, one should expect the productivity to be correlated with the production function inputs. Inputs should therefore be treated as endogenous regressors. The second problem is *missing variables*. A large number of individual investment climate observations were missing at the plant level, which represents one of the most important problems of the Investment Climate Surveys (ICSs).

The solution for the first problem has been to use the industry-region-size average of the investment climate variables that are thought to be endogenous on the basis of an *a priori* hypothesis supported by the findings of the relevant literature. Such variables are the greatest number of days to clear customs to export, a dummy for research and development (R&D), and an unskilled workforce (see note [b] to table B.2). Substituting the industry-region-size for the missing investment climate observations has also been the adopted solution for the issue of missing variables. The industry-region-size averages have also been used to replace missing values in the productivity function variables, with the exception of cost of rental capital in the retail sector regressions, which was replaced with values obtained by regressing the cost of capital on selling area plus sector and size controls for the available data.

Table B.2 Manufacturing Investment Climate Elasticities and Semielasticities with Respect to Productivity, Unrestricted Estimation

Categories of ICA variables	Explanatory ICA variables	Two-step estimation		Single-step estimation			
		Solow residuals		Cobb-Douglas		Translog	
		OLS	Random effects	OLS	Random effects	OLS	Random effects
Infrastructure	Greatest number of days to clear customs to export ^a	-0.040***	-0.033	-0.041***	-0.030	-0.017	-0.001
	Dummy for own generator	0.084***	0.082**	0.094***	0.179***	0.112***	0.189***
	Water supply from public sources ^b	0.002***	0.002***	0.002***	0.001**	0.001***	0.001**
	Shipment losses in the domestic market ^b	0.0003	0.0002	-0.0030	-0.0060	-0.0040**	-0.0050
	Dummy for own transport	0.041	0.056	0.058	0.145**	0.060	0.148***
	Dummy for Web page	0.023	0.016	0.035	0.077*	0.051**	0.056
Red tape, corruption, and crime	Dummy for security	0.072***	0.058	0.065***	0.117***	0.067***	0.093**
	Sales reported to taxes ^b	0.0001	0.0001	0.0001	0.0020*	0.0010	0.0020*
	Workforce reported to taxes ^b	-0.001	-0.001	-0.001	-0.002	-0.002***	-0.002**
	Dummy for payments to speed up bureaucracy	-0.088***	-0.095***	-0.099***	-0.083**	-0.065***	-0.058*
	Dummy for interventionist labor regulation	-0.031	-0.037	-0.024	-0.027	-0.025	0.010
	Absenteeism ^b	-0.032**	-0.021	-0.019	-0.028	-0.032***	-0.040*
Finance and corporate governance	Dummy for trade association	0.032	0.032	0.030	0.095**	0.074***	0.140***
	Working capital financed by domestic private banks ^b	0.0004	0.0010	0.0010	0.0020**	0.0001	0.0010
	Dummy for loan ^b	0.046*	0.044	0.053**	0.065	0.063***	0.086**
	Dummy for external audit	0.094***	0.101*	0.040	0.102*	0.079***	0.133**

(continued)

Table B.2 (continued)

Categories of ICA variables	Explanatory ICA variables	Two-step estimation		Single-step estimation			
		Solow residuals		Cobb-Douglas		Translog	
		OLS	Random effects	OLS	Random effects	OLS	Random effects
Quality, innovation, and labor skills	Dummy for R&D ^a	0.227**	0.183	0.192**	0.379***	0.156**	0.313**
	Dummy for product innovation	0.037*	0.040	0.022	0.032	0.014	0.010
	Dummy for foreign license ^b	0.145**	0.167**	0.156**	0.218**	0.141***	0.179**
	Dummy for internal training ^b	0.062*	0.051	0.076**	0.034	0.095***	0.078
	Unskilled workforce ^a	-0.004*	-0.004	-0.003*	-0.003	-0.002	-0.003
	Workforce with computer	0.002**	0.002**	0.002**	0.003***	0.002***	0.003***
Other control variables	Dummy for incorporated company	0.041	0.032	0.036	0.152***	0.058**	0.127***
	Age	0.054***	0.052**	0.057***	0.100***	0.047***	0.066***
	Share of exports ^b	0.001	0.001	0.001	0.003***	0.001*	0.002***
	Trade union ^b	0.001	0.001	0.001*	0.002***	0.001	0.002***
	Strikes ^b	-0.071**	-0.085*	-0.019	0.015	-0.003	0.009
	Dummy for medium firms	-0.071***	-0.083**	-0.067***	-0.095**	-0.030	-0.029
	Number of observations	5,230	5,230	5,230	5,230	5,230	5,230
	R-squared	0.07	0.07	0.88	0.88	0.90	0.90

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. These variables are instrumented with the industry-region-size average.

b. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

Outliers have been dropped from the sample. More details about the measure of firm performance and about the estimation technique are provided within the sector-specific results.

Once the elasticities or semielasticities of investment climate variables on performance have been estimated, the partial direct effect of each investment climate variable on each measure of productivity can be obtained by evaluating the effect of the average investment climate and control variables on the sample average value of the performance measures: productivity, employment, wages, exports, and foreign direct investment (FDI). This evaluation can be made at different aggregation levels (for example, for the whole sector, by industry, or by size of the firm).

Through use of the Olley and Pakes (1996) decomposition method, aggregate productivity can be decomposed into two terms: the productivity of the average firm and a covariance term that provides information on whether the economy is able to efficiently reallocate resources from less productive establishments to more productive firms. When the efficiency term is positive, the larger it is, the higher the share of sales that goes to more productive firms and the higher the total productivity of the sector. When the efficiency term is negative, the result is allocation inefficiencies because larger shares of sales are going to less productive firms.

Manufacturing Sector

An empirical analysis of firm performance has been conducted for the manufacturing sector in India at the plant level, taking advantage of the data available in the Manufacturing ICS 2006 for the years 2002, 2003, and 2004. Six dimensions of performance have been measured (total factor productivity, labor productivity, exports, FDI, wages, and employment), each through three different approaches (Solow residuals, Cobb-Douglas, and Translog production functions).

The performance analysis is done for the whole manufacturing sector as well as by industry. Industries covered by the survey are food, apparels, textiles and leather, chemicals and chemical products, plastics and rubbers, nonmetallic products, structural metal and metal products, and machinery and equipment.

The India Manufacturing ICS 2006 data represent a panel short in the time dimension—three years of observations—but long in the cross-section dimension. However, information about the investment climate variables is available for 2004 only; in the empirical application, it is assumed that the investment climate characteristics for these three years (2002, 2003, and 2004) are constant at the plant level, and they are therefore treated as observable fixed effects. The productivity equations are not estimated in first differences to avoid losing all the information on ICA variables (which are constant over time by construction); they are instead estimated in levels (logs), adding dummy variables to control for the three years and the eight industries.

Because any empirical evaluation on the productivity effect of investment climate variables might critically depend on the particular way productivity is measured, several productivity measures are employed. Each measure is used to evaluate the

effect of the investment climate variables on productivity for both the entire manufacturing sector and the individual regions.

The first measure is the Solow residuals.³ This method involves a two-step procedure by which, in the first step, the productivity measure (logPi) is estimated and, in the second step, the investment climate elasticities are obtained. The production function estimated in the first step is

$$\log Y_{j,it} = \bar{s}_{j,L} \log L_{j,it} + \bar{s}_{j,M} \log M_{j,it} + \bar{s}_{j,K} \log K_{j,it} + \log P_{j,it}.$$

Having estimated the productivity P from the above equation, one can estimate the investment climate elasticities and semielasticities by OLS and by random effects from the following two-step estimator:

$$\log P_{j,it} = \alpha'_{IC} IC_i + \alpha'_C C_i + \alpha'_{Ds} D_j + \alpha'_{DT} D_t + \alpha_p + u_{j,it}.$$

The second productivity measure is obtained through a parametric estimation of an extended Cobb–Douglas production function by OLS. Next, the well-known problem of endogeneity of the inputs must be addressed, so the unobserved firm-specific fixed effects are proxied by a long list of firm-specific observed fixed effects coming from the investment climate information. The estimated equation is the following:

$$\begin{aligned} \log Y_{j,it} = & \alpha_{j,L} \log L_{j,it} + \alpha_{j,M} \log M_{j,it} + \alpha_{j,K} \log K_{j,it} + \alpha'_{IC} IC_i + \alpha'_C C_i + \alpha'_{Ds} D_j \\ & + \alpha'_{DT} D_t + \alpha_p + \varepsilon_{j,it}. \end{aligned}$$

The effect of investment climate variables on productivity is then estimated as the extended residuals of the production function:

$$\log \hat{P}_{j,it} = \alpha'_{IC} IC_i + \alpha'_C C_i + \alpha'_{Ds} D_j + \alpha'_{DT} D_t + \alpha_p + \xi_{j,it}.$$

The third measure consists of the same procedure described earlier, but a translog rather than Cobb–Douglas functional form is used for the production function:

$$\begin{aligned} \log Y_{j,it} = & \alpha_{j,L} \log L_{j,it} + \alpha_{j,M} \log M_{j,it} + \alpha_{j,K} \log K_{j,it} + \frac{1}{2} \alpha_{j,LL} (\log L_{j,it})^2 \\ & + \frac{1}{2} \alpha_{j,MM} (\log M_{j,it})^2 + \frac{1}{2} \alpha_{j,KK} (\log K_{j,it})^2 + \alpha_{j,LM} (\log L_{j,it}) (\log M_{j,it}) \\ & + \alpha_{j,LK} (\log L_{j,it}) (\log K_{j,it}) + \alpha_{j,MK} (\log M_{j,it}) (\log K_{j,it}) + \alpha'_{IC} IC_i + \alpha'_C C_i \\ & + \alpha'_{Ds} D_j + \alpha'_{DT} D_t + \alpha_p + \mu_{j,it} \end{aligned}$$

The endogeneity of some investment climate variables is accounted for by using the region–industry–size average of the plant-level investment climate variables instead of the crude investment climate variables, which is a common solution in panel data studies at the firm level.

By means of the Olley and Pakes decomposition, the aggregate log productivity (by industry, state, or firm size) is expressed as the sum of the productivity of the average establishment and the allocative efficiency—that is, the covariance between the share of sales and productivity. This information complements the information provided by the investment climate elasticities and semielasticities estimated in the productivity equations. Consider, for example, the case in which a given investment

climate variable has a low marginal effect on productivity but most of the firms suffer the effect. Then the overall effect of that investment climate variable on average productivity could be large. If the firms that are not constrained by that variable are those with the largest market shares, the effect of that variable will also be large in terms of efficiency. The Olley and Pakes decomposition rule is

$$\begin{aligned} \log P_q = & \hat{\alpha}'_{IC} \overline{C}_q + \hat{\alpha}'_C \overline{C}_q + \hat{\alpha}'_{D_s} \overline{D}_q + \hat{\alpha}_p + \overline{\hat{u}}^a_{q,i} + N_q \hat{\alpha}'_{IC} \hat{\text{cov}}(s^{\log Y}_{q,i}, IC_{q,i}) \\ & + N_q \hat{\alpha}'_C \hat{\text{cov}}(s^{\log Y}_{q,i}, C_{q,i}) + N_q \hat{\alpha}'_{D_s} \hat{\text{cov}}(s^{\log Y}_{q,i}, D_j) + N_q \hat{\text{cov}}(s^{\log Y}_{q,i}, \hat{u}^a_{q,i}), \end{aligned}$$

where the set of parameters comes from the two-step estimation with the restricted Solow residuals as a dependent variable.

For an estimate of the effect of investment climate and control variables on several measures of economic performance, the following simultaneous equations that estimate productivity, employment demand, real wages, probability of exporting, and probability of receiving FDI are used:

$$\log P_{j,it} = \alpha_p + \alpha'_{IC} IC_i + \alpha'_C C_i + \alpha'_{D_s} D_j + \alpha'_{D_T} D_t + (v_{B_i} + \varepsilon_{P,j,it})$$

$$\text{Log } L_{j,it} = \gamma_L + \gamma_p \log P_{j,it} + \gamma_w \log W_{j,it} + \gamma'_L IC_i + \gamma'_C C_i + \gamma'_{D_s} D_j + \gamma'_{D_T} D_t + (v_{L_i} + \varepsilon_{L,j,it})$$

$$\text{Log } W_{j,it} = \beta_W + \beta_p \log P_{j,it} + \beta'_{IC} IC_i + \beta'_C C_i + \beta'_{D_s} D_j + \beta'_{D_T} D_t + (v_{W_i} + \varepsilon_{W,j,it})$$

$$y^{Exp}_{j,it} = \delta_{Exp} + \delta_p \log P_{j,it} + \delta'_{IC} IC_i + \delta'_C C_i + \delta'_{D_s} D_j + \delta'_{D_T} D_t + (v_{Exp,i} + \varepsilon_{Exp,j,it})$$

$$y^{FDI}_{j,it} = \rho_{FDI} + \rho_p \log P_{j,it} + \rho'_{IC} IC_i + \rho'_C C_i + \rho'_{D_s} D_j + \rho'_{D_T} D_t + (v_{FDI,i} + \varepsilon_{FDI,j,it})$$

Because results for investment climate elasticities and semielasticities were robust to the choice of productivity measure, this part of the analysis concentrated only on Solow residuals for the restricted case and the unrestricted-by-industry case.

The equations for export and FDI measure, respectively, the probability that the plant exports its production and the probability that any part of the capital of the firm is foreign. These equations are estimated through linear probability models, that approximate well the probit and logit nonlinear models when the variables are evaluated at their sample means and give easily interpretable parameters.⁴ Furthermore, with this estimator the endogeneity of investment climate variables can be addressed by standard instrumental variable approaches such as the two-stage least squares and general method of moments approaches.

Each equation is estimated by two-stage least squares using heteroskedasticity-robust standard errors because the endogeneity of certain investment climate variables induces a correlation between those investment climate variables and the errors of the system of equations and creates simultaneous equation biases and inconsistencies in least squares estimators. This correlation is in general mitigated by replacing those plant-level investment climate variables by their region-industry averages. However, for some other explanatory variables, such as productivity, wages, exports, and FDI, the endogeneity is intrinsic because of the simultaneous structure of the system of equations. Tables B.3 to B.6 present the empirical results.

Table B.3 Manufacturing Two-Stage Least Squares Estimation of Employment Equation

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		-0.349**	-11.3
Real wages		-0.066**	-14.9
Infrastructure	Dummy for own generator	0.243***	4.0
	Shipment losses in domestic market ^b	-0.015***	-0.6
	Dummy for own transport	0.115**	0.4
	Dummy for Web page	0.291***	2.9
Red tape, corruption, and crime	Sales reported for tax purposes	0.263***	5.5
	Dummy for security ^b	0.002***	6.1
	Dummy for payments to obtain a contract with government ^b	-0.081**	-0.8
	Absenteeism ^b	-0.097***	-1.0
Finance and corporate governance	Largest shareholder ^b	-0.006***	-14.7
	Dummy for chamber of commerce ^b	0.204***	5.4
	Dummy for overdraft	0.093***	1.6
	Borrowing denominated in foreign currency ^b	0.007**	0.3
Quality, innovation, and labor skills	Dummy for quality certification ^b	0.253***	1.7
	Dummy for R&D	0.282***	2.3
	Dummy for foreign license ^b	0.318***	0.5
	Skilled workforce ^c	0.005***	10.0
	Dummy for internal training ^b	0.262***	1.2
	Workforce with computer	0.005***	2.3
Other control variables	Dummy for incorporated company	0.537***	5.1
	Age	0.134***	12.6
	Dummy for exporter	0.571***	2.6
	Dummy for FDI	0.409***	0.3
	Trade union ^c	0.018***	4.2
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.17	
	Partial <i>R</i> -squared ^e	0.01	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.00	
	Hansen test (<i>p</i> -value) ^g	0.186	
	Number of observations	4,902	

Source: Authors' calculations.

Note: ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for product innovation (industry-region-size average), number of inspections (industry-region-size average), dummy for current account (industry-region-size average), dummy for interventionist labor regulation (industry-region-size average), number of competitors (industry-region-size average), and water supply from public sources.

b. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

c. These variables are instrumented with the industry-region-size average.

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Table B.4 Manufacturing Two-Stage Least Squares Estimation of Real Wages Equation

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.363*	5.3
Infrastructure	Dummy for own generator	0.255***	2.1
	Shipment losses in the domestic market ^b	-0.027***	-0.4
	Dummy for Web page	0.101**	0.5
Red tape, corruption, and crime	Sales declared for tax purposes	0.004***	4.8
	Dummy for interventionist labor regulation	-0.129**	-1.7
	Dummy for payments to speed up bureaucracy	0.126***	1.0
Finance and corporate governance	Largest shareholder	-0.002**	-1.9
	Dummy for overdraft	0.199***	1.7
	Dummy for external audit	0.103	1.4
Quality, innovation, and labor skills	Dummy for quality certification ^b	0.140**	0.5
	Dummy for R&D	0.127**	0.5
	Dummy for product innovation	0.205***	1.9
	Skilled workforce ^c	0.011***	8.9
	Experience of the manager ^b	0.088***	2.7
Other control variables	Number of competitors ^c	0.055*	2.2
	Share of exports ^b	0.003***	0.5
	Dummy for medium firms	-0.364***	-1.9
	Dummy for large firms	-0.425***	-0.9
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.070	
	Partial <i>R</i> -squared ^e	0.020	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.000	
	Hansen test (<i>p</i> -value) ^g	0.293	
	Number of observations	4,786	

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes staff with computer (industry-region-size average), dummy for current account, dummy for internal training, dummy for foreign license, and water supply from public sources.

b. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

c. These variables are instrumented with the industry-region-size average.

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Table B.5 Manufacturing Two-Stage Least Squares Estimation of Probability of Exporting Equation

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.164**	149.4
Infrastructure	Number of days to clear customs to export ^b	-0.013**	-30.0
	Dummy for own generator	0.033**	14.1
	Shipment losses in the domestic market ^c	-0.002*	-2.2
	Dummy for own transport	-0.060***	-5.8
	Dummy for e-mail	0.048***	23.9
	Dummy for Web page	0.068***	16.5
Red tape, corruption, and crime	Dummy for security cost ^c	0.033***	18.3
	Dummy for interventionist labor regulation ^b	-0.237***	-201.2
	Dummy for payments to speed up bureaucracy	0.026**	12.6
Finance and corporate governance	Working capital financed by domestic private banks ^c	0.001***	31.2
	Dummy for current account	0.046**	45.3
	Borrowing denominated in foreign currency ^b	0.008***	11.0
Quality, innovation, and labor skills	Dummy for R&D	0.030**	5.9
	Dummy for outsourcing	0.068***	11.4
	Dummy for external training ^c	0.051**	2.2
	Experience of manager	0.071***	138.3
Other control variables	Dummy for medium firms	0.075***	11.3
	Dummy for large firms	0.172***	5.4
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.050	
	Partial <i>R</i> -squared ^e	0.010	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.000	
	Hansen test (<i>p</i> -value) ^g	0.484	
	Observations	5,246	

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for foreign license, dummy for external audit, dummy for product innovation, and number of competitors (industry-region-size average).

b. These variables are instrumented with the industry-region-size average.

c. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Table B.6 Manufacturing Two-Stage Least Squares Estimation of Probability of Receiving FDI

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.043*	276.5
Infrastructures	Number of power outages	-0.004***	-83.5
	Dummy for own generator	0.008*	26.6
	Shipment losses in the domestic market ^b	-0.0003*	-2.8
	Dummy for Web page	0.010***	18.3
Red tape, corruption, and crime	Dummy for conflicts with court involved ^c	0.075***	61.8
	Dummy for illegal payments for protection ^c	-0.088***	-56.7
Finance and corporate governance	Working capital financed by internal funds ^b	0.0001*	45.4
	Dummy for current account	0.014***	94.5
Quality, innovation, and labor skills	Dummy for foreign license ^b	0.028	8.5
	Unskilled workforce	-0.0003***	-50.1
	Dummy for external training ^b	0.026**	8.7
Other control variables	Dummy for exporter	0.020**	15.4
	Dummy for large firms	0.029***	4.3
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.050	
	Partial <i>R</i> -squared ^e	0.010	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.000	
	Hansen test (<i>p</i> -value) ^g	0.195	
	Number of observations	5,007	

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for foreign license, dummy for external audit, dummy for product innovation, and number of competitors (industry-region-size average).

b. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

c. These variables are instrumented with the industry-region-size average.

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Unorganized Manufacturing Sector

An empirical analysis of labor productivity at the firm level was also conducted for the unorganized manufacturing sector, along the lines of the analysis for the retail sector. This analysis was based on the Unorganized Manufacturing ICS 2006 for India.

Productivity Analysis

The productivity analysis is based on the concept of labor productivity, instead of TFP,⁵ because of a lack of adequate information on the capital stock. Labor productivity is computed as value added divided by total employment.

The effect of the investment climate is estimated by regressing estimated labor productivity on the log of wages, log of estimated rental, various investment climate variables, and other industry and firm-size control variables:

$$\log\left(\frac{Y}{L}\right)_{it} = \gamma_0 + \gamma_1 \log w_{it} + \gamma_2 \log r_{it} + \gamma_3' IC_i + \gamma_4' C_{it} + \varepsilon_{i,YL}$$

As in other surveys, one problem is that of missing variables. The solution again has been to use industry-region-size averages of the investment climate variables. An exception has been made for the cost of rental capital. For all firms, this variable has been replaced with values predicted by regressing the cost of capital on the net worth of land and machinery and on industry and regional controls for the available data. Outliers were dropped from the sample.

In the first cut, an OLS estimation is used because after controlling for observable fixed effects (investment climate), the investment climate variables can be treated as observable fixed effects. Robust standard errors are used to control for the typical heteroskedasticity of firm-level data. The results for these estimates are reported in table B.7. However, these estimates are likely to be inconsistent given that some of the reported investment climate variables are themselves likely to be endogenous. Better estimates can be obtained by using an instrumental variable method. This method is used in the second set of regressions, which instrument for the bribes that the firm reports paying. The instruments chosen are whether the firm is registered, the number of inspector visits, and regional dummies. The results are presented in the last column of table B.7.

Employment Demand

A firm's conditional employment demand can be represented as follows:

$$\log L_{it} = \beta_0 + \beta_1 \log\left(\frac{Y}{L}\right)_{it} - \beta_2 \log w_{it} + \beta_3 \log r_{it} + \beta_4' IC_i + \beta_5' C_{it} + \varepsilon_{L,it}$$

As explained earlier, this equation should be estimated through two-stage least squares because labor productivity (Y/L) is correlated with the error term. The instruments used in this estimation are losses due to theft, whether the legal system was used to settle disputes, the number of inspections the firm faced in a year, its age, and whether it faces seasonally varying demand. Estimation results for the conditional employment demand equation are reported in table B.8.

The analysis on employment demand shows that in the unorganized manufacturing sector there are strong increasing returns to scale. A 1 percent increase in labor productivity generates a 0.9 percent increase in the employment hours.

Table B.7 Unorganized Sector Investment Climate Elasticities with Respect to Log of Labor Productivity

Explanatory variables	OLS	Instrumental variable
Log of wages	0.672***	0.693***
Log of rent	-0.115***	-0.126***
Infrastructure		
Power outages	-0.0001	0.0001
Difficulty in transport	-0.133*	-0.132*
Red tape, corruption, and crime		
Losses from theft	0.023	0.023
Disputes requiring third-party arbitration	0.092	0.076
Bribe payments	-10.710**	-33.913*
Finance and accountability		
Loan or overdraft from financial institution	-0.371***	0.372***
Borrowing of funds from informal source	0.131**	0.108
Difficulty in complying with labor regulations	-0.086*	-0.090**
Lack of ownership of land occupied by building	0.011	0.007
Experience of manager	-0.002	-0.002
Manager's formal vocational training	-0.001	0.009
Other control variables		
Age of enterprise	0.003*	0.004*
Tiny enterprises ^a	0.400***	0.415***
Microenterprises	0.422***	0.421***
Constant	7.981***	7.271***
R-squared	0.186	0.174
Number of observations	1,328	1,328

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes industry-specific dummy variables.

a. "Household enterprises" was the excluded category.

Retail Sector

A detailed empirical analysis of labor productivity at the firm level was conducted for traditional fast-moving consumer goods (FMCG) stores and for modern-format stores in India.

The productivity analysis is based on the concept of labor productivity, instead of TFP because of a lack of information on some of the basic inputs of the production functions, such as the capital stock. Labor productivity is computed as value added divided by total employment.

Table B.8 Unorganized Sector Investment Climate Elasticities with Respect to Employment Demand

Explanatory variables	Instrumental variable
Log of productivity	0.905***
Log of wages	-0.534***
Log of rent	0.047
Infrastructures	
Power outages	0.001**
Difficulty in transport	0.0285***
Red tape, corruption, and crime	
Losses from theft	-0.005
Bribe payments	0.015
Finance and accountability	
Loan or overdraft from financial institution	0.131
Borrowing of funds from informal source	-0.243***
Difficulty in complying with labor regulations	0.159***
Lack of ownership of land occupied by building	-0.178***
Other control variables	
Age of enterprise	0.004**
Direct sales to a large company	0.101
Constant	-5.651***
F-test (<i>p</i> -values)	0.000
Number of observations	1,328

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes industry specific dummy variables.

The effect of the investment climate on labor productivity is estimated by regressing the log of labor productivity on the log of wages on the investment climate variables and on other control variables, including industry and firm size:

$$\log\left(\frac{Y}{L}\right)_{it} = \gamma_0 + \gamma_1 \log w_{it} + \gamma_2 \log r_{it} + \gamma_3' IC_i + \gamma_4' C_{it} + \varepsilon_{i,YL}$$

Consistent estimates of the coefficients of this equation can be obtained through an OLS estimator, after controlling for observable fixed effects (investment climate) because the investment climate variables are treated as observable fixed effects. Robust standard errors are used to control for the typical heteroskedasticity of firm-level data. Table B.9 shows the results.

The Olley and Pakes decomposition rule for labor productivity is

$$\left(\frac{Y}{L}\right)_{jt} = \left(\bar{\frac{Y}{L}}\right)_{jt} + \sum_{i=1}^{N_{jt}} \tilde{s}_{jit}^Y \left(\tilde{\frac{Y}{L}}\right)_{jit}$$

where the first term on the right-hand side is the average labor productivity of industry *j*, and the second term on the right-hand side measures the allocative efficiency or covariance between the share of sales and labor productivity.

Table B.9 Retail Investment Climate Elasticities and Semielasticities with Respect to Log of Labor Productivity

Explanatory variables	Traditional FMCG coefficient	Modern-format stores coefficient
Log of wages	0.380***	0.131*
Infrastructures		
Average duration of power outages	n.s.	n.s.
Losses from power outages	-0.049***	n.s.
Computer	0.715***	0.329*
Red tape, corruption, and crime		
Criminal attempts	n.s.	n.s.
Security	0.187**	0.373**
Store visited by any agency	0.237***	n.s.
Third-party arbitrage	0.468***	0.783***
Finance and accountability		
Credit line	0.239**	n.s.
Current account	0.391***	n.s.
External audit	0.211**	n.s.
Financing—internal funds	n.s.	n.s.
Financing—family sources	-0.003***	-0.011*
Financing—informal sources	0.008***	n.s.
Labor skills		
Experience of manager	0.102***	0.229***
Other control variables		
Inventory	0.068**	n.s.
Microenterprises	1.195***	2.163***
Small firms	1.157***	1.164***
Medium firms	0.739***	1.180***
Extra-large firms	—	-0.982***
Industry dummies		
Modern-format stores	—	—
Consumer durable stores	—	—
Constant	-3.062***	-1.003*
Number of observations	1,182	1,812
R-squared	0.22	0.44

Source: Authors' calculations.

Note: — = not available; * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; n.s. = not significant.

Table B.10 Software and ITES Investment Climate Unrestricted Elasticities and Semielasticities with Respect to Productivity

Blocks of ICA variables	Explanatory ICA variables	Two-step estimation	Single-step estimation	
		Solow residuals	Cobb-Douglas	Translog
Infrastructure	Dummy for own generator ^a	0.599**	0.442*	0.321
	Dummy for high-speed Internet connection ^a	0.734*	0.604	0.518
	Dummy for unavailability of quality Internet connection ^a	-0.512*	-0.596**	-0.492*
	Dummy for Internet connection used to deliver services to the establishment's clients ^a	0.847**	0.752**	0.736**
	Dummy for conflicts in courts ^a	-0.698*	-0.616*	-0.599*
Red tape, corruption, and crime	Sales never repaid ^b	-0.278**	-0.357***	-0.389***
	Manager's time spent in bureaucratic issues ^a	-0.014	-0.017	-0.023*
	Working capital financed by state-owned banks ^a	-0.012**	-0.015**	-0.014**
Finance and corporate governance	Dummy for overdraft ^a	0.427*	0.449*	0.403
	R&D expenditures ^b	0.142**	0.190***	0.219***
Quality, innovation, and labor skills	Advertising expenditures ^b	0.078*	0.123***	0.136***
	Dummy for incorporated company ^a	0.816*	0.692*	0.772*
Other control variables	Dummy for microfirms	0.465	0.647	0.553
	Number of observations	175	175	175
	R-squared	0.27	0.76	0.79

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry and year dummies and a constant term.

a. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

b. These variables are instrumented with the industry-region-size average.

Software and Information Technology-Enabled Services Sector

An empirical analysis of firm performance was conducted for the software and information technology-enabled services (ITES) sector in India on the basis of the data collected in the Software/ITES ICS 2006. Five measures of performance have been measured (productivity, employment, wages, exports, and FDI) following the same empirical strategy described for the manufacturing sector. Tables B.10 to B.14 report the results.

Table B.11 Software and ITES Two-Stage Least Squares Estimation of Employment Equation

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.363*	22.12
Real wages		-0.248***	-54.30
Infrastructure	Dummy for own generator ^b	0.525**	7.59
Red tape, corruption, and crime	Sales never repaid ^c	-0.179***	-18.65
	Manager's time spent in bureaucratic issues ^b	0.020***	4.39
Finance and corporate governance	Working capital financed by private commercial banks ^b	0.010*	1.66
	Dummy for loan ^b	0.902***	2.85
	Rental land ^b	-0.008***	-14.34
Quality, innovation, and labor skills	Dummy for quality certification ^b	0.513**	4.81
	Dummy for external training ^b	0.390*	5.30
	Dummy for payments for royalties ^b	0.767*	1.45
Other control variables	Age	0.548***	33.14
	Percentage of direct exports ^b	0.008***	8.69
	Dummy for importer ^b	0.414*	3.28
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.520	
	Partial <i>R</i> -squared ^e	0.086	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.002	
	Hansen test (<i>p</i> -value) ^g	0.255	
	Number of observations	175	

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry and year dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for high-speed Internet connection, dummy for Internet connection used to deliver services to the establishment's clients, working capital financed by state-owned banks, advertising expenditures (industry-region-size averages), and dummy for incorporated company.

b. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

c. These variables are instrumented with the industry-region-size average.

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Table B.12 Software and ITES Two-Stage Least Squares Estimation of Real Wages Equation

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.788***	22.70
Infrastructure	Number of power outages ^b	-0.739***	-47.78
Red tape, corruption, and crime	Sales never repaid ^b	-0.180*	-8.12
	Security cost ^b	-0.155***	-14.12
Finance and corporate governance	Largest shareholder ^b	0.027**	22.95
	Working capital financed by family or friends ^c	-0.035**	-1.16
	Working capital financed by informal sources ^c	-0.064**	-0.30
Quality, innovation, and labor skills	Dummy for new product ^c	0.545*	2.64
Other control variables	Age	-0.480**	-13.76
Instruments evaluation	First stage <i>R</i> -squared ^d	0.479	
	Partial <i>R</i> -squared ^e	0.099	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.007	
	Hansen test (<i>p</i> -value) ^g	0.548	
	Number of observations		

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry and year dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for high-speed Internet connection, dummy for Internet connection used to deliver services to the establishment's clients, working capital financed by state-owned banks, advertising expenditures (industry-region-size averages), and dummy for incorporated company.

b. These variables are instrumented with the industry-region-size average.

c. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Table B.13 Software and ITES Two-Stage Least Squares Estimation of Probability of Exporting Equation

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.145**	62.88
Infrastructure	Number of power outages ^b	-0.078*	-77.72
	Dummy for Internet connection uses to make purchases for this establishment ^c	0.149**	17.14
Red tape, corruption, and crime	Security cost ^b	-0.030***	-45.22
	Manager's time spent in bureaucratic issues ^c	0.005**	8.24
Finance and corporate governance	Working capital financed by family or friends ^c	-0.003**	-1.67
	Working capital financed by informal sources ^c	-0.024***	-1.79
Quality, innovation, and labor skills	Staff for whom knowledge of English is critical ^c	0.002*	19.95
	Dummy for external training ^b	0.116*	11.50
Other control variables	Age	-0.123**	-52.84
	Dummy for microfirms	-0.312**	-9.40
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.862***	
	Partial <i>R</i> -squared ^e	0.115	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.005	
	Hansen test (<i>p</i> -value) ^g	0.675	
	Number of observations	171	

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for high-speed Internet connection, dummy for Internet connection used to deliver services to the establishment's clients, working capital financed by state-owned banks, advertising expenditures (industry-region averages), and dummy for incorporated company.

b. These variables are instrumented with the industry-region-size average.

c. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Table B.14 Software and ITES Two-Stage Least Squares Estimation of Probability of Receiving FDI

Blocks of ICA variables	Explanatory ICA variables	Unrestricted Solow residuals ^a	
		Coefficient	Contribution (%)
Productivity		0.107*	124.57
Infrastructure	Number of power outages ^b	-0.129**	-340.97
	Dummy for own transport ^b	0.516*	55.86
Red tape, corruption, and crime	Dummy for cybercrime ^c	-0.377***	-7.58
Finance and corporate governance	Working capital financed by informal sources ^c	-0.009**	-2.25
	Rental land ^c	0.002***	60.35
Quality, innovation, and labor skills	Dummy for payment of royalties ^c	0.224*	6.77
Other control variables	Share of direct exports ^c	0.002***	46.48
	Dummy for small firms	-0.125*	-51.92
Instruments evaluation	First-stage <i>R</i> -squared ^d	0.143	
	Partial <i>R</i> -squared ^e	0.130	
	Partial <i>R</i> -squared <i>F</i> -test (<i>p</i> -value) ^f	0.001	
	Hansen test (<i>p</i> -value) ^g	0.886	
	Number of observations	166	

Source: Authors' calculations.

Note: * = significant at 10 percent; ** = significant at 5 percent; *** = significant at 1 percent. Each regression includes a set of industry dummies and a constant term.

a. Productivity is endogenous, and the list of variables used as excluded instruments includes dummy for high-speed Internet connection, dummy for Internet connection used to deliver services to the establishment's clients, working capital financed by state-owned banks, advertising expenditures (industry-region averages), and dummy for incorporated company.

b. These variables are instrumented with the industry-region-size average.

c. These variables are approximated with a proxy (only missing values replaced by the industry-region-size average).

d. The first-stage *R*-squared is from the regression of productivity on both the included instruments and the excluded instruments.

e. The partial *R*-squared measures the squared partial correlation between the excluded instruments and the productivity.

f. The *F*-test of joint significance of the excluded instruments corresponds to the partial *R*-squared.

g. The Hansen test is a test of over-identifying restrictions. The null hypothesis is that the instruments are valid instruments—that is, uncorrelated with the error term—and therefore the excluded instruments are correctly excluded from the estimated equation.

Notes

1. This category also includes information on innovation for the manufacturing sector.
2. Although this methodology has been widely applied and tested, a number of critiques have been made. The first issue under discussion is the replacement strategy for the missing values in production function variables, which could result in inefficient estimates if missing observations are random. The second matter concerns whether it would be appropriate to test for the validity of the restrictions on the input-output elasticities. The third point of discussion has been the choice of endogenous variables, which, in the chosen specification of the model, do not include variables that are sometimes considered to be endogenous. The clustering of standard errors has also been suggested as an improvement on the methodology because it would prevent inflation of the significance of variables.
3. The advantage of the Solow residuals method is that it requires neither the inputs to be exogenous nor the input-output elasticities to be constant or homogeneous. The drawback is that it requires hypotheses of constant returns to scale and competitive input markets.
4. The parameters measure the change in probability when one of the explanatory variables changes, holding the rest of the explanatory variables constant.
5. Notice that in most of the ICAs done on the manufacturing sector, the analysis was based on TFP and not on labor productivity. See, for example, Escribano and Guasch (2005).

Investment Climate Index Methodology

The microdataset is sourced from the World Bank Investment Climate Survey conducted in 2006 and is based on face-to-face interviews of a representative sample of more than 3,700 entrepreneurs in both manufacturing and retail establishments in 16 Indian states.

Forty-six variables that describe the business environment in the 16 states have been identified. For simplicity, these variables have been grouped into three categories: infrastructure, inputs, and institutions (see table C.1). Each of these categories is classified under two dimensions: objective values (cost) and subjective indicators (perception). As a result of this classification, the 46 variables are grouped in six sets that represent the backbone of the Investment Climate Index (ICI) and aim at measuring the cost and quality of infrastructure services, input markets, and institutions.

The ICI is constructed by means of a series of three separate aggregations (see box C.1).¹ First, to ensure that each component has equal weight, the 46 variables have been grouped in six sets (subindexes) that represent the backbone of the ICI and aim at measuring the cost and quality of infrastructure services, input markets, and institutions. These six subindexes are then further aggregated into three subindexes, one for each category: infrastructure, inputs, and institutions. Finally, these three subindexes are combined into the ICI. At each stage of the aggregation process, principal component and geometric aggregation is employed.

The composite ICI has been successfully tested for reliability. Because there is no theoretical model on the estimation of the weights used in the construction of the index, the reliability of the ICI as a predictor of a good investment climate in India was, prior to the analysis, tested by correlating it with other performance indicators. *Level of domestic private investment* and *gross domestic product growth* for the 16 states were selected as the benchmark performance indicators. The ICI showed clear and

Table C.1 Variables Used in the Construction of the Composite ICI

Cost	Perception
<i>Infrastructure</i>	
Hours of power outages last year	Perception of electricity
Hours of telephone outages last year	Perception of telecommunications
Percentage of sales lost in transit	Perception of transport
Percentage of sales lost because of power outages	Perception of access to land
Days of inventories kept for main input (proxy for quality of transportation)	
<i>Inputs</i>	
Excess labor	Share of short-term finance obtained from banks
Cost of finance: value of collateral required to obtain a loan	Share of long-term finance obtained from banks
Proximity to raw materials (share of inputs bought by domestic sources)	Short-term finance represented by trade finance
Proximity to domestic customers	Duration of loan
Share of firms using new technology	Perception of access to finance
Trade credit: share of sales sold on credit	Perception of labor regulations
Trade credit: share of inputs bought on credit	Perception of customs
	Perception of availability of skills
<i>Institutions</i>	
Law and order: security cost	Perception of law and order: crime
Law and order: losses from theft	Perception of corruption
Manager's time spent dealing with regulations	Perception of licensing and permits
Days spent with officials to deal with regulations	Quality of administration: consistent interpretation of rules
Tax evasion (percentage of sales not declared)	Perception of tax administration: rates
Days to obtain a telephone connection	Perception of tax administration: administration
Days to obtain an electrical connection	Perception of functioning of judicial system
Days to obtain a construction permit	
Bribes to "get things done"	
Share of firms reporting officials' request of gifts	
Share of firms reporting gifts requested to obtain a power connection	
Share of firms reporting gifts requested to obtain a telephone connection	
Share of firms reporting gifts requested to obtain a construction permit	
Share of firms reporting gifts requested to obtain a main operating license	
Average time to reach a court judgment (weeks)	

Source: Authors' compilation.

Box C.1 Formulas Used to Construct the ICI

Step 1:

Variables	Factor Analysis	Aggregation	Index
Hours of power outages Hours of telephone outages Sales lost in transit Days of inventories	Factor 1 Factor 2 Factor 3	$(\text{Factor 1})^{w1} \cdot (\text{Factor 2})^{w2} \cdot (\text{Factor 3})^{w3}$	Infrastructure cost subindex

where,
 Factor 1 = α Hours of power outages + β Sales lost to power outages

Step 2:

Variables	Factor Analysis	Aggregation	Index	Factor Analysis	Aggregation	Index
Infrastructure cost index Infrastructure quality index	Factor 1 Factor 2	$(\text{Factor 1})^{w1} \cdot (\text{Factor 2})^{w2}$	Infrastructure subindex	Factor 1 Factor 2 Factor 3	$F1^w \cdot F2^w \cdot F3^w$	Investment Climate Index
Input cost index Input quality index	Factor 1 Factor 2	$(\text{Factor 1})^{w1} \cdot (\text{Factor 2})^{w2}$	Inputs subindex			
Infrastructure cost index Infrastructure quality index	Factor 1 Factor 2	$(\text{Factor 1})^{w1} \cdot (\text{Factor 2})^{w2}$	Institutions subindex			

Source: Authors' construction.

significant association with both indicators at the state level. These tests provide a degree of confidence that the composite ICI is a reliable indicator of the investment climate in India.

Note

1. Through the use of a stricter distinction between perceptions and objective indicators, four variables classified in table C.1 as inputs perceptions (share of short-term finance obtained from banks, share of long-term finance obtained from banks, trade finance, and loan duration) were reclassified as inputs costs. The ICI was then recalculated to test its robustness. The results were very similar to those of the original ICI. The correlation coefficient among the two indexes was 90 percent, with a significance level of 1 percent.

References

- Acharya, Shankar, Isher Ahluwalia, K. L. Krishna, and Ila Patnaik. 2003. *India: Economic Growth, 1950–2000*. New Delhi: Indian Council for Research on International Economic Relations.
- Ahmad, Sadiq. 2006. *India's Long-Term Growth Experience: Lessons and Prospects*. New Delhi: Sage.
- Bhaumik, Sumon K., Shubhashis Gangopadhyay, and Shagun Krishnan. 2006. "Reforms, Entry, and Productivity: Some Evidence from the Indian Manufacturing Sector." IZA Discussion Paper 2086, Institute for the Study of Labor, Bonn, Germany.
- Bosworth, Barry P., and Susan M. Collins. 2003. "The Empirics of Growth: An Update." Brookings Papers on Economic Activity, Brookings Institution Press, Washington, DC.
- Bosworth, Barry P., Susan M. Collins, and Arvind Virmani. 2007. "Sources of Growth in the Indian Economy." NBER Working Paper 12901, National Bureau of Economic Research, Cambridge, MA.
- Central Statistical Office. 2007. *National Account Statistics*. New Delhi: Government of India.
- Chakravorty, Sanjoy, and Somik V. Lall. 2006. *Made in India: The Economic Geography and Political Economy of Industrialization*. New Delhi: Oxford University Press.
- Chand, Vikram A., ed. 2006. *Reinventing Public Service Delivery in India: Selected Case Studies*. Washington, DC: World Bank.
- Dollar, David, Mary Hallward-Driemeier, and Taye Mengistae. 2005. "Investment Climate and Firm Performance in Developing Economies." *Economic Development and Cultural Change* 54 (1): 1–31.
- Dollar, David, Giuseppe Iarossi, and Taye Mengistae. 2002. "Investment Climate and Economic Performance: Some Firm-Level Evidence from India." Working Paper 143, Center for Research on Economic Development and Policy Reform, Stanford University, Stanford, CA.
- Easterly, William, and Ross Levine. 2001. "It's Not Factor Accumulation: Stylized Facts and Growth Models." Working Paper 164, Central Bank of Chile, Santiago.
- Ernst & Young. 2006. "The Great Indian Retail Story." Ernst & Young, New Delhi. [http://www.ey.com/Global/assets.nsf/Sweden/The_Great_Indian_Retail_Story/\\$file/The%20Great%20Indian%20Retail%20Story.pdf](http://www.ey.com/Global/assets.nsf/Sweden/The_Great_Indian_Retail_Story/$file/The%20Great%20Indian%20Retail%20Story.pdf).
- Escribano, Alvaro, and J. Luis Guasch. 2005. "Assessing the Impact of the Investment Climate on Productivity using Firm-Level Data: Methodology and the Cases of Guatemala, Honduras, and Nicaragua." Policy Research Working Paper 3621, World Bank, Washington, DC.
- FICCI (Federation of Indian Chambers of Commerce and Industry). 2007. *Survey of Emerging Skill Shortages in the Indian Industry, July 2007*. New Delhi: FICCI.

- Goldar, Bishwanath. 2004. "Productivity Trends in Indian Manufacturing in the Pre- and Post-reform Periods." ICRIER Working Paper 137, Indian Council for Research on International Economic Relations, New Delhi.
- Goldar, Bishwanath, and Anita Kumari. 2003. "Import Liberalization and Productivity Growth in Indian Manufacturing Industries in the Late 1990s." *Developing Economies* 41 (4): 436–60.
- Goldman Sachs. 2007. *BRICs and Beyond*. New York: Goldman Sachs.
- Government of India. 2000. *Report of the Eleventh Finance Commission for 2000–2005*. New Delhi: Ministry of Finance, Government of India.
- Guruswamy, Mohan, Kamal Sharma, Jeevan Prakash Mohanty, and Thomas J. Korah. 2005. "FDI in India's Retail Sector: More Bad Than Good?" Centre for Policy Alternatives, New Delhi.
- Hausmann, Ricardo, Dani Rodrik, Charles F. Sabel. 2007. "Reconfiguring Industrial Policy: A Framework with an Application to South Africa." Working paper, Republic of South Africa National Treasury, Pretoria.
- Iarossi, Giuseppe, Federica Saliola, and Giovanni Tanzillo. 2007. "Business Climate, Productivity, and Competitiveness in Armenia: 2002–2005." *Armenian Journal of Public Policy* 2 (2): 153–91.
- IMF (International Monetary Fund). 2006. *World Economic Outlook, Fall 2006*. Washington, DC: IMF.
- Ingram, Michael, Vijaya Ramachandran, and Vyjayanti Desai. 2006. "Why Do Firms Choose to Be Informal? Evidence from the Africa Investment Climate Surveys." Regional Program on Enterprise Development Working Paper 134, World Bank, Washington, DC.
- Joseph, Mathew, Nirupama Soundararajan, Manisha Gupta, and Sanghamitra Sahu. 2008. *Impact of Organized Retailing on the Unorganized Sector*. New Delhi: Indian Council for Research on International Economic Relations.
- Kochhar, Kalpana, Utsav Kumar, Raghuram Rajan, Arvind Subramanian, and Ioannis Tokatlidis. 2006. "India's Pattern of Development: What Happened, What Follows?" IMF Working Paper 06/22, International Monetary Fund, Washington, DC.
- Kohli, Renu, and Sudip Mohapatra. 2007. "What Explains India's Real Appreciation?" IMF Working Paper 07/268, International Monetary Fund, Washington, DC.
- Kumar, Rajiv, and Abhijit Sen Gupta. 2008. "Towards a Competitive Manufacturing Sector." ICRIER Working Paper 203, Indian Council for Research on International Economic Relations, New Delhi.
- Little, Ian M. D., Dipak Mazumdar, and John M. Page. 1987. *Small Manufacturing Enterprises: A Comparative Analysis of India and Other Economies*. New York: Oxford University Press.
- Malhotra, Mohini, Yanni Chen, Alberto Criscuolo, Qimiao Fan, Iva Ilieva Hamel, and Yevgeniya Savchenko. 2006. "Expanding Access to Finance: Good Practices and Policies for Micro, Small and Medium Enterprises." World Bank, Washington, DC.
- McKinsey Global Institute. 2001. *India: The Growth Imperative*. New Delhi: McKinsey & Company.
- . 2003. *New Horizons: Multinational Company Investment in Developing Economies*. San Francisco, CA: McKinsey & Company.
- Ministry of Finance. 2008. *Economic Survey 2007–2008*. New Delhi: Government of India.
- NASSCOM (National Association of Software and Services Companies). 2007. "Indian IT Industry: NASSCOM Analysis." NASSCOM, New Delhi. <http://www.nasscom.in/upload/5216/Indian%20IT%20Industry%20Factsheet%20Feb%202007.doc>.

References

- NASSCOM (National Association of Software and Services Companies) and Everest Group. 2008. *India BPO Study: Roadmap 2012—Capitalizing on the Expanding BOP Landscape*. New Delhi: NASSCOM.
- NASSCOM (National Association of Software and Services Companies) and McKinsey & Company. 2005. “Extending India’s Leadership in the Global IT and BPO Industry.” NASSCOM, New Delhi.
- National Commission for Enterprises in the Unorganised Sector. 2007. *Report on Comprehensive Legislation for Minimum Conditions of Work and Social Security for Unorganised Workers*. New Delhi: Government of India.
- National Manufacturing Competitiveness Council. 2006. *The National Strategy for Manufacturing*. New Delhi: National Manufacturing Competitiveness Council.
- NSSO (National Sample Survey Organisation). 1984. *Employment-Unemployment National Sample Survey on Employment and Unemployment, 38th Round*. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.
- . 1994. *Employment-Unemployment National Sample Survey on Employment and Unemployment, 50th Round*. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.
- . 2000. *Employment-Unemployment National Sample Survey on Employment and Unemployment, 55th Round*. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.
- . 2001. *National Unorganised Manufacturing Survey 2000/01*. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.
- . 2005. *Employment-Unemployment National Sample Survey on Employment and Unemployment, 61st Round*. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.
- OECD (Organisation for Economic Co-operation and Development). 2007. *Economic Survey of India 2007*. Paris: OECD.
- Olley, G. Steven, and Ariel Pakes. 1996. “The Dynamics of Productivity in the Telecommunications Equipment Industry.” *Econometrica* 64 (6): 1263–97.
- Panagariya, Arvind. 2007. “Why India Lags Behind China and How It Can Bridge the Gap.” *World Economy* 30 (2): 229–48.
- Papola, Trilok Singh. 1991. “Industry and Employment: Recent Indian Experience.” ISID Foundation Day Lecture, Institute for Studies in Industrial Development, New Delhi.
- Pattnayak, Sanja Samirana, and Shandre M. Thangavelu. 2003. “Economic Reforms and Productivity Growth in Indian Manufacturing Industries: An Interaction of Technical Change and Scale Economies?” Working Paper 0307, National University of Singapore, Singapore.
- Poddar, Tushar, and Eva Yi. 2007. “India’s Rising Growth Potential.” Global Economics Paper 152, Goldman Sachs, New York.
- Poirson, Hélène. 2006. “The Tax System in India: Could Reform Spur Growth?” IMF Working Paper 06/93, International Monetary Fund, Washington, DC.
- Reddy, Y. Venugopal. 2006. “Asian Perspectives on Growth: Outlook for India.” Address at the G30’s International Banking Seminar, Singapore, September 18.
- Reserve Bank of India. 2005. “India’s Financial Sector: Recent Reforms, Future Challenges.” World Bank, Washington, DC.
- Rodrik, Dani, and Arvind Subramanian. 2004. “From Hindu Growth to Productivity Surge: The Mystery of the Indian Growth Transition.” NBER Working Paper 10376, National Bureau of Economic Research, Cambridge, MA.

- Tata Services Limited. 2003. "Reforms and Productivity Trend in Indian Manufacturing Sector." Tata Services Limited, Mumbai, India.
- Topalova, Petia. 2004. "Trade Liberalization and Firm Productivity: The Case of India." IMF Working Paper 04/28, International Monetary Fund, Washington, DC.
- Transparency International. 2005. *India Corruption Study 2005*. New Delhi: Centre for Media Studies.
- UNCTAD (United Nations Conference on Trade and Development). 2007. *Information Economy Report 2007–2008: Science and Technology for Development—The New Paradigm of ICT*. Geneva: UNCTAD.
- Unel, Bulent. 2003. "Productivity Trends in India's Manufacturing Sectors in the Last Two Decades." IMF Working Paper 03/22, International Monetary Fund, Washington, DC.
- Veeramani, Choorikkad, and Bishwanath Goldar. 2004. "Investment Climate and Total Factor Productivity in Manufacturing: Analysis of Indian States." ICRIER Working Paper 127, Indian Council for Research on International Economic Relations, New Delhi.
- Virmani, Arvind. 2004. "Sources of India's Economic Growth: Trends in Total Factor Productivity." ICRIER Working Paper 131, Indian Council for Research on International Economic Relations, New Delhi.
- World Bank. 2004a. *India: Scaling-up Access to Finance for India's Rural Poor*. Report 30740-IN. Washington, DC: World Bank.
- . 2004b. "Sustaining India's Services Revolution." World Bank, Washington, DC.
- . 2006a. "Doing Business in South Asia 2006." World Bank, Washington, DC.
- . 2006b. *Inclusive Growth and Service Delivery: Building on India's Success—India Development Policy Review*. Washington, DC: World Bank.
- . 2007a. *Doing Business 2008*. Washington, DC: World Bank.
- . 2007b. "India's Employment Challenge: Creating Jobs, Helping Workers." World Bank, Washington, DC.
- . 2007c. *World Development Indicators 2007*. Washington, DC: World Bank.
- . 2008. "India Accelerating Growth and Development in the Lagging Regions of India." World Bank, Washington, DC.

Index

Boxes, figures, notes, and tables are indicated by *b*, *f*, *n*, and *t*, respectively.

A

Accelerated Power Development and Reform Program (APDRP), 40
AETRs (average effective tax rates), 81*b*
age of firms engaged in unorganized manufacturing, 55, 60*f*
agricultural employment in India, 20–21*f*
Agricultural Produce Marketing Committee Act, 73
APDRP (Accelerated Power Development and Reform Program), 40
Arab Republic of Egypt, 33
average effective tax rates (AETRs), 81*b*

B

Bangladesh, 50*b*
Brazil, 25*b*, 71*f*, 80*n3*
bureaucracy. *See* red tape, corruption, and crime

C

capital use, productivity of, 16–17
chain stores. *See under* retail sector
Chile, 125
China
 imports and exports as share of GDP, 17
 inequalities between states in, 25*b*
 organized manufacturing in, 24
 electrical power issues, 47*b*
 exporting firms, 40, 42, 43, 44
 productivity in, 31
 as share of GDP, 30*t*
 productivity analysis of ICA reports, 125
 services sector in, 11
 TFP in, 16
CIBIL (Credit Information Bureau (India) Limited), 68*b*
Cobb-Douglas estimators, 125, 126*t*, 130
Colombia, 125
constraints on investment climate in India, 112*t*, 1111

 econometric analysis of. *See* econometric analysis
 electrical power. *See* electrical power
 finance, access to, 112–13
 in organized manufacturing, 37, 38
 in unorganized manufacturing, 61–62*b*, 61–64, 63*f*, 67–68*b*
 inequalities between states, factors leading to, 107–8, 108*f*, 109*f*
 land, access to, 112
 in retail sector, 78*f*, 79, 83–85*b*
 software and ITES sector, 96
 in organized manufacturing, 112*t*
 compared to software and ITES sector, 89–90*b*
 firms' perceptions of constraints, 31–35, 32–35*f*
 red tape, corruption, and crime. *See* red tape, corruption, and crime
 in retail sector. *See under* retail sector
 security. *See* security issues
 skilled labor, lack of. *See* skilled labor shortages
 in software and ITES sector, 89–90*b*, 93–96, 94–96*f*
 taxation. *See* taxation
 in unorganized manufacturing, 61–62*b*, 61–65, 63*f*, 64*f*, 67–68*b*, 112*t*
corporate governance in organized manufacturing, 37
corruption. *See* red tape, corruption, and crime
credit, access to, 112–13
 in organized manufacturing, 37, 38
 in unorganized manufacturing, 61–62*b*, 61–64, 63*f*, 67–68*b*
Credit Information Bureau (India) Limited (CIBIL), 68*b*
Credit Information Companies Act, 68*b*
crime. *See* red tape, corruption, and crime

D

debt reduction and public savings in India, 15, 16*f*

Doing Business study (World Bank), ICI compared with, 102, 105*b*

E

East Asia and Pacific region, 29, 30*t*

econometric analysis, 125–45

Cobb–Douglas estimators, 125, 126*t*, 130

endogeneity of investment climate variables, 125–26

methodology, 125–29, 126–28*t*

missing variables, problem of, 126

OLS, 125, 126*t*, 130

organized manufacturing, 35–37, 36*f*, 127–28*t*, 129–31, 132–35*t*

retail sector, 137–40, 139*t*

software and ITES sector, 140, 140–44*t*

Solow residuals, 125, 126*t*, 130, 145*n*3

Translog estimators, 125, 126*t*, 130

unorganized manufacturing, 135–36, 137*t*, 138*t*

education. *See* skilled labor shortages

Egypt, Arab Republic of, 33

electrical power

conclusions regarding, 111

in organized manufacturing, 31–33, 32–33*f*, 36–40, 38–39*f*, 47–49*b*

in retail sector, 77, 78*f*

in software and ITES sector, 96

states, inequalities between, 107, 108*f*

in unorganized manufacturing, 61–62, 64*f*

employment demand. *See also* labor force

definition of employment, 66*n*3

in econometric analysis, 126*t*, 129, 132*t*, 136, 138*t*, 141*t*

formal sector, creating growth in, 1, 9, 19–21, 19*f*, 20*f*, 21*t*, 22*t*, 113

in organized manufacturing, 132*t*

in retail sector, 70–73, 74*b*

shortage of skilled labor. *See* skilled labor shortages

in software and ITES sector, 88, 141*t*

in unorganized manufacturing, 60*f*, 136, 138*t*

endogeneity of investment climate variables, 125–26

European Union (EU), 25*b*, 88

exports

in econometric analysis, 126*t*, 129, 134*t*, 143*t*

GDP, as share of, 17

organized manufacturing, 40–45, 41*t*, 42*f*, 43*f*, 44*t*

software and ITES sector, 88, 143*t*

F

family member workers in unorganized manufacturing, 56, 58*f*

fast-moving consumer goods (FMCG) stores. *See under* retail sector

FDI. *See* foreign direct investment

finance, access to, 112–13

in organized manufacturing, 37, 38

in unorganized manufacturing, 61–62*b*, 61–64, 63*f*, 67–68*b*

Fiscal Responsibility and Budget Management Act, 15

FMCG (fast-moving consumer goods) stores.

See under retail sector

foreign direct investment (FDI)

econometric analysis and, 126*t*, 129, 135*t*, 144*t*

in Indian economy generally, 17–19

in organized manufacturing, 31, 35–37, 40

in retail sector, 73

in software and ITES sector, 89, 144*t*

formal sector

employment growth, creating, 1, 9, 19–21, 19*f*, 20*f*, 21*t*, 22*t*, 113

manufacturing in. *See* organized manufacturing

full-time versus part-time workers in

unorganized manufacturing, 56, 58*f*

G

GDP. *See* gross domestic product

Germany, 92*t*

global economy, integration of Indian economy into, 17

GNI (gross national income) per capita in India, 11

gross domestic product (GDP)

agriculture and, 20–21*f*

composition of, 12, 13*f*

employment growth in formal sector and, 19

growth in, 11, 12*f*

imports and exports as share of, 17

investments and savings as share of, 14–15*f*

organized manufacturing's share of, 29, 30*t*

software and ITES sector contribution to, 87

gross national income (GNI) per capita in India, 11

ICA (Investment Climate Assessment). *See* econometric analysis

ICI (Investment Climate Index) measuring

inequalities between states. *See under*

inequalities between states

ICOR (incremental capital output ratio), 17

ICSSs. *See* Investment Climate Surveys

imports, as share of GDP, 17

- incremental capital output ratio (ICOR), 17
- Indian economy, 1–2, 11–27
- challenges faced by, 18–23
 - constraints on. *See* constraints on investment climate in India
 - employment growth in formal sector, importance of creating, 1, 9, 19–21, 19*f*, 20*f*, 21*t*, 22*t*
 - FDI in, 17–19
 - GDP. *See* gross domestic product
 - global economy, integration into, 17
 - GNI per capita, 11
 - growth of, 11–12, 12*f*, 13*f*
 - key growth drivers, 12–19, 14–16*f*, 17*t*, 18*b*
 - manufacturing sector. *See* organized manufacturing; unorganized manufacturing
 - productivity growth and, 15–17, 17*t*
 - public savings and debt reduction, 15, 16*f*
 - retail. *See* retail sector
 - savings and investments, increases in, 14–15*f*
 - services sector, 11
 - software and ITES. *See* software and ITES sector
 - states, inequalities between. *See* inequalities between states
 - structural changes in, 12, 13*f*
- Indian Factories Act, 54*b*
- Indian investment climate. *See* investment climate in India
- Indonesia, 25*b*, 50*b*
- inequalities between states, 8–9, 101–10
- conclusions regarding, 9, 109, 114
 - electrical power, 107, 108*f*
- ICI, 8, 101–2
- compared with Infrastructure Quality Index and *Doing Business* study, 102, 105*b*
 - formulas used to construct, 147, 149*b*
 - methodology, 102, 147–49, 148*t*, 149*b*
 - ranking of states by, 102–7, 106*f*
 - reliability testing, 102, 103–4*b*, 147
 - variables used in, 147, 148*t*
- importance of reducing, 2, 21–23, 23*f*, 24*f*
- infrastructure, 107–8, 108*f*
- institutional indicators, 107–8, 109*f*
- international comparison of income gaps between rich and poor states, 25*b*
- investment climate at state level, importance of measuring, 101–2
- key differences between high and low ranking states, 107–8, 108*f*, 109*f*
- organized manufacturing, 37–40, 38*f*, 39*f*
- red tape, corruption, and crime, 107
- security issues, 107–8
- taxation, 107
- informal sector
- employment growth in, 19–20, 19*f*, 21*t*
 - manufacturing in. *See* unorganized manufacturing
 - percentage of Indian workers in, 25, 26*f*
- information technology-enabled services (ITES). *See* software and ITES sector
- infrastructure
- electrical power. *See* electrical power
 - inequalities between states, measuring, 107–8, 108*f*
 - organized manufacturing, as obstacle to, 36–37, 39–40
 - unorganized manufacturing, as obstacle to, 65
- Infrastructure Quality Index (Government of India), ICI compared with, 102, 105*b*
- institutional indicators
- corporate governance in organized manufacturing, 37
 - inequalities between states, 107–8, 109*f*
 - red tape, corruption, and crime. *See* red tape, corruption, and crime
 - security issues, 107–8
 - taxation. *See* taxation
- Investment Climate Assessment (ICA). *See* econometric analysis
- investment climate in India, 1–10, 111–14
- constraints on. *See* constraints on investment climate in India
 - econometric analysis of. *See* econometric analysis
 - Indian economy and. *See* Indian economy
 - inequalities between states. *See* inequalities between states
 - manufacturing. *See* organized manufacturing; unorganized manufacturing
 - obstacles to, 9*t*
 - retail. *See* retail sector
 - software and ITES. *See* software and ITES sector
- Investment Climate Index (ICI) measuring inequalities between states. *See under* inequalities between states
- Investment Climate Surveys (ICSs), 115–23
- organized manufacturing, 29, 115–17, 116*t*, 117*t*
 - retail sector, 69–70, 119–21, 121*t*
 - software and ITES sector, 87, 121–23, 122*t*
 - unorganized manufacturing, 55, 117–19, 118*t*, 120*t*
- ITES (information technology-enabled services). *See* software and ITES sector
- J**
- Japan, 4, 11, 54
- K**
- Korea, Republic of, 4, 54, 67*b*

L

labor force. *See also* employment demand
 regulation of, organized manufacturing
 affected by, 35, 38–39*f*
 skilled labor. *See* skilled labor shortages
 wages
 in econometric analysis, 126*t*, 129,
 133*t*, 142*t*
 in software and ITES sector, 93, 95*f*, 142*t*

land, access to, 112
 in retail sector, 78*f*, 79, 83–85*b*
 software and ITES sector, 96

M

Malaysia, 67*b*, 125
mandis (market centers), 73
 manufacturing. *See* organized manufacturing;
 unorganized manufacturing
 marginal effective tax wedge (METW), 81*b*
 Mexico, 30*t*, 40, 125
 modern-format stores. *See under* retail sector
 municipal authorities, unorganized manufac-
 turers registered with, 57–59, 59*f*

N

Nepal, 50*b*

O

obstacles to investment climate in India. *See*
 constraints on investment climate
 in India
octroi, 77, 80*n*5
 OECD (Organisation for Economic
 Co-operation and Development)
 countries, 81–82*b*
 ordinary least squares (OLS), 125, 126*t*, 130
 Organisation for Economic Co-operation and
 Development (OECD) countries,
 81–82*b*
 organized manufacturing, 29–46
 changes in products, 41–42, 41*t*
 conclusions regarding, 45–46
 constraints on, 112*t*
 compared to software and ITES sector,
 89–90*b*
 firms' perceptions of, 31–35, 32–35*f*
 corporate governance, 37
 econometric analysis of, 35–37, 36*f*, 127–28*t*,
 129–31, 132–35*t*
 electrical power, 31–33, 32–33*f*, 36–40,
 38–39*f*, 47–49*b*
 exporting firms, 40–45, 41*t*, 42*f*, 43*f*, 44*t*
 FDI, 31, 35–37, 40
 finance, access to, 37, 38
 GDP share, 29, 30*t*
 ICS for, 29, 115–17, 116*t*, 117*t*
 inequalities across states, 37–40, 38*f*, 39*f*

 infrastructure, 36–37, 39–40
 labor force regulation, 35, 38–39*f*
 labor force skills, 31–32, 32–33*f*, 37
 as potential growth driver, 29–31
 productivity issues, 30–31, 35–37, 43–44,
 44*t*, 127–28*t*
 reasons for focus on, 2–4, 24
 red tape, corruption, and crime, 31–34,
 32–34*f*, 36, 38–39*f*, 50–51*b*
 security issues, 36
 unorganized firms' avoidance of organized
 status, 56–61, 59*f*

outsourcing of software and ITES sector jobs
 to India from U.S., 93

P

Pakistan, 33, 50*b*
 part-time workers
 defined, 66*n*2
 in unorganized manufacturing, 56, 58*f*

pay
 in econometric analysis, 126*t*, 129, 133*t*, 142*t*
 in software and ITES sector, 93, 95*f*, 142*t*

Philippines, 125
 power, as investment constraint. *See*
 electrical power

productivity
 of capital use, 16–17
 conclusions regarding, 10, 114
 differentials between large and small firms,
 54–55
 econometric analysis of. *See* econometric
 analysis
 growth of Indian economy attributable to,
 15–17, 17*t*
 importance of accelerating, 2, 23, 114
 inequalities between states and, 23, 24*f*
 organized manufacturing sector and, 30–31,
 35–37, 43–44, 44*t*, 127–28*t*
 potential for accelerating, 23, 26*f*
 reallocation of labor force and, 20–21, 22*t*
 in retail sector, 70–73, 71*f*, 72*f*, 74*b*, 139*t*
 services sectors, across, 91*f*
 in software and ITES sector. *See under*
 software and ITES sector
 TFP. *See* total factor productivity
 unorganized manufacturing sector and,
 54–55, 55*f*, 60, 61–65, 136, 137*t*
 public savings and debt reduction in India,
 15, 16*f*

R

red tape, corruption, and crime
 inequalities between states, 107
 organized manufacturing, as obstacle to,
 31–34, 32–34*f*, 36, 38–39*f*, 50–51*b*
 retail sector, as obstacle to, 77, 78*f*

in software and ITES sector, 96f
 unorganized manufacturing, as obstacle to, 65
 registration of unorganized manufacturers with
 tax or municipal authorities, 57–59, 59f
 Republic of Korea, 4, 54, 67b
 retail sector, 69–80
 conclusions regarding, 79
 constraints on growth and investment
 identification of, 77–79, 78f
 labor force skills, 80n4
 large chain stores more impacted by,
 74–76, 75f, 76f
 econometric analysis of, 137–40, 139t
 electrical power as obstacle to, 77, 78f
 employment growth in, 70–73, 74b
 FDI in, 73
 government reform efforts, 73–74
 growth of, 70, 71f
 ICS for, 69–70, 119–21, 121t
 land, access to, 78f, 79, 83–85b
 large chain stores (modern-format stores),
 69–70
 cost structure for, 76f
 effect of investment climate on, 74–76,
 75f, 76f
 obstacles identified by, 77–79, 78f
 productivity and employment growth, 73
 productivity issues in, 70–73, 71f, 72f,
 74b, 139t
 reasons for focus on, 5–6, 27
 red tape, corruption, and crime as obstacle
 to, 77, 78f
 small individual stores (traditional retail or
 FMCG stores), 69–70
 cost structure for, 76f
 effect of investment climate on, 74–76,
 75f, 76f
 land, access to, 83b
 productivity and employment growth, 70,
 73, 74b
 types of stores included in, 79n1
 taxation
 large chains, taxation as obstacle to,
 77–79, 78f, 81–82b
 VAT, 73–74, 77–79
 Russian Federation, 11, 92t

S

salaries
 in econometric analysis, 126t, 129, 133t, 142t
 in software and ITES sector, 93, 95f, 142t
 savings, increases in, 14–15f
 SEBs (State Electricity Boards), unbundling
 of, 40
 Securitization and Reconstruction of Financial
 Assets and Enforcement of Security
 Interest Act 2002 (SRFAESI), 67–68b

security issues
 inequalities between states, 107–8
 organized manufacturing, 36
 software and ITES sector, 97n1, 97n3
 services sector in India, growth of, 11
 size of firms
 retail sector, 69–70. *See also under*
 retail sector
 unorganized manufacturing, 55
 skilled labor shortages
 conclusions regarding, 113
 organized manufacturing, as obstacle to,
 31–32, 32–33f, 37
 in retail stores, 80n4
 software and ITES sector, shortage of skilled
 workers in, 94–96, 95f, 98–99b
 unorganized manufacturing, 56, 57f, 65
 software and ITES sector, 87–97
 conclusions regarding, 96–97
 constraints on, 89–90b, 93–96, 94–96f
 econometric analysis of, 140, 140–44t
 electrical power in, 96
 employment growth in, 88
 export market, 88, 143t
 favorable conditions
 leading to success in, 89–91
 productivity gains to offset erosion of,
 93–96
 FDI, 88, 144t
 growth of, 87–89, 88f
 ICS for, 87, 121–23, 122t
 labor force
 rising wages for, 93, 95f, 142t
 shortage of skilled workers, 94–96, 95f,
 98–99b
 land, access to, 96
 outsourcing to India from U.S., 93
 productivity
 econometric analysis of, 140t
 gains to offset erosion of favorable
 conditions, 93–96
 potential for growth in, 81f,
 91–93, 92f
 reasons for focus on, 6–8, 27
 red tape, corruption, and crime in, 96f
 security issues, 97n1
 TFP for, 93
 Solow residuals, 125, 126t, 130, 145n3
 South Asia region, 30t
 South Korea (Republic of Korea), 4, 54, 67b
 SRFAESI (Securitization and Reconstruction of
 Financial Assets and Enforcement of
 Security Interest Act 2002), 67–68b
 State Electricity Boards (SEBs), unbundling
 of, 40
 states, inequalities between. *See* inequalities
 between states

T

taxation
 AETRs, 81*b*
 inequalities between states, 107
octroi, 77, 80*n*5
 organized manufacturing, as obstacle to, 31, 32–33*f*, 33, 38–39*f*
 retail stores
 large chains, taxation as obstacle to, 77–79, 78*f*, 81–82*b*
 VAT, 73–74, 77–79
 unorganized manufacturers registered with tax authorities, 57–59, 59*f*
 telecommunications. *See* software and ITES sector
 TFP. *See* total factor productivity
 Thailand, 24, 30*t*, 125
 total factor productivity (TFP)
 in econometric analysis, 125, 126*t*
 Indian economy and, 16, 17*t*, 18*b*
 in organized manufacturing, 30–31, 35–36
 in software and ITES sector, 93
 traditional retail stores. *See under* retail sector
 Translog estimators, 125, 126*t*, 130
 transportation. *See* infrastructure
 Turkey, 2, 31, 40, 46*n*2

U

United Arab Emirates, 82*b*
 United Arab Republic, 33
 United Kingdom, 88
 United States
 inequalities between states in, 25*b*
 organized manufacturing productivity in, 30
 purchasing power of India compared to, 11
 retail sector in, 70, 71*f*
 software and ITES sector
 exports to U.S. from India, 88
 outsourcing, 93
 productivity levels compared, 91, 92*f*

unorganized manufacturing, 53–66
 age of firms engaged in, 55, 60*f*
 characteristics of firms, owners, and workers involved in, 55–56, 57*f*, 58*f*
 constraints on, 61–62*b*, 61–65, 63*f*, 64*f*, 67–68*b*, 112*t*
 defined, 54*b*
 econometric analysis of, 135–36, 137*t*, 138*t*
 electrical power, 61–62, 64*f*
 employment demand in, 60*f*, 136, 138*t*
 finance, access to, 61–62*b*, 61–64, 63*f*, 67–68*b*
 ICS for, 55, 117–19, 118*t*, 120*t*
 importance to India's economy, 53–54
 infrastructure obstacles, 65
 labor force skills, 56, 57*f*, 65
 organized sector, avoidance of, 56–61, 59*f*
 productivity issues, 54–55, 55*f*, 60, 61–65, 136, 137*t*
 reasons for focus on, 4–5, 25–27, 26*f*
 red tape, corruption, and crime as obstacle to, 65
 registration with tax or municipal authorities, 57–59, 59*f*
 unorganized sector. *See* informal sector

V

value-added tax (VAT) and retail stores, 73–74, 77–79
 Vietnam, 50*b*

W

wages
 in econometric analysis, 126*t*, 129, 133*t*, 142*t*
 in software and ITES sector, 93, 95*f*, 142*t*
 women in unorganized manufacturing, 55, 56, 58*f*
 workforce. *See* employment demand; labor force

ECO-AUDIT
Environmental Benefits Statement

The World Bank is committed to preserving endangered forests and natural resources. The Office of the Publisher has chosen to print *India's Investment Climate* on recycled paper with 30 percent postconsumer fiber in accordance with the recommended standards for paper usage set by the Green Press Initiative, a nonprofit program supporting publishers in using fiber that is not sourced from endangered forests. For more information, visit www.greenpressinitiative.org.

Saved:

- 10 trees
- 7 million BTU of total energy
- 866 lb. of net greenhouse gases
- 3,596 gal. of waste water
- 462 lb. of solid waste



India has emerged in the past few years as one of the world's fastest growing economies. While a high level of investment and domestic private consumption continue to drive growth, it is necessary to address the bottlenecks that prevent sustainable economic growth in the future.

India's Investment Climate: Voices of Indian Business identifies key investment climate bottlenecks that slow down growth and poverty reduction. *Investment climate* refers to factors that influence day-to-day decisions by firms on how to invest. It includes macroeconomic policies, governance, institutions, and infrastructure. In particular this book aims to answer the following three questions insofar as they relate to the investment climate:

- How can productivity be improved?
- How can employment generation be increased?
- How can inequality among states be reduced?

India's Investment Climate highlights the significance of the challenges facing India and demonstrates how investment climate improvements in key sectors will assist the Indian economy in overcoming these three challenges. It provides national and local policy-makers a number of recommendations based upon well-researched analysis backed by sound economic theory.



THE WORLD BANK

ISBN 978-0-8213-7757-4



SKU 17757