Reviving Growth in India

Edited by
Pradeep Agrawal
Revised growth in India / edited by Pradeep Agrawal.

Summary: "Discusses some of the unresolved questions relating to reviving growth in India covering various sectors of the economy"-- Provided by publisher.

ISBN 978-1-107-09033-0 (hardback)

1. India--Economic policy. 2. India--Commercial policy. 3. Industrial policy--India. 4. Agrawal, Pradeep.

HC435.3.R488 2015
330.954—dc23
2014049625

ISBN 978-1-107-09033-0 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.
Contents

List of Tables and Figures v
Preface xiii

Section 1: The importance of growth

Chapter 1: Introduction: Reviving Growth in India 3
   Pradeep Agrawal
Chapter 2: Economic Growth: The Key to Poverty Reduction in India 17
   Pradeep Agrawal

Section 2: Reviving growth of industry and exports

Chapter 3: Sustaining a High Rate of Industrial Growth in India in the Next 10 Years 47
   Biswpanath Goldar
Chapter 4: Growth Drivers: ICT and Inclusive Innovations 82
   Ashima Goyal
Chapter 5: Determinants of India's Service Exports 107
   Pravakar Saboo, Ranjan Kumar Dash, Prabhu Prasad Mishra

Section 3: The dampeners to growth: Controlling inflation

Chapter 6: Macroeconomic Effects of Monetary Policy in India 141
   Sushanta K. Mallick
Chapter 7: Role of Monetary Policy in Sustaining High Growth in India: Lessons from the Recent Dynamics in Determination of Bank Credit 170
   Amaresh Samantaraya
Contents

Section 4: The supply constraints to growth

Chapter 8: Sustainability of Indian Agriculture
Nilabja Ghosh, Anita Kumari 197

Chapter 9: Energy Security for India
Pradeep Agrawal, Shruti Tripathi 220

Chapter 10: Social and Physical Infrastructure in India: Constraints to Rapid Growth
Pradeep Agrawal 239

Chapter 11: Infrastructure Challenges in India: The Role of Public–Private Partnerships
Geethanjali Nataraj 269

Section 5: Emerging issues in growth: The labour and capital markets

Chapter 12: Issues in Labour Cost and Employment
Arup Mitra, Chandan Sharma 303

Chapter 13: Financing Structure and Growth: A Study of Firms in the Indian Private Corporate Sector
Prabhakaran Nair V. R. 334

Chapter 14: Export Intensity and Dividend Policy of Indian Firms
Elena Goldman, Viswanath P. V. 358

Contributors 387
Index 389
List of Tables and Figures

Tables

Table 2.1: Indicators for access to and quality of education in India 30
Table 2.2: Indicators for access to and quality of health in India 31
Table 2.3: Estimation result for social expenditure 33
Table 2.4: Public education and health expenditures for selected countries, 2010–11 34
Table 2.5A: Government social expenditure as per cent of GDP, 1980–2010 36
Table 2.5B: Government social expenditure per capita, 1980–2010 37
Table 3.1: Regression results, explaining increase in fixed capital stock in manufacturing 56
Table 3.2: Sources of output growth, Indian manufacturing, by sub-periods 58
Table 3.3: Average annual growth rates in TFP, Indian manufacturing, by sub-periods 60
Table 3.4: Growth rate in TFP in organized manufacturing industries, two-digit 61
Table 3.5: Regression results: Explaining inter-industry variation in TFP growth
Dependent variable: TFP growth rate (1999–2000 to 2007–08) 71
Annexure A: Unit root tests, investment rate series, 1975–76 to 2011–12 81
Table 4.1: Per cent broadband coverage of village panchayats under Bharat Nirman-II and rural teledensity 93
Table 4.2: Rural urban differences in teledensity 94
Table 4.3: Comparing ICT and mobile use in India and Pakistan 95
Table 5.1: Absolute increase in world total service export (at current prices) 109
Table 5.2: India’s export growth (decadal average) 109
Table 5.3: Components of services export as share of total service export (decadal average) 110
List of Tables and Figures

| Table 5.4: | Decadal average growth rate of component of service exports | 110 |
| Table 5.5: | Miscellaneous service export and its component (as per cent of total) | 111 |
| Table 5.6: | World export of services (three main components) in US$ billion | 112 |
| Table 5.7: | Share of different category of world services export over the year | 114 |
| Table 5.8: | Normalized Herfindahl index of concentration in world service export market | 115 |
| Table 5.9: | ARDL Co integration test (1980–2011) | 125 |
| Table 5.10: | Estimated result of total services (TSER) | 127 |
| Table 5.11: | Estimated results of modern services (MSER) | 129 |
| Table 5.12: | Estimated results of traditional services (TRSER) | 130 |
| Table 6.1: | Identifying sign restrictions | 162 |
| Table 7.1: | Results of unit root tests | 179 |
| Table 7.2: | Estimation results of bank credit supply Dependent variable: D (bank credit) | 181 |
| Table 7.3: | Estimation results of bank credit demand Dependent variable: D (bank credit) | 181 |
| Table 7.4: | Estimation results of bank deposits Dependent variable: D (bank deposits) | 182 |
| Table 7.5: | Growth rates in overall GDP and select sectors | 186 |
| Appendix | | |
| Table 7.1: | Summary of findings of previous studies in India | 190 |
| Appendix | | |
| Table 7.2: | List of banks included in the sample | 191 |
| Table 8.1: | Shares (per cent) of sub-sectors in value (real) of output at 2005 prices in Agriculture, dissimilarity in composition by Bray–Curtis index (base 1976) and Concentration by Herfindahl index | 205 |
| Table 8.2: | Average compound annual growth rates (per cent) of real values of output in agricultural sub-groups (2005 based) | 205 |
| Table 8.3: | Share of small farms (per cent) in acreages under different crops | 207 |
| Table 8.4: | Outlook on food security in India | 211 |
List of Tables and Figures

Appendix 8.A1: Sub-groups and crops used for this study 212
Appendix 8.A4: Major agricultural programmes 215
Table 9.1: Unit root tests using the Augmented Dickey-Fuller (ADF) and PP tests 224
Table 9.2: Projections of India's crude oil demand for 2012–25 (million tonnes) 229
Table 9.3: Projections for India’s diesel demand for 2012–25 (million tonnes) 232
Table 9.4: Long-run elasticities estimated for full and restricted period 233
Table 9.5: Predictive performance of our ARDL long run estimation models 234
Table 10.1: India and the world comparison of the access to and quality of education 244
Table 10.2: Assessment of children’s reading and numeric skills in rural India 245
Table 10.3: Expansion in higher education in India, 2000–12 247
Table 10.4: Progress in Net Enrolment Ratio (NER) in elementary education 250
Table 10.5: Health indicators for India and other emerging and developed countries 253
Table 10.6: India and the world: Comparison of access to and quality of transportation 258
Table 10.7: Quality of electricity networks in India and other emerging and developed countries 260
Table 10.8: Access to and quality of ICT in India and other emerging and developed countries 261
Table 11.1: Savings and infrastructure investment needs (as per cent of GDP) 275
Table 11.2: Sources of funds during first three years of the Eleventh Five Year Plan 275
Table 11.3: Commercial banks: Lending to infrastructure during FY07–11 277
Table 11.4: PPP projects in central and state sectors in India 287
Table 11.5: PPP projects in India 287
List of Tables and Figures

Table 12.1: Rate of growth of labour productivity and elasticity of wage with respect to productivity in manufacturing (KILM data) 308
Table 12.2: Average labour cost as a percentage of real value added in manufacturing: 1990–2004 310
Table 12.3: Employment, skill and regulations: Regression results 311
Table 12.4: Employment function (total employees) 314
Table 12.5: Determinants of wages per worker 318
Table 12.1-A: Employment growth, wage growth and wage elasticity of employment in industry (KILM data) 324
Table 12.2-A: Elasticity of employment with respect to wages and wage-productivity links in manufacturing sector (UNIDO data, 1990–2004) 327
Table 12.3-A: Regression results for the manufacturing sector from UNIDO data (Dep. Var. ln EMP) 329
Table 13.1: Sources of internal and external funds for sample firms (per cent share in total) 341
Table 13.2: Debt structure of firms: All firms and size-wise, 1991–2002 to 2003–13 (as ratio of total debt) 344
Table 13.3: Financing ratios: All firms and sizes 346
Table 13.4: Summary statistics 350
Table 13.5: Dynamic panel data regression: Dependent variable: $\text{GROWTH}_{it}$ 352
Table 14.1: Number of firms in sample, by year 361
Table 14.2: Relative proportion of firms in sample by ownership category 363
Table 14.3: Ownership category status and dividend payout ratios 364
Table 14.4: Summary statistics for selected firm-specific variables 366
Table 14.5: The behaviour of the payout ratio over time for exporters and non-exporters 367
Table 14.6: Differences between exporters and non-exporters 368
Table 14.7: Expected signs of variables in payout-ratio regression 369
Table 14.8: Payout ratio as a function of firm characteristics and export intensity variables 370
Table 14.9: Payout ratio as a function of firm characteristics and export intensity variables, with ownership variables 371
List of Tables and Figures

Table 14.10: Payout ratio as a function of dependent vars, ownership categories: Tobit regression 373
Table 14.11: Distribution of observations across industries 374
Table 14.12: Payout ratios by industry 374
Table 14.13: Payout ratios by industry: Exporters vs non-exporters 375
Table 14.14: Payout ratio as a function of independent variables, ownership categories, industry affiliation and year fixed effects: Tobit regression. (ind_Misc left out, as is OwnCat(f) Year fixed effects coefficients not shown 376
Table 14.15: Payout ratio as a function of industry affiliation, ownership category, years and Lvar 2005–09; year fixed effects coefficients not shown: Tobit regression 377
Table 14.16: Payout ratio as a function of ExpIntenRel, ownership categories, industry affiliations, and years (w/o Lvar) 2005–09: Tobit regression; year fixed effects coefficients not shown 378
Table 14.17: Log (variance of cashflows) as a measure of the correlation between domestic sales and foreign sales, ExpIntenRel and other control variables 379
Table 14.18: Log (P/E Ratio) as a function of growth variables, measure of firm risk, ExpIntenRel and other control variables 382
Table 14.19: Log (P/E Ratio) as a function of cashflow volatility, growth variables, measure of firm risk, ExpIntenRel and other control variables 383

Figures

Figure 2.1: HCR, Gini and real GDP per capita, 1951–2011 22
Figure 2.2: Trend in Poverty Gap (PG) and Squared Poverty Gap (SPG) index 25
Figure 2.3: Relation between growth of real GDP per capita and growth of employment in India 1971–2011 26
Figure 2.4: Trend in real GDP per capita and average daily wage rate 27
Figure 2.5: Education and health expenditure per capita and HCR 31
Figure 2.6: India’s GDP, government revenue receipts, and government total expenditure in real (2004–05) prices 34
List of Tables and Figures

Figure 2.7: Government total and social expenditure in real (2004–05) prices 35
Figure 3.1: Growth rates in real GDP in manufacturing 49
Figure 3.2: Growth rates in real GDP in manufacturing 50
Figure 3.3: Growth rate in employment in manufacturing 51
Figure 3.4: Growth rate in fixed capital stock in manufacturing and the investment rate in the economy, 1976–77 to 2011–12 54
Figure 3.5: Rate of investment in manufacturing and in the economy 55
Figure 3.6: Gross capital formation (per cent of GDP) 65
Figure 3.7: Share of manufacturing in aggregate gross fixed capital formation in the economy (per cent) 66
Figure 3.8: Mismatch between education profile of the youth (15-24) and requirement of organized sector, 2009-10 73
Figure 3.9: Education profile of the youth (age 15-24), 1999 and 2009 74
Figure 3.10: Distribution of 3-digit manufacturing industries (organized sector) according to proportion of workers with technical education, 2009-10 74
Figure 4.1: Capital biased technical change 86
Figure 4.2: Intermediate technology biased technical change 87
Figure 5.1: Exports as per cent of GDP 108
Figure 6.1: Central Bank intervention 142
Figure 6.2: Nominal and real effective exchange rates 143
Figure 6.3: Plot of variables used in the VAR 154
Figure 6.3a: Trend-cycle decomposition of Indian inflation 154
Figure 6.4: IRFs for exchange rate shock 156
Figure 6.5: IRFs for real GDP shock 157
Figure 6.6: IRFs for inflation shock 157
Figure 6.7: IRFs for short-term interest rate shocks 158
Figure 6.8: IRFs for long-term interest rate shock 158
Figure 6.9: IRFs for fiscal shock 159
Figure 6.10: Derived structural shocks 159
Figure 6.11: Over-identified SVAR (Sims-Zha) 161
Figure 6.12: Responses to a monetary shock (B > 0, Q > 0, DP < 0) (Exchange rate shock identified first and then monetary shock) 163
List of Tables and Figures

Figure 6.13: Responses to an exchange rate shock (DE < 0, DP > 0) (Exchange rate shock identified first and then monetary shock) 164
Figure 6.14: Responses to monetary policy shock (Fiscal shock identified first and then monetary shock) 164
Figure 6.15: Responses to fiscal shock (FIS < 0, DP > 0) (Fiscal shock identified first and then monetary policy shock) 165
Figure 7.1: Growth in bank credit and GDP 174
Figure 7.2: Cyclicality of GDP and bank credit 174
Figure 7.3: Cyclical GDP & WPI 183
Figure 7.4: Inflation and household savings 184
Figure 7.5: Inflation and CAD-GDP ratio 185
Figure 8.1: Share of small farmers in livestock population in India 207
Figure 8.2: Average farm size and the average scale of production in Indian farms 208
Figure 8.3: Irrigation intensity of different crops in India in the year 2008 208
Figure 8.4: Small farmers’ share of irrigated area crop-wise in India in the year 2008 209
Figure 8.A1: Average compound annual growth rates (per cent) of real values of output in agriculture across sub-groups (2001–08) compared with corresponding rates based on the National Accounts Statistics (NAS). 216
Figure 9.1: Plots of CUSUM and CUSUMSQ statistics for crude oil demand estimation 225
Figure 9.2: Plots of CUSUM and CUSUM square statistics for diesel demand estimation 226
Figure 9.3: Projections of India’s crude oil demand for 2012–25 230
Figure 9.4: Projections for India’s diesel demand for 2012–25 231
Figure 9.5: Total under-recoveries on diesel 231
Figure 11.1: Share of infrastructure in GDP 271
Figure 11.2: Private sector share in infrastructure 271
Figure 11.3: PPP projects in India by sector (Total: 758) 273
Figure 11.4: Sector-wise capacity break-up under the Twelfth Five Year Plan (in MW) 273
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.4a</td>
<td>Sources of funding for power projects under the Twelfth Five Year Plan</td>
<td>273</td>
</tr>
<tr>
<td>14.1</td>
<td>The behaviour of the payout ratio over time</td>
<td>366</td>
</tr>
<tr>
<td>14.2</td>
<td>Frequency distribution of all dividend payout ratios</td>
<td>372</td>
</tr>
</tbody>
</table>
Preface

Between 2000 and 2011, India's growth rate averaged over 8 per cent per annum. This growth rate raised hopes of a Chinese-type economic miracle, of an escape from the low-income trap India has been in for centuries and of regaining its bygone glory as a leading nation of the world. However, since mid-2011, India's growth rate has been faltering precipitously. This book was conceived in mid-2012 to help discover the latest research finding on ways to revive and sustain higher growth rates in India.

The next 20 years or so is a particularly opportune period for maintaining a high growth rate, because we would have the support of the demographic dividend—in the form of the world's youngest population and one of the highest proportions of working age population to total population in the world. That is why it is important that we revive high growth rates urgently, for, once this demographic dividend is exhausted, achieving 8–10 per cent rates of growth, and escaping from the poverty trap, will become much more difficult.

To discover the latest research ideas for reviving growth, leading economists from India and abroad were invited to a workshop to present research studies pertaining to reviving and sustaining high growth rates in India. The workshop was held on 25–26 July 2013. The inaugural address was delivered by Raghuram Rajan (then Chief Economic Adviser to the Ministry of Finance and currently Governor, Reserve Bank of India). The second day saw a special address by Subir Gokarn (former Deputy Governor of the Reserve Bank of India and currently Director of Research at Brookings India), who also presided over the session on monetary and financial sector issues and commented on the research studies in detail. Based on the feedback during this workshop, the studies were refined. This book is a selection of resulting research studies that address practically all the relevant aspects of reviving growth in India.

If proper attention is paid to these issues, and the right policies are followed, India's growth cannot only be revived but sustained at the 8–10 per cent level for decades. This would turn India into an upper-middle-income country in 15 years and a developed country in about 30 years. Fortunately, the new government seems to be showing keen awareness of these key issues. We hope it delivers on the huge expectations people have from it and takes India to its rightful place as a leading nation of the world. We also expect the research and policy recommendations presented in this book to make useful contribution to this immensely valuable task.
Preface

of India, provided generous financial support for the workshop. The Institute of Economic Growth provided invaluable administrative and logistical support. I thank Raghuram Rajan and Subir Gokarn for their generosity in sharing their time and insights. Professors Bishwa Nath Goldar, Ashima Goyal, Sushant Mallick and many others helped me in various ways during the preparation of this book. The excellent assistance provided by Durairaj Kumarasamy and Shruti Tripathi was invaluable in the smooth organization of the workshop. Finally, I thank all the authors, discussants, referees and the editorial team at Cambridge University Press (especially Dhiraj Pandey) for their cooperation and support, without which this important project would not have been possible.

Pradeep Agrawal