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Ajit K. Ghose

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Challenges and the Imperative of Manufacturing-Led Growth

INSTITUTE FOR HUMAN DEVELOPMENT

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Foreword

The *India Employment Report 2016* is the second in the series of biennial publications on issues of labour market and employment in India by the Institute for Human Development. The *India Labour and Employment Report 2014: Indian Workers in the Era of Globalisation* was the first in the series and the first of its kind on development and employment issues in India. It provided a comprehensive view of the employment situation in the country and analysed the labour market developments in the wake of the globalization of India's economy. The report has been widely welcomed and circulated. The present report, *India Employment Report 2016: Challenges and the Imperative of Manufacturing-led Growth*, follows up on the earlier one and carries the analysis further.

This report provides an in-depth review of the evolving characteristics of India's labour force, develops new tools for a sharp analysis of the change in employment conditions in the first decade and a half of the twenty-first century, and gives a concrete view of the employment challenge that confronts India today. It goes on to identify the kind of growth strategy that would enable India to meet the employment challenge and to elaborate on the policy interventions that would be required for the pursuit of such a growth strategy. Some of the key messages of the report are as follows. Despite substantial improvement in the last decade and a half, employment conditions in India remain poor. The employment challenge, therefore, remains formidable: around 16 million 'new and better' jobs per year will need to be created over the next decade and a half if India's economy is to reach the Lewis Turning Point (the point at which surplus labour has disappeared) at the end of the period. The good news is that, though the challenge seems daunting, it can be met if a strategy of rapid manufacturing-led growth is pursued. From this perspective, the current strategy of the government, as articulated in the 'Make in India' programme, appears to have been well chosen.

It is hoped that the report will stimulate analytical work on labour markets and employment, help focus attention on the need to make employment a central objective of growth, and contribute to development of policies required to achieve appropriately employment-intensive economic growth.

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Abbreviations

APMC	Agricultural Produce Market Committee
ASI	Annual Survey of Industries
CDS	current daily status
CWS	current weekly status
ESI	employment structure index
FDI	foreign direct investment
FII	foreign institutional investment
GDP	gross domestic product
GST	goods and services tax
GVA	gross value added
IDRC	International Development Research Center
IGIDR	Indira Gandhi Institute of Development Research
IHD	Institute for Human Development
ILO	International Labour Organization
ISLE	Indian Society of Labour Economics
JNU	Jawaharlal Nehru University
LBS	Labour Bureau's Survey
LFPR	labour force participation rate
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NDP	net domestic product
NSSO	National Sample Survey Office
PRC	People's Republic of China
R&D	research and development
RBI	Reserve Bank of India
UK	United Kingdom
UPS	usual principal status

UPSS	usual principal and subsidiary status
US	United States
USS	usual subsidiary status

Executive Summary

The *India Employment Report 2016* addresses two issues of prime importance: What is the nature of the employment challenge that confronts India? What kind of economic growth is required to meet this challenge? The characteristics of India's labour force are examined and the recent trends in employment conditions as well as the current scenario is analysed. The historical experience of development and India's chosen development path are scrutinized in an attempt to determine the growth strategy that will allow the employment challenge to be met.

LABOUR FORCE

India today has a labour force of 473 million (leaving out the subsidiary workers who number 37 million). This labour force is overwhelmingly of working age (91 per cent, aged 15–59 years), largely male (78 per cent), and predominantly rural (68 per cent). Some 2 million children (aged less than 15 years) are still in the labour force and there are about 39 million older workers (aged 60 years or more).

Deceleration of labour force growth

The growth of the labour force has been decelerating; the average annual rate of growth fell from 1.8 per cent during 1983–1999/2000 to 1.4 per cent during 1999/2000–2011/12. One reason has been the rapid decline in child labour with the decline in poverty. Most importantly, however, the growth of the working-age labour force has been decelerating; the average annual rate of growth fell from 1.9 per cent during 1983–1999/2000 to 1.5 per cent during 1999/2000–2011/12. The main reason for this has been the falling labour force participation of working-age women.

Decline of female labour force participation

What explains the declining labour force participation of working-age women? It is not their participation in education, though this has been growing. The labour force participation of non-student working-age women also shows a declining trend. The decline is due to the rising household incomes, as illiterate and near-illiterate women from the poorest households withdraw from poor-quality jobs (mainly casual labour and unpaid family work in agriculture).

No youth bulge or demographic dividend

This has been as true for the younger as for the older women, which explains why the demographic transition has had no effect on the labour force. While the share of youths (age group 15–24 years) in the working-age

population was rising between 1983 and 1999/2000, their share in the working-age labour force was actually falling; the 'youth bulge' in the population did not translate into a 'youth bulge' in the labour force. Consequently, even the theoretical possibility of a 'demographic dividend' never arose. In fact, the dependency ratio (ratio of total population to total labour force) steadily increased from 2.6 in 1983 to 2.8 in 2011/12.

Ill-equipped labour force

India's labour force is poorly educated. It is not just that the average level of education is abysmally low but the distribution of education across the labour force is also highly distorted. While a disproportionately large section has little or no education, a disproportionately large section also has tertiary education. It follows that a disproportionately small section has secondary and higher secondary education. While education is not the same as skill, education is what enables workers to acquire new skills with ease, whether on the job or through participation in training programmes. Thus, the current education profile of the workforce actually restricts movement of workers from traditional to modern jobs. This is an outcome of India's misguided education policies in the past, which have paid too little attention to basic education for all and too much attention to higher education for a few.

EMPLOYMENT CONDITIONS

Neither the current state nor the past evolution of employment conditions in India can be read from the standard indicators of employment and unemployment. In the Indian economy, employment growth tends to equal labour force growth. Unemployment, which is small and stable, reflects queuing for 'good' jobs in the organized sector by educated youth from relatively well-off households. Wages are not formed through demand–supply equilibrium; hence, wage growth does not indicate tightening labour markets. During 1999/2000–2011/12, both labour force and employment grew at 1.5 per cent per annum, the unemployment rate was stable at around 3 per cent, unemployment was significant only for young persons with at least secondary education, the unemployed were less poor than the employed, and labour supply was always in excess of labour demand in markets for wage labour.

To assess changes in employment conditions, attention needs to be focused on a different set of indicators—structure of employment—a change in which indicates movement of workers across different types of employment; underemployment, a change in which indicates change in the quality of a given type of employment; and labour income, a change in which also indicates change in the quality of a given type of employment.

Assessing change in employment conditions

There are six types of employment in India's economy as also in each of the production sectors (agriculture, manufacturing, construction, other industries, and services). Ranked in descending order of quality, these are: regular-formal employment in the organized sector; regular-informal employment in the organized sector; regular-informal employment in the unorganized sector; self-employment in the unorganized sector; casual employment in the organized sector; and casual employment in the unorganized sector. The structure of employment refers to the distribution of workers across these different categories. Employment conditions improve when workers move from lower quality to higher quality jobs, or when there is favourable change in the structure of employment. This report develops a summary indicator of this kind of change, namely the employment structure index, a rise in the value of which indicates favourable change in the structure of employment.

Workers in several types of employment, particularly in casual wage employment and in self-employment, do not have full-time work; they are underemployed. A decline in underemployment in any given type of employment indicates quality improvement in that type of employment in so far as it means increased earning per worker for a given level of earning per unit of labour. To track this kind of change, the report develops an empirical measure of underemployment.

A rise in earning per unit of labour from a given type of employment—wage earning from wage employment and non-wage earning from self-employment—also indicates quality improvement in that type of employment in so far as it means increased earning per worker for a given level of employment. To track this kind of change, methods of wage determination are examined and estimates of labour incomes in different types of employment are developed.

Overall improvement in employment conditions results from a combination of favourable changes in the structure of employment and quality improvement in different types of employment. The report uses this framework to assess the changes that occurred in overall employment conditions, in gender inequality in employment, and in rural–urban inequality in employment.

Surplus labour

This assessment is of the changes in employment conditions of the principal workers (persons engaged in, seeking, or available for full-time work). There are many (mainly women), however, who seek work only intermittently (subsidiary workers) or stay out of the labour force altogether, essentially because they cannot hope to find adequately remunerative full-time or even part-time work. If job opportunities grow, many of them would become principal workers. In other words, there exists, at any given point of time, a stock of workers, who are either in subsidiary employment or out of the labour force but who are potentially available for full-time employment in new jobs. The size of this stock can also be considered an aspect of employment conditions. It is particularly important to take account of this stock in defining the employment challenge that confronts India. With this in view, the report develops estimates of surplus labour, that is, stocks of surplus workers.

Improvement in employment conditions during 2000–12

The basic conclusion that emerges from the analysis in the report is that employment conditions improved very substantially during 1999/2000–2011/12. There was favourable change in the structure of employment; the employment structure index showed a significant rise. There was movement of workers from poorer to better jobs: from informal to formal jobs, from casual employment to regular employment, and from wage employment in the unorganized sector to wage employment in the organized sector. Moreover, underemployment of the employed declined in all types of employment. In addition, labour incomes grew in real terms in most types of employment. Thus, there was significant overall quality improvement.

A notable development was the growing importance of 'informal' employment (regular-informal employment and casual employment) in the organized sector, which shows up in a decline in the value of the employment structure index for the organized sector. This did not mean a deterioration in employment conditions in the organized sector since wages rose and underemployment declined. It helped improve the overall employment conditions in the economy in at least four ways. First, there was an acceleration of employment growth in the organized sector. Second, movement of workers from 'informal' employment in the unorganized sector to 'informal' employment in the organized sector led to improvement in employment conditions. Third, it was the growth of 'informal' employment in the organized sector expanded access of low-skilled workers to jobs in the organized sector. Finally, rapid growth of employment in the organized sector meant low growth of labour force in the unorganized sector, which helped improve employment conditions in that sector.

Despite the substantial improvement in the period 1999/2000–2011/12, employment conditions in 2011/12 remained poor. Just 9 per cent of the employed were regular-formal employees and 17 per cent of the employed were in the organized sector. Self-employment and casual wage employment still accounted for 78 per cent of total employment in the economy. Underemployment was high and labour incomes still low for many of the employed so that the incidence of poverty among the employed remained high. The incidence of surplus labour continued to be large.

For lack of data availability, the period covered in the analysis could not be extended beyond 2011/12. However, projections together with some limited evidence suggest strongly that the trends are maintained in the most recent period. Employment conditions continued to improve during 2011/12–2015/16. But they still remain very poor.

Substantial decline in gender inequality in employment

Employment conditions improved substantially for both female and male workers during 1999/2000–2011/12. But the improvement was larger for women such that gender inequality in employment declined substantially during 1999/2000–2011/12. The favourable change in

the structure of employment was more significant for women than for men. The improvement in quality of most types of employment was also higher for women than for men. The degree of underemployment of the employed showed a larger decline for women than for men. Gender gaps in both 'real wage per day of work' and 'real wage earning per employed' also narrowed quite substantially in most types of wage employment.

Despite the reduction, gender inequality in employment remains high. The share of the organized sector in total employment is still significantly lower for women than for men. Outside the organized sector, the quality of women's employment is still significantly lower than that of men's employment. Underemployment is still higher for employed women than for employed men. 'Wage per day of work' is still significantly higher for men in all types of wage employment. Women still constitute a majority of the surplus workers.

Slight decline in urban–rural inequality in employment

Employment conditions improved for both rural and urban workers. For both groups, the share of regular-formal employment in total employment increased and so did the share of organized sector employment in total employment. The share of casual employment in total employment, on the other hand, declined for both and so did underemployment of the employed. Real wage per day of work increased for both groups and so did real wage earning per employee.

The urban–rural inequality in employment declined, though very mildly. The change in the structure of employment was quite similar for the two groups of workers. Underemployment declined in equal measure for rural and urban workers in employment. The urban–rural gap in real wage per day of work as also in real wage earning per employee increased in the organized sector but declined substantially in the unorganized sector. Overall, therefore, both real wage per day of work and real wage earning per employee recorded larger increase for rural workers suggesting a mild decline in urban–rural inequality in employment.

Despite the decline, the urban–rural inequality in employment remains sizeable. Much larger sections of urban workers are in regular-formal employment and in organized sector employment. A much smaller section of urban workers is in casual employment. In short, the structure of employment of urban workers remains much more favourable than that of rural workers. The extent of underemployment of the employed, particularly of the casual employees and the self-employed, is significantly larger for rural workers and the average wage of an urban employee is still more than double that of a rural employee.

THE EMPLOYMENT CHALLENGE

In 2015/16, the estimated stock of surplus workers (persons of working age) is 104 million and the currently unemployed (persons of working age) number 13 million. Thus, there are around 117 million persons of working age who need to be absorbed in 'new and better' jobs. Further, there will be fresh entrants into the labour force; 6–8 million youths are expected to enter the labour force every year over the next decade and a half. They too will need to be absorbed in 'new and better' jobs.

To understand the enormity of the employment challenge, we may consider the conditions that will have to be met to reach the rather modest goal of the Lewis Turning Point, the point at which there is neither surplus labour nor unemployment, in the next 15 years. This will require absorption of the entire incremental labour force of 8 million (at a maximum), a segment of the surplus workers (7.0 million), and a segment of the unemployed (0.9 million) every year. The challenge therefore is of absorbing around 16 million persons in new jobs at rising levels of productivity every year over the next 15 years.

Moreover, of the 16 million persons who will need to be annually absorbed in 'new and better' jobs, around 4 million will be low skilled (with up to primary education), 7 million will be medium skilled (with above primary and up to higher secondary education), and 5 million will be highly skilled (with tertiary education). The employment challenge, therefore, is not just of creating 16 million productive jobs every year but also of creating most of these jobs (11 million) for the low to medium skilled.

Daunting though the challenge is, the report is optimistic about the future. The projection exercises in the report show, for example, that economic growth of

around 8 per cent per annum can deliver the required growth of 'new and better' jobs provided that the growth process has the following characteristics:

- First, growth must occur in both organized and unorganized sectors; the 8 per cent overall growth, for example, should ideally result from 10 per cent growth in the organized sector and 5.5 per cent growth in the unorganized sector.
- Second, growth of the organized sector has to be employment intensive so that there is rapid movement of workers from jobs in the unorganized sector to new jobs in the organized sector.
- Third, around half of the additional jobs in the organized sector will need to go to low- to medium-skilled workers.
- Fourth, growth of labour productivity in the unorganized sector has to be high so that workers can move to 'better' jobs within the sector.

Thus, growth of labour productivity in the unorganized sector has to be high and growth of the organized sector has to be employment intensive. Employment growth of 7 per cent per annum in the organized sector, for example, will mean employment growth of just 0.5 per cent per annum in the unorganized sector. Growth of labour productivity in the unorganized sector can then be 5 per cent per annum, implying rapid transformation of poor jobs into 'better' jobs within the unorganized sector.

This prognosis leads to a key proposition about the growth strategy that India will need to pursue if the employment challenge is to be met: *the growth of the organized sector has to be manufacturing led*. Only will ensure that growth of the organized sector will be rapid and employment intensive. The report analyses India's recent growth experience as also international development experience in an effort to substantiate this key proposition.

FROM SERVICES-LED GROWTH TO MANUFACTURING-LED GROWTH

India has had the unique experience of achieving rapid services-led growth at a low level of per capita income. In history, remote and recent, countries at India's level of development experienced manufacturing-led, and not services-led, growth. For India too, the time is ripe for a transition to manufacturing-led growth.

There are four weighty reasons why such a growth transition is necessary and imperative.

First, services-led growth can no longer be rapid. Growth in the past created a large imbalance between domestic absorption (requiring mainly goods) and domestic production (of mainly services) that led to unsustainably large trade deficits; services exports simply could not finance the required goods imports. Efforts to rein in trade deficits caused growth slowdown. If growth is to be rapid, it must correct this imbalance between domestic absorption and domestic production; and manufacturing-led growth can ensure this.

Second, manufacturing in India has remained undeveloped (as shown by the low shares of manufacturing in its GDP and employment), implying that the potential for manufacturing growth is large.

Third, manufacturing-led growth will generate faster growth of employment in the organized sector than services-led growth, which can help address India's employment challenge. Manufacturing-led growth will also lead to speedier growth of the medium- and low-skilled employment in the organized sector.

Finally, apart from generating direct employment, rapid manufacturing growth will drive rapid growth of employment in other sectors. Rapid manufacturing growth will demand development of physical infrastructure (boosting construction), drive growth of employment in services that are required as inputs in manufacturing, and boost growth of non-traded services through the income effect. Growth of construction will be employment intensive and will generate jobs for low-skilled labour. Further, the employment elasticity in services will be higher when their growth is driven by manufacturing than it has been in the period of services-led growth.

ORGANIZED MANUFACTURING: RECENT GROWTH EXPERIENCE

Organized manufacturing witnessed a number of developments—some of them negative—during the period of services-led growth. First, the industries producing for the domestic market became increasingly dependent on imported inputs. Second, the export-oriented industries recorded poor growth. Third, India's export-oriented

industries, namely, textiles, leather and leather products, wearing apparel, and gems and jewellery remained the same for long. However, exports were seemingly becoming diversified. This anomaly is explained by the fact that many of the newly exporting industries are not export-oriented industries; they produce for the domestic market. They export tiny proportions of their outputs but their input imports are far larger than their output exports. Fourth, capital intensity grew in most industries but this reflected substitution of capital for labour rather than technological change.

An important point to note is that the growth of capital intensity without technological change naturally tended naturally to lower employment elasticity—the growth of employment for a given growth of output. This tendency was effectively countered by a parallel development: the growth of employment of contract workers. Contract-worker intensity (the proportion of contract workers in all workers) increased in virtually all industries, increasing employment elasticity. Overall, therefore, growth of organized manufacturing remained employment intensive.

POLICY OPTIONS FOR THE FUTURE

The core message of the report is that a strategy of rapid manufacturing-led growth will enable India to meet its formidable employment challenge within a reasonable time horizon. The policy options recommended to implement such a strategy are as follows:

- Rapid growth of organized manufacturing is to be achieved in the context of an economy that will remain open to trade and capital flows. Policies relating to trade and capital flows, therefore, are critical.
- Export promotion should remain an important policy objective; but the kind of export-oriented growth achieved by the East Asian economies can no longer be contemplated.
- Trade policy should curb the growing use of imported inputs in production for domestic markets. Growing use of imported inputs should go hand in hand with growing export orientation of industries. The inappropriate structure of import duties on intermediate and final goods and exchange rate appreciation encourage the use of imported inputs in production for domestic markets and hurt export growth.
- The structure of import duties should be synchronized with the domestic tax structure to ensure that imported inputs do not enjoy undue price advantages over domestically produced inputs.
- The real exchange rate should be stabilized at a level that encourages export growth.
- Stabilization of the real exchange rate will require direct control of flows of foreign institutional investment (FII). This is footloose capital and its flows are influenced not by the domestic economic policies but by the monetary policies of the United States (US), the European Union, and Japan.
- Reliance on FII inflows to finance India's current account deficit should be avoided. The FII inflows do not finance a given current account deficit; they increase it.
- A clear distinction should be made between foreign direct investment (FDI) and FII; the former should be liberalized and the latter controlled.
- Rapid expansion of domestic markets is essential for achieving rapid growth of organized manufacturing. Policy interventions in two areas will be of critical importance: (i) Rapid growth of agriculture, which will call for increased public investment in infrastructure (irrigation and water management systems, cold storage networks, rural roads); bringing green revolution to the eastern states; encouraging shifts to non-cereal products (fruits and vegetables, fisheries, animal husbandry); and promoting agro-processing industries. (ii) Promotion of integrated national markets in agricultural and industrial products. Currently these markets are fragmented.
- Reforms of the Agricultural Produce Market Committee (APMC) acts and replacement of central and state taxes on manufactures by a well-designed goods and services tax (GST) are imperative. The introduction of GST will also help remove the discrimination against manufactures vis-à-vis services built into the existing tax systems.
- Policy interventions to speed up development of physical infrastructure and to improve the business regulatory environment are of much importance.
- A major reform of education policy with the goal of universal secondary education as the priority objective is urgently required. The existing education profile of the workforce acts as a constraint on the growth of manufacturing by precluding a large

section of the population from the acquisition of new skills.

- Increasing the supply of skills with imaginative adult education and apprenticeship programmes should be implemented in the short run. Conventional skill development programmes can play only a limited role as they focus on persons with at least secondary education and a large section of the workforce lacks it.
- Capital-intensity growth that lowers employment elasticity should be prevented. Capital intensity in manufacturing industries has been growing not in association with technological change but because of substitution of capital for labour.
- Capital subsidies should be eliminated as they encourage growth of capital intensity involving pure substitution of capital for labour. Exchange rate appreciation also encourages such substitution by cheapening imported capital goods, and should be prevented.
- Labour regulations should be revised with a view to establishing a clear link between wage growth and productivity growth.
- Finally, labour regulations that generate rigidities in employment and constrain employment growth in the organized sector should be reformed. A high employment intensity of growth of organized manufacturing is of much significance.

Introduction*

Most observers of the Indian economy understand that employment conditions in the country are poor. This understanding is intuitive and lacks clarity. The challenge of employment is huge, and it is not evident whether and how this challenge can be met. For example, there are no precise answers to the following questions: What do poor employment conditions mean? Have employment conditions been changing and changing for the better? What exactly is the nature of the employment challenge that confronts India? Could economic growth help in meeting the challenge?

This report endeavours to address these questions by developing appropriate conceptual tools and harnessing a large amount of statistical data. It does not resort to unquestioned adoption of concepts and methods developed in advanced economies of the West. The structure of India's economy, as indeed of most developing economies, is fundamentally different from that of economies of the developed West. The conceptual tools and statistical indicators used to analyse employment conditions in those economies are mostly inappropriate for the analysis of employment conditions in developing economies. Yet, the standard labour force surveys conducted in many developing countries are no different from those conducted in developed economies. However, the surveys of employment and unemployment in India conducted by the National Sample Survey Office (NSSO) are different in that they generate data that allows us to develop and use conceptual tools and statistical indicators appropriate for the analysis of employment conditions in India (and in other developing countries).

The report begins by taking a close look (Chapter 1) at India's labour force and its evolution over time. Two central facts become apparent here. The first is that the growth of the labour force has been decelerating. There are several explanations for this but the most important one is that labour force participation of working-age women has been declining. Illiterate and near-illiterate women from relatively poor households in rural areas were opting out of very low quality jobs as household incomes rose. This was equally true for younger and older women. This is also why a 'youth bulge' in the labour force has never been visible and a 'demographic dividend' has not even been a theoretical possibility.

The second fact is that India's labour force has been and remains poorly educated and, consequently, ill prepared for new jobs that require new skills. Not only is the average level of education low but also its distribution is

* All tables, figures, and boxes have been prepared by the author unless stated otherwise.

highly distorted. A large proportion lacks basic education; a relatively large proportion also has tertiary education. This reflects the longstanding bias in India's education policy that paid scant attention to basic education for all and more emphasis on higher education for a few.

The critically important questions regarding the current state and evolution of employment conditions are examined next (Chapter 2). In addressing these questions, it becomes imperative to develop appropriate conceptual tools and statistical indicators. The standard indicators, namely unemployment rate, number of persons in employment, and wage rate do not adequately explain either the current state of or inter-temporal changes in employment conditions. This report considers the different types of employment that exist in India's economy, and their quality ranking, the distribution of the employed across them, the extent of underemployment of the employed, and the levels of labour incomes in different types of employment. Change in employment conditions comes from a combination of change in the distribution of the employed across different types of employment and change in the quality of each type of employment. The latter may imply either a change in underemployment or a change in the level of labour income or a combination of the two.

The main results of the analysis presented in the report are as follows:

- Employment conditions have substantially improved since the beginning of the twenty-first century.
- Many workers have moved from poor to better jobs.
- Underemployment has declined significantly.
- Labour incomes have shown impressive growth in most types of employment.

The improvement notwithstanding, employment conditions remain very poor. Perhaps the single most revealing indicator of this is the large stock of 'surplus labour' that currently exists. The report estimates that around 104 million working-age Indians (15 per cent of the non-student working-age population) are effectively 'surplus workers'. Half of them—around 52 million—are actually in employment but are in very poor jobs, and the rest are out of the labour force because of non-availability of 'productive and remunerative' jobs.

Roughly similar stories can be told about the inequality in employment between men and women (Chapter 3), and between rural and urban workers (Chapter 4). Both types of inequality declined quite significantly during 2000/12. Nevertheless, both types of inequality remain high. Less than 6 per cent of the males and 28 per cent of the females in employment may be considered as 'surplus workers'; 82 per cent of all 'surplus workers' are found to be women. As regards rural–urban inequality, less than 6 per cent of the urban employed and more than 14 per cent of the rural employed may be considered as 'surplus workers'; 62 per cent of all 'surplus workers' are to be found in rural areas.

The employment challenge confronting India is daunting. The estimates and exercises in this report show the following (as may also seen in Chapter 5). If the number of 'surplus workers' is to be reduced to zero (or, in other words, if India's economy is to reach the Lewis Turning Point) in the next decade and a half, around 16 million 'new and better' jobs will need to be created per year over the period. Moreover, a large proportion (close to 70 per cent) of the 'new and better' jobs will need to go to the low skilled (with up to primary education) and the medium skilled (with up to higher secondary education).

This challenge, the report reveals, can be met if rapid manufacturing-led growth can be achieved and sustained over the next decade and a half. In the recent past, India has had rapid growth but this growth was services led. A reorientation of the growth strategy is thus required.

There are several reasons why growth will need to be manufacturing led rather than services led (as discussed in Chapter 6). First, services-led growth cannot in fact be rapid because this will require a level of trade deficit, which simply cannot be sustained. This is because the gap between domestic production of and domestic demand for goods, already large, will grow larger and services exports can never finance the imports of goods that will be required to fill the gap. Indeed, it was this kind of unsustainability of current account deficits that caused the growth slowdown after 2012. Second, manufacturing growth has been and will be more job intensive than services growth. Third, manufacturing growth will create proportionately more jobs for low-skilled and medium-skilled workers. Fourth, manufacturing growth will stimulate growth of other job-intensive activities such as construction, trade, and transport.

Growth of organized manufacturing was in fact impressively rapid even during 2000–12, the period of rapid services-led growth. But this growth was

unsustainable (as discussed in Chapter 7). Industries that produced for the domestic market and yet relied on imported inputs recorded the fastest growth while the traditional export-oriented industries recorded relatively poor growth. New export-oriented industries failed to emerge. Thus organized manufacturing became increasingly domestic-market oriented and imported-input intensive. The rapid growth was fast becoming unsustainable, as the deficit in manufactured trade was rising steeply.

Rapid manufacturing-led growth is achievable but it will require firm policy action in a number of important areas (discussed in Chapter 8). Policy reforms are required to improve management of trade, capital account, and exchange rate; to build physical infrastructure; to improve ease of doing business; to develop basic education and skills; and to make labour regulations favour high employment elasticity rather than growth of capital intensity involving pure substitution of capital for labour.

India is today recognized as an emerging giant in the global economy. But, so long as employment conditions remain what they currently are, the giant will emerge with feet of clay. The central message of this report is that the employment conditions do not have to remain what they are. There are growth strategies, which, if adopted and pursued, will enable India to meet its formidable employment challenge within a reasonable time horizon.

Part I

Employment

Past, Present, and Future

1

India's Labour Force

SIZE AND COMPOSITION

On its widest measure (according to UPSS [Usual Principal and Subsidiary Status], see Box 1.1), India's labour force was 476 million in 2011/12 (Table 1.1). Of this, less than 4 million, or 0.8 per cent of the total, were child workers (age group 5–14 years). Another 39 million, or 8.2 per cent of the total, were older workers (age group 60 or more years). Thus, the working-age (age group 15–59 years) labour force was about 434 million, accounting for 91 per cent of the total labour force. Females constituted just 27 per cent of the total labour force as also of the working-age labour force.

The UPSS labour force, however, included some 36 million persons who were subsidiary (USS) or supplementary workers; they worked (and sought work) only occasionally or on a part-time basis. On a narrower but more relevant measure (UPS), which leaves the subsidiary workers out of account, the labour force in 2011/12 was 441 million. Just 3 million (0.7 per cent) were child labourers and 36 million (8.2 per cent) were elderly workers. Thus the UPS working-age labour force, called the 'core labour force' in this report, was 402 million (91.1 per cent of the UPS labour force). Further, females constituted just 22 per cent of the total UPS labour force as also of the core labour force. Corresponding estimates for 2015/16 are not available (no survey has been conducted since 2011/12) but may be derived from simple projections (see Box 1.2).

It is immediately apparent that the share of subsidiary workers in total labour force was much higher for females than for males. In 2011/12, this share was 25 per cent for females and just 1 per cent for males (Table 1.2). This share, moreover, was consistently larger for females than for males in each of the age groups. It was high even for male children so that, on an overall basis, a large section (25 per cent) of the child workers were in the labour force on a subsidiary basis. Overall, it is quite clear that while virtually all adult males (including the elderly) in the labour force worked or sought work on full-time basis, sizeable sections of the adult females and children in the labour force worked or sought work only intermittently. Further, since children constituted a minuscule part of the labour force, the overwhelming majority of the subsidiary workers were adult females; their share in the subsidiary labour force was 88.8 per cent in 2011/12.

In what follows, the focus will be on UPS labour force. This, it should be noted, actually diverges from the standard practice (in India) of focusing on UPSS labour force (see, for example, Himanshu 2011; IHD 2014; Mehrotra et al. 2014; NCEUS 2009; Papola and Sahu 2012; Rangarajan, Iyer-Kaul, and Seema 2011;

Box 1.1 Concepts and Estimates of Employment and Unemployment

Statistical data on employment and unemployment in India is generated principally by the *National Sample Survey of Employment and Unemployment* conducted (since 1972/73) every five years by the National Sample Survey Organisation (NSSO), which is a constituent of the Central Statistical Office (Government of India). One round of the survey, however, was conducted, exceptionally, in 2011/12 (just two years after the round in 2009/10). These NSSO surveys, it has been found, tend to produce underestimates of population. Hence, the standard practice adopted by researchers in India has been to use the ratios and proportions derived from the survey data together with population estimates derived from census data to arrive at estimates of absolute numbers in the labour force, employment, and unemployment. This method has been used to derive the estimates presented and analysed in this report.

The NSSO surveys use three reference periods—a year, a week, and 14 half-days of a week—to define four types of activity status, thereby producing four different estimates of employment and unemployment. The Usual Principal Status (UPS) of a person is determined by the activity in which s/he is engaged for a major part of the reference year. Thus persons who are engaged in economically gainful activities* for a major part of the reference year are considered employed, persons who did not engage in gainful activities but were seeking or available for such engagement for a major part of the reference year are considered unemployed, and all other persons are regarded as being out of the labour force. The specific activity status of persons out of the labour force are also determined in the same way: persons attending an educational institution for a major part of the reference year are considered students; persons engaged in housework for a major part of the reference year are considered housewives or househusbands; and so on.

Some persons who are unemployed or out of the labour force according to UPS, however, may have engaged or sought engagement in economically gainful activities for a minor part of the reference year. Such persons who did so for at least 30 days are regarded as being in the labour force according to Usual Subsidiary Status (USS).

All persons who are in the labour force either according to UPS or USS are considered as being in the labour force according to Usual Principal and Subsidiary Status (UPSS).

The Current Weekly Status (CWS) of a person is determined by the activity in which s/he engaged for at least an hour in the reference week. Thus persons who are engaged in economically gainful activities for at least an hour in the reference week are considered employed, persons who did not engage in economically gainful activities but were seeking or available for such engagement even for an hour are considered unemployed, and all other persons are regarded as being outside the labour force. Incidentally, this is the method that is employed in the labour force surveys conducted in most countries of the world. The data on employment and unemployment according to CWS, generated by the NSSO surveys, therefore, is comparable to the data generated by labour force surveys in most other countries.

The Current Daily Status (CDS) of a person is determined by the activity in which s/he is engaged in each of the 14 half-days of the reference week. Thus persons who are engaged in economically gainful activities for 1–4 hours are considered employed for a half-day, persons who did not engage in gainful activities but were seeking or available for such engagement for 1–4 hours are considered unemployed for a half-day, and persons who neither engaged in nor were seeking or available for economically gainful activities even for one hour in a half-day are regarded as being out of the labour force for a half-day. The half-days are then added up and converted into total number of full days in employment, in unemployment, and out of labour force during the reference week. The CDS data, therefore, provides estimates of days of employment and not of persons in employment.

Analysis in this report relies principally on data relating to: (i) UPS of persons of working age and (ii) CDS of UPS employed of working age. All the estimates used in the report have been derived by the authors of the report from the unit-level data generated by the various rounds of the *National Sample Survey of Employment and Unemployment.*

Note: * Economically gainful activities are defined by what is known as the 'third person rule'; an activity is considered economically gainful if it is of such character that it might be delegated to a paid worker. However, there are activities such as cooking, cleaning, or caring for children, sick and the elderly that are clearly economically gainful by the 'third person rule' but, by convention, are regarded as economically gainful only when they are performed by paid workers. In addition, there are other activities such as begging and prostitution that clearly generate earnings but are not regarded as economically gainful because they do not satisfy the 'third person rule'.

Thomas 2015) which warrants an explanation. The focus on UPS allows for an unambiguous definition of non-overlapping categories of persons in and out of the labour force. Inclusion of subsidiary status workers in the labour force introduces ambiguities. Some of those who are in the labour force in a subsidiary capacity

TABLE 1.1 India's Labour Force in 2011/12 (in Million)

Age group (years)	Male	Female	Total
UPSS labour force			
5–14	2.2	1.7	3.9
15–59	315.9	117.6	433.5
60 or more	29.5	9.3	38.8
5 or more	347.6	128.6	476.2
UPS labour force			
5–14	1.9	1.0	2.9
15–59	313.2	88.3	401.5
60 or more	29.0	7.1	36.1
5 or more	344.1	96.4	440.5

Source: Appendix Table A.1.1.

Box 1.2 India's Labour Force in 2015/16

On simple projections (see Appendix Tables A.1.4 and A.1.5), India's labour force (on its widest measure) today (that is, in 2015/16) stands at 511 million. This includes a subsidiary or supplementary workforce of about 38 million. So, the labour force exclusive of supplementary workers stands at 473 million. Child workers number only 2 million (0.4 per cent of the non-subsidiary labour force) and elderly workers number about 39 million (just over 8 per cent of the non-subsidiary labour force). So, the size of the core labour force is 433 million (over 91 per cent of the non-subsidiary labour force). Women constitute less than 22 per cent of the non-subsidiary labour force as also of the core labour force.

TABLE 1.2 Percentage Share of USS Labour Force in UPSS Labour Force, 2011/12

Age group (years)	Male	Female	Total
5–14	12.5	41.7	25.0
15–59	0.8	24.8	7.2
60 or more	1.6	23.8	7.0
5 or more	1.0	24.9	7.3

Source: Appendix Table A.1.1.

(according to USS), for example, could actually be students or engaged in housework in principal capacity (according to UPS). Similarly, some of those who are employed in subsidiary capacity could actually be unemployed in principal capacity. Besides, there are good grounds for regarding the subsidiary workers as seriously underemployed workers who are potentially available for full-time employment.

MAIN TRENDS

The growth of the labour force during the period 1999/2000–2011/12 was quite modest: 1.4 per cent per annum (Table 1.3), which represents a significant deceleration in labour force growth, which, at 1.8 per cent per annum, was higher during 1983–1999/2000. Growth of the working-age labour force also decelerated, from 1.9 per cent per annum during 1983–1999/2000 to 1.5 per cent per annum during 1999/2000–2011/12. In absolute terms, around 5.7 million persons entered the labour force each year between 1983 and 1999/2000 while around 5.5 million persons entered the labour force annually between 1999/2000 and 2011/12. The corresponding figures for persons of working age were 5.6 million per annum during 1983–1999/2000 and 5.4 million per annum during 1999/2000–2011/12.

There were four distinct, though perhaps interconnected, trends underlying the declining trend in labour

TABLE 1.3 Average Annual Growth (%) of Labour Force

Age group (years)	1983–1999/2000			1999/2000–2011/12		
	Male	Female	Person	Male	Female	Person
5–14	–4.3	–4.0	–4.2	–7.7	–9.4	–8.4
15–59	2.0	1.7	1.9	1.9	0.0	1.5
60 or more	3.0	3.1	3.0	1.7	2.0	1.8
5 or more	1.9	1.5	1.8	1.8	–0.1	1.4

Source: Appendix Table A.1.1.

force growth. The first relates to demographic transition. India entered the advanced phase of demographic transition in the early 1980s; the rate of population growth has been decelerating since then (see Appendix Table A.1.2). Thus, the rate of population growth declined from 2.0 per cent per annum during 1983–1999/2000 to 1.7 per cent per annum during 1999/2000–2011/12. However, this did not mean a deceleration in the growth of the adult population; the growth of the working-age population was the same, 2.3 per cent per annum, in both periods. The deceleration in the growth of total population resulted from the deceleration in the growth of child and elderly populations. Thus, the demographic transition provides only a small part of the explanation for the deceleration in labour force growth.

Second, the labour force participation of the working-age population (15–59 years), particularly of working-age women, showed a sharp declining trend. Thus, even though the growth of the working-age population remained stable (at 2.3 per cent per annum throughout 1983–2011/12), the deceleration in the growth of the working-age labour force was still quite sharp; it declined from 1.9 per cent per annum during 1983–1999/2000 to 1.5 per cent per annum during 1999/2000–2011/12.

Third, the labour force participation of the elderly population (60 years or more), particularly of elderly men, also showed a sharp decline. Thus, even while the growth of the elderly population was in fact decelerating (it declined from 3.3 per cent per annum during 1983–1999/2000 to 2.4 per cent per annum during 1999/2000–2011/12), the growth of the elderly labour force witnessed a sharper deceleration (it declined from 3.0 per cent per annum during 1983–1999/2000 to just 1.8 per cent per annum during 2011/12).

Fourth, child labour has been declining in absolute terms since the early 1980s and the pace of this decline has also been accelerating. The number of children (5–14 years) in the labour force declined at an average annual rate of 4.2 per cent during 1983–1999/2000 and 8.4 per cent during 1999/2000–2011/12.

Not much needs to be said about the deceleration in population growth associated with demographic transition. Such transition has historically occurred in many countries of the world and is currently on course in some (for discussions and data, see Ghose, Majid, and Ernst 2008). But the other two trends, namely, the decline in child labour and the decline in labour force participation of adults deserve further probe.

The decline in child labour may be explained essentially by the decline in the incidence of poverty. Child workers are (always have been) from the poorest households; they are driven to work by extreme poverty. This is evident from the fact that the incidence of poverty among households of child workers is observed to have been consistently much higher than the incidence of poverty among households of adult workers (Table 1.4). Since the incidence of poverty has been on the decline, the incidence of child labour has also been on the decline. This is not to say that government policies and programmes for elimination of child labour have had no impact; to the extent, they reduced child labour, they did so essentially by reducing poverty. Also, the anti-poverty programmes of the government, to the extent they reduced poverty, also reduced child labour.

TABLE 1.4 Incidence of Poverty (%) in Households of the Employed

Age group (years)	1983	1999/2000	2011/12
5–14	75.5	67.3	42.0
15–59	61.6	47.5	24.7
60 or more	55.8	43.2	22.5

Source: Author's estimates from the relevant data available from NSSO *Surveys of Employment and Unemployment* (55th and 68th Rounds). The methodology used is described in Box 1.3.

As already noted, the decelerating growth of the older labour force is explained by the declining labour force participation of older persons (Table 1.5). Somewhat surprisingly, however, the labour force participation of older men showed a significant declining trend; the labour force participation of older women has been very low but showed a small decline only during 1999/2000–2011/12. What explains this decline in labour force participation of older men? Only a somewhat speculative answer can be given here. It can be plausibly supposed that the older workers mostly belong to relatively better-off households for the simple reason that average life expectancy of persons from better-off households is higher than of those from poorer households. The evidence on poverty corroborates this; the incidence of poverty among households of elderly workers has been, and remains, significantly lower than that among households of working-age workers (Table 1.4). The most likely explanation for the

Box 1.3 Estimates of Poverty

The *National Sample Survey of Employment and Unemployment* generates information on consumer expenditure per capita per month in households to which the labour force participants belong. Using this data, together with national poverty lines, poverty head count ratios of persons in households of the labour force participants (of different age groups and in different types of employment as also in unemployment in rural and urban areas) have been estimated. The estimates presented in different parts of the report have then been generated through suitable aggregation.

The reference poverty lines used are those defined by an Expert Group headed by S.D. Tendulkar for the year 2004/05 (*Report of the Expert Group to Review the Methodology for Estimation of Poverty*, Planning Commission, Government of India, November 2009). These have since come under criticism and a new Expert Group headed by C. Rangarajan has now defined new poverty lines for the year 2011/12 (*Report of the Expert Group to Review the Methodology for Estimation of Poverty*, Planning Commission, Government of India, June 2014), which have also been subjected to criticisms. The fact is that arbitrariness is impossible to avoid in defining poverty lines, which implies that they should be used with care. In this report, estimates of incidence of poverty are used only for drawing certain qualitative conclusions, which are most unlikely to change if alternative poverty lines are used.

For estimating Tendulkar poverty lines for years other than 2004/05, suitable price indices had to be identified. The price indices used were the consumer price index for agricultural labourers for rural areas and the consumer price index for industrial workers for urban areas. This methodology can be and has been criticized (Deaton 2008). Given the use of the poverty estimates in this report, however, the methodology has been judged adequate.

TABLE 1.5 Labour Force Participation Rate (LFPR, %) of Older Persons

Gender category	1983	1999/2000	2011/12
Male	61.3	56.5	55.3
Female	14.4	14.9	13.1
Person	38.5	36.8	33.9

Source: Appendix Table A.1.1.

declining labour force participation of older men, then, is their expanding access to institutionalized social security and remittances. This, of course, is only a hypothesis and must remain so.

DECLINE IN LABOUR FORCE PARTICIPATION OF WORKING-AGE FEMALES

The most intriguing fact is the declining labour force participation of the working-age population, particularly of working-age women (Figure 1.1). This is a widely noted and probed trend (Ghose 2013; Himanshu 2011; Kannan and Raveendran 2012; Kapsos, Silberman, and Bourmpoula 2014; Mehrotra et al. 2014; Rangarajan, Iyer-Kaul, and Seema 2011; Thomas 2015). What explains this trend? One relevant fact is that a growing percentage of youths have been pursuing education for longer and longer periods so that the share of students in the working-age population has been rising. During 1983–2011/12, the share of students in the working–age population increased steadily: from 8.8 per cent to 15.8 per cent for males, and from 3.4 per cent to 11.3 per cent for females (Table 1.6). It is natural to suspect that this rising share of students in the working-age population explains the declining labour force participation of the working-age population. It does in fact fully explain the mildly declining labour force participation of working-age males; the participation rate of the non-student working-age males turns out to have remained quite stable over time (Figures 1.1 and 1.2). In the case of females, however, the rising share of students in the working-age population explains very little; even the participation rate of the non-student working-age females, though higher than that of the working-age females, shows a sharply declining trend.

There, therefore, must be another explanation for the declining labour force participation of working-age females. One is suggested by the data in Table 1.7. This data on LFPR by deciles of per capita consumer expenditure in households of labour force participants shows that during 1999/2000–2011/12, the period that witnessed the sharpest decline in women's labour force participation, it was the labour force participation of the working-age

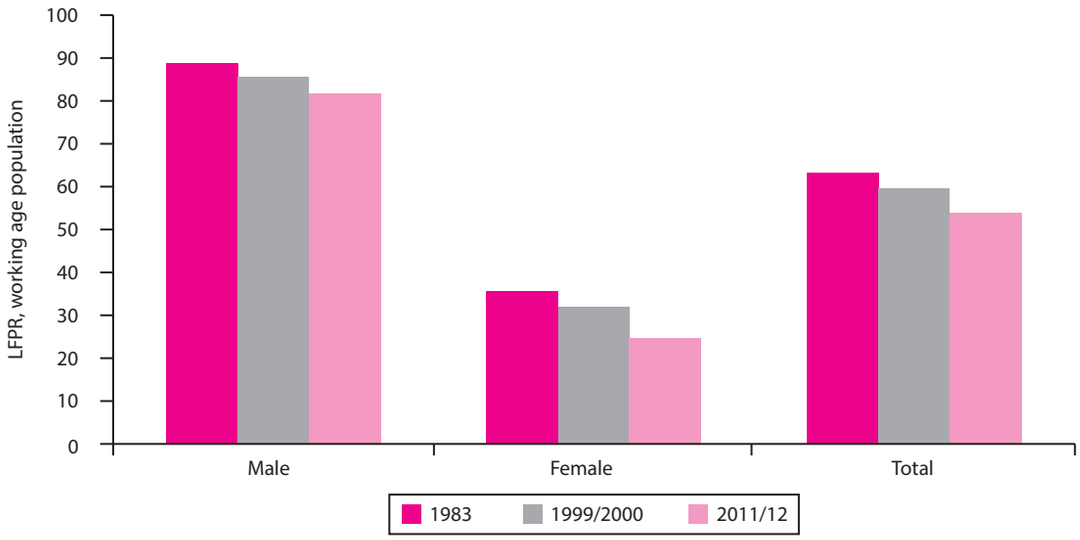

FIGURE 1.1 LFPR of the Working-Age Population (%)

Source of data: Appendix Table A.1.1.

TABLE 1.6 Share (%) of Students in the Working-Age Population

Gender category	1983	1999/2000	2011/12
Male	8.8	11.1	15.8
Female	3.4	6.8	11.3
Persons	6.2	9.0	13.6

Source: Appendix Table A.1.1.

women from poor households that really declined. The sharpest decline occurred for those in the bottom 20 per cent of households. Further, the magnitude of decline can be seen to steadily fall with rising expenditure per capita. Indeed, the labour force participation remained stable for the ninth decile and actually increased for the top decile. What do these facts suggest? It is widely recognized that

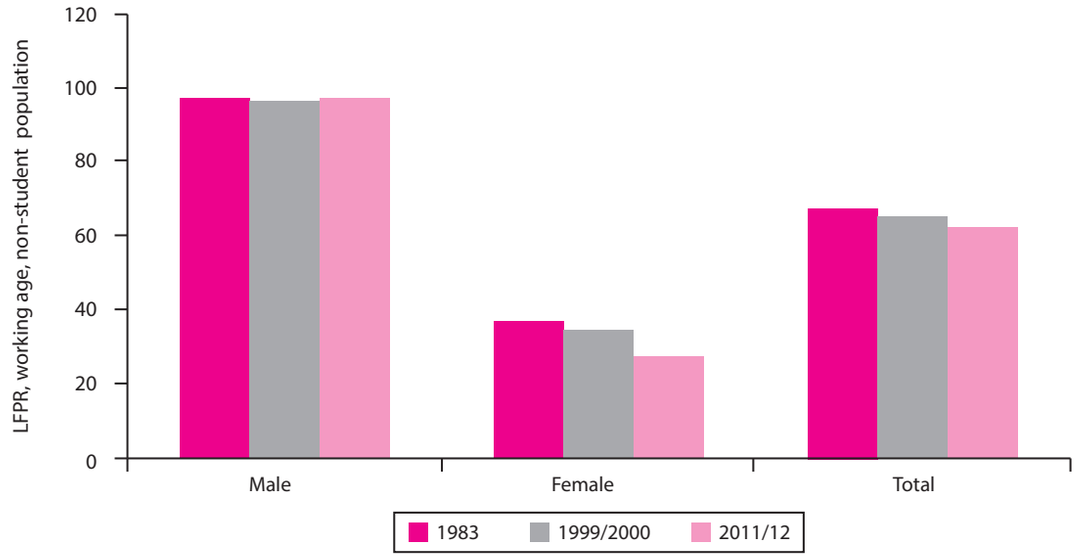

FIGURE 1.2 LFPR of Working-Age Non-student Population (%)

Source of data: Appendix Table A.1.1.

TABLE 1.7 Labour Force Participation of the Non-student Working-Age Female Population by Consumption Expenditure

Consumption expenditure deciles group	Labour force participation (%)		Average per capita real expenditure (Rs)	
	1999/2000	2011/12	1999/2000	2011/12
First	45.6	28.1	216	267
Second	41.4	26.1	285	363
Third	37.7	24.0	331	429
Fourth	37.5	26.5	373	489
Fifth	35.2	26.0	419	559
Sixth	33.8	28.3	468	638
Seventh	32.7	27.8	530	730
Eighth	31.1	30.7	616	870
Ninth	30.1	30.1	748	1,076
Tenth	27.3	29.7	1,256	2,019

Source: Author's estimates based on data available from NSSO *Survey of Employment and Unemployment* (55th and 68th Rounds).

there existed (and perhaps still exists) significant poverty-driven participation in the labour force among women from poor households; poverty forced many to engage in work that was arduous but yielded very poor return and hence was unattractive. Engagement in such work, moreover, often involved costs in terms of children's welfare and women's own health. What the data in Table 1.7 suggests is that increased household incomes, resulting from increased earnings of male workers, both induced and allowed withdrawal of many of these women from this kind of work (which can be thought of as an 'inferior good'). Per capita expenditure in poor households, it should be observed, increased despite the withdrawal of women from the labour force.

Very similar conclusions emerge from the data on labour force participation of non-student working-age women for different education categories (Figure 1.3). These show that the overall labour force participation of women declined basically because of withdrawal of illiterate and near-illiterate women from the labour force. The labour force participation of the illiterate women showed the sharpest drop. For women with 'below-primary' education too, the drop in participation was sharp. On the other hand, the labour force participation of highly educated women actually increased. These trends clearly suggest, once again, that it was the decline in poverty-driven participation of women from low-income households that explains the overall decline in the labour force participation of working-age women.

Is it possible that the withdrawal of the poorest, illiterate women from the labour force was caused, at least in part, by declining employment opportunities? It is trivially true that had plenty of 'attractive' jobs been available to women from poor households, they would have moved to those jobs and would not have withdrawn from the labour force. But the meaningful question is: did the supply of the kind of jobs these women were engaged in shrink? The answer must be no for two reasons. First, had a decline in employment opportunities been the reason for withdrawal from the labour force, household incomes and hence consumption of the poorest households would have declined. But, as shown in Table 1.7, the real per capita consumption expenditure increased for all households. Second (as will be seen in Chapter 3), the poorest, illiterate women in the labour force tend to be in poor-quality self-employment and in casual wage employment. Any decline in opportunities for these types of employment can only result in higher underemployment and not in reduced participation in the labour force.

Thus, the decline in overall LFPR and the consequent deceleration in labour force growth essentially reflected decline in poverty-driven labour force participation of children and working-age women. The decline in poverty-driven participation naturally resulted from the decline in poverty, which in turn is attributable to improvement in employment conditions of working-age males from poor households.

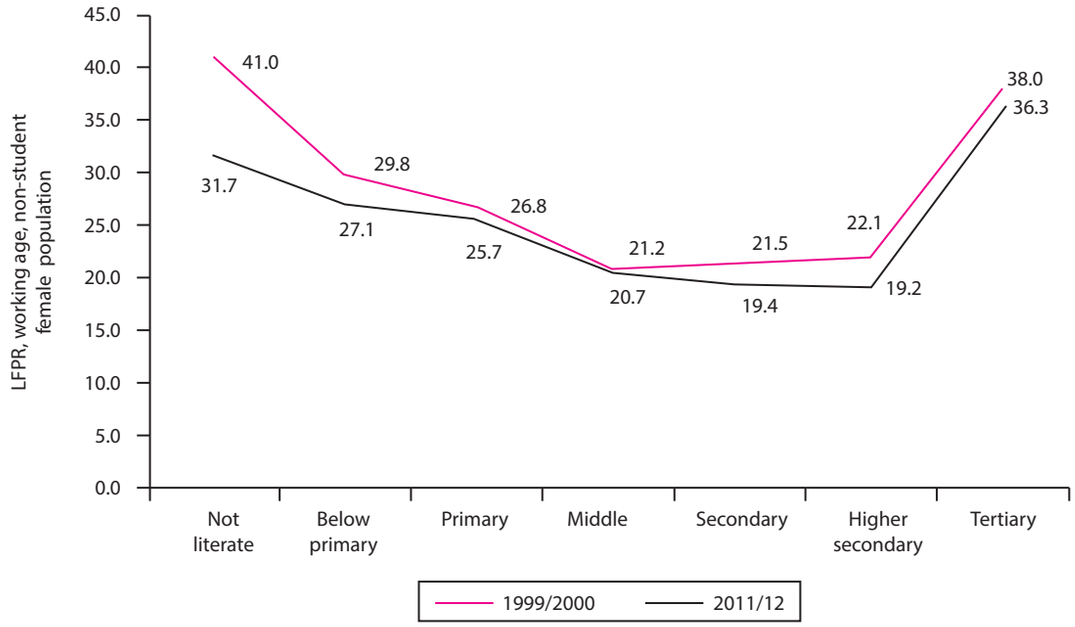

FIGURE 1.3 LFPR of Working-Age, Non-student Females by Level of Education (%)

Source of data: Estimates based on data in Table S.4 in the Statistical Annexe.

'YOUTH BULGE' AND 'DEMOGRAPHIC DIVIDEND'

As already noted, India entered the advanced phase of demographic transition (in which population growth decelerates) in the early 1980s and this showed up in the rising share of working-age population in total population. For a certain period, this also implied a rising share of youths (15–24 years) in total population as also in the working-age population. Thus, the share of youths in total population rose between 1983 and 1999/2000 but remained stable during 1999/2000–2011/12 (Table 1.8).

The share of youths in the working-age population also recorded a rise during 1983–1999/2000 but declined during 1999/2000–2011/12. So a 'youth bulge' in population was visible for a period in the past but disappeared after 1999/2000.

A 'youth bulge' in the labour force, on the other hand, has never been visible. The share of youths in the working–age labour force declined throughout 1983–2011/12. The labour force participation of youths showed a sharp declining trend, from 52.3 per cent in 1983 to 43.6 per cent in 1999/2000 and further to 32.4 per cent in 2011/12. An important reason for this was

TABLE 1.8 Youths (15–24 Years) in the Population and Labour Force (UPS)

	1983			1999/2000			2011/12		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
A	18.3	18.2	18.3	19.0	19.6	19.3	19.6	18.8	19.2
B	33.9	33.8	33.9	34.0	34.4	34.2	32.3	31.1	31.7
C	27.7	28.7	28.0	24.8	25.5	25.0	19.6	18.6	19.4
D	72.6	30.3	52.3	62.7	23.9	43.6	48.5	14.6	32.4

Source: Appendix Table 1.1.

Note: A = share (%) in total population; B = share (%) in working-age population; C = share (%) in working-age labour force; D = LFPR (%).

the rising share of students in the youth population (Figure 1.4). But it was not the only reason; the labour force participation of non-student youths also showed a declining trend (Figure 1.5). The declines, which occurred for both males and females, were mild between 1983 and 1999/2000 and may have reflected a general tendency of the young to delay entry into the labour force. Between 1999/2000 and 2011/12, however, it was basically the labour force participation of young females that declined quite sharply.

The explanation seems to be exactly the same as that for the declining labour force participation of non-student working-age females, namely, the decline in poverty-driven participation. The labour force participation fell

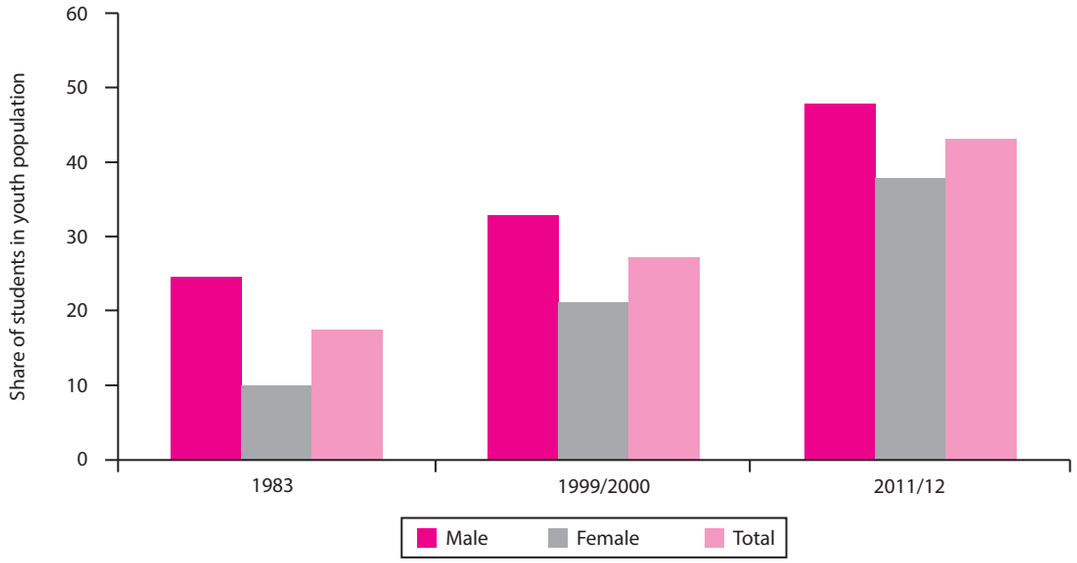

FIGURE 1.4 Share of Students in the Youth Population (%)

Source of data: Appendix Table A.1.1.

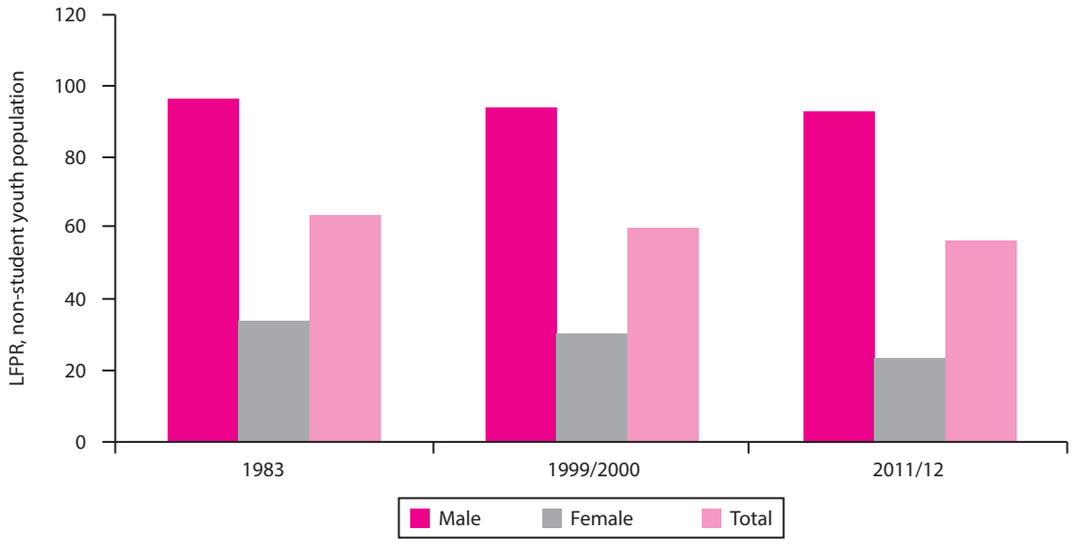

FIGURE 1.5 LFPR of the Non-student Youth Population (%)

Source of data: Appendix Table A.1.1.

particularly sharply for those with little or no education and rose for those with tertiary education (Figure 1.6).

It has often been asserted that India is poised to reap a 'demographic dividend' (Aiyar and Mody 2011; Narayana 2015). Such assertions, unfortunately, often betray a misunderstanding of the notion of 'demographic dividend' (Basu 2011; Krishnamurty and Kumar 2015). A mere increase in the share of working-age population in total population cannot and does not bring any positive growth dividend; it can in fact bring a negative growth dividend. It is when the number of workers increases faster than the total population and the dependency ratio declines in consequence that a dividend in terms of growth may be seen. A declining dependency ratio can conceivably have the effect of increasing the saving and investment rates, thereby increasing the growth rate of the economy. 'Demographic dividend' refers to the growth acceleration that a declining dependency ratio may bring about by increasing saving and investment rates.

Even in theory, 'demographic dividend' is only a possibility and not a certainty. A rise in the saving rate by itself does not guarantee a corresponding rise in the investment rate. If the investment rate fails to rise to match the increased saving rate, the growth rate decelerates and the 'demographic dividend' turns negative.

At any rate, in India, the dependency ratio has actually been rising, not declining (Table 1.9). The number of persons that each labour force participant must support steadily increased between 1983 and 2011/12. India has thus far not reaped any 'demographic dividend'. This does not rule out the possibility of a 'demographic dividend' arising in future (the share of working-age population in total population will continue to rise for some more time). But it will not rise automatically. Productive employment will need to grow faster than the population. Rapid employment-intensive economic growth is a precondition. Indeed, it is employment-intensive growth that can generate a 'demographic dividend' much as large-scale production generates increasing returns.

TABLE 1.9 Dependency Ratios

Year	Ratio of total population to:	
	total labour force	working-age labour force
1983	2.6	2.9
1999/2000	2.7	3.0
2011/12	2.8	3.1

Source: Appendix Table A.1.1.
Note: Total labour force refers to persons in all age groups.

EDUCATION PROFILE

The average level of education of the working-age labour force, though it has been rising, remains abysmally low (Table 1.10). Between 1999/2000 and 2011/12, the average 'years of education' (see Box 1.4 for the method of estimation) increased from 5.4 to 6.8 for working-age males and from 2.3 to 4.4 for working-age females. But the figures for 2011/12 are obviously much too low. For

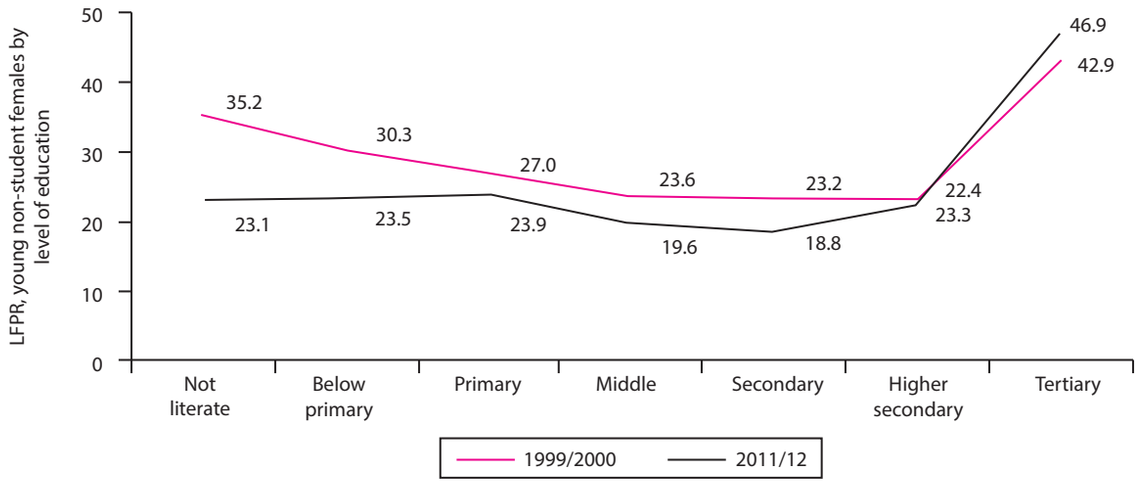

FIGURE 1.6 LFPR of Young Non-student Females by Level of Education (%)

Source of data: Table S.4 in the Statistical Annexe.

working-age females, moreover, the observed rise in the average years of education is artificially inflated since many of the illiterate and near-illiterate (with below-primary education) women had actually withdrawn from the labour force.

A really important fact is that while illiteracy remained high, a relatively large section of the labour force also had tertiary education. Even in 2011/12, 31 per cent of the male labour force and 56 per cent of the female labour force were illiterate or near illiterate. Yet, 13 per cent of the male labour force and 10 per cent of the female labour force actually had tertiary education. The distribution of education among the population and hence among the labour force is highly distorted.

The level of education of women has been and remains lower than that of men. However, the gap has been closing. The gaps between men and women in 'average years of education', level of illiteracy, and 'percentage with tertiary education' all declined between 1999/2000 and 2011/12.

The low level of education of the labour force obviously reflects the low level of education of the non-student working-age population. However, in the case of females, the 'average years of education' of the non-student population is observed to have been higher than that of the labour force. This is explained by the fact that, in the case of women, the relation between LFPR and level of education can be represented by a U-shaped curve implying that women with no education and those with tertiary education are over-represented in the labour force while all others are under-represented (Table 1.11). And no women with no education are far more numerous than those with tertiary education. In the case of men, the LFPR shows no systematic variation with the level of education (a very weak tendency for the participation rate to rise with the level of education is perhaps

TABLE 1.10 Level of Education

Education level	Male		Female		Person	
	1999/2000	2011/12	1999/2000	2011/12	1999/2000	2011/12
Non-student population						
AYE	5.4	6.8	3.2	4.8	4.3	5.8
PINI	43.5	31.7	65.7	49.9	54.6	40.8
PTE	7.4	12.6	3.5	7.4	5.5	10.0
Labour force						
AYE	5.4	6.8	2.3	4.4	4.6	6.3
PINI	43.2	31.3	68.6	55.9	42.1	26.6
PTE	7.5	12.8	3.7	10.2	6.5	12.2

Source: Estimates derived from data in Table S.4 in the Statistical Annexe. See Box 1.4.
Note: Persons of working age in or outside the labour force according to UPS. AYE = average years of education; PINI = percentage illiterate or near illiterate (that is, with below-primary education); and PTE = percentage with tertiary education

Box 1.4 Estimation of 'Average Years of Education'

From the unit-level data generated by the various Rounds of National Sample Survey of Employment and Unemployment, percentage distributions of population, non-student population, persons in the labour force, persons in employment and persons in unemployment by level of education have been derived. Estimation of 'average years of education' then requires assigning years of education to each level and the following have been assumed: not literate = 0; below primary = 2.5; primary = 5; middle = 8; secondary = 10; higher secondary = 12; and graduate and above = 15.

On these assumptions, the 'average years of education' is estimated by using the formula:

$$[P(1).(0.0) + P(2).(2.5) + P(3).(5.0) + P(4).(8.0) + P(5).(10.0) + P(6).(12.0) + P(7).(15.0)]/100$$

where P(1) = percentage not literate; P(2) = percentage with below primary education; and so on. The data on distribution by level of education is given in Appendix Tables A.1.3(a) to A.1.3(f).

TABLE 1.11 LFPR (%) of Non-student Working-Age Population

Education level	Male		Female	
	1999/2000	2011/12	1999/2000	2011/12
Not literate	96.1	95.9	41.0	31.7
Below primary	96.8	96.1	29.8	27.1
Primary	97.1	97.3	26.8	25.7
Middle	96.9	97.9	20.7	21.2
Secondary	97.1	97.2	21.5	19.4
Higher secondary	97.4	98.1	22.1	19.2
Tertiary	98.4	98.8	36.3	38.0

Source: Table S.4 in the Statistical Annexe.

Box 1.5 Education Profile of Population Aged 25 Years or More

The bias in India's education policy against basic education for all and in favour of tertiary education for a few is evident from a comparison of observed education outcomes in India with those in other middle-income countries. Illiteracy is much too high in India; the percentage of persons with up to higher secondary education is much too low; the percentage of persons with tertiary education is relatively high (see Table B1.5.1).

TABLE B1.5.1 Comparison of Education Outcomes in India with Other Middle-Income Countries

Gender category	India	China	Brazil	South Africa	Indonesia	Turkey
	2012	2010	2011	2012	2011	2012
Male						
Not literate	26.5	3.5	15.5	5.1	4.6	2.1
Up to primary	23.2	24.7	32.1	17.2	46.2	34.4
Up to secondary	29.6	46.4	14.8	13.6	16.4	21.9
Higher secondary	7.4	15.4	27.5	48.3	24.6	22.7
Tertiary	13.3	10.0	10.1	14.0	8.2	15.4
All	100.0	100.0	100.0	98.2	100.0	96.5
Female						
Not literate	49.6	9.8	14.7	8.1	11.4	10.0
Up to primary	19.9	31.5	30.7	18.0	48.8	47.8
Up to secondary	19.2	39.5	13.7	13.6	14.7	13.7
Higher secondary	4.5	11.6	28.3	46.2	17.6	14.6
Tertiary	6.8	7.6	12.6	12.9	7.5	10.4
All	100.0	100.0	100.0	98.8	100.0	96.5
Person						
Not literate	38.0	6.6	15.1	6.7	8.0	6.1
Up to primary	21.6	28.1	31.3	17.6	47.6	41.1
Up to secondary	24.4	43.0	14.3	13.6	15.5	17.7
Higher secondary	6.0	13.5	27.9	47.2	21.1	18.7
Tertiary	10.0	8.8	11.4	13.4	7.8	12.9
All	100.0	100.0	100.0	98.5	100.0	96.5

Note: In the cases of South Africa and Turkey, there were some persons whose education status was not known.
Source: Data for India: author's estimates based on data from 55th and 68th Rounds of NSSO Survey; data for the other countries UNESCO various years, Table: Population by Highest Completed Level of Education.

discernible). One consequence of these differences in the pattern of labour force participation is that the gap in the level of education between men and women is larger for the labour force than for the non-student population (Table 1.11).

The education profile of the non-student population (and thus of the labour force) clearly reflects the longstanding bias in India's education policy that paid little attention to basic education for all and greater attention to tertiary education for a few. This becomes obvious when a comparison is made between India and other emerging economies (Box 1.5). It also emerges when the pattern of allocation of public expenditure in India is compared to that in other emerging economies (Figure 1.7). Between 2008 and 2011, the ratio of public expenditure per student in tertiary education to that in primary education was 9.3 in India, far higher than that in other emerging economies.

It should be averred that formal education does not really represent skill. In fact, few illiterate members of the labour force are wholly unskilled and not all educated members are skilled. But, as growth occurs, many traditional skills lose relevance and the need for new skills arises. It is in this context that formal education assumes significance. Formal education facilitates acquisition of new skills. Persons with formal education find it much easier to acquire new skills, whether on the job or through specialized training. This being so, the observed education profile of India's labour force can be seen as imposing a constraint on India's economic growth. The constraint cannot actually be removed through special skill-development programmes. The answer is to be found in ensuring universal up-to-secondary education for India's labour force.

* * *

The analysis in this chapter establishes three critical facts about the labour force in India. *First, the growth of the labour force has been decelerating.* The reason is declining LFPRs for persons in all age groups—children, working age, and elderly. The declining labour force participation of children, clearly a positive development, is attributable to declining poverty. The mildly declining participation of working-age males is explained by the growing pursuit of education. The sharply declining participation of working-age females is explained principally by declining poverty-driven participation and thus by declining poverty. The declining participation of elderly males is perhaps attributable to the growing importance of remittances and institutionalized social security. When it is recognized that both declining poverty and the growing importance of remittances and social security reflect improving employment conditions, the paradoxical conclusion is reached that improving employment conditions lowered the labour force participation thereby slowing down labour force growth.

Second, the much-talked-about phenomena of 'youth bulge' and 'demographic dividend' never materialized.

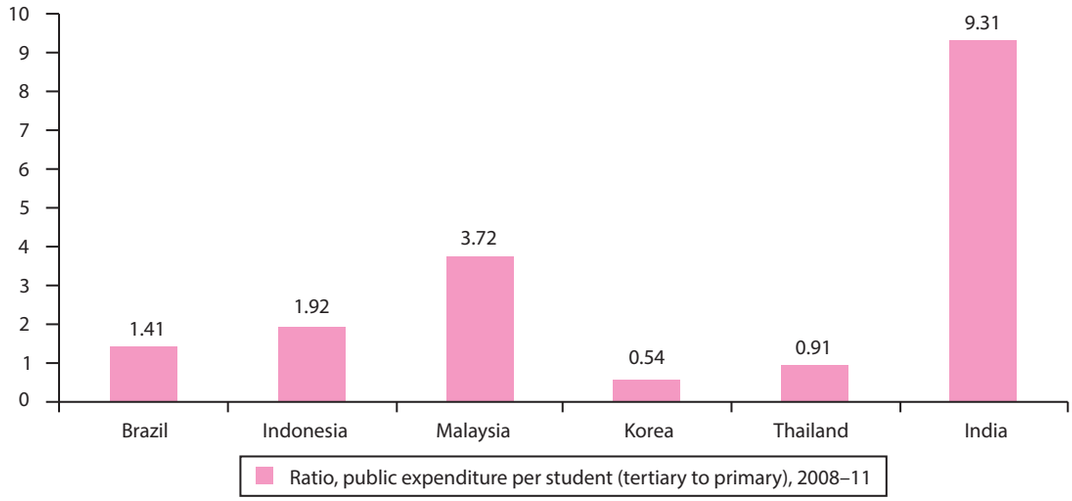

FIGURE 1.7 Ratio of Public Expenditure per Student in Tertiary Education to that in Primary Education, 2008–11

Source of data: UNESCO (various years, Table: Education: Government Expenditure per Student as Percentage of GDP per Capita).

While the share of youths in the working-age population was rising in the 1980s and the 1990s, the share of youth labour force in the working-age labour force was actually falling. Since 1999/2000, the share of youths in the working-age population has remained stable and the share of youth labour force in the working-age labour force has continued to fall. There has been no 'youth bulge' in the labour force because the labour force participation of young women has been on the decline throughout the period. 'Demographic dividend' has also not been in evidence; the dependency ratio has been rising, not falling throughout the period 1983–2011/12.

Third, the education structure of the labour force is rather peculiar and distorted. On the one hand, a disproportionately large section has little or no education (being either illiterate or having below-primary education). On the other hand, a relatively large section has tertiary education. Persons with secondary education, who constitute the bulk of the labour force in middle-income and emerging economies, account for a small share of the labour force in India. The vast majority of the persons in the labour force thus remain ill equipped to acquire new skills. This restricts the workers' movement to new occupations and imposes a skill constraint on economic growth. All these facts reflect the long-standing bias in India's education policy, which assigns much importance to higher education for a few and lesser to basic education for all. There needs to be a shift in this bias towards basic education (up to secondary level) for all.

APPENDIX TABLES

TABLE A.1.1 Population and Labour Force, 1983–2011/12 (in Million)

Age group (years)	1983			1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
Population									
Total	372.3	346.9	719.2	519.1	484.1	1003.2	631.5	595.9	1227.4
5–14	101.3	92.9	194.2	129.0	116.8	245.8	136.0	124.2	260.2
15–59	201.4	186.6	388.0	289.8	275.7	565.5	382.2	361.4	743.6
15–24	68.3	63.2	131.5	98.5	94.9	193.4	123.5	112.3	235.8
60 or more	23.8	22.8	46.6	42.1	37.7	79.8	52.4	54.2	106.6
5 or more	326.5	302.3	628.8	460.9	430.2	891.1	570.6	539.8	1110.4
Non-student population									
15–59	183.8	180.2	364.0	256.6	255.4	512.0	321.7	318.2	639.9
15–24	51.4	56.9	108.3	66.0	74.8	140.8	64.5	69.8	134.3
UPS labour force									
5–14	10.4	7.1	17.5	5.0	3.6	8.6	1.9	1.1	3.0
15–59	178.9	66.7	245.6	248.5	88.7	337.2	313.2	88.3	401.5
15–24	49.6	19.2	68.8	61.7	22.6	84.3	59.9	16.4	76.3
60 or more	14.6	3.4	18.0	23.7	5.6	29.3	29.0	7.1	36.1
5 or more	203.9	77.2	281.1	277.2	97.9	375.1	344.1	96.5	440.6
UPSS labour force									
5–14	12.4	9.9	22.3	5.5	4.6	10.1	2.3	1.6	3.9
15–59	181.4	88.7	270.1	250.4	112.5	362.9	315.9	117.6	433.5
15–24	51.8	25.6	77.4	63.3	28.7	92.0	62.3	22.5	84.8
60 or more	15.2	4.8	20.0	24.4	6.9	31.3	29.5	9.4	38.9
5 or more	209.0	103.4	312.4	280.3	124.0	404.3	347.7	128.6	476.3

Source: *Population Census* (various years); *National Sample Survey of Employment and Unemployment* (various years).

TABLE A.1.2 India's Demographic Transition

Year	Total population (million)	Rate of growth (%)	Working-age population (million)	Share in total population (%)
1951	361.1	–	202.6	56.11
1961	439.2	1.98	234.1	53.30
1971	548.2	2.24	285.1	52.01
1981	683.3	2.23	368.3	53.90
1991	846.4	2.16	471.4	55.69
2001	1,028.7	1.97	585.3	56.90
2011	1,210.2	1.64	729.7	60.30

Source: *Population Census* (various years)

TABLE A.1.3(a) Percentage Distribution of Working-Age Population by Level of Education

Education level	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Not literate	29.1	53.8	41.1	18	35.8	26.6
Below primary	9.9	7.6	8.8	8.9	8.7	8.8
Primary	13	10.2	11.6	12.6	11.6	12.1
Middle	19.5	12.4	16.1	20.1	15.6	17.9
Secondary	13.9	8.1	11.1	17.3	12.5	15
Higher secondary	7.5	4.1	5.8	11	8.3	9.7
Tertiary	7.2	3.7	5.5	12.1	7.5	9.9

Source: Table S.4 in the Statistical Annexe.

TABLE A.1.3(b) Percentage Distribution of Youth Population by Level of Education

Education level	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Not literate	17.3	35.3	26.1	6.8	13.9	10.2
Below primary	7.6	7.4	7.5	6.0	6.4	6.2
Primary	14.7	12.3	13.5	11.7	11.8	11.7
Middle	28.2	20.5	24.6	24.9	23.2	24.1
Secondary	18.6	13.4	16.0	24.4	21.0	22.8
Higher secondary	10.1	7.6	8.8	17.7	16.2	17.0
Tertiary	3.5	3.5	3.5	8.5	7.5	8.0

Source: As in Table A.1.3(a).

TABLE A.1.3(c) Percentage Distribution of Non-student Working-Age Population by Level of Education

Education level	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Not literate	32.6	57.5	45.0	21.3	40.2	30.8
Below primary	10.9	8.0	9.4	10.4	9.6	10.0
Primary	13.3	10.2	11.8	13.9	12.4	13.2
Middle	17.7	11.1	14.4	19.2	14.3	16.7
Secondary	12.0	6.7	9.4	14.4	10.1	12.2
Higher secondary	6.1	3.0	4.5	8.2	6.0	7.1
Tertiary	7.4	3.5	5.5	12.6	7.4	10.0

Source: As in Table A.1.3(a).

TABLE A.1.3(d) Percentage Distribution of Non-student Youth Population by Level of Education

Education level	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Not literate	25.8	44.8	35.9	13.0	22.3	17.9
Below primary	10.2	8.8	9.4	10.5	9.7	10.1
Primary	16.8	13.4	15.0	17.8	15.6	16.7
Middle	25.0	17.0	20.6	25.2	21.3	23.1
Secondary	13.3	9.2	11.2	16.1	14.5	15.3
Higher secondary	5.6	4.0	4.8	9.0	9.6	9.2
Tertiary	3.3	2.8	3.1	8.4	7.0	7.7

Source: As in Table A.1.3(a).

TABLE A.1.3(e) Percentage Distribution of Working-Age Labour Force by Level of Education

Education level	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Not literate	32.4	68.6	42.0	21.1	46.4	26.6
Below primary	10.8	7.0	9.8	10.2	9.5	10.1
Primary	13.4	8.0	11.9	13.9	11.6	13.4
Middle	17.7	6.6	14.8	19.3	11.0	17.4
Secondary	12.1	4.2	10.0	14.4	7.1	12.8
Higher secondary	6.1	1.9	5.0	8.3	4.2	7.4
Tertiary	7.5	3.7	6.5	12.8	10.2	12.3

Source: As in Table A.1.3(a).

TABLE A.1.3(f) Percentage Distribution of Youth Labour Force by Level of Education

Education level	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Not literate	25.3	52.0	32.5	12.4	21.9	14.4
Below primary	10.4	8.8	10.0	10.7	9.8	10.5
Primary	17.0	11.9	15.6	18.0	15.9	17.6
Middle	25.1	13.2	21.9	25.5	17.7	23.9
Secondary	13.5	7.0	11.7	16.2	11.6	15.2
Higher secondary	5.5	3.1	4.9	9.0	9.1	9.0
Tertiary	3.2	4.0	3.4	8.2	14.0	9.4

Source: As in Table A.1.3(a).

TABLE A.1.4 India's Labour Force in 2015/16 (Projections)

Age group (years)	Male	Female	Total	Rural	Urban
UPSS labour force					
5–14	1.6	1.2	2.8	2.0	0.8
15–59	341.7	124.7	466.4	316.6	149.8
60 or more	31.5	10.1	41.6	33.9	7.7
5 or more	374.8	136.0	510.8	352.5	158.3
UPS labour force					
5–14	1.4	0.7	2.1	1.5	0.6
15–59	338.8	93.8	432.6	287.5	145.1
60 or more	31.0	7.7	38.7	31.2	7.5
5 or more	371.2	102.2	473.4	320.2	153.2

Note: The following assumptions are used to derive the estimates: (i) except for working-age females, the rate of growth of UPS labour force in each age/gender/space group during 2011/12–2015/16 is the same as that during 1999/2000–2011/12; (ii) for working-age females, LFPR with respect to the non-student population is the same in 2015/16 as that in 2011/12; (iii) for persons of working age, the rate of growth of non-student population during 2011/12–2015/16 is the same as that during 1999/2000–2011/12 for each gender or space group; and (iv) the ratio of UPS labour force to UPSS labour force for each age or gender or space group is the same in 2015/16 as that in 2011/12.

TABLE A.1.5 India's Labour Force, 2013/14 (Age Group 15 Years or More)

	Male	Female	Person
Population (in million)			
LBS estimates	456.5	438.1	894.6
Authors' projection	454.3	435.8	890.1
UPS labour force (in million)			
LBS estimates	339.6	113.0	452.6
Author's projection	355.6	99.0	454.6
UPSS labour force (in million)			
LBS estimates	345.6	136.2	481.8
Author's projection	358.9	131.8	490.7
UPS participation rate (percentage)			
LBS estimates	74.4	25.8	50.6
Author's projection	78.3	22.7	51.1
UPSS participation rate (%)			
LBS estimates	75.7	31.1	53.9
Author's projection	79.0	30.2	55.1
Share (%) of USS workers in UPSS labour force			
LBS estimates	1.7	17.0	6.1
Author's projection	0.9	24.9	7.4

Note: The method used to derive author's projections (which are based on NSSO survey data [various years]) is described in the Note to Table A.1.4. LBS (Labour Bureau Survey) estimates are from Labour Bureau (2014).

2

Employment Conditions

This chapter discusses the characteristics of employment and unemployment in India's economy. It begins with a discussion of concepts and method to be used in analysing employment conditions and their evolution in the context of India's economy. It then proceeds to empirically examine the principal characteristics of employment and unemployment, assess the changes in employment conditions during 1999/2000–2011/12, a period of high growth, and provide a perspective on employment conditions as they exist today.

Two qualifying remarks are in order. First, the chapter considers the employment conditions of what has been described in this report as the 'core labour force' or the working-age participants in the labour force according to UPS because it allows us to focus on persons who are or seek to be full-time employed. It also enables us to define non-overlapping categories of employed, unemployed, and non-participants (that is, persons not in the labour force). The justification for confining attention to the working-age participants in the labour force is that their employment conditions effectively determine the well-being of the population and have effects on the participation of women, children, and older persons in the labour force (as seen in Chapter 1), thus providing the true picture of the employment conditions in the economy.

Second, the analysis of the evolution of employment conditions covers the period 1999/2000–2011/12 because 2011/12 is the latest year for which NSS data on employment and unemployment is available. The Labour Bureau (Ministry of Labour and Employment, Government of India) conducted a similar survey in 2013/14, the results of which are available. But we can make only limited use of the data from this survey since this is not quite comparable to the data derived from the national sample surveys. The period covered in much of the analysis, therefore, cannot extend beyond 2011/12. As it happens this was a period of unprecedentedly high economic growth in India and it offers a glimpse of the nature of relationship between economic growth and employment in the context of India's economy.

EMPLOYMENT AND UNEMPLOYMENT—AN ANALYTICAL PERSPECTIVE

India's economy can be characterized as a dual economy with surplus labour as defined by Arthur Lewis (Basu 2000; Ghose 2010; Lewis 1954). In schematic terms, it may be said to be composed of two distinct sectors—an organized (or formal) sector and an unorganized (or informal) sector. The unorganized sector, it may be said, holds a stock of surplus labour in the sense that a sizeable

section of the workers could be moved out of the sector without affecting labour use and output.

A stylized description of the organization of labour in this kind of an economy is as follows. In the organized sector, which employs a small proportion of the labour force, employment conditions are much like those in developed countries; it is regular, full time, and wage paid. Jobs in the organized sector also come with non-wage benefits and social security entitlements. Government regulations play a major role in determining wages, non-wage benefits, and social security entitlements associated with jobs in the sector. Employees in the organized sector often are members of trade unions that engage in collective bargaining with employers over all these issues. The result is that the average income of the workers is much higher and more secure than that of the workers in the unorganized sector. This is sustainable because the average output per worker is also much higher in the organized sector, where capital is an important input into production.

In the unorganized sector, where the large majority of India's workers are employed, there is neither government intervention nor collective bargaining nor any kind of institutionalized social security. Labour productivity is low as there is little capital in use in production activities. Labour incomes are also low. Self-employment and casual wage employment are the dominant forms of employment in the sector, both of which facilitate work sharing. In self-employment, the working members of a household share the work in and the income from the household enterprise. In casual wage employment, the workers share the amount of wage employment available; while some workers fail to find employment on any given day, no single worker fails to find employment on all days. It is this feasibility of work sharing that makes it possible for the unorganized sector to function as a reservoir of surplus labour, which exists in the form of underemployment of many workers rather than in the form of unemployment of some workers. When the number of working members in a household increases, each member works in the household enterprise for less time than before and nobody is unemployed. When the number of workers seeking casual wage employment increases, each individual worker finds employment for less time than before and, again, nobody is unemployed. The two forms of employment are closely intertwined and do not constitute distinct, non-overlapping categories. Self-employed persons may work as casual wage labourers some of the time just as casual wage labourers may work as self-employed persons some of the time. It is not unusual for a single household to have members that are both self-employed persons and casual wage labourers.

In an economy of this kind, unemployment, employment, and wages have rather special meanings. First, the vast majority of India's workers must work to survive even if the work they can find generates below-subsistence incomes. Unemployment is a luxury good that only a few can afford, namely, the few 'young and educated' who belong to relatively well-off households and can afford to wait for jobs in the organized sector. Unemployment in India reflects queuing for jobs in the organized sector and not the excess supply of labour in the economy.

Second, given the high wage and non-wage benefits associated with jobs in the organized sector, most people naturally prefer to have jobs in that sector but only a few actually manage to find them. Those who do not find work in the organized sector can and do find it in the unorganized sector where the extent of work sharing (and thus underemployment) can always expand to accommodate new workers. The total employment in the unorganized sector, therefore, is a residual; it equals the total labour force in the economy minus the employment in the organized sector. This also means that employment cannot be distinguished from labour force in the unorganized sector. Thus, employment growth in the unorganized sector always equals labour force growth, which depends on the growth of total labour force in the economy and the growth of employment in the organized sector. In situations (as in India) where the organized sector employs only a very small proportion of the labour force in the economy, employment growth in the economy as a whole also tends to equal the labour force growth.

Finally, there is obviously no single integrated wage labour market. Instead, there are two markets in wage labour, neither of which is ever in equilibrium. In the case of the organized sector, which employs regular full-time wage-paid labour, supply of labour is virtually unlimited because most of the workers currently outside the sector would be keen to move to jobs in the sector. In the unorganized sector, which is a reservoir of surplus labour, there is perennial excess supply in the market for

casual labour, which shows up in underemployment of the casual labourers. On any given day, there are more workers seeking work than there are employers seeking to hire. But because the hiring is on a daily basis, the same workers are not without work every day; this is how sharing of the available wage-paid work occurs in practice.

Thus, wages are not or cannot be market clearing in any of the sectors. They are or must be exogenously given. In the organized sector, it has already been said, the wage is fixed by government regulations and collective bargaining. Wage growth in the organized sector, therefore, is wholly autonomous and is not determined with reference to productivity growth. This does not mean that there is no relationship between wage growth and productivity growth, only that it is productivity growth that adjusts to wage growth and not the other way round. When wage growth happens to exceed productivity growth, it results in a slowdown in employment growth since the productivity growth must accelerate. When, on the other hand, wage growth falls short of productivity growth, it need not have any effect on employment growth. In the organized sector, wage growth occasionally drives productivity growth but productivity growth never drives wage growth.

In the unorganized sector, the daily wage for casual labour is fixed with reference to output per self-employed worker, which is the dominant form of employment. Self-employment is the fallback position for casual labourers and casual wage employment is the fall-back position for self-employed persons. So, labour income per worker from self-employment should equal wage earning per worker from casual wage employment. This condition provides the basis for determining the daily wage for casual labour. In self-employment, a notional value added per worker per day may be defined as the total value added in a production period divided by the number of days employed during the production period. This, of course, is much more than labour income; it is a 'mixed income' composed of rent, profit, and labour income. Labour income per day in self-employment can be taken as a fixed proportion of this mixed income per day. This serves as the norm for casual wage per day. However, casual labourers do not find employment on all days they seek it and can be said to face a less-than-unity probability of finding employment on any given day. For a casual worker, therefore, the average wage income per day is the product of the actual daily wage and the probability of finding employment on any given day. The actual daily wage can thus be somewhat arbitrary because the probability can adjust so as to maintain equality between total labour income of a self-employed and total wage earning of a casual labourer in a production period. If the daily wage is too high, some of the self-employed will want to work as casual wage labourers, thereby lowering the probability of finding employment. Similarly, if the daily wage is too low, some casual wage labourers will withdraw into self-employment, thereby increasing the probability of finding employment.

This method of wage setting has two important implications. First, a rise (or fall) in the casual wage rate does not indicate growing tightness (or slackness) in the market for casual labour and may not even result in a rise (or fall) in the average earning of casual labourers over the production period. Workers' movements and government interventions, for example, can conceivably increase the casual wage rate. In the absence of an increase in labour productivity in self-employment, however, a rise in casual wage rate need not increase the wage earning of casual labourers. It is likely to increase underemployment because the prospect of the average earning from casual employment rising above the average labour income from self-employment encourages some of the self-employed to seek casual wage employment. Similarly, a ceteris paribus decline in casual wage lowers underemployment because some of the casual workers move to self-employment. On the other hand, when labour productivity in self-employment rises, either a rise in casual wage or a fall in underemployment or both may be expected. Hence the average wage earning per casual worker necessarily rises. Similarly, if labour productivity in self-employment falls, either a fall in casual wage or a rise in underemployment or both may be expected. Hence, the average wage earning per casual worker necessarily declines.

In the context of an economy such as India's, therefore, the standard indicators, namely, time trends in unemployment, employment, and wages cannot indicate if employment conditions have been improving or deteriorating. Increased unemployment merely indicates a longer queue for jobs in the organized sector, which reflects a mismatch between employment growth in the organized sector and growth in the number of educated job seekers in a given period. Increased employment, on the other hand, could simply mean a larger labour

force rather than increased labour use in the economy. Also, wage changes by themselves do not unambiguously indicate changes in employment conditions because they do not reflect slackness or tightness in labour markets and may be associated with either increased or reduced quantum of employment.

To assess changes in employment conditions in a labour-surplus dual economy such as India's, it is necessary to focus on changes in the structure of employment. Such changes are engendered by economic growth, which is led by the organized sector and generates employment growth in that sector. This induces movement of workers from employment in the unorganized sector to employment in the organized sector. The share of the organized sector in total employment in the economy rises as a result. Since labour productivity and wages are higher in the organized sector, a rise in the proportion of workers employed in the organized sector indicates economy-wide increase in labour productivity and labour incomes and hence improvement in employment conditions. Movement of workers from the unorganized to the organized sector also helps increase labour productivity in the unorganized sector even when output growth in the sector remains unchanged. For any given rate of growth of labour force in the economy, a rise in the proportion of workers employed in the organized sector means a lower growth of labour force (than it would otherwise be) in the unorganized sector and hence a rise in growth of labour productivity for any given rate of output growth. Further, because labour productivity in the unorganized sector (which basically means labour productivity in self-employment) reflects levels of labour incomes and underemployment, a rise in labour productivity indicates increased labour incomes and reduced underemployment and hence an improvement in employment conditions in the sector.

Thus, one kind of change in the structure of employment that indicates change in employment conditions is the change in the distribution of employment between the organized and the unorganized sectors; improvement is indicated by a rise in the share of the organized sector in total employment. A sustained process of increase in the share of the organized sector is what may be called the Lewis Process of structural change. The process leads to what is known as the Lewis Turning Point, the point at which there is no more surplus labour left in the unorganized sector and all workers there have full-time employment. Until this point is reached, movement of workers out of the unorganized sector reduces underemployment and leaves the amount of labour used in the sector unchanged so that output (and its growth) remains unaffected. Once the Turning Point is reached, however, further movement of labour out of the unorganized sector has a negative effect on labour use and output in the sector; as there is no underemployment any more, lower number of workers means lower quantum of labour input and hence lower output. But in so far as the law of diminishing return is in operation, labour productivity in the unorganized sector should still be rising. Given that the gaps in labour productivity and in labour incomes between the two sectors are large to begin with, they persist for some time even after the Turning Point has been reached. Hence the Lewis Process continues until these gaps have disappeared and the point at which this happens may be perceived as the Second Turning Point. At this point, dualism also disappears and a developed economy emerges.

But the Lewis Process is associated with improving employment conditions only if labour productivity in the unorganized sector is not declining. Declining labour productivity would mean growing underemployment and dwindling labour incomes for both the self-employed and the casual wage employees or, in other words, deteriorating employment conditions in the unorganized sector. There is no unambiguous improvement in overall employment conditions if the organized sector is pulling workers out of the unorganized sector but employment conditions in the unorganized sector are deteriorating at the same time. As observed here, so long as there is underemployment in the unorganized sector, movement of some workers to the organized sector does not reduce the quantity of labour actually employed in the unorganized sector so that output remains unaffected. But this does not guarantee stability of output per worker in the unorganized sector except when the labour force growth in the economy is very slow so that any movement of workers to the organized sector necessarily means zero growth of labour force in the unorganized sector. When the labour force growth in the economy is high, as it typically is, the labour force growth in the unorganized sector remains positive and high even if the Lewis Process is ongoing (Ghose 2010). So output in the unorganized sector must grow and the rate of growth must at least equal the rate of growth of labour force in the sector (so that output per worker does

not decline). It follows that the higher the labour force growth in the economy, the higher must be the growth of output in the unorganized sector.

Improvement in employment conditions in an economy such as India's, therefore, can be said to take place when (i) the share of the organized sector in total employment in the economy is rising (that is, the Lewis Process of structural change is under way), and (ii) the output per worker in the unorganized sector is either stable or increasing.

A different kind of structural change, which may be called the Kuznets Process, refers to movement of labour from agriculture to industry and services in the course of economic growth (Kuznets 1957, 1966, 1971). Historical experience shows that with economic growth, workers move from low-productivity employment in agriculture to higher productivity employment in non-agriculture, initially mainly into manufacturing and subsequently, mainly into services. In all developed economies, the share of agriculture in total employment is miniscule while the share of services is large. The Kuznets Process of structural change, therefore, may also indicate improving employment conditions. However, in the context of a dual economy with surplus labour, the Kuznets Process is in fact implicit in the Lewis Process. At the beginning, the unorganized sector of a dual economy consists largely of traditional agriculture, which serves as a reservoir of surplus labour, while the organized sector consists of modern industry and services. The process of movement of labour from the unorganized to the organized sector, therefore, is simultaneously a process of movement of labour from traditional agriculture to modern industry and services (Fei and Ranis 1964).

Real-world processes, of course, are more complex than stylized descriptions depict them to be. The Lewis Process of structural change in a real-world economy is less straightforward than it is made out to be in the stylized description given here. The reason is that not all jobs in the organized sector may be of the type assumed in the stylized description. In real-world situations, casual and regular but insecure wage-paid jobs, which do not offer entitlements to non-wage benefits and social security, also exist or emerge in the organized sector. It is then not obvious that any movement of workers from employment in the unorganized sector to employment in the organized sector indicates improvement in employment conditions.

Similarly, the Kuznets Process of structural change in a real-world economy is less straightforward than it is made out to be in the stylized description. The reason is that none of the production sectors need be either purely traditional or purely modern; each of the production sectors can also be dualistic in character.

Empirically assessing changes in employment structure in real-world situations, therefore, requires us to go beyond categories such as organized and unorganized or agriculture and non-agriculture and focus on the types of employment existing in each of the sectors as also on labour productivity and labour incomes in them.

EMPLOYMENT AND UNEMPLOYMENT IN INDIA'S ECONOMY

During 1999/2000–2011/12, a period of rapid economic growth (at the rate of 7.3 per cent per annum), total employment in the economy grew at the modest rate of 1.5 per cent per annum (Figure 2.1). This apparent combination of high economic growth and slow employment growth has led many observers to conclude that India's growth in this period has been 'jobless' (see Papola and Sahu 2012). Such a conclusion is in fact unwarranted. It may be noted that the growth of labour force, at 1.5 per cent per annum, was the same as that of employment. This confirms that in a labour-surplus dual economy like that of India, employment growth (that is, growth in the number in employment) merely reflects labour force growth; an increase in the number of persons in the labour force means a roughly equivalent increase in the number of persons in employment. Employment growth during 1999/2000–2011/12 was slow because the labour force growth was slow (as seen in Chapter 1). The combination of slow employment growth and rapid GDP growth does not indicate 'jobless' growth just as a combination of rapid employment growth and slow GDP growth would not indicate 'job-rich' growth. In India's economy, growth in the number of persons in employment is determined by the growth in the number of persons in the labour force. Further, GDP growth is never constrained by scarcity of labour. Consequently, the employment intensity of growth is inversely related to the rate of growth; high growth is necessarily 'jobless' just as low growth is necessarily 'job rich'.

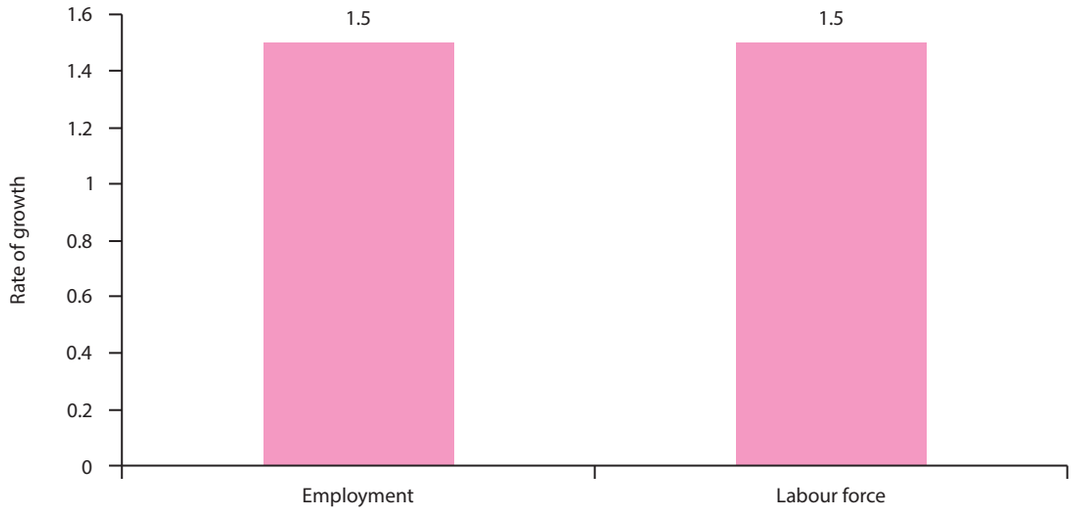

FIGURE 2.1 Growth of Employment and Labour Force (%), 1999/2000–2011/12

Source of data: Estimates based on data in Appendix Table A.2.5.

The fact that employment growth merely reflects labour force growth also means that the unemployment rate changes little over time. The unemployment rate in 2011/12 was almost the same as that in 1999/2000 (Figure 2.2). The unemployment rate was also quite low. If the unemployment rate were to be taken as a measure of excess supply of labour in the economy, India's economy would be seen to be in a state of perpetual full employment—a patently absurd proposition.

However, in the context of India's economy, unemployment rate does not measure the excess supply of labour; it measures the extent of queuing by the 'young and educated' from relatively well-off households for jobs in the organized sector. This is apparent from a number of facts. First, while the unemployment rate is virtually zero for persons with little or no formal education, it rises steadily as the level of formal education of persons rises (Figure 2.3). Second, the level of education of the

FIGURE 2.2 Unemployment Rate (%)

Source of data: Estimates based on data in Appendix Table A.2.5.

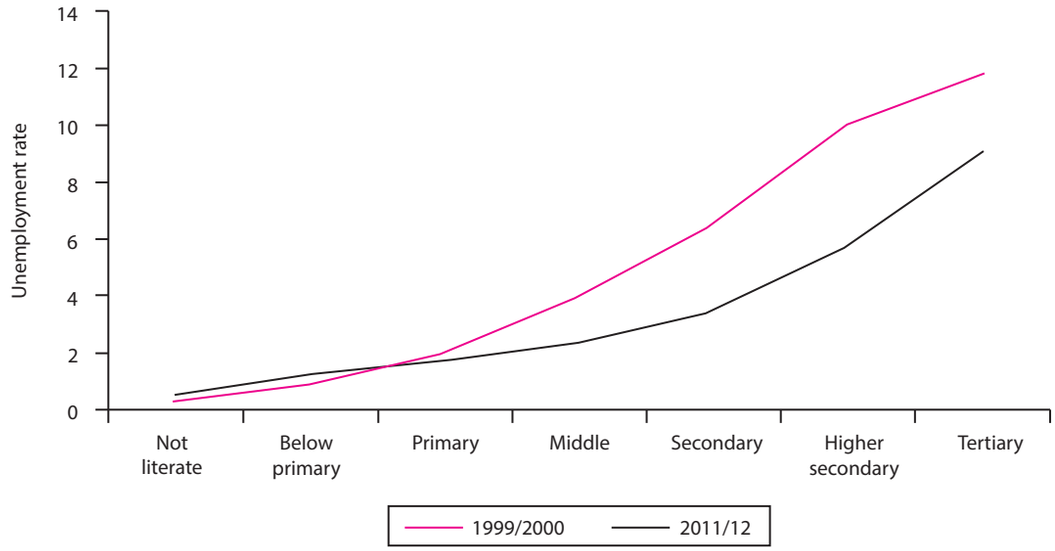

FIGURE 2.3 Unemployment Rate (%) By Level of Education

Source of data: Estimates based on data in Table S.4 in the Statistical Annexe.

TABLE 2.1 Education, Poverty, and Unemployment

	1999/2000	2011/12
Average years of education		
Unemployed	9.8	10.5
Employed	4.4	6.2
Incidence of poverty (%)		
Unemployed	33.3	19.0
Employed	47.4	26.0

Source: Average years of education: estimates based on data in Table S.4 in the Statistical Annexe; incidence of poverty: author's estimates based on data available from NSSO *Survey of Employment and Unemployment* (55th and 68th Rounds).

unemployed is much higher than that of the employed (Table 2.1). Third, the incidence of poverty is much lower for the unemployed than for the employed (Table 2.1). Finally, the unemployment rate is very high for the 'young and educated' but is insignificant for the 'older and educated' (see Box 2.1).

In sum, in the context of the Indian economy, not much is learned about changes in employment conditions from observed time trends in employment and unemployment. To know if employment conditions have been improving or deteriorating, it is necessary to examine the way the structure of employment has been changing over time.

EMPLOYMENT CONDITIONS DURING 1999/2000–2011/12

To find out the extent to which the employment conditions in India improved (or worsened) during 1999/2000–2011/12, it is necessary to examine the way the structure of employment changed during the period. Further, to do that the types or categories of employment that are found to exist in the economy have to defined.

Types of employment

There are three basic types of employed workers in India's economy: regular wage employees, casual wage employees, and self-employed (Box 2.2). Regular wage employees are those who are employed on a long-term contract (oral or written) and receive wages or salaries on a periodic (usually monthly) basis. Two sub-categories of regular wage employees may also exist, namely, regular-formal wage employees and regular-informal wage employees. The former have entitlements to institutionalized non-wage benefits and social security while the latter do not. In theoretical discussions, the organized sector of a dual economy is assumed to employ only what is defined as regular-formal employees.

Casual wage employees are those who are generally hired on a daily basis and are paid a daily wage. Self-

Box 2.1 Youth Unemployment

Special significance is often attached to youth unemployment, which tends to be relatively high in many countries (ILO 2013). In India, too, youth unemployment is much higher than the unemployment of persons in higher age groups, as the following data shows.

TABLE B2.1.1 Rate of Unemployment (%) by Level of Education

Age group (years)	1	2	3	4	5	6	7	All
1999/2000								
15–24	1.8	3.6	6.1	9.2	16.2	24.4	41.4	8.3
25–29	0.0	0.0	0.0	3.4	8.1	12.5	23.9	4.5
30–59	0.1	0.0	0.0	0.0	0.6	2.3	2.8	0.4
15–59	0.4	0.9	2.0	4.0	6.5	10.1	11.8	3.0
2011/12								
15–24	2.3	3.4	4.1	5.1	8.0	17.1	30.9	8.2
25–29	0.0	0.0	1.5	1.9	4.0	8.7	15.8	4.5
30–59	0.2	0.7	0.6	1.2	1.6	0.0	1.3	1.0
15–59	0.5	1.2	1.7	2.4	3.5	5.8	9.0	3.0

Note: 1= not literate; 2=below primary; 3=primary; 4=middle; 5=secondary; 6=higher secondary; 7=tertiary.
Source: Table S.4 in the Statistical Annexe.

There is in fact nothing special about this. Young persons are fresh entrants into the labour force and, for this reason alone, face higher level of unemployment than do those older persons who have been in the labour force for a while. Youths with higher levels of education are the ones who wait in the queue for jobs in the organized sector. All this is evident from the data presented here. In the first place, the unemployment rate declines with age for all levels of education; new entrants in the labour force find employment with a time lag. Second, for youths, the higher the level of education, the higher is the rate of unemployment. While the less educated cannot remain unemployed and accept whatever work they can find in the unorganized sector, the more educated would rather wait for better jobs in the organized sector. This is why the time taken to find employment is longer for the more educated. As the educated youths get older, they too get employed; for persons aged 30 years or more, the rate of unemployment becomes insignificant for all levels of education.

Box 2.2 Empirical Definitions of Types of Employment

The NSSO *Surveys of Employment and Unemployment* have always generated information on regular wage employment, casual wage employment, and self-employment. Starting with the Round conducted in 1999/2000, however, the questionnaire used in NSSO surveys of employment and unemployment included certain additional questions relating to workplace characteristics and employees' entitlements to institutionalized social security (for example, health, maternity, and retirement) benefits. This report uses the information thus generated to distinguish between regular-formal and regular-informal employment. Additionally, it is assumed that such institutionalized social security benefits are only available to workers in the organized sector,* which, as stated here, is defined to include all government and public sector establishments, all private corporate sector establishments, and those non-corporate private sector establishments that employ at least ten regular employees. Regular-formal employees are thus identified as those who work as regular employees in an establishment in the organized sector and are entitled to at least one kind of social security benefit. The rest of the regular employees are categorized as regular-informal.

Since the information generated by the surveys helps to identify the organized sector, estimates of regular-informal employment and casual wage employment in the sector may also be developed. It is assumed that there is no self-employment in the organized sector. Since the unorganized sector is simply the rest of the economy, estimates of regular-informal employment, casual employment, and self-employment in the unorganized sector may be developed.

Note: *A miniscule proportion of the workers in the unorganized sector do receive some kind of non-wage benefits and social security (NCEUS, 2009). But these benefits are not in the nature of entitlements.

employed includes three subcategories: own-account workers, employers, and unpaid family workers. Own-account workers run their own enterprises with basically family labour. Employers are own-account workers but regularly hire labour to run their enterprises. Unpaid family workers are members of employers' and own account workers' households working in the enterprises run by them; they do not receive wages or salaries but, as family members, share in the incomes from the enterprises.

The two sectors of India's dualistic economy—namely, organized and unorganized—have long-established and generally accepted definitions. The organized sector includes all government establishments and public enterprises, all enterprises in the private corporate sector, and those private non-corporate enterprises that employ at least ten regular employees. These are the establishments and enterprises to which some or all of the labour regulations apply and in some of which trade unions exist. The unorganized sector is simply the rest of the economy.

In terms of quality, these different types of employment fall into a neat hierarchical order. For the wage employees, this hierarchy is shown very clearly by the data on wage per day of work (Table 2.2). This is highest for regular-formal employees, second highest for regular-informal employees, and lowest for casual employees. Moreover, it may be noted that regular-formal employees receive substantial non-wage and social security benefits. So, the gap in quality between regular-formal employment and regular-informal employment is much larger than what is suggested by the gap in wage rates. Similarly, the gap in quality between regular-informal employment and casual employment is also larger than what is suggested by the gap in wage rates because the former has full-time employment while the latter does not.

TABLE 2.2 Money Wage per Day of Work Index
(Wage of Regular-Formal Employed = 100)

	1999/2000	2011/12
Organized sector employees	76.8	65.3
Regular formal	100.0	100.0
Regular informal	45.9	36.9
Casual	25.5	23.9
Unorganized sector employees	21.4	21.3
Regular informal	40.5	26.3
Casual	16.8	20.0

Source: Estimates based on data in Table S.5 in the Statistical Annexe.

The very clear quality ranking of jobs suggested by the relative wages is as follows: regular-formal employment is better than regular-informal employment, which in turn is better than casual employment. It is to be noted, moreover, that even jobs of the same type tend to be of better quality in the organized than in the unorganized sector. Thus, the average wage of a regular-informal employee is observed to be higher in the organized sector than in the unorganized sector just as the average wage of a casual employee is observed to be higher in the organized sector than in the unorganized sector.

How does self-employment compare in terms of quality to different types of wage employment? For the self-employed, earning from labour is hard to define because income includes rent, profit as well as labour income. At any rate, the NSSO surveys do not provide estimates of income. However, they do provide estimates of consumption expenditure per capita per month for all households. This information can be used to generate estimates of incidence of poverty for households of different types of employed workers (see Box 1.3 for methodology of estimation). On the reasonable assumption that expenditure closely follows income, the quality ranking of different types of wage employment can be deduced from these estimates of poverty incidence (Table 2.3). It can be seen that the quality ranking of different types of wage employment, suggested by this data, is exactly the same as that suggested by the data on earning per day of wage work examined earlier; the regular-formal employees are less poor than regular-informal employees in the organized sector, who are less poor than regular-informal employees in the unorganized sector, who are less poor than casual employees in the organized sector, who are less poor than casual employees in the unorganized sector. The additional information that is obtained is that self-employment, on average, is more rewarding than casual wage employment but less rewarding than regular-informal wage employment. A complete ranking, therefore, is as follows: regular-formal employment is better than regular-informal employment in the organized sector, which is better than regular-informal employment in the unorganized sector, which is better than self-employment, which is better than casual employment in the organized sector, which is better than casual employment in the unorganized sector.

TABLE 2.3 Incidence of Poverty (%) in Employed Persons' Households

	1999/2000	2011/12
Organized sector employees	16.9	10.1
Regular formal	8.8	3.2
Regular informal	21.0	8.7
Casual	43.8	29.9
Unorganized sector employees	51.0	27.6
Regular informal	30.7	16.2
Casual	66.0	37.6
Self-employed	43.7	23.6
All employed	47.3	24.6

Source: Author's estimates based on data available from NSSO *Survey of Employment and Unemployment* (55th and 68th Rounds).

TABLE 2.4 Type of Employment and Level of Education

	Average years of education	
	1999/2000	2011/12
Organized sector employees	9.2	9.9
Regular formal	10.7	12.4
Regular informal	8.5	9.3
Casual	4.1	4.4
Unorganized sector employees	3.9	5.4
Regular informal	7.2	7.6
Casual	2.2	3.8
Self-employed	4.5	6.1

Source: Author's estimates based on data available from NSSO *Survey of Employment and Unemployment* (55th and 68th Rounds).

The quality of employment is observed to be strongly associated with the level of education of the worker in employment (Table 2.4). The most educated workers are in the best type of employment (regular-formal employment) while the least educated workers are in the worst type of employment (casual wage employment in the unorganized sector). The regular-informal employees in the organized sector are more educated than the regular-informal employees in the unorganized sector just as the casual employees in the organized sector are more educated than the casual employees in the unorganized sector. In fact, had the level of education of an employed worker been used as the criterion for defining the quality of employment, exactly the same ordering would be obtained as derived here. The level of formal education of a worker has clearly been the prime determinant of the type of employment to which s/he has had access.

The Lewis Process

Changing structure of employment

To what extent was the Lewis Process at work during 1999/2000–2011/12? Table 2.5 provides the basis for the following observations. First, employment in the organized sector increased much faster than total employment. The number of employees in the organized sector increased at a rate of 5.4 per cent per annum and the number of days worked by the employees in the organized sector increased at a rate of 6 per cent per annum. In comparison, the total number of persons employed in the economy increased at a rate of 1.5 per cent per annum while the total number of days worked increased at a rate of 1.7 per cent per annum. Thus, the share of the organized sector in total employment in the economy increased from 11 per cent in 1999/2000 to over 17 per cent in 2011/12.

Second, employment in the unorganized sector (which is in the nature of a residual) grew at a significantly slower rate (at 0.8 per cent per annum in terms of persons in employment and 1 per cent per annum in terms of days worked) than the labour force. Thus, the share of the unorganized sector in total employment in the economy declined from 89 per cent in 1999/2000 to around 83 per cent in 2011/12.

Third, there was substantial net movement of workers from jobs in the unorganized sector to jobs in the organized sector. Had the distribution of employment between the sectors remained unchanged, the number of employees in the organized sector would have been lower by about 25 million than what it actually was and the number in employment in the unorganized sector would have been higher by the same magnitude. It may be said that about 25 million workers 'moved' from jobs in the unorganized sector to jobs in the organized sector during the period under study.

However, not all employment in the organized sector is regular-formal employment; there is regular-informal employment and casual employment. Also, the three types of employment increased at different rates. The growth of

TABLE 2.5 Employment Structure

Employment type	Number of workers			Days of work		
	Growth (%)	Percentage distribution		Growth (%)	Percentage distribution	
	1999/2000–2011/12	1999/2000	2011/12	1999/2000–2011/12	1999/2000	2011/12
Organized sector	5.4	10.9	17.3	5.9	10.7	17.3
Regular formal	3.2	6.9	8.4	3.8	6.8	8.7
Regular informal	9.5	2.3	5.8	9.7	2.4	5.8
Casual	6.5	1.7	3.1	7.4	1.5	2.8
Unorganized sector	0.8	89.1	82.7	1.1	89.3	82.7
Regular informal	0.9	7.8	7.2	1.3	8.0	7.6
Casual	–0.2	33.3	27.1	0.7	28.5	25.2
Self-employed	1.5	48.0	48.4	1.3	52.8	49.9
Economy	1.5	100.0	100.0	1.7	100.0	100.0
Regular formal	3.2	6.9	8.4	3.8	6.8	8.7
Regular informal	3.6	10.1	13.0	3.9	10.4	13.4
Casual	0.2	35.0	30.2	1.1	30.0	28.0
Self-employed	1.5	48.0	48.4	1.3	52.8	49.9

Source: Estimates based on data in Table S.2 in the Statistical Annexe.

regular-formal employment was the slowest so that the share of regular-formal employment in total organized sector employment actually declined between 1999/2000 and 2011/12. But even regular-formal employment grew quite fast, significantly faster than total employment (and the labour force) in the economy. The share of regular-formal employment in total employment in the economy increased from around 7 per cent in 1999/2000 to around 9 per cent in 2011/12. About 6 million workers can be said to have 'moved' to regular-formal employment from other types of employment during the period. The rapid growth of regular-informal employment and casual employment in the organized sector also involved movement of many workers from lower quality to higher quality jobs; for example, from casual employment to regular-formal employment and from wage employment in the unorganized sector to wage employment in the organized sector. Thus despite the growth of 'informal' employment in the organized sector, which worsened the structure of employment there, the rapid rise in the share of the organized sector in total employment still implied substantial improvement in overall employment conditions in the economy.

This conclusion follows more directly from the estimates of employment structure index (Figure 2.4). The index is constructed by using the information on quality ranking of different types of employment discussed here and the data on the distribution of persons in employment by type of employment presented in Table 2.5 (the method of construction of the index is described in Box 2.3). A higher value of the index indicates an improved structure of employment that results from a favourable change in the distribution across categories. The estimated values of the index simply confirm what has already been said before: the structure of employment worsened in the organized sector but improved in the unorganized sector as also in the economy as a whole. It should also be noted that the structure of employment in the organized sector remains far better than that in the unorganized sector so that movements of workers from employment in the unorganized sector to employment in the organized sector will continue to improve the overall conditions of employment in the economy.

Underemployment of the employed

Table 2.5 showed that the number of days of work recorded somewhat faster growth than the number of persons employed for all categories of employed workers except the self-employed. This suggests that most of the

FIGURE 2.4 Estimates of the Employment Structure Index

Source of data: Estimates based on data in Appendix Table A.2.1.

Box 2.3 Construction of the Employment Structure Index (ESI)

We can assign numbers to indicate the quality ranking of the different types of employment established as follows: regular-formal employment (6), regular-informal employment in the organized sector (5), regular-informal employment in the unorganized sector (4), self-employment (3), casual wage employment in the organized sector (2), and casual wage employment in the unorganized sector (1). Here the larger number indicates better quality.

Suppose a (6) is the percentage share of regular-formal employment in total employment, a (5) is the percentage share of regular-informal employment in the organized sector in total employment, and so on. Then:

- ESI for the organized sector (ESI-O) = {a(6).6 + a(5).5 + a(2).2}/{a(6) + a(5) + a(2)}
- ESI for the unorganized sector (ESI-U) = {a(4).4 + a(1).1 + a(3).3}/{a(4) + a(1) + a(3)}
- ESI for the economy (ESI-E) = {a(6).6 + a(5).5 + a(2).2 + a(4).4 + a(1).1 + a(3).3}/100 or, equivalently, {(ESI-O). a(O) + (ESI-U). a(U)}/100 [where a(O) = a(6) + a(5) + a(2) and a(U) = a(4) + a(1) + a (3)]

It is easy to see that the value of ESI-O would be somewhere between 2 and 6, the value of ESI-U would be somewhere between 1 and 4, and the value of ESI-E would be somewhere between 1 and 6.

employed persons had fuller time employment in 2011/12 than in 1999/2000 or, in other words, underemployment declined. This indeed was the case as seen in Table 2.6 (the data and the methods of estimation are explained in Box 2.4).

Nevertheless, the reported rate of underemployment is observed to be high only for casual wage employees, who have to search for jobs on a daily basis. However, it is likely that underemployment of the self-employed is seriously underestimated. This is because the self-employed may fail to take full account of intensity of work while reporting on days of employment. They, for example, could have reported a full day's work even though the tasks performed could have been completed in half a day. There is in fact some evidence (from other sources) to show that underemployment of the self-employed is quite high though lower than that of the casual labourers (Appendix Table A.2.4).

Nevertheless, the rate of underemployment of casual employees declined quite significantly. In fact,

TABLE 2.6 Underemployment of the Employed–I

Employees	Rate (%) of underemployment		Days not worked though in employment as percentage of days in employment		Days out of labour force as percentage of days available	
	1999/2000	2011/12	1999/2000	2011/12	1999/2000	2011/12
Regular formal	0.2	0.1	2.2	1.3	1.2	0.1
Regular informal	1.1	0.6	6.0	2.4	1.9	0.3
Casual	11.3	8.8	2.4	0.7	10.8	8.6
Self-employed	1.8	1.0	3.3	2.7	5.7	3.7
All employed	4.9	3.1	3.2	2.0	6.9	4.5

Source: Estimates based on data in Table S.2 in the Statistical Annexe.

Box 2.4 Estimating Underemployment

From the data on CDS of persons of working age employed according to UPS, estimates was derived of the number of days actually worked, the number of days not worked (for a variety of reasons) though in employment, number of days unemployed, and the number of days not in the labour force for each category of employed during the reference week (see Table S.2 in the Statistical Annexe). To derive estimates of underemployment from this data, the following definitions were used:

- Number of days in labour force = number of days worked + number of days not worked though in employment + number of days unemployed
- Number of days available = number of days in labour force + number of days not in labour force
- Rate of underemployment = (number of days unemployed/number of days in labour force) × 100
- Days not worked though in employment as a percentage of days in employment = (number of days not worked though in employment/number of days worked + number of days not worked though in employment) × 100
- Days out of labour force as a percentage of days available = (number of days out of labour force/number of days available) × 100

Most employed workers in India actually engage in multiple activities and the UPS of an employed person is determined by what is called the 'major time criterion' or the activity in which the employed person concerned engages for the major part of her/his time. Each employed person, therefore, engages in one principal activity and one or more subsidiary activities. Thus, for example, a casual employee would have engaged in casual wage employment for the major part of her/his time but would also have engaged in self-employment for a minor part of the time.

Hence, from the CDS data for the UPS employed of each type, estimates of number of workdays in principal activity and number of workdays in all activities were derived. It is the number of workdays in all activities that is used in estimating the rate of underemployment in Table 2.10. But estimates can also be derived of the total number of workdays of all types of UPS employed in each type of activity (these are the estimates that have been used to derive the growth rates of days of work in Table 2.4). This accounts for the anomalous results for the self-employed in Tables 2.4 and 2.10; the days of work of all workers in self-employment increased less rapidly than the days of work of the self-employed in all activities. The different rates of growth are presented as follows:

TABLE B2.4.1 Rates of Growth of Employment

Category of employee	Average annual rate of growth (%)			
	1999/2000–2011/12			
UPS employed	A	B	C	D
Regular-formal	3.2	3.8	3.8	3.8
Regular-informal	3.6	4.0	4.1	3.8
Casual	0.2	1.2	0.6	1.0
Self-employed	1.5	1.6	1.6	1.3

Note: A = number of UPS employed, B = workdays in principal activity, C = workdays in all activities, and D = workdays of all UPS employed in each type of employment. The data in columns A and D is the same as that in Table 2.4. The data underlying the estimates in column C is the relevant data for estimation of rate of underemployment in Table 2.10.

underemployment declined for the other categories of employed too. That underemployment declined even for the self-employed appears a bit puzzling since the rate of growth of days of work appears to have been slower than the rate of growth of persons in employment (Table 2.5). But the puzzle is easily resolved; it arises because workers in India generally engage in multiple activities and even the regular-informal and casual employees in the unorganized sector engage in self-employment for some days (see Box 2.4). Thus, the growth of days of self-employment is not the same as the growth of days of employment of the self-employed. When the growth of days worked by the self-employed is estimated, it is found to be higher than the growth in the number of self-employed. The data in Table 2.6 therefore gives the correct picture, that is, underemployment declined for all categories of employed.

It should also be noted that, during 1999/2000–2011/12, the share of 'days not worked though in employment' in total 'days in employment' declined for all categories of employed but particularly significantly for the regular-informal employees. Illness did not account for all the 'days not worked though in employment'. A high value of the share, particularly for regular employees, may thus indicate that some of the employed did not have full-time employment. The observed decline in the share of 'days not worked though in employment' in total 'days in employment' may then be taken to indicate decline in underemployment.

Finally, it is quite remarkable that, in 1999/2000, the share of 'days out of labour force' in 'days available' was very high for the casual employees and quite high for the self-employed. It seems strange that the casual employees in particular, who are among the poorest, should choose to be 'out of the labour force' for such a substantial chunk of the time available to them. This most probably reflects the 'discouraged worker phenomenon'; the workers may have been fully aware that jobs were not available and search would be futile and hence stayed 'out of labour force'. To the extent that this interpretation is correct, the observed decline in the share of 'days out of labour force' in 'days in employment' between 1999/2000 and 2011/12 can be taken to indicate decline in underemployment for the casual employees in particular, but also for the self-employed.

These observations lead us to define a composite indicator of underemployment, 'days not worked as percentage of days available'. Two alternative estimates of this indicator for each type of employment are presented in Table 2.7. Estimate A defines 'days not worked' to include 'days not worked though in employment', 'days of unemployment', and 'days out of labour force' while Estimate B excludes 'days not worked though in employment' from the definition. Thus, Estimate A gives the possible maximum value while Estimate B gives the likely minimum value. In principle, the average of the two values can be used. The evidence then suggests that the decline in underemployment was significant for all categories of employed (Figure 2.5).

In view of the fact that there was significant expansion of public works and special employment schemes during the period, it is natural to ask if these played a role in reducing the underemployment of casual employees in the unorganized sector. The total number of days of casual employment in public works in 2011/12 was more than four times that in 1999/2000. Also, the number of days of casual employment generated under the special employment schemes in 2011/12—under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) (Box 2.5) launched only after 2005—

TABLE 2.7 Underemployment of the Employed–II (Days Not Worked as Percentage of Days Available)

Employees	Estimate A		Estimate B	
	1999/2000	2011/12	1999/2000	2011/12
Regular formal	3.5	1.5	1.4	0.2
Regular informal	8.8	3.3	3.0	0.9
Casual	22.8	17.2	20.9	16.6
Self-employed	10.5	7.1	7.4	4.6
All employed	14.3	9.2	11.4	7.4

Source: Estimates based on data in Table S.2 in the Statistical Annexe.

FIGURE 2.5 Average Rate of Underemployment of the Employed (%)

was twice the number of days of employment in public works in 1999/2000. In other words, casual employment generated through public works and special employment schemes, most (if not all) of it in the unorganized sector, recorded a large growth during the period; the number of days of such employment in 2011/12 was six times that in 1999/2000. For casual employees, the share of 'days of employment in public works and special employment schemes' in total days of casual employment increased from 0.9 per cent to 4.7 per cent between 1999/2000 and 2011/12. It can reasonably be argued that the public works and the special employment schemes did contribute to reducing underemployment of casual employees. However, underemployment would have declined even in their absence. This is suggested by the fact that between 1999/2000 and 2011/12, the number of casual employees increased by just 0.2 per cent per annum while the days of casual employment outside public works and special employment schemes increased by 0.9 per cent per annum.

Box 2.5 Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

In 2005, India's parliament passed the MGNREGA which recognized employment as an entitlement and defined it as an obligation for the government to provide, in each year, 100 days of wage employment at a stipulated minimum wage to members of rural households seeking or willing to do unskilled manual work. Employment schemes under MGNREGA were launched in 200 poorest districts in 2006/07. Since 2008/09, these schemes have been implemented in all of rural India.

The objectives of these schemes include creation of a social safety net for the vulnerable population through the creation of a fallback employment option and development of infrastructure (irrigation and water management systems, and road networks in particular), which could stimulate growth of agriculture and thus strengthen the rural economy.

Even though the implementation of the schemes under MGNREGA has been far from perfect, it is widely agreed that they have helped the poor both by providing additional wage employment and by increasing the wage rate for casual labour. The contribution of the scheme to infrastructure development, however, has not been particularly significant. Reviews and discussions of MGNREGA are available in Ghose (2011), Dutta et al. (2012), Khera (2011), Berg et al. (2012), Zimmerman (2012), Imbert and Papp (2013), and Desai, Vashishtha, and Joshi (2015), among others.

Overall assessment

The conclusion that emerges from the evidence on structural change à la Lewis, examined thus far, is that there was fairly rapid improvement in employment conditions during the twelve-year period considered. A sizeable section of the workers moved from low-quality wage employment in the unorganized sector to higher quality wage employment in the organized sector. At the same time, underemployment of the employed, particularly of the casual wage employees, declined. The Lewis Process was very much at work.

The Kuznets Process

Another kind of structural change, the Kuznets Process, was also at work during the period. There was significant movement of workers from employment in agriculture to employment in non-agriculture; the share of agriculture in total employment in the economy declined by 14 percentage points (Table 2.8). Indeed, employment in agriculture declined (by 0.8 per cent per annum in terms of persons employed and by 0.4 per cent per annum in terms of days worked) while employment in non-agriculture increased rapidly (by 3.8 per cent per annum in terms of persons employed and by 3.9 per cent per annum in terms of days worked). In absolute terms, agricultural employment declined by 16 million while non-agricultural employment increased by 79 million. It may be noted, however, that workers were moving from employment in agriculture not so much to employment in manufacturing as to employment in construction and services. The share of construction in total employment increased from just 5 per cent in 1999/2000 to 11 per cent in 2011/12 while the share of services increased from 26 per cent to 31 per cent in the same period. In comparison, the share of manufacturing in total employment increased from 11 per cent in 1999/2000 to just 13 per cent in 2011/12.

The movement of workers from employment in agriculture to employment in non-agriculture, however, did not necessarily mean their movement from employment in the unorganized sector to employment in the organized sector (Table 2.9). Agriculture has been, and remains, almost wholly unorganized. But the non-agricultural sectors have been and remain dualistic with organized and unorganized segments. It is possible, indeed likely, that workers moved from agriculture to unorganized non-agriculture while some of those already in unorganized non-agriculture moved to organized non-agriculture. However, movement of workers from employment in agriculture to employment in unorganized non-agriculture also means improvement in employment conditions because wages are higher in the latter than in the former.

Between 1999/2000 and 2011/12, the organized segment expanded in each of the non-agricultural sectors; in each of them, the share of the organized segment in total employment increased quite substantially. However, the rising share of the organized segment in total employment in individual non-agricultural sectors was generally associated with worsening structure of employment in the organized segment (Table 2.10) basically because the share of regular-formal employment in total employment was declining; the incremental employment of the 'informal' kind was larger than the incremental regular-formal employment (Appendix Tables A.2.1 and A.2.2). The exception was manufacturing where the structure of

TABLE 2.8 Industrial Distribution of Employment

Industries	Percentage distribution of persons employed		Percentage distribution of days worked	
	1999/2000	2011/12	1999/2000	2011/12
Agriculture	57.0	43.7	56.1	43.3
Manufacturing	11.3	13.4	12.0	13.4
Construction	5.0	11.2	4.8	10.9
Other industries	1.0	1.2	1.2	1.2
Services	25.7	30.5	25.9	31.2
Economy	100.0	100.0	100.0	100.0

Source: Estimates based on data in Tables S.1 and S.3 in the Statistical Annexe.

TABLE 2.9 Employment Structure in Production Sectors

Industries	Percentage distribution of			
	persons in employment		days worked	
	Organized	Unorganized	Organized	Unorganized
Agriculture				
1999/2000	0.3	99.7	0.2	99.8
2011/12	0.2	99.8	0.1	99.9
Manufacturing				
1999/2000	25.8	74.2	23.9	76.1
2011/12	36.5	63.5	36.1	63.9
Construction				
1999/2000	12.3	87.7	10.6	89.4
2011/12	18.4	81.6	16.6	83.4
Other industries				
1999/2000	60.6	39.4	49.5	50.5
2011/12	71.7	28.3	72.4	27.6
Services				
1999/2000	26.0	74.0	25.4	74.6
2011/12	30.8	69.2	31.0	69.0
Economy				
1999/00	10.9	89.1	10.7	89.3
2011/12	17.3	82.7	17.3	82.7

Source: Appendix Tables A.2.1 and A.2.2.

employment in the organized segment actually improved because the declining share of regular-formal employment was accompanied by rapidly rising share of regular-informal employment rather than of casual employment.

The declining share of the unorganized segment in total employment in individual non-agricultural sectors, on the other hand, was associated with improving structure of employment in the segment basically because the share of self-employment in total employment was increasing while the share of casual employment was declining. The exception was construction where the structure of employment in the unorganized segment actually worsened, essentially because casual wage employment became increasingly dominant; the share of casual wage employment in total employment in unorganized construction increased from 77 per cent in 1999/2000 to 84 per cent in 2011/12.

The structure of employment in construction (organized and unorganized) was worse than that in unorganized agriculture in both years owing to the overwhelming dominance of casual employment in construction, organized and unorganized. The rapidly rising share of construction in total employment during the period, therefore, appears puzzling. However, the wage of casual labour in construction has been and remains much higher than that in agriculture in both organized and unorganized segments. Casual labourers, therefore, had much to gain by moving from agriculture to construction.

It is worth noting that the process of labour movement improved the structure of employment in unorganized agriculture basically because it reduced the importance of casual wage employment and increased the importance of self-employment. It is important too that the overall structure of employment improved in each of the sectors (taken as a whole) except in construction.

This detailed picture of structural change à la Kuznets leads to the same conclusion as reached earlier. There was substantial movement of labour from unorganized agriculture to non-agriculture, organized and unorganized.

TABLE 2.10 Employment Structure Index, Production Sectors

Sectors	Organized	Unorganized	Overall
Agriculture			
1999/2000	4.33	2.11	2.12
2011/12	4.00	2.26	2.27
Manufacturing			
1999/2000	4.67	2.88	3.34
2011/12	4.74	2.85	3.54
Construction			
1999/2000	2.68	1.49	1.64
2011/12	2.61	1.35	1.58
Other industries			
1999/2000	4.90	1.85	3.70
2011/12	4.85	2.07	4.06
Services			
1999/2000	5.65	2.99	3.68
2011/12	5.58	3.08	3.85
Economy			
1999/2000	5.17	2.34	2.65
2011/12	4.95	2.43	2.87

Source: Estimates based on data in Appendix Table A.2.1. The methodology of estimation is described in Box 2.3.

In the process, the structure of employment worsened somewhat in organized non-agriculture but improved in both unorganized agriculture and unorganized non-agriculture and thus in each of the production sectors as also in the economy as a whole.

Wages, productivity, and dualism

Wages

Real wage per day of work increased in most types of wage employment (Table 2.11, Box 2.6). Remarkably, however, it recorded rapid increase only in regular-formal employment (the best type of employment) and in casual employment (the worst type of employment). The average annual growth of real wage per day of work was 3.3 per cent for regular-formal employees, 2.7 per cent for casual employees in the organized sector and 4.9 per cent for casual employees in the unorganized sector. In contrast, real wage growth was a modest 1.3 per cent per annum for regular-informal employees in the organized sector and mildly negative for regular-informal employees in the unorganized sector.

How can this pattern of wage growth be explained? As stated earlier, the wage of regular-formal wage employees

TABLE 2.11 Average Annual Growth (%) of Real Wages/Earnings, 1999/2000–2011/12

Employees	Real wage per day worked	Total days worked	Number of employed	Earnings per employed worker
Organized sector	1.8	5.9	5.4	2.3
Regular formal	3.3	3.8	3.2	3.9
Regular informal	1.0	9.7	9.5	1.2
Casual employees	2.7	7.4	6.5	3.6
Unorganized sector	3.9	1.1	0.8	4.2
Regular informal	–0.6	1.3	0.9	–0.2
Casual	4.9	0.7	–0.2	5.8
All employees	3.3	0.8	1.5	2.6
Self-employed	4.5	1.6	1.5	4.6
Economy, all wage employees	3.0	1.9	1.4	3.5
Economy, all employed	3.5	1.7	1.5	3.7

Source: Estimates based on data in Tables S.1, S.5 and S.7 in the Statistical Annexe.
Note: For the self-employed, real wage refers to real 'mixed income' per day of work. For wages, the deflator used is the consumer price index for industrial workers. For 'mixed income', the deflator used is the NDP deflator.

Box 2.6 Estimation of Wage/Labour Income

From the CDS data relating to persons in employment according to UPS (available from the NSSO surveys), estimates were derived of the number of days actually worked in the principal activity and of the total earnings received from this work during the reference week for different categories of wage employees in each of the two periods (1999/2000 and 2011/12). Money wage per day of work was then derived by dividing the total earnings by the total days worked. To derive real wage per day, the consumer price index for industrial workers has been used as the deflator.

For the self-employed, the estimates of total workdays in the principal activity (that is, in self-employment) during the reference week are derived from the NSSO surveys while the estimates of 'mixed income of the self-employed' are taken from the National Accounts Statistics (Factor Incomes). The relevant NDP deflator is then used to estimate the real 'mixed income' for the two periods (1999/2000 and 2011/12). The average annual rate of growth of real 'mixed income' and of the number of workdays of the self-employed during 1999/2000–2011/12 is then estimated. Growth of real 'mixed income' per day of work is derived by subtracting the rate of growth of the number of workdays from the rate of growth of real 'mixed income'.

tends to be governed by a combination of government regulations and collective bargaining (Box 2.7); the wage growth for these employees must have an explanation in terms of the operation of these mechanisms. On the other hand, the wage in casual employment, as argued above, is linked to income from self-employment. In light of the fact that mixed income per day of work in self-employment showed remarkably rapid growth, the rapid growth of casual wage does not seem particularly surprising. It is likely, however, that the rapid growth of casual employment in public works and special employment schemes that occurred during the period also contributed (though only modestly) to the growth of real wage of casual labour in the unorganized sector not so much because these programmes increased the employment of casual labour to any great extent (underemployment of casual workers remained significant) but because they effectively set a minimum wage (Desai, Vashishtha, and Joshi 2015; Dutta et al. 2012).

It is the wage of the regular-informal employees, whether in organized or unorganized sectors, whose growth seems to have been muted by the 'unlimited supply of labour'. Government regulations and collective bargaining do not influence the wage of these employees even in the organized sector. On the other hand, because the gap in real wage per day of work between regular-

Box 2.7 Wages in the Organized Sector

Much of the employment in the organized sector (63 per cent in 1999/2000 and 49 per cent in 2011/12) is regular-formal employment. Further, much of the regular-formal employment in the organized sector (75 per cent in 1999/2000 and 62 per cent in 2011/12) is in the government or public sector. Given this context, the government effectively determines the wages and non-wage benefits of most of the regular-formal employees (directly for those in the government or public sector and indirectly, by setting benchmarks, for those in the private sector).

It uses a variety of instruments to do this. In the first place, it sets up Central Pay Commissions at ten-year intervals to fix wages and non-wage benefits for all central government employees (civilian employees, defence personnel, railway employees, and pensioners). Often state governments set up their own pay commissions to fix wages and non-wage benefits for state government employees. Or else, the state governments simply adjust the wages and non-wage benefits of their employees in accordance with the recommendations of Central Pay Commissions.

Secondly, the Board of Public Enterprises issues guidelines for fixation of wages and non-wage benefits for the employees of all public sector enterprises. Finally, the government also plays an important role in fixing wages and non-wage benefits for regular-formal employees in the private sector by periodically setting up Wage Boards for different industries. There is one statutory Wage Board for 'working journalists and newspaper employees'. Then there have been non-statutory Wage Boards for employees in other organized industries though collective bargaining has now come to largely replace the Wage Boards (the last Wage Board was set up for the sugar industry in 1986).

informal employees and casual employees remained significant and because the number of days of work in a given period was higher for regular-informal employees than for casual employees, workers could always increase their wage-incomes by moving from casual employment to regular-informal employment. In fact, there was much movement of this kind during 1999/2000–2011/12 and such movement most likely generated downward pressure on wages of regular-informal employees. The share of regular-informal employment in total employment increased by 3 percentage points, while the share of casual employment in total employment declined by 5 percentage points (the share of self-employment in total employment remained virtually constant). In absolute terms, the number of regular-informal employees increased by about 18 million, while the number of casual employees increased by just over 3 million. Had the shares of the two types of employment in total employment remained unchanged, the number of regular-informal employees would have increased by 6 million and the number of casual employees would have increased by 22 million. Evidently, a large number of actual and would-be casual employees had moved to regular-informal employment.

The growth of average real wage was faster in the unorganized sector (at 3.1 per cent per annum) than in the organized sector (at 1.9 per cent per annum). This, in large part, was a consequence of the changes in the composition of wage employment in the two sectors. Had the composition of employment remained the same in both sectors, the observed pattern of wage growth would have implied the same rate of growth of the average real wage in both sectors (3.0 per cent per annum in the organized sector and 3.1 per cent per annum in the unorganized sector).

In the organized sector, substantial real wage growth was associated with substantial employment growth, in terms of both days of work and number of employees, for all types of employees. But the number of days of work increased faster than the number of employees so that wage earning per worker increased faster than the wage per day of work for all types of employees. In the unorganized sector, real wage and employment moved in opposite directions. In the case of regular-informal employees, the real wage per day of work declined while employment increased (in terms of both days of work and number employed). In the case of casual employees, real wage per day of work showed rapid growth while employment stagnated (the number employed declined but the days worked increased). Trends in real earning were thus mixed; it increased faster than real wage per day in the case of casual employees and declined slower than real wage per day of work in the case of regular-informal employees. Poverty declined quite sharply for all types of employees (see Table 2.4). Poverty declined even for regular-informal employees in the unorganized sector suggesting the increase in their number occurred through transformation of some casual employees into regular-informal employees.

Finally, the data in Table 2.12 shows why movement of agricultural workers even to employment in unorganized non-agriculture led to improvement in employment conditions; wages were significantly higher in unorganized non-agriculture. The data also shows why it was worthwhile for casual employees (and perhaps for some of the self-employed) in agriculture to move into casual employment in construction; casual wage in construction was much higher than the casual wage in agriculture in both years.

TABLE 2.12 Money Wages in the Unorganized Segments (Index Numbers; Wage in Regular-Informal Employment in Agriculture in 1999/2000 = 100)

	1999/2000	2011/12
Regular-informal employees		
Agriculture	100.0	221.4
Manufacturing	162.5	323.2
Construction	169.6	412.5
Other industries	176.8	278.6
Services	167.9	314.3
Casual employees		
Agriculture	55.4	200.0
Manufacturing	89.3	258.9
Construction	103.6	298.2
Other industries	94.6	257.1
Services	89.3	283.9

Source: Estimates based on data in Table S.5 in the Statistical Annexe.

Overall, the pattern of growth of real wage-earning (together with the growth of real mixed income of the self-employed) clearly indicates significant improvement in the quality of each type of employment.

Labour productivity

Growth of labour productivity in the unorganized sector is both a condition for economy-wide improvement in employment conditions and an indicator of improvement in employment conditions within the unorganized sector. Besides, the gap in labour productivity between the two sectors indicates the degree of dualism in the economy. The trends in labour productivity, measured as 'value added per employed' and 'value added per day of work' are examined principally with these considerations in view.

The relevant estimates are presented in Table 2.13. Some of these clearly pose puzzles that are difficult to solve here. It is not at all clear, for example, why labour productivity in 'organized construction' and 'organized other industries' (which includes 'mining and quarrying' and 'electricity, gas, and water') should have declined. Factors such as unfinished projects, unwise investment and, in the case of construction, employment generation through special employment schemes may be possible explanations but cannot be investigated here.

The data in Table 2.13 brings out a remarkable fact: the growth of labour productivity was much faster in the unorganized sector than in the organized sector. The average annual rate of growth of output per employed worker was 2.3 per cent in the organized sector and 5.5 per cent in the unorganized sector. The average annual rate of growth of output per day of work was 1.8 per cent in the organized sector and 5.3 per cent in the unorganized sector.

The picture remains the same even when only the dominant production sectors within each of the two sectors, organized and unorganized, are considered. The two dominant production sectors within the organized sector are manufacturing and services; in 2011/12, the two together accounted for 85 per cent of output and 83 per cent of employment (84 per cent of workdays) in the organized sector. The two dominant production sectors in the unorganized sector are agriculture and services; in 2011/12, the two together accounted for 83 per cent of output and 78 per cent of employment (also 78 per cent of the workdays) in the unorganized sector. If it is presumed that the organized sector is composed of

TABLE 2.13 Growth of Labour Productivity, 1999/2000–2011/12 (Average Annual Rate of Growth, %)

			Real NDP		
	Number employed	Days of work	Total	Per employed	Per day of work
Organized	5.4	5.9	7.7	2.3	1.8
Agriculture	–1.8	–2.2	2.7	4.5	4.9
Manufacturing	6.0	6.3	8.6	2.6	2.3
Construction	12.2	13.0	7.1	–5.1	–5.9
Other industries	4.3	5.1	2.6	–1.7	–2.5
Services	4.4	5.0	8.5	4.1	3.5
Unorganized	0.8	1.1	6.3	5.5	5.3
Agriculture	–0.8	–0.4	2.4	3.2	2.8
Manufacturing	1.7	1.2	4.1	2.4	2.9
Construction	7.9	8.3	9.4	1.5	1.1
Other industries	0.0	–3.2	7.4	7.4	10.6
Services	2.4	2.7	8.6	6.2	5.9
Economy	1.5	1.7	6.9	5.4	5.2
Agriculture	–0.8	–0.4	2.4	3.2	2.8
Manufacturing	3.0	2.7	7.1	4.1	4.4
Construction	8.5	8.9	8.5	0.0	–0.4
Other industries	2.8	1.8	3.0	0.2	1.2
Services	2.9	3.3	8.5	5.6	5.2

Source: Estimates based on data in Tables S.1, S.2 and S.7 in the Statistical Annexe.

manufacturing and services and the unorganized sector is composed of agriculture and services, the following results are obtained. The average annual rate of growth of output per employed worker was 3.6 per cent in the organized sector and 6.1 per cent in the unorganized sector. The average annual rate of growth of output per day of work was 3.1 per cent in the organized sector and 5.7 per cent in the unorganized sector.

The rapid growth of labour productivity in the unorganized sector points to substantial improvement in employment conditions within the sector. The fast growth of labour productivity in the unorganized sector points to decline in dualism (it may be recalled that the growth of real wage was also faster in the unorganized sector). One part of the explanation for both developments is to be found in the very rapid growth of employment in the organized sector and the consequent slow growth of employment in the unorganized sector. Growth of output was in fact significantly higher in the organized sector and yet the growth of labour productivity was significantly higher in the unorganized sector. Had the growth of employment been only 1.5 per cent per annum (in place of 5.3 per cent per annum) in the organized sector, for example, the growth of employment in the unorganized sector would also have been 1.5 per cent per annum and the growth of labour productivity would then have been significantly higher in the organized sector. But one part of the explanation for the developments also lies in the surprisingly rapid growth of output in the unorganized sector.

SURPLUS LABOUR

Surplus workers are usually taken to be those who could be moved out of their current employment in the unorganized sector without reducing the amount of labour actually used in production in the sector. Many of the workers currently in employment in the unorganized sector do not have full-time employment and a removal of a section of these workers would allow the remaining workers to have full-time employment so that the quantity of labour actually deployed would remain the same. Surplus labour simply means the amount of labour that is available for deployment in new activities at zero opportunity cost.

A wider definition of surplus workers is also possible and may be more relevant. There are persons who are currently out of the labour force because of non-availability of opportunities for adequately remunerative employment but would enter the labour force if and when opportunities for such employment become available. As seen earlier, the labour force participation of non-student working-age women in India has been low and has also been declining. The analysis in this report shows that, between 1999/2000 and 2011/12, a large number of non-student working-age women withdrew from poor-quality jobs in agriculture. There is little doubt that many of these currently out-of-the-labour-force women would re-enter the labour force if better-quality jobs were to become available. In general, a section of the currently out-of-the-labour-force population can be seen as potentially available for full-time employment. Surplus workers may thus be defined to include both the currently surplus workers and the currently not-in-the-labour-force but potentially available workers.

Some crude estimates of surplus labour in India's economy are presented in Table 2.14. The data and methods used to derive these estimates are described in Box 2.8. The estimates suggest three straightforward conclusions. First, during 1999/2000–2011/12, the 'currently surplus' workers declined both in absolute number and as percentage of the non-student population. There is no surprise here since it follows from the fact that underemployment of the currently employed declined during the period. Second, during the same period, the 'total surplus' workers increased in number but, as a percentage of the non-student population, remained roughly stable. Finally, the stocks of surplus workers in 2011/12 were quite large. The 'currently surplus' workers numbered 55 million constituting about 13 per cent of the non-student working-age population. Also, the 'total surplus' workers numbered 100 million constituting nearly 16 per cent of the non-student working-age population.

On simple projections (Appendix Table A.2.3), the currently surplus workers today (in 2015/16) number 52 million (12 per cent of the currently employed and 8 per cent of the non-student working-age population) and the total surplus workers number 104 million (about 15 per cent of the non-student working-age population). All these figures should be seen as indicative of the broad orders of magnitude rather than as accurate estimates. In data available from the survey conducted by the Labour Bureau in 2013/14, the share of the currently

TABLE 2.14 Estimates of Surplus Labour (in Million)

Surplus labour	1999/2000	2011/12
Of the currently employed (according to UPS)	42.0	32.3
Of the currently employed (according to USS)	17.9	22.4
Currently surplus workers	59.9	54.7
Currently employed (according to UPSS)	353.9	423.2
Currently out of labour force but potentially employable	18.9	45.9
Total surplus workers	78.8	100.6
Non-student population	514.6	642.5
Currently surplus workers as percentage of currently employed	16.9	12.9
Currently surplus workers as percentage of non-student population	11.6	8.5
Total surplus workers as percentage of non-student population	15.3	15.7

Source: Estimates based on data in Table 2.10 given before and Table S.6 in the Statistical Annexe.

Box 2.8 Estimating Surplus Labour

The rate of underemployment for the persons of working age employed according to UPS is taken to be the simple average of Estimate A and Estimate B in Table 2.10. Thus the average real rate of underemployment works out to 12.9 per cent for 1999/2000 and 8.3 per cent in 2011/12. Using these together with the estimates of persons of working-age in UPS employment in the two years, the numbers of the category, 'Of the UPS employed, surplus' were derived. It is assumed that persons of working age in employment according to USS, worked, on average, 33 per cent of the days they would have worked had they had full-time employment. (By definition, they work between 30 and 180 days, that is, for 105 days on average, in a year.) On this basis, the numbers of the category 'Of the USS employed, surplus' have been worked out. Finally, the category 'currently out of labour force but potentially employable' workers refers to non-student females of working-age who, it is expected, would enter the labour force if and when opportunities for adequately remunerative employment become available. Based on examination of data on female labour force participation in a large number of countries, it was agreed that 50 per cent of the non-student working-age women would be in the labour force if better employment opportunities are available. Estimates of the number of working-age women who were potentially available for employment in the two years was then determined. From these figures, the numbers found to be in UPSS employment in the two years were subtracted to arrive at estimates of 'Currently out of labour force but potentially employable' workers.

surplus workers in the currently employed are estimated to have been about 12 per cent in that year (Appendix Table A.2.4). What these estimates indicate is that India's economy is very far from reaching the Lewis Turning Point.

* * *

The conclusion that emerges from the analysis in this chapter is that employment conditions improved very substantially during 1999/2000–2011/12. Six critical facts attest to this. First, there was significant change in the structure of employment; the *Lewis Process* was very much at work. Employment in the organized sector grew impressively and many workers moved from poorer to better jobs: from informal to formal jobs, from casual employment to regular employment, and from wage employment in the unorganized sector to wage employment in the organized sector. In the process, the structure of employment worsened somewhat in the organized sector but showed significant improvement in the unorganized sector as also in the economy as a whole at the same time.

Second, underemployment of the employed, particularly of those in casual wage employment, declined. Third, labour income per unit of work grew in real terms for virtually all workers and, on this count, the quality of

all types of employment may be said to have improved. Fourth, labour-income growth went together with decline in underemployment for virtually all workers so that earning per worker from employment increased even faster. This showed up in the substantial decline in poverty incidence across the board. Fifth, labour productivity growth in the unorganized sector was impressively high and significantly higher than that in the organized sector. An important part of the explanation for this lay in the impressively high growth of employment in the organized sector, which meant slow growth of employment in the unorganized sector. The other part lay in the high output growth in the unorganized sector. Sixth, there was significant decline in the degree of dualism as both labour income per unit of work and labour productivity recorded faster growth in the unorganized sector.

To what extent could the rapid improvement in employment conditions be attributed to the rapid economic growth that the period witnessed? The analysis required to fully answer the question has not been and cannot be undertaken here. But it is worth pointing to two particular features of the growth process that, together with the rapid pace of growth, were critical in producing the observed employment outcomes. The *first* feature was the high employment elasticity of growth (the ratio of employment growth to output growth) in the organized sector; this was 0.7 if employment is defined as the number of persons employed and 0.8 if employment is defined as the number of labour days actually used (see Table 2.13 for the relevant data). Precisely why the employment elasticity was high is a question that must remain unanswered here. But the fact that the existing labour regulations apparently did not prevent or restrain growth of 'informal' employment (that is, employment of regular-informal and casual employees) in the organized sector is most likely to be a part of the explanation. The growth of 'informal' employment allowed flexibility of labour use and restrained wage growth in the organized sector. As noted here, the rapid growth of 'informal' employment worsened the average quality of employment in the sector. But it also meant greater access of relatively low-skilled labour to jobs in the organized sector and large improvement in employment conditions in the unorganized sector as also in the economy as a whole.

The *second* feature was the rapid growth of non-agriculture in the unorganized sector; this was 8.1 per cent per annum during 1999/2000–2011/12, slightly higher than the growth of non-agriculture in the organized sector, which was 7.9 per cent per annum. Had the growth of non-agriculture been confined solely to the organized sector (this growth would then have been 12 per cent per annum), employment conditions in the unorganized sector would have shown only a small improvement. Overall, output growth in the organized sector would then have been 11.7 per cent per annum and, given the employment elasticity of 0.70, would have implied employment growth of 8.2 per cent per annum. Consequently, employment growth in the unorganized sector would then have been 0.3 per cent per annum and overall output growth would have been just 1 per cent per annum. All this would have meant a labour productivity growth of just 0.7 per cent per annum.

A final observation is that despite the substantial improvement that occurred during 1999/2000–2011/12, employment conditions in 2011/12 remained poor. Just 9 per cent of the employed workers were regular-formal employees and 17 per cent of the employed were in the organized sector. Self-employment and casual wage employment accounted for 78 per cent of total employment. The incidence of surplus labour was large and India's economy was nowhere near the Lewis Turning Point. Agriculture accounted for 43 per cent of the employed in the economy. Many workers remained in low-remuneration employment so that the incidence of poverty among the employed remained high. The employment challenge remains formidable.

APPENDIX TABLES

TABLE A.2.1 Employment Structure in Sectors–I (Percentage Distribution of Person Employment of Different Types)

	Organized sector				Unorganized sector			
	Regular formal	Regular informal	Casual	Subtotal	Regular informal	Casual	Self-employed	Subtotal
Agriculture								
1999/2000	0.1	0.1	0.1	0.3	1.6	45.1	53.0	99.7
2011/12	0.1	0.0	0.1	0.2	0.9	37.2	61.7	99.8
Manufacturing								
1999/2000	10.9	8.4	6.5	25.8	15.8	12.5	45.9	74.2
2011/12	11.6	17.9	7.0	36.5	10.5	9.9	43.1	63.5
Construction								
1999/2000	1.2	1.2	9.9	12.3	3.0	67.5	17.2	87.7
2011/12	1.1	2.3	15.0	18.4	1.6	68.3	11.7	81.6
Other industries								
1999/2000	39.4	6.1	15.1	60.6	9.1	27.3	3.0	39.4
2011/12	41.3	13.0	17.4	71.7	4.3	15.3	8.7	28.3
Services								
1999/2000	20.1	4.8	1.1	26.0	18.8	9.6	45.6	74.0
2011/12	20.4	9.6	0.8	30.8	17.1	5.7	46.4	69.2
Economy								
1999/2000	6.9	2.3	1.7	10.9	7.8	33.3	48.0	89.1
2011/12	8.4	5.8	3.1	17.3	7.2	27.1	48.4	82.7

Source: Estimates based on data in Table S.1 in the Statistical Annexe.

TABLE A.2.2 Employment Structure in Sectors–II (Percentage Distribution of Days Worked in Different Types of Employment)

	Organized sector				Unorganized sector			
	Regular formal	Regular informal	Casual	Subtotal	Regular informal	Casual	Self-employed	Subtotal
Agriculture								
1999/2000	0.1	0.0	0.1	0.2	1.7	37.4	60.7	99.8
2011/12	0.05	0.0	0.05	0.1	1.1	33.3	65.5	99.9
Manufacturing								
1999/2000	10.7	8.1	5.1	23.9	15.7	12.8	47.6	76.1
2011/12	11.9	18.3	5.9	36.1	10.8	9.4	43.7	63.9
Construction								
1999/2000	1.4	1.4	7.8	10.6	2.5	69.2	17.7	89.4
2011/12	1.3	2.2	13.1	16.6	1.8	70.4	11.2	83.4
Other industries								
1999/2000	31.5	5.6	12.4	49.5	10.6	26.9	13.0	50.5
2011/12	43.3	13.1	16.0	72.4	4.1	15.3	8.2	27.6
Services								
1999/2000	19.7	4.8	0.9	25.4	19.1	9.2	46.3	74.6
2011/12	20.6	9.5	0.9	31.0	17.4	5.4	46.2	69.0
Economy								
1999/2000	6.8	2.4	1.5	10.7	7.9	28.6	52.8	89.3
2011/12	8.7	5.8	2.8	17.3	7.6	25.1	50.0	82.7

Source: Estimates based on data in Table S.3 in the Statistical Annexe.

TABLE A.2.3 Estimates of Surplus Labour (in Million)

Surplus labour	1999/2000	2011/12	2015/16 (Projection)
Of the UPS employed	42.0	32.3	28.6
Of the USS employed	17.9	22.4	23.8
Currently surplus workers	*59.9*	*54.7*	*52.4*
Currently UPSS employed	*353.9*	*423.2*	*455.2*
Currently out of labour force but potentially employable	18.9	45.9	51.8
Total surplus workers	78.8	100.6	104.2
Non-student population	514.6	642.5	693.4
Currently surplus workers as percentage of currently employed	*16.9*	*12.9*	*11.5*
Currently surplus workers as percentage of non-student population	*11.6*	*8.5*	*7.6*
Total surplus workers as percentage of non-student population	*15.3*	*15.7*	*15.0*

Note: Data refers to persons of working age. In deriving the projected estimates for 2015/16, the following assumptions have been used: (i) the average real rate of underemployment of the UPS employed changed in the same direction and at the same rate during 2011/12–2015/16 as it did during 1999/2000–2011/12; (ii) the rates of unemployment changed in the same directions and at the same rates during 2011/12–2015/16 as they did during 1999/2000–2011/12; (iii) the USS employed still worked on 33 per cent of the days available; and (iv) the average annual rates of growth of non-student population were the same during 2011/12–2015/16 as they were during 1999/2000–2011/12. The estimates of UPS labour force and UPSS labour force are taken from Table S.6 in the Statistical Annexe. The method of estimation is the same for all three years (see Box 2.6).

TABLE A.2.4 Estimates of Surplus Labour in 2013/14 (in Million; Age Group 15 Years or More)

Surplus labour	Wage/salary workers	Contract workers	Casual workers	Self-employed	All employed
Total employed (UPSS)	76.5	13.9	142.9	232.0	465.3
Worked 12 months	71.0	9.9	60.1	147.1	288.1
Worked 6–11 months	5.2	3.8	80.2	81.9	171.1
Number required if all had worked 12 months	3.7	2.7	56.8	58.0	121.2
Surplus workers	*1.5*	*1.1*	*23.4*	*23.9*	*49.9*
Worked 1–5 months	0.2	0.2	2.5	3.1	6.0
Number required if all had worked 12 months	0.1	0.1	0.6	0.8	1.6
Surplus workers	*0.1*	*0.1*	*1.9*	*2.3*	*4.4*
Currently surplus workers	1.6	1.2	25.3	26.2	54.3
As percentage of currently employed	*2.1*	*8.6*	*17.7*	*11.3*	*11.7*

Note: Data refers to persons in age group '15 years or more'. The data on 'total employed', 'worked 12 months', 'worked 6–11 months', and 'worked 1–5 months' is derived from LBS (2014). It is then assumed that those who worked 6–11 months worked, on average, 8.5 months and those who worked 1–5 months worked, on average, 3 months. The 'numbers required if worked 12 months' are then derived as: ('number worked 6–11 months' × 8.5)/12 and ('number worked 1–5 months' × 3)/12. 'Surplus workers' are then derived as: 'number worked 6–11 months' – 'number required if worked 12 months' and 'number worked 1–5 months' – 'number required if worked 12 months'.

TABLE A.2.5 Employment, Persons of Working Age, UPS (in Million)

	1999/2000			2004/05			2004/05 (Adjusted)			2009/10			2011/12		
	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
Total population	519.1	484.1	1003.2	565.0	529.1	1094.1	565.0	529.1	1094.1	611.6	575.8	1187.4	631.5	595.9	1227.4
Population (15–59 years)	289.8	275.7	565.5	329.1	307.8	636.9	329.1	307.8	636.9	366.1	345.1	711.2	382.2	361.4	743.6
Non-student population (15–59 years)	256.6	255.4	512.0	292.0	285.2	577.2	292.0	285.2	577.2	312.5	310.5	623.0	321.7	318.2	639.9
Labour force	248.5	88.8	337.3	283.2	104.2	387.4	283.2	94.7	377.9	303.2	93.2	396.4	313.3	88.3	401.6
Employment	240.7	86.4	327.1	274.8	99.4	374.2	274.8	90.4	365.2	296.0	89.8	385.8	305.0	84.7	389.7
Organized sector	*30.0*	*6.0*	*36.0*	*39.5*	*9.0*	*48.5*	*39.5*	*9.0*	*48.5*	*47.6*	*10.5*	*58.1*	*54.9*	*12.5*	*67.4*
Regular formal	19.2	3.3	22.5	22.9	4.5	27.4	22.9	4.5	27.4	25.5	5.3	30.8	27.0	5.9	32.9
Regular informal	6.2	1.5	7.7	9.3	2.6	11.9	9.3	2.6	11.9	12.8	3.0	15.8	17.8	4.5	22.3
Casual	4.6	1.2	5.8	7.3	1.9	9.2	7.3	1.9	9.2	9.3	2.2	11.5	10.1	2.1	12.2
Unorganized sector	*210.7*	*80.4*	*291.1*	*235.2*	*90.4*	*325.6*	*235.2*	*81.4*	*316.6*	*248.4*	*79.3*	*327.7*	*250.1*	*72.2*	*322.3*
Regular informal	21.4	4.0	25.4	21.9	5.0	26.9	21.9	5.0	26.9	21.8	4.5	26.3	23.2	5.4	28.6
Casual	72.4	36.1	108.5	71.2	33.3	104.5	71.2	33.3	104.5	86.8	33.4	120.2	80.0	25.7	105.7
Self-employed	116.9	40.3	157.2	142.2	52.1	194.3	142.2	43.1	185.3	139.8	41.4	181.2	146.9	41.1	188.0
Employers and OAW	85.9	11.6	97.5	105.1	14.9	120.0	105.1	14.9	120.0	106.5	13.7	120.2	114.0	14.8	128.8
Unpaid family workers	31.0	28.7	59.7	37.1	37.2	74.3	37.1	28.2	65.3	33.3	27.7	61.0	32.9	26.3	59.2
Economy	*240.7*	*86.4*	*327.1*	*274.8*	*99.4*	*374.2*	*274.8*	*90.4*	*365.2*	*296.0*	*89.8*	*385.8*	*305.0*	*84.7*	*389.7*
Regular	46.8	8.7	55.5	54.1	12.1	66.2	54.1	12.1	66.2	60.1	12.8	72.9	68.0	15.8	83.8
Casual	77.0	37.2	114.2	78.5	35.2	113.7	78.5	35.2	113.7	96.1	35.6	131.7	90.1	27.8	117.9
Self-employed	116.9	40.5	157.4	142.2	52.1	194.3	142.2	43.1	185.3	139.8	41.4	181.2	146.9	41.1	188.0

Source: Author's estimates derived from unit-level data from NSSO *Survey of Employment and Unemployment* (55th, 61st, 66th and 68th Rounds) and estimates of population from *Population Census* (2001 and 2011).
Note: OAW = own-account workers.

A NOTE ON DATA

The analysis in this chapter, as also in the other chapters, uses data from the NSSO *Surveys of Employment and Unemployment* for two years: 1999/2000 and 2011/12. NSSO surveys, however, are available for two other in-between years: 2004/05 and 2009/10. This data has not been used simply because this allows abstraction from short-term fluctuations to focus on long-term evolution of employment conditions. Nevertheless, it might be thought that the long-term trends given by the data for just two years might actually be misleading if the data for all the four years shows large fluctuations. In this note, the base data for all the four years is considered to see if there indeed are indications of large fluctuations.

Browsing through the data (presented in Appendix Table A.2.5) reveals one instance of large fluctuation: the labour force shows a high growth between 1999/2000 and 2004/05 (2.8 per cent per annum) and then very low growth between 2004/05 and 2009/10 (0.5 per cent per annum) as also between 2009/10 and 2011/12 (0.7 per cent per annum). A closer look shows that both the high growth of 1999/2000–2004/05 and the low growth of the subsequent periods resulted from the fluctuations in the growth of the female labour force, which showed a very high growth during 1999/2000–2004/05 (3.3 per cent per annum) and then negative growth in the two subsequent periods (–2.2 per cent per annum during 2004/05–2009/10 and –1.1 per cent per annum during 2009/10–2011/12). An even closer look shows that these fluctuations resulted from fluctuations in the growth of the female 'unpaid family workers', which recorded a huge growth during 1999/2000–2004/05 (5.3 per cent per annum), an equally huge decline during 2004/05–2009/10 (–5.7 per cent per annum) and a milder decline during 2009/10–2011/12 (–2.6 per cent per annum). Analysis has shown these fluctuations to be highly implausible (as no sensible explanations can be found for them) and they most probably arose from an error in data collection in 2004/05 (Ghose 2013). It is often difficult in practice to distinguish between 'unpaid family work' and 'household duties'; many women principally engaged in 'household duties' also engage in 'household economic activities' such as collection of free goods, fishing, raising animals, and so on, for household use. Analysis shows that many such women were unusually counted as 'unpaid family workers' in the 2004/05 survey (Kapsos, Silberman, and Bourmpoula 2014). As the data in Appendix Table A.2.5 shows, if the simple average of the estimates of female 'unpaid family workers' for the years 1999/2000 and 2009/10 is substituted for the survey estimate for the year 2004/05, the labour force and employment trends appear perfectly consistent.

The point that is emphasized here is that for all types of employment other than 'unpaid family work', the actual survey estimates show consistent trends. It can be reasonably assumed, therefore, that the long-term trends, derived by using the estimates for the years 2009/10 and 2011/12 are not misleading.

3

Gender Inequality in Employment

This chapter seeks to analyse the trend in gender inequality in employment during 1999/2000–2011/12. Overall employment conditions, as has been seen, improved substantially during the period. The question is: did employment conditions improve more (or less) for women than for men? The methodology adopted for the analysis is the same as that in Chapter 2 and the focus is on men and women of working age who are in the labour force according to UPS.

EMPLOYMENT AND UNEMPLOYMENT OF WOMEN

As a backdrop, certain basic facts are presented about the labour force characteristics, employment and unemployment of men and women. First, female labour force participation has been low and has been declining, in part because a growing number have been pursuing education for longer periods but mainly because growth of household incomes has had the effect of lowering poverty-driven participation of women from poor households in the labour force (Chapter 1). Women's share in total labour force has thus been declining—it fell from 27 per cent in 1983 to 26 per cent in 1999/2000 and further to 22 per cent in 2011/12.

Second, the relation between labour force growth and employment growth is discussed. Employment growth in India reflects basically the labour force growth so that the rate of employment growth is really no different from the rate of labour force growth (Chapter 2). Does this relationship between labour force growth and employment growth also hold for men and women if taken separately? Table 3.1 suggests that it does not. Data in Table 3.1 shows that during 1999/2000–2011/12, employment growth was a little faster than labour force growth for men but a little slower than labour force growth for women. This difference also shows up in the difference in trends in unemployment (Table 3.2); the unemployment rate showed a decline (from 3.1 per cent to 2.6 per cent) for men but an increase (from 2.7 per cent to 4.1 per cent) for women. These trends, as we shall see in the chapter, are perfectly consistent with the propositions

TABLE 3.1 Growth of Employment and Labour Force

	Average annual rate of growth (%), 1999/2000–2011/12
Employment growth	
Male	2.0
Female	–0.2
Labour force growth	
Male	1.9
Female	0.0

Source: Estimates based on data in Table S.6 in Statistical Annexe.

TABLE 3.2 Unemployment Rate (%) by Age (Years) and Level of Education

	Level of education	Age group			
		15–24	25–29	30–59	15–59
1999/2000					
Male	Up to primary	3.9	0.7	0.1	1.1
	Above primary	13.9	8.1	1.0	5.9
	All	8.6	4.6	0.5	3.1
Female	Up to primary	1.2	0.5	0.1	0.4
	Above primary	23.0	18.9	2.5	14.2
	All	7.1	4.4	0.4	2.7
2011/12					
Male	Up to primary	5.6	0.8	0.1	1.2
	Above primary	12.2	5.1	0.6	3.9
	All	9.5	3.6	0.4	2.6
Female	Up to primary	2.3	0.8	0.6	0.9
	Above primary	21.4	14.1	3.0	10.7
	All	12.2	7.5	1.2	4.1

Source: Estimates based on data in Table S.4 in the Statistical Annexe.

that, for both men and women, employment growth reflects labour force growth and unemployment reflects queuing for jobs in the organized sector.

Third, it was noted in Chapter 1 that women in the labour force have a lower average level of education than men in the labour force. The share of illiterates and near illiterates (those with below-primary education) in total labour force has been, and remains, far higher for women than for men, while the share of those with tertiary education has been and remains lower for women than for men. The gender gap in education has been on the decline, however. The gaps in the share 'of illiterates and near-illiterates', 'those with tertiary education', and 'average years of education' between men and women were smaller in 2011/12 than they had been in 1999/2000.

Finally, for both men and women, unemployment essentially reflects queuing for jobs in the organized sector. This is clear from Table 3.2. For both men and women, unemployment is insignificant for those with up-to-primary education. It is significant for those with above-primary education. Among those with above-primary education, the unemployment rate rises steadily with level of education (Figure 3.1). Further, for each level of education, the unemployment rate also declines steadily with age for both men and women (Table 3.2). Thus unemployment is essentially confined to the 'young and educated' among both men and women.

However, the unemployment rate has been and remains much higher for 'young and educated' women than for 'young and educated' men. This also means that the gap in unemployment rate between the more educated (with above-primary education) and the less educated (with up-to-primary education) has been and remains far larger for women than for men. For women, this gap was 13.8 percentage points in 1999/2000 and 9.8 percentage points in 2011/12; for men, it was 4.8 percentage points in 1999/2000 and 2.7 percentage points in 2011/12.

It may be noted that during 1999/2000–2011/12, the unemployment rate for the 'young and educated' declined for both men and women (Table 3.2 and Figure 3.1). Yet the overall unemployment rate for women showed an increase. How can this be explained? A part of the explanation lies in the already noted fact—namely, the very large gap in unemployment rate between women with above-primary education and women with up-to-primary education. It means that any general expansion of education among women, which naturally increases the share of those with 'above-primary' education in the female labour force, increases the overall unemployment rate. In the case of men, this does not happen unless

FIGURE 3.1 Unemployment Rate (%) by Level of Education

Source of data: Estimates based on data in Table S.4 in the Statistical Annexe.

there is sudden and very rapid expansion of education because the relevant gap in unemployment rate is small. The other part of the explanation lies in the change in the composition of the female labour force caused by the differential changes in labour force participation of women with different levels of education. It may be recalled from Chapter 1 that between 1999/2000 and 2011/12, the labour force participation of women with up-to- primary education showed a sharp decline while the labour force participation of women with tertiary education showed an increase. These changes had the effect of increasing the share of the educated in the female labour force beyond what it would have been purely because of the general expansion of education.

The differential effects of education on labour force participation of men and women are highlighted in Table 3.3. For men, the distribution of the labour force by level of education was almost exactly the same as the distribution of the non-student population by level of education in both years, reflecting the fact that the participation rate (with respect to non-student population) remained unchanged during the period; also, it was invariant to the level of education in both years. The effect of the general expansion in education shows up in a similar rise in the share of the educated in both the non-student population and the labour force. Given these features, and given the relatively small gap in unemployment rate between the educated and the uneducated, the decline in the unemployment rate for the educated also meant a decline in the average unemployment rate.

TABLE 3.3 Distribution of Non-student Population and Labour Force by Level of Education

Distribution	1999/2000		2011/12	
	Male	Female	Male	Female
Non-student population				
Up to primary	56.8	75.8	45.6	62.3
Above primary	43.2	24.2	54.4	37.7
Labour force				
Up to primary	56.6	83.6	45.2	67.5
Above primary	43.4	16.4	54.8	32.5

Source: Estimates based on data in Table S.4 in the Statistical Annexe.

For women, the share of those with up-to-primary education in the labour force was higher than their share in the non-student population (and, correspondingly, the share of those with above-primary education in the labour force was lower than their share in the non-student

population) in both years. This reflects the U-shaped pattern of variation in female participation rate with level of education. However, during 1999/2000–2011/12, the labour force participation rate of the non-student female population with up-to-primary education declined sharply (from 37.9 per cent to 29.8 per cent) while that of the non-student female population with above-primary education increased slightly (from 23.6 per cent to 23.7 per cent).The U-shaped curve got flatter reflecting that the distribution of labour force by level of education moved a bit closer to the distribution of the non-student population by level of education during the period.

Had the participation rates of female non-student population at all levels of education remained unchanged, the share of those with above-primary education in the female labour force would have increased from 16.4 per cent in 1999/2000 to 28.6 per cent in 2011/12. As a result of this, the average unemployment rate would have increased from 2.7 per cent to 3.5 per cent despite the decline in unemployment rate for the educated. But because of the differential changes in participation rates during the period, the share of those with above-primary education in the female labour force in 2011/12 was 32.5 per cent and not 28.6 per cent. The actual average unemployment rate, therefore, was higher at 4.1 per cent.

Thus the increase in the overall unemployment rate for women during 1999/2000–2011/12 did not result from a longer queue of 'young and educated' women for jobs in the organized sector (the queue actually got shorter); it resulted from a fairly sharp increase in the share of the educated in female labour force, given the large gap in unemployment rate between the educated and the uneducated. The sharp increase in the share of the educated in the female labour force resulted partly from the general expansion of education and partly from the decline in labour force participation of less educated women.

TREND IN GENDER INEQUALITY IN EMPLOYMENT

Employment structure

The structure of employment changed more favourably for women than for men during 1999/2000–2011/12 (Table 3.4). In the first place, employment in the organized sector increased faster than total employment for both men and women, but recorded a significantly faster growth for women than for men. Since the growth of total employment was much faster for men than for women,

TABLE 3.4 Employment Structure, 1999/2000–2011/12

Employment structure	Average annual rate of growth (%)		Percentage distribution, 1999/2000		Percentage distribution, 2011/12	
Employment type	Male	Female	Male	Female	Male	Female
Organized sector	5.2	6.2	12.4	6.9	18.0	14.6
Regular formal	2.9	4.8	8.0	3.8	8.9	6.8
Regular informal	9.4	9.6	2.5	1.7	5.9	5.3
Casual	6.9	4.8	1.9	1.4	3.3	2.5
Unorganized sector	1.4	–0.9	87.6	93.1	82.0	85.4
Regular informal	0.6	2.4	8.9	4.7	7.5	6.3
Casual	0.8	–2.8	30.2	41.8	26.2	30.3
Self-employment	1.9	0.2	48.5	46.6	48.2	48.8
Economy	2.0	–0.2	100.0	100.0	100.0	100.0
Regular formal	2.9	4.8	8.0	3.8	8.9	6.8
Regular informal	3.4	4.9	11.4	6.4	13.4	11.6
Casual	1.3	–2.4	32.1	43.2	29.5	32.8
Self-employment	1.9	0.2	48.5	46.6	48.2	48.8

Source: Estimates based on data in Table S.1 in the Statistical Annexe.

the share of the organized sector in total employment recorded a larger increase for women (by 7.7 percentage points) than for men (by 5.6 percentage points).

Second, regular-formal employment, which also increased faster than total employment for both men and women, recorded a significantly faster growth for women than men. Thus, the share of regular-formal employment in total employment also showed a larger increase for women (3.0 percentage points) than for men (0.9 percentage points).

Third, the growth of employment in the unorganized sector was slower than that of total employment for both men and women. But while the growth was still very significant (1.4 per cent per annum) for men, it was negative (–0.9 per cent per annum) for women. Moreover, the structure of women's employment in the unorganized sector also changed for the better: casual wage employment declined sharply (by –2.8 per cent per annum) while regular-informal employment increased sharply (by 2.4 per cent per annum) at the same time.

Overall, while the employment conditions clearly improved for both men and women, the improvement was much larger for women. Compared to men, movements of women from employment in the unorganized sector to employment in the organized sector, from casual employment to regular-informal employment and from regular-informal employment to regular-formal employment were all proportionately larger. Gender inequality in employment declined quite significantly.

This conclusion follows much more directly from the estimates of the employment structure index presented in Table 3.5. The estimated ratios (Figure 3.2) show that the gap in quality of employment between men and women declined substantially in the economy as also in each of the sectors. Indeed, the gap nearly disappeared altogether in the organized sector.

TABLE 3.5 Employment Structure Index

Employment structure	1999/2000		2011/12	
	Male	Female	Male	Female
Organized sector	5.19	4.94	4.97	4.95
Unorganized sector	2.41	2.15	2.45	2.36
Economy	2.75	2.34	2.9	2.74

Source: Estimates based on data in Table 3.4.

Finally, it should be specially noted that the large improvement in women's employment conditions (and thus the significant decline in gender inequality in employment) was associated with a small absolute decline in female employment (from 86.4 million in 1999/2000 to 84.7 million in 2011/12). The latter, as we have seen,

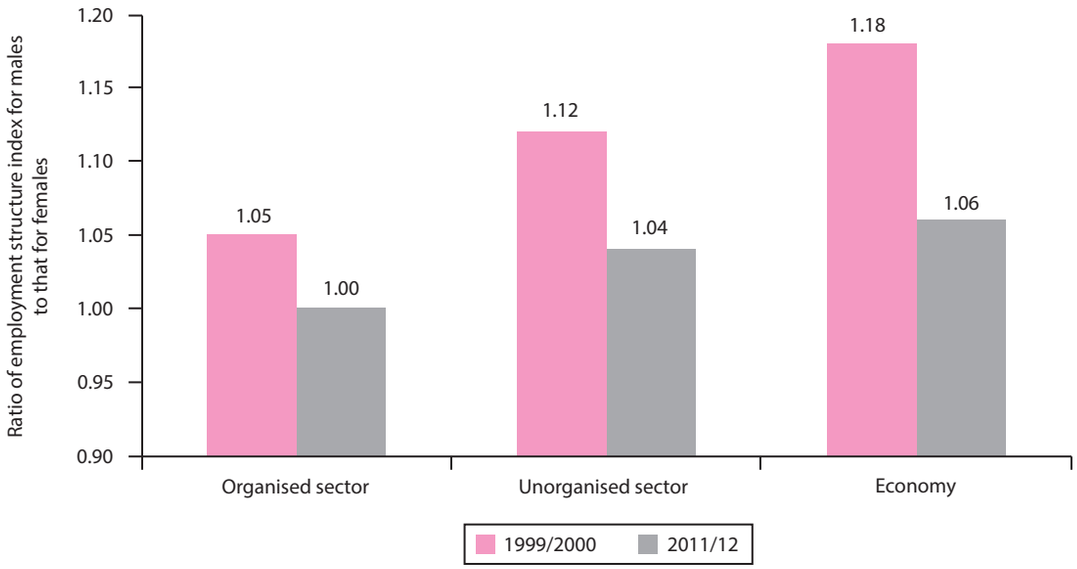

FIGURE 3.2 Ratio of Employment Structure Index for Men to That for Women

Source of data: Table 3.5.

reflected the combined effect of two parallel developments: zero growth of female labour force because of a large decline in poverty-driven labour force participation, and slightly increased unemployment as a consequence of large growth in the share of the educated in the female labour force. Significantly, the decline in female employment in the economy resulted from a large decline in employment in the unorganized sector, particularly in casual employment. While the overall female employment declined by 1.7 million, female casual employment in the unorganized sector declined by 10.4 million. It was the worst type of employment (casual employment in the unorganized sector) that declined—a fact that obviously coheres with the large decline in poverty-driven participation. Employment that grew was in the organized sector (6.4 million), in regular-informal employment in the unorganized sector (1.3 million), and in self-employment (1 million).

Underemployment of the employed

As observed in Chapter 2, there are a number of indicators that need to be considered in order to discern the true trends in underemployment of employed men and women. Available data pertaining to these is presented in Table 3.6.

One indicator is the reported rate of underemployment, which is defined as the number of reported days in unemployment as percentage of the number of reported days in the labour force (according to CDS). This is significant only for casual employees and it declined for both men and women casual employees. But the decline was more significant for men (3 percentage points) than for women (1.2 percentage points).

A second indicator is the number of days during which the employed persons reportedly did not work (but were in employment) as percentage of the total number of days for which they were in employment. The trend in this indicator shows that the intensity of work of female regular-formal employees increased quite dramatically during 1999/2000–2011/12. In 1999/2000, female regular-formal employees did not work for a large proportion (10 per cent) of the days they were in employment. Sickness could only have accounted for a tiny proportion of these days of non-work; this is indicated by the fact that the proportion of the days of non-work

TABLE 3.6 Underemployment of the Employed–I

	Rate of underemployment (%)		Days not worked as percentage of days in employment		Days out of labour force as percentage of days available	
	Male	Female	Male	Female	Male	Female
Regular-formal employees						
1999/2000	0.3	0.0	0.8	9.9	1.0	2.1
2011/12	0.1	0.3	1.2	1.7	0.1	0.3
Regular-informal employees						
1999/2000	1.1	0.9	5.8	6.7	1.3	4.9
2011/12	0.6	0.6	2.3	2.4	0.2	0.9
Casual employees						
1999/2000	11.5	10.8	2.5	2.3	6.4	19.9
2011/12	8.5	9.6	0.7	0.7	5.7	17.8
Self-employed						
1999/2000	1.8	1.9	3.4	3.3	2.5	14.6
2011/12	1.0	0.6	2.6	2.9	1.0	13.1
All employed						
1999/2000	4.7	5.5	3.2	3.4	3.5	15.9
2011/12	3.1	3.4	1.9	2.1	2.2	12.4

Source: Estimates based on data in Table S.2 in the Statistical Annexe.

in total days of employment was negligible for men in regular-formal employment as also for women in casual employment. Thus, it would seem that in 1999/2000, a sizeable section of the female regular-formal employees was employed on part-time basis while the male regular-formal employees were all employed on full-time basis. In 2011/12, the proportion of days not worked though in employment was negligible for both male and female regular-formal employees; all were employed on full-time basis. So, a section of the female regular-formal employees can be said to have moved from part-time to full-time employment. Thus, underemployment can be said to have declined significantly for female regular-formal employees; for male regular-formal employees, there was no decline in underemployment of this kind, which was insignificant in both years. In the case of regular-informal employees, too, this kind of underemployment appears to have declined more significantly for women than for men. In the case of other types of employed (casual employees and self-employed), sickness alone accounted for the days of non-work.

A third indicator—the number of days on which the employed stayed out of the labour force as percentage of the number of days that the employed had been available—shows that female casual employees and female self-employed stayed out of the labour force for a large proportion of the days available to them (Table 3.6). Given that this category of employed generally belong to low-income households, this 'staying out' seems odd and unlikely to be voluntary. What is likely is that there were 'discouraged' workers—workers who stayed out of labour force at certain times because they were aware that 'gainful' work was scarce and that search would be futile. On this interpretation, the days out of labour force (or at least many of them) can be seen as days of unemployment. It then follows that the female casual employees and self-employed were actually unemployed on many more days than they reported themselves to be in both years, or that the real rate of underemployment was much higher than the reported rate. Given the observed decline in 'days out of labour force as percentage of days available', it then also follows that, for female casual employees and self-employed, the decline in the real rate of underemployment was larger than the decline in the reported rate of underemployment. Underemployment in the form of 'days out of labour force', on the other hand, was quite insignificant for male self-employed. It was significant for male casual employees though far less so than for female casual employees and the trend decline, too, was less significant for the former than for the latter.

TABLE 3.7 Underemployment of the Employed–II
(Days Not Worked as Percentage of Days Available)

	1999/2000		2011/12	
	Male	Female	Male	Female
Estimate A				
Regular-formal employees	2.1	11.8	1.3	2.2
Regular-informal employees	8.1	12.0	3.1	3.9
Casual employees	19.2	30.2	14.3	26.3
Self-employed	7.4	19.0	4.6	16.1
All employed	11.1	23.4	7.0	17.1
Estimate B				
Regular-formal employees	1.3	2.1	0.1	0.6
Regular-informal employees	2.4	5.7	0.8	1.6
Casual employees	17.1	28.6	13.7	25.7
Self-employed	4.2	16.3	2.0	13.6
All employed	8.0	20.5	5.2	15.4

Source: Estimates based on data in Table S.2 in the Statistical Appendix.
Note: Estimate A takes the days not worked though in employment as days of underemployment. Estimate B considers the days not worked though in employment as days of sickness.

The trends in the three indicators, when considered together, suggest that the decline in overall underemployment of the employed was significant for men and women. The trends in a composite indicator—days not worked as percentage of days available—show this explicitly (Table 3.7). For each category of employed, the two estimates of the rate of underemployment for a given year show the two extremes and the real value would be somewhere in between (a simple average). Thus, the decline in underemployment was somewhat more significant for female regular employees but equally significant for male and female casual employees and self-employed. Overall, the decline in underemployment was more significant for women than for men (Figure 3.3).

Wage and wage earning

The growth of real wage was generally impressive but also generally faster for female employees than for male employees during 1999/2000–2011/12 (Table 3.8). The

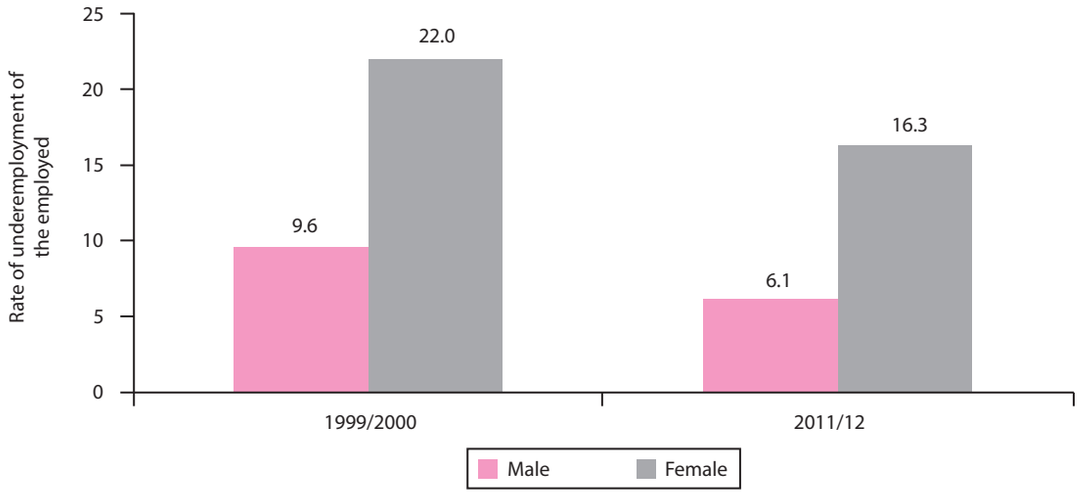

FIGURE 3.3 Overall Rate (%) of Underemployment of the Employed

Source of data: Simple average of Estimate A and Estimate B in Table 3.7.

rate of growth of the average real wage per day of work was 3.6 per cent per annum for male employees and 5.8 per cent per annum for female employees. In each of the sectors (organized and unorganized) too, wage growth was faster for female employees than for male employees. The most impressive real wage growth was recorded in casual employment in the unorganized sector, that is, 4.4 per cent per annum for male casual employees and 5.2 per cent per annum for female casual employees. Only in the case of regular-formal employment in the organized sector and regular-informal employment in the unorganized sector was the wage growth somewhat slower for female employees than for male employees. Overall, gender-based inequality in wage per day of work recorded significant decline.

For both men and women, the number of days of work increased faster (or decreased slower) than the number in employment so that days of work per employed recorded

TABLE 3.8 Growth of Real Wage and Wage Earning, 1999/2000–2011/12

	Real wage per day of work (Rs)		Real wage earning per worker (Rs)	
	Male	Female	Male	Female
Organized sector	1.9	2.3	2.3	3.3
Regular-formal employment	3.4	3.0	3.9	4.4
Regular-informal employment	1.1	1.9	1.4	1.9
Casual employment	2.3	3.5	2.9	4.6
Unorganized sector	2.6	3.9	2.6	3.8
Regular-informal employment	–0.4	–2.1	–0.1	–1.2
Casual employment	4.4	5.2	5.2	6.2
Economy	3.6	5.8	4.3	6.8
Regular-formal employment	3.4	3.0	3.9	4.4
Regular-informal employment	0.7	–2.0	0.9	–1.3
Casual employment	4.3	5.4	5.0	6.4

Source: Estimates based on data in Table S.5 in the Statistical Annexe.
Note: The price deflator used is the consumer price index for industrial workers.

positive growth. Thus real wage earning per employed increased faster than real wage per day of work. Again, the growth of days of work per employed was faster for female employees than for male employees. The gender-based inequality in real wage earning per employed declined more significantly than the inequality in real wage per day of work. Even in regular-formal employment, in which the growth of real wage per day of work was faster for male employees than for female employees, the growth of real wage earning per employed was faster for female employees than for male employees because the number of days of work per employed increased significantly faster for females than for males.

Overall, gender-based inequality, in terms of both real wage per day of work and real wage earning per employed, declined, the latter somewhat more significantly than the former (Table 3.9). Three other facts are worthy of note. First, gender inequality in wage (and consequently in wage earning) has been and remains the lowest for regular-formal employees. This suggests that government regulations and collective bargaining, which determine the wage for these employees, have the built-in objective of pre-empting gender-based inequality. Gender-based inequality is high in the case of those wages where government regulations and collective bargaining do not have much of a role to play. Thus even within the organized sector, gender-based wage inequality is high for regular-informal and casual employees. Also, it is high in the unorganized sector, particularly for casual employees.

Second, the most remarkable decline in gender-based inequality in wage (as also in wage earning) occurred in casual employment in the unorganized sector (which is where most of the casual employees work). This lowered the overall wage inequality in the economy as also in both organized (as far as the large decline in gender-based inequality in casual wage in the sector could be seen as a spill-over effect) and unorganized sectors. What explains this decline in gender-based wage inequality in casual employment in the unorganized sector? Two factors seem to have been at work. First, the decline in poverty-driven labour force participation of women naturally meant withdrawal of female employees from the lowest wage casual jobs. The effect would be a rise in the average casual wage of women. No such effect was there for the average casual wage of men. Second, growth of casual employment in public works and special employment schemes under MGNREGA, in which men and women tend to be paid the same wage, was larger for female casual employees than for male casual employees. In 1999/2000, the share of the days of casual employment of this type in total days of casual wage employment was 1.1 per cent for men and 0.7 per cent for women; in 2011/12, this share was 4.1 per cent for men and 7.1 per cent for women. This change, too, should have the

TABLE 3.9 Gender-Based Inequality in Real Wages and Earnings

	Real wage per day of work, ratio: male/female		Real wage earning per employed, ratio: male/female	
	1999/2000	2011/12	1999/2000	2011/12
Organized sector	1.319	1.260	1.410	1.260
Regular-formal employees	1.126	1.175	1.214	1.151
Regular-informal employees	1.708	1.574	1.599	1.524
Casual employees	1.605	1.407	1.995	1.649
Unorganized sector	1.774	1.540	2.056	1.679
Regular-informal employees	1.382	1.681	1.461	1.659
Casual employees	1.615	1.485	1.853	1.726
Economy	1.830	1.436	2.110	1.528
Regular-formal employees	1.126	1.175	1.214	1.151
Regular-informal employees	1.463	1.604	1.498	1.571
Casual employees	1.654	1.475	1.901	1.640

Source: Estimates based on data in Tables S.2 and S.5 in the Statistical Annexe.

effect of lowering gender-based wage inequality in casual employment.

Third, uniquely in the case of regular-informal employment in the unorganized sector, the gender-based inequality in wage per day of work increased sharply so that the inequality in wage earning per employed also increased despite the faster growth of the number of days of work per employed for women than for men. This is also where the real wage per day of work actually declined for both men and women, but more sharply for women than for men. Even though the number of days of work per employed increased for both men and women, more sharply for women than for men, the wage earning per employed still declined for both and more sharply for women than for men. A possible explanation for these trends lies in the process of transformation of casual employees into regular-informal employees that seems to have been under way. An indication of this is apparent from the process of convergence in wage per day of work between regular-informal employees and casual employees. Within the unorganized sector, the ratio of wage per day of work for male regular-informal employees to that for male casual employees declined from 2.2 in 1999/2000 to 1.3 in 2011/12. Similarly, the ratio of wage per day of work for female regular-informal employees to that for female casual employees declined from 2.6 in 1999/2000 to 1.2 in 2011/12. It is easy to see that a casual employee stands to benefit from becoming a regular-informal employee even if the wage per day of work is the same in both types of employment because the number of days of work is larger for a regular-informal employee. This implies that a process of transfer from casual employment to regular-informal employment can generate a process of wage convergence involving decline in the wage per day of work in regular-informal employment.

Industrial distribution of employment

The industrial distribution of the employed changed in the same direction for both men and women, but the change for women was more dramatic (Table 3.10). The share of agriculture in total employment declined for both men and women, but the decline was larger for women (15.5 percentage points) than for men (11.5 percentage points). In fact, the absolute number in employment in agriculture declined for both, but the decline was much larger in magnitude for women (14.4 million) than for men (just 2 million). Correspondingly, the share of non-agriculture in total employment increased for both men and women, but the increase was larger for women than for men.

TABLE 3.10 Industrial Distribution of Employment (%)

Industries	1999/2000		2011/12	
	Male	Female	Male	Female
Agriculture	51.4	73.0	39.9	57.5
Manufacturing	11.8	9.7	13.3	13.9
Construction	6.1	2.0	12.9	5.1
Other industries	1.2	0.5	1.3	0.7
Services	29.5	14.8	32.6	22.8

Source: Estimates based on data in Table S.1 in the Statistical Annexe.

However, the decline in female employment in agriculture resulted almost entirely from the decline in poverty-driven labour force participation; a slight shift of workers from agricultural to non-agricultural employment took place. This is evident from two facts. First, the total female employment declined in absolute terms or in other words, the magnitude of the incremental employment in non-agriculture was smaller than the magnitude of the decline in employment in agriculture. Thus, the incremental employment in non-agriculture went basically to the new entrants into the labour force. Second, a very large part of the decline in female employment in agriculture is accounted for by a decline in poorest quality employment. Female casual employment in agriculture, the worst quality casual employment (and casual employment is the worst quality among all types of employment), declined by 12 million, and the number of female unpaid family workers in agriculture declined by 1.8 million.

Thus, though the change in the industrial distribution of employment of women was quite dramatic, it did not in fact involve shift of workers from agricultural employment to non-agricultural employment. Many of those employed in poorest quality jobs in agriculture simply withdrew from the labour force and the new entrants into the labour force found employment in non-agriculture. In the case of men, some workers (about 2 million in number) did move from agricultural employment into non-agricultural employment and all the new

entrants into the labour force (64.3 million) went into non-agricultural employment.

Within non-agriculture and in each of the industries, the share of the organized segment in total employment increased substantially for both men and women (Table 3.11). The share of regular-formal employment in total employment also generally increased for both men and women. However, the share of regular-formal employment in organized segment employment in each of the industries clearly declined for both men and women. In the unorganized segment, the main change was decline in the share of casual employment in total employment, which meant a rise either in regular-informal employment or in self-employment or in both.

These changes get reflected in the values of the employment structure index reported in Table 3.12. For men, the average quality of employment in the organized segment deteriorated in all industries except manufacturing where it improved. For women, it improved in all industries except services where it deteriorated. The average quality of employment in the unorganized sector showed slight deterioration for both men and women in manufacturing (for men because of declining importance of self-employment and for women because of declining importance of regular-informal employment) and significant deterioration for men in construction (because of rising importance of casual labour). Overall, the average quality of employment improved everywhere except for men in construction.

It is already clear that the gap in average quality of employment between men and women narrowed in all industries. This outcome is shown in Table 3.13. In the organized sector, the gap declined everywhere except in services where the gap has all along been negligible. In the unorganized sector, the gap declined everywhere except in manufacturing where it showed a slight increase. Overall, gender-based inequality in average quality of employment has clearly been on the decline.

SURPLUS LABOUR

As discussed in Chapter 2, surplus labour is the amount of labour that is available from surplus workers for productive employment. Surplus workers can be defined

TABLE 3.11 Aspects of Employment Structure in Production Sectors

Industries	Percentage share of the organized sector in total employment		Percentage share of regular-formal employment in total employment		Percentage share of casual employment in unorganized sector employment	
	Male	Female	Male	Female	Male	Female
Agriculture						
1999/2000	0.4	0.2	0.1	0.0	42.0	51.6
2011/12	0.3	0.2	0.1	0.0	35.3	42.2
Manufacturing						
1999/2000	28.5	16.7	13.0	3.6	19.2	10.0
2011/12	40.9	21.2	13.5	5.1	17.9	9.6
Construction						
1999/2000	11.6	17.6	1.4	0.0	74.4	100.0
2011/12	17.9	23.2	1.3	0.0	82.3	97.0
Other industries						
1999/2000	62.1	50.0	41.4	25.0	63.6	100.0
2011/12	75.0	50.1	45.0	16.7	50.0	66.7
Services						
1999/2000	25.0	31.3	19.7	22.7	12.8	14.8
2011/12	28.2	44.0	19.2	26.4	8.2	8.4

Source: Estimates based on data in Appendix Tables A.3.1 and A.3.2.

TABLE 3.12 Employment Structure Index by Production Sector

Industry	Organized sector		Unorganized sector		Overall	
	Male	Female	Male	Female	Male	Female
Agriculture						
1999/2000			2.18	1.98		
2011/12			2.30	2.17		
Manufacturing						
1999/2000	4.79	3.94	2.87	2.90	3.42	3.07
2011/12	4.84	4.17	2.86	2.87	3.67	3.15
Construction						
1999/2000	2.86	2.00	1.55	1.00	1.70	1.18
2011/12	2.68	2.30	1.37	1.06	1.61	1.35
Other industries						
1999/2000	5.00	4.00	1.99	1.00	3.86	2.50
2011/12	4.90	4.33	2.20	1.67	4.23	3.00
Services						
1999/2000	5.66	5.65	2.99	3.00	3.66	3.83
2011/12	5.59	5.57	3.06	3.22	3.77	4.25

Source: Estimates based on data in Appendix Tables A.3.1 and A.3.2.
Note: No estimate for organized agriculture is made because the number of employees involved is too small.

TABLE 3.13 Gender-Based Inequality in Employment Structure

	Employment structure index, ratio: male/female		
	Organized sector	Unorganized sector	Overall
Agriculture			
1999/2000		1.101	
2011/12		1.060	
Manufacturing			
1999/2000	1.216	0.990	1.114
2011/12	1.161	0.997	1.165
Construction			
1999/2000	1.430	1.550	1.441
2011/12	1.165	1.292	1.193
Other industries			
1999/2000	1.250	1.990	1.544
2011/12	1.132	1.317	1.410
Services			
1999/2000	1.002	0.997	0.956
2011/12	1.004	0.950	0.887

Source: Estimates based on data in Table 3.12.
Note: For agriculture, the ratios for 'overall' would not be different from those for the unorganized sector.

in two possible ways. A narrow definition would focus on 'currently surplus workers' or workers who are currently in employment but are not working full time. A broad definition would focus on 'total surplus workers', a category that includes not just the currently surplus workers but also potentially available workers, or those persons who are currently not in the labour force but can be expected to enter the labour force if and when opportunities for appropriate employment become available. As mentioned in Chapter 2, in India, the potentially available workers are all female.

Table 3.14 presents the estimates of currently surplus workers and total surplus workers by gender. Three conclusions may be drawn. First, the magnitude of surplus labour has been, and remains, large for both men and women but it has been and remains much larger for women. In 2011/12, the share of currently surplus workers in the currently employed, for example, was 7 per cent for men and nearly 30 per cent for women. In the same year, the share of total surplus workers in the non-student population was less than 7 per cent for men and nearly 25 per cent for women. These facts mean that most of the surplus workers have been and remain women. In

TABLE 3.14 Estimates of Surplus Labour (in Million)

Surplus labour	1999/2000		2011/12	
	Male	Female	Male	Female
Of the UPS employed	23.0	19.0	18.5	13.8
Of the USS employed	1.8	16.1	2.4	20.0
Currently surplus workers	*24.8*	*35.1*	*20.9*	*33.8*
Currently UPSS employed	*243.5*	*110.4*	*308.7*	*114.5*
Currently out of labour force but potentially employable	0.0	18.9	0.0	45.9
Total surplus workers	24.8	54.0	20.9	79.7
Non-student population	257.5	257.1	321.8	320.7
Currently surplus workers as percentage of currently employed	*10.2*	*31.8*	*6.8*	*29.5*
Currently surplus workers as percentage of non-student population	*9.6*	*13.7*	*6.5*	*10.5*
Total surplus workers as percentage of non-student population	*9.6*	*21.0*	*6.5*	*24.9*

Source: Estimates based on data in Table 3.7 and Table S.6 in the Statistical Annexe.
Note: The method of estimation is described in Box 2.5 (Chapter 2). The average underemployment rate of the UPS employed is taken to be the simple average of Estimate A and Estimate B in Table 3.7.

2011/12, 62 per cent of the currently surplus workers and 79 per cent of the total surplus workers were women.

Second, between 1999/2000 and 2011/12, currently surplus workers declined in absolute terms and also in terms of percentage of currently employed for both men and women, but only marginally. Third, during the same period, total surplus workers declined for men but increased for women both in absolute terms and as percentage of the non-student population. The obvious reason for the rise in total surplus workers among women was the decline in poverty-driven labour force participation of women, which added to the number of 'currently out of labour force but potentially employable'. For men, the participation rate (with respect to the non-student population) remained stable during the period so the number of currently surplus workers was equal to the number of total surplus workers.

According to Appendix Table A.3.3, the picture today (in 2015/16) is quite similar to that in 2011/12. The share of currently surplus workers in the currently employed is less than 6 per cent for men and 28 per cent for women; the share of total surplus workers in the non-student population is 5 per cent for men and 29 per cent for women; and 82 per cent of 'all surplus workers' are women.

* * *

Gender inequality in employment declined very substantially during 1999/2000–2011/12. Several developments attest to this. First, the change in the structure of employment (à la Lewis) was more favourable for women than for men. The consequent improvement in average quality of employment was larger for women than for men in the aggregate economy as also in each of the sectors (organized and unorganized). Second, the decline in the degree of underemployment of the employed was more significant for women than for men. Third, the gaps in 'real wage per day of work' as also in 'real wage earning per employed' between men and women declined quite substantially in most types of wage employment. Fourth, the change in industrial distribution of employment was more favourable for women than for men. The decline in the share of agriculture in total employment, for example, was much larger for women than men. Finally, the average quality of employment improved more for women than for men in both the organized and unorganized segments of most industries.

Somewhat paradoxically, one factor behind the large improvement in women's employment conditions was the decline in poverty-driven participation of women in the labour force. This meant withdrawal of a large number of women from lowest quality jobs, namely, casual employment and unpaid family work in agriculture. While this withdrawal reduced women's employment in absolute terms, it also contributed to improving the employment conditions of those women who remained in employment as also of the women who newly entered the labour force. The decline in poverty-driven

participation is attributable to the decline in poverty, which in turn is attributable to improvement in general employment conditions. This leads to the proposition that the improvement in general employment conditions reduced the gender-based inequality in employment, which in turn contributed to improvement in general employment conditions. Also, since in the period under consideration, rapid economic growth was instrumental in bringing about fairly speedy improvement in general employment conditions, it was also instrumental in reducing gender inequality in employment.

It may be noted, however, that the decline in labour force participation was not the only factor behind the improvement in women's employment conditions. The growth of organized sector employment as also of regular-formal employment was faster for women than for men and was clearly linked to the process of economic growth. Casual employment generated through public works and special employment schemes such as MGNREGA also contributed to reducing the gender inequality in employment by helping lower the female–male differentials in 'wage per day of work' and in 'wage earning per employed' in casual employment.

Despite the reduction, gender inequality in employment remains high. The share of the organized sector in total employment is still lower for women than for men. Outside the organized sector, average quality of women's employment is still lower than that of men's employment. Underemployment is still higher for employed women than for employed men. Women still constitute a large majority of the 'surplus workers'. 'Wage per day of work' is significantly higher for men in all types of wage employment. Further, women's employment is much more concentrated in agriculture than men's employment. Gender inequality in employment has declined but there is still a long way to go before it disappears.

APPENDIX TABLES

TABLE A.3.1 Employment Structure in Production Sectors—Male

	Percentage distribution of persons in employment							
	Organized sector				Unorganized sector			
	Regular-formal	Regular-informal	Casual	Subtotal	Regular-informal	Casual	Self-employed	Subtotal
Agriculture								
1999/2000	0.1	0.1	0.2	0.4	1.8	41.8	56.0	99.6
2011/12	0.1	0.1	0.1	0.3	0.8	35.2	63.7	99.7
Manufacturing								
1999/2000	13.0	9.2	6.3	28.5	18.0	13.7	39.8	71.5
2011/12	13.5	20.7	6.7	40.9	12.0	10.6	36.5	59.1
Construction								
1999/2000	1.4	1.4	8.9	11.6	3.4	65.8	19.2	88.4
2011/12	1.3	2.3	14.3	17.9	1.7	67.6	12.8	82.1
Other industries								
1999/2000	41.4	6.9	13.8	62.1	10.3	24.1	3.4	37.9
2011/12	45.0	12.5	17.5	75.0	5.0	12.5	7.5	25.0
Services								
1999/2000	19.7	4.2	1.1	25.0	18.5	9.6	46.9	75.0
2011/12	19.2	8.1	0.9	28.2	16.2	5.9	49.7	71.8
Economy								
1999/2000	8.0	2.5	1.9	12.4	8.9	30.2	48.5	87.6
2011/12	8.9	5.9	3.3	18.1	7.5	26.2	48.2	81.9

Source: Estimates based on data in Table S.1 in the Statistical Annexe.

TABLE A.3.2 Employment Structure in Production Sectors—Female

	Percentage distribution of persons in employment							
	Organized sector				Unorganized sector			
	Regular-formal	Regular-informal	Casual	Subtotal	Regular-informal	Casual	Self-employed	Subtotal
	6	5	2		4	1	3	
Agriculture								
1999/2000	0.0	0.0	0.2	0.2	1.1	51.5	47.2	99.8
2011/12	0.0	0.0	0.2	0.2	1.0	42.1	56.7	99.8
Manufacturing								
1999/2000	3.6	6.0	7.1	16.7	8.3	8.3	66.7	83.3
2011/12	5.1	8.5	7.6	21.2	5.1	7.6	66.1	78.8
Construction								
1999/2000	0.0	0.0	17.6	17.6	0.0	82.4	0.0	82.4
2011/12	0.0	2.3	20.9	23.2	0.0	74.5	2.3	76.8
Other industries								
1999/2000	25.0	0.0	25.0	50.0	0.0	50.0	0.0	50.0
2011/12	16.7	16.7	16.7	50.1	0.0	33.3	16.6	49.9
Services								
1999/2000	22.7	7.8	0.8	31.3	20.2	10.2	38.3	68.7
2011/12	26.4	17.1	0.5	44.0	21.8	4.7	29.5	56.0
Economy								
1999/2000	3.8	1.7	1.4	6.9	4.7	41.8	46.6	93.1
2011/12	6.8	5.3	2.5	14.6	6.3	30.3	48.8	85.4

Source: Estimates based on data in Table S.1 in the Statistical Annexe.

TABLE A.3.3 Estimates of Surplus Labour (in Million)

Surplus labour	1999/2000		2011/12		2015/16 (Projections)	
	Male	Female	Male	Female	Male	Female
Of the UPS employed	23.0	19.0	18.5	13.8	15.7	12.9
Of the USS employed	1.8	16.1	2.4	20.0	2.7	21.1
Currently surplus workers	*24.8*	*35.1*	*20.9*	*33.8*	*18.4*	*34.0*
Currently UPSS employed	*243.5*	*110.4*	*308.7*	*114.5*	*333.9*	*121.3*
Currently out of labour force but potentially employable	0	18.9	0	45.9	0	51.8
Total surplus workers	24.8	54.0	20.9	79.7	18.4	85.8
Non-student population	257.5	257.1	321.8	320.7	347.2	346.2
Currently surplus workers as percentage of currently employed	*10.2*	*31.8*	*6.8*	*29.5*	*5.5*	*28.0*
Currently surplus workers as percentage of non-student population	*9.6*	*13.7*	*6.5*	*10.5*	*5.3*	*9.8*
Total surplus workers as percentage of non-student population	*9.6*	*21.0*	*6.5*	*24.9*	*5.3*	*24.8*

Source: Estimates based on data in Table S.6 in the Statistical Annexe.

4

Urban–Rural Inequality in Employment

This chapter examines the pattern and evolution of employment conditions of rural and urban workers in a comparative perspective. Two observations need to be made before proceeding with the analysis. First, the terms rural and urban refer to geographical spaces that are continually redefined. Since urbanization accompanies economic development, rural areas get transformed into urban areas over time. This means that the observed time trends incorporate the effect of redefinition of geographical spaces, which is hard to isolate. Second, residents of rural areas may and do work in urban areas just as residents of urban areas may and do work in rural areas. Since the statistical data used in the analysis has been generated through household surveys, they relate to residents of rural and urban areas. Thus, the analysis, strictly speaking, can only be of employment conditions of rural and urban workers and not of employment conditions in rural and urban areas.

LABOUR FORCE CHARACTERISTICS

In 2011/12, rural India accounted for 69 per cent of India's population, 66 per cent of its working-age population, and 68 per cent of its working-age labour force (Table 4.1). Urbanization progressed during 1999/2000–2011/12 but not at breakneck speed. In the twelve-year period between 1999/2000 and 2011/12, the share of rural India in total population declined by 4 percentage points, that in the working-age population also declined by 4 percentage points, and that in working-age labour force fell by 6 percentage points. Simple projections tell us that today (2015/16), rural India remains home to 67 per cent of India's population, 65 per cent of its working-age population and 67 per cent of its working-age labour force (Appendix Table A.4.1).

TABLE 4.1 Rural–Urban Distribution (%) of Population and Labour Force

	1999/2000		2011/12	
	Rural	Urban	Rural	Urban
Population				
Total	72.5	27.5	68.5	31.5
Age group 15–59 years	70.1	29.9	66.0	34.0
Labour force				
Age group 15–59 years	73.8	26.2	67.9	32.1

Source: Appendix Table A.4.1.

Strikingly, the share of urban India in working-age population has been and remains larger than its share in total population. This means that the share of working-age population in total population has been and remains much higher in urban India than in rural India. In 2011/12, this share was 65.3 per cent in urban India

and 58.3 per cent in rural India. This difference could conceivably have emerged in consequence of migration of persons of working age to urban areas in search of jobs. However, the share of urban India in working-age labour force has been and remains significantly lower than its share in the working-age population. This implies a substantially lower labour force participation in urban areas (as will be seen in the following sections). Had there been much migration of persons of working age in search of jobs, the labour force participation should have been higher in urban areas. Thus, the fact that the share of persons of working age in population is higher in urban areas than in rural areas seems to reflect primarily the differences in demographic trends and perhaps also the effect of some migration of persons of working age for reasons of education and marriage.

That the labour force participation of working-age population is lower in urban areas is explicitly shown by the data in Table 4.2. Two other noteworthy facts also emerge from this data. First, it is the labour force participation of working-age women that has been and remains significantly lower in urban India than in rural India; the labour force participation of working-age men (excluding those attending educational institutions) has been and remains quite similar in rural and urban areas. Second, between 1999/2000 and 2011/12, the labour force participation rate of rural working-age women declined quite sharply, while the participation rate of urban working-age women remained stable. Thus, the decline in the overall labour force participation of working-age women was entirely due to the decline in participation of rural women. This fact is consistent with and adds strength to the argument (presented in the preceding chapters) that the decline in overall female labour force participation during the period 1999/20000–2011/12 is explained by a sharp decline in poverty-driven participation of women from poor households, which existed basically in rural India.

Despite the decline, however, the labour force participation of rural working-age women remains much higher than that of the urban working-age women. Why is this so?

The labour force participation of urban women, it turns out, is lower than that of rural women for each level of education (Table 4.3). But the distribution of rural female labour force by level of education is also very different from that of the urban female labour force; the share of the educated in total labour force is much higher in urban areas than in rural areas (Table 4.4). This means that given the U-shaped pattern of female labour force participation by level of education in both rural and urban areas, the overall participation of rural women would be higher than that of urban women even if the participation of both were to be the same for each level of education.

The labour force participation of urban women is also lower than that of rural women for each decide group of consumption expenditure (Table 4.5). However, for each decile group of consumption expenditure, the average per capita expenditure is higher in urban than in rural areas. This shows up in the fact that the incidence of poverty among households of female labour force participants has been and remains much higher in rural areas than in urban areas. In 2011/12, 27 per cent of the female labour

TABLE 4.2 LFPR (%) of the Working-Age Population

	1999/2000		2011/12	
With reference to:	Rural	Urban	Rural	Urban
Total working-age population				
Male	87.4	82.1	82.7	80.5
Female	37.6	19.1	27.1	19.3
Person	62.8	52.2	55.6	50.9
Non-student working-age population				
Male	96.7	95.9	97.5	97.1
Female	39.5	21.5	30.1	22.4
Person	67.8	60.0	63.6	60.3

Source: Estimates based on data in Appendix Table A.4.2.

TABLE 4.3 LFPR (%) of Non-student Working-Age Women by Level of Education (for Non-student Population)

	1999/2000		2011/12	
	Rural	Urban	Rural	Urban
Not literate	44.3	25.9	33.8	24.1
Below primary	34.1	19.8	28.2	23.8
Primary	32.2	15.1	28.0	20.3
Middle	25.7	14.0	23.7	16.8
Secondary	26.6	15.6	24.3	13.5
Higher secondary	25.5	20.5	22.6	16.4
Tertiary	46.7	34.3	40.8	36.7

Source: Estimates based on data in Table S.5 in the Statistical Annexe.

force participants in rural areas belonged to very poor households, while only 14 per cent of the female labour force participants in urban areas did (Appendix Table A.4.3). It follows that the overall labour force participation of rural women would be higher than that of urban women even if the participation of both were to be the same for each decile group of consumption expenditure.

Thus the answer to the question is in two parts. First, it is easier for women to work in rural areas where the scope for self-employment and casual wage employment is much larger. This explains why the participation of rural women is higher than that of urban women for each education level as also for each expenditure level. Second, rural women are, on average, less educated and poorer than urban women are and hence have a higher overall level of labour force participation.

Finally, it is to be noted that during 1999/2000–2011/12, the level of education of the rural labour force showed larger increase than that of the urban labour force (Table 4.5). The 'percentage with up to primary education' declined by 13 percentage points for the rural workers and by 9 percentage points for urban workers. This difference, however, reflects in part the consequence of the very sharp decline in labour force participation of the less educated women in rural areas. This is clear from the fact that the increase in the level of education of the rural non-student population was only a little higher than that of the urban non-student population; the 'percentage with up to primary education' declined by 12 percentage points for rural non-student population and by 10 percentage points for urban non-student population.

The incidence of poverty among rural workers' households also recorded a greater decline than that among urban workers' households (Appendix Table A.4.3). It declined from 53 per cent to 29 per cent in rural areas and from 29 per cent to 15 per cent in urban areas. This

TABLE 4.4 Level of Education of the Working-Age Labour Force and Non-student Population

	1999/2000		2011/12	
	Rural	Urban	Rural	Urban
Labour force				
Average years of education	3.7	7.5	5.2	8.8
Percentage not literate	49.0	20.1	32.4	13.1
Percentage with up to primary education	71.5	39.5	58.3	31.0
Percentage with above primary education	28.5	60.5	41.7	69.0
Percentage with tertiary education	3.0	17.6	6.1	26.8
Non-student population				
Average years of education	3.3	6.9	4.8	8.3
Percentage not literate	52.4	24.2	37.0	16.6
Percentage with up to primary education	74.2	44.5	62.3	34.8
Percentage with above primary education	25.8	55.5	37.7	65.2
Percentage with tertiary education	2.3	14.3	4.8	22.1

Source: Estimates based on data in Table S.5 in the Statistical Annexe.
Note: The method of estimation of 'average years of education' is described in Box 1.4 (Chapter 1).

TABLE 4.5 LFPR (%) of Non-student Working-Age Women and Consumption Expenditure per Capita by Decile Group of Consumption Expenditure

	Labour force participation				UCEPC/RCEPC	
	1999/2000		2011/12		1999/2000	2011/12
	Rural	Urban	Rural	Urban		
Decile group						
First	51.0	29.2	30.1	23.2	1.33	1.39
Second	47.5	24.0	28.6	20.2	1.39	1.43
Third	42.6	23.4	23.9	24.0	1.44	1.49
Fourth	42.7	22.3	28.5	21.9	1.49	1.55
Fifth	40.9	18.9	28.5	20.0	1.54	1.61
Sixth	39.0	18.9	31.1	21.6	1.60	1.69
Seventh	37.7	17.8	30.5	20.9	1.68	1.76
Eighth	35.7	17.5	34.3	21.9	1.77	1.85
Ninth	33.8	18.8	33.2	22.1	1.89	1.96
Tenth	28.0	25.1	30.5	27.7	2.12	2.34

Source: Author's estimates based on unit-level data from NSSO *Survey of Employment and Unemployment* (55th and 68th Rounds).
Note: UCEPC = urban consumption expenditure per capita; RCEPC = rural consumption expenditure per capita.

is consistent with the fact that the labour force participation of women from low-income households in rural areas fell sharply.

Clearly, however, the average level of education of the rural labour force still remains much lower than that of the urban labour force. Also, the incidence of poverty among workers' households also remains much higher in rural areas than in urban areas. These two facts are interrelated. As seen in Chapter 2, the level of education of workers determines the type of employment to which they have access and hence to the level of income they can earn from work.

TRENDS IN EMPLOYMENT AND UNEMPLOYMENT

In India's economy, employment growth is no different from labour force growth because most people must work to survive and only the 'young and educated' can afford to remain unemployed for a period. These are the reasons why employment growth or change in unemployment rate do not reveal much about change in employment conditions.

During 1999/2000–2011/12, the growth of employment was slightly slower than the labour force growth in rural areas and slightly faster than the labour force growth in urban areas (Figure 4.1). This reflects the divergent trends in unemployment rate, which increased a little in rural areas and declined a little in urban areas (Figure 4.2). Why did unemployment show such divergent trends?

In both rural and urban areas, the unemployed are 'young and educated' and unemployment reflects queuing for jobs in the organized sector. The rate of unemployment is very high among the youth (persons aged between 15 and 24 years) but becomes insignificant for persons in the age group 30–59 years (Table 4.6). Moreover, the unemployment rate is insignificant for all persons with little or no education, rises steadily with the level of education, and is high for persons with tertiary education (Table 4.7). It is also the case that in both rural and urban areas, the unemployment rate for the 'educated' was lower in 2011/12 than in 1999/2000. Why, then, did the average unemployment rate rise in rural India and fall in urban India?

The answer lies in the differential changes in the educational profile of the labour force in rural and urban areas. Between 1999/2000 and 2011/12, the share of those with above-primary education in the labour force increased by 13 percentage points in rural India, and by less than 9 percentage points in urban India. These changes were sufficient to produce the observed out-

FIGURE 4.1 Growth of Labour Force and Employment, 1999/2000–2011/12

Source of data: Estimates based on data in Table S.6 in the Statistical Annexe.

FIGURE 4.2 Unemployment Rate (%)

Source of data: Estimates based on data in Table S.6 in the Statistical Annexe.

TABLE 4.6 Unemployment Rate (%) by Age Group (Years)

Age group	1999/2000		2011/12	
	Rural	Urban	Rural	Urban
15–24	5.9	15.5	8.7	14.0
25–29	3.1	8.5	3.5	6.0
30–59	0.1	1.1	0.3	0.8

Source: Estimates based on data in Table S.6 in the Statistical Annexe.

comes, that is, the average unemployment rate rising in rural areas and falling in urban areas.

Incidentally, the same factors also explain why the average unemployment rate is higher in urban than in rural areas. In 2011/12, the unemployment rate of those with up to primary education was 0.9 per cent in rural areas and 1.7 per cent in urban areas, and the unemployment rate of those with above-primary education was

TABLE 4.7 Unemployment Rate (%) and Share (%) in Labour Force by Level of Education

Level of education	Unemployment rate				Share (%) in labour force			
	1999/2000		2011/12		1999/2000		2011/12	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Not literate	0.3	1.2	0.6	0.9	49	20.1	32.4	13
Below primary	0.8	2.5	1.1	2.9	10.5	7.9	11.5	6.9
Primary	1.5	3.6	1.6	1.9	12.0	11.5	14.4	11.0
Middle	3.3	6.5	2.5	2.7	13.9	17.5	17.8	16.6
Secondary	6.4	6.4	3.6	3.1	8.0	16.0	11.8	15.0
Higher secondary	9.1	9.7	5.7	5.8	3.6	9.4	6.0	10.7
Tertiary	14.0	8.6	11.5	7.3	3.0	17.6	6.1	26.8
Up to primary	0.6	2.2	0.9	1.7	71.5	39.5	58.3	30.9
Above primary	6.0	7.6	4.6	5.1	28.5	60.5	41.7	69.1

Source: Estimates based on data in Table S.5 in the Statistical Annexe.

4.6 per cent in rural areas and 5.1 per cent in urban areas. The unemployment rate of those with tertiary education was actually higher in rural areas (11.5 per cent) than in urban areas (7.3 per cent). Yet the average rate of unemployment was significantly higher in urban areas (4 per cent) than in rural areas (2.5 per cent). The reason is that the share of persons with above-primary education in the labour force was much higher in urban areas (69 per cent) than in rural areas (42 per cent). Also, the share of persons with tertiary education in the labour force was also much higher in urban areas (27 per cent) than in rural areas (6 per cent).

What does all this say about the celebrated Harris-Todaro model (Harris and Todaro 1970), which seeks to explain the high unemployment rate in urban areas of developing economies as the result of rural–urban migration induced by the prevalence of higher wage in urban areas? That it simply is not relevant here. In India, wages in urban areas are much higher than those in rural areas but the urban unemployment rate is not that much higher than the rural unemployment rate. The somewhat higher urban unemployment rate is easily explained by the difference in the educational profiles of the rural and urban labour forces.

CHANGES IN EMPLOYMENT STRUCTURE

The average quality of employment, as shown by the structure of employment, has been and remains much better for urban workers than for rural workers (Table 4.8). In 2011/12, more than 34 per cent of the urban workers were employed in the organized sector compared to less than 10 per cent of the rural workers, and 19 per cent of the urban workers were in regular-formal employment compared to less than 4 per cent of the rural workers. Economy-wide, a majority (more than 52 per cent) of the rural workers were in self-employment while a majority of the urban workers (nearly 60 per cent) were in wage employment. The quality of wage employment was also much better for urban workers than for rural workers; more than 78 per cent of the rural wage workers were in casual wage employment while 76 per cent of the urban wage workers were in regular wage employment.

The change in the structure of employment during 1999/2000–2011/12, however, was quite similar for both rural and urban workers. For both, the share of the organized sector in total employment increased as did the share of regular-formal employment in total employment. For both, the average quality of employment in the organized sector deteriorated slightly because 'informal' employment (regular-informal and casual employment) increased faster than regular-formal employment. Also, for both, the average quality of employment in the unorganized sector improved because the share of casual employment in total employment declined.

These characteristics and trends are more easily seen from the estimates of the employment structure index (Table 4.9; Figure 4.3) which show that the average

TABLE 4.8 Structure of Employment (Rural and Urban)

Structure of employment	Growth (% per annum)		Percentage distribution			
	1999/2000–2011/12		1999/2000		2011/12	
	Rural	Urban	Rural	Urban	Rural	Urban
Organized sector	*5.6*	*5.4*	*5.4*	*27.2*	*9.5*	*34.4*
Regular-formal employees	3.1	3.4	2.7	18.8	3.6	19.0
Regular-informal employees	7.7	10.1	1.3	5.7	2.7	12.3
Casual employees	7.8	4.6	1.4	2.7	3.2	3.1
Unorganized sector	*0.4*	*2.5*	*94.6*	*72.8*	*90.5*	*65.6*
Regular-informal employees	0.4	1.5	4.2	18.2	4.0	14.6
Casual employees	–0.4	0.9	39.3	15.4	34.2	11.5
Self-employed	0.9	3.4	51.1	39.2	52.3	39.5
Economy	*0.7*	*3.3*	100.0	100.0	100.0	100.0
Regular formal employees	3.1	3.4	2.7	18.8	3.6	19.0
Regular informal employees	2.6	4.3	5.5	23.9	6.7	26.9
Casual employees	0.0	1.6	40.7	18.1	37.4	14.6
Self-employed	0.9	3.4	51.1	39.2	52.3	39.5

Source: Estimates based on data in Appendix Table A.4.4.

quality of employment is generally better for the urban workers. They also show that, for both rural and urban workers, the structure of employment worsened in the organized sector but improved in the unorganized sector. They indicate, moreover, that the overall employment conditions improved for both rural and urban workers and there was no growth of inequality, in terms of employment structure, between them.

TABLE 4.9 The Employment Structure Index

Employment structure	1999/2000		2011/12	
	Rural	Urban	Rural	Urban
Organized sector	4.72	5.39	4.37	5.28
Unorganized sector	2.21	2.83	2.29	2.87
Economy	2.35	3.53	2.49	3.70

Source: Estimates based on data in Table 4.8.

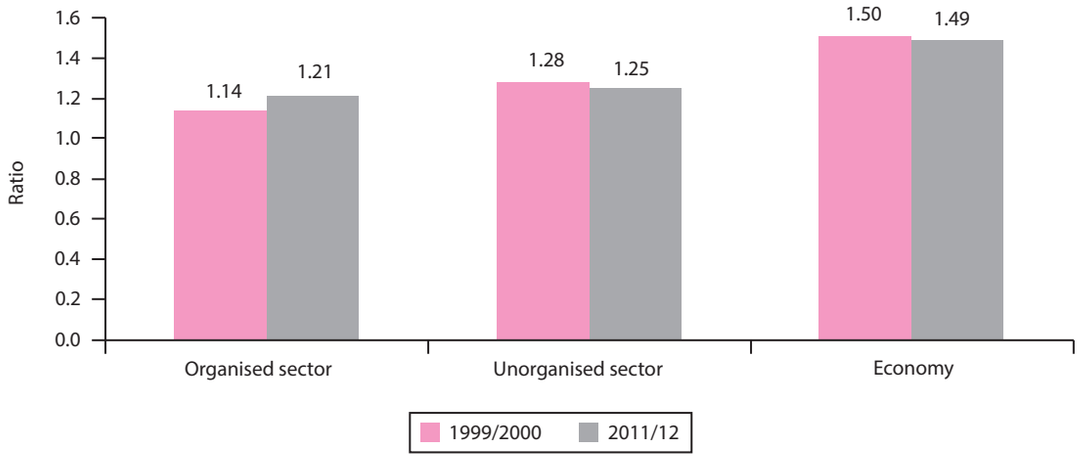

FIGURE 4.3 Ratio of Employment Structure Index for Urban Workers to That for Rural Workers

Source of data: Estimates based on data in Table 4.9.

UNDEREMPLOYMENT OF THE EMPLOYED

A striking fact about underemployment of the employed is that its magnitude is no higher among rural workers than among urban workers. The overall rate of underemployment is observed to have been slightly higher for rural workers than for urban workers in both 1999/2000 and 2011/12 (Table 4.10). But this reflected the difference in the distribution of employment by type between the rural and the urban workers rather than differences in underemployment in any given type of employment. Indeed, for any particular category of employed, the rate of underemployment has been and remains quite similar for rural and urban workers. Thus underemployment has been and remains high for casual employees in both rural and urban areas, and it has been and remains low for regular employees in both rural and urban areas. However, casual employment accounted for a much larger share of total employment for rural workers than for urban workers, while regular employees (formal and informal) accounted for a much larger share of total employment for urban workers.

The trends in underemployment have also been remarkably similar for rural and urban workers. The rate of underemployment of casual employees declined between 1999/2000 and 2011/12 but remained high in both rural and urban areas. During the same period, the incidence of part-time employment declined for regular employees (formal and informal), rural and urban. For the self-employed, too, all the three indicators show declining trends in underemployment in both rural and urban areas.

These features are readily seen from the estimates of the composite indicator of underemployment (Table 4.11). Three things are evident. First, between 1999/2000 and 2011/12, underemployment declined for all categories of employed, rural and urban. Second, underemployment remained high for casual employees and significant for the self-employed in both rural and urban areas. Third, in 2011/12, only in the case of the self-employed was rural underemployment higher than urban under employment. Yet the overall underemployment of rural workers was very much higher than the underemployment of urban workers (Figure 4.4, which show the simple averages for *Estimate A* and *Estimate B* in Table 4.11).

TABLE 4.10 Underemployment of the Employed–I

Underemployment	Rate of underemployment (%)		Days not worked as percentage of days in employment		Days out of labour force as percentage of days available	
	Rural	Urban	Rural	Urban	Rural	Urban
Regular-formal employees						
1999/2000	0.2	0.3	7.5	8.0	1.2	1.1
2011/12	0.0	0.8	1.1	1.3	0.2	0.1
Regular-informal employees						
1999/2000	1.2	1.0	5.1	6.6	2.4	1.6
2011/12	0.5	0.7	2.8	2.2	0.5	0.2
Casual employees						
1999/2000	11.4	10.3	2.4	2.3	11.0	9.4
2011/12	8.7	9.1	0.7	0.5	8.7	7.7
Self-employed						
1999/2000	1.9	1.5	3.1	4.5	6.1	3.6
2011/12	1.1	0.6	2.6	3.0	4.3	1.6
All employed						
1999/2000	5.5	2.6	3.1	5.4	7.8	3.7
2011/12	3.7	1.7	1.9	2.1	5.5	1.9

Source: Estimates based on data in Appendix Table A.4.5.

TABLE 4.11 Underemployment of the Employed–II (Days Not Worked as Percentage of Days Available)

Rate (%) of underemployment	1999/2000		2011/12	
	Rural	Urban	Rural	Urban
Estimate A				
Regular-formal employees	8.8	9.3	1.2	1.5
Regular-informal employees	8.5	9.0	3.7	3.0
Casual employees	23.1	20.6	17.3	16.5
Self-employed	10.7	9.3	7.7	5.2
All employed	15.6	11.3	10.8	5.6
Estimate B				
Regular-formal employees	1.3	1.4	0.2	0.2
Regular-informal employees	3.6	2.6	1.0	0.9
Casual employees	21.2	18.7	16.7	16.1
Self-employed	7.9	5.0	5.3	2.2
All employed	12.9	6.2	9.1	3.5

Source: Estimates based on data in Appendix Table A.4.5.
Note: Estimate A includes 'days not worked though in employment' in 'days not worked'; estimate B excludes them.

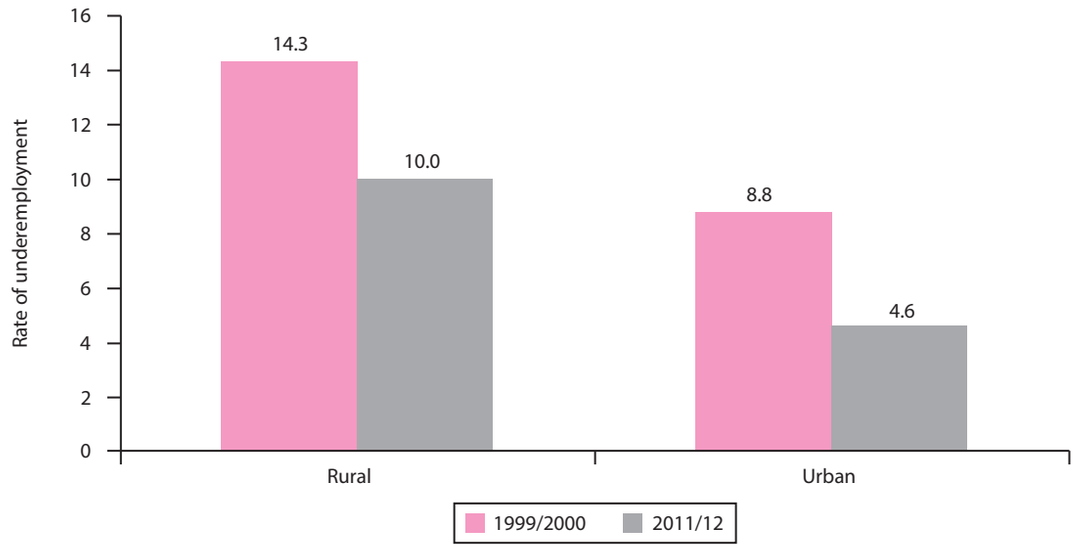

FIGURE 4.4 Average Rate (%) of Underemployment of the Employed

Source of data: Table 4.11.

This is explained by the difference, between rural and urban workers, in the distribution of employment by type; the shares of casual employees and self-employed in total workforce were much higher in rural areas than in urban areas.

WAGE RATES AND WAGE EARNINGS

The pattern of variation of wage per day of work across employee categories has been and remains exactly the same for rural and urban employees, the wage per day

of work being highest for regular-formal employees in the organized sector and lowest for casual employees in the unorganized sector (Table 4.12). In each type of employment, the wage per day of work has been, and remains, consistently higher for an urban employee than for a rural employee. Urban–rural wage gaps have always existed and still exist. Besides, the average urban–rural wage gap has always been larger than the gap for any of the individual categories of employees. The explanation lies in the difference between rural and urban workers in terms of employment structure; a much larger proportion of the rural workforce has been and remains in lower wage jobs.

However, the average urban–rural wage gap declined between 1999/2000 and 2011/12, but not for all types of employees. The wage gap increased in the case of regular employees (formal and informal) in the organized sector, declined for casual employees in the organized sector and for all employees in the unorganized sector. Given that the unorganized sector employs many more of the rural and urban workers than does the organized sector, the average urban–rural wage gap declined quite significantly despite the rise in the wage gaps for regular employees in the organized sector.

The picture gets clearer when real wage growth for different types of employees is considered (Table 4.13). The pattern of wage growth was remarkably similar for rural and urban workers. Real wage growth was significant for two types of employees: regular-formal employees in the organized sector and casual employees in both organized and unorganized sectors. These trends were noted in Chapter 2. Two other facts are seen here: in the case of the regular-formal employees, real wage growth was faster for urban workers than for rural workers, while

TABLE 4.12 Money Wage (in Rs) per Day of Work

Employment structure	Rural person	Urban person	Rural person	Urban person	Ratio: urban/rural	
	1999/2000	2011/12	1999/2000	2011/12	1999/2000	2011/12
Organized sector	*131*	*196*	*315*	*532*	*1.50*	*1.69*
Regular-formal employees	183	237	533	746	*1.30*	*1.40*
Regular-informal employees	88	111	181	293	*1.26*	*1.62*
Casual employees	50	67	156	166	*1.34*	*1.06*
Unorganized sector	*40*	*78*	*133*	*182*	*1.95*	*1.37*
Regular-informal employees	80	95	168	192	*1.19*	*1.14*
Casual employees	35	54	128	168	*1.54*	*1.31*
All employees	51	132	172	392	2.59	2.28

Source: Table S.5 in the Statistical Annexe.

TABLE 4.13 Growth (% per Annum) of Real Wage and Real Earning, 1999/2000–2011/12

	Real wage per day of work		Real wage earning per employee	
	Rural	Urban	Rural	Urban
Organized sector	1.2	2.3	1.8	2.7
Regular-formal employees	2.7	3.4	3.4	3.8
Regular-informal employees	–0.2	1.6	0.6	2.1
Casual employees	3.9	1.5	4.7	2.3
Unorganized sector	4.1	0.9	5.1	1.0
Regular-informal employees	–1.1	–0.4	–0.8	–0.2
Casual employees	5.0	3.5	6.1	3.5
All employees	4.2	3.1	5.2	3.4

Source: Estimates based on data in Appendix Table A.4.6 and Table S.5 in the Statistical Annexe.

in the case of the casual employees, real wage growth was faster for rural workers than for urban workers. In other words, the urban–rural wage gap widened for regular-formal employees and narrowed for casual employees. The widening of the urban–rural wage gap among regular-formal employees most likely reflects the widening of the urban–rural gap in education level; the urban–rural gap in 'average years of education' increased from 1.0 in 1999/2000 to 1.3 in 2011/12. The explanation for the narrowing of the wage gap in the case of casual employees is a little more complex. As observed earlier (Chapter 2), the real wage growth for casual employees was driven mainly by the growth of labour productivity in self-employment and to a lesser extent by the expansion of public works and special employment schemes. On both counts, the wage growth may be expected to be more significant for rural workers than for urban workers. Around 75 per cent of self-employed are in rural areas. Further, most of the workdays of casual employment generated through public works and MGNREGA schemes are generated in rural areas. In 2011/12, for example, more than 94 per cent of such workdays were generated in rural areas.

The real wage-earning per employee, it should be noted, grew faster than the real wage per day of work for all employees. The reason is that the number of workdays increased faster than the number of employees so that the number of workdays per employee increased in all types of employment (Appendix Table A.4.5). Moreover, the increase in the number of workdays per employee was larger for rural workers than for urban workers in virtually all types of employment (the exception is casual employment in the organized sector where the growth in the number of workdays per employee was the same for both rural and urban workers). Consequently, the urban–rural gap in earning per employee declined more significantly than the urban–rural gap in wage per day of work.

INDUSTRIAL DISTRIBUTION OF EMPLOYMENT

The industrial distribution of employment for the rural workforce has been and remains very different from that for the urban workforce (Table 4.14). Agriculture is by far the largest employer of rural workers while services provide most of the jobs for the urban workers. In 2011/12, 61 per cent of rural workers were employed in agriculture, while 59 per cent of urban workers were employed in services. Manufacturing is a far more important employer for urban workers than for rural workers; in 2011/12, 24 per cent of urban workers were employed in manufacturing compared to only 9 per cent of rural workers.

The change in the industrial distribution of employment between 1999/2000 and 2011/12, however, was far more significant for rural workers than for urban workers. In fact, the industrial distribution of employment may be said to have remained rather stable for the urban workforce; there were small declines in the shares of agriculture and services in total urban employment and small increases in the shares of manufacturing and construction. For rural workers, there was a large decline in the share of agriculture in total employment, from 74 per cent in 1999/2000 to 61 per cent in 2011/12. The number of rural workers employed in agriculture

TABLE 4.14 Industrial Distribution of Employment (Rural and Urban)

Industries	Employment growth		Percentage distribution of employment			
	1999/2000–2011/12		1999/2000		2011/12	
	Rural	Urban	Rural	Urban	Rural	Urban
Agriculture	–0.8	0.9	74.1	7.5	61.2	5.5
Manufacturing	2.1	3.7	7.4	22.5	8.8	23.7
Construction	10.7	4.6	3.8	8.4	11.8	9.7
Other industries	1.4	4.7	0.8	1.6	0.8	1.9
Services	2.6	3.2	13.9	60.0	17.4	59.2
Total	0.7	3.3	100.0	100.0	100.0	100.0

Source: Estimates based on data in Appendix Table A.4.4.

declined in absolute terms (by 0.8 per cent). Employment growth for the rural workers, however, occurred mainly in construction and to a lesser extent in services but not so much in manufacturing. The share of construction in rural employment showed spectacular increase, from less than 4 per cent in 1999/2000 to nearly 12 per cent in 2011/12, while the share of services showed moderate increase, from about 14 per cent in 1999/2000 to over 17 per cent in 2011/12.

At the core of the change in the industrial distribution of employment of the rural workforce was the movement, in large numbers, of casual workers from employment in agriculture to employment in construction (Table 4.15). The number of casual employees in agriculture declined by about 21 million, while their number in construction increased by more than 20 million. This does not mean that around 20 million rural workers transferred themselves from agriculture to construction. As already noted in Chapter 3, many female casual employees withdrew not just from employment in agriculture but from the labour force itself. The number of female casual employees in agriculture declined by about 12 million, while the number in construction increased by just over 2 million. The number of male casual employees declined by around 9 million in agriculture and increased by around 21 million in construction. Some withdrew from the labour force, some moved from agriculture to construction, while others were new entrants who went into construction rather than into agriculture. The 'movement' is the sum of these three changes. The movement of casual workers lay behind the sharp decline in the share of agriculture in total rural employment and the sharp rise in the share of construction. The movement also resulted in increasing the dominance of self-employment in agriculture and of casual employment in construction. The share of self-employment in total agricultural employment increased from 53 per cent in 1999/2000 to 62 per cent in 2011/12, while the share of casual employment in total employment in construction increased from 81 per cent in 1999/2000 to 89 per cent in 2011/12.

What inspired such large movement of rural casual workers from agriculture to construction? One reason is that economic growth has been construction intensive. During 1999/2000–2011/12, a GDP growth of 7.3 per cent per annum was associated with a growth of 14 per cent per annum for construction. Construction has always been casual-labour intensive so that such rapid growth naturally generated very rapid growth of demand for casual labour. This period also witnessed large expansion of public works and special employment schemes (under MGNREGA), which too contributed to the growth of construction and increased casual employment in construction. Between 1999/2000 and 2011/12, days of casual employment in construction increased by 11.4 per cent per annum. Further, the share of the days of casual employment in public works and special employment schemes in total days of casual employment in construction increased from 6.4 per cent in 1999/2000 to 17 per cent in 2011/12.

The other reason is that rural casual workers (and the new entrants) had much to gain by moving from employment in agriculture to employment in construction as the wage per day of work was significantly higher in construction than in agriculture (Table 4.16). For casual workers, the wage per day in construction was higher not

TABLE 4.15 Change in Employment of Rural Workers by Industry, 1999/2000–2011/12 (in Million)

Industries	Change in			
	Total employment	Casual employment	Self-employment	Regular employment
Agriculture	–17.6	–20.7	4.5	–1.4
Manufacturing	5.2	1.1	1.4	2.7
Construction	22.1	20.3	1.3	0.5
Other industries	0.3	0.1	0.0	0.2
Services	12.3	–0.4	7.0	5.7
Total	22.3	0.4	14.2	7.7

Source: Estimates based on data in Appendix Table A.4.4.

only than that in agriculture but also than that in manufacturing or services.

TABLE 4.16 Nominal Wage per Day of Work in Casual Employment (Rural Workers)

Industries	Nominal wage, indexed wage in agriculture = 100		Growth (% per annum)
	1999/2000	2011/12	1999/2000–2011/12
Agriculture	100	100	11.2
Manufacturing	155	134	9.9
Construction	177	144	9.3
Other industries	171	131	8.7
Services	158	144	10.4

Source: Estimates based on data in Table S.5 in the Statistical Annexe.

Interestingly, for rural casual workers, the wage gap between construction and agriculture declined during the period. The wage in agriculture recorded the fastest growth. The rapid growth of jobs in construction, by inducing the 'exodus' of casual workers from agriculture, did stimulate wage growth in agriculture. Thus, the expansion of public works and special employment schemes did contribute to wage growth in agriculture as some analysts have argued (Gulati, Jain, and Satija 2013). It should be noted, however, that a large movement of rural casual workers from employment in agriculture to employment in construction would have occurred (so that substantial growth of casual wage in agriculture would also have occurred) even if there had been no expansion of public works and special employment schemes. The high growth of construction reflected the high growth of the economy. Days of casual employment in construction, excluding the days generated in public works and special employment schemes, increased by 10.2 per cent per annum during 1999/2000–2011/12.

SURPLUS LABOUR

Surplus labour, to recapitulate, is the amount of labour that is available from surplus workers for productive employment. Surplus workers may be defined in two possible ways. The 'currently surplus workers' constitute a fraction of the workers who are currently in employment but are not working full time. The 'total surplus workers' include not just the 'currently surplus workers' but also those persons who are currently not in the labour force but can be expected to enter the labour force if and when opportunities for appropriate employment become available. In India, as already noted, the potentially available workers are all female.

The estimates of surplus labour presented in Table 4.17 indicate two things. First, most of the 'currently surplus workers' are in rural areas while most of the 'currently out of labour force but potentially employable' persons are in urban areas. In 2011/12, 84 per cent of the 'currently surplus workers' were to be found in rural areas, and 62 per cent of the 'currently out of labour force but potentially employable' persons were to be found in urban areas. These proportions (according to the projections) are, respectively, 85 per cent and 61 per cent. These reflect the fact that underemployment is higher in rural areas and that labour force participation is lower in urban areas. Second, while the incidence of 'currently surplus' labour showed a declining trend in both rural and urban areas, the incidence of 'potentially employable' labour showed a rising trend in rural areas and a slightly declining trend in urban areas. The first of the trends reflects the declining underemployment in both rural and urban areas; the second reflects the declining labour force participation in rural areas but relatively stable labour force participation in urban areas. (See also Box 4.1 for estimates of surplus labour in 2013/14)

* * *

Employment conditions improved for both rural and urban workers during 1999/2000–2011/12. For both groups, the share of regular-formal employment in total employment increased and so did the share of organized sector employment in total employment. The share of casual employment in total employment, on the other hand, declined for both. So did underemployment of the employed. Real wage per day of work increased for both groups and so did real wage earning per employee. The industrial distribution of employment changed for the better for the rural workforce, while it remained rather stable for the urban workforce.

The urban–rural inequality in employment declined, though only mildly. While the average quality of employment improved in equal measure for the two groups of

TABLE 4.17 Estimates of Surplus Labour

Surplus labour	1990/2000		2011/12		2015/16 (Projections)	
	Rural	Urban	Rural	Urban	Rural	Urban
Of the currently employed (according to UPS)	34.7	7.3	26.6	5.7	24.1	4.5
Of the currently employed (according to USS)	15.8	2.1	19.4	3.0	20.4	3.4
Currently surplus workers	*50.5*	*9.4*	*46.0*	*8.7*	*44.5*	*7.9*
Currently UPSS employed	*267.4*	*86.5*	*295.0*	*128.2*	*310.8*	*144.4*
Currently out of labour force but potentially employable	0.0	18.9	18.9	27.0	20.4	31.5
Total surplus workers	50.5	28.3	64.9	35.7	64.9	39.4
Non-student population	367.4	147.2	428.9	213.6	451.6	241.8
Currently surplus workers as percentage of currently employed	*18.9*	*10.9*	*15.6*	*6.8*	*14.3*	*5.5*
Currently surplus workers as percentage of non-student population	*13.7*	*6.4*	*10.7*	*4.1*	*9.9*	*3.3*
Total surplus workers as percentage of non-student population	*13.7*	*19.2*	*15.1*	*16.7*	*14.4*	*16.3*

Source: Estimates based on data in Appendix Table A.4.5 and Table S.6 in the Statistical Annexe.
Note: The method of estimation is described in Box 2.5 (Chapter 2).

Box 4.1 Estimates of Surplus Labour in 2013/14

Using a different methodology and a different data source, namely, the *Survey of Employment and Unemployment* conducted by the Labour Bureau (Ministry of Labour and Employment, Government of India), estimates of currently surplus workers in rural and urban areas for the year 2013/14 (Appendix Table A.4.7) have been obtained. The methodology involves estimation of the difference between the number actually employed (according to UPSS) and the number that would have been employed had everyone worked for 12 months in a year.

According to these estimates, there were, in 2013/14, 46 million currently surplus workers (constituting 14 per cent of the total employed) in rural areas and 8 million currently surplus workers (constituting less than 6 per cent of the total employed) in urban areas. Thus 85 per cent of currently surplus workers were to be found in rural areas. These numbers are close to the numbers reported in Table 4.17.

The estimates for 2013/14 also show that, in rural areas, nearly 50 per cent of the currently surplus workers are to be found among the self-employed, another 46 per cent among casual employees while, in urban areas, 47 per cent of the currently surplus workers are to be found among casual employees and another 39 per cent among the self-employed.

workers and underemployment too declined in equal measure, the average wage earning per employee recorded a larger increase for rural workers.

Despite the decline, the urban–rural inequality in employment remains large. Much larger sections of urban workers are in regular-formal employment and in organized sector employment, and a much smaller section of urban workers is in casual employment. In short, the average quality of employment of urban workers is much better than that of rural workers. The extent of underemployment of the employed, particularly among casual employees and the self-employed, is significantly higher for rural workers, and the average wage of an urban employee is still more than double that of a rural employee.

APPENDIX TABLES

TABLE A.4.1 Rural–Urban Distribution (%) of Population and Labour Force

	1999/2000		2011/12		2015/16 (Projections)	
	Rural	Urban	Rural	Urban	Rural	Urban
Population						
Total	72.5	27.5	68.5	31.5	67.1	33.0
Age group 15–59 years	70.1	29.9	66.0	34.0	64.6	35.4
Labour force						
Age group 15–59 years	73.8	26.2	67.9	32.1	66.5	33.5

Source: Estimates based on data in Table S.6 in the Statistical Annexe.

Note: The assumptions used to derive the projections for 2015/16 are: (i) the rates of growth of population in rural and urban India during 2011/12–2015/16 are the same as those observed during 1999/2000–2011/12; (ii) the rate of growth of working-age population in rural and urban India during 2011/12–2015/16 are the same as those observed during 1999/2000–2011/12; and (iii) the labour force participation rates of the working-age population in rural and urban India in 2015/16 are the same as those observed in 2011/12.

TABLE A.4.2 Population, Labour Force and Workforce (Persons of Working Age, Numbers in Million)

	Population	Non-student population	Labour force (UPS)	Labour force (UPSS)	Workforce (UPS)	Work force (UPSS)
1999/2000						
Rural						
Male	200.9	181.4	175.5	177.1	171.5	173.7
Female	195.5	186	73.5	94.7	72.3	93.7
Persons	396.4	367.4	249	271.8	243.8	267.4
Urban						
Male	88.9	76.1	73	73.3	69.3	69.8
Female	80.3	71.1	15.3	17.8	14.1	16.7
Persons	169.2	147.2	88.3	91.1	83.4	86.5
2011/12						
Rural						
Male	251.4	213.3	207.9	210	203.2	206.1
Female	239.4	215.6	64.8	90.5	62.8	88.9
Persons	490.8	428.9	272.7	300.5	266	295
Urban						
Male	130.8	108.5	105.3	105.9	101.8	102.6
Female	122	105.1	23.5	27.1	21.9	25.6
Persons	252.5	213.6	128.8	133	123.7	128.2

Source: Table S.6 in the Statistical Annexe.

TABLE A.4.3 Incidence of Poverty among Households of Persons in the Labour Force

	Rural male	Rural female	Rural person	Urban male	Urban female	Urban person
1999/2000						
Employed	50.7	58.5	53.0	27.8	37.0	29.4
Unemployed	41.8	27.3	38.4	29.7	18.9	27.2
Labour force	50.5	57.9	52.7	27.9	35.7	29.2
2011/12						
Employed	29.2	27.4	28.8	14.5	15.1	14.6
Unemployed	28.5	18.1	25.4	12.8	9.5	11.7
Labour force	29.2	27.1	28.7	14.4	14.7	14.5

Source: Author's estimates based on unit-level data from NSSO *Surveys of Employment and Unemployment* (55th and 68th Rounds).

TABLE A.4.4 Persons of Working Age in Employment (According to UPS) (in Thousand)

			Regular formal	Regular informal	Casual	Organized sector	Regular informal	Casual other	Self-employed	Unorganized sector	Total
1999/2000	Rural	Agriculture	38.8	46.3	241.4	*326.5*	2,725.1	81,560.1	95,848.7	*180,133.9*	180,460.4
2011/12	Rural	Agriculture	71.3	31.5	144.8	*247.6*	1,350.7	60,939.8	100,359.4	*162,649.9*	162,897.5
1999/2000	Urban	Agriculture	38.5	57.5	57.8	*153.8*	305.1	2,577.6	3,031.8	*5,914.5*	6,068.3
2011/12	Urban	Agriculture	73.1	40.6	35.9	*149.6*	239.8	2,161.4	4,239.1	*6,640.3*	6,789.9
1999/2000	Rural	Manufacturing	973.8	1,096.1	1,508.7	*3 578.6*	1,688.6	2,698.0	10,124.5	*14,511.1*	18,089.7
2011/12	Rural	Manufacturing	1,815.6	2,847.7	2,467.9	*7,131.2*	1,816.3	2,835.3	11,529.5	*16,181.1*	23,312.3
1999/2000	Urban	Manufacturing	3,102.8	2,074.5	842.0	*6,019.3*	4,022.2	1,882.6	6,914.7	*12,819.5*	*18,838.8*
2011/12	Urban	Manufacturing	4,281.2	6 657.2	1 174.6	*12,113.0*	3,694.8	2,325.8	11,165.5	*17,186.1*	29,299.1
1999/2000	Rural	Construction	97.4	50.9	698.5	*846.8*	147.0	6,856.4	1,459.1	*8,462.5*	9,309.3
2011/12	Rural	Construction	115.9	297.0	4,675.1	*5,088.0*	323.2	23,138.8	2,814.8	*26,276.8*	31,364.8
1999/2000	Urban	Construction	124.3	162.8	797.3	*1,084.4*	318.8	4,168.1	1,458.8	*5,945.7*	7,030.1
2011/12	Urban	Construction	443.3	645.9	1,784.1	*2,873.3*	446.1	6,518.3	2,196.4	*9,160.8*	12,034.1
1999/2000	Rural	Other industries	390.3	103.8	469.1	*963.2*	162.7	603.8	152.5	*919.0*	1,882.2
2011/12	Rural	Other industries	550.2	214.6	620.9	*1,385.7*	95.3	600.7	133.4	*829.4*	2,215.1
1999/2000	Urban	Other industries	794.8	88.5	75.3	*958.6*	188.8	141.6	45.9	*376.3*	1,334.9
2011/12	Urban	Other industries	1,388.9	367.1	209.2	*1,965.2*	81.6	83.7	198.7	*364.0*	2,329.2
1999/2000	Rural	Services	5,161.4	1,714.3	517.3	*7,393.0*	5,401.9	4,025.6	17,174.2	*26,601.7*	33,994.7
2011/12	Rural	Services	7,024.0	3,902.7	545.9	*11,472.6*	7,056.1	3,599.2	24,136.6	*34,791.9*	46,264.5
1999/2000	Urban	Services	11,649.6	2,410.5	454.2	*14,514.3*	10,333.4	4,004.2	21,290.3	*35,627.9*	50,142.2
2011/12	Urban	Services	17,350.8	7,468.8	622.1	*25,441.7*	13,566.3	3,166.1	31,072.1	*47,804.5*	73,246.2
1999/00	Rural	Total	6,661.7	3,011.4	3,435.0	*13,108.1*	10,125.3	95,743.9	124,759.0	*230,628.2*	243,736.3
2011/12	Rural	Total	9,577.0	7,293.5	8,454.6	*25,325.1*	10,641.6	91,113.8	138,973.7	*240,729.1*	266,054.2
1999/2000	Urban	Total	15,710.0	4,793.8	2,226.6	*22,730.4*	15,168.3	12,774.1	32,741.5	*60,683.9*	83,414.3
2011/12	Urban	Total	23,537.3	15,179.6	3,825.9	*42,542.8*	18,028.6	14,255.3	48,871.8	*81,155.7*	123,698.5

Source: Author's estimates based on unit-level data from NSSO *Surveys of Employment and Unemployment* (55th and 68th Rounds).

TABLE A.4.5 Utilization of Days Available per Week, 1999/2000 (in Million)

Type of unemployed	Days of work		Days not worked but in employment	Days in unemployment	Days not in labour force	Days of work		Days not worked but in employment	Days in unemployment	Days not in labour force
	Main activity	Other activities				Main activity	Other activities			
Rural										
Regular formal	39.8	0.5	3.3	0.1	0.5	62.3	0.1	0.7	0.0	0.1
Regular informal	17.4	0.7	1.3	0.2	0.3	46.0	0.4	1.1	0.3	0.3
Casual	16.7	1.0	0.5	1.4	1.8	44.9	2.8	0.3	3.9	4.3
Organized	*73.9*	*2.2*	*5.1*	*1.7*	*2.6*	*153.2*	*3.3*	*2.1*	*4.2*	*4.7*
Regular informal	60.5	2.2	3.0	0.8	1.8	66.4	1.2	2.2	0.3	0.2
Casual	429.1	64.4	12.1	66.2	71.5	466.0	31.1	3.6	48.4	53.2
Self-employed	716.2	29.6	23.5	14.7	51.3	818.9	28.9	22.3	9.3	39.2
Unorganized	*1205.8*	*96.2*	*38.5*	*81.7*	*124.6*	*1351.3*	*61.2*	*28.1*	*58.0*	*92.6*
Urban										
Regular formal	84.5	0.2	7.4	0.2	1.0	132.9	0.2	1.7	0.1	0.1
Regular informal	25.1	0.2	2.2	0.3	0.4	84.2	0.3	1.8	0.7	0.2
Casual	10.0	0.1	0.4	1.3	1.2	18.5	0.3	0.1	1.6	1.5
Organized	*119.6*	*0.5*	*10.0*	*1.8*	*2.6*	*235.6*	*0.8*	*3.6*	*2.4*	*1.8*
Regular informal	82.1	0.7	5.4	0.9	1.5	100.1	0.2	2.3	0.6	0.2
Casual	60.0	1.4	1.3	7.1	7.3	66.7	1.1	0.3	7.1	6.6
Self-employed	175.7	1.2	8.4	2.7	7.0	264.1	1.8	8.2	1.7	4.5
Unorganized	*317.8*	*3.3*	*15.1*	*10.7*	*15.8*	*430.9*	*3.1*	*10.8*	*9.4*	*11.3*

Source: Author's estimates based on unit-level data from NSSO *Surveys of Employment and Unemployment* (55th and 68th Rounds).

TABLE A.4.6 Growth of Workdays and Employees, 1999/2000–2011/12 (% per Annum)

	Total number of days worked		Total number of employees	
	Rural	Urban	Rural	Urban
Organized sector	*6.2*	*5.8*	*5.6*	*5.4*
Regular-formal employees	3.8	3.8	3.1	3.4
Regular-informal employees	8.4	10.6	7.6	10.1
Casual employees	8.6	5.4	7.8	4.6
Unorganized sector	*0.7*	*1.3*	*–0.3*	*1.2*
Regular-informal employees	0.7	1.7	0.4	1.5
Casual employees	0.7	0.9	–0.4	0.9
All employees	1.6	*3.6*	0.6	3.3

Source: Estimates based on data in Tables A.4.4 and A.4.5.

TABLE A.4.7 Estimates of Currently Surplus Workers, 2013/14 (in Million Except Specified Otherwise)

	Wage/salary workers	Contract workers	Casual workers	Self- employed	All employed
Rural					
Total employed (UPSS)	29.8	7.5	113.9	175.1	326.3
Worked 12 months	27.0	4.7	43.5	100.7	175.9
Worked 6–11 months	2.7	2.7	68.4	71.6	145.4
Number required if all had worked 12 months	1.9	1.9	48.5	50.7	103.0
Surplus workers	*0.8*	*0.8*	*19.9*	*20.9*	*42.4*
Worked 1–5 months	0.1	0.1	2.0	2.8	5.0
Number required if all had worked 12 months	0.0	0.0	0.5	0.7	1.2
Surplus workers	*0.1*	*0.1*	*1.5*	*2.1*	*3.8*
Currently surplus workers	0.9	0.9	21.4	23.0	46.2
As percentage of currently employed	3.0	12.0	18.8	13.1	14.2
Urban					
Total employed (UPSS)	46.7	6.4	29.0	56.9	139.0
Worked 12 months	44.0	5.2	16.6	46.4	112.2
Worked 6–11 months	2.5	1.1	11.8	10.3	25.7
Number required if all had worked 12 months	1.8	0.8	8.3	7.3	18.2
Surplus workers	*0.7*	*0.3*	*3.5*	*3.0*	*7.5*
Worked 1–5 months	0.2	0.1	0.6	0.2	1.1
Number required if all had worked 12 months	0.0	0.0	0.1	0.1	0.2
Surplus workers	*0.1*	*0*	*0.2*	*0.1*	*0.4*
Currently surplus workers	*0.8*	*0.3*	*3.7*	*3.1*	*7.9*
As percentage of currently employed	*1.7*	*4.7*	*12.8*	*5.4*	*5.7*

Source: Author's estimates based on data available from Labour Bureau (2014).
Note: Data relate to persons aged 15 years or more in employment according to UPSS.

5

The Employment Challenge

Employment conditions in India improved substantially in the first decade and a half of the twenty-first century (Box 5.1). Significant number of workers moved to better jobs: from agricultural employment to non-agricultural employment, from casual wage employment to regular wage employment, from employment in the unorganized sector to employment in the organized sector, from regular-informal employment to regular-formal employment. At the same time, underemployment of the employed declined and real wages rose. So, the improvement in employment conditions came from a combination of favourable reallocation of the workforce across types of employment and quality improvement within each type of employment. In addition, the incidence of child labour declined, as did gender inequality and rural–urban inequality in employment.

Despite the improvement, employment conditions in the country remain poor and the employment challenge remains daunting. Both facts emerge clearly from Table 5.1. These are projections, but are most unlikely to be wide off the mark. Around 13 million working-age persons, 30 per cent of them women, are currently unemployed (according to UPS). Around 52 million of the currently employed persons of working age, 65 per cent of them women, are effectively redundant and can be withdrawn from their current employment without affecting the 'outputs' from the activities involved. Another 52 million, all women, are currently out of the labour force but can be expected to enter the labour force if opportunities for productive employment expand. Thus, there are around 117 million persons of working age, 78 per cent of them women, who need to be absorbed in new and better jobs.

There will also be fresh entrants into the labour force. According to the estimates, between 6 and 8 million youths will enter the labour force every year over the next decade and a half (Table 5.2 and Appendix Table A.5.1). They too will need to be absorbed in new and better jobs.

To gauge the enormity of the employment challenge, the conditions that have to be met to ensure that the economy reaches the Lewis Turning Point (that is, the point at which surplus labour falls to zero) in the next 15 years may be considered. This will require absorption of the entire incremental labour force of 8 million (at a maximum), a segment of the surplus workers (7.0 million), and a segment of the unemployed (0.9 million) every year. The challenge then is one of absorbing around 16 million persons in new jobs at rising levels of productivity every year over the next 15 years.

There is more to the story. Most of the surplus workers (95 per cent) are low to medium skilled (Table 5.3). A majority of the currently unemployed (63 per cent) are also low to medium skilled. Only in the case of the fresh entrants, a majority (54 per cent) would be highly skilled.

Box 5.1 Employment Conditions, 2011/12–2013/14

For reasons of data availability, the analysis could only cover the period 1999/2000–2011/12. The conclusions are therefore based on the trends observed for this period. However, the trends appear to have continued unaltered even after 2011/12. Employment conditions continued to improve after 2011/12. This is clear from the data presented as follows.

TABLE B5.1 Percentage Distribution of the Employed (Aged 15 Years or More) by Status

	2011/12	2013/14
	NSS	LBS
Self-employed	50.0	49.5
Regular	20.1	19.6
Casual	29.9	30.9
Organized sector	17.3	18.2
Unorganized sector	82.7	81.8

Note: Employed according to UPS. LBS refers to the Labour Bureau's *Survey of Employment and Unemployment* conducted in 2013/14. Data from LBS does not allow separating out regular-formal and regular-informal employment. Nor does it allow separating out different types of wage employees in the organized sector and those in the unorganized sector. Organized sector employment refers to (i) employment in all government and public sector establishments, all private corporate sector enterprises, and other private sector enterprises with at least 10 employees in NSS data; and (ii) employment in all establishments with at least 10 employees in LBS data.

TABLE 5.1 Employment Conditions, 2015/16

Persons of working age	Numbers in million		
	Male	Female	Persons
Population	420.0	396.1	816.1
Non-student population	347.2	346.2	693.4
UPS labour force	338.8	93.8	432.6
UPS employed	329.8	89.9	419.7
UPSS labour force	341.7	124.7	466.4
UPSS employed	333.9	121.3	455.2
Currently surplus workers	18.4	34.0	52.4
Potentially available workers	0.0	51.9	51.9
Total stock of surplus labour	18.4	85.9	104.3

Note: In deriving the projected estimates for 2015/16, the following assumptions have been used: (i) the average real rates of underemployment of the UPS employed changed in the same direction and at the same pace during 2011/12–2015/16 as they did during 1999/2000–2011/12; (ii) the rates of unemployment changed in the same direction and at the same pace during 2011/12–2015/16 as they did during 1999/2000–2011/12; (iii) the USS employed worked on 33 per cent of the days available in 2015/16, as in previous years; and (iv) the average annual rates of growth of the non-student population were the same during 2011/12–2015/16 as they had been during 1999/2000–2011/12. The estimates of UPS labour force and UPSS labour force are taken from Appendix Table A.1.4 (Chapter 1). The method of estimation of 'currently surplus workers' and 'potentially available workers' is as described in Box 2.6 (Chapter 2).

TABLE 5.2 Projected Increase per Year (in Million)

Persons of working age	Male	Female	Persons
Population	9.4	8.7	18.1
Non-student population	6.4	6.4	12.8
UPS labour force	6.4	1.4	7.8

Source: Table S.6 in the Statistical Annexe.
Note: The methodology used to derive the projections is described in the note to Appendix Table A.1.4.

Of the 16 million persons that need to be absorbed annually in new and better jobs, around 4 million (26 per cent) will be low skilled (with up-to-primary education), 7 million (42 per cent) will be medium skilled (with above-primary and up-to-higher-secondary education), and 5 million (32 per cent) will be highly skilled (with tertiary education). The employment challenge, therefore, is not just one of creating 16 million productive jobs every year but also one of creating most of these jobs (11 million) for the low to medium skilled.

In the context of India's dual economy, growth of 'new and better jobs' or 'new jobs at rising levels of productivity' requires two simultaneous processes to be at work (these processes, as the analysis in the preceding chapters has shown, were at work during 1999/2000–2011/12). On the one hand, the rate of growth of jobs in the organized sector must exceed the rate of growth of the labour force in the economy by a substantial margin; this allows absorption of sections of the fresh entrants, the unemployed, and the surplus workers in new

TABLE 5.3 Levels of Education of Surplus Workers, Fresh Entrants, and Unemployed, 2011/12

Persons of working age	With up to primary education (%)	With up to higher secondary education (%)	With tertiary education (%)
Currently surplus workers	62.5	32.8	4.7
Potentially available workers	52.3	40.9	6.8
Total stock of surplus workers	57.8	36.5	5.7
Fresh entrants into labour force	0.0	46.0	54.0
Unemployed	18.3	44.7	37.0

Source: Author's estimates based on data from *NSSO Survey of Employment and Unemployment* (68th Round).
Note: The distribution by level of education of 'currently surplus workers', 'potentially available workers', and 'unemployed' are derived by using the data in Figure 3.1 (Chapter 3), Appendix Table A.3.3 (Chapter 3), and Table S.4 in the Statistical Annexe. The distribution of those employed according to USS is taken to be identical to the distribution of those employed according to UPS. The distribution of the 'fresh entrants into labour force' is taken to be the same as that of the incremental labour force between 2009/10 and 2011/12.

productive jobs. On the other hand, labour productivity in the unorganized sector must grow at a decent pace; this ensures improving quality of some of the existing jobs as also the emergence of new productive jobs in the sector thus allowing absorption of some of the surplus workers in better, though not always new, jobs within the unorganized sector.

The two processes are interlinked. The larger the margin by which the growth of jobs in the organized sector exceeds the growth of the labour force in the economy, the smaller the growth of the labour force in the unorganized sector (which is in the nature of a residual) and hence the larger the growth of labour productivity in the sector for any given growth of output. Rapid growth of employment in the organized sector, therefore, itself enhances growth of labour productivity in the unorganized sector even when output growth in the sector remains unchanged. Growth acceleration then further adds to productivity growth in the unorganized sector.

Is the goal of reaching the Lewis Turning point in the next 15 years at all achievable? In other words, is it at all possible that 16 million new and better jobs can be generated annually? An illustrative exercise (Table 5.4) helps answer this question. Projection 1 shows what we might call the 'business-as-usual' scenario. If the organized sector grows at 7.7 per cent per annum (which is the rate at which it grew during 1999/2000–2011/12), the employment elasticity is 0.701 (which is what it was in the period 1999/2000–2011/12) and the share of the low to medium skilled in incremental employment is 52 per cent (same as that during 1999/2000–2011/12), then employment in the sector will grow by 5 million annually, of which 2.6 million will be employment of the low to medium skilled. Projections 2 and 3 retain the assumptions made for projection 1 but consider higher rates of growth for the organized sector. Projection 2 shows that if the organized sector grows at 10 per cent per annum, employment in the sector will grow by 6.7 million annually, of which 3.4 million will be employment of the low to medium skilled. Projection 3 shows that if the organized sector grows at 12 per cent per annum, employment in the sector will grow by 8.3 million annually, of which 4.3 million will be employment of the low to medium skilled.

Throughout the five-year period, total employment will continue to grow at 1.9 per cent per annum, which is also the projected rate of growth of the labour force. The higher the growth of employment in the organized sector, the lower will be the growth of employment in the unorganized sector. Thus employment in the unorganized sector will grow at 1 per cent per annum under projection 1, at 0.5 per cent per annum under projection 2, and at 0.0 per cent per annum under projection 3.

The remainder of the 16 million 'new and better' jobs will have to come through productivity growth in the unorganized sector. Thus, the required number of 'new and better' jobs in the unorganized sector will be 11 million under projection 1, 9.3 million under projection 2, and 7.7 million under projection 3. Growth of labour productivity in the unorganized sector, it is known, brings about both new jobs (generally in non-agriculture) and quality improvement of the existing jobs (through wage growth and decline in underemployment). Unfortunately, however, the precise relation between

TABLE 5.4 Trajectories of Employment: Some Projections (UPS Employment of Persons of Working Age in Million)

	2011/12 (Actual)	2015/16 (Projection)	2020/21 (Projection 1)	2020/21 (Projection 2)	2020/21 (Projection 3)
Organized sector	67.4	83.2	108.2	116.7	124.5
Low to medium skilled	*34.7*	*42.8*	*55.7*	*60.0*	*64.0*
Unorganized sector	322.3	336.5	352.9	344.4	336.6
Total employment	389.7	419.7	461.1	461.1	461.1
New jobs in the organized sector, average per year					
All		4.0	5.0	6.7	8.3
Low to medium skilled		*2.1*	*2.6*	*3.4*	*4.3*

Note: The projections of total employment are based on the assumption that the average annual rate of growth 'recorded' for the period 2011/12–2015/16 (Box 5.1) will also hold for the period 2015/16–2020/21. The projections of organized sector employment are derived by assuming (i) that the employment elasticity estimated for the period 1999/2000–2011/12 (0.701) will also hold for the period 2015/16–2020/21, and (ii) that the average annual rate of growth of organized sector output is 7.7 per cent (that observed during 1999/2000–2011/12) for projection 1, 10 per cent for projection 2, and 12 per cent for projection 3. The projections of 'low to medium skilled' employment are based on the assumption that the share of regular-formal ('highly skilled') employment in total organized sector employment, observed for 2011/12 (48.6 per cent) remains the same for the subsequent periods.

growth of labour productivity and growth of new and better jobs in the unorganized sector is not known. It can only be assumed, arbitrarily, that labour productivity will need to grow at 5 per cent per annum (it may be recalled that productivity growth was actually 5.6 per cent per annum during 1999/2000–2011/12). This means that growth of the unorganized sector will have to be 6 per cent per annum under projection 1, 5.5 per cent per annum under projection 2, and 5 per cent per annum under projection 3.

The rates of growth of the economy that will be required can then be worked out once the share of the organized sector in total NDP in 2015/16 is known. This was 44 per cent in 2011/12 and is taken to be the figure for 2015/16. The required rates of growth of total NDP then turn out to be 7 per cent per annum under projection 1, 8.2 per cent per annum under projection 2, and 9.2 per cent per annum under projection 3.

These growth rates do not seem unachievable in the light of India's experience of the recent past. Hence the goal of reaching the Lewis Turning Point in the next 15 years does not look overly optimistic. The illustrative exercise underlines, however, that growth will need to have certain specific characteristics if the goal is to be reached. First, growth will need to be balanced in the sense that a certain relationship between the growth of the organized sector and that of the unorganized sector will need to be maintained. Second, growth of the organized sector has to be such as to ensure that the employment elasticity remains high. Third, growth of the organized sector has to be such that the share of the low to medium skilled in total employment in the sector remains stable.

These requirements underline the importance of rapid growth of organized manufacturing in the future growth process. A more rapid growth of organized manufacturing, relative to growth of organized services, will help in maintaining both high employment elasticity and stable share of the low to medium skilled in total employment in the organized sector. This is the argument that is examined in detail in Part II of the report.

APPENDIX TABLE

TABLE A.5.1 Projected Annual Increase in Working-Age Labour Force

	2015	2020	2025	2030
Working-age population (in million)				
Male	424.0	455.2	483.0	505.3
Female	393.1	421.5	446.6	466.6
Persons	817.1	876.7	929.6	971.9
LFPR (%), UPS				
Male	80.7	79.7	79.7	79.7
Female	23.7	23.7	24.7	25.7
Persons	53.3	52.8	53.3	53.8
Working-age labour force (in million), UPS				
Male	342.2	362.8	385.0	402.7
Female	93.2	99.9	110.3	119.9
Persons	435.3	462.7	495.3	522.6
Annual addition to labour force (in million), UPS				
Male		4.1	4.4	3.6
Female		1.3	2.1	1.9
Persons		5.4	6.5	5.5

Note: The estimates of population are projections done by the UN Population Division (2015). LFPRs for 2015 are projections for 2015/16. LFPRs for the later years are derived by using the following assumptions: (i) male LFPR will decline between 2015 and 2020 (because the share of students in the working-age population will increase) and remain stable thereafter (because the share of students in the working-age population will stabilize); (ii) female LFPR will remain stable between 2015 and 2020 (on the one hand, the share of students in the working-age population will increase and, on the other, LFPR of women with higher education will also increase) and will increase thereafter (because the share of students in the working-age population will stabilize but LFPR of women with higher education will continue to increase).

Part II

Meeting the Employment Challenge

The Imperative of Manufacturing-Led Growth

6

The Need for Manufacturing-Led Growth

India's employment challenge, as outlined in Chapter 5, is truly formidable. A large stock of surplus low-skilled labour exists, which must be productively absorbed. In addition, there will be a steady stream of fresh entrants into the labour force, many of whom will be low skilled. The challenge is not just of generating a large number of productive jobs per year but also of generating such jobs for low-skilled workers.

What will be required is a process of rapid improvement in employment conditions sustained over time. For such improvement to occur, two conditions will need to be satisfied. The first is that the rate of growth of jobs in the organized sector must exceed the rate of growth of labour force in the economy by a significant margin so that there is a steady process of transfer of workers from poor jobs and underemployment in the unorganized sector to better jobs in the organized sector. The second condition is that labour productivity in the unorganized sector must also increase steadily so that there is a process of transfer of workers from poor to better jobs within the sector.

Rapid and sustained economic growth will be required to generate these processes of change. The question is what kind of growth? Three points need to be noted here. First, the idea that growth has to be rapid but need not be employment generating because the government will have access to growing resources with which to implement special employment schemes must be jettisoned. Growth must produce steady improvement in employment conditions. This does not mean that special employment schemes can be immediately dispensed with. They should be seen for what they are: temporary social assistance programmes. Second, the growth of the organized sector must not only generate jobs at a rate significantly higher than the rate of labour force growth in the economy but also generate jobs for low-skilled labour. Third, growth must occur in both the organized and unorganized sectors of the economy and must not remain confined to the organized sector alone. Rapid growth of jobs in the organized sector, by itself, will not increase labour productivity in the unorganized sector because it will not turn labour force growth in the unorganized sector negative.

It is not too difficult to see that growth in the unorganized sector has to be led by agriculture, which accounts for the bulk of employment in the unorganized sector and also has the characteristics of a lead sector. Through both demand-side and supply-side effects, agricultural growth can drive growth of output and jobs in non-agriculture in the organized and unorganized sectors. Growth of labour productivity in agriculture, by increasing incomes of agricultural workers in the first instance, increases the demand for non-agricultural goods and services. Further, output growth in agriculture, by enlarging

the agricultural surplus, makes increased employment in non-agricultural activities in the organized and unorganized sectors possible.

These observations define the backdrop of this chapter, which considers the kind of growth of the organized sector that will be required to meet the employment challenge. In the context of India, the question to be framed is as follows: should future growth be manufacturing led or continue to be services led as it has been in the recent past? The two kinds of growth, it may be recognized, need not be equally rapid or sustainable. Further, the two kinds of growth, even when equally rapid and sustainable, need not produce the same employment outcomes; they may not generate jobs at the same rate and they may not generate jobs for the low skilled in equal measure. Thus, there are two basic questions that this chapter seeks to answer. First, can rapid services-led growth be sustained or does growth need to be manufacturing led if it is to be rapid and sustainable? Second, will rapid manufacturing-led growth produce better employment outcomes than rapid services-led growth?

IS RAPID SERVICES-LED GROWTH SUSTAINABLE?

India has had rapid services-led growth for more than a decade. The GDP growth averaged 7.3 per cent per annum during 1999/2000–2011/12. Growth of services averaged 8.7 per cent per annum during the same period. Growth was even more spectacular during the shorter period 2002/03–2007/08, when GDP growth was 8.7 per cent per annum and services growth was 9.5 per cent per annum. The process has now stalled. Growth slowed down after 2011/12 though it remained services led (see Box 6.1). The questions that arise are: Should India focus on reviving rapid services-led growth? Or should it shift to manufacturing-led growth so as to sustain rapid growth?

To most economists, India's rapid services-led growth has always seemed rather fortuitous and unsustainable. Both historical experience and economic reasoning generate the expectation that growth at India's level of per capita income must be led by manufacturing and not by services. In today's developed countries, manufacturing had led economic growth at early stages of development and services took over the lead role only after per capita GDP had already reached high levels (Kuznets 1957, 1966, 1971; Maddison 2007). The growth process was accompanied by a corresponding process of labour reallocation: labour shifted from agriculture primarily to manufacturing at early stages of development and from both agriculture and manufacturing to services at later stages. This pattern has been observed in the late developers of East Asia, not just in Japan, Republic of Korea, and Taiwan (China) but also in the People's Republic of China (PRC), Indonesia, Malaysia, and Thailand (ADB 2013).

The economic logic of this empirically observed pattern of growth is also well understood (Box 6.2). On the supply side, productivity in manufacturing grows faster

Box 6.1 The Data Puzzle

The recent release of a new series of national accounts data has created much confusion about growth in the period since 2011/12. The old series (with 2004/05 as the base year) show a sharp slowdown in GDP growth, very sharp slowdown in manufacturing growth and mild slowdown in services growth; growth slows down but remains services led. The new series (with 2011/12 as the base year) show much higher growth of both manufacturing and services in the two years—2012/13 and 2013/14. Growth remains services-led but slowdown is not evident. The real problem is that the new data series is available only for the period 2011/12–2013/14 so that growth during 1999/2000—2011/12 cannot be compared with growth after 2011/12. At this point, therefore, the report must unavoidably be based on analysis of the old data series.

TABLE B6.1 The Growth Slowdown

	Growth rate (% per annum)		
	1999/2000–2011/12	2012/13	2013/14
GDP (old series)	7.3	4.5	4.7
GDP (new series)		4.9	6.6
Manufacturing (old series)	8.1	1.1	–0.7
Manufacturing (new series)		6.1	5.3
Services (old series)	8.7	7.0	6.8
Services (new series)		8.0	9.1

than that in services. There also are significant economies of scale in manufacturing so that output growth itself causes productivity growth. Manufacturing generates economy-wide increasing returns to scale through significant spillover effects on non-manufacturing activities. On the demand side, the income elasticity of demand for manufactures tends to be much larger than that for services at low levels of per capita income. It is only at high levels of income that the income elasticity of demand for services exceeds that for manufactures. Finally, manufactures are eminently tradable so that external demand can play a significant role in stimulating and sustaining growth. Services generally are not (or until recently were not) tradable. For all these reasons, growth of manufacturing tends to be rapid at early stages of development and drives the growth of other sectors, particularly of services.

Recently, some economists have argued that because of technological developments, certain services have acquired the characteristics of manufacturing (Amirapu and Subramanian 2015; Dasgupta and Singh 2005, 2006). In services that have been transformed by advances in digital technology (as in computation–information–communication services), output growth causes productivity growth. The income elasticity of demand for these services also seems to be high even in poor countries. These services are internationally tradable. Moreover, the advances in digital technology have not only transformed certain services but also have had important spillover effects on manufacturing. They have brought about fragmentation of production and global value chains in manufacturing. They also have set off processes of technological advances that have been lowering the labour intensity and increasing the skill intensity of manufacturing (Brynjolfsson and McAffee 2014; MGI 2012). The digital revolution is often compared to the game-changing inventions of the past such as those of electricity and the internal-combustion engine.

It has, therefore, been argued that in the twenty-first century, services-led growth is as possible as manufacturing-led growth in low-income countries. India's services-led growth in the twenty-first century need not be seen as fortuitous and unsustainable. Rather, it should be seen as an example of a new twenty-first–century pattern of growth in low-income countries and as a precursor of other changes to come.

Whatever the merits of the arguments, the fact is that India has thus far remained the only developing country to have experienced rapid services-led growth for a certain period. Successful developers in the post-1950 period have had rapid manufacturing-led growth and no developing country has achieved even middle-income status without industrialization (ADB 2013; McMillan and Rodrik 2011; Szirmai 2012).

The fact that India's growth has now decelerated should also be a warning against grand generalizations about services-led growth becoming the new norm in the twenty-first century. There are strong grounds for thinking that India's growth has decelerated precisely because it has been services led. The fundamental explanation for this lies in the fact that rapid services-led growth for a period engendered totally unsustainable trade deficits. It generated a large and growing imbalance between the structure of domestic absorption (consumption plus investment) and the structure of domestic production. Crude calculations show, for example, that, in 2009–10, goods accounted for 67 per cent of domestic absorption but only 43 per cent of domestic production (Ghose 2015). There was thus a huge shortfall in goods that had

Box 6.2 Why Is Growth Manufacturing-Led at Low Levels of Per Capita Income?

Kaldor (1966, 1967, 1968) used the works of Young (1928) and Verdoorn (1949) to formulate a set of growth laws that provided a coherent explanation for the historically observed pattern of growth. These growth laws can be stated as follows. First, the faster the growth of manufacturing, the faster is the growth of the economy. Second (which explains the first), output growth itself causes productivity growth in manufacturing. Third, output growth in manufacturing causes productivity growth in agriculture, where production is subject to the law of diminishing returns, as this induces movement of labour out of agriculture. Finally, at early stages of development, services develop basically as complementary and ancillary to manufacturing.

More recently, Rodrik (2013a, 2013b) provided what might be called a reinterpretation of one of Kaldor's Laws in the context of today's globalized world. In this interpretation, the great advantage of manufacturing is that it alone shows unconditional convergence to the frontier. In other words, manufacturing shows faster growth in lower-income countries and the productivity gap between rich and poor countries narrows quite rapidly.

to be covered by imports that fundamentally caused the large and growing trade deficit.

Four facts are clear from Table 6.1. First, deficit in merchandise trade grew very rapidly in the 2000s, particularly 2004/05 onwards. Second, India had an export surplus in manufactures through the 1990s, which turned into a deficit by 2004/05 that grew steadily in the subsequent period. The fact that the deficit in merchandise trade also grew rapidly after 2004/05 suggests a linkage between the two deficits. Third, trade in services recorded a growing surplus through the period attributable entirely to the growing export surplus in software services. Finally, the surplus in services trade remained far too inadequate to cover the deficit in merchandise trade.

TABLE 6.1 India's Trade Balance, 2001–12

	Trade balance as percentage of GDP		
	2000/01	2004/05	2011/12
Merchandise trade	–2.6	–4.7	–10.1
Manufactures trade	1.2	–0.1	–1.4
Services trade	0.4	2.1	3.4
Software services trade	1.2	2.3	3.3
Overall trade	–2.3	–2.6	–6.7
Current account	–0.5	–0.4	–4.2

Source: *National Accounts Statistics* (various years).

It is clear that the growing imbalance between domestic absorption and domestic production, created by services-led growth, led to the growing trade deficit and efforts to rein in the trade deficit inevitably slowed down growth after 2011/12. As it happened, international commodity prices fell sharply in the post-2011/12 period, which helped a great deal in lowering the deficit in merchandise trade. But for this, the growth slowdown would have been much sharper because a sharper squeeze in imports would have been necessary.

These observations indicate why a revival of rapid services-led growth is difficult to contemplate; any such revival would immediately generate a large and growing trade deficit. Services-led growth can no longer be rapid. Rapid growth, to be sustainable, will have to be of a type that progressively reduces the imbalance between domestic absorption and domestic production; in other words, manufacturing-led growth. This does not mean that growth of services will have to be choked. If certain services continue to record rapid export-driven growth, there would be no reason to restrain that growth. But this growth cannot drive the growth of non-traded services, which account for the bulk of the services output, and of manufacturing. The central focus of policy must now be on achieving rapid growth of manufacturing, which would then drive the growth of non-traded services.

INDUSTRIALIZATION, GROWTH, AND EMPLOYMENT

Historically, growth of manufacturing has not only been the route to higher incomes in low-income economies but also the means for creation of productive jobs for the masses of low-skilled labour. Many now argue, however, that history is unlikely to repeat itself because technological change has altered the nature of manufacturing. Growth of manufacturing, it is argued, can no longer be the route to higher incomes as it once was. Nor can manufacturing play the traditional role of moving the mass of surplus low-skilled labour from agriculture to productive employment in factories because technological change has substantially reduced the labour intensity and increased the skill intensity of manufacturing (Kucera and Roncolato 2013; Rodrik 2013b, 2015).

These arguments are derived from certain observed time trends. The experience of a limited number of East Asian countries shows that while the peak share of manufacturing (as also of industry) in GDP has been fairly similar across countries that have successfully industrialized, this peak was reached at lower levels of per capita GDP in the late developers than in the early developers (Table 6.2). Thus, across countries, the peak share of manufacturing in GDP was around 32 per cent while the peak share of industry was around 44 per cent, irrespective of the period in which they were reached. But the peak values were reached at a much higher level of per capita GDP in the early developers (Japan, Republic of Korea, and Taiwan (China) than in the relatively late developers (PRC, Indonesia, Malaysia, and Thailand). This suggests that industrialization today will not take a country as far as it did in the past.

The experience of the industrializing economies of East and Southeast Asia also shows that the capacity of manufacturing-led growth to shift low-skilled labour out of agriculture into productive employment in industry has grown progressively weaker over time. This is seen from the fact that similar shares of manufacturing in

TABLE 6.2 Industrialization and Growth

Country	Period covered	Year of peak	Per capita GDP in 2005 (US$)	Peak share (%) in GDP	
				Manufacturing	Industry
Japan	1880–2012	1970	15,162	36.0	46.7
Republic of Korea	1965–2012	2000	15,162	29.0	38.1
Taiwan (China)	1990–2012	1990	9,910	33.3	41.2
PRC	1970–2011	2005	1,731	32.5	47.4
Indonesia	1970–2012	2004	1,222	28.1	44.6
Malaysia	1970–2012	2000	4,862	30.9	48.3
Thailand	1970–2012	2007	2,946	35.6	44.7

Source: Kuznets (1957); World Bank (World Development Indicators database); Asian Development Bank (Key Indicators for Asia and the Pacific database) for various years.
Note: Industry includes, besides manufacturing, mining and quarrying, construction, and utilities (electricity, gas, and water).

GDP were associated with much lower shares in employment in the late developers than in the early developers (Table 6.3). Thus, a 36 per cent GDP share of manufacturing was associated with a 27 per cent employment share in Japan but with only 15 per cent employment share in Thailand. Further, a 33 per cent GDP share of manufacturing was associated with a 32 per cent employment share in Taiwan (China) but with only 16 per cent employment share in PRC.

Even if the trends suggested by this data was taken at face value, it would not indicate that India (or other low or lower middle-income countries) should not go for manufacturing-led growth. The shares of manufacturing or industry in GDP and in employment are much too low in India so that the scope for increasing them remains large even under pessimistic assumptions. The fact that the level of per capita GDP associated with the peak share of manufacturing in GDP would be lower in India than it had been in the Republic of Korea does not indicate that reaching the peak share is not important. Similarly, the fact that manufacturing growth may not shift as much low-skilled labour out of agriculture as it did in the Republic of Korea does not indicate that the shift would not be substantial.

Importantly, there is need for caution in interpreting the data in Table 6.3. Manufacturing has always required services as inputs. In the past, manufacturing firms had service departments for work on design, marketing, finance, transport, distribution, legal affairs, customer support, and research and development (R&D). Many large industrial enterprises even had departments for running maintenance, security, restaurant, education,

TABLE 6.3 Industrialization and Employment

Country	Year	Share (%) of manufacturing in		Share (%) of industry in	
		GDP	Employment	GDP	Employment
Japan	1970	36.0	27.0	46.7	35.7
Republic of Korea	2000	29.0	23.3	38.1	32.3
Taiwan (China)	1990	33.3	32.0	41.2	–
PRC	2005	32.5	15.9	47.4	24.4
Indonesia	2004	28.1	11.8	44.6	18.0
Malaysia	2000	30.9	22.8	48.3	32.2
Thailand	2007	35.6	15.1	44.7	20.7

Source: As in Table 6.2.
Note: As in Table 6.2.

health, entertainment, and housing services. Today industrial enterprises outsource most of these services from specialized service enterprises. A substantial part of the employment that counted as manufacturing or industrial employment in the past now counts as employment in services. This is an important reason why the shares of manufacturing or industry in employment are so much lower than their shares in GDP today. This is also a reason why the GDP and employment shares of services now tend to be relatively high at low levels of per capita GDP. Manufacturing (or industry) generates less direct employment today than it did in the past, but it also generates much more indirect employment in services than it did in the past.

At this point, it is worth noting how far India can and has to go on the road to industrialization. This emerges very clearly from a comparison of India's level of industrialization with that achieved by the dynamic developing economies of East and Southeast Asia (Table 6.4). In terms of industrialization, India clearly lags far behind PRC, Indonesia, Malaysia, and Thailand. These countries, not surprisingly, are also more developed (having significantly higher per capita GDP) than India. India's is a lower middle-income non-industrialized service economy, which must now industrialize.

It may be noted that in the relatively advanced countries of East and Southeast Asia, services are far more employment intensive than manufacturing or industry; this is what historical experience leads us to expect (Ghose 2015). The opposite, however, is true in India, where services are much less employment intensive than manufacturing or industry. India has been unique not just in experiencing services-led growth at a low level of per capita income but also in achieving low employment intensity of services growth.

THE INDIAN REALITY

To judge whether and to what extent manufacturing-led growth might produce better employment outcomes than services-led growth, it is necessary to look into India's own growth experience during the period 1999/2000–2011/12. In the context of India's dual economy, it also is necessary to think in terms of employment growth in the organized sector. This section focuses attention on the growth performances of organized manufacturing and organized services.

Table 6.5 gives us a broad view of the importance of organized manufacturing and organized services as also of their employment intensity. India's low level of industrialization is, once again, painfully obvious. But it is also clear that organized manufacturing is significantly more employment intensive than organized services. Indeed, if community, social, and personal services (activities in which the value added is little more than wages and salaries) are not accounted for, the employment intensity of the rest of organized services shows up to be very low. The employment intensity of the dynamic services, namely, communication, financial services, and real estate and business services (which include computer and related services) that have been the true drivers of growth during this period is even lower. Incidentally, it is worth noting how small the shares are of real estate and business services (organized services II.2 in Table 6.5) in NDP and in employment. Computer and related services and other business services constitute the overwhelmingly

TABLE 6.4 Output and Employment Structure

Country	Year	GDP per capita in 2005	Share (%) of manufacturing in		Share (%) of industry in		Share (%) of services in	
		US$	GDP	Employment	GDP	Employment	GDP	Employment
PRC	2011	3,122	31.8		46.6	29.5	43.4	35.7
Indonesia	2012	1,735	24.0		46.8	21.7	38.7	43.2
Malaysia	2012	6,786	24.2	17.5	40.8	28.4	49.1	59.0
Thailand	2012	3,390	34.0	14.7	43.6	20.9	44.2	39.4
India	2012	1,123	14.7	13.4	27.2	25.7	54.9	30.5

Source: World Bank (WDI database) and Asian Development Bank (Key Indicators database) for various years; author's estimates (for shares in GDP and in employment in India).

dominant component of real estate and business services. The services, which have been increasingly important export items for India, are really quite unimportant in the context of India's economy. India's growth has been services led but not export driven (Ghose 2015).

The growth experience of the period 1999/2000–2011/12 also shows that employment elasticity is significantly higher in organized manufacturing than in organized services (Table 6.6). Somewhat puzzling is the fact that employment elasticity in the dynamic export-oriented services (organized services II.2 in Table 6.6) turns out to have been greater than unity, indicating that labour productivity in these services actually declined during the period. Possibly, there was 'hoarding' of skilled labour. However, this is not of much consequence for the overall trends in organized services. The shares of these services in output and employment in organized services are much too small; even in 2011/12, the output share was 9.9 per cent and employment share was 10 per cent. Overall, it is quite clear that services-led growth of the organized sector produced slower growth of employment than manufacturing-led growth would have.

Services-led growth also produced slower growth of jobs for the low skilled than manufacturing-led growth

TABLE 6.5 Organized Manufacturing and Organized Services, 2011/12

	Share (%) in NDP		Share (%) in employment	
	1999/2000	2011/12	1999/2000	2011/12
Organized manufacturing	8.6	*10.9*	2.9	*4.8*
Organized services	23.3	*32.3*	6.7	9.4
Organized services I	4.4	6.3	1.2	1.8
Organized services II	7.3	15.5	0.8	2.0
Organized services II.1	6.1	12.3	0.7	1.0
Organized services II.2	1.2	3.2	0.1	1.0
Organized services III	11.6	10.5	4.7	5.5

Source: Author's estimates based on *National Accounts Statistics (Factor Incomes)*, and *National Sample Survey of Employment and Unemployment* (unit-level data), 55th and 68th Rounds.
Note: Organized services I = trade, hotels and restaurants, transport and storage; organized services II = communication, financial, real estate and business services; organized services II.1 = communication and financial services; organized services II.2 = real estate and business services; organized services III = community, social and personal services.

TABLE 6.6 Growth of Output and Employment, 1999/2000–2011/12

	Output (NDP) growth (% per annum)	Employment growth (% per annum)	Employment elasticity
Organized manufacturing	8.5	5.5	0.647
Organized services	9.4	4.0	0.426
Organized services I	9.6	4.7	0.490
Organized services II	13.3	9.9	0.744
Organized services II.1	12.8	5.3	0.414
Organized services II.2	15.7	20.3	1.293
Organized services III	5.5	2.4	0.436

Source: Author's estimates based on National Accounts Statistics and data from the *National Sample Survey of Employment and Unemployment* (unit-level data), 55th and 68th Rounds.
Note: Employment elasticity is the ratio of employment growth to output growth. Organized services I = trade, hotels and restaurants, transport and storage; organized services II = communication, financial, real estate, and business services; organized services II.1 = communication and financial services; organized services II.2 = real estate and business services; organized services III = community, social and personal services.

TABLE 6.7 Skill Intensity of Employment: Shares (percentage) of Types of Employees in All Employees

	1999/2000			2011/12		
	Regular formal	Regular informal	Casual	Regular formal	Regular informal	Casual
Organized manufacturing	42.5	33.0	24.5	31.6	49.4	19.0
Organized services	76.7	18.8	4.5	66.1	30.8	3.1
Organized services I	61.0	24.4	14.6	44.3	44.9	10.8
Organized services II	80.4	17.3	2.3	68.6	29.2	2.2
Organized services II.1	85.7	12.7	1.6	70.9	27.3	1.8
Organized services II.2	54.1	40.3	5.7	66.3	31.2	2.5
Organized services III	80.3	17.6	2.1	72.3	26.7	1.0

Source: Author's estimates based on data from the *NSSO Survey of Employment and Unemployment* (55th and 68th Rounds).
Note: Organized services I = trade, hotels and restaurants, transport and storage; organized services II = communication, financial, real estate and business services; organized services II.1 = communication and financial services; organized services II.2 = real estate and business services; organized services III = community, social and personal services.

would have. If the level of skill is measured by the level of education, then regular-formal employees may be regarded as highly skilled, regular-informal employees as medium skilled and casual employees as low skilled (see Table 2.5 in Chapter 2). It is then evident (from Table 6.7) that the shares of the medium- and low-skilled employees in all employees are significantly higher in organized manufacturing than in organized services. These shares, it should be noted, increased over time in both organized manufacturing and organized services. But organized manufacturing has been and remains a far more important employer of low- and medium-skilled labour than organized services.

It may be observed that while the ranking of different types of employees by level of education remained unchanged, the average level of education of employees of each type increased over time. The changes in the status composition of employment, therefore, did not mean a decline in the average level of education of employees in any of the activities; the average level in fact was higher in 2011/12 than in 1999/2000 in all activities (Table 6.8). Thus, while there were shifts in skill composition of the workforce, the average skill level of the workforce did not necessarily decline and may even have increased.

TABLE 6.8 Average Years of Education of Employees

	1999/2000	2011/12
Organized manufacturing	8.4	9.3
Organized services	10.0	11.2
Organized services I	9.2	10.1
Organized services II	10.2	11.3
Organized services II.1	10.3	11.4
Organized services II.2	9.4	11.2
Organized services III	10.2	11.5

Source: Estimates based on data in Table 2.7 (Chapter 2) and Table 6.7.

* * *

There are a number of weighty reasons why India needs a growth transition from services-led growth to manufacturing-led growth. In the first place, services-led growth can no longer be rapid. The services-led growth of the past years created a large imbalance between domestic absorption (requiring mainly goods) and domestic production (focusing on services), which in turn brought about large trade deficits. Non-sustainability of trade deficits meant non-sustainability of rapid growth; efforts to rein in trade deficits inevitably caused growth slowdown. It follows that growth cannot be rapid if it remains services led as this type of growth will necessarily hit the roadblock of non-sustainable trade deficits. If growth is to be rapid, it must correct the imbalance between domestic absorption and domestic production so that trade deficits remain manageable. It is manufacturing-led growth that can correct this imbalance and can be rapid.

Second, manufacturing in India has remained undeveloped (as shown by the low shares of manufacturing in

its GDP and employment). This means that the potential for manufacturing growth is large. There is good reason to believe that manufacturing has the power of driving India's growth even in the twenty-first century. It is true that manufacturing-led growth will not take India as far as it took the Republic of Korea or Taiwan (China). But it could take India quite far and there is nothing to be gained by not going as far as it will take.

Third, manufacturing-led growth will be far more helpful in meeting India's employment challenge. The available evidence points that even if manufacturing-led growth and services-led growth produce the same rate of growth of the economy, the former will still generate faster growth of employment in the organized sector than the latter. Further, the former will also generate speedier growth of employment for the medium and low skilled in the organized sector. Moreover, manufacturing-led growth will in fact be significantly faster than services-led growth.

Apart from generating direct employment, rapid manufacturing growth will also drive growth of employment in other sectors. Rapid manufacturing growth will call for development of physical infrastructure, which will boost construction, a highly low-skilled–labour-intensive industry. Rapid manufacturing growth will drive growth of employment in services that are required as inputs in manufacturing. Income growth will also drive growth of employment in services. Arguably, the employment elasticity in services will be higher when their growth is driven by manufacturing. This is what is suggested by historical experience; services have been far more employment intensive in countries that had manufacturing-led growth than in India, which had services-led growth.

7

Organized Manufacturing, 2000–12

As the analysis in Chapter 6 has shown, organized manufacturing recorded impressive growth even during 1999/2000–2011/12, the period of rapid services-led growth. The associated employment growth was also quite impressive; the employment elasticity was high. A substantial and growing part of the incremental employment was of the informal type. But the rapid growth of employment was not unconnected to the growth of informal employment; had there been no growth of informal employment, the growth of employment would have been slower. The growth of informal employment also led to increasing access of relatively low-skilled workers to relatively better jobs in organized manufacturing.

This chapter uses a different database (Box 7.1) derived from the *Annual Survey of Industries* (ASI) to investigate in greater depth the features of growth of output and employment in organized manufacturing during 1999/2000–2011/12. It examines in particular the specific pattern of growth in an effort to unearth the factors that drove or constrained growth. It then considers the relation between the pattern of growth and employment growth. The objective is to gain an understanding of the possibilities of achieving even higher growth of organized manufacturing and of sustaining the high employment elasticity attained during 1999/2000–2011/12 in the future.

GROWTH OF ORGANIZED MANUFACTURING: A BROAD VIEW

According to ASI data that is used here, output (gross value added) in organized manufacturing grew at 10 per cent per annum and employment grew at 4.8 per cent per annum (Table 7.1). The implied employment elasticity (0.480), though relatively high, was substantially lower than the estimate (0.647) derived earlier (Table 6.6). The discrepancy arises both because the growth rate of output given by the ASI data (10.0 per cent per annum) is higher than that given by the national accounts data (8.5 per cent per annum) and because the estimate of employment growth (4.8 per cent) derived from ASI data is substantially lower than that (5.5 per cent) derived from NSSO survey data. The discrepancy in output growth rates arises most probably from the fact that organized manufacturing in national accounts data includes many more industries than does organized manufacturing in the dataset used here. This difference in coverage would also give rise to discrepancy in employment growth rates. Furthermore, it is likely that the ASI, which is a survey of enterprises, fails to take full account of the workers employed on a casual daily basis while the NSSO survey, being a household survey, takes full account of them. The ASI does take account of the contract workers who broadly correspond to what has been defined as regular-

Box 7.1 The Database

The *Annual Survey of Industries* (ASI), conducted annually by the Industrial Statistics Wing of the Central Statistical Organisation (Government of India), is the principal source of industrial statistics in India. The data used for analysis in this chapter has been derived from the unit-level data available from the surveys. The method of derivation is described in some detail in the Statistical Annexe.

Three considerations, namely, exclusion of non-manufacturing industries (for example, electricity, gas, water) and of manufacturing related services (for example, repair services); internal consistency of data; and availability of appropriate price deflators, guided the choice of the set of 25 manufacturing industries included in the database. Most of these are 2-digit industries but four 3-digit industries, and one 4-digit industry are also included. Whenever a 3-digit or 4-digit industry is included, the relevant 2-digit industry has been appropriately adjusted (the values of the variables exclude the values for the 3-digit industry). A detailed list is given in Appendix Table A.7.1.

The dataset includes data on the following variables for each industry for the period 1999/2000–2011/12: value of gross output, gross value added, value of imported inputs, value of fuel inputs, value of plant and machinery, value of gross fixed capital, number of persons engaged, number of employees, number of workers, number of directly employed workers, number of contract workers, number of supervisory and managerial staff, number of clerical and administrative staff, and wages and salaries paid to each category of the employees.

Price deflators used to convert nominal into real values in the case of the first six variables, have been derived from the wholesale price index numbers produced by the Department of Industrial Policy and Promotion (Ministry of Commerce and Industry, Government of India). Price deflators used to convert nominal into real values of wages and salaries are the Consumer Price Indices for Industrial Workers produced by the Labour Bureau (Ministry of Labour and Employment, Government of India).

informal workers. However, regular-informal workers, as defined here, could include, apart from contract workers, some of the directly employed workers as well. In short, there are problems of comparability between the ASI data used here and the national accounts or NSSO data used in the preceding chapter. Nevertheless, in qualitative terms, both sets of data support the conclusion that organized manufacturing recorded rapid growth of output and employment during the period 1999/2000–2011/12.

The ASI data allows deeper analysis. The employment of production workers grew somewhat faster (at 5.0 per cent per annum) than total employment (at 4.8 per cent per annum), implying significantly slower growth of other employees (supervisory–managerial staff as well as clerical–administrative–maintenance staff). The number of supervisory–managerial staff increased at 4.7 per cent per annum while the number of clerical–administrative–maintenance staff increased at 3.7 per cent per annum. Thus, the share of non-worker employees in total employment declined from 23.3 per cent in 1999/2000 to 21.6 per cent in 2011/12. Also, the ratio of supervisory–managerial staff to production workers declined slightly, from 0.130 in 1999/2000 to 0.126 in 2011/12.

TABLE 7.1 Output and Employment in Organized Manufacturing (Average Annual Growth [%], 1999/2000–2011/12)

Gross value added	10.0
Number of all employees	4.8
Number of production workers	5.0
Directly employed workers	3.1
Contract workers	9.9
Number of supervisory–managerial staff	4.7
Number of clerical–administrative–maintenance staff	3.7

Source: Estimates based on data in Tables S.11, S.15–S.20 in the Statistical Annexe.

Capital intensity, measured as the real value of plant and machinery per production worker, increased at the rate of 2.4 per cent per annum during the period. The fact that the ratio of production workers to all employees increased in a period when the capital intensity of production was rising is revealing. Rising capital intensity, if associated with technological change, may be expected to increase the importance of non-worker staff. The observed trends seem to indicate that the growth of capital intensity involved pure substitution of capital for labour.

Most remarkably, employment of contract workers grew at a much faster rate (9.9 per cent per annum) than that of directly employed workers (3.1 per cent per annum). As a result, the share of contract workers in all production workers increased from 20 per cent in 1999/2000 to 36 per cent in 2011/12. Unfortunately, the ASI does not provide data on education or skill levels of workers. But it can be plausibly supposed (in the light of data analysis from the NSSO surveys) that contract workers generally are less educated or less skilled than directly employed workers. To the extent that this is so, the growth in the share of contract workers in a context of rising capital intensity appears puzzling since rising capital intensity is normally expected to be associated with rising skill intensity. However, the growth in the share of contract workers in all workers may have been associated with rising rather than declining average level of education of the workers as already observed (Table 6.8 in Chapter 6) for the level of education of all types of workers has also been rising over time.

GROWTH OF MANUFACTURING: DRIVERS AND CONSTRAINING FACTORS

To understand and identify some of the factors that drove or constrained the growth of organized manufacturing during the period under study, the heterogeneity of the growth experience across industries may be exploited.

Pattern of input use and growth

When the relation between the type of inputs used by the industries and their growth performance are considered, three basic facts stand out.

First, industries with higher average imported-input intensity are observed to have grown faster than industries with lower average imported-input intensity (Figure 7.1). Here imported-input intensity is defined as the current value of imported inputs as a percentage of current value of gross output; the average imported-input intensity for the period 1999/2000–2011/12 is taken as the simple average of the values for all the years. What the observed pattern clearly suggests is that the extent of use of imported inputs in domestic production (and assembly operations) acted as a driver of growth. Some researchers have found higher imported-input intensity to be associated with higher productivity growth (Goldar 2015). It can thus be said that the trade and exchange rate policies of the period, which allowed increasing use of imported inputs in domestic production, has had the effect of stimulating growth of organized manufacturing (though at a considerable cost, which shall be seen as follows).

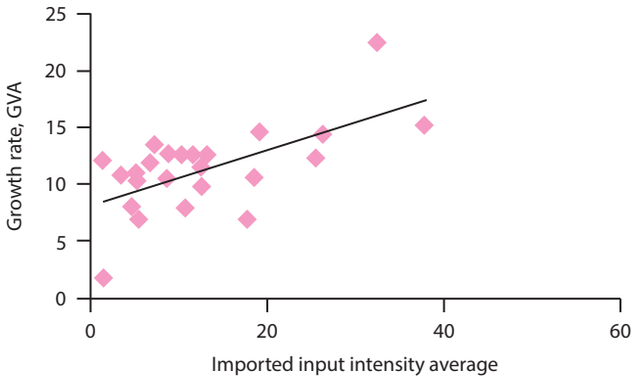

FIGURE 7.1 Imported-Input Intensity and Growth (%)

Source of data: Appendix Table A.7.2.

Second, industries with higher average fuel intensity are observed to have recorded slower growth than industries with lower average fuel intensity (Figure 7.2). Here, fuel intensity is defined as the cost of electricity and other energy inputs (coal, gas, petrol, diesel, and lubricants) as percentage of the current value of gross output; and the average fuel intensity is taken as the simple average of the values for all the years. The relationship indicates that fuel costs acted as a constraint on growth of organized manufacturing. It is known that fuel intensity is a decent proxy

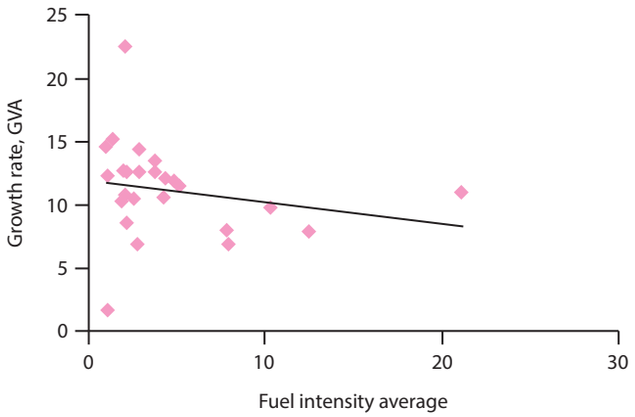

FIGURE 7.2 Fuel Intensity and Growth (%)

Source of data: Appendix Table A.7.2.

for infrastructure-input intensity, which may be defined as expenditure on energy inputs, storage, and transportation as percentage of the current value of gross output (Gupta, Hasan, and Kumar 2008). Thus, the observed relationship suggests that poor quality of infrastructure acted as a constraint on growth of industries that are important users of infrastructure inputs.

Third, more capital-intensive industries do not appear to have grown significantly faster than less capital-intensive (or labour-intensive) industries (Figure 7.3). Here, capital intensity is defined as the real value of plant and machinery per production worker; the average capital intensity is taken as the simple average of the values for all the years. This finding appears surprising; many researchers claim to have found that labour-intensive industries did poorly in comparison with capital-intensive industries (Das and Kalita 2009; Das, Wadhawa, and Kalita 2009; Goldar 2014; Kapoor 2014; Sen and Das 2015). A closer look reveals the following. In general, the capital-intensive industries are also imported-input intensive (Figure 7.4). But only some of them are fuel intensive. What is actually observed is that of the industries that are both capital-intensive and imported-input intensive, those that are also fuel intensive recorded lower growth than the others. On the other hand, there are industries that are imported-input intensive but neither capital intensive nor fuel intensive; these industries also recorded high growth. Then there are industries that are neither capital intensive nor fuel intensive nor imported-input intensive, which recorded slower growth. In short, the heterogeneity of growth experience across

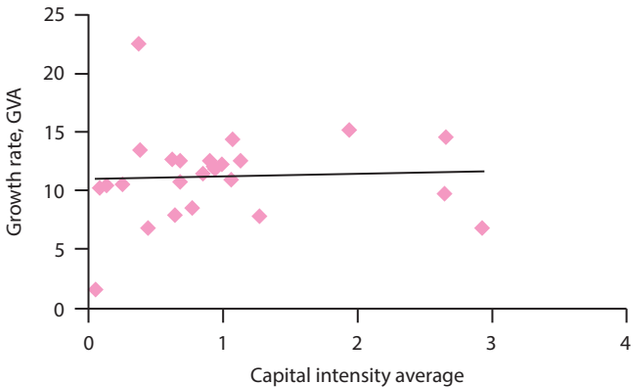

FIGURE 7.3 Capital Intensity and Growth (%)

Source of data: Appendix Table A.7.2.

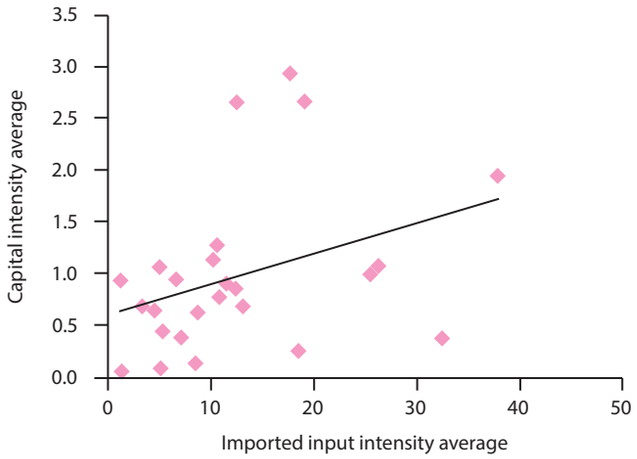

FIGURE 7.4 Imported-Input Intensity and Capital Intensity (%)

Source of data: Appendix Table A.7.2.

industries is explained by the heterogeneity in imported input and fuel intensities and not by the heterogeneity of capital intensity.

These patterns are brought out quite sharply by Table 7.2. The only substantive difference between the subgroups A1 and A2 is that the latter is less fuel intensive than the former; the slower growth of the former thus underlines the constraint posed by the fuel (infrastructure) cost. The only substantive difference between the subgroups A2 and B1 is that the latter is less capital intensive than the former; the equally rapid growth of both underlines the unimportance of capital intensity. The only substantive difference between the subgroups B1 and B2 is that the former is more imported-input intensive than the latter; the higher growth of the former thus underlines the positive impact of imported inputs on growth. Finally, the industries in group A are more capital intensive, more imported-input intensive and more fuel intensive than the industries in group B. Yet the growth rates for the two groups are very similar, which reveals that for the former group, the positive effect of high imported-input intensity was cancelled out by the negative effect of high fuel intensity.

Pattern of output use and growth

Industries may be classified with reference to markets in which their outputs were sold. Three basic categories may then be identified. First, there are industries whose

TABLE 7.2 Pattern of Input Use and Growth

Industry group	Average capital intensity	Average imported-input intensity	Average fuel intensity	Average annual growth (%) of GVA
A1	2.6	14.5	9.5	8.5
A2	1.3	16.2	2.9	13.2
A	2.3	14.8	8.3	9.6
B1	0.7	13.2	2.9	12.4
B2	0.4	5.7	3.7	9.3
B	0.5	7.3	3.5	10.1

Source: Author's estimates based on data in Tables S.9, S.11–S.15 in the Statistical Annexe.
Note: The industry groups are defined as follows: A1 = high capital intensity/high imported-input intensity/high fuel intensity; A2 = high capital intensity/high imported-input intensity/low fuel intensity; B1 = low capital intensity/high imported-input intensity/low fuel intensity; and B2 = low capital intensity/low imported-input intensity/low fuel intensity. The detailed list of industries is given in Box 7.2.

Box 7.2 Industries Classified According to Input Use

A1: High imported-input intensity (≥10.0)/high capital intensity (≥0.93)/high fuel intensity (≥8.0): basic metals; chemicals and chemical products; paper and paper products

A2: High imported-input intensity (≥10.0)/high capital intensity (≥0.93)/low fuel intensity (<8.0): office, accounting, and computing machinery; consumer electronics; electronic components; communication equipment; pharmaceuticals and medicinal products

B1: High imported-input intensity (≥10.0)/low capital intensity (<0.93)/low fuel intensity (<8.0): other transports and equipment; wood and wood products; bodies, trailers, and others; rubber products; printing and publishing; electrical equipment

B2: Low imported-input intensity (<10.0)/low capital intensity (<0.93)/low fuel intensity (<8.0): machinery and equipment; textiles; leather and leather products; wearing apparel; transport equipment not classified elsewhere; food and dairy products; fabricated metal products; tobacco products

Note: Three industries, namely, non-metallic mineral products; beverages; and plastic products do not fall neatly into any of these categories mentioned and have been left out. See Appendix Table A.7.2 for the relevant data.

products were sold in the domestic market but had to compete with imported products of the same type, which have been defined as 'import-competing industries'. Second, there are industries that exported substantial parts of their products that have been defined as 'export-oriented industries'. Third, there are industries whose products were sold mainly or wholly in the domestic market but did not have to compete with imported products of the same type that have been defined as 'others'.

In precise terms, the share of net imports (that is, imports minus exports) in domestic output is used to identify the import-competing industries. These are taken to be the industries for which this share is 5 per cent or more. In a recent paper, Vashisht (2015) has done detailed work to identify the import-competing industries by using this criterion and the list here is derived from his more detailed list. Of the industries that are not import competing, those industries for which the value of exports of final products exceeds the value of imported inputs by a substantial margin are identified as export oriented. The remaining industries constitute the category of 'others'. The detailed list is provided in Box 7.3.

What is immediately striking is that there are just three industries in the list: textiles, leather and leather products, and wearing apparel that are export oriented. There is another industry, jewellery, bijouterie, and related articles (the major component of gems and jewellery) which (though heavily dependent on imported inputs) could be called export oriented; this has been left

Box 7.3 Categories of Industries by Product Markets

*Import competing: [{(imports – exports) output}*100] ≥ 5%*: basic metals; chemicals and chemical products; office, accounting and computing machinery; consumer electronics; non-metallic mineral products; paper and paper products; electronic components; machinery and equipment; other transports and equipment; wood and wood products

Export oriented: [exports/output] high; [(value of exports) > (value of imported inputs)]: textiles; leather and leather products; wearing apparel

Others: beverages; communication equipment; pharmaceuticals and medicinal products; plastic products; bodies, trailers, and others; rubber products; printing and publishing; electrical equipment; transport equipment not classified elsewhere; food and dairy products; fabricated metal products; tobacco products

Note: See Appendix Table A.7.3 for the relevant data.

out because of problems of consistency with the data and difficulty in identifying an appropriate price deflator. In the case of pharmaceuticals/medicinal products, exports are substantial but the value of imported inputs exceeds the value of exports by a substantial margin (Appendix Table A.7.3).

The estimates presented in Table 7.3 lead to the following observations.

First, export-oriented industries are the least capital intensive (or the most labour intensive). They also do not use much imported inputs. Also, only one of them (textiles) is moderately fuel intensive. An incidental observation may be made here. India's export-oriented industries are labour intensive but exports are not. Thus, for the years 2008/09, 2009/10 and 2011/12 (the years for which ASI has provided data on exports), the average capital intensity of the export-oriented industries was just 0.5 while the average capital intensity of the exports was 1.0. This is because exports are diversified (see Appendix Table A.7.6). In the period for which the relevant data exists, the export-oriented industries accounted for less than 40 per cent of India's exports. On the other hand, virtually all the other industries (including the import-competing industries) exported some parts of their outputs. But, for the industries other than the three identified as export oriented, the value of imported inputs far exceeded the value of exports. The observed average capital intensity of India's exports tends to mislead rather than illuminate. It indicates that India's comparative advantage is in capital-intensive products, not in labour-intensive products. This is untrue. India's comparative advantage lies in labour-intensive manufactures. The observed diversification of India's exports also gives a false impression. India remains dependent on traditional labour-intensive manufactures.

Second, import-competing industries are the most capital intensive, the most imported-input intensive and the most fuel intensive. Third, the group of industries defined as 'others' had low capital and fuel intensity but moderate imported-input intensity.

The growth performances of the three groups of industries seem to show, once again, that imported inputs

TABLE 7.3 Output Use and Growth Performance

Industry types	Average capital intensity	Average imported-input intensity	Average fuel intensity	Average annual growth (%) annual of GVA
Import-competing industries	1.8	13.6	9.2	9.9
Export-oriented industries	0.5	4.9	6.5	8.6
Others	0.6	7.6	3.0	10.6

Source: Author's estimates based on data in Tables S.9, S.11–S.15 in the Statistical Annexe.

Note: Capital intensity = value (in million 2004/05 rupees) of 'plant and machinery' per production worker; imported-input intensity = value of imported inputs used in production as percentage of value of gross output; fuel intensity = cost of fuels used in production as percentage of value of gross output. Average means simple average for the period 2000–12.

served as a driver of growth while cost of infrastructure goods served as a constraint on growth. The 'others' are less imported-input intensive and less fuel intensive than the import-competing industries, and recorded higher growth. The export-oriented industries are less imported-input intensive and more fuel intensive that the 'others', and recorded lower growth.

A demand-side story can also be told. Clearly, the rapid growth of organized manufacturing was sustained principally by the rapid growth of domestic demand; external demand had a very small role to play. In this period of services-led growth, the main source of growth of domestic demand was the growth of services incomes, which are known to have been associated with rising inequality. The rapid growth of both the import-competing industries and the 'others' occurred in response to this kind of demand growth. In the process, domestic production became increasingly import dependent (Figure 7.5). This is how organized manufacturing got transformed from a significant net exporter into a large net importer. Growth became increasingly fragile; import-dependent production for the domestic market is not really sustainable.

In contrast, the export-oriented industries seem to have faced demand problems. This might partly have been because of slow expansion of world trade particularly following the financial crisis of 2007/08. But it must also be noted that for a large part of the period 1999/2000–2011/12, India's currency was substantially overvalued (see Chapter 8) and this hurt exports and encouraged imports. The overvaluation was caused by the large inflows of foreign portfolio investment. Government policy actually sought to encourage such inflows. To this extent, the poor trade performance of organized manufacturing was policy induced.

In sum, growth of organized manufacturing was rapid during 1999/2000–2011/12. But the growth was unhealthy and unsustainable. On the demand side, it was pulled by the rapidly expanding domestic demand associated with the rapid growth of services. On the supply side, imported inputs served as the key driver of growth and the cost of fuel (infrastructure goods) served as the major constraint. The growing import dependence of industrial production for the domestic market (rather than for export) made this growth fragile and unsustainable. In the event, the fuel or infrastructure constraint can be said to have played a positive role by restraining the pace of unsound growth.

Healthy and sustainable growth calls for greater emphasis on exports, serious restraint on the use of imported inputs in production for the domestic market, and easing of the fuel or infrastructure constraint.

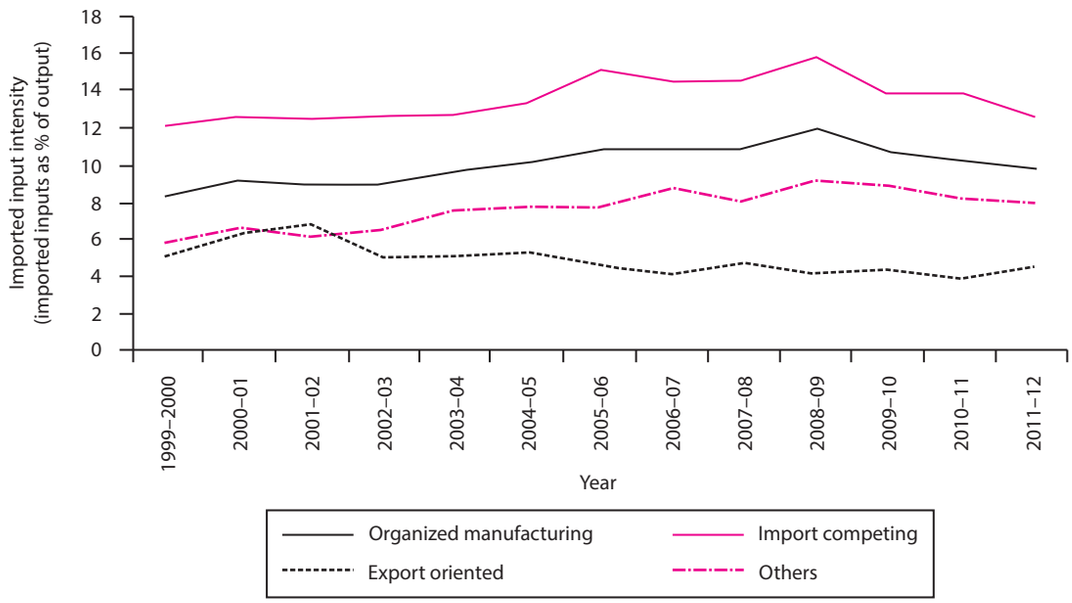

FIGURE 7.5 Trends in Imported-Input Intensity of Output

Source of data: Author's estimates based on data in Tables S.9 and S.14 in the Statistical Annexe.

Output growth and employment growth

How did employment growth relate to output growth in organized manufacturing? Further, what were the factors that mediated this relationship? This section seeks to answer these questions. Here the growth of employment is taken to mean growth of employment of production workers. It would have made no difference to the results of the analysis had employment growth been taken as growth of all employees or as growth of all persons engaged; all three variables are very strongly and positively related (Figures 7.6 and 7.7). In most cases, the growth of employment of production workers was slightly higher than that of all employees as also of all persons engaged (Appendix Table A.7.4).

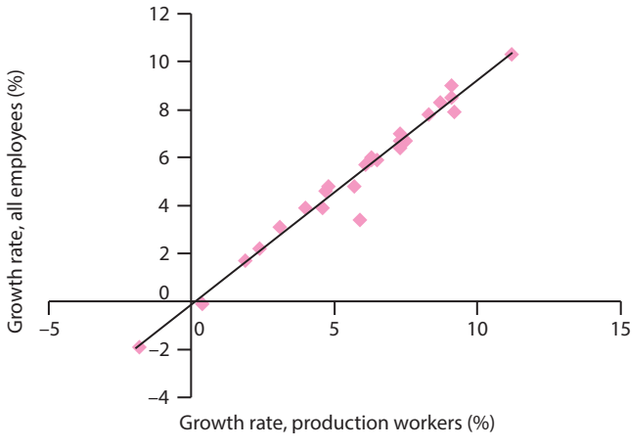

FIGURE 7.6 Employees and Production Workers

Source of data: Appendix Table A.7.4.

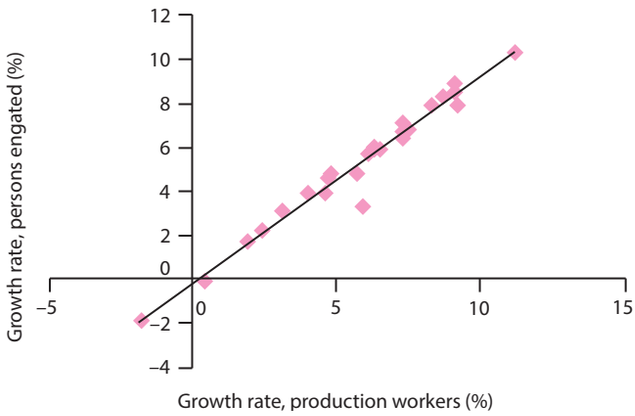

FIGURE 7.7 Persons Engaged and Production Workers

Source of data: Appendix Table A.7.4.

Four observations can be made here. First, employment growth was positively related to output growth (Figure 7.8); the higher the output growth in an industry, the higher was the employment growth. Second, employment growth was negatively related to growth of capital intensity in production (Figure 7.9). In other words, employment growth was slower in an industry that witnessed higher growth of capital intensity; capital substituted for labour.

Third, growth of employment of production workers was positively associated with growth of employment of contract workers; the higher the growth of employment of contract workers in an industry, the higher was the growth of total employment (Figure 7.10). In fact, employment of contract workers grew faster than that of total employment in all industries; thus the contract-worker intensity, defined as the share of contract workers in production workers, increased everywhere (Appendix Table A.7.4). The growth of contract worker intensity was positively related to the growth of employment of contract workers (Figure 7.11).

Fourth, growth of contract worker intensity was found to be positively related to output growth (Figure 7.12). Between any two industries that had the same rate of employment growth, the one that witnessed larger growth of contract workers (and correspondingly smaller growth of directly employed workers) also witnessed faster growth of output. Since the growth of contract worker intensity was positively related to the growth of

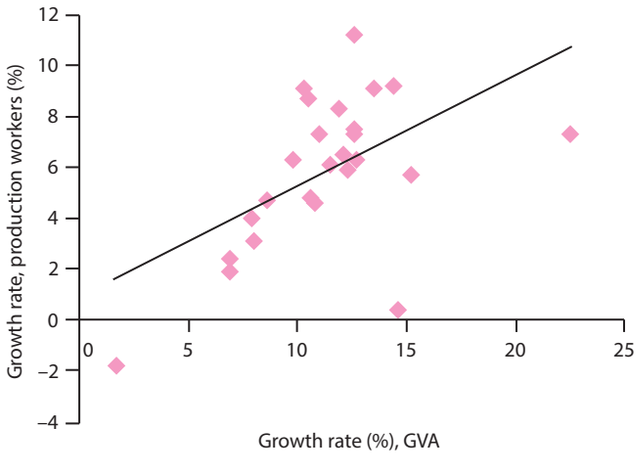

FIGURE 7.8 Employment and Output

Source of data: Appendix Tables A.7.2, A.7.4 and A.7.5.
Note: GVA = gross value added.

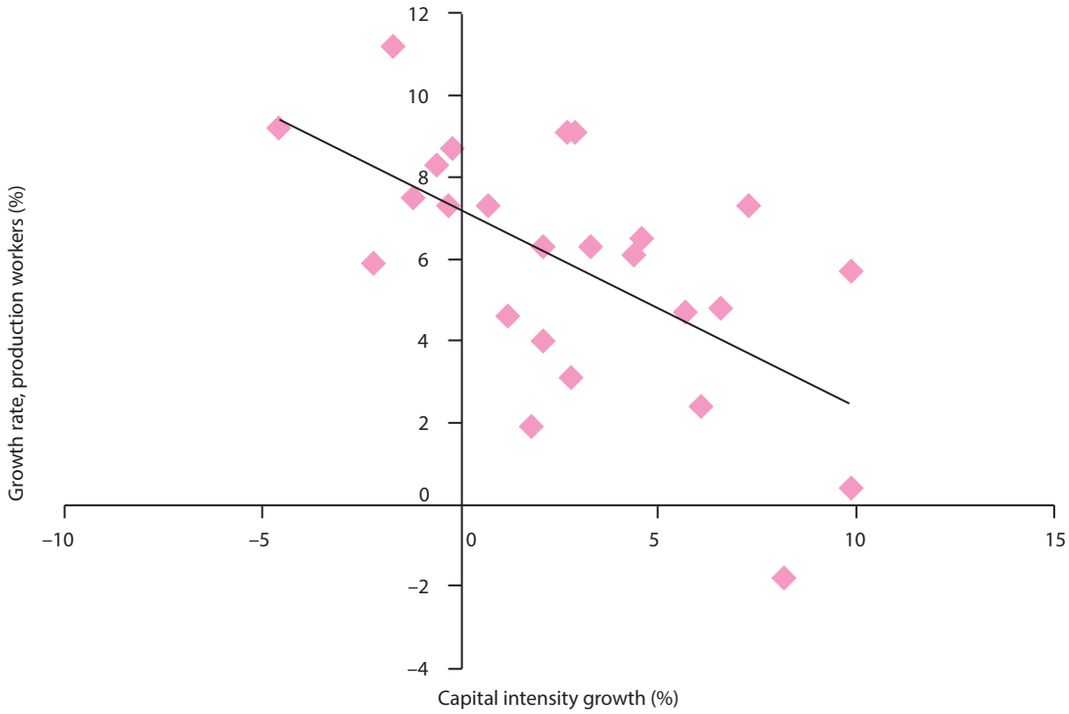

FIGURE 7.9 Employment and Capital Intensity

Source of data: Appendix Tables A.7.2, A.7.4 and A.7.5.

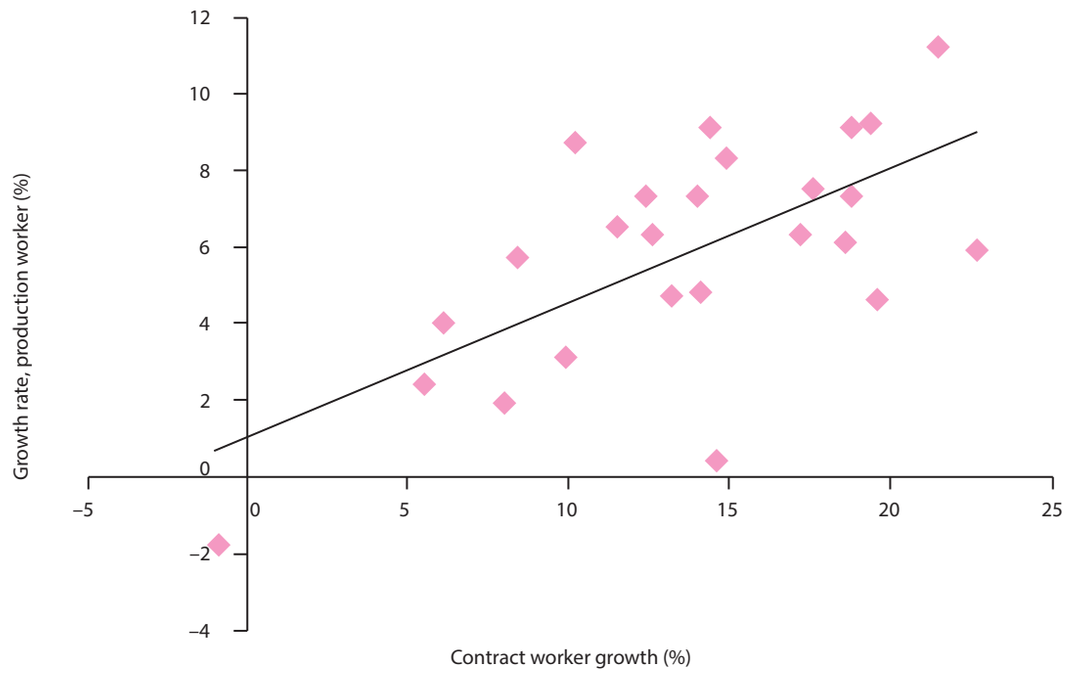

FIGURE 7.10 Employment Growth and Contract Workers

Source of data: Appendix Table A.7.4.

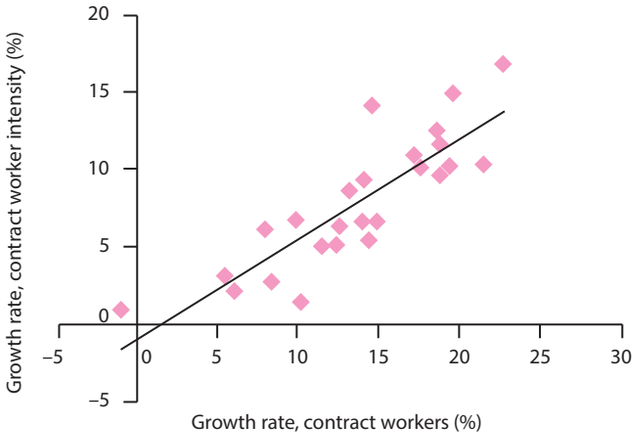

FIGURE 7.11 Output Growth and Contract Workers

Source of data: Appendix Tables A.7.4 and A.7.5.

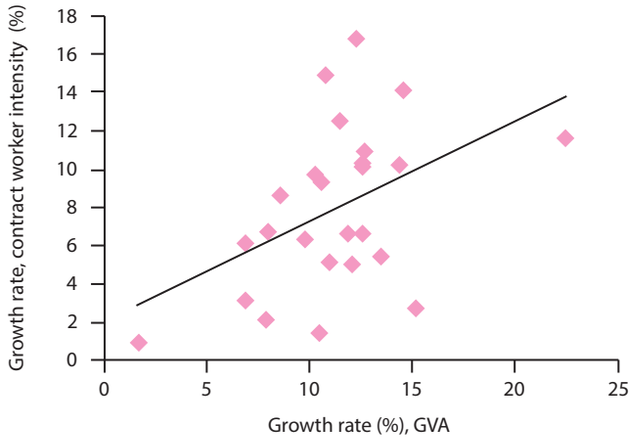

FIGURE 7.12 Contract Worker Intensity and Output Growth

Source of data: Appendix Tables A.7.2, A.7.4 and A.7.5.

employment of contract workers, output growth was also positively related to the growth of employment of contract workers (7.13). These relationships come as a surprise as far as they suggest that, in general, contract workers were more productive than directly employed workers.

Further probe confirms that contract workers were in fact more productive than directly employed workers; growth of labour productivity (gross value added per production worker) was positively related to growth of employment of contract workers (Box 7.4).

Why were contract workers more productive than directly employed workers? This is an interesting question that cannot be fully answered here. One possibility is that

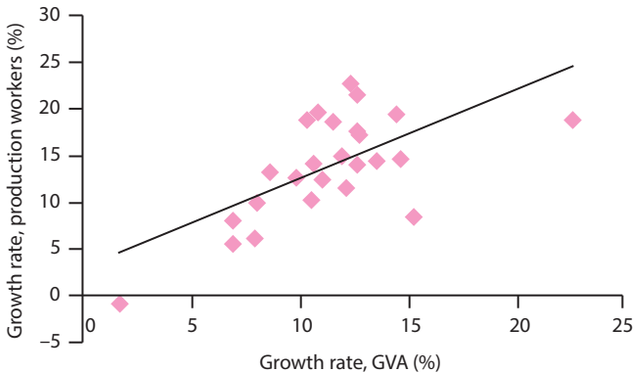

FIGURE 7.13 Contract Workers and Output Growth

Source of data: Appendix Tables A.7.2 and A.7.4.

Box 7.4 Contract Workers and Labour Productivity

To observe the effect of growth of employment of contract workers on productivity growth, some simple regression exercises (cross-section data across 25 industries presented in Appendix Tables A.7.4 and A.7.5) have been carried out. The results are as follows:

$$g(GVA/PW) = \underset{(1.151)}{0.814} + \underset{(0.130)}{0.537^{*}}\, g(CI) + \underset{(0.115)}{0.390^{*}}\, g(CWI),\ R^2 = 0.521$$

$$g(GVA/PW) = \underset{(1.750)}{-0.533} + \underset{(0.153)}{0.658^{*}}\, g(CI) + \underset{(0.104)}{0.297^{*}}\, g(CW),\ R^2 = 0.469$$

where g indicates average annual growth rate; PW = number of production workers; GVA = gross value added in constant prices; CI = capital intensity (value of plant and machinery per production worker in constant prices); CWI = contract worker intensity (contract workers as per cent of production workers); CW = number of contract workers; figures in parentheses are standard errors; stars indicate the levels of statistical significance: * significant at 1 per cent.

employment of contract workers helped remove critical labour bottlenecks in the production process. Another possibility is that the contract workers, being insecure in their jobs, generally worked harder and more effectively than directly employed workers who, being secure in their jobs, tended to be laid-back at work. A third possibility is that the contract workers worked longer hours than the directly employed workers in order to earn a decent wage; one part of the wage of a contract worker is usually paid on a piece-rate basis. These, however, are only conjectures and their relevance or otherwise can only be determined through empirical investigation.

Many have argued that the existing labour regulations create rigidities in employment, particularly with respect to 'hiring, re-deployment and firing' of employees, that hurt both output and employment growth (Besley and Burgess 2004; Gupta, Hasan, and Kumar 2008; Hasan, Mitra, and Ramaswamy 2003; Hoda and Rai 2015; Kapoor 2014; World Bank 2010). The growing employment of contract workers during 1999/2000–2011/12, which obviously reduced rigidities, could thus be expected to have had a stimulating effect on growth of output as also of employment (Chaurey 2015; Das, Choudhury, and Singh 2015; Goldar 2011; Ramaswamy 2015). The evidence examined here shows that this indeed was the case; incremental employment in all industries went mainly to contract workers (Appendix Table A.7.6) and the industries that increased the share of contract workers in total workforce grew faster. The analysis shows, however, that the main benefit brought by the increased flexibility did not flow from the increased ease of hiring and firing as such. Increased employment of contract workers helped increase labour productivity and thus output growth. Moreover, the average wage paid to a contract worker was generally, though not invariably, lower than the average wage paid to a directly employed worker (see Appendix Table A.7.7). On an average, across industries and over the period, the annual wage of a contract worker was around 65 per cent of that of a directly employed worker. Increased employment of contract workers, therefore, reduced the unit cost of labour quite dramatically.

Growth of labour productivity, as had been found, was positively related to both growth of capital intensity and growth of employment of contract workers. It was also observed that growth of capital intensity did not have much of an effect on output growth; it increased labour productivity and correspondingly reduced employment growth. Growth of employment of contract workers, on the other hand, increased both labour productivity and employment.

Employment elasticity, as is known, is inversely related to growth of labour productivity; over any given period, the faster the growth of labour productivity, the lower is the employment elasticity. So the growth of capital intensity can be expected to have lowered the employment elasticity, and the growth of employment of contract workers to have increased it. These expectations are borne out by data in Box 7.5. The higher the growth of capital intensity, the lower was the employment elasticity. Further, the higher the growth of employment of contract workers, the higher was the employment elasticity.

The data in Table 7.4 highlights these relationships. The growth of capital intensity was the same for industry groups A2 and B1. But the growth of contract worker intensity was larger for B1 and the employment elasticity was also significantly higher for B1. The growth of contract worker intensity was higher and the growth of capital intensity was lower for the export-oriented industries than for the import-competing industries; the employment elasticity was higher for the export-oriented industries.

Two interesting findings emerge from the analysis.

Box 7.5 Contract Workers and Employment Elasticity

A simple regression exercise with the cross-section data for 25 industries (Appendix Table A.7.5) shows the following:

$$EE = 0.185 - 0.035^{***}\, g(CI) + 0.028^{**}\, g(CW),\ R^2 = 0.443$$
$$\qquad\quad (0.203)\ \ (0.018)\qquad\qquad (0.012)$$

where EE = employment elasticity defined as the ratio of employment growth to output growth (see Box 7.4 for other definitions); stars indicate the level of statistical significance: ** significant at 5 per cent; *** significant at 10 per cent.

TABLE 7.4 Determinants of Employment Elasticity

Industry category	EE	g(CI)	g(CW)	g(CWI)	g(GVA/PW)
A1	0.518	2.6	10.3	5.9	4.1
A2	0.523	0.8	14.5	7.6	6.3
B1	0.653	0.8	19.0	10.9	4.3
B2	0.419	3.6	6.9	3.0	5.4
Import competing	0.556	1.6	12.0	6.5	4.4
Export oriented	0.570	1.3	11.8	6.9	3.7
Others	0.443	3.8	8.3	3.6	5.9

Source: Author's estimates based on data in Tables S.11, S.12, S.15, and S.17 in the Statistical Annexe.
Note: EE = employment elasticity; g(CI) = growth of capital intensity; g(CW) = growth of employment of contract workers; g(CWI) = growth of contract worker intensity; g(GVA/PW) = growth of output per production worker. Categories A1, A2, B1, and B2 are explained in Note to Table 7.2.

First, the growth of capital intensity was not in general associated with technological change. It did not bring growth acceleration; it only lowered employment growth and hence the employment elasticity. While the capital intensity in production was increasing, the ratio of non-worker staff to production workers was declining; technological change would have required this share to be increasing. Thus, the growth of capital intensity really involved pure substitution of capital for labour.

In contrast, the growth of employment of contract workers increased both output growth and employment growth. It increased the latter more than the former and thus increased the employment elasticity. This conclusion is consistent with the earlier observation that the growth of informal employment played an important role in ensuring rapid employment growth not just in organized manufacturing but in the organized sector as a whole. The rapid growth of employment in the organized sector ensured, in turn, significant transfer of relatively low-skilled workers from the unorganized sector to jobs in the organized sector.

* * *

Organized manufacturing recorded rapid growth during 1999/2000–2011/12. But this growth had rather weak foundations and was rapidly becoming unsustainable. On the supply side, the growing use of imported inputs was driving output growth. On the demand side, the growth of domestic demand supported growth. The result was growing deficit in trade in manufactures, which, as shown earlier, was a major contributor to the growing current account deficit that eventually caused growth slowdown. Import-dependent production for the domestic market is inherently unsustainable.

Growth was constrained to some extent by the poor conditions of supply of fuels and other infrastructure goods; the fuel-intensive industries recorded relatively poor growth. Export-oriented industries too recorded relatively poor growth. It also turns out that a look at exports alone gives a misleading picture of trade performance. India's export-oriented industries (textiles, leather and leather products, wearing apparel, gems and jewellery) have remained the same for a long time. Many other industries, however, now export tiny proportions of their outputs. This explains why India's exports appear to have become diversified and increasingly capital intensive. These industries, however, are far from being export oriented; their imports of inputs are far larger than exports of outputs. In reality, the export-oriented industries have been, and remain, labour intensive. Export growth has not resulted in growth of export-oriented industries just as diversification of exports has not resulted in diversification of export-oriented industries. Many items of India's manufactured exports cannot in fact be considered as export items.

Two factors influenced the employment effects of output growth during the period. First, capital intensity grew in most industries and this reflected substitution of capital for labour rather than technological change. For any given output growth, therefore, growth of capital intensity lowered the employment growth and hence the employment elasticity. Second, employment of

contract workers and contract worker intensity grew in all industries. These developments had positive effects on both output growth and employment growth. But their effects on employment were generally stronger than their effects on output. On the whole, therefore, they served to increase the employment elasticity.

APPENDIX TABLES

TABLE A.7.1 List of Industries

2004/05		
Code	Industry	Remark
27	Basic metals	
155	Beverages	
34	Bodies, trailers, parts and accessories	See Note 1
24	Chemicals and chemical products	See Note 2
322	Communication equipment	
323	Consumer electronics	
31	Electrical equipment	
321	Electronic components	
28	Fabricated metal products	
15	Food and dairy products	See Note 3
19	Leather and leather products	
29	Machinery and equipment	See Note 4
26	Non-metallic mineral products	
30	Office, accounting, and computing machinery	
35	Other transport and equipment	See Note 5
21	Paper and paper products	
2423	Pharmaceuticals/medicinal products	
252	Plastic products	
22	Printing and publishing	
251	Rubber products	
17	Textiles	
16	Tobacco products	
359	Transport equipment not classified elsewhere	
18	Wearing apparel	
20	Wood and wood products	
231	Coke oven products	
293	Domestic appliances	
3691	Gems and jewellery	
33	Medical, precision and optical instruments, watches and clocks	
341	Motor vehicles	
232–233	Refined petroleum products	

Notes: 1: excludes motor vehicles; 2: excludes pharmaceuticals/medicinal products; 3: excludes beverages; 4: excludes domestic appliances; 5: excludes transport equipment not classified elsewhere.

TABLE A.7.2 Output Growth, Capital Intensity, Fuel Intensity, and Imported-Input Intensity

	GVA growth (%)	Capital intensity (average %)	Fuel intensity (average %)	Imported- input intensity (average %)
	2000–12	2000–12	2000–12	2000–12
Basic metals	9.8	2.65	10.4	12.5
Beverages	12.1	0.93	4.4	1.2
Bodies, trailers, parts, and accessories	12.6	0.90	2.9	11.5
Chemicals and chemical products	6.9	2.93	8.0	17.7
Communication equipment	12.3	0.99	1.1	25.5
Consumer electronics	14.6	2.66	1.0	19.1
Electrical equipment	12.6	0.68	2.2	13.1
Electronic components	14.4	1.07	2.9	26.3
Fabricated metal products	13.5	0.38	3.8	7.1
Food and dairy products	6.9	0.44	2.8	5.3
Leather and leather products	10.5	0.13	2.6	8.5
Machinery and equipment	12.7	0.62	2.0	8.7
Non-metallic mineral products	11.0	1.06	21.3	5.0
Office, accounting, and computing machinery	15.2	1.94	1.4	37.9
Other transports and equipment	22.5	0.37	2.1	32.5
Paper and paper products	7.9	1.27	12.6	10.6
Pharmaceuticals and medicinal products	12.6	1.13	3.8	10.2
Plastic products	11.9	0.94	4.9	6.6
Printing and publishing	8.6	0.77	2.2	10.8
Rubber products	11.5	0.85	5.2	12.4
Textiles	8.0	0.64	7.9	4.5
Tobacco products	1.7	0.05	1.1	1.3
Transport equipment not classified elsewhere	10.8	0.68	2.1	3.3
Wearing apparel	10.3	0.08	1.9	5.1
Wood and wood products	10.6	0.25	4.3	18.5

Source: Author's estimates based on data in Tables S.9, S.11–S.15 in the Statistical Annexe.

Note: Capital intensity = value of plant and machinery per production worker (in million 2004/05 rupees); fuel intensity = costs of energy inputs (electricity, coal, gas, petrol, diesel, lubricants) as percentage of gross value of output; imported-input intensity = costs of imported inputs as percentage of gross value of output; average means simple average of the values of the relevant variable for the 13 years. Growth rate is the average annual growth rate estimated by using a semi-log regression equation.

TABLE A.7.3 Exports and Imported Inputs

	Average export intensity	Average imported-input intensity	Average share (%) in manufactured exports
Basic metals	1.5	13.7	7.7
Beverages	0.6	1.1	0.2
Bodies, trailers, parts, and accessories	3.9	10.1	4.1
Chemicals and chemical products	3.8	19.8	11.1
Communication equipment	3.4	23.3	0.6
Consumer electronics	4.2	17.9	1.0
Electrical equipment	2.7	12	3.3
Electronic components	5.6	24.6	0.9
Fabricated metal products	4.3	8.4	4.6
Food and dairy products	2.3	7.3	9.2
Leather and leather products	21.7	7.6	5.5
Machinery and equipment	3.5	8.7	5.9
Non-metallic mineral products	1.5	5.2	1.8
Office, accounting, and computing machinery	4.5	38.3	0.5
Other transports and equipment	2.2	21.4	0.3
Paper and paper products	1.0	11.0	0.4
Pharmaceuticals and medicinal products	6.2	10.1	6.9
Plastic products	1.7	9.1	1.2
Printing and publishing	0.9	11.3	0.2
Rubber products	3.3	15.6	1.4
Textiles	9.5	3.9	18.2
Tobacco products	0.7	1.6	0.1
Transport equipment not classified elsewhere	2.5	2.7	1.6
Wearing apparel	34.1	4.3	13.1
Wood and wood products	2.4	18.8	0.2
Coke oven products	0.8	22.0	
Domestic appliances	1.5	12.8	
Gems and jewellery	39.3	37.9	
Medical, precision and optical instrument, and clocks and watches	5.4	14.3	
Motor vehicles	1.7	14.1	
Refined petroleum products	4.4	66.8	

Source: Export intensity and share in manufactured exports: author's estimates based on unit-level data from ASI for 2008/09, 2009/10 and 2011/12; imported-input intensity: Tables S.9 and S.14 in the Statistical Annexe.
Note: Export intensity = exports as percentage of gross output; imported-input intensity = imported inputs as per cent of gross output; average means simple average of the values of the relevant variable for three years: 2008/09, 2009/10 and 2011/12 (these are the three years for which the ASI gives data on exports).

TABLE A.7.4 Employment Growth

	Growth (%) of persons engaged	Growth (%) of all employees	Growth (%) of all workers	Growth (%) of directly employed	Growth (%) of contract workers
	2000–12	2000–12	2000–12	2000–12	2000–12
Basic metals	6.0	6.0	6.3	3.3	12.6
Beverages	5.9	5.9	6.5	3.2	11.5
Bodies, trailers, parts, and accessories	10.3	10.3	11.2	6.8	21.5
Chemicals and chemical products	1.7	1.7	1.9	–0.5	8.0
Communication equipment	3.3	3.4	5.9	–0.3	22.7
Consumer electronics	–0.1	–0.1	0.4	–3.7	14.6
Electrical equipment	6.8	6.7	7.5	4.3	17.6
Electronic components	7.9	7.9	9.2	6.9	19.4
Fabricated metal products	8.5	8.5	9.1	6.2	14.4
Food and dairy products	2.2	2.2	2.4	1.4	5.5
Leather and leather products	8.3	8.3	8.7	8.5	10.2
Machinery and equipment	5.9	5.9	6.3	3.5	17.2
Non-metallic mineral products	7.1	7.0	7.3	3.0	12.4
Office, accounting, and computing machinery	4.8	4.8	5.7	4.1	8.4
Other transports and equipment	6.4	6.4	7.3	0.7	18.8
Paper and paper products	3.9	3.9	4.0	3.3	6.1
Pharmaceuticals medicinal products	6.7	6.7	7.3	4.2	14.0
Plastic products	7.9	7.8	8.3	6.4	14.9
Printing and publishing	4.6	4.6	4.7	3.3	13.2
Rubber products	5.7	5.7	6.1	3.4	18.6
Textiles	3.1	3.1	3.1	2.4	9.9
Tobacco products	–1.9	–1.9	–1.8	–3.9	–0.9
Transport equipment not classified elsewhere	3.9	3.9	4.6	–0.1	19.6
Wearing apparel	8.9	9.0	9.1	7.8	18.8
Wood and wood products	4.8	4.8	4.8	2.8	14.1

Source: Author's estimates based on data in Tables S.15–S.17 and S.20 in the Statistical Annexe.

Note: Workers (production workers) = persons who are engaged in any manufacturing process or in cleaning any part of the machinery or premises used for manufacturing process, and are paid wages; employees = workers + persons who are engaged in supervisory, clerical, administrative, store keeping, welfare, sales, purchases and watching or guarding work, and are paid salaries; persons engaged = employees + working proprietors and their family members or members of cooperative societies working in or for the factory without pay; directly employed workers = directly recruited by the factory; contract workers = workers hired through an agency. Growth rates are average annual growth rates estimated by using semi-log regression equations.

TABLE A.7.5 Growth of Output, Capital Intensity, and Contract Worker Intensity

	Growth (%) of GVA per worker	Growth (%) of capital intensity	Growth (%) of contract worker intensity
	2000–12	2000–12	2000–12
Basic metals	3.5	3.3	6.3
Beverages	5.6	4.6	5.0
Bodies, trailers, parts, and accessories	1.4	–1.7	10.3
Chemicals and chemical products	5.0	1.8	6.1
Communication equipment	6.4	–2.2	16.8
Consumer electronics	14.2	9.9	14.1
Electrical equipment	5.1	–1.2	10.1
Electronic components	5.2	–4.6	10.2
Fabricated metal products	4.4	2.9	5.4
Food and dairy products	4.5	6.1	3.1
Leather and leather products	1.8	–0.2	1.4
Machinery and equipment	6.4	2.1	10.9
Non-metallic mineral products	3.7	–0.3	5.1
Office, accounting, and computing machinery	9.5	9.9	2.7
Other transports and equipment	15.2	7.3	11.6
Paper and paper products	3.9	2.1	2.1
Pharmaceuticals and medicinal products	5.3	0.7	6.6
Plastic products	3.6	–0.6	6.6
Printing and publishing	3.9	5.7	8.6
Rubber products	5.4	4.4	12.5
Textiles	4.9	2.8	6.7
Tobacco products	3.5	8.2	0.9
Transport equipment not classified elsewhere	6.2	1.2	14.9
Wearing apparel	1.2	2.7	9.7
Wood and wood products	5.8	6.6	9.3

Source: Author's estimates based on data in Tables S.11, S.15 and S.17 in the Statistical Annexe.
Note: Contract worker intensity = number of contract workers as percentage of the number of production workers; growth rates are average annual growth rates estimated by using semi-log regression equations.

TABLE A.7.6 Growth of Contract Workers

	ΔCW as percentage of ΔPW	CW as percentage of PW	
		1999/2000	2011/12
Basic metals	77.2	20.7	44.5
Beverages	70.9	27.0	50.2
Bodies, trailers, and others	64.3	15.6	49.2
Chemicals and chemical products	104.5	17.2	37.2
Communication equipment	96.3	6.1	49.7
Consumer electronics	#	9.8	41.6
Electrical equipment	63.9	11.9	38.5
Electronic components	31.2	10.4	23.6
Fabricated metal products	59.4	22.1	44.6
Food and dairy products	62.2	20.1	29.9
Leather and leather products	25.7	13.2	21.2
Machinery and equipment	63.9	9.4	34.7
Non-metallic mineral products	78.9	33.8	57.6
Office, accounting, and computing machinery	67.6	35.5	50.1
Other transports and equipment	104.8	13.8	57.1
Paper and paper products	40.6	20.7	27.2
Pharmaceuticals and medicinal products	65.6	22.4	44.4
Plastic products	41.8	12.7	30.4
Printing and publishing	49.4	7.4	25.2
Rubber products	59.0	8.7	30.3
Textiles	35.9	6.6	13.9
Tobacco products	93.6*	70.2	68.2
Transport equipment not classified elsewhere	92	7.8	45.9
Wearing apparel	23.5	5.8	17.0
Wood and wood products	53.9	9.5	24.9

Source: Author's estimates based on data in Tables S.15 and S.17 in the Statistical Annexe.
Note: ΔCW = change in the number of contract workers employed; ΔPW = change in the number of production workers employed; # in the case of consumer electronics, the number of production workers had declined by 2,800 while the number of contract workers had increased by 5,900; * in the case of tobacco products, the number of production workers had declined by 3,450 while the number of contract workers had declined by 3,230.

TABLE A.7.7 Wages of Directly Employed and Contract Workers

	Average wage per worker per year (in thousand 2004/05 rupees)		Ratio: contract workers to directly employed
	Directly employed	Contract workers	
Basic metals	1,073	463	0.432
Beverages	629	386	0.614
Bodies, trailers, parts, and accessories	799	435	0.544
Chemicals and chemical products	792	433	0.547
Communication equipment	871	405	0.465
Consumer electronics	739	494	0.668
Electrical equipment	821	415	0.505
Electronic components	806	373	0.463
Fabricated metal products	636	402	0.632
Food and dairy products	398	299	0.751
Leather and leather products	374	372	0.995
Machinery and equipment	851	475	0.558
Non-metallic mineral products	495	277	0.560
Office, accounting, and computing machinery	717	419	0.584
Other transports and equipment	873	577	0.661
Paper and paper products	596	395	0.663
Pharmaceuticals medicinal products	728	413	0.567
Plastic products	432	368	0.852
Printing and publishing	689	413	0.599
Rubber products	711	395	0.556
Textiles	464	405	0.873
Tobacco products	278	138	0.496
Transport equipment not classified elsewhere	791	459	0.580
Wearing apparel	376	398	1.059
Wood and wood products	318	343	1.079
Mean			0.652
Standard deviation			0.183

Source: Author's estimates based on data in Tables S.22 and S.23 in the Statistical Annexe.
Note: Money wages have been deflated by the consumer price index for industrial workers.

8

Policy Options for the Future

Meeting the employment challenge requires a reorientation of India's growth strategy. It requires organized manufacturing to become the engine of growth for India's economy. The focus of policies, therefore, needs to be on achieving rapid growth of organized manufacturing, which can then drive the growth of services. This does not imply that no attention needs to be paid to growth of services (for example, software services) that is export driven. It implies growth of non-traded services, which account for the bulk of services output, being driven by growth of manufacturing rather than growth of manufacturing being driven by growth of non-traded services.

The Make in India programme, recently launched by the Government of India, puts a focus precisely on organized manufacturing-led growth. The policy regime required to promote this kind of growth is still in the process of being defined and put in place. Within this context and against the backdrop of the analysis presented in the preceding chapters, this chapter sets out some policy prescriptions that call for special attention.

MANUFACTURING GROWTH IN INDIA

It is well known that growth of organized manufacturing cannot be promoted through import substitution under protection (as was done in India in the 1950s and 1960s). Today, growth in manufacturing has to occur in an economy that is open to trade and capital flows. Recognizing this fact brings into focus two important issues.

Trade and growth of organized manufacturing

The first concerns the extent to which external demand can fuel growth of manufacturing. Can India hope to achieve rapid export-oriented growth of organized manufacturing, the kind of growth that the Republic of Korea or PRC achieved in the recent past? The answer is no. The growth of world trade is much slower today than it had been in the last four decades. Further, it does not seem likely that trade growth will be much faster in the foreseeable future. The developed countries are caught in stagnation and are unlikely to return to growth soon. Global value chains, whose expansion was a prime driver of growth of labour-intensive manufacturing in PRC in the recent past, appear unlikely to be expanding in the future. For the multinationals, the contribution of labour-intensive tasks (undertaken in developing country locations) to total value added in manufacturing has been declining while the contribution of skill-intensive tasks (undertaken in developed country locations) has been growing. Hence locations where cheap labour is available (that is, developing country locations) no longer hold the same allure as they did in the recent past. On the other hand, regional value chains are emerging, the most

prominent of these located in East Asia with its centre in China and extending across Cambodia, Indonesia, Myanmar, and Vietnam (one could also add Malaysia, the Philippines, and Thailand). Finally, there are important technological innovations (such as 3D printing, artificial intelligence and industrial robotics) in the pipeline, which will alter manufacturing in developed countries in as yet unknown ways. The structure of comparative advantage may well change as a consequence.

For all these reasons, it is hard to visualize exports driving growth of organized manufacturing in India today as they did in the Republic of Korea or PRC in the recent past. This is not to say that exports will not be important; only that export growth alone will not deliver the kind of rapid growth of organized manufacturing that India needs. Exports will have to remain an important source of growth for organized manufacturing. The analysis in the report has indicated that exports of manufactures received scant attention from policymakers in the past. Indeed, trade and exchange rate policies appear to have discouraged production for export and encouraged use of imported inputs in production for the domestic market.

It is widely held that India has an inverted duty structure (import duties on raw materials being higher than those on final products) and that this has hurt growth of manufacturing industries. This view sits uneasily with the findings of this report, namely, that the use of imported inputs has been growing in many industries (including the import-competing industries) producing for the domestic market and that these industries have grown faster than those that do not use imported inputs to any significant extent. This indicates that a simplistic view of inverted duty structure is unwarranted. It is possible that the domestic industries producing the inputs are inefficient so that imported inputs turn out to be cheaper despite the duties. Alternatively, it may be that taxes on the domestically produced inputs are higher than the import duties on imported inputs. Moreover, overvaluation of the exchange rate can clearly make imported inputs cheaper despite the duties. For a proper perspective on the issue, the duty structure needs to be viewed together with production conditions in domestic industries, tax structure, and movements in the exchange rate.

Overall, trade and exchange rate policies need serious review and reform. Trade policies will need to ensure that imported inputs are used basically in export-oriented industries and that dumping does not undermine domestic production. Exchange rate policies will need to focus on maintaining a stable and appropriate exchange rate.

Capital flows and growth of organized manufacturing

Maintaining a stable exchange rate is inherently difficult in an economy that is open to flows of foreign institutional investment. Inflows and outflows of such investment can be rapid and, most importantly, have little to do with domestic policies and much to do with monetary policies of the developed countries (most importantly the US but also the United Kingdom [UK], European Union, and Japan) whose currencies are used in international transactions. Yet these flows have important effects on the exchange rate; inflows cause currency overvaluation while outflows cause undervaluation. The Reserve Bank of India (RBI) can maintain stability of the nominal exchange rate only by expanding (in the face of inflows) or contracting (in the face of outflows) the money supply thereby engendering inflation or deflation, which lead to overvaluation or undervaluation of the real exchange rate. The helplessness of the RBI is underlined by the fact that India's real effective exchange rate was appreciating throughout the period 2000–12 (Figure 8.1), which undermined manufacturing. Effectively, the only policy option available to the government for maintaining a stable and appropriate exchange rate is that of direct controls on FII flows.

Inflows of foreign direct investment (FDI) can also cause currency overvaluation. But in this case, the RBI can prevent overvaluation by appropriately expanding the money supply. This may generate inflation, but the inflation is short-lived because FDI adds to the economy's productive capacity and increases output with a time lag. Moreover, FDI inflows do not abruptly turn into outflows because of monetary policy changes in developed countries.

Future policies must focus on encouraging FDI inflow and discouraging FII inflow.

EXPANDING THE DOMESTIC MARKET

As already noted, rapid growth of organized manufacturing will require rapid expansion of the domestic market for manufactures. Policies will need to keep two central objectives in view: achieving rapid growth of agriculture and creation of an integrated national market.

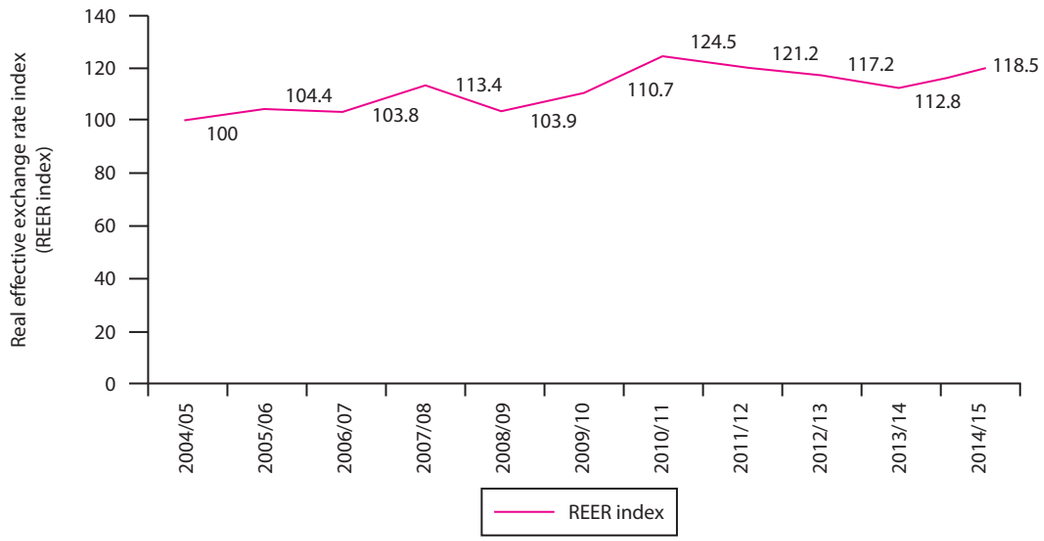

FIGURE 8.1 Real Effective Exchange Rate (Six-Country Index)

Source of data: Reserve Bank of India (various years).

It is rapid growth of agriculture that can bring rapid expansion of domestic demand for manufactures. As it happens, agriculture has now been in a state of stagnation for quite a few years, as the data in Table 8.1 shows. Speedy achievement of growth acceleration in agriculture is thus of utmost importance. Policies required for this are well known (Chand 2012; Mahendra Dev 2012; *Economic Survey 2015–16*, vol. 2, chapter 5; Niti Aayog 2015; Parikh, Ghosh, and Binswanger-Mkhize 2013; Planning Commission 2013; Patnaik 2011; Sharma 2015). These include increasing public investment in infrastructure (irrigation and water management systems, cold storage networks, rural roads); bringing green revolution to the eastern states; promoting shifts to non-cereal products (fruits and vegetables, fisheries, animal husbandry); promoting agro-processing industries; and reforming markets in agricultural products.

TABLE 8.1 Growth (% per Annum) of Agriculture

Period	Estimates Base: 2004/05	Estimates Base: 2011/12
2011/12–2012/13	1.4	1.2
2012/13–2013/14	4.7	4.2
2013/14–2014/15#		–0.2
2014/15–2015–16&		1.1

Note: # = first revised estimate; & = advance estimate
Source: *National Accounts Statistics* (various years).

Integration of India's currently fragmented markets (in both agricultural and industrial products) into a national market will also help market expansion by substantially reducing transaction costs. There is no national market in agricultural products because markets in these products are regulated under the Agricultural Produce Market Committee (APMC) acts enacted by the state governments, which stipulate that the first sale of agricultural products produced in the region must be conducted in the regulated markets of the region (Chand 2012; *Economic Survey 2015–16*, vol. 1, chapter 8, vol. 2, chapter 5). Further, there is no national market in industrial products because of the simultaneous existence of central and state taxes (*Economic Survey 2015–16*, Government of India 2016). Hence promotion of an integrated national market will require action on two fronts. The first includes reform (and perhaps eventual abolition) of the APMC acts, development of farmers' markets, development of agro-processing industries, and expansion of private wholesale trade. The second is replacement of the central and state taxes by a well-designed 'goods and services tax' (GST) regime.

REMOVING SUPPLY-SIDE CONSTRAINTS

The factors that constrain growth of manufacturing from the supply side are by now well recognized, namely, inadequate and poor quality physical infrastructure (fuel and power supply, transport networks, and ports

and airports). Most enterprise surveys show that entrepreneurs perceive the infrastructure constraint to be the most binding (Gupta, Hasan, and Kumar 2008). Studies based on secondary data have also generally found infrastructure bottlenecks to be of major importance (see Chapter 7; Gupta, Hasan, and Kumar 2008; Kapoor 2014). Another well-recognized problem is the poor quality of the business regulatory environment. India regularly ranks very low among the countries ranked by the World Bank. Enterprise surveys also show that in entrepreneurs' assessment, the business regulatory environment (including tax issues) ranks high in the list of supply-side constraints.

One less-recognized problem is that the domestic tax regime has been discriminating against manufacturing in favour of services. The tax burden on manufacturing has always been and still remains much heavier than that on services. This in fact is one of the reasons why services have outperformed manufacturing. This discrimination needs to end; there has to be a level playing field for manufacturing and services. This also is an important reason why a well-designed GST regime needs to be introduced.

Inadequate availability of skilled manpower is often mentioned as a constraint on growth of manufacturing. It remains rather unclear, however, in what way this works as a constraint. It has been argued in this report that one of the strengths of manufacturing (in the context of India) is that it can absorb much low-skilled labour as many of the required skills can be easily acquired on the job. Perhaps skill shortage refers to inadequate availability of highly skilled engineers, technicians, and managers who are undoubtedly required to build and run manufacturing enterprises. However, India's education system produces proportionately more skilled workers of this kind than does China's education system. Why, then, should there be a shortage? It has been argued that, in India, services lure away much of this kind of highly skilled labour so that manufacturing faces shortage and high costs (Rajan and Subramanian 2006). One could perhaps add the phenomenon of 'brain drain'; a significant proportion of the highly skilled workers produced by India's education system migrates and adds to the stock of human capital in developed countries. If these are the reasons why manufacturing industries face skill shortage, then the remedy must involve much more than increased public expenditure on production of skilled workers.

It needs to be emphasized that a decent general education is what enables people to acquire new skills with ease either on the job or through participation in skill training programmes. Further, it is in the area of general education that India faces a serious problem, as has been seen in Chapter 1. A large percentage of the persons in the labour force are illiterate or near illiterate and only a small percentage has secondary or higher secondary–level education. We can add to this the problem of poor quality of school education; *Annual Status of Education Report* (ASER) findings have regularly shown rather poor level of learning of school students in the age group 5–16 years in rural areas (*ASER, 2005–13*). All this means that a large proportion of India's workforce lacks the ability to acquire new skills with ease.

India's education policies, which traditionally have paid little attention to basic education for all and much attention to higher education for a few, needs serious reforms. The focus must be on achieving universal up-to-secondary education within as short a time period as possible. In the short run, special adult education programmes followed by apprenticeship programmes for the illiterate and near-illiterate persons in the labour force need to be implemented.

ENSURING HIGH EMPLOYMENT ELASTICITY

As argued in Chapter 5, meeting the employment challenge will require not just high growth of organized manufacturing but also high employment elasticity in the sector. The analysis in Chapter 7 has suggested that policy initiatives in two areas will be required to ensure reasonably high employment elasticity in organized manufacturing.

The first concerns the growth of capital intensity that is not associated with technological change and merely involves substitution of capital for labour. The evidence is that the growth of capital intensity that occurred in the period since 2000 was of this variety and simply lowered the employment elasticity in organized manufacturing. While it has not been possible to investigate (in this report) what prompted this kind of capital-intensive growth, it can be said with some confidence that two main factors have been responsible. The first is the existence of capital subsidies of various kinds (including tax relief, interest subvention, overvalued exchange rate),

which have the effect of lowering the relative price of capital vis-à-vis labour (Sen and Das 2015).

The second factor relates to the set of labour regulations that generate incentives to substitute capital for labour not just because they make workforce adjustments difficult but also because they cause a disconnect between wage growth and productivity growth. Regulations relating to wage setting (methods of wage revision, indexation rules, and systems of bonus payments) make wage growth virtually autonomous. This generates strong incentive for increasing capital intensity since the entire benefit of the resulting productivity growth accrues to profits (Ghose 1996, 1999). Policy reforms in these two areas are warranted; capital subsidies need to be abolished and labour market regulations need to be redesigned.

There are other reasons why labour market regulations need to be redesigned. It has been widely argued that the existing labour market regulations (Box 8.1) generate certain rigidities that seriously constrain employment growth in the organized sector (Besley and Burgess 2004; Gupta, Hasan, and Kumar 2008; Hasan, Mitra, and Ramaswamy 2003; Hoda and Rai 2015; Kapoor 2014; World Bank 2010). By making termination of employment extremely difficult, they discourage labour hiring. Further, by making redeployment of workers even within an enterprise difficult, they obstruct adjustments in production.

The analysis in this report has shown these arguments to have validity. In organized manufacturing (as also in the organized sector as a whole), high employment elasticity is found to be associated with growth of employment of contract workers, of regular-informal employees and of casual employees, that is, the type of employment to which the labour regulations do not apply. If the labour regulations remain unreformed, either non-formal employment will swamp formal employment within the organized sector or (if employment of contract-workers/regular-informal employees/casual employees is prohibited) the employment elasticity will fall to a low level so that organized manufacturing (as also the organized sector as a whole) will fail to pull labour out of the unorganized sector.

Labour regulation reform will therefore be of much importance. The reforms will need to be framed with four principal objectives in view: ease of termination of employment subject to payment of adequate compensation to the workers made redundant; ease of redeployment of workers within an enterprise subject to wage protection; making bonus a substantial part of the wage; and linking of bonus payment to productivity/profit growth.

Box 8.1 Labour Market Regulations

There is a large and complex set of labour laws, most of which apply to large enterprises in the organized sector and hence to a tiny proportion of India's workforce. The most important of these laws (for this report) are codified in: Factories Act of 1948 (which stipulates in detail conditions of work and workspace); Industrial Employment (Standing Orders) Act of 1946 (which stipulates rights and obligations of employees and employers relating to work—some provisions of this act make redeployment of workers even within the same enterprise difficult); Industrial Disputes Act of 1947 (which governs termination of employment and settlement of disputes relating to termination); and Payment of Bonus Act of 1965 (which makes payment of an annual bonus equivalent to one month's earnings to all workers earning below a specified level compulsory). Besides, there are established systems of wage fixing and revisions (Pay Commissions, Wage Boards, and Department of Public Enterprises) and indexation rules (Dearness Allowance Systems). Reviews and discussions of the regulations, systems, and rules are available in ILO (1996); Sharma (2006); NCEUS (2009); World Bank (2010); Papola (2013); IHD (2014); Das, Choudhury, and Singh (2015); and Hoda and Rai (2015).

* * *

Some of the policies discussed here have already been adopted by the Government of India. Thus development of physical infrastructure and growth of agriculture are being accorded due priority in government policies and efforts are being made to improve ease of doing business. Steps are also being taken to develop an integrated national market in agricultural products. Introduction of a GST regime is on the cards; this should help end discrimination against manufacturing and develop an integrated national market in industrial products. Labour market reforms are recognized to be necessary and efforts are under way to develop fresh labour codes.

But there are three important areas in which policy initiatives are yet to be forthcoming.

One is trade policy (particularly duty structure appropriately calibrated with domestic tax structure), which

needs serious review and reform. Policy reform needs to be designed with two main objectives in view: (i) encouraging exports of manufactures by facilitating growth of export-oriented industries (including transformation of some domestic-market–oriented industries in export-oriented industries); and (ii) discouraging use of imported inputs in production for the domestic market.

A second area is exchange rate, which is overvalued and subject to much fluctuation basically because of India's undue dependence on FII inflows. Policies, past and present, have made little distinction between FDI and FII (there are composite caps on foreign investment, for example) possibly because the focus has almost exclusively been on financing the current account deficit. Thus large inflows of FII have been allowed to cause overvaluation of the exchange rate, which led to declining export orientation and increasing import dependence in organized manufacturing. The policies seem to have been based on some serious misconceptions. The FDI and FII have radically different effects on the real economy. The FDI inflow directly augments investment thereby generating an investment–saving gap and, correspondingly, a current account deficit, which it also finances. In contrast, the FII inflow generates a current account deficit by causing currency appreciation and, correspondingly, an investment–saving gap by lowering saving (that is, by encouraging consumption). Hence, the FII inflow effectively subtracts from the economy's productive capacity. Further, it does not finance a given current account deficit—it actually widens the current account deficit. Use of FII for financing current account deficit can only generate a vicious circle. Policies need to distinguish between FDI and FII. Further, they should encourage FDI inflow and exercise direct controls on FII inflow.

A third area is education. Here the policies continue to emphasize tertiary education and pay little attention to basic education. They place much importance on skill development programmes. The government has recently launched an ambitious Skill India programme. The basic premise for the programme is that India faces twin problems of scarcity of high-skilled labour and of non-employability of large sections of the conventionally educated youth, who possess little or no job skills. The Skill India programme seeks to address both problems. The programme is viewed as complementary to the Make in India programme. The key objective of Make in India is to promote growth of manufacturing industries. Correspondingly, Skill India aims at preparing a skilled workforce to meet the requirements of manufacturing industries.

There is need for careful planning in the implementation of Skill India. Though the basic premise for the programme is perhaps widely accepted as valid, it has not been empirically explored so that it is not precisely known to what extent and why these problems exist. Yet, it is important to know these so that the programme is appropriately designed. The past experience with skill development programmes also underlines the need for careful planning. An evaluation exercise, covering five large skill-development programmes (National Skills Development Corporation; Skills Development Initiative Scheme; Skills Development for Employment Promotion Amongst Urban Poor; Aajeevika Skills Development Programme, and Rural Self-Employment Training Institute) that had been under implementation during 2007–14, has shown that only around a quarter of the beneficiaries of these programmes actually got employed, that too mostly in services in the unorganized sector (World Bank 2015).

What needs to be recognized is that a large percentage of the persons in the labour force simply lack basic education and thus the ability to acquire new skills with ease. This is a problem that cannot be addressed through implementation of skill development programmes. As the evaluation exercise has shown, the beneficiaries of skill development programmes are young persons who have at least 10 years of schooling (World Bank 2015). Further, the focus of Skill India programme is also on the educated youth. So a large section of the persons currently in the labour force who lack basic education cannot benefit from the programme (Krishnamurty and Kumar 2015). Yet, these persons need to be moved to better jobs. Rapid manufacturing-led growth will require them to move.

Education and skill development policies need to be viewed in an integrated fashion. Education policies need to be shaped with two priority objectives in view: (i) achieving universal secondary education in as short a time as possible; and (ii) providing basic education to those in the labour force who lack this through adult education programmes. The Skill India programme needs to have components that combine with adult education programmes to focus on skill development of persons already in the labour force.

Annexe

Statistical Database

TABLE S.1 Number (in Million) of Working-Age (Age Group 15–59 Years) Persons in Employment According to Usual Principal Status

	Employed in the economy						Employed in the organized sector						Employed in the unorganized sector					
	1999/2000			2011/12			1999/2000			2011/12			1999/2000			2011/12		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Agriculture	*123.6*	*63.1*	*186.7*	*121.6*	*48.7*	*170.3*	*0.4*	*0.1*	*0.5*	*0.3*	*0.1*	*0.4*	*123.2*	*63.0*	*186.2*	*121.3*	*48.6*	*169.9*
Regular formal	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Regular informal	2.4	0.7	3.1	1.1	0.5	1.6	0.1	0.0	0.1	0.1	0.0	0.1	2.3	0.7	3.0	1.0	0.5	1.5
Casual	51.9	32.6	84.5	42.9	20.6	63.5	0.2	0.1	0.3	0.1	0.1	0.2	51.7	32.5	84.2	42.8	20.5	63.3
Self	69.1	29.8	98.9	77.5	27.6	105.1	–	–	–	–	–	–	69.1	29.8	98.9	77.5	27.6	105.1
Manufacturing	*28.4*	*8.4*	*36.8*	*40.6*	*11.8*	*52.4*	*8.1*	*1.4*	*9.5*	*16.6*	*2.5*	*19.1*	*20.3*	*7.0*	*27.3*	*24.0*	*9.3*	*33.3*
Regular formal	3.7	0.3	4.0	5.5	0.6	6.1	3.7	0.3	4.0	5.5	0.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Regular informal	7.7	1.2	8.9	13.3	1.6	14.9	2.6	0.5	3.1	8.4	1.0	9.4	5.1	0.7	5.8	4.9	0.6	5.5
Casual	5.7	1.3	7.0	7.0	1.8	8.8	1.8	0.6	2.4	2.7	0.9	3.6	3.9	0.7	4.6	4.3	0.9	5.2
Self	11.3	5.6	16.9	14.8	7.8	22.6	–	–	–	–	–	–	11.3	5.6	16.9	14.8	7.8	22.6
Construction	*14.6*	*1.7*	*16.3*	*39.2*	*4.3*	*43.5*	*1.7*	*0.3*	*2.0*	*7.0*	*1.0*	*8.0*	*12.9*	*1.4*	*14.3*	*32.2*	*3.3*	*35.5*
Regular formal	0.2	0.0	0.2	0.5	0.0	0.5	0.2	0.0	0.2	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Regular informal	0.7	0.0	0.7	1.6	0.1	1.7	0.2	0.0	0.2	0.9	0.1	1.0	0.5	0.0	0.5	0.7	0.0	0.7
Casual	10.9	1.7	12.6	32.1	4.1	36.2	1.3	0.3	1.6	5.6	0.9	6.5	9.6	1.4	11.0	26.5	3.2	29.7
Self	2.8	0.0	2.8	5.0	0.1	5.1	–	–	–	–	–	–	2.8	0.0	2.8	5.0	0.1	5.1
Other industries	*2.9*	*0.4*	*3.3*	*4.0*	*0.6*	*4.6*	*1.8*	*0.2*	*2.0*	*3.0*	*0.3*	*3.3*	*1.1*	*0.2*	*1.3*	*1.0*	*0.3*	*1.3*
Regular formal	1.2	0.1	1.3	1.8	0.1	1.9	1.2	0.1	1.3	1.8	0.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Regular informal	0.5	0.0	0.5	0.7	0.1	0.8	0.2	0.0	0.2	0.5	0.1	0.6	0.3	0.0	0.3	0.2	0.0	0.2
Casual	1.1	0.3	1.4	1.2	0.3	1.5	0.4	0.1	0.5	0.7	0.1	0.8	0.7	0.2	0.9	0.5	0.2	0.7
Self	0.1	0.0	0.1	0.3	0.1	0.4	–	–	–	–	–	–	0.1	0.0	0.1	0.3	0.1	0.4
Services	*71.2*	*12.8*	*84.0*	*99.6*	*19.3*	*118.9*	*17.8*	*4.0*	*21.8*	*28.1*	*8.5*	*36.6*	*53.4*	*8.8*	*62.2*	*71.5*	*10.8*	*82.3*
Regular formal	14.0	2.9	16.9	19.1	5.1	24.2	14.0	2.9	16.9	19.1	5.1	24.2	0.0	0.0	0	0.0	0.0	0.0
Regular informal	16.2	3.6	19.8	24.2	7.5	31.7	3.0	1.0	4.0	8.1	3.3	11.4	13.2	2.6	15.8	16.1	4.2	20.3
Casual	7.6	1.4	9.0	6.8	1.0	7.8	0.8	0.1	0.9	0.9	0.1	1.0	6.8	1.3	8.1	5.9	0.9	6.8
Self	33.4	4.9	38.3	49.5	5.7	55.2	–	–	–	–	–	–	33.4	4.9	38.3	49.5	5.7	55.2
Total	240.7	86.4	327.1	305.0	84.7	389.7	29.8	6.0	35.8	55.0	12.4	67.4	210.9	80.4	291.3	250.0	72.3	322.3
Agriculture	*123.6*	*63.1*	*186.7*	*121.6*	*48.7*	*170.3*	*0.4*	*0.1*	*0.5*	*0.3*	*0.1*	*0.4*	*123.2*	*63.0*	*186.2*	*121.3*	*48.6*	*169.9*
Manufacturing	*28.4*	*8.4*	*36.8*	*40.6*	*11.8*	*52.4*	*8.1*	*1.4*	*9.5*	*16.6*	*2.5*	*19.1*	*20.3*	*7.0*	*27.3*	*24.0*	*9.3*	*33.3*

Construction	*14.6*	*1.7*	*16.3*	*39.2*	*4.3*	*43.5*	*1.7*	*0.3*	*2.0*	*7.0*	*1.0*	*8.0*	*12.9*	*1.4*	*14.3*	*32.2*	*3.3*	*35.5*
Other industries	*2.9*	*0.4*	*3.3*	*4.0*	*0.6*	*4.6*	*1.8*	*0.2*	*2.0*	*3.0*	*0.3*	*3.3*	*1.1*	*0.2*	*1.3*	*1.0*	*0.3*	*1.3*
Services	*71.2*	*12.8*	*84.0*	*99.6*	*19.3*	*118.9*	*17.8*	*4.0*	*21.8*	*28.1*	*8.5*	*36.6*	*53.4*	*8.8*	*62.2*	*71.5*	*10.8*	*82.3*
Regular formal	*19.2*	*3.3*	*22.5*	*27.0*	*5.8*	*32.8*	*19.2*	*3.3*	*22.5*	*27.0*	*5.8*	*32.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Regular informal	*27.5*	*5.5*	*33.0*	*40.9*	*9.8*	*50.7*	*6.1*	*1.5*	*7.6*	*18.0*	*4.5*	*22.5*	*21.4*	*4.0*	*25.4*	*22.9*	*5.3*	*28.2*
Casual	*77.2*	*37.3*	*114.5*	*90.0*	*27.8*	*117.8*	*4.5*	*1.2*	*5.7*	*10.0*	*2.1*	*12.1*	*72.7*	*36.1*	*108.8*	*80.0*	*25.7*	*105.7*
Self-employment	*116.7*	*40.3*	*157.0*	*147.1*	*41.3*	*188.4*	–	–	–	–	–	–	*116.7*	*40.3*	*157.0*	*147.1*	*41.3*	*188.4*

Source: Estimates derived from unit-level data available from the NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.2 Employment and Unemployment According to Current Daily Status of Working-Age (Age Group 15–59 Years)
Persons in Employment According to Usual Principal Status (Days in Million per Week)

	Days of work in:											
	Regular formal	Regular informal	Casual	Casual PW	Casual MGNREGA	Self	*Days actually worked*	Worked though employed	Days unemployed	*Days in labour force*	Days not in labour force	*Days available*
1999/2000												
Male												
Regular-formal employees	107.2	0.0	0.0	0.0	0.0	0.6	*107.8*	0.9	0.3	*109.0*	1.1	*110.1*
Regular-informal employees	0.0	154.9	0.9	0.0	0.0	2.2	*158.0*	9.8	1.9	*169.7*	2.3	*172.0*
Casual employees	0.0	1.6	359.2	3.9	0.0	44.3	*409.0*	10.3	54.4	*473.7*	32.3	*506.0*
Self-employed	0.0	1.2	20.1	0.5	0.0	682.7	*704.5*	24.5	13.1	*742.1*	18.9	*761.0*
All employed males	*107.2*	*157.7*	*380.2*	*4.4*	*0.0*	*729.8*	*1,379.3*	*45.5*	*69.7*	*1,495.1*	*54.6*	*1,549.7*
Female												
Regular-formal employees	17.1	0.0	0.0	0.0	0.0	0.1	*17.2*	1.9	0.0	*19.1*	0.4	*19.5*
Regular-informal employees	0.0	30.2	0.2	0.0	0.0	0.3	*30.7*	2.2	0.3	*33.2*	1.7	*34.9*
Casual employees	0.0	0.4	151.9	1.0	0.0	20.2	*173.5*	4.0	21.6	*199.1*	49.5	*248.6*
Self-employed	0.0	0.2	8.4	0.2	0.0	209.2	*218.0*	7.4	4.4	*229.8*	39.4	*269.2*
All employed females	*17.1*	*30.8*	*160.5*	*1.2*	*0.0*	*229.8*	*439.4*	*15.5*	*26.3*	*481.3*	*91.0*	*572.3*
Persons												
Regular-formal employees	124.3	0.0	0.0	0.0	0.0	0.7	*125.0*	2.8	0.3	*128.1*	1.5	*129.6*
Regular-informal employees	0.0	185.1	1.1	0.0	0.0	2.5	*188.7*	12.0	2.2	*202.9*	4.0	*206.9*
Casual employees	0.0	2.0	511.1	4.9	0.0	64.5	*582.5*	14.3	76.0	*672.8*	81.8	*754.6*
Self-employed	0.0	1.4	28.5	0.7	0.0	891.9	*922.5*	31.9	17.5	*971.9*	58.3	*1,030.2*
All employed	124.3	188.5	540.7	5.6	0.0	959.6	1,818.7	61.0	96.0	1,976.4	145.6	2,122.0
2011/12												
Male												
Regular-formal employees	160.3	0.0	0.0	0.0	0.0	0.3	*160.6*	1.9	0.1	*162.6*	0.1	*162.7*
Regular-informal employees	0.0	239.3	0.7	0.0	0.0	1.3	*241.3*	5.8	1.5	*248.6*	0.4	*249.0*
Casual employees	0.0	0.0	449.2	15.5	3.5	25.9	*494.1*	3.3	46.4	*543.8*	32.8	*576.6*
Self-employed	0.0	1.5	17.1	1.3	2.4	864.6	*886.9*	24.0	9.6	*920.5*	8.9	*929.4*
All employed males	*160.3*	*240.8*	*467.0*	*16.8*	*5.9*	*892.1*	*1,782.9*	*35.0*	*57.6*	*1,875.5*	*42.2*	*1,917.7*

Female												
Regular-formal employees	35.0	0.0	0.0	0.0	0.0	0.0	*35.0*	0.6	0.1	*35.7*	0.1	*35.8*
Regular-informal employees	0.0	58.6	3.3	0.0	0.0	0.1	*62.0*	1.5	0.4	*63.9*	0.6	*64.5*
Casual employees	0.0	0.3	118.2	5.1	4.0	7.6	*135.2*	1.0	14.5	*150.7*	32.7	*183.4*
Self-employed	0.0	0.2	3.1	1.1	1.2	218.6	*224.2*	6.6	1.4	*232.2*	34.9	*267.1*
All employed females	*35.0*	*59.1*	*124.6*	*6.2*	*5.2*	*225.3*	*456.4*	*9.7*	*16.4*	*482.5*	*68.3*	*550.8*
Persons												
Regular-formal employees	195.3	0.0	0.0	0.0	0.0	0.3	*195.6*	2.5	0.2	*198.2*	0.2	*198.4*
Regular-informal employees	0.0	297.9	4.0	0.0	0.0	1.4	*303.3*	7.3	1.9	*315.2*	1.0	*316.2*
Casual employees	0.0	0.3	567.4	20.6	7.5	33.5	*629.3*	4.3	60.9	*696.0*	65.5	*761.5*
Self-employed	0.0	1.7	20.2	2.4	3.6	1,083.2	*1,111.1*	30.6	11.0	*1,157.7*	43.8	*1,201.5*
All employed	*195.3*	*299.9*	*591.6*	*23.0*	*11.1*	*1,117.4*	*2,239.3*	*44.7*	*74.0*	*2,367.1*	*110.5*	*2,477.6*

Source: Estimates derived from unit level data available from the NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.3 Employment According to Current Daily Status of Working-Age (Age Group 15–59 Years)
Persons in Employment According to Usual Principal Status

	Days (in million) per week employed in:						Days (in million) per week employed in:					
	Agri-culture	Manu-facturing	Con-struction	Other industries	Services	Total	Agri-culture	Manu-facturing	Con-struction	Other industries	Services	Total
1999/2000												
Economy												
Male												
Regular formal	0.4	21.6	1.2	6.5	77.5	107.2	0.3	32.4	3.2	10.6	113.1	159.6
Regular informal	14.0	45.8	3.2	3.3	91.4	157.7	7.6	78.0	9.4	3.9	142.6	241.5
Casual	245.8	32.5	58.8	7.0	40.5	384.6	228.4	36.8	179.0	7.0	38.5	489.7
Self-employed	448.5	71.1	15.1	2.3	192.8	729.8	484.4	88.7	26.9	1.8	290.3	892.1
All employed males	*708.7*	*171.0*	*78.3*	*19.1*	*402.2*	*1,379.3*	*720.7*	*235.9*	*218.5*	*23.3*	*584.5*	*1,782.9*
Female												
Regular-formal	0.0	1.8	0.0	0.3	15.0	17.1	0.1	3.4	0.1	1.0	30.4	35.0
Regular	3.7	6.2	0.2	0.2	20.5	30.8	2.9	9.4	0.7	0.7	45.4	59.1
Casual	137.1	6.7	8.9	1.5	7.5	161.7	95.0	9.4	24.9	1.4	5.3	136.0
Self-employed	170.5	33.2	0.4	0.5	25.2	229.8	150.8	43.0	0.4	0.4	31.7	226.3
All employed females	*311.3*	*47.9*	*9.5*	*2.5*	*68.2*	*439.4*	*248.8*	*65.2*	*26.1*	*3.5*	*112.8*	*456.4*
Persons												
Regular formal	0.4	23.4	1.2	6.8	92.5	124.3	0.4	35.8	3.3	11.6	143.5	194.6
Regular informal	17.7	52.0	3.4	3.5	111.9	188.5	10.5	87.4	10.1	4.6	188.0	300.6
Casual	382.9	39.2	67.7	8.5	48.0	546.3	323.4	46.2	203.9	8.4	43.8	625.7
Self-employed	619.0	104.3	15.5	2.8	218.0	959.6	635.2	131.7	27.3	2.2	322.0	1,118.4
All employed persons	*1,020.0*	*218.9*	*87.8*	*21.6*	*470.4*	*1,818.7*	*969.5*	*301.1*	*244.6*	*26.8*	*697.3*	*2,239.3*
Organized Sector												
Male												
Regular formal	0.4	21.6	1.2	6.5	77.5	107.2	0.4	32.4	3.2	10.6	113.1	159.7
Regular informal	0.1	15.0	1.1	1.1	16.6	33.9	0.0	48.9	4.9	3.0	46.6	103.4
Casual	0.8	8.8	5.9	2.3	4.1	21.9	0.6	13.7	28.2	3.8	5.5	51.8
Self-employed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All employed males	1.3	45.4	8.2	9.9	98.2	163.0	1.0	94.9	36.3	17.4	165.2	314.9

Female												
Regular formal	0.0	1.8	0.0	0.3	15.0	17.1	0.1	3.4	0.1	1.0	30.4	35.0
Regular informal	0.1	2.7	0.1	0.1	5.9	8.9	0.0	6.1	0.5	0.5	19.6	26.7
Casual	0.3	2.4	1.0	0.4	0.6	4.7	0.2	4.3	3.6	0.5	0.7	9.3
Self-employed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All employed females	*0.4*	*6.9*	*1.1*	*0.8*	*21.5*	*30.7*	*0.3*	*13.8*	*4.2*	*2.0*	*50.7*	*71.0*
Persons												
Regular formal	0.4	23.4	1.2	6.8	92.5	124.3	0.5	35.8	3.3	11.6	143.5	194.7
Regular informal	0.2	17.7	1.2	1.2	22.5	42.8	0.0	55.0	5.4	3.5	66.2	130.1
Casual	1.1	11.2	6.9	2.7	4.7	26.6	0.8	18.0	31.8	4.3	6.2	61.1
Self-employed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All employed persons	*1.7*	*52.3*	*9.3*	*10.7*	*119.7*	*193.7*	*1.3*	*108.7*	*40.5*	*19.4*	*215.9*	*385.9*
Unorganized Sector												
Male												
Regular formal	0.0	0.0	0.0	0.0	0.0	0.0	–0.1	0.0	0.0	0.0	0.0	–0.1
Regular informal	13.9	30.8	2.1	2.2	74.8	123.8	7.6	29.1	4.5	0.9	96.0	138.1
Casual	245.0	23.7	52.9	4.7	36.4	362.7	227.8	23.1	150.8	3.2	33.0	437.9
Self-employed	448.5	71.1	15.1	2.3	192.8	729.8	484.4	88.7	26.9	1.8	290.3	892.1
All employed males	*707.4*	*125.6*	*70.1*	*9.2*	*304.0*	*1,216.3*	*719.7*	*141.0*	*182.2*	*5.9*	*419.3*	*1,468.0*
Female												
Regular formal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Regular informal	3.6	3.5	0.1	0.1	14.6	21.9	2.9	3.3	0.2	0.2	25.8	32.4
Casual	136.8	4.3	7.9	1.1	6.9	157.0	94.8	5.1	21.3	0.9	4.6	126.7
Self-employed	170.5	33.2	0.4	0.5	25.2	229.8	150.8	43.0	0.4	0.4	31.7	226.3
All employed females	*310.9*	*41.0*	*8.4*	*1.7*	*46.7*	*408.7*	*248.5*	*51.4*	*21.9*	*1.5*	*62.1*	*385.4*
Persons												
Regular formal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Regular informal	17.5	34.3	2.2	2.3	89.4	145.7	10.5	32.4	4.7	1.1	121.8	170.5
Casual	381.8	28.0	60.8	5.8	43.3	519.7	322.6	28.2	172.1	4.1	37.6	564.6
Self-employed	619.0	104.3	15.5	2.8	218.0	959.6	635.2	131.7	27.3	2.2	322.0	1,118.4
All employed persons	*1,018.3*	*166.6*	*78.5*	*10.9*	*350.7*	*1,625.0*	*968.2*	*192.4*	*204.1*	*7.4*	*481.4*	*1,853.4*

Source: Estimates derived from unit level data available from the NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.4 Persons in Labour Force, Employment, and Unemployment According to Usual Principal Status by Level of Education (in Million)

Category	1999/20000									2011/12							
	Age Group (years)	Not literate	Below primary	Primary	Middle	Secondary	Higher secondary	Tertiary	*All*	Not literate	Below primary	Primary	Middle	Secondary	Higher secondary	Tertiary	*All*
Population																	
Male	15–59	84.32	28.70	37.65	56.53	40.21	21.64	20.76	*289.80*	68.74	33.93	48.0	76.77	66.21	42.11	46.35	382.16
	15–24	17.04	7.44	14.37	27.77	18.33	9.88	3.54	*98.36*	8.38	7.43	14.53	30.77	30.11	21.88	10.39	*123.49*
	25–29	10.20	3.88	4.77	7.80	5.71	3.90	4.29	*40.54*	7.09	4.13	6.26	11.14	8.18	5.52	9.94	*52.25*
	30–59	57.08	17.38	18.51	20.96	16.17	7.86	12.93	*150.90*	53.27	22.37	27.25	34.86	27.92	14.71	26.02	*206.42*
Female	15–59	148.36	20.97	28.05	34.35	22.39	11.40	10.17	*275.70*	129.26	31.51	41.94	56.34	44.99	29.91	27.47	*361.40*
	15–24	33.47	6.98	11.74	19.45	12.70	7.17	3.27	*94.79*	15.62	7.22	13.19	26.07	23.59	18.16	8.43	*112.28*
	25–29	21.08	3.37	4.51	5.43	3.46	1.84	2.47	*42.16*	13.56	4.76	6.66	8.47	5.91	4.15	7.32	*50.83*
	30–59	93.81	10.62	11.80	9.47	6.23	2.39	4.43	*138.75*	100.08	19.53	22.09	21.80	15.49	7.60	11.72	*198.29*
Persons	15–59	232.68	49.67	65.70	90.88	62.6	33.04	30.93	*565.50*	198.00	65.44	89.98	133.11	111.20	72.02	73.82	*743.56*
	15–24	50.51	14.42	26.11	47.22	31.0	17.05	6.81	*193.15*	24.00	14.65	27.72	56.84	53.70	40.04	18.82	235.77
	25–29	31.28	7.25	9.28	13.23	9.17	5.74	6.76	*82.70*	20.65	8.89	12.92	19.61	14.09	9.67	17.26	*103.08*
	30–59	150.89	28.00	30.31	30.43	22.40	10.25	17.36	*289.65*	153.35	41.90	49.34	56.66	43.41	22.31	37.74	*404.71*
Non-student population																	
Male	15–59	83.65	27.89	34.29	45.37	30.91	15.56	18.93	*256.60*	68.69	33.44	44.89	61.84	46.27	26.38	40.59	*322.10*
	15–24	16.92	6.79	11.14	16.52	8.78	3.71	2.10	*65.96*	8.34	6.94	11.47	16.17	10.37	5.80	5.42	*64.52*
	25–29	10.19	3.88	4.77	7.78	5.65	3.68	3.91	*39.86*	7.08	4.12	6.25	11.12	8.14	5.14	8.82	*50.69*
	30–59	56.54	17.22	18.38	21.07	16.48	8.17	12.92	*150.78*	53.27	22.38	27.17	34.55	27.76	15.44	26.35	*206.89*
Female	15–59	148.22	20.61	26.51	28.39	17.22	7.67	9.10	*257.70*	129.21	31.11	39.72	45.77	32.36	19.31	23.76	*321.24*
	15–24	33.38	6.58	10.02	12.73	6.87	3.02	2.15	*74.75*	15.58	6.81	10.87	14.84	10.09	6.71	4.88	*69.79*
	25–29	21.07	3.37	4.51	5.41	3.43	1.77	2.39	*41.95*	13.56	4.76	6.66	8.45	5.84	4.03	6.81	50.1
	30–59	93.77	10.66	11.98	10.25	6.92	2.88	4.56	*141.00*	100.07	19.54	22.19	22.48	16.43	8.57	12.07	*201.34*
Persons	15–59	231.87	48.50	60.80	73.76	48.13	23.23	28.03	*514.30*	197.90	64.55	84.61	107.61	78.63	45.69	64.35	*643.34*
	15–24	50.30	13.37	21.16	29.25	15.65	6.73	4.25	*140.71*	23.92	13.75	22.34	31.01	20.46	12.51	10.30	*134.31*
	25–29	31.26	7.25	9.28	13.19	9.08	5.45	6.30	*81.81*	20.64	8.88	12.91	19.57	13.98	9.17	15.63	*100.80*
	30–59	150.31	27.88	30.36	31.32	23.40	11.05	17.48	*291.78*	153.34	41.92	49.36	57.03	44.19	24.01	38.42	*408.23*

Labour force																
Male	15–59	80.39	27.03	33.15	44.02	30.02	15.21	18.68	*248.50*	65.92	32.36	43.74	60.55	44.87	25.83	40.04	*313.30*
	15–24	15.59	6.39	10.46	15.55	8.30	3.45	1.96	*61.70*	7.44	6.42	10.76	15.30	9.67	5.35	4.91	*59.90*
	25–29	10.14	3.84	4.71	7.65	5.52	3.59	3.76	*39.21*	6.94	4.13	6.26	11.04	8.01	5.06	8.56	50.00
	30–59	54.66	16.80	17.98	20.82	16.20	8.17	12.96	*147.59*	51.54	21.81	26.72	34.21	27.19	15.42	26.57	*203.40*
Female	15–59	60.80	6.22	7.06	6.03	3.62	1.71	3.36	*88.80*	41.09	8.38	10.18	9.74	6.28	3.72	8.93	*88.32*
	15–24	11.79	2.02	2.69	2.98	1.56	0.70	0.86	*22.60*	3.61	1.61	2.62	2.93	1.92	1.51	2.21	*16.40*
	25–29	8.69	0.96	1.14	1.04	0.68	0.39	0.80	*13.70*	3.51	1.11	1.50	1.68	1.14	0.61	2.44	*12.00*
	30–59	40.32	3.24	3.23	2.01	1.38	0.62	1.70	*52.50*	33.97	5.66	6.06	5.13	3.22	1.60	4.28	*59.32*
Persons	15–59	141.19	33.25	40.21	50.05	33.64	16.92	22.04	*337.30*	107.0	40.7	53.9	70.3	51.2	29.6	49.0	*401.6*
	15–24	27.38	8.41	13.15	18.53	9.86	4.15	2.82	*84.30*	11.1	8.0	13.4	18.2	11.6	6.9	7.1	*76.3*
	25–29	18.83	4.80	5.85	8.69	6.20	3.98	4.56	*52.91*	10.5	5.2	7.8	12.7	9.2	5.7	11.0	*62.0*
	30–59	94.98	20.04	21.21	22.83	17.58	8.79	14.66	*200.09*	85.5	27.5	32.8	39.3	30.4	17.0	30.9	*262.7*
Employed																
Male	15–59	79.94	26.68	32.47	42.26	28.35	13.95	17.04	*240.70*	65.51	31.90	42.96	59.17	43.67	24.60	37.20	*305.00*
	15–24	15.23	6.11	9.85	14.13	7.10	2.72	1.25	*56.40*	7.11	6.05	10.09	14.18	8.84	4.49	3.41	*54.18*
	25–29	10.08	3.80	4.67	7.41	5.19	3.2	3.05	*37.40*	6.91	4.11	6.18	10.89	7.77	4.82	7.52	*48.19*
	30–59	54.63	16.77	17.95	20.72	16.06	8.03	12.74	*146.90*	51.49	21.74	26.69	34.10	27.06	15.29	26.27	*202.63*
Female	15–59	60.68	6.17	6.93	5.62	3.06	1.34	2.60	*86.40*	40.83	8.25	10.05	9.29	5.70	3.23	7.37	*84.71*
	15–24	11.72	1.98	2.61	2.67	1.17	0.44	0.42	*21.00*	3.53	1.57	2.56	2.65	1.57	1.15	1.37	*14.40*
	25–29	8.67	0.96	1.11	0.97	0.55	0.30	0.54	*13.10*	3.49	1.09	1.49	1.61	1.02	0.52	1.89	*11.10*
	30–59	40.29	3.23	3.21	1.98	1.34	0.60	1.64	*52.30*	33.81	5.59	6.00	5.03	3.11	1.56	4.11	*59.21*
Persons	15–59	140.62	32.85	39.4	47.88	31.41	15.29	19.64	*327.10*	106.34	40.15	53.01	68.46	49.37	27.83	44.57	*389.71*
	15–24	26.95	8.09	12.46	16.80	8.27	3.16	1.67	*77.40*	10.64	7.62	12.65	16.83	10.41	5.64	4.78	*68.58*
	25–29	18.75	4.76	5.78	8.38	5.74	3.50	3.59	*50.50*	10.40	5.20	7.67	12.50	8.79	5.34	9.41	*59.29*
	30–59	94.92	20.00	21.16	22.70	17.40	8.63	14.38	*199.20*	85.30	27.33	32.69	39.13	30.17	16.85	30.38	*261.84*
Unemployed																
Male	15–59	0.45	0.35	0.68	1.76	1.67	1.26	1.64	*7.80*	0.41	0.46	0.78	1.38	1.20	1.23	2.84	*8.30*
	15–24	0.36	0.28	0.61	1.42	1.20	0.73	0.71	*5.30*	0.33	0.37	0.67	1.12	0.83	0.86	1.50	*5.72*
	25–29	0.06	0.04	0.04	0.24	0.33	0.39	0.71	*1.80*	0.03	0.02	0.08	0.15	0.24	0.24	1.04	*1.81*
	30–59	0.03	0.03	0.03	0.10	0.14	0.14	0.22	*0.70*	0.05	0.07	0.03	0.11	0.13	0.13	0.30	*0.77*

(*Contd.*)

Table S.4 (*Contd.*)

Category	1999/20000									2011/12							
	Age Group (years)	Not literate	Below primary	Primary	Middle	Secondary	Higher secondary	Tertiary	*All*	Not literate	Below primary	Primary	Middle	Secondary	Higher secondary	Tertiary	*All*
Female	15–59	0.12	0.05	0.13	0.41	0.56	0.37	0.75	*2.40*	0.26	0.13	0.13	0.45	0.58	0.49	1.56	*3.61*
	15–24	0.07	0.04	0.09	0.31	0.39	0.26	0.44	*1.60*	0.08	0.04	0.06	0.28	0.35	0.36	0.84	*2.00*
	25–29	0.02	0.00	0.03	0.07	0.13	0.09	0.26	*0.60*	0.02	0.02	0.01	0.07	0.12	0.09	0.55	*0.90*
	30–59	0.03	0.01	0.01	0.03	0.04	0.02	0.05	*0.20*	0.16	0.07	0.06	0.10	0.11	0.04	0.17	*0.71*
Persons	15–59	0.57	0.40	0.81	2.17	2.23	1.63	2.39	*10.20*	0.67	0.59	0.91	1.83	1.78	1.72	4.40	*11.91*
	15–24	0.43	0.32	0.70	1.73	1.59	0.99	1.15	*6.90*	0.41	0.41	0.73	1.40	1.18	1.22	2.34	*7.72*
	25–30	0.08	0.04	0.07	0.31	0.46	0.48	0.97	*2.40*	0.05	0.04	0.09	0.22	0.36	0.33	1.59	*2.71*
	30–59	0.06	0.04	0.04	0.13	0.18	0.16	0.27	*0.90*	0.21	0.14	0.09	0.21	0.24	0.17	0.47	*1.48*

Source: Estimates derived from unit level data available from the NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.5 Persons of Working Age in Labour Force, Employment and Unemployment According to Usual Principal Status by Level of Education (in Million)

Category	1999/2000								2011/12							
	Not literate	Below primary	Pri-mary	Middle	Secon-dary	Higher Secondary	Tertiary	*All*	Not Literate	Below primary	Pri-mary	Middle	Secon-dary	Higher secondary	Tertiary	*All*
Population																
Rural male	70.3	22.1	27.5	38.9	23.5	11.3	7.3	*200.9*	55.3	25.9	34.8	53.3	41.8	23.5	16.8	*251.4*
Rural female	122.6	15.4	19.0	21.3	10.9	4.3	2.0	*195.5*	102.7	23.6	29.4	37.0	25.2	14.0	7.7	*239.4*
Urban male	12.6	6.3	10.0	17.7	17.3	10.8	14.3	*88.9*	12.0	7.5	12.8	23.0	24.7	19.2	31.5	*130.8*
Urban female	23.5	5.5	9.1	13.5	12.1	7.6	8.9	*80.3*	23.5	7.4	12.2	19.5	20.7	17.0	21.7	*122.0*
Non-student population																
Rural male	70.1	21.6	25.1	31.1	18.3	8.5	6.7	*181.4*	55.4	25.5	32.3	42.5	28.8	14.5	14.3	*213.3*
Rural female	122.4	15.1	17.9	17.5	8.3	3.0	1.8	*186.0*	102.5	23.3	27.7	29.6	17.2	8.9	6.5	*215.6*
Urban male	12.6	6.2	9.2	14.5	13.1	7.5	13.1	*76.1*	12.0	7.4	12.1	19.0	17.6	12.2	28.1	*108.5*
Urban female	23.4	5.4	8.7	11.2	9.4	5.0	7.9	*71.1*	23.5	7.4	11.8	16.4	15.9	11.1	19.0	*105.1*
Labour force																
Rural male	67.5	20.9	24.3	30.2	17.7	8.3	6.6	*175.5*	53.3	24.8	31.6	41.7	28.0	14.3	14.2	*207.9*
Rural female	54.3	5.2	5.8	4.5	2.2	0.7	0.8	*73.5*	34.7	6.6	7.7	7.0	4.2	2.0	2.6	*64.8*
Urban male	11.7	5.9	8.8	13.9	12.7	7.2	12.8	*73.0*	11.2	7.1	11.7	18.7	17.1	11.9	27.6	*105.3*
Urban female	6.1	1.1	1.3	1.6	1.5	1.0	2.7	*15.3*	5.6	1.8	2.4	2.7	2.2	1.8	7.0	*23.5*
Employed																
Rural male	67.3	20.8	23.9	29.3	16.8	7.6	5.9	*171.5*	53.1	24.5	31.1	40.8	27.2	13.7	12.8	*203.2*
Rural female	54.2	5.1	5.7	4.3	1.9	0.6	0.5	*72.3*	34.5	6.5	7.7	6.7	3.8	1.7	1.9	*62.8*
Urban male	11.5	5.7	8.5	13.1	12.0	6.6	11.9	*69.3*	11.2	6.9	11.5	18.2	16.7	11.3	26.0	*101.8*
Urban female	6.0	1.0	1.3	1.4	1.3	0.8	2.3	*14.1*	5.6	1.7	2.4	2.6	2.0	1.6	6.0	*21.9*
Unemployed																
Rural male	0.2	0.1	0.4	0.9	0.9	0.7	0.7	*4.0*	0.2	0.3	0.5	0.9	0.8	0.6	1.4	*4.7*
Rural female	0.1	0.1	0.1	0.2	0.3	0.1	0.3	*1.2*	0.2	0.1	0.0	0.3	0.4	0.3	0.7	*2.0*
Urban male	0.2	0.2	0.3	0.8	0.7	0.6	0.9	*3.7*	0.0	0.2	0.2	0.5	0.4	0.6	1.6	*3.5*
Urban female	0.1	0.1	0.0	0.2	0.2	0.2	0.4	*1.2*	0.0	0.1	0.0	0.1	0.2	0.2	1.0	*1.6*

Source: Estimates derived from unit level data available from the NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.6 Money Wages (Rupees per Day of Work)

	1999/2000			2011/12		
	Male	Female	Person	Male	Female	Person
Rural	*59*	*31*	*51*	*187*	*120*	*172*
Organized sector	*140*	*83*	*131*	*337*	*222*	*318*
Regular-formal employees	188	149	183	548	413	526
Regular-informal employees	101	44	88	206	113	181
Casual employees	54	35	50	162	120	156
Unorganized sector	*45*	*27*	*40*	*141*	*96*	*131*
Regular-informal employees	83	58	80	161	97	151
Casual employees	39	25	35	138	96	128
Urban	*138*	*103*	*132*	*407*	*326*	*392*
Organized sector	*202*	*167*	*196*	*546*	*469*	*532*
Regular-formal employees	241	216	237	751	652	733
Regular-informal employees	117	82	111	296	215	282
Casual employees	71	45	67	175	112	166
Unorganized sector	*83*	*55*	*78*	*197*	*117*	*182*
Regular-informal employees	99	74	95	211	121	192
Casual employees	59	35	54	179	108	168
Economy	*83*	*43*	*72*	*258*	*173*	*240*
Organized sector	*176*	*133*	*169*	*453*	*354*	*435*
Regular-formal employees	223	198	220	684	582	666
Regular-informal employees	111	65	101	266	169	246
Casual employees	61	38	56	166	118	159
Unorganized sector	*54*	*30*	*47*	*154*	*100*	*142*
Regular-informal employees	94	68	89	190	113	175
Casual employees	42	26	37	144	97	133
Price indices						
CPI-AL			*306*			*611*
(Base: 1986–87)						
CPI-IW			*92*			*195*

Source: Estimates derived from unit-level data available from NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.7 Population, Labour Force, and Employment, 1983–2015/16 (in Million, Age Groups in Years)

	1983				1999/2000				2011/12				*2015/16 (Projections)*			
	Rural male	Rural female	Urban male	Urban female	Rural male	Rural female	Urban male	Urban female	Rural male	Rural female	Urban male	Urban female	Rural male	Rural female	Urban male	Urban female
Total population	*281.2*	*266.5*	*91.1*	*80.4*	*374.0*	*353.1*	*145.1*	*130.9*	*431.7*	*409.8*	*199.8*	*186.1*	*452.8*	*429.8*	*222.3*	*209.5*
Age group 5–14	79.0	72.3	22.3	20.7	96.9	88.4	32.2	28.4	99.2	91.3	36.7	32.9	100.0	92.4	38.2	34.5
Age group 15–24	49.0	46.5	19.3	16.7	68.1	67.5	30.4	27.4	83.9	76.1	39.6	36.1	90.1	79.2	43.2	39.5
Age group 25–29	19.9	19.9	8.0	7.0	28.1	30.4	12.5	11.8	33.8	33.0	18.4	17.9	35.9	33.9	20.9	20.6
Age group 15–59	147.2	141.1	54.3	45.4	200.9	195.5	88.9	80.3	251.4	239.4	130.8	122.0	271.1	256.1	148.9	140.0
Age group 60 or more	19.2	18.3	4.6	4.6	31.8	27.9	10.3	9.8	36.7	38.1	15.7	16.1	38.5	42.2	18.1	19.0
Non-student population																
Age group 15–24	38.7	43.8	12.7	13.1	48.3	56.8	17.7	17.9	45.9	50.6	18.6	19.2	–	–	–	–
Age group 25–29	19.8	19.9	7.8	7.0	27.7	30.3	12.1	11.6	32.9	32.8	17.7	17.3	–	–	–	–
Age group 15–59	136.5	138.4	47.3	41.8	181.4	186.0	76.1	71.1	213.3	215.6	108.5	105.1	225.1	226.5	122.1	119.7
UPS labour force																
Age group 5–14	9.1	6.5	1.2	0.6	4.1	3.2	0.9	0.4	1.3	0.9	0.6	0.1	0.9	0.6	0.5	0.1
Age group 15–24	37.4	16.5	12.1	2.6	45.3	19.0	16.4	3.6	42.4	11.8	17.5	4.6	–	–	–	–
Age group 25–29	19.5	8.2	7.8	1.4	27.3	11.5	11.9	2.2	32.5	8.0	17.5	4.0	–	–	–	–
Age group 15–59	133.0	57.5	45.9	9.2	175.5	73.5	73.0	15.3	207.9	64.8	105.3	23.5	219.8	67.7	119.0	26.1
Age group 60 or more	12.3	2.8	2.3	0.5	19.8	4.8	4.0	0.8	23.4	6.0	5.6	1.1	24.7	6.5	6.3	1.2
UPS employed																
Age group 5–14	8.9	6.4	1.1	0.6	4.0	3.2	0.8	0.4	1.1	0.9	0.6	0.1	0.7	0.6	0.5	0.1
Age group 15–24	35.3	15.9	10.2	2.1	42.4	18.1	14.0	2.9	38.8	10.7	15.3	3.7	–	–	–	–
Age group 25–29	19.1	8.0	7.3	1.3	26.4	11.2	11.0	1.9	31.6	7.5	16.6	3.6	–	–	–	–
Age group 15–59	130.0	56.6	43.1	8.5	171.5	72.3	69.3	14.1	203.2	62.8	101.8	21.9	214.8	65.6	115.0	24.3
Age group 60 or more	12.3	2.8	2.3	0.5	19.8	4.8	4.0	0.8	23.4	6.0	5.6	1.1	24.7	6.5	6.3	1.2

(*Contd.*)

Table S.7 (*Contd.*)

	1983				1999/2000				2011/12				*2015/16 (Projections)*			
	Rural male	Rural female	Urban male	Urban female	Rural male	Rural female	Urban male	Urban female	Rural male	Rural female	Urban male	Urban female	Rural male	Rural female	Urban male	Urban female
UPSS labour force																
Age group 5–14	10.9	9.1	1.5	0.8	4.5	4.1	0.9	0.5	1.5	1.5	0.7	0.2	1.0	1.0	0.6	0.2
Age group 15–59	135.1	77.5	46.4	11.3	177.1	94.7	73.3	17.8	210.0	90.5	105.9	27.1	222.0	94.6	119.7	30.1
Age group 60 or more	12.8	4.1	2.3	0.6	20.3	6.0	4.1	0.9	23.8	8.1	5.7	1.2	25.1	8.8	6.4	1.3
UPSS employed																
Age group 5–14	10.7	9.0	1.4	0.8	4.4	4.1	0.9	0.5	1.4	1.4	0.7	0.2	0.9	0.9	0.6	0.2
Age group 15–59	133.0	76.9	43.9	10.7	173.7	93.7	69.8	16.7	206.1	88.9	102.6	25.6	217.9	92.9	116.0	28.4
Age group 60 or more	12.8	4.1	2.3	0.6	20.3	6.0	4.1	0.9	23.8	8.1	5.7	1.2	25.1	8.8	6.4	1.3
Age group 15–59	135.1	77.5	46.4	11.3	–	–	–	–	–	–	–	–	–	–	–	–
Age group 60 or more	12.8	4.1	2.3	0.6	–	–	–	–	–	–	–	–	–	–	–	–

Source: Estimates derived from unit level data available from the NSSO *Surveys of Employment and Unemployment* for the relevant years (55th and 68th Rounds).

TABLE S.8 Net Domestic Product (Factor Incomes) in 10 million 2004/05 Rupees

	1999/2000			2011/12		
	Organized sector	Unorganized sector	Economy	Organized sector	Unorganized sector	Economy
Agriculture	44,387	452,420	496,807	61,401	602,595	663,996
Manufacturing	171,080	102,695	273,775	461,861	166,706	628,568
Construction	55,009	79,237	134,246	125,963	232,925	358,888
Other industries	81,301	5,180	86,481	110,747	12,203	122,950
Services	476,109	523,504	999,613	1,265,479	1,405,338	2,670,817
Total	827,886	1,163,036	1,990,922	2,025,451	2,419,767	4,445,219
Mixed income of the self-employed	–	*905,043*		–	*1,826,925*	

Source: *National Accounts Statistics* (various years).

TABLE S.9 Current Output (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	9,657.93	9,213.24	9,470.55	12,168.52	15750.80	24,402.05	25,332.67	34,821.67	41,555.57	47,887.31	49,537.30	64,393.74	82,381.44
Chemicals and chemical products	10,743.23	11,672.09	11,787.28	12,585.80	13,579.61	16,238.36	18,477.91	19,561.81	22,524.86	28,140.73	27,437.21	34,968.49	46,264.69
Computers and peripheral equipment/office accounting	275.05	392.91	471.02	406.05	645.18	595.14	882.96	1,020.59	1,108.46	1,136.96	1,340.91	1,613.62	1,730.26
Consumer electronics	776.41	988.34	853.77	1,619.05	1,680.40	1,927.34	1,416.34	2,012.76	2,111.86	2,244.71	2,808.24	3,289.29	3,245.36
Other non-metallic mineral products	3,280.09	3,189.77	3,384.69	3,524.43	3,995.41	5,100.22	5,465.23	7,182.57	9,481.40	12,009.51	12,302.59	14,270.92	17,834.62
Paper and paper products	1,431.01	1,823.06	1,694.69	2,008.38	2,047.51	2,257.34	2,480.06	2,714.34	3,572.91	4,081.24	4,376.61	5,875.29	6,728.18
Electronic components	405.52	387.56	504.39	663.60	581.34	655.38	1,284.26	809.58	990.09	1,467.31	2,063.37	2,130.53	2,026.80
Machinery and equipment	3,769.01	3,802.34	3,949.91	4,205.93	4,753.11	6471.33	8,529.18	10,082.55	13,199.55	17,064.55	16,758.93	21,572.42	25,213.50

Other transports and equipment (ships, spacecraft, locomotives, and others)	271.74	290.83	259.87	407.29	334.04	453.66	581.14	613.01	957.70	1673.78	1,696.23	2,017.92	1,753.78
Wood and wood products	204.94	218.24	325.68	281.82	351.46	389.25	482.15	542.39	701.21	829.20	1,009.37	1,575.80	1,585.05
Export oriented													
Textiles	7,941.44	8,575.09	7,749.65	8,265.01	9,210.41	10,574.27	12,034.69	15,843.15	15,868.43	17,619.13	20,002.97	28,345.97	30,127.04
Leather and leather products	787.26	943.53	1,005.83	1,001.71	1,094.33	1,206.15	1,480.88	1,666.25	2,290.30	2,378.49	2,960.40	3,054.51	3,533.73
Wearing apparel	1,425.94	1,532.17	1,361.69	1,776.52	1,611.48	2,274.85	2,620.84	2,835.75	3,262.41	3,824.03	4,347.48	5,091.17	5,446.33
Others													
Beverages	1,139.63	881.46	939.91	1,060.56	1,258.98	1,464.75	1,730.97	2,250.02	3,015.00	3,265.36	3,236.17	3,829.08	5,305.89
Pharmaceuticals medicinal products	4,052.83	3,591.38	3,326.15	3,530.85	4,141.54	4,623.45	5,444.23	6,730.73	7,445.42	9,953.19	11,040.06	13,292.65	18,042.27
Bodies, trailers, parts, and accessories	2,753.96	2,628.65	2,687.29	2,138.35	4,469.01	5,064.59	4,092.54	5,637.46	6,509.79	7,841.02	10,832.94	14,633.29	18,896.68
Communication equipment	448.10	445.46	342.60	473.60	525.25	467.57	676.65	694.55	1,207.35	2,317.76	1,891.55	1,060.97	1,564.03
Electrical equipment	2,871.94	2,665.4,2	2,952.77	3,268.57	3,446.84	4,290.46	6,688.45	97,11.76	10,357.24	11,912.43	12,924.08	17,025.54	18,032.31
Food and dairy products	13,587.59	13,679.75	14,037.01	16,508.27	16,415.21	18,675.01	20,756.28	25,460.84	30,266.82	36,264.05	40,277.17	53,670.84	67,440.43

(*Contd.*)

Table S.9 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Plastic products	1,940.71	1,690.77	2,060.81	2,236.07	2,691.15	3,364.77	3,192.41	3,995.59	5,023.87	6,122.35	7,872.46	9,724.29	11,110.00
Printing and publishing	876.21	931.79	912.04	1,002.25	1,049.80	1,213.08	1,555.34	1,792.55	2,117.65	2,176.31	2,323.32	3,086.06	3,358.98
Rubber products	966.11	967.55	1,144.17	1,288.90	1,338.35	1,792.96	2,004.94	2,502.87	2,713.90	3,716.62	4,406.89	5,476.38	6,862.82
Structural/ other fabricated metal products	1,850.88	2,111.27	2,082.20	2,347.47	2,782.58	3,477.20	4,895.83	6,943.49	9,365.59	9,653.13	10,293.90	14,579.55	17,488.74
Tobacco products	1,005.10	1,150.00	965.22	1,203.42	1,177.42	1,152.74	1,310.75	1,425.73	1,410.18	1,972.69	2,184.63	2,625.18	2,686.35
Transport equipment not classified elsewhere	1,729.00	1,841.40	2,244.73	2,316.48	2,816.21	3,782.33	4,293.19	4,751.82	4,422.18	5,191.06	6,424.59	8,917.20	10,770.75
Organized manu-facturing	*74,191.61*	*75,614.09*	*76,513.94*	*86,288.90*	*97,747.41*	*121,914.26*	*137,709.90*	*171,603.82*	*201,479.73*	*240,742.92*	*260,349.39*	*336,120.68*	*409,430.03*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.10 Real Output (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	14,823.49	13,612.41	13,932.42	17,316.22	19,199.99	24,402.05	23,576.14	29,806.73	32,042.59	33,006.96	37,218.68	44,704.69	52,287.47
Chemicals and chemical products	12,645.22	12,961.79	12,771.55	13,129.63	13,941.68	16,238.36	17,877.34	18,006.82	20,031.32	23,902.09	23,382.26	28,259.93	34,364.65
Computers and peripheral equipment/ office accounting	264.22	373.77	499.69	395.51	553.33	595.14	963.94	1,147.00	1,268.74	1,324.78	1,583.71	1,897.26	2,000.61
Consumer electronics	748.16	936.70	789.53	1,529.67	1,616.55	1,927.34	1,436.50	2,103.23	2,276.72	2,460.45	3,138.16	3,747.50	3,682.64
Other non-metallic mineral products	4,060.20	3,756.73	3,706.70	3,875.89	4,248.66	5,100.22	5,069.80	5,971.14	7,089.10	8,749.51	8,378.86	9,466.05	11,187.80
Paper and paper products	1,581.68	1,788.96	1,612.90	2,031.81	2,080.98	2,257.34	2,407.80	2,519.29	3,220.80	3,530.67	3,704.64	4,721.75	5,130.95
Electronic components	390.76	367.31	466.44	626.96	559.26	655.38	1,302.54	845.97	1,067.38	1,608.33	2,305.78	2,427.32	2,299.89
Machinery and equipment	4,845.87	4,689.46	4,557.59	4,704.53	5,130.20	6,471.33	7,949.40	8,915.90	11,275.09	14,019.13	13,399.54	16,367.57	18,668.91

(*Contd.*)

Table S.10 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Other transports and equipment (ships, spacecraft, locomotives, and others)	287.27	304.92	254.76	381.36	331.15	453.66	534.11	526.37	796.19	1,279.31	1,320.51	1,728.59	1,437.02
Wood and wood products	189.72	217.63	335.21	282.45	351.66	389.25	444.74	472.72	572.80	618.65	687.11	1,031.73	960.05
Export oriented													
Textiles	9,370.90	9,705.09	8,814.98	9,178.09	9,497.36	10,574.27	12,610.87	16,295.33	16,202.38	17,702.27	19,430.77	24,567.98	24,299.66
Leather and leather products	792.86	982.01	1,110.69	1,198.82	1,159.89	1,206.15	1,382.34	1,440.79	1,921.66	1,892.22	2,244.52	2,339.01	2,644.59
Wearing apparel	1,682.61	1,734.07	1,548.87	1,972.79	1,661.69	2,274.85	2,746.32	2,916.69	3,331.06	3,842.07	4,223.12	4,412.62	4,392.86
Others													
Beverages	1,344.54	1,088.21	1,116.41	1,172.28	1,401.92	1,464.75	1,583.52	1,959.51	2,570.93	2,629.67	2,484.40	2,799.74	3,750.89
Pharmaceuticals medicinal products	4,692.28	3,928.16	3,515.69	3,705.66	4,238.33	4,623.45	5,228.89	6,383.19	6,698.49	8,689.44	9,526.30	11,203.65	14,667.92
Bodies, trailers, parts, and accessories	3,388.77	3,045.21	3,075.51	2,458.97	5,006.75	5,064.59	3,860.81	5,105.73	5,630.68	6,453.36	8,893.18	11,801.79	14,521.33
Communication equipment	517.87	497.26	381.26	527.03	584.51	467.57	679.48	722.52	1,222.04	2,339.60	1,912.17	1,115.33	1,606.10

Electrical equipment	3,477.51	2,933.00	3,115.39	3,491.29	3,680.10	4,290.46	6,383.52	8,349.37	8,402.53	9,365.73	10,307.04	13,416.12	13,623.34
Food and dairy products	15,707.00	16,421.33	16,884.96	18,871.22	17,222.68	18,675.01	20,533.22	23,922.42	27,466.11	30,276.26	29,628.51	38,062.97	44,649.20
Plastic products	2,362.46	2,036.17	2,359.71	2,401.51	2,748.15	3,364.77	3,100.54	3,694.65	4,505.51	5,284.15	6,816.22	8,022.83	8,911.57
Printing and publishing	1,129.40	1,118.15	1,021.86	991.84	1,042.79	1,213.08	1,539.83	1,702.91	1,997.24	1,960.76	1,988.22	2,550.11	2,580.80
Rubber products	983.58	968.01	1,169.07	1,261.56	1,313.21	1,792.96	1,933.13	2,264.78	2,313.37	3,002.93	3,478.41	3,958.14	4,492.22
Structural/ other fabricated metal products	2,068.99	2,287.91	2,278.41	2,577.05	3,027.57	3,477.20	4,576.46	5,780.95	7,317.40	6,707.62	6,815.31	8,722.24	8,832.94
Tobacco products	1,271.78	1,369.62	1,053.80	1,254.42	1,214.02	1,152.74	1,268.45	1,311.87	1,177.56	1,465.91	1,516.96	1,671.92	1,457.14
Transport equipment not classified elsewhere	2,043.86	2,042.05	2,424.49	2,493.41	2,941.57	3,782.33	4,134.27	4,508.81	4,162.66	4,665.26	5,442.66	7,143.49	8,066.31
Organized manufacturing	*90,671.01*	*89,165.92*	*88,797.91*	*97,829.96*	*104,754.00*	*121,914.26*	*133,123.97*	*156,674.70*	*174,560.37*	*196,777.14*	*209,827.04*	*256,140.31*	*290,516.85*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.11 Real Gross Value Added (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	3,542.33	2,691.04	2,530.09	3,538.22	4,171.04	5,723.13	4,672.88	6,196.91	7,657.77	5,571.94	6,739.05	7,096.07	10,452.57
Chemicals and chemical products	3,446.54	2,930.74	2,839.96	2,996.10	3,126.01	3,513.69	3,812.43	3,681.02	4,224.50	4,600.08	5,428.04	5,813.06	7,477.45
Computers and peripheral equipment/ office accounting	49.24	72.46	106.33	83.32	156.08	138.10	311.45	223.08	228.57	279.35	309.19	345.83	290.32
Consumer electronics	137.64	138.11	110.97	194.78	221.04	184.16	218.92	165.63	283.78	317.27	469.63	979.41	629.58
Other non-metallic mineral products	1,199.61	1,118.64	1,113.48	1,047.74	1,133.05	1,498.26	1,452.41	2,068.09	2,694.28	2,990.65	3,028.24	2,813.23	3,337.30
Paper and paper products	317.54	445.53	348.07	444.16	434.76	441.65	518.13	531.20	675.80	730.26	633.79	904.95	851.10
Electronic components	107.58	108.90	135.57	177.53	150.04	185.13	234.37	219.05	288.07	340.65	572.39	490.60	525.22
Machinery and equipment	1,287.67	1,210.81	1,154.65	1,060.26	1,214.01	1,419.49	1,668.24	2,037.68	2,561.86	3,455.06	3,490.79	3,846.71	4,556.61
Other transports and equipment (ships, spacecraft, locomotives, and others)	52.21	43.85	43.53	74.21	54.17	105.51	109.55	125.34	191.70	408.64	462.82	526.70	341.11
Wood and wood products	39.66	36.30	43.80	48.77	50.65	47.60	79.64	47.28	85.71	95.37	99.85	98.75	148.45

Export oriented													
Textiles	1,739.14	1,798.94	1,574.89	1,717.33	1,694.34	1,828.33	2,264.12	2,819.81	2,843.45	2,800.75	3,457.26	4,230.35	3,474.76
Leather and Leather products	141.88	129.82	156.92	164.83	152.44	154.37	197.81	216.39	258.59	308.12	378.89	375.66	460.06
Wearing apparel	387.56	364.20	327.24	381.90	334.60	446.93	530.06	674.66	776.43	885.66	858.77	900.97	1,006.38
Others													
Beverages	351.73	216.94	254.96	264.62	317.64	267.97	368.28	718.15	954.56	834.92	644.54	686.22	935.54
Pharma-ceuticals medicinal products	1,441.25	993.90	1,037.46	1,168.54	1,255.53	1,466.72	1,606.86	2,028.81	2,235.56	2,899.14	3,286.94	3,603.35	5,158.94
Bodies, trailers, parts and accessories	745.64	533.84	674.60	602.34	1,086.45	1,084.74	845.21	973.31	1,159.64	1,217.06	1,953.04	2,329.79	3,390.90
Com-munication equipment	97.24	109.32	78.04	99.52	97.15	110.64	143.85	162.98	295.04	703.78	321.25	183.33	248.36
Electrical equipment	808.48	663.05	709.71	748.24	796.36	883.47	1,274.00	1,660.58	1,869.07	1,817.93	2,166.96	2,464.51	2,527.69
Food and dairy products	1,874.90	1,987.93	2,046.55	1,945.36	1,701.16	1,870.81	2,242.83	2,855.46	2,525.37	2,974.22	3,034.33	3,903.46	4,447.93
Plastic products	508.01	373.89	467.87	436.61	509.17	519.31	493.28	556.08	703.93	1,029.56	1,251.90	1,777.49	1,525.31
Printing and publishing	347.93	303.60	260.15	292.59	328.99	326.70	471.92	480.11	606.18	487.52	602.00	793.74	726.52
Rubber products	235.31	242.18	281.81	305.76	282.48	364.73	315.35	322.98	486.06	693.25	793.80	847.92	775.97
Structural/ other fabri-cated metal products	469.77	490.59	489.37	504.91	595.32	629.57	884.65	1,196.21	1,413.20	1,305.72	1,598.34	2,037.43	1,629.92

(*Contd.*)

Table S.11 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Tobacco products	485.85	493.14	438.63	515.78	508.25	505.72	527.64	566.78	516.91	676.94	509.13	587.67	548.15
Transport equipment not classified elsewhere	398.65	364.56	505.87	541.53	663.32	734.00	869.47	1,035.40	847.03	858.91	1,103.45	1,447.82	1,385.87
Organized manufacturing	*20,213.36*	*17,862.27*	*17,730.53*	*19,354.97*	*21,034.07*	*24,450.73*	*26,113.34*	*31,562.98*	*36,383.07*	*38,282.75*	*43,194.39*	*49,085.03*	*56,852.02*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.12 Real Gross Value of Plant and Machinery (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	9,342.66	8,583.36	8,925.25	9,805.03	11,364.87	11,968.45	12,643.86	13,846.06	14,985.75	16,828.66	18,108.19	23,734.64	31,572.30
Chemicals and chemical products	9,047.58	9,282.45	1,0401.57	9,909.80	10,035.23	9,722.47	11,198.28	10,686.74	10,851.24	12,489.82	12,963.26	13,983.34	14,222.11
Computers and peripheral equipment/office accounting	33.13	94.09	117.57	217.66	309.34	317.79	322.50	337.04	344.22	347.35	356.22	393.10	414.54
Consumer electronics	277.41	267.87	170.42	350.62	772.59	556.08	417.30	502.76	537.43	529.80	763.98	880.46	815.23
Consumer electronics	4,648.69	3,641.80	3,692.08	3,798.31	4,036.79	4,142.98	4,227.56	4,296.83	5,145.78	6,153.97	6,596.45	8,564.09	9,264.62
Paper and paper products	1,617.90	1,503.00	1,409.06	1,675.31	1,617.39	1,577.96	1,669.58	1,661.66	2,023.65	2,175.25	2,620.59	2,978.97	3,156.94
Electronic components	242.73	259.37	402.84	464.20	290.49	407.01	500.21	372.76	439.93	332.62	691.98	453.41	437.15
Machinery and equipment	1,315.49	1,303.71	1,382.31	1,422.46	1,409.51	1,566.67	1,672.60	1,715.26	1,876.47	2,457.98	2,739.96	3,067.03	3,603.88
Other transports and equipment (ships, spacecraft, locomotives, and others)	65.71	81.97	81.44	94.74	60.28	84.54	103.76	109.91	103.15	192.66	250.42	350.67	425.79
Wood and wood products	58.01	60.19	66.13	77.46	85.47	78.31	99.96	107.47	106.06	152.80	142.27	219.64	233.66
Export oriented													
Textiles	5,727.32	5,260.33	4,824.26	5,023.37	5,260.25	5,545.20	5,627.45	6,994.32	7,211.53	7,740.28	8,461.97	9,456.41	10,113.94
Leather and leather products	119.27	141.64	136.80	142.36	120.67	146.07	152.96	144.45	201.46	247.37	311.67	306.54	309.05
Wearing apparel	153.54	161.65	149.64	147.59	157.08	216.71	258.60	289.63	344.35	457.67	429.01	483.54	452.81

(*Contd.*)

Table S.12 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Others													
Beverages	406.13	411.97	442.25	439.15	521.94	570.60	634.48	688.48	800.25	868.62	1,006.87	1,311.68	1,546.39
Pharmaceuticals medicinal products	2,282.34	1,645.08	1,332.64	1,221.28	1,351.05	1,498.01	1,566.11	1,950.44	2,138.61	2,533.41	3,395.12	3,334.17	4,370.92
Bodies, trailers, parts, and accessories	1,596.10	1,445.04	1,487.25	954.11	1,851.51	1,845.67	1,351.53	1,534.92	1,827.09	2,481.88	3,572.63	4,338.57	4,099.76
Communication equipment	140.24	342.29	98.28	119.24	211.36	128.98	132.93	85.89	217.70	317.48	193.99	162.77	324.17
Electrical equipment	1,287.26	1,027.90	1,106.82	1,191.47	1,012.07	987.28	1,084.75	1,115.22	1,311.42	1,380.30	2,011.18	2,219.18	2,549.10
Food and dairy products	2,739.99	2,801.57	2,696.19	3,204.29	3,120.54	3,153.15	3,427.69	3,814.17	4,365.01	4,855.07	5,836.20	6,607.33	7,420.60
Plastic products	1,095.04	921.53	1,199.31	1,058.75	1,379.21	1,578.16	1,065.97	1,171.93	1,277.87	1,837.08	2,203.40	2,404.90	2,729.23
Printing and publishing	380.79	342.31	297.26	356.01	382.88	377.94	464.60	503.45	614.67	684.95	805.23	1,002.79	1,090.25
Rubber products	394.60	510.12	524.23	613.73	522.96	746.32	739.37	818.39	757.62	958.88	1,171.66	1,344.62	1,710.15
Structural/other fabricated metal products	656.82	633.77	631.38	678.13	646.45	651.30	784.49	1,104.50	1,386.55	1,516.41	1,718.30	2,065.09	2,274.08
Tobacco products	127.02	149.67	150.79	177.71	194.80	176.46	182.78	199.98	218.80	219.28	302.45	265.76	295.67
Transport equipment not classified elsewhere	557.14	568.35	593.74	588.90	696.20	733.46	846.74	861.59	889.69	856.35	860.51	972.55	1,212.34
Organized manufacturing	*44,312.90*	*41,441.03*	*42,319.52*	*43,731.67*	*47,410.91*	*48,777.57*	*51,176.03*	*54,913.86*	*59,976.31*	*68,615.95*	*77,513.53*	*90,901.25*	*104,644.67*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.13 Current Value of Fuel Inputs (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	1,113.84	1,214.22	1,286.98	1,587.58	1,870.89	2,257.64	2,652.00	3,356.86	3,681.59	4,379.46	4,198.36	5,379.29	6,621.67
Chemicals and chemical products	900.05	1,043.96	1,132.92	1,218.15	1,185.48	1,332.22	1,458.57	1,578.92	1,771.10	2,106.73	1,796.18	2,212.33	2,840.23
Computers and peripheral equipment/ office accounting	1.80	2.56	3.92	5.29	7.76	9.80	12.84	14.71	18.27	22.95	21.01	24.42	28.04
Consumer electronics	10.12	10.85	9.84	13.55	18.57	19.33	13.61	14.68	16.68	19.10	28.36	50.73	29.53
Consumer electronics	801.50	736.11	805.36	841.09	966.26	1,127.59	1,222.66	1,422.62	1,804.22	2,206.84	2,138.16	2,764.79	3,489.21
Paper and paper products	242.21	246.08	242.75	276.32	271.75	288.94	304.14	318.54	401.05	462.70	504.63	651.32	712.92
Electronic components	10.42	12.82	18.66	27.13	16.65	24.41	30.18	23.80	24.76	25.70	79.04	41.85	41.24
Machinery and equipment	94.01	101.41	100.97	105.64	116.58	137.52	148.58	178.43	215.71	231.92	236.05	306.45	434.09
Other transports and equipment (ships, spacecraft, locomotives, and others)	5.61	6.77	6.51	8.94	7.90	13.75	17.00	16.38	15.00	17.49	23.31	35.38	31.42
Wood and wood products	10.60	11.08	14.45	12.85	16.62	18.44	19.75	25.14	25.38	36.15	41.76	51.73	57.45

(*Contd.*)

Table S.13 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Export oriented													
Textiles	689.97	750.66	662.45	737.34	786.89	858.30	944.34	1,219.17	1,231.40	1,327.25	1,449.06	1,777.27	1,992.04
Leather and leather products	17.49	22.84	29.17	28.50	30.91	36.65	40.38	44.39	49.92	57.31	68.50	72.67	82.11
Wearing apparel	23.23	27.15	27.21	32.74	33.03	44.63	59.67	57.22	67.91	77.77	85.65	96.14	95.53
Others													
Beverages	40.26	41.92	43.29	55.37	57.11	72.26	78.02	95.17	118.01	135.13	136.95	166.53	258.81
Pharma-ceuticals medicinal products	190.08	192.95	145.89	134.09	159.75	162.74	181.89	228.92	252.34	309.23	390.78	430.36	591.18
Bodies, trailers, parts, and accessories	76.38	79.70	77.25	79.43	109.95	138.82	138.40	172.08	198.59	210.26	313.41	430.21	497.16
Com-munication equipment	5.69	14.75	2.98	4.09	11.70	4.65	4.60	4.32	10.47	14.32	14.67	8.32	15.65
Electrical equipment	67.37	67.12	73.69	83.53	77.85	87.73	101.40	394.63	141.13	172.23	338.61	251.01	262.96
Food and dairy products	383.41	408.81	422.51	454.36	484.48	535.15	632.91	725.48	789.88	910.23	1,047.21	1,311.11	1,595.45
Plastic products	101.27	99.48	117.27	114.20	146.32	166.13	160.33	186.07	229.28	277.90	355.47	401.19	507.65
Printing and publishing	17.65	19.02	21.90	23.25	23.06	27.43	32.86	37.71	44.12	48.85	48.18	64.80	71.76
Rubber products	56.97	63.71	68.07	78.53	79.50	97.24	107.81	130.66	139.54	155.52	176.90	224.28	269.68

Structural/ other fabricated metal products	87.55	106.91	104.83	115.68	117.01	132.25	170.30	248.36	287.89	292.61	292.66	405.62	449.33
Tobacco products	8.84	12.28	9.92	12.65	13.62	13.25	17.08	16.75	17.83	17.81	34.83	23.59	28.93
Transport equipment not classified elsewhere	45.71	50.68	51.36	51.25	61.64	66.69	88.39	117.91	87.31	97.53	105.50	135.14	254.25
Organized manufacturing	*5,002.04*	*5,343.85*	*5,480.16*	*6,101.53*	*6,671.27*	*7,673.54*	*8,637.71*	*10,628.92*	*11,639.38*	*13,613.01*	*13,925.23*	*17,316.54*	*21,258.28*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.14 Current Value of Imported Inputs (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	897.58	995.89	1,024.95	1,426.23	1,732.01	2,870.03	3,589.06	5,093.35	5,664.75	7,009.23	7,176.88	9,004.86	9,746.08
Chemicals and chemical products	1,695.93	1,736.02	1,711.35	1,797.76	2,074.36	2,938.21	3,572.66	3,628.08	4,881.83	7,117.61	4,756.92	6,290.91	7,730.02
Computers and peripheral equipment/ office accounting	113.41	185.28	226.57	165.94	229.18	232.38	237.62	305.32	333.95	394.92	499.41	622.12	743.26
Consumer electronics	149.98	195.25	185.81	359.83	284.64	343.96	256.67	347.97	355.15	439.87	485.16	816.29	545.94
Consumer electronics	200.55	181.64	182.98	177.05	181.11	218.82	248.12	326.27	408.64	606.08	592.66	724.86	1,035.49
Paper and paper products	168.05	174.20	178.85	174.34	200.46	252.76	290.11	306.96	362.99	445.88	458.24	616.06	784.77
Electronic components	96.02	99.90	118.59	159.42	194.13	193.75	374.72	207.95	263.67	384.06	454.40	579.87	520.26
Machinery and equipment	281.80	294.32	262.01	328.56	455.89	545.55	937.00	997.82	1,404.21	1,349.93	1,532.19	1,687.67	2,313.10
Other transports and equipment (ships, spacecraft, locomotives, and others)	120.31	152.77	112.87	147.56	152.39	125.34	183.24	176.65	286.15	445.59	325.08	372.05	324.71
Wood and wood products	25.98	24.29	72.92	43.40	75.00	106.06	84.96	119.80	115.59	190.56	211.21	278.54	196.96

Export oriented													
Textiles	384.80	495.88	510.01	398.93	460.36	464.51	505.51	518.86	605.54	606.43	806.61	1,036.93	1,273.12
Leather and leather products	74.98	104.99	84.74	75.40	71.40	122.18	108.77	151.10	248.26	204.76	202.73	234.33	262.86
Wearing apparel	58.18	101.48	94.60	88.48	80.52	159.83	128.69	168.27	145.04	168.10	184.25	170.97	225.45
Others													
Beverages	16.04	9.12	5.85	6.42	22.56	18.63	23.84	26.21	52.46	36.40	33.20	37.27	63.46
Pharma-ceuticals medicinal products	422.71	353.80	323.87	357.23	428.33	469.05	555.11	733.95	741.87	887.85	1,185.10	1,390.81	1,935.88
Bodies, Trailers, Parts and Accessories	316.11	465.55	351.19	216.56	628.06	529.99	425.37	692.70	694.10	865.94	1,195.88	1,273.54	1,552.07
Com-munication equipment	104.60	114.70	84.63	96.70	123.65	118.08	145.37	174.18	295.05	479.10	458.90	501.09	392.76
Electrical equipment	313.46	349.19	369.23	420.83	455.38	563.11	985.31	1,785.01	1,303.07	1,485.56	1,491.95	2,126.29	2,141.44
Food and dairy products	246.09	383.91	365.42	838.41	881.91	1,327.41	1,155.48	1,271.33	1,612.81	3,241.70	2,753.11	3,341.93	4,219.29
Plastic products	123.26	80.81	101.00	84.65	159.56	158.46	210.00	273.48	304.16	423.84	894.71	827.10	999.89
Printing and publishing	107.63	93.56	108.67	80.53	95.42	125.02	175.62	206.88	245.88	268.49	218.31	319.91	407.15
Rubber products	89.79	92.75	118.14	128.33	133.35	206.06	260.51	334.22	337.57	522.86	713.40	802.83	1,136.99
Structural/ other fabri-cated metal products	84.21	93.45	110.71	111.82	121.03	211.89	377.17	668.39	1,079.34	855.08	905.02	1,203.21	1,318.29

(*Contd.*)

Table S.14 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Tobacco products	12.85	8.33	15.80	10.66	18.34	6.99	7.80	23.79	6.62	19.84	62.47	65.30	27.30
Transport equipment not classified elsewhere	96.20	110.99	100.48	82.38	101.61	82.39	110.96	103.51	87.14	116.58	178.94	282.98	334.30
Organized manufacturing	*6,200.52*	*6,898.10*	*6,821.24*	*7,777.45*	*9,360.64*	*12,390.46*	*14,949.68*	*18,642.03*	*21,835.86*	*28,566.26*	*27,776.72*	*34,607.73*	*40,230.88*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.15 Number of Production Workers

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	465,985	406,008	390,110	389,722	390,014	421,802	475,007	574,510	615,208	680,024	677,715	751,446	806,084
Chemicals and chemical products	363,462	368,392	352,837	364,279	325,634	357,168	366,714	367,414	371,793	387,716	398,245	437,566	471,703
Computers and peripheral equipment/office accounting	9,686	9,863	11,232	9,076	10,891	14,139	14,148	17,349	17,594	15,584	15,444	16,872	17,815
Consumer electronics	22,107	20,339	15,796	17,732	20,035	19,427	20,048	19,031	18,574	18,167	21,571	22,307	19,330
Consumer electronics	353,470	336,671	356,856	360,432	351,702	409,687	462,275	528,278	540,354	620,338	622,735	722,055	749,567
Paper and paper products	129,619	129,405	126,340	131,806	131,830	133,935	134,531	144,121	201,701	174,141	174,007	189,199	193,548
Electronic components	23,629	24,115	28,969	31,267	26,213	31,184	38,104	34,055	50,219	49,099	60,303	65,404	64,492
Machinery and equipment	251,516	234,136	230,273	230,650	223,657	261,339	270,086	308,493	329,334	398,332	370,454	450,106	468,695
Other transports and equipment (ships, spacecraft, locomotives, and others)	29,937	27,549	24,102	28,784	25,431	37,175	27,864	30,017	40,207	45,846	50,911	64,277	57,171
Wood and wood products	37,413	33,368	36,078	35,155	35,236	35,200	40,295	40,873	49,473	49,075	52,131	59,008	57,291

(*Contd.*)

Table S.15 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Export oriented													
Textiles	948,805	948,355	882,991	870,017	893,217	930,572	965,952	1,113,059	1,104,673	1,172,661	1,162,424	1,258,011	1,262,815
Leather and leather products	83,585	94,146	100,407	102,508	101,196	111,788	125,359	124,519	168,349	191,104	191,760	218,506	231,614
Wearing apparel	179,324	205,465	201,302	216,704	234,150	291,589	348,029	360,778	412,476	420,561	441,656	452,107	491,764
Others													
Beverages	53,929	51,813	54,304	61,893	62,750	71,876	72,474	72,052	88,116	91,186	98,125	96,358	114,559
Pharmaceuticals medicinal products	155,445	140,442	126,983	123,040	136,057	149,999	162,547	187,574	208,175	230,741	248,764	278,731	316,687
Bodies, Trailers, Parts and Accessories	151,811	137,807	135,096	138,411	163,883	186,065	189,579	222,004	268,163	295,982	375,319	447,772	490,849
Communication equipment	15,399	17,178	13,563	15,302	14,802	14,205	18,323	14,847	29,258	20,385	30,086	22,182	29,817
Electrical equipment	159,862	148,291	143,053	148,127	141,783	159,909	189,008	205,211	233,211	238,340	282,772	328,161	326,444
Food and dairy products	867,605	852,710	832,035	827,451	818,772	849,020	881,328	913,832	970,095	1,001,221	1,011,192	1,046,436	1,132,256
Plastic products	106,682	106,095	118,522	111,576	123,681	132,183	144,477	157,659	164,427	208,617	226,987	248,949	271,020
Printing and publishing	60,363	58,841	54,557	61,886	55,361	56,966	69,585	71,313	70,532	76,721	83,278	90,089	104,653
Rubber products	82,643	64,609	69,306	72,212	74,766	80,899	83,481	90,520	95,539	107,303	126,206	130,834	145,058
Structural/ other fabricated metal products	184,405	195,858	176,066	189,367	187,017	215,171	248,029	305,793	356,466	357,313	375,978	467,139	465,596

Tobacco products	427,851	435,462	448,514	448,445	418,877	399,278	401,858	365,785	360,640	376,628	362,637	354,535	393,353
Transport equipment not classified elsewhere	92,809	100,450	93,118	91,042	98,219	94,825	114,194	146,155	110,026	124,548	128,669	147,208	169,415
Organized manufacturing	*5,257,339*	*5,147,368*	*5,022,412*	*5,076,884*	*5,065,173*	*5,465,401*	*5,863,292*	*6,415,242*	*6,874,602*	*7,351,631*	*7,589,367*	*8,365,260*	*8,851,596*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.16 Number of Production Workers, Directly Employed

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	369,550	310,417	293,313	292,240	280,488	293,667	313,040	358,351	382,072	409,361	406,457	441,280	447,035
Chemicals and chemical products	300,926	292,243	276,175	274,145	245,367	260,983	258,590	263,617	253,346	261,555	249,675	274,709	296,052
Computers and peripheral equipment/office accounting	6,252	5,353	6,791	6,978	8,014	9,329	10,621	9,335	10,846	8,886	8,563	10,030	8,882
Consumer electronics	19,946	18,393	14,652	14,657	15,372	14,298	14,645	12,609	12,768	11,608	13,381	12,938	11,290
Consumer electronics	233,947	225,097	225,751	223,013	211,599	234,623	233,869	242,669	248,451	290,125	279,290	317,352	317,521
Paper and paper products	102,830	100,959	96,147	95,099	96,624	99,437	97,322	100,539	156,069	121,835	123,292	135,619	140,827
Electronic components	21,179	21,735	26,070	27,762	22,270	23,836	31,289	27,055	30,359	35,307	45,226	46,064	49,286
Machinery and equipment	227,967	211,268	196,677	195,373	186,619	203,642	208,564	227,730	239,184	275,813	26,8241	297,150	306,285
Other transports and equipment (ships, spacecraft, locomotives, and others)	25,811	21,377	19,941	20,848	17,551	18,355	17,246	16,362	19,065	20,705	20,944	28,282	24,501
Wood and wood products	33,841	30,199	31,678	29,891	29,595	29,334	30,240	30,691	35,289	36,614	39,532	43,089	42,999

Export oriented													
Textiles	886,299	875,733	820,591	794,564	797,933	832,074	846,698	970,084	959,140	1,016,891	1,004,462	1,072,072	1,087,490
Leather and leather products	72,559	75,762	87,166	82,558	81,921	95,218	97,443	101,578	143,798	162,918	153,999	181,354	182,513
Wearing apparel	168,893	191,812	184,104	201,255	210,624	250,492	291,699	313,910	353,418	345,489	353,402	379,025	408,010
Others													
Beverages	39,379	36,100	36,263	37,454	38,234	39,684	40,546	37,777	42,764	47,567	49,602	47,805	57,032
Pharmaceuticals medicinal products	120,597	113,304	97,039	91,184	91,816	95,818	102,670	114,806	125,482	138,175	144,593	161,189	176,020
Bodies, trailers, parts, and accessories	128,176	118,907	109,033	105,144	121,066	125,907	125,167	136,694	154,290	175,432	218,874	243,183	249,127
Communication equipment	14,461	15,601	11,260	12,350	12,514	11,309	12,158	10,445	14,252	12,443	13,882	11,061	14,989
Electrical equipment	140,832	129,437	120,870	118,183	114,774	121,845	135,573	139,360	158,579	158,128	182,606	209,479	200,914
Food and dairy products	693,576	670,052	640,307	615,601	613,503	620,813	645,627	652,585	689,770	713,795	721,331	737,183	793,519
Plastic products	93,161	88,693	97,055	92,378	96,914	97,958	103,081	115,055	127,271	149,084	159,434	173,309	188,743
Printing and publishing	55,896	54,688	49,639	53,125	49,698	51,422	61,729	61,490	61,263	64,901	69,956	73,393	78,296
Rubber products	75,450	59,484	62,995	65,754	61,082	68,261	69,864	71,329	74,822	77,166	90,890	90,662	101,047
Structural/ other fabricated metal products	143,692	142,475	129,750	127,440	122,433	135,292	152,430	182,284	209,712	213,084	220,510	248,554	257,727
Tobacco products	127,367	149,130	173,602	172,134	146,918	126,073	106,221	99,383	84,465	91,063	104,121	107,670	125,158

(*Contd.*)

Table S.16 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Transport equipment not classified elsewhere	85,535	90,101	82,510	76,696	79,294	75,943	81,276	88,664	74,700	77,875	76,702	82,938	91,636
Organized manufacturing	*4,188,123*	*4,048,322*	*3,889,379*	*3,825,824*	*3,752,219*	*3,935,612*	*4,087,609*	*4384,403*	*4,661,175*	*4,915,820*	*5,018,963*	*5,425,390*	*5,656,898*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.17 Number of Production Workers, Employed through Contractors

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	96,435	95,592	96,797	97,482	109,526	128,136	161,967	216,159	233,136	270,662	271,257	310,167	359,049
Chemicals and chemical products	62,537	76,149	76,662	90,134	80,267	96,184	108,124	103,797	118,447	126,161	148,570	162,857	175,651
Computers and peripheral equipment/ office accounting	3,434	4,510	4,441	2,097	2,877	4,810	3,527	8,014	6,748	6,698	6,881	6,842	8,933
Consumer electronics	2,161	1,946	1,144	3,075	4,663	5,129	5,403	6,422	5,806	6,559	8,190	9,369	8,041
Consumer electronics	119,523	111,574	131,106	137,419	140,104	175,064	228,406	285,609	291,903	330,213	343,445	404,703	432,046
Paper and paper products	26,789	28,445	30,193	36,708	35,206	34,498	37,208	43,582	45,632	52,306	50,716	53,580	52,721
Electronic components	2,449	2,380	2,899	3,504	3,943	7,348	6,815	7,000	19,860	13,792	15,077	19,341	15,206
Machinery and equipment	23,549	22,868	33,596	35,277	37,038	57,697	61,522	80,763	90,150	122,519	102,214	152,956	162,410
Other transports and equipment (ships, spacecraft, locomotives, and others)	4,125	6,172	4,161	7,936	7,880	18,819	10,618	13,655	21,142	25,141	29,967	35,996	32,670
Wood and wood products	3,572	3,169	4,399	5,264	5,641	5,866	10,055	10,181	14,185	12,461	12,599	15,919	14,291

(*Contd.*)

Table S.17 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Export oriented													
Textiles	62,506	72,623	62,400	75,453	95,284	98,498	119,254	142,976	145,533	155,770	157,962	185,938	175,324
Leather and leather products	11,026	18,384	13,241	19,950	19,275	16,570	27,916	22,941	24,551	28,186	37,761	37,153	49,102
Wearing apparel	10,431	13,653	17,199	15,449	23,526	41,098	56,330	46,868	59,058	75,072	88,254	73,082	83,754
Others													
Beverages	14,549	15,713	18,041	24,438	24,516	32,192	31,927	34,275	45,352	43,619	48,523	48,553	57,527
Pharma-ceuticals medicinal products	34,848	27,138	29,944	31,856	44,241	54,182	59,877	72,769	82,692	92,566	104,171	117,542	140,667
Bodies, trailers, parts, and accessories	23,635	18,900	26,063	33,268	42,818	60,158	64,411	85,309	113,873	120,550	156,445	204,589	241,723
Com-munication equipment	939	1,577	2,303	2,953	2,288	2,896	6,165	4,401	15,006	7,942	16,204	11,121	14,828
Electrical equipment	19,030	18,853	22,183	29,944	27,010	38,064	53,435	65,851	74,633	80,211	100,167	118,682	125,530
Food and dairy products	174,029	182,657	191,728	211,850	205,268	228,207	235,701	261,247	280,325	287,426	289,861	309,253	338,737
Plastic products	13,520	17,402	21,466	19,198	26,767	34,225	41,396	42,605	37,156	59,533	67,553	75,640	82,277
Printing and publishing	4,466	4,153	4,918	8,761	5,663	5,544	7,856	9,823	9,270	11,820	13,323	16,695	26,358
Rubber products	7,193	5,124	6,311	6,458	13,684	12,638	13,617	19,190	20,717	30,137	35,316	40,172	44,011

Structural/ other fabricated metal products	40,713	53,383	46,317	61,927	64,584	79,879	95,598	123,509	146,754	144,229	155,467	218,585	207,869
Tobacco products	300,483	286,332	274,912	276,312	271,960	273,206	295,636	266,403	276,174	285,565	258,516	246,865	268,195
Transport equipment not classified elsewhere	7,274	10,349	10,608	14,346	18,925	18,883	32,918	57,491	35,326	46,673	51,966	64,270	77,779
Organized manufacturing	*1,069,216*	*1,099,046*	*1,133,033*	*1,251,060*	*1,312,954*	*1,529,789*	*1,775,682*	*2,030,839*	*2,213,427*	*2,435,811*	*2,570,404*	*2,939,871*	*3,194,698*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.18 Number of Supervisory and Managerial Staff

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	69,268	64,886	64,779	60,810	64,204	72,187	77,606	92,891	97,011	108,139	102,809	123,200	137,511
Chemicals and chemical products	67,412	66,334	68,928	63,896	61,295	61,318	64,181	67,673	69,648	76,424	75,379	80,715	83,160
Computers and peripheral equipment/ office accounting	2,375	2,128	3,175	2,313	2,432	3,952	2,862	3,426	2,719	2,005	2,518	2,163	2,648
Consumer electronics	5,016	4,094	3,598	4,113	4,617	5,112	4,522	3,388	3,501	3,977	3,523	3,762	3,000
Consumer electronics	42,878	37,967	37,557	37,322	38,474	41,102	41,935	45,748	50,939	58,264	60,029	71,407	75,639
Paper and paper products	17,212	17,674	16,600	16,550	17,210	17,935	18,087	17,908	19,010	21,148	22,215	25,188	24,694
Electronic components	9,068	7,519	8,253	8,993	8,791	8,633	11,506	9,264	11,170	10,586	13,002	14,680	11,956
Machinery and equipment	69,025	62,977	62,017	58,729	58,032	60,759	63,584	64,392	70,314	101,674	82,485	97,601	95,995
Other transports and equipment (ships, spacecraft, locomotives, etc.)	4,014	3,770	3,863	4,242	3,610	3,800	3,914	4,630	4,500	6,174	5,679	6,492	7,583
Wood and wood products	4,414	4,357	5,184	4,097	4,773	4,967	5,197	4,980	5,733	6,511	6,608	7,085	7,385
Export oriented													
Textiles	73,175	69,431	65,249	63,630	67,181	69,440	72,122	91,358	83,921	89,887	89,672	97,099	101,074
Leather and leather products	8,733	8,776	9,462	8,748	9,299	9,026	10,750	9,619	13,328	14,519	14,508	17,234	16,926
Wearing apparel	16,299	15,596	15,731	16,913	17,663	23,609	25,854	27,382	36,470	35,172	31,351	34,467	39,346

Others													
Beverages	6,220	6,491	6,633	7,626	7,684	8,423	8,797	9,049	10,908	11,092	9,995	11,236	12,168
Pharmaceuticals medicinal products	40,050	37,704	37,258	36,439	39,627	41,882	44,690	48,602	55,174	57,401	63,386	72,819	83,173
Bodies, trailers, parts, and accessories	32,913	26,294	26,474	23,829	29,144	30,649	27,791	32,228	32,986	40,387	51,114	59,640	60,573
Communication equipment	7,775	8,740	7,493	5,915	5,017	4,963	5,413	4,113	5,332	55,66	4,857	4,620	5,239
Electrical equipment	38,660	34,833	35,777	34,366	32,846	33,378	34,275	41,320	42,318	46,448	48,936	60,261	59,066
Food and dairy products	75,577	74,369	72,635	74,207	71,072	71,790	75,019	80,577	87,198	92,435	90,789	101,884	115,514
Plastic products	17,724	17,982	18,505	18,015	19,862	20,064	20,842	21,105	24,497	28,047	29,109	37,290	35,509
Printing and publishing	11,140	12,309	11,771	13,764	13,145	12,923	15,092	14,508	15,181	14,745	14,437	18,430	23,449
Rubber products	10,926	9,216	10,018	9,768	9,901	10,880	10,690	12,430	12,357	15,534	15,918	15,679	16,845
Structural/other fabricated metal products	32,798	32,011	28,176	29,431	27,924	30,428	33,856	41,024	47,053	46,766	50,001	57,301	61,580
Tobacco products	5,426	6,227	5,127	5,632	5,070	5,116	5,348	5,757	5,348	5,839	5,750	6,085	6,495
Transport equipment not classified elsewhere	16,074	16,096	14,622	12,372	14,974	14,439	16,295	16,251	15,727	15,522	14,979	17,683	22,592
Organized manufacturing	*684,172*	*647,781*	*638,886*	*621,720*	*633,846*	*666,775*	*700,229*	*769,624*	*822,344*	*914,262*	*909,051*	*1,044,021*	*1,109,119*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.19 Number of Other Employees (Clerical, Administrative, and Others)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	77,354	69,749	70,692	68,240	68,698	68,650	71,931	78,599	78,463	86,940	85,903	114,044	119,230
Chemicals and chemical products	73,076	72,885	69,178	72,897	67,623	67,121	69,379	68,311	66,575	71,361	70,292	74,511	79,403
Computers and peripheral equipment/office accounting	3,683	1,978	2,002	2,319	4,611	4,419	3,224	4,221	4,391	2,270	3,604	3,134	7,269
Consumer electronics	4,534	4,323	5,010	4,985	5,987	4,487	4,020	3,652	3,791	4,618	4,426	5,549	4,508
Consumer electronics	46,117	47,877	44,416	43,903	46,020	48,534	52,735	57,310	56,382	68,870	71,204	78,674	79,929
Paper and paper products	19,716	18,747	17,403	19,377	18,620	19,612	18,868	18,898	20,658	24,015	22,700	25,440	27,463
Electronic components	4,578	5,893	6,155	5,682	5,548	5,876	7,481	6,154	6,580	7,493	8,965	10,631	11,558
Machinery and equipment	79,053	64,494	62,145	59,270	58,221	62,680	67,537	75,435	82,606	201,554	86,480	112,385	112,134
Other transports and equipment (ships, spacecraft, locomotives, and others)	6,478	6,042	4,444	5,259	5,225	5,857	5,002	4,787	5,940	4,831	6,593	8,187	7,732
Wood and wood products	5,031	5,136	5,486	5,091	4,721	5,047	5,790	5,439	6,819	7,243	8,686	9,323	8,447
Export oriented													
Textiles	94,038	89,555	81,798	81,156	84,578	84,055	84,434	102,193	99,871	102,763	101,762	114,709	110,956
Leather and leather products	11,047	10,502	9,744	14,601	14,072	10,500	11,961	11,833	14,731	18,616	17,565	19,378	22,399
Wearing apparel	20,762	22,807	19,039	23,869	22,781	27,147	32,607	34,805	51,316	43,870	45,126	45,028	44,870

Others													
Beverages	13,419	13,587	12,198	11,725	12,409	12,880	13986	13,452	15,561	16,817	16,270	15,544	17,393
Pharmaceuticals medicinal products	67,376	62,585	63,189	59,089	62,321	67,462	72,469	81,118	80,338	78,310	92,242	99,584	136,875
Bodies, trailers, parts, and accessories	29,374	24,706	24,520	21,841	25,667	27,881	27,796	31,473	36,621	41,938	51,073	55,507	62,309
Communication equipment	5,552	4,438	3,298	4,697	4,010	3,087	3,363	3,049	5,162	11,351	4,729	3,734	5,181
Electrical equipment	37,845	32,799	31,996	30,400	30,615	31,149	35,558	39,911	44,037	44,725	46,155	55,190	67,631
Food and dairy products	194,491	186,130	1,75,078	173,927	165,453	153,975	165,430	181,241	177,015	177,415	176,379	198,302	201,163
Plastic products	21,091	19,146	21,616	19,463	21,084	24,627	22,949	24,212	26,540	33,943	33,085	36,365	43,106
Printing and publishing	23,533	25,948	24,740	24,427	23,679	26,616	27,687	31,183	32,570	33,451	34,844	38,120	41,024
Rubber products	13,151	9,819	10,798	10,578	9,997	12,417	13,170	13,126	12,899	14,179	16,028	15,014	17,760
Structural/other fabricated metal products	32,310	32,182	30,830	33,358	30,300	33,340	36,155	43,404	51,064	49,445	56,883	68,303	67,869
Tobacco products	14,393	18,506	20,544	15,021	13,137	13,088	16,173	12,163	11,108	10,725	10,138	9,741	10,537
Transport equipment not classified elsewhere	16,226	16,392	14,948	13,342	13,741	13,506	15,696	16,432	14,476	16,233	15,457	16,745	17,248
Organized manufacturing	*914,228*	*866,225*	*831,268*	*824,517*	*819,120*	*834,014*	*885,400*	*962,404*	*1,005,514*	*1,172,975*	*1,086,590*	*1,233,141*	*1,323,994*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.20 Total Number of Employees

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	612,607	540,644	525,581	518,772	522,915	562,639	624,544	746,001	790,682	875,102	866,427	988,690	1,062,824
Chemicals and chemical products	503,950	507,611	490,944	501,073	454,552	485,607	500,274	503,399	508,016	535,500	543,916	592,792	634,266
Computers and peripheral equipment/ office accounting	15,744	13,969	16,409	13,708	17,934	22,510	20,235	24,996	24,704	19,860	21,566	22,168	27,733
Consumer electronics	31,657	28,756	24,404	26,830	30,640	29,026	28,589	26,071	25,866	26,762	29,521	31,618	26,838
Consumer electronics	442,465	422,515	438,829	441,657	436,196	499,324	556,944	631,336	647,675	747,472	753,968	872,136	905,134
Paper and paper products	166,548	165,826	160,343	167,734	167,661	171,482	171,486	180,928	241,370	219,304	218,923	239,827	245,705
Electronic components	37,274	37,527	43,377	45,942	40,552	45,693	57,091	49,473	67,969	67,179	82,270	90,715	88,005
Machinery and equipment	399,594	361,606	354,436	348,650	339,911	384,778	401,207	448,320	482,255	701,559	539,419	660,092	676,824
Other transports and equipment (ships, spacecraft, locomotives, and others)	40,428	37,361	32,409	38,285	34,266	46,831	36,780	39,434	50,646	56,851	63,183	78,956	72,486
Wood and wood products	*46,859*	*42,861*	*46,748*	*44,343*	*44,730*	*45,214*	*51,281*	*51,292*	*62,026*	*62,830*	*67,425*	*75,416*	*73,122*
Export oriented													
Textiles	1,116,019	1,107,342	1,030,039	1,014,803	1,044,976	1,084,067	1,122,508	1,306,610	1,288,465	1,365,312	1,353,858	1,469,819	1,474,846
Leather and leather products	103,364	113,424	119,613	125,857	124,568	131,313	148,070	145,970	196,408	224,239	223,833	255,118	270,939

Wearing apparel	216,384	243,868	236,072	257,486	274,595	342,346	406,490	422,965	500,262	499,603	518,133	531,602	575,981
Others													
Beverages	73,568	71,891	73,136	81,243	82,843	93,180	95,257	94,554	114,586	119,094	124,389	123,138	144,121
Pharmaceuticals medicinal products	262,871	240,732	227,430	218,569	238,005	259,343	279,706	317,294	343,687	366,452	404,392	451,134	536,734
Bodies, trailers, parts, and accessories	214,098	188,808	186,090	184,081	218,694	244,595	245,165	285,705	337,770	378,307	477,506	562,919	613,732
Communication equipment	28,727	30,356	24,354	25,914	23,829	22,256	27,100	22,008	39,752	37,302	39,672	30,536	40,237
Electrical equipment	236,367	215,922	210,826	212,893	205,245	224,436	258,841	286,441	319,566	329,512	377,863	443,612	453,141
Food and dairy products	1,137,674	1,113,209	1,079,748	1,075,584	1,055,296	1,074,785	1,121,777	1,175,651	1,234,307	1,271,070	1,278,361	1,346,623	1,448,932
Plastic products	145,497	143,223	158,643	149,053	164,627	176,874	188,268	202,976	215,463	270,607	289,182	322,605	349,636
Printing and publishing	95,036	97,098	91,068	100,077	92,184	96,505	112,364	117,004	118,283	124,916	132,559	146,639	169,126
Rubber products	106,720	83,644	90,123	92,559	94,664	104,196	107,340	116,076	120,794	137,015	158,152	161,527	179,663
Structural/ other fabricated metal products	249,513	260,051	235,072	252,155	245,240	278,939	318,040	390,221	454,583	453,524	482,862	592,743	595,045
Tobacco products	447,670	460,195	474,185	469,099	437,084	417,483	423,378	383,706	377,097	393,192	378,524	370,361	410,385
Transport equipment not classified elsewhere	125,109	132,938	122,688	116,756	126,934	122,770	146,185	178,838	140,228	156,304	159,104	181,636	209,254
Organized manufacturing	6,855,740	6,661,375	6,492,566	6,523,121	6,518,139	6,966,190	7,448,921	8,147,270	8,702,460	9,438,867	9,585,007	10,642,422	11,284,709

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.21 Total Number of Persons Engaged

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	612,607	543,452	528,244	521,452	525,281	565,027	626,781	748,824	793,360	877,793	869,164	990,414	1,068,298
Chemicals and chemical products	503,950	509,838	493,577	503,672	457,039	488,303	502,986	506,297	510,748	538,212	546,399	594,170	635,688
Computers and peripheral equipment/ office accounting	15,744	13,995	16,418	13,720	17,958	22,524	20,251	25,007	24,714	19,881	21,576	22,175	27,737
Consumer electronics	31,657	28,818	24,469	26,879	30,686	29,078	28,653	26,114	25,900	26,843	29,573	31,642	26,860
Consumer electronics	442,465	429,024	445,795	448,537	442,789	507,398	565,837	640,946	658,610	757,335	763,672	902,625	916,152
Paper and paper products	166,548	167,046	161,521	169,094	169,076	173,104	172,991	182,662	243,356	221,288	220,553	241,033	247,169
Electronic components	37,274	37,612	43,453	46,007	40,628	45,776	57,197	49,568	68,033	67,347	82,331	90,814	88,109
Machinery and equipment	399,594	364,368	357,288	351,530	343,076	387,960	404,196	451,339	485,503	704,334	542,325	661,733	679,059
Other transports and equipment (ships, spacecraft, locomotives, and others)	40,428	37,563	32,530	38,374	34,344	47,041	36,857	39,543	50,719	56,952	63,274	79,026	72,539
Wood and wood products	46,859	44,197	48,204	45,855	46,077	46,528	52,631	52,835	63,653	64,155	68,718	76,469	74,246

Export oriented													
Textiles	1,116,019	1,110,726	1,033,541	1,019,694	1,048,663	1,087,530	1,126,790	1,311,342	1,292,458	1,369,285	1,357,442	1,472,694	1,483,519
Leather and leather products	1,033,64	114,155	120,208	126,644	125,491	132,206	148,969	146,917	197,306	225,024	224,654	255,707	271,420
Wearing apparel	216,384	244,870	237,064	258,743	275,717	343,378	407,587	423,885	501,326	500,788	519,035	532,580	576,656
Others													
Beverages	73,568	72,171	73,310	81,506	83,227	937,28	95,769	94,938	115,015	119,571	124,832	123,429	144,654
Pharma-ceuticals medicinal products	262,871	241,486	227,969	219,081	238,470	259,868	280,235	317,839	344,252	367,080	405,029	451,780	537,062
Bodies, trailers, parts, and accessories	214,098	189,581	186,793	184,690	219,337	245,267	245,930	286,437	338,555	379,147	478,184	563,362	614,350
Com-munication equipment	28,727	30,426	24,411	25,976	23,875	22,302	27,120	22,073	39,795	37,353	39,686	30,560	40,247
Electrical equipment	236,367	216,910	211,780	213,937	206,303	225,464	259,953	287,577	320,755	330,662	379,429	444,502	455,533
Food and dairy products	1,137,674	1,125,208	1,090,557	1,087,769	1,067,289	1,086,664	1,134,250	1,187,566	1,246,678	1,283,396	1,288,904	1,354,730	1,459,212
Plastic products	145,497	145,078	160,493	150,542	166,526	179,537	190,267	205,201	217,816	272,933	291,166	324,460	363,872
Printing and publishing	95,036	98,166	91,919	101,002	92,906	97,520	113,395	118,057	119,105	125,843	133,382	147,146	169,821
Rubber products	106,720	84,184	90,698	93,133	95,125	104,738	107,869	116,822	121,364	137,563	158,651	161,837	180,174
Structural/ other fabri-cated metal products	249,513	263,429	238,782	255,477	248,525	282,055	321,228	393,573	458,196	457,261	486,436	598,544	598,389

(*Contd.*)

Table S.21 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Tobacco products	447,670	461,718	476,033	471,027	439,201	419,558	425,598	385,537	378,696	395,134	380,512	371,814	411,728
Transport equipment not classified elsewhere	125,109	133,495	123,437	117,437	127,474	123,390	146,903	179,331	140,721	156,903	159,713	182,261	209,943
Organized manufacturing	*6,855,740*	*6,707,518*	*6,538,494*	*6,571,778*	*6,565,083*	*7,015,948*	*7,500,244*	*8,200,231*	*8,756,634*	*9,492,083*	*9,634,638*	*10,705,507*	*11,352,438*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.22 Real Wage of Production Workers, Directly Employed (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	350.13	338.17	322.79	341.43	350.39	327.11	338.78	366.96	445.59	458.69	365.53	439.72	442.37
Chemicals and chemical products	224.52	217.20	216.37	216.15	198.12	209.38	209.79	206.62	207.32	211.77	196.44	221.75	239.53
Computers and peripheral equipment/office accounting	3.62	3.32	5.06	4.90	5.67	6.77	7.88	6.59	9.15	6.78	5.85	7.03	7.08
Consumer electronics	11.86	11.15	9.30	10.85	12.10	9.49	9.20	9.13	9.26	9.19	12.72	11.79	9.50
Consumer electronics	109.89	112.87	112.32	111.66	104.39	109.59	111.80	119.62	129.15	147.88	137.36	157.11	164.63
Paper and paper products	60.13	63.46	62.92	59.57	60.19	61.58	62.10	59.52	68.16	70.55	72.23	79.96	83.93
Electronic components	14.68	15.18	20.71	22.47	17.49	18.86	23.80	23.26	25.80	32.70	36.00	37.72	44.29
Machinery and equipment	180.29	175.52	163.60	164.39	158.46	171.43	178.43	196.71	207.55	259.37	235.49	241.57	261.96
Other transports and equipment (ships, spacecraft, locomotives, and others)	18.48	17.93	17.73	17.24	13.82	15.88	15.33	14.32	17.65	19.22	20.69	26.20	21.89
Wood and wood products	10.58	8.58	9.51	8.59	8.85	8.74	9.85	9.19	10.69	13.65	12.56	15.53	16.22
Export oriented													
Textiles	438.15	450.21	405.92	397.38	376.96	386.75	394.55	413.80	430.08	434.27	419.14	485.03	495.20
Leather and leather products	27.16	27.24	31.53	29.09	29.90	34.78	37.70	38.91	53.85	56.05	60.20	70.85	74.65
Wearing apparel	56.44	62.11	61.47	73.73	74.88	93.18	111.53	125.75	140.26	136.68	134.94	160.58	171.72
Others													
Beverages	23.01	21.18	22.77	23.20	24.72	24.97	25.91	24.71	28.46	30.93	30.72	29.91	35.92
Pharmaceuticals medicinal products	87.03	81.44	69.37	65.97	64.77	68.99	72.02	82.13	83.87	103.58	103.55	122.39	149.54
Bodies, trailers, parts, and accessories	106.73	103.14	89.93	84.23	104.96	105.17	97.59	107.67	123.39	125.77	154.51	191.57	194.44
Communication equipment	11.79	14.19	9.29	12.66	11.66	10.66	11.14	9.73	13.38	10.94	10.29	7.96	11.14
Electrical equipment	113.27	119.07	98.27	105.14	95.59	99.25	108.59	110.06	125.85	119.70	146.24	165.48	175.04

(*Contd.*)

Table S.22 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Food and dairy products	264.47	266.87	255.61	247.79	232.81	228.99	247.76	253.76	274.97	283.67	285.05	315.66	355.01
Plastic products	39.67	37.30	40.77	37.66	42.95	41.21	41.85	49.20	52.09	62.09	76.24	81.11	89.86
Printing and publishing	36.35	37.72	36.33	37.25	35.46	36.19	41.99	42.78	43.09	43.04	42.89	48.36	59.12
Rubber products	38.88	36.90	44.14	46.29	44.21	50.57	52.83	54.02	53.72	56.22	78.70	61.85	74.30
Structural/other fabricated metal products	83.18	89.93	80.63	83.12	79.03	86.00	87.54	111.54	128.22	149.43	142.31	162.78	179.92
Tobacco products	33.29	36.39	40.11	39.33	35.85	32.49	29.40	28.20	26.08	27.26	31.90	42.04	34.78
Transport equipment not classified elsewhere	61.48	61.63	59.19	59.76	64.42	63.05	64.51	74.77	66.51	56.22	62.73	70.88	75.62
Organized manufacturing	*2,405.08*	*2,408.68*	*2,285.65*	*2,299.87*	*2,247.65*	*2,301.09*	*2,391.87*	*2,538.95*	*2,774.16*	*2,925.64*	*2,874.27*	*3,254.83*	*3,467.67*

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.23 Real Wage of Production Workers, Employed through Contractors Workers (in Rupees 100 Million)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	43.59	53.06	42.56	47.30	47.12	57.78	68.86	93.42	108.88	119.19	121.13	154.04	179.98
Chemicals and chemical products	25.88	27.61	29.38	35.63	34.51	38.80	44.38	43.62	61.67	60.24	65.56	81.58	82.81
Computers and peripheral equipment/ office accounting	0.98	1.32	1.44	0.72	1.16	1.79	1.56	3.40	3.33	3.45	4.26	3.08	4.36
Consumer electronics	0.56	0.58	0.41	1.50	1.81	2.24	2.23	3.44	3.44	2.97	3.90	6.41	8.38
Consumer electronics	32.48	33.01	35.18	37.83	38.07	46.08	59.74	72.68	78.76	94.96	92.82	122.48	134.13
Paper and paper products	9.24	10.75	10.93	13.00	13.75	14.35	15.24	17.14	18.40	20.17	19.84	24.23	24.08
Electronic components	0.70	0.65	0.90	1.24	1.19	3.12	2.93	3.16	7.04	5.51	5.95	8.64	6.46
Manufacture of machinery and equipment	10.22	9.80	13.20	13.24	14.64	23.56	25.98	36.12	42.51	81.54	69.06	81.55	84.68
Other transports and equipment (ships, spacecraft, locomotives, and others)	2.04	3.10	2.06	4.83	4.23	10.33	6.25	8.26	12.22	14.86	20.97	22.17	20.90
Wood and wood products	1.11	0.95	1.34	1.55	1.84	1.70	3.54	3.62	5.09	5.05	4.80	6.12	5.75
Export Oriented													
Textiles	26.68	30.62	24.07	28.16	35.79	38.52	46.09	55.69	61.24	63.61	63.29	74.43	84.72
Leather and leather products	3.27	6.63	4.16	6.40	6.40	5.38	9.67	8.68	9.79	11.97	18.63	16.60	19.61
Wearing apparel	3.41	5.52	6.59	6.06	8.56	15.39	21.18	18.88	24.41	37.30	36.42	31.15	33.45
Others													
Beverages	4.93	5.65	6.09	8.57	9.24	12.28	11.82	13.19	18.04	18.11	19.92	20.93	26.44
Pharmaceuticals medicinal products	12.65	9.38	10.83	11.90	17.54	22.00	23.51	31.81	35.28	43.09	47.90	54.27	67.77

(*Contd.*)

Table S.23 (*Contd.*)

Industry	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Bodies, trailers, parts, and accessories	8.79	7.57	10.17	13.97	16.62	24.43	27.26	38.41	55.94	56.68	75.36	97.95	118.36
Communication equipment	0.26	0.59	0.97	1.31	0.70	0.80	3.04	1.78	7.24	3.56	6.58	4.68	7.55
Electrical equipment	6.59	7.11	8.47	11.35	9.85	14.54	20.69	26.03	32.73	36.79	50.59	54.77	64.18
Food and dairy products	45.75	49.03	51.76	57.17	55.87	63.35	67.87	76.14	87.42	93.15	91.93	112.38	127.17
Plastic products	4.53	6.07	7.56	7.34	9.41	12.17	14.16	15.17	13.56	21.83	25.81	30.38	36.49
Printing and publishing	1.34	1.49	1.89	3.83	2.45	2.10	3.28	3.81	4.49	4.64	6.10	8.63	10.87
Rubber products	2.43	1.80	2.16	2.18	5.43	4.38	4.89	7.81	8.50	13.59	15.68	17.95	22.17
Structural/other fabricated metal products	15.56	18.01	16.13	22.66	23.93	29.24	37.96	45.63	60.17	60.83	67.77	119.64	99.60
Tobacco products	40.53	45.98	37.44	38.67	37.20	37.96	40.32	38.22	38.64	38.50	32.59	31.32	37.83
Transport equipment not classified elsewhere	2.97	4.42	4.61	6.00	8.75	8.24	14.59	25.01	16.80	22.25	26.47	31.29	43.09
Organized manufacturing	306.51	340.70	330.30	382.41	406.04	490.51	577.02	691.09	815.59	933.82	993.33	1,216.67	1,350.82

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

TABLE S.24 Prices

Wholesale price index	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Import competing													
Basic metals	0.65	0.68	0.68	0.7	0.82	1	1.07	1.17	1.3	1.45	1.33	1.44	1.58
Chemicals and chemical products	0.85	0.9	0.92	0.96	0.97	1	1.03	1.09	1.12	1.18	1.17	1.24	1.35
Computers and peripheral equipment/ office accounting	1.04	1.05	0.94	1.03	1.17	1	0.92	0.89	0.87	0.86	0.85	0.85	0.86
Consumer electronics	1.04	1.06	1.08	1.06	1.04	1	0.99	0.96	0.93	0.91	0.89	0.88	0.88
Other non-metallic mineral products	0.81	0.85	0.91	0.91	0.94	1	1.08	1.2	1.34	1.37	1.47	1.51	1.59
Paper and paper products	0.9	1.02	1.05	0.99	0.98	1	1.03	1.08	1.11	1.16	1.18	1.24	1.31
Electronic components	1.04	1.06	1.08	1.06	1.04	1	0.99	0.96	0.93	0.91	0.89	0.88	0.88
Machinery and equipment	0.78	0.81	0.87	0.89	0.93	1	1.07	1.13	1.17	1.22	1.25	1.32	1.35
Other transports and equipment (ships, spacecraft, locomotives, and others)	0.95	0.95	1.02	1.07	1.01	1	1.09	1.16	1.2	1.31	1.28	1.17	1.22
Wood and wood products	1.08	1	0.97	1	1	1	1.08	1.15	1.22	1.34	1.47	1.53	1.65
Export oriented													
Textiles	0.85	0.88	0.88	0.9	0.97	1	0.95	0.97	0.98	1	1.03	1.15	1.24
Leather and leather products	0.99	0.96	0.91	0.84	0.94	1	1.07	1.16	1.19	1.26	1.32	1.31	1.34
Wearing apparel	0.85	0.88	0.88	0.9	0.97	1	0.95	0.97	0.98	1	1.03	1.15	1.24
Others													
Beverages	0.85	0.81	0.84	0.9	0.9	1	1.09	1.15	1.17	1.24	1.3	1.37	1.41
Pharmaceuticals medicinal products	0.86	0.91	0.95	0.95	0.98	1	1.04	1.05	1.11	1.15	1.16	1.19	1.23

(*Contd.*)

Table S.24 (*Contd.*)

Wholesale price index	1999–2000	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Bodies, trailers, parts, and accessories	0.81	0.86	0.87	0.87	0.89	1	1.06	1.1	1.16	1.22	1.22	1.24	1.3
Communication equipment	0.87	0.9	0.9	0.9	0.9	1	1	0.96	0.99	0.99	0.99	0.95	0.97
Electrical equipment	0.83	0.91	0.95	0.94	0.94	1	1.05	1.16	1.23	1.27	1.25	1.27	1.32
Food and dairy products	0.87	0.83	0.83	0.87	0.95	1	1.01	1.06	1.1	1.2	1.36	1.41	1.51
Plastic products	0.82	0.83	0.87	0.93	0.98	1	1.03	1.08	1.12	1.16	1.15	1.21	1.25
Printing and publishing	0.78	0.83	0.89	1.01	1.01	1	1.01	1.05	1.06	1.11	1.17	1.21	1.3
Rubber products	0.98	1	0.98	1.02	1.02	1	1.04	1.11	1.17	1.24	1.27	1.38	1.53
Structural/other fabricated metal products	0.89	0.92	0.91	0.91	0.92	1	1.07	1.2	1.28	1.44	1.51	1.67	1.98
Tobacco products	0.79	0.84	0.92	0.96	0.97	1	1.03	1.09	1.2	1.35	1.44	1.57	1.84
Manufacture of Transport equipment not classified elsewhere	0.85	0.9	0.93	0.93	0.96	1	1.04	1.05	1.06	1.11	1.18	1.25	1.34
Capital Deflator													
WPI (P & M)	0.83	0.88	0.92	0.93	0.95	1	1.05	1.12	1.16	1.19	1.2	1.23	1.27
WPI (Fixed Capital)	0.85	0.9	0.93	0.94	0.95	1	1.05	1.1	1.13	1.17	1.19	1.23	1.27
CPI for industrial Workers	0.82	0.85	0.89	0.93	0.96	1	1.04	1.11	1.18	1.29	1.45	1.6	1.73

Source: Estimates derived from unit level data from the *Annual Survey of Industries* for the relevant years.

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