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# Employment in a time of high growth in India

Ajit K. Ghose

Employment  
and Labour  
Market Policies  
Branch



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## Preface

The primary goal of the ILO is to work with member States towards achieving full and productive employment and decent work for all. This goal is elaborated in the ILO Declaration 2008 on *Social Justice for a Fair Globalization*,<sup>1</sup> which has been widely adopted by the international community. Comprehensive and integrated perspectives to achieve this goal are embedded in the Employment Policy Convention of 1964 (No. 122), the *Global Employment Agenda* (2003) and – in response to the 2008 global economic crisis – the *Global Jobs Pact* (2009) and the conclusions of the *Recurrent Discussion Reports on Employment* (2010 and 2014).

The Employment Policy Department (EMPLOYMENT) is engaged in global advocacy and in supporting member States in placing more and better jobs at the center of economic and social policies and growth and development strategies. Policy research and knowledge generation and dissemination are essential components of the Employment Policy Department's activities. The resulting publications include books, country policy reviews, policy and research briefs, and working papers.<sup>2</sup>

The *Employment Policy Working Paper* series is designed to disseminate the main findings of research on a broad range of topics undertaken by the branches of the Department. The working papers are intended to encourage the exchange of ideas and to stimulate debate. The views expressed within them are the responsibility of the authors and do not necessarily represent those of the ILO.

Azita Berar Awad  
Director  
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<sup>1</sup> See [http://www.ilo.org/public/english/bureau/dgo/download/dg\\_announce\\_en.pdf](http://www.ilo.org/public/english/bureau/dgo/download/dg_announce_en.pdf)

<sup>2</sup> See <http://www.ilo.org/employment>.



## Foreword

The rapid economic growth that India has witnessed over the last three and half decades, and especially during the last decade and a half, has undoubtedly had employment effects. We know that many different employment situations are compatible with high growth even in similar economies; therefore it is critical to explore the specific employment effects of this growth process in India. India is a typical large dual economy that is in transition. The indicators one needs in order to make an appropriate employment assessment in such cases are not directly available and need to be crafted out of existing data.

This paper attempts to do precisely that. It does so by first setting up the analytical foundations of a dual economy framework that is applicable to India; and then developing appropriate indicators out of national survey data to examine this change. In the course of discussion we get a clear economy wide picture of relevant employment categories with which to assess changes, including formal and regular employment, underemployment and informality.

The paper shows that changes in the structure of employment –the Lewis Process – over the period 1983-2012, show improvements but the nature of the looming employment challenge in the future is also considerable. In particular the paper shows in some detail that improvements in employment conditions were slow during the 1983-1999/00 period and fairly rapid during 1999/00-2011/12. It also shows very clearly why the employment challenge that India faces today is formidable; and why there is still a long way to go before the Lewis 'turning point' is reached.

Iyantul Islam  
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# 1. Introduction

India has had rapid economic growth since the beginning of the 1980s. The long phase of so-called “Hindu” rate of growth ended around 1982 when there was significant growth acceleration. A second growth acceleration occurred in the early 1990s and then a third in the early 2000s. The period 2000-12 was a period of unprecedented high growth that elevated India’s economy to the status of a major emerging economy. These are by now well-established facts; there is a large literature on growth accelerations in India. The data in Table 1 below just give a summary view.

**Table 1: Growth of GDP**

	(Average annual rate, %)
1950/51-1981/82	3.6
1981/82-1993-94	5
1993/94-1999/00	6.7
1999/00-2011/12	7.2

*Source:* Author’s estimates based on data from Central Statistical Office, Ministry of Statistics and Programme Implementation, Government of India

The focus of this paper is not on economic growth but on the employment effects of economic growth. It seeks to empirically enquire whether and to what extent rapid economic growth improved the employment conditions in the country in the period since the early 1980s. This enquiry is not as straightforward as it might seem. For, in the 1980s (as indeed still today), India’s economy could only be characterised as a dual economy with surplus labour. In this kind of an economy, the standard labour market indicators such as employment growth, unemployment rate and wage growth tell us very little about improvement or deterioration in employment conditions. We need quite different indicators, the identification of which requires analytical understanding of the characteristics of employment and of the growth process in a labour-surplus dual economy. This study, therefore, begins with a discussion of these characteristics.

Once the appropriate indicators are identified, we need to find their empirical measures. The available database on employment in India, happily, does allow us to find these measures. The principal source of information on employment is the National Sample Survey of Employment and Unemployment, which usually is conducted once in five years. This means, of course, that annual time-series data on labour force and employment are not available. On the other hand, these surveys are much richer in scope and coverage than the standard labour force surveys that are conducted in many countries of the world.

The paper is organised as follows. In section 2, an analytical description of the characteristics of employment and labour markets in a labour-surplus dual economy such as India’s is provided and an appropriate method of empirical enquiry into changes in employment conditions over time is developed. In section 3, the database used for analysis in the paper is briefly described and the types of employment found in India’s economy are defined. In section 4, certain broad features of and trends in employment and unemployment are examined, changes in the structure of employment – changes that we call the Lewis Process – over the period 1983-2012 are analysed so as to assess the extent of improvement in employment conditions, and the nature of the looming employment challenge, characterised as the distance to be travelled to reach what we call the Lewis Turning Point, is considered. In the final section, the main conclusions are summarised.

## 2. Employment and Labour Markets in a Labour-Surplus Dual Economy <sup>1</sup>

A dual economy is composed of two distinct sectors – a modern or organised sector and a traditional or unorganised sector.<sup>2</sup> In the organised sector, which employs only a small proportion of the economy's labour force, employment is much like that found in developed countries; it is regular, full-time and wage-paid. Employees in the sector also often have entitlements to non-wage benefits including social security. Government regulations tend to have a determining influence on the determination of both wage and non-wage benefits. There also are trade unions in the sector and these engage in collective bargaining with the employers over entitlements to wage and non-wage benefits. The average labour-income (including wage and non-wage benefits) in the sector, not surprisingly, is much above what workers earn on average from employment outside the sector. Such high labour-incomes are sustainable because labour productivity in the sector is also much higher than in the unorganised part of the economy.<sup>3</sup>

In the unorganised sector, which employs the bulk of the economy's labour force, there is surplus labour, which means that the quantity of labour available for employment is much in excess of the quantity that is actually employed in production of goods and services. This surplus labour shows up not in unemployment of some workers but in underemployment of the employed (as well as in low participation in labour force). Self-employment and casual wage employment are the dominant forms of employment in the sector. These forms of employment allow, indeed facilitate, work-sharing. *Ceteris paribus*, when the number of working members in a household increases, each individual worker works for less time than before and nobody is wholly unemployed. Similarly, when the number of workers seeking casual wage employment increases, each individual worker finds wage employment for less time than before and again nobody is wholly unemployed. It is this feasibility of work sharing that makes it possible for the unorganised sector to function as a reservoir of surplus labour, which means underemployment of the employed. It should also be said that the self-employed and the casual labourers do not constitute distinct, non-overlapping categories. It is quite normal for households to have both self-employed persons and casual wage labourers. And normally self-employed persons work as casual wage employees some of the time just as normally casual wage employees work as self-employed persons some of the time.

Given this setting, the standard indicators of employment and labour markets are not just inadequate but can be misleading. Because institutionalised social security is available only to a tiny section of the workers employed in the organised sector, the vast majority must work to survive even if the work they can find is not full-time and generates only below-subsistence income. Given the high wage and non-wage benefits associated with jobs in the organised sector, most people would obviously prefer to have jobs in that sector but only a few actually manage to find them. Those who do not find work in the organised sector can find it in the unorganised sector where, given the dominant systems of employment, additional workers can always be accommodated through increased work sharing.

A first implication is that unemployment is an option only for a few who belong to relatively well-off households and would rather wait for "appropriate" jobs in the organised sector to turn up. Thus the unemployment rate (as it is usually measured) reflects the extent of queuing for jobs in the organised sector and not the extent of excess supply of labour in

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<sup>1</sup> This section draws on Ghose (2012).

<sup>2</sup> It was Lewis (1954) who provided the first clear conceptualisation of a dual economy.

<sup>3</sup> In the organised sector, capital and modern technology are in use while, in the unorganised sector, traditional technology and little capital are in use.

the economy. In other words, the rate of unemployment – an important indicator of labour market conditions in the developed world – gives very little information about the labour market conditions in India (as indeed in many other developing countries).

A second implication is that, outside the organised sector, employment growth can be a pure consequence of labour force growth and, as such, is not a reliable indicator of growth of labour demand. Growth in the number of persons in employment in the unorganised sector may mean nothing more than growth of underemployment. The same can be said about employment growth in the economy as a whole, given that the vast majority of the workers actually work in the unorganised sector. Thus employment growth in the economy is not really distinct from labour force growth.

Finally, there obviously is no single integrated labour market. Instead, there are two markets in wage labour, neither of which is ever in equilibrium. In the case of the organised sector, labour supply is virtually unlimited because most workers from outside the sector would strongly prefer employment there. In the unorganised sector, which is a reservoir of surplus labour, there is perennial excess supply in the market for casual labour, which is reflected in underemployment of the casual labourers. On any given day, there are more workers seeking work than employers are 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.<sup>4</sup>

So wages cannot be determined through demand-supply equilibrium and must be exogenously given. In the organised sector, the wage is fixed by government regulations and collective bargaining. In the unorganised sector, the daily wage for casual labour is fixed with reference to output per worker in self-employment. This point needs elaboration. In the unorganised sector, self-employment is the fall-back position for casual wage employees and casual wage employment is the fall-back position for self-employed persons. So income per worker from self-employment (which, for simplicity, can be taken to be the same as output per worker) over a production period should equal income per worker from casual wage employment over the same period. This condition provides the basis for determination of the daily wage for casual labour. Now, the income of a casual wage-worker over a period depends on two things: the daily wage rate and the probability of finding employment on any given day. Thus the wage rate can assume an arbitrary value because the probability of finding employment can vary to equalise the income of the casual wage-worker with that of the self-employed. If the wage rate is such that the income of the casual worker is higher than that of the self-employed, some of the self-employed will seek casual wage employment, thereby lowering the probability of finding employment for all casual workers. If the wage rate is such that the income of the casual worker is lower than that of the self-employed, some of the casual workers will move into self-employment, thereby increasing the probability of finding employment for the remaining casual workers.<sup>5</sup>

So a rise (decline) in the casual wage rate does not indicate growing tightness (slackness) in the labour market; what is exogenously fixed can change exogenously (as a consequence of social movements, for example). But so long as the output per worker in self-employment remains constant, a rise (fall) in the casual wage rate cannot alter the average earning of casual workers over the production period. For, a rise in the casual wage rate then increases underemployment because some of the self-employed now seek casual wage employment. Similarly, a decline in the casual wage rate lowers underemployment

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<sup>4</sup> It is worth noting that perennial excess supply is actually necessary for a market in casual labour to function. For, employers must know that they can hire workers whenever they want to. When the excess supply disappears, casual labour system itself will disappear.

<sup>5</sup> See Ghose (2012) for a more rigorous formulation of the argument.

because some of the casual workers move to self-employment. On the other hand, when output per worker in self-employment rises (falls), either the wage rises (falls) while underemployment remains stable or underemployment falls (rises) while the wage remains stable or a rise (decline) in the wage combines with a decline (rise) in underemployment; in all cases, the average earning of casual labourers over the production period rises (falls).

It should be clear why, in the context of India's economy, the standard indicators – time-trends in unemployment, employment and wages - cannot tell us if employment conditions have been improving or deteriorating. Increased unemployment indicates a longer queue for jobs in the organised sector, which implies a mismatch between employment growth in the organised sector and growth in the incidence of well-off households. Increased employment, on the other hand, could simply mean a larger labour force. And wage changes do not unambiguously indicate growing slackness or tightness in labour markets.

What, then, indicates improvement or deterioration in employment conditions? The answer is: the process of change in employment structure, a process we can call the Lewis Process.<sup>6</sup> Economic growth in a dual economy is led by the modern or organised sector, which is where entrepreneurs, who undertake saving and investment, are to be found. This growth is associated with increased employment in the organised sector and hence with movement of workers from the unorganised to the organised sector. Since both productivity and labour-income are much higher in the organised sector, such movement means improvement in overall employment conditions in the economy provided that output per worker in the unorganised sector does not decline. Thus one important indicator of change in employment conditions is the rate of growth of employment in the organised sector in relation to the rate of growth of labour force in the economy. When the former is faster than the latter, some workers move from employment in the unorganised sector to employment in the organised sector; the Lewis Process is in motion.

But the Lewis Process is associated with improving employment conditions only if output per worker in the unorganised sector is not declining. For, declining output per worker means growing underemployment and dwindling incomes for both the self-employed and the casual workers who constitute the bulk of the workforce. Now, so long as there is surplus labour (i.e., underemployment) in the unorganised sector, movement of some workers to the organised sector does not reduce the quantity of labour actually employed in the unorganised sector so that output cannot decline. But this does not guarantee stability of output per worker when the labour force growth in the economy is high, which typically is the case. Even while the Lewis Process is on, the rate of growth of workforce in the unorganised sector remains positive and often high. So output in the unorganised sector must actually increase at least at the same rate as the workforce if output per worker is not to decline. We must, therefore, consider a second indicator: output per worker in the unorganised sector.

Overall employment conditions can be said to be unambiguously improving if (i) the Lewis Process – a process of movement of workers from the unorganised to the organised sector - is at work, and (ii) the output per worker in the unorganised sector is at least stable,

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<sup>6</sup> The idea is derived from Lewis (1954). We should state here that employment structure can also be defined as industrial distribution of the workforce. This is how Kuznets (1957) had viewed it. Change in employment structure indicative of improvement in employment conditions then involves movement of workers from agriculture to industry and services; we can call this Kuznets Process. This Kuznets Process is not unrelated to what we have called the Lewis Process. For, typically, agriculture is the core of the traditional or unorganised sector while industry and services constitute the core of the modern or organised sector. However, there also are traditional industry and services and much of the observed movement of workers from agriculture to industry and services tends to be movement from agriculture to traditional industry and services, which does not unambiguously imply improvement in employment conditions.

if not growing. By the same reasoning, overall employment conditions can be said to be unambiguously deteriorating if (i) there is no Lewis Process at work, and (ii) the output per worker in the unorganised sector is also declining. Change in employment conditions is ambiguous when one of the indicators shows positive change while the other shows negative change.

Simultaneous positive changes in these two indicators remain relevant till the Lewis Turning Point, to which uninterrupted Lewis Process must lead, has been reached.<sup>7</sup> The Lewis Turning Point is the point at which there is no longer any surplus labour or underemployment left in the unorganised sector. This, in other words, is the point of full employment in a dual economy; from this point onwards, any movement of workers from the unorganised to the organised sector would necessarily reduce the quantity of labour employed in the unorganised sector (which would increase the output per worker there because of the operation of the law of diminishing returns). Hence positive change in one of the two indicators would suffice to indicate unambiguous improvement in employment conditions. Since the Lewis Turning point does not mean the end of dualism, however, the Lewis Process does not end at this point. Movement of workers from the unorganised to the organised sector continues until labour-incomes and productivity in the two sectors get equalised. At that point, the unorganised sector in effect disappears and the dual economy is transformed into a single-sector integrated economy.

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<sup>7</sup> The idea of Lewis Turning Point is also derived from Lewis (1954).

### 3. The Database

The main source of data on employment conditions in India is the National Sample Survey of Employment and Unemployment conducted by the National Sample Survey Office (NSSO).<sup>8</sup> These NSSO surveys have been conducted every five years since 1972-73 except for a special round that was conducted in 2011-12. Each of the surveys is carried out over a period of twelve months, usually from July to June; exceptionally, the survey of 1983 covered the twelve months from January to December.

NSSO surveys use three reference periods - a year, a week and each half-day of a week – and define four types of activity status. The Usual Principal Status or UPS of a person (employed, unemployed or out of the labour force) refers to the activity – economically gainful work or seeking/available for gainful work or neither seeking nor available for gainful work – in which he/she engaged for the major part of the year preceding the date of survey. Some of the persons classified as unemployed or out of the labour force according to UPS, however, may have sought and engaged in economically gainful work only for a minor part of the reference year; those who did so for at least 30 days are regarded as employed according to Usual Subsidiary Status or USS. Persons considered employed either according to UPS or according to USS are regarded as employed according to Usual Status or US. Persons who are unemployed according to UPS and are not employed according to USS are regarded as unemployed according to US. And persons who are out of the labour force according to UPS and are not employed according to USS are out of the labour force according to US.

A person is regarded as employed according to Current Weekly Status (CWS) if he/she engaged in gainful work for even one hour during the week preceding the date of survey and as unemployed if he/she did not work but was seeking or available for gainful work for even an hour. All the rest are regarded as out of the labour force.<sup>9</sup>

Current Daily Status (CDS) of a person is determined for each of the fourteen half-days of the week preceding the date of survey. A person is regarded as employed for a half-day if he/she engaged in gainful work for 1-4 hours. Similarly, a person is regarded as unemployed for a half-day if he/she had no gainful work but was seeking or available for such work for 1-4 hours. All persons other than those identified as employed or unemployed for a half-day are regarded as out of the labour force for a half-day. We should note that the same person can be out of the labour force for one half of a day and employed or unemployed for the other half. What is being enumerated is not the number of persons in employment but the number of half-days of all persons (which can easily be converted into number of days) that is either being employed or remaining unemployed or remaining unavailable for employment in the reference week.

In this paper, we focus mainly on working-age (15-59 years) persons who are judged to be in the labour force according to UPS in analysing evolution of employment conditions during 1983-2012 though we do examine, to begin with, some basic information on employment/unemployment of persons in all age-groups and according to both UPS and USS. As we shall see, the working-age persons in labour force according to UPS are the core workers and evolution of employment conditions in the economy is best seen from the evolution of employment conditions of these core workers. We should add that while, for the most part, we confine attention to the core workers, we consider not just their usual

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<sup>8</sup> This is part of the Ministry of Statistics and Programme Implementation, Government of India.

<sup>9</sup> Incidentally, these are the definitions used in the labour force surveys conducted in most countries of the world.

principal activities but also their current daily activities. This allows us to look deeper into their employment conditions.

A well-known limitation of the NSSO surveys is that they tend to underestimate the total population in the country in varying degrees. This leads to underestimation of all absolute numbers and the degree of underestimation naturally varies across surveys. Hence the common practice adopted by researchers is to use the proportions (participation, employment and unemployment rates; industrial distribution; and so on) generated by the NSSO surveys together with estimates of population available from the Office of the Registrar General and Census Commissioner (Government of India) to estimate the absolute numbers. This is the method that we also employ.

Data available from the NSSO surveys for all years allow us to define the following categories of employed workers: regular employees, casual employees and self-employed persons. Regular workers are those who are employed by enterprises or households on a long-term basis and are paid a salary at regular intervals (each month, for example). Casual employees are hired on a daily basis and are paid a daily wage. The self-employed are composed of three sub-categories: employers, who work in their own household enterprises but also hire workers on a regular basis; own account workers, who work in their own household enterprises and do not use much hired labour; and unpaid family workers, who are working members of households of employers and own account workers, work in those household enterprises and do not receive wages but share in the incomes from the enterprises.

Starting from the survey round conducted in 1999-00, certain new questions relating to workplace and access to institutionalized social security were added to the survey questionnaire so that somewhat more detailed information is available for the period since 1999-00 than had been available for the years preceding 1999-00. Thus, for the period since 1999-00, we can distinguish between employment in the organised sector and that in the unorganised sector. The organised sector is defined to include all government and public sector establishments, all private corporate sector establishments and those of private non-corporate sector establishments that employ at least ten regular employees (this is a standard definition widely used in India). The unorganised sector is the rest of the economy. For the period since 1999-2000, we can define employment of different types that are found in organised and unorganised sectors. We can also define two sub-categories of regular employees: regular-formal employees - those who hold regular jobs in the organised sector, which entitle them to some variety of institutionalised social security; and regular-informal employees - those who hold regular jobs in either organised or unorganised sector but have no access to any kind of institutional social security.

As the focus of our analysis in this paper is on long-term evolution of employment conditions rather than on short-term fluctuations, we use the data from four of the NSSO surveys relating to the years 1983, 1993-94, 1999-00 and 2011-12. It will be noticed that the three periods that these data allow us to focus on represent three phases of economic growth; the period 1999/00-2011/12 witnessed faster growth than the period 1993/94-1999/00, which in turn witnessed faster growth than the period 1983-1993/94.

The data on output used in the paper are from national accounts statistics produced by the Central Statistical Office (CSO).<sup>10</sup> Starting in 1981, the CSO has been producing statistics on Net Domestic Product and Factor Incomes separately for the organised and the unorganised parts of the economy. Organised and unorganised sectors are defined in exactly the same way as we have defined above. Hence these data on output can legitimately be used together with the data on employment produced by the NSSO surveys.

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<sup>10</sup> This also is a part of the Ministry of Statistics and Programme Implementation, Government of India.

## 4. Evolution of Employment Conditions

### Some Preliminaries

We begin by examining certain broad features of and trends in employment and unemployment. The data in Table 1 confirm what we have already suggested: in the context of India's economy (as indeed in any dual economy with surplus labour), employment growth simply reflects labour force growth and hence is no different from the latter. The data also show certain other features of employment that are worth noting. First, labour force growth has been decelerating and this is reflected in decelerating employment growth, which does not imply decelerating growth of demand for labour in the economy. The significant fact here is the decelerating labour force growth, which can be seen as an interesting topic of enquiry. Second, the incidence of child labour has been declining; this is seen from the fact that the growth of workers in all age-groups has been lower than the growth of workers in the age-group (14+) in all three periods. Third, the growth of workers in age-group (59+) has been the same as that of workers in the age-group (15-59); this is seen from the fact that the growth of workers in the age-group (14+) has been exactly the same as that of workers in age-group (15-59).

**Table 2: Growth of labour force and employment**

(UPS)	Average annual growth (%)		
	1983- 1993/94	1993/94- 1999/00	1999/00- 2011/12
Labour force, age: 15-59	2.4	1.8	1.5
Employment, age: 15-59	2.4	1.8	1.5
Labour force, age: 14+	2.4	1.8	1.5
Employment, age: 14+	2.4	1.8	1.5
Labour force, age: 4+	2.1	1.7	1.4
Employment, age: 4+	2.1	1.6	1.4

*Source:* Author's estimates based on unit level data from NSSO surveys of employment and unemployment. The absolute numbers are presented in Appendix Table 1.

The data in Table 2 explicitly show the declining incidence of child labour; the share of children in total labour force has been declining quite steadily and has by now become insignificant. These data also highlight some other features of the employed labour force. The share of subsidiary workers (i.e., workers according to USS) in all workers (i.e., workers according to US) has always been much higher (around 20%) for children than for adults (7-10%); this is seen from the fact that the share of child workers (according to USS) in all workers has always been higher than the share of child workers (according to UPS) in all workers (according to UPS). It is also clear that the overwhelming majority of the employed belong to the working-age group and the share of these workers in total labour force has been rising over time.

**Table 3: Composition of labour force by age and status**

(UPS)	1983	1993-94	1999-00	2011-12
<b>Percentage of total labour force:</b>				
Age-group: 5-14	6.2	3.0	2.3	0.7
Age group: 15-59	87.4	90.2	91.1	91.8
Age-group: 59+	6.4	6.8	6.6	7.5
<b>Percentage of total labour force (US)</b>				
Age-group: 5-14	7.1	3.4	2.5	0.8
Age group: 15-59	86.5	90.0	91.0	91.7
Age-group: 59+	6.4	6.6	6.5	7.5

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment. The absolute numbers are presented in Appendix Table 1.

As suggested above, unemployment in India essentially reflects queuing for jobs in the organised sector and the data presented in Table 3, 4 and 5 confirm this. In the first place, the unemployment rate is not just low but has also remained stable over a long period. It is also to be noted that the US unemployment rate is always lower than the UPS unemployment rate; this means that some of the UPS unemployed are actually employed according to USS. Secondly, the unemployed are better educated and less poor than the employed. Thirdly, the rate of unemployment rises steadily as the level of education rises. Indeed, unemployment is negligible for those with little or no education while it is high for those with tertiary education. The poor, uneducated masses simply cannot afford to be unemployed.

**Table 4: Rate of unemployment (%)**

	1983	1993-94	1999-00	2011-12
<b>UPS:</b>				
Labour force, age: 15-59	3	2.8	3	2.9
Labour force, age: 14+	2.8	2.6	2.8	2.7
<b>US:</b>				
Labour force, age: 15-59	2	2.1	2.5	2.4
Labour force, age: 14+	1.9	2	2.3	2.2

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment. The absolute numbers are presented in Appendix Table 1.

**Table 5: Level of education and incidence of poverty, employed and unemployed**  
(education: average number of years of schooling; poverty: % population in households of workers)

(UPS, age-group 15-59)

Level of education:	1983	1993-94	1999-00	2011-12
All employed	2.9	3.9	4.5	6.3
All unemployed	8.0	9.7	9.8	10.6
Incidence of poverty:				
All employed	61.6	50.6	47.5	24.7
All unemployed	47.5	34.8	33.4	19.9

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment.

**Table 6: Education and unemployment**

(UPS, age-group 15-59)

Level of education:	1993-94	1999-00	2011-12
No schooling	0.4	0.4	0.6
Up to primary	1.3	1.6	1.6
Up to lower secondary	5.9	5.1	2.9
Up to higher secondary	11.0	9.4	5.7
Above higher secondary	11.2	10.5	8.8

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment.

It is clear that neither the rate of growth of employment nor the trend in unemployment rate tell us anything about changes in employment conditions. It should also be clear that, in analysing changes in employment conditions in the economy, focus on employment conditions of the core workers – the UPS workers of working age – is quite appropriate.

## The Lewis Process

As argued above, a proper evaluation of inter-temporal change in employment conditions in India's economy requires a focus on what we have called the Lewis Process – the process of change in the structure of employment resulting from movement of workers from underemployment and low-productivity employment in the unorganised sector to full-time, high-productivity employment in the organised sector. In what follows, we analyse this process of change in employment structure so as to determine whether and to what extent employment conditions improved or deteriorated over the long period since 1983, a period that witnessed high and accelerating economic growth.

Table 6 sets out the estimates that provide a full view of the evolution of employment structure. We shall shortly consider the evidence that show the different types of employment neatly falling into a hierarchy in terms of quality. For the moment, we just describe the hierarchy. Regular wage employment is of higher quality than self-employment, which in turn is of higher quality than casual wage employment. Moreover, regular-formal employment is of higher quality than regular-informal employment. It follows that employment in the organised sector (which is where the regular-formal employees are to be found) is, on average, of higher quality than employment in the unorganised sector.

**Table 7: Structure of employment****(UPS, age-group 15-59)**  
**(% distribution)**

	<b>1983</b>	<b>1993-94</b>	<b>1999-00</b>	<b>2011-12</b>
Regular wage employees	16.4	16.2	16.9	21.5
Casual wage employees	31.3	33.9	34.9	30.3
Self-employed	52.3	49.9	48.2	48.2
<b>Organised sector</b>	<b>10.2</b>	<b>9.1</b>	<b>10.9</b>	<b>17.3</b>
Regular-formal employees			6.8	8.4
Regular-informal employees			2.4	5.7
Casual employees			1.7	3.2
<b>Unorganised sector</b>	<b>89.8</b>	<b>90.9</b>	<b>89.1</b>	<b>82.7</b>
Regular-informal employees			7.7	7.4
Casual employees			33.2	27.1
Self-employment			48.2	48.2

*Source:* Author's estimates based on unit level data from NSSO surveys of employment and unemployment. The absolute numbers are presented in Appendix Table 2. The estimates of shares of organised and unorganised sectors in total employment for the years 1983 and 1993-94 have been derived by using estimates of employment in organised sector available from the Ministry of Labour and Employment (Government of India) together with estimates of total employment derived from NSSO surveys.

It is quite obvious that India's economy has been and remains a dual economy in which the organised sector employs only a small proportion of the workforce while the large majority of the workers work as self-employed and casual labourers in the unorganised sector. It also emerges that over a long 17-year period, 1983-1999/00, there was much too little change in the structure of employment. The share of regular employment in total employment remained stable, the share of casual employment increased while the share of self-employment declined. Thus, the only kind of movement of workers was from self-employment to casual wage employment, a movement that indicates deterioration in overall employment conditions. Viewed in another way, the share of the organised sector in total employment in the economy remained stable over this period so that there was no movement of workers from employment in the unorganised sector to employment in the organised sector. It should be said that the estimates of organised sector employment for the years 1983 and 1993-94, which come from the Ministry of Labour and Employment, are not exactly comparable to the estimates for 1999-00 and 2011-12, which derive from NSSO surveys.<sup>11</sup> But the estimates for 1983 and 1993-94 are clearly not so out of line with the estimate for 1999-00 as to make even a broad comparison misleading. Moreover, the conclusion that there was virtually no movement of workers from the unorganised to the organised sector over the 17-year period is quite consistent with the observation that the only change in employment structure during this period related to movement of workers from self-employment to casual wage employment.

In sharp contrast to what happened during 1983-1999/00, the Lewis Process was very much at work during the period 1999/00-2011/12. In this latter period, the share of self-employment in total employment remained stable, the share of regular wage employment increased substantially and the share of casual wage employment declined correspondingly. And the share of regular-formal employment in total regular employment remained stable, which means that both regular-formal employment and regular-informal employment increased at roughly the same rate. Thus the shares of both regular-formal employment and

<sup>11</sup> While the definition of the organised sector is the same in both cases, the methods of data collection are quite different.

regular-informal employment in total employment in the economy increased significantly. In other words, there was very significant movement of workers from casual wage employment to regular wage employment, formal and informal. Overall, the share of the organised sector in total employment increased very substantially and the share of the unorganised sector declined correspondingly. It is to be noted that there was what might be called “informalisation” of employment in the organised sector itself; the share of regular-informal employees and casual employees taken together in total organised sector employment increased from 37.6 per cent in 1999-00 to 51.4 per cent in 2011-12. But, as we shall see below, regular-informal employment in the organised sector is of better quality than regular-informal employment in the unorganised sector just as casual employment in the organised sector is of better quality than casual employment in the unorganised sector. Thus movement of workers from informal wage employment in the unorganised sector to informal wage employment in the organised sector also improved average quality of employment. Employment conditions in the economy clearly improved very substantially during 1999/00-2011/12.

Before we consider some further aspects of the Lewis Process, we should look at the facts that establish the hierarchy of different types of employment in terms of quality. One kind of fact relates to incidence of poverty among workers in different types of employment, data on which are presented in Table 7. The incidence of poverty of workers here means the percentage of population in worker households with below-poverty-line income per capita. The poverty line used is what is known as the Tendulkar poverty line.<sup>12</sup> The data in Table 7 clearly show (i) that workers in casual wage employment are poorer than the self-employed, who in turn are poorer than workers in regular wage employment; (ii) that workers in regular-informal employment are poorer than those in regular-formal employment; and (iii) that workers in employment in the unorganised sector are poorer than those in employment in the organised sector. The quality-hierarchy of different types of employment is thus quite clear.

The data also show that poverty was declining for all types of workers throughout the period 1983-2011/12. This fact seems to suggest that overall employment conditions did improve somewhat even during 1983-1999/00 despite the absence of the Lewis Process, and we shall come back to this.

**Table 8: Incidence of poverty of the employed**

(UPS, age-group 15-59;)

(% of population in households of the employed below the poverty line )

	1983	1993-94	1999-00	2011-12
Regular wage employees	36.7	22.9	20.6	9.1
Regular-formal			8.8	3.2
Regular-informal			28.5	12.9
Casual wage employees	78.1	68.8	65.0	36.8
Self-employed	59.1	46.9	43.7	23.6
All employed	61.6	50.6	47.5	24.7

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment.

<sup>12</sup> This is the official poverty line defined by a Committee of Experts headed by Prof. S. D. Tendulkar. See Planning Commission (Government of India), 2009. This poverty line has been widely criticised as too low and is currently being revised. But these need not detain us here as we are concerned not with magnitudes of poverty but with comparisons across groups of workers and over time.

A second kind of evidence on quality-hierarchy of types of employment relates to the observed wage differentials among different types of wage employees, data on which are presented in Table 8. These data very clearly show (i) that regular employees earn a much higher wage per day of employment than casual employees; (ii) that regular-formal employees earn a much higher wage per day of employment than regular-informal employees; (iii) that regular-informal employees in the organised sector earn a higher wage than regular-informal employees in the unorganised sector; (iv) that casual employees in the organised sector earn a higher wage than casual employees in the unorganised sector; and (v) that an average employee in the organised sector earns a much higher wage than an average employee in the unorganised sector.

**Table 9: Real wage per day of employment of UPS workers**

(Rupees 1983 prices)	1983	1993-94	1999-00	2011-12
Regular wage employees	20.0	27.0	44.5	51.5
Casual wage employees	5.0	6.5	11.0	14.5
<b>Organised sector</b>			<b>53.0</b>	<b>56.0</b>
Regular-formal employees			69.0	88.0
Regular-informal employees			31.5	32.0
Casual employees			16.5	18.0
<b>Unorganised sector</b>			<b>14.0</b>	<b>16.5</b>
Regular-informal employees			28.0	24.5
Casual employees			10.5	14.5
<b>All employees</b>	<b>10.0</b>	<b>12.5</b>	<b>22.5</b>	<b>29.0</b>

*Note:* Two sets of real wages were first derived by using two different deflators: the Consumer Price Index for agricultural labourers and the Consumer Price Index for industrial workers. The values in the table represent simple averages of the two sets of real wages. This methodology was adopted because no general Consumer Price Index was available. The CSO started producing a general Consumer Price Index only in 2011-12.

*Source:* Author's estimates based on unit level data on employment according to CDS from NSSO surveys of employment and unemployment.

The data in Table 8 also show that real wages of both regular and casual employees increased throughout the period 1983-2011/12. It is this growth of real wages that explains why the incidence of poverty declined for all types of workers.<sup>13</sup> It might seem odd that real wages increased quite substantially even during 1983-1999/00, a period in which no Lewis Process was at work (as we have seen above). And it seems particularly odd that real wages for both regular and casual employees increased at a faster rate during 1993/94-1999/00 than during 1999/00-2011/12 since the Lewis Process was very much at work in the latter period.<sup>14</sup> But as we have argued above, real wage growth in an economy such as India's has nothing to do with growing tightness of labour markets. Real wage growth in the organised sector is governed by government regulations and collective bargaining. Growth of real wage of casual labourers in the unorganised sector is governed by growth of real incomes of the self-employed. As we have argued above, growth of real incomes of the self-employed can be expected to produce a combination of real wage growth and decline of underemployment for casual wage employees. We shall see below that the high growth of

<sup>13</sup> Growth of real wage, though it might restrain employment growth, increases real incomes of wage employees so long as the wage elasticity of employment is less than unity.

<sup>14</sup> It is easy to verify (from the data in Table 8) that the real wage of regular employees increased at 8.7 per cent per annum during 1993/94-1999/00 and at 1.2 per cent per annum during 1999/00-2011/12, while the real wage of casual employees increased at 9.2 per cent per annum during 1993/94-1999/00 and at 2.3 per cent per annum during 1999/00-2011/12.

real wage of casual employees during 1993/94-1999/00 was actually associated with relatively stable underemployment while the low real wage growth during 1999/00-2011/12 was associated with large decline in underemployment. In both periods, real incomes of the self-employed recorded rapid growth.<sup>15</sup>

While we cannot take real wage growth as an indicator of tightening labour markets, we cannot fail to recognise that real wage growth, in so far as it reduces poverty of workers, indicates improvement in employment conditions even when the Lewis Process is conspicuous by its absence. We thus need to modify our conclusion that employment conditions did not improve and may have deteriorated during 1983-1999/00. We now conclude that there was some improvement in employment conditions during that 17-year period. This improvement, despite the absence of the Lewis Process, is attributable to growth of labour productivity in the unorganised sector, as we shall see below.

We can now consider another aspect of the Lewis Process: change in surplus labour or underemployment of the employed. The relevant estimates are presented in Table 9. We should say something about how these estimates have been derived. The survey data on CDS of those employed according to UPS allow us to distribute the total number of days available to the UPS employed in the reference week across the following categories: days actually worked, days in employment though not worked, days in unemployment and days out of the labour force. The rate of underemployment is then defined as “days in unemployment” as percentage of “days in the labour force” (i.e., days worked + days in employment though not worked + days in unemployment). A second measure – percentage of available days actually worked – is self-explanatory.

**Table 10: Underemployment of the employed**

(UPS, age-group: 15-59)

<b>Rate of underemployment (%):</b>	<b>1983</b>	<b>1993-94</b>	<b>1999-00</b>	<b>2011-12</b>
Regular wage employees	1.0	0.9	0.7	0.4
Casual wage employees	17.3	15.0	11.3	8.8
Self-employed	1.9	1.5	1.8	1.0
<b>All employed</b>	<b>6.2</b>	<b>6.3</b>	<b>4.8</b>	<b>3.1</b>
% of available days actually worked:				
Regular-wage employees	85.8	81.7	91.1	97.5
Casual wage employees	70.8	68.8	77.2	82.8
Self-employed	88.7	86.0	89.6	92.9
<b>All employees</b>	<b>82.8</b>	<b>78.8</b>	<b>85.4</b>	<b>90.8</b>

Source: Author's estimates based on unit level data on employment of UPS workers according to CDS from NSSO surveys. The absolute numbers are presented in Appendix Table 3.

These data show that only the casual employees face serious underemployment. This appears a little surprising since it is known that many of the self-employed do not have full-time employment. It is possible, indeed likely, that NSSO surveys fail to capture underemployment of the self-employed because, unlike in the case of wage employees, a work-day is not well-defined in the case of the self-employed; a self-employed person may be working through a day at extremely low intensity (spending two hours in doing something that could have been done in half an hour, for example). Be that as it may, the data in Table 9 show that, for the casual employees, (i) underemployment remained

<sup>15</sup> Real mixed income of an average self-employed person increased at 5.5 per cent per annum during 1993/94-1999/00-2011/12 and at 5.9 per cent per annum during 1999/00-2011/12. See Table 10 below.

basically stable during 1983-1993/94 (though the rate of underemployment showed some decline, the percentage of available days actually worked also showed some decline), (ii) underemployment declined significantly during 1993/94-2011/12 (the rate of underemployment declined and the percentage of available days actually worked increased), and (iii) underemployment still remains very significant.<sup>16</sup>

We conclude that that employment conditions in India substantially improved during 1999/00-2011/12 when the Lewis Process was clearly at work and underemployment of the employed declined quite significantly. In the preceding 17-year period, 1983-1999/00, there was very little movement of workers from poor jobs to relatively better jobs. Indeed, the only kind of movement was from self-employment to casual wage employment, which could be seen as movement from relatively better jobs to poor jobs. There also was no significant decline in underemployment.

However, even though no Lewis Process was at work and underemployment also did not decline during the period 1983-1999/00, employment conditions nevertheless improved somewhat. This is indicated by (i) the growth of real wage, and consequent decline in poverty, of even the casual employees, who constitute the worst-off group of workers, and (ii) decline in underemployment, particularly during 1993/94-1999/00. Both the real wage growth and the decline in underemployment are explained by the rather impressive growth of output per worker that occurred in the unorganised sector during the period, as can be seen from the estimates presented in Table 10. These estimates, it should be said, have their limitations as the base data had to be taken from two different sources; the data on output are taken from National accounts Statistics compiled by the CSO while the data on employment are taken from NSSO surveys as also from the Ministry of Labour and Employment. Moreover, the data on employment refer only to the number of working-age persons in employment according to UPS. However, the limitations are not so serious as to render the estimates unusable for analysis.<sup>17</sup>

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<sup>16</sup> When there is a “discouraged worker effect”, which is quite likely to be present in the unorganized sector, the rate of underemployment would be underestimated. That is why the “percentage of available days actually worked” is a useful complementary indicator. Normally, we would expect the “percentage of available days actually worked” to rise (decline) when the rate of underemployment declines (rises).

<sup>17</sup> The reliability of National Accounts Statistics or of data from NSSO surveys is not in doubt. We have seen that the data on organised sector employment, produced by the Ministry of Labour and Employment, is of reasonable quality at least for the period 1983-1993/94. We have also seen that the rate of growth of employment according to US has been the same as that of employment of working-age persons according to UPS.

**Table 11: Growth of output per worker in the unorganised sector**

(UPS, age-group: 15-59)	Average annual rate of growth (%)		
	1983-1993/94	1993/94-1999-00	1999/00-2011-12
<b><i>Unorganised sector</i></b>			
Total output	4.7	5.7	5.8
Number of UPS employed	2.5	1.9	0.8
Output per UPS employed	2.2	3.8	5.0
<b><i>Self employment sector:</i></b>			
Total Mixed income	4.6	5.3	6.2
Number of UPS self-employed	1.5	-0.2	0.3
Mixed income per UPS self-employed	3.1	5.5	5.9

*Note:* Unorganised sector employment for the years 1983 and 1993/94 (given in italics) have been estimated by subtracting the estimates of organised sector employment, available from the Ministry of Labour and Employment, from the estimates of total employment generated by NSSO surveys. The estimates for the years 1999/00 and 2011/12 are derived directly from NSSO surveys. Total mixed income of the self-employed can be seen as a proxy for total output produced by the self-employed.

*Source:* Employment: NSSO surveys and Ministry of Labour and Employment; output and mixed income: CSO (National Account Statistics)

It is clear that the growth of output per worker in the unorganised sector was fairly rapid and accelerating. Such growth, as we have argued, improves employment conditions in the unorganised sector quite independently of the Lewis Process. The reasons are as follows. Since the self-employed are the overwhelmingly dominant producers in the unorganised sector, growth of output per worker in the unorganised sector cannot but mean growth of output per self-employed person and this in turn means growth of income per self-employed person (as indeed is clear from the data in Table 10 above). And the growth of income per self-employed leads to growth of income per casual wage employee either through a wage rise or through a decline in underemployment or through some combination of the two. Thus incomes of all workers in the unorganised sector rise and poverty declines. Such were the developments that improved employment conditions in the unorganised sector, and hence in the economy as a whole, during 1983-1999/00 when the Lewis Process was conspicuous by its absence. During 1983-1993/94, real wages increased but there was no significant change in underemployment. During 1993/04-1999/00, real wages increased while underemployment also declined. Employment conditions improved at a much faster pace during 1999/00-2011/12 when operation of the Lewis process reinforced the effects of output growth in the unorganised sector by lowering the growth in the number of workers in the sector.

### **Is the Lewis Turning Point in sight?**

The short answer to this question must be no. Several facts suggest that there remains a large stock of unused labour to be absorbed in productive employment. Underemployment still remains significant in the unorganised sector. Even in the organised sector, there are casual wage employees who would need to be moved to full-time employment. Then there are a large number of potentially employable workers who currently seek only part-time employment (i.e., employment according to USS) or remain outside the labour force very likely because rewarding employment is not easily available (Table 11). In 2011-12, 430 million persons (nearly 50 per cent of the population) in the age-group “15 or more” were either employed according to USS or unemployed or out of labour force. A sizeable proportion of these persons can be expected to take up full-time employment if such employment were available.

**Table 12: Potentially employable workers, 2011-12**

(numbers in million)	Age-group:		
	15-59	60 or more	15 or more
Population	761.94	100.21	862.15
Employed according to UPS	397.97	33.75	431.72
Employed according to USS	34.73	2.56	37.29
Unemployed (according to US)	10.47	0.03	10.50
Out of labour force	318.77	63.87	382.64

Source: Appendix Table 1.

Indeed, one of the factors that helped improve employment conditions particularly during 1999/00-2011/12 was a sharply declining labour force participation of the working-age population (Table 12), which brought about a sharp deceleration in the rate of growth of labour force (as we have already seen Table 1 above) despite the fact that the share of working-age population in total population actually increased.<sup>18</sup> It is true that a growing number of young persons (in the age-group: 15-24) has been attending educational institutions for longer periods and hence has been postponing entry into labour force, but this does not in fact explain the declining trend in the participation rate.<sup>19</sup> A probe shows that the most important reason is progressive withdrawal of poorer working-age women from “demanding but low-paying” work in the unorganised sector as their family incomes rise somewhat.<sup>20</sup> The implication is that many would rejoin the labour force if and when more rewarding work becomes available.

**Table 13: Labour force participation rate (percentages)**

(according to UPS)

	1983	1993-94	1999-00	2011-12
Age-group: 15-59	62.7	60.3	59.8	53.8
Age-group: 15 ore more	60	58.1	57.2	51.5

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment. The absolute numbers are presented in Appendix Table 1.

The labour force participation rate in 2011-12 was clearly very low by any standard.<sup>21</sup> If we were to consider 65 per cent to be a reasonable rate of labour force participation for the population in the age-group “15 or more”, we would have to conclude that there were, in 2011-12, about 117 million persons in the age-group “15 or more” who were potential participants in the labour force but remained out of it because they were discouraged by the apparent lack of availability of sufficiently rewarding work. If we add the persons currently in employment according to USS and in unemployment, we would conclude that there exists a stock of nearly 164 million persons in the age-group “15 or more” who are potentially employable.

<sup>18</sup> The share of working-age population in total population was 53.6 per cent in 1983, 57.3 per cent in 1993-94, 57.3 per cent in 1999-00 and 62.1 per cent in 2011-12. The relevant numbers are in Appendix Table 1.

<sup>19</sup> The labour force participation rate (according to UPS) for the non-student population in age-group 15-59 declined from 66.8 per cent in 1983, to 65.5 per cent in 1993/94, to 65.4 per cent in 1999-00, and to 61.9 per cent in 2011-12. The relevant numbers are in Appendix Table 1.

<sup>20</sup> See Ghose (2014b) for a discussion.

<sup>21</sup> In 2012, the labour force participation rate for persons in the age-group “15 or more” was 71.1 per cent in China, 67.8 per cent in Indonesia, 60.8 per cent in Korea (Republic), 59.3 per cent in Malaysia, 72.4 per cent in Thailand and 77.2 per cent in Vietnam. (These data are taken from World Bank, World Development Indicators.)

## 5. Concluding Observations

Two main conclusions emerge from the analysis. First, employment conditions improved at a slow pace during the 17-year period 1983-1999/00 and at a fairly rapid pace during the 12-year period 1999/00-2011/12. Second, the employment challenge nevertheless remains formidable; there is a long way to go before the Lewis Turning Point is reached.

The nature and pace of economic growth were instrumental in improving employment conditions during 1983-1999/00. Economic growth was high and accelerating during the period and, most importantly, was not confined to the organised sector; output growth in the unorganised sector was also high and accelerating. The employment intensity of growth in the organised sector was relatively low so that even high and accelerating growth proved inadequate to pull labour out of the unorganised sector.<sup>22</sup> But the high and accelerating growth of the unorganised sector itself meant high and accelerating growth of output per worker and this is what improved the employment conditions there and hence in the economy as a whole.

During 1999/00-2011/12, economic growth was unprecedentedly high and, once again, was not confined to the organised sector. Moreover, the employment intensity of growth in the organised sector was much higher than it was in the earlier period.<sup>23</sup> Thus, on the one hand, the organised sector was pulling labour out of the unorganised sector; the Lewis Process was very much at work. Consequently, the growth of the labour force in the unorganised sector decelerated significantly. On the other hand, output growth in the unorganised sector was also higher than in the earlier period so that growth of output per worker was also much higher. The combined effect was rapid improvement in overall employment conditions in the economy.

It should be said that the demographic transition that occurred during 1983-2011/12 was also a helpful factor. The rate of population growth was 2.1 per cent per annum during 1983-1999/00 and 1.7 per cent per annum during 1999/00-2011/12. Added to this was the decline in the labour force participation rate for the working-age population between the two periods; the rate was 62.7 per cent in 1983, 59.8 per cent in 1999/00 and 53.8 per cent in 2011/12. The combined effect was a fairly sharp deceleration of labour force growth from 2.2 per cent per annum during 1983-1999/00 to 1.5 per cent per annum during 1999/00-2011/12. Thus, growth acceleration and increased employment elasticity in the organised sector combined with deceleration in labour force growth in the economy to produce rapid improvement in employment conditions in the second period.

India's employment challenge, however, remains formidable. Many of those currently in casual wage employment, self-employment and part-time employment would need to move to regular, full-time employment. And while the stock of unemployed workers is not large, there is a large stock of potentially employable workers who are currently out of the labour force because of unavailability of rewarding jobs. But the challenge is also an opportunity. India's economic growth will not be constrained by tightness of labour market for a long time to come. And the scope for promoting growth through transfer of the unemployed, the underemployed and the non-participants in the labour force to productive employment is huge.

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<sup>22</sup> We estimate the output growth in the organised sector during 1983-1999/00 to have been 7.11 per cent per annum and employment growth to have been 2.58 per cent per annum. Thus the employment elasticity is estimated to have been 0.36.

<sup>23</sup> We estimate the output growth in the organised sector during 1999/00-2011/12 to have been 7.84 per cent per annum and employment growth to have been 5.42 per cent per annum. Thus the employment elasticity is estimated to have been 0.69.

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## Appendix

**Appendix Table 1: The base data I**

(number in millions)	1983	1993-94	1999-00	2011-12
Population, total	718.10	894.19	1005.34	1227.01
<b>Age-group: 5-14</b>				
Population	190.84	213.21	247.88	262.56
Employed according to UPS	16.75	10.25	8.43	2.70
Unemployed according to UPS	0.47	0.16	0.22	0.29
Employed according to USS	4.73	2.61	1.55	0.92
Employed according to US	21.48	12.86	9.98	3.62
Unemployed according to US	0.38	0.13	0.20	0.29
<b>Age-group: 15-59</b>				
Population	384.88	512.50	576.21	761.94
Employed according to UPS	234.18	300.10	334.05	397.97
Unemployed according to UPS	7.14	8.73	10.30	12.04
Employed according to USS	26.28	34.51	27.22	34.73
Employed according to US	260.46	334.61	361.27	432.7
Unemployed according to US	5.45	7.24	9.23	10.47
Students according to UPS	23.66	41.35	49.94	99.56
<b>Age-group: 60 or more</b>				
Population	46.57	59.03	69.69	100.21
Employed according to UPS	17.63	23.03	24.78	33.75
Unemployed according to UPS	0.06	0.02	0.03	0.08
Employed according to USS	1.98	2.11	1.78	2.56
Employed according to US	19.61	25.14	26.56	36.31
Unemployed according to US	0.03	0.01	0.02	0.03

*Source:* Author's estimates based on unit level data on employment/unemployment from NSSO surveys and statistics on population from the Office of the Registrar General and Census Commissioner (Government of India).

## Appendix Table 2: The base data II

(UPS, age-group: 15-59)

(number in millions)

	1983	1993-94	1999-00	2011-12
All employed	234.18	300.10	334.05	397.97
Regular employees	38.33	48.73	56.61	85.49
Casual employees	73.27	101.84	116.67	120.48
Self-employed	122.58	149.53	160.77	192.00
Organised sector	<i>24.01</i>	<i>27.37</i>	36.58	68.91
Regular-formal employees			22.83	33.57
Regular-informal employees			7.97	22.80
Casual employees			5.78	12.54
Unorganised sector	<i>210.17</i>	<i>272.73</i>	297.48	329.06
Regular-informal employees			25.82	29.12
Casual employees			110.89	107.94
Self-employed			160.77	192.00

*Source:* The estimates of organised sector employment for the years 1983 and 1993-94 (given in italics) are from the Ministry of Labour and Employment (Government of India). All the rest are author's estimates based on unit level data on employment/unemployment from NSSO surveys and statistics on population from the Office of the Registrar General and Census Commissioner (Government of India).

### Appendix Table 3: The base data III

(UPS employed; age-group: 15-59)

(number in millions)

	1983	1993-94	1999-00	2011-12
Days worked per week:				
Regular employees	214.11	248.63	313.87	501.67
Casual employees	337.24	555.20	582.69	630.78
Self-employed	731.99	852.39	922.75	1116.08
<b>All employed</b>	<b>1283.34</b>	<b>1656.22</b>	<b>1819.31</b>	<b>2248.53</b>
Days in employment per week:				
Regular employees	243.20	294.03	336.50	511.44
Casual employees	339.90	585.34	596.94	635.15
Self-employed	755.17	909.77	954.64	1146.63
<b>All employed</b>	<b>1338.27</b>	<b>1789.14</b>	<b>1888.08</b>	<b>2293.22</b>
Days unemployed per week:				
Regular employees	2.58	2.69	2.53	1.99
Casual employees	71.07	103.47	75.98	60.96
Self-employed	14.30	14.12	17.46	11.04
<b>All employed</b>	<b>87.95</b>	<b>120.28</b>	<b>95.97</b>	<b>73.99</b>
Days available per week:				
Regular employees	249.49	304.47	344.59	514.67
Casual employees	476.05	806.90	754.66	761.63
Self-employed	825.29	990.96	1030.41	1201.41
<b>All employed</b>	<b>1550.83</b>	<b>2102.33</b>	<b>2129.66</b>	<b>2477.71</b>

Source: Author's estimates based on unit level data from NSSO surveys of employment and unemployment.

## Employment Working Papers

*The Working Papers from 2008 are available at:*

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