



Employment Growth and Industrial Policy: The Challenge for Indian States

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Abstract

The nature of and the future potential for economic growth will vary across Indian States because of their differences in the rates of demographic transitions. The growing population of the young in some of the States in the east and north of the country, notably Bihar and Uttar Pradesh, opens up a huge economic opportunity. It is also a serious policy challenge—to create new opportunities that meet the rising expectations of the job aspirants. At the same time, for States such as Kerala and Tamil Nadu, which have an ageing population, there are limits to future growth based on labour-intensive sectors. Across Indian States, during the period between 2005 and 2018, labour absorption into industry, construction and services lagged way behind the increase in the potential supply of workers into these sectors. The mismatch between labour demand and potential labour supply widened after 2012, leading to an increase in unemployment rates and a large-scale withdrawal of women from the labour market. For reviving employment growth, India requires a mix of social, employment and industrial policies. The States should have greater financial and functional autonomy to implement these policies in a way that suit their specific stages of development.

Keywords Indian States · Demography · Employment · Industrial policy

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1 Introduction

Over the two decades between 2020 and 2040, population in the working-age years (aged 15 to 59) is expected to increase by 145.2 million in India, while it could decline by as much as 131.4 million in China (Thomas 2020, p. 58).¹ That there are going to be a large number of potential workers is at once a big boon for India's future economic growth as well as a challenge, to create new job opportunities, for policymakers.² The nature and the magnitude of the employment challenge vary across Indian States, given their differences with respect to demographic and labour market structures and transitions.

Among Indian States, Kerala was the first to achieve—by 1988—a decline in its fertility rate to the replacement level (of 2.1 births per woman). At the other end, the fertility rate of Bihar, the State with the slowest rate of demographic transition, will fall to the replacement level only by 2039 (GOI 2020, p. 19). With respect to fertility decline and demographic transition, the southern states as well as Himachal Pradesh, West Bengal, Punjab and Maharashtra have been ahead of the rest of the country. On the other hand, a number of other States in the east and north of the country, including Bihar, Uttar Pradesh, Rajasthan and Madhya Pradesh, have been the laggards (GOI 2020).

The differences in demographic transition rates will have major implications for the future development paths of Indian States. On the one hand, the working-age population is expected to increase rapidly over the coming years in States in which demographic changes have been slow. These include many of the eastern and northern States, importantly Bihar and Uttar Pradesh. The potential for reaping the demographic dividend will be high for these States. On the other hand, States such as Kerala and Tamil Nadu will have to begin to deal with the issues related to an ageing population.

The Indian economy and the labour market have been undergoing important structural shifts, with significant variations across States.³ First, as already noted, there has been an expansion in the size of the working-age-population in India. Second, enrolment of young adults in educational institutions has been rising markedly in India, and third, there has been a gradual movement of rural workers away from agriculture due to both 'push' and 'pull' factors.⁴ Young persons in rural areas are increasingly eager to escape from 'disguised unemployment' in agriculture (Thomas 2020).

Given such a context, a key question addressed in this paper is the following: is the rate of growth of labour demand in the non-agricultural sectors—in industry, construction and services—rapid enough to absorb the rising supply of young adults

¹ See the country-wise population figures, including the projections for future years, available in United Nations (2017) and the World Bank (2019).

² On the relation between demographic changes and economic growth, see Birdsall et al. (2001).

³ See Thomas (2020), Sharma (2022), and Basole (2022) for some of the recent additions to the literature on labour market transformations in India. Also see Thomas (2012).

⁴ On the problems of measuring employment and unemployment in a largely agrarian economy, see Sen (1999).

who are potential job seekers? Our research shows that labour demand from the non-agricultural sectors lagged way behind the potential labour supply in India, particularly in the case of women. The gulf between labour supply and labour demand widened after 2012. This has led to a decline in workforce participation rate or worker population ratio (WPR) among females and a marked increase in unemployment rate among young men.

The analysis in this paper is based on official data relating to employment and unemployment in India—mainly the reports and the unit-level data from the surveys conducted by the National Sample Survey Organization (NSSO) during its 2004–05 and 2011–12 rounds and the Periodic Labour Force Survey (PLFS) carried out during 2017–18.⁵ The NSSO surveys and the PLFS used broadly similar methodologies and sample sizes and are, therefore, comparable with each other.

In this paper, we have made estimates of employment by multiplying the WPRs obtained from the NSSO surveys or PLFS with the projections of population based on data from the Census of India. The population projection for 2018 is based on an official report, *Population Projections for India and States: 2011–2036* (GOI 2020). The NSSO employment surveys and the PLFS have been conducted over a one-year-period, typically from July of one year to June of the succeeding year. We have made estimates of employment for the middle of each survey year (that is, for instance, January 2018, for the PLFS survey held between July 2017 and June 2018). We have used the interpolated population figures for the month of January of the respective years in our estimations.

The estimates of workers in this paper, unless otherwise specified, are based on the usual principal and usual subsidiary status (UPSS) of the persons covered by the survey. Some of the surveyed persons have reported their principal activity status as ‘unemployed’ or as ‘student’, and their subsidiary activity status as worker. The figures for the unemployed and students given in this paper have been obtained by subtracting such subsidiary status workers from the principal status unemployed and principal status students, respectively. In January 2018, out of a total estimated population in India of 1317.0 million, there were 458.2 million who were employed, 30.1 million unemployed, and 361.4 million students. There were also 289 million persons, most of them women, who reported their status as attending to domestic duties, and were, therefore, not part of the labour force.

2 Demographic Changes and Labour Markets across Indian States

In this study, we have categorized India’s States and Union Territories (UTs) into eight different regions—based on their geographical location as well as economic and demographic characteristics (see Table 1). Uttar Pradesh and Rajasthan have been categorized as the ‘northern-emerging’ States. These are two of the largest and most populous of Indian States, which lag behind the rest of India with respect to most indicators of development. The ‘northern advanced’ region considered in this analysis includes Punjab, Haryana, Uttarakhand, Himachal Pradesh, and the UTs

⁵ See NSSO (2006), NSSO (2014) and NSO (2019) for the reports based on the respective surveys.

Table 1 Population in the Age Group of 15 to 59 years across Indian States: in millions and as % of the total in India, 2001 to 2036

	In millions				Share in India, in %	
	2001	2011	2021	2036	2001	2036
India	585.6	735.0	875.0	988.0	100	100
Uttar Pradesh	85.9	113.1	142.7	171.2	14.7	17.3
Rajasthan	29.9	39.8	49.3	59.0	5.1	6.0
North-emerging	115.8	152.9	192.0	230.2	19.8	23.3
Punjab	14.5	17.7	20.3	21.5	2.5	2.2
Haryana	11.9	15.6	19.2	23.0	2.0	2.3
Jammu & Kashmir	5.8	7.2	9.0	9.9	1.0	1.0
Uttarakhand	4.7	6.1	7.5	8.6	0.8	0.9
Himachal Pradesh	3.6	4.4	4.9	5.0	0.6	0.5
Delhi	8.6	11.1	14.2	17.9	1.5	1.8
North-advanced	49.1	62.1	75.1	85.8	8.4	8.7
Bihar	42.4	55.7	72.4	91.2	7.2	9.2
West Bengal	47.7	58.7	66.4	67.4	8.1	6.8
Jharkhand	14.6	18.9	24.0	29.2	2.5	3.0
East	104.7	133.3	162.8	187.9	17.9	19.0
Madhya Pradesh	32.7	42.8	52.6	63.1	5.6	6.4
Odisha	21.5	26.0	29.7	31.4	3.7	3.2
Chhattisgarh	11.6	15.4	18.7	22.1	2.0	2.2
Central East	65.8	84.2	100.9	116.6	11.2	11.8
Assam	15.1	18.9	22.8	25.7	2.6	2.6
North-east ex. Assam	7.0	8.9	10.9	12.0	1.2	1.2
North-east	22.1	27.9	33.7	37.7	3.8	3.8
Maharashtra	57.2	71.1	83.0	90.5	9.8	9.2
Gujarat	30.5	38.1	45.4	52.5	5.2	5.3
West	87.7	109.3	128.4	143.1	15.0	14.5
Andhra Pradesh	45.9*	32.0	35.4	35.5	7.8*	3.6
Telangana	–	22.3	25.5	26.3	–	2.7
Karnataka	31.9	39.2	44.5	47.2	5.4	4.8
South-emerging	77.8	93.5	105.3	109.0	13.3	11.0
Tamil Nadu	39.8	47.5	50.8	49.7	6.8	5.0
Kerala	20.2	21.3	22.4	22.0	3.4	2.2
South-advanced	60.0	68.8	73.2	71.6	10.2	7.3

Bold values indicate the combined figures for a group of States

*Andhra Pradesh and Telangana combined; Population as on 1 March of the respective year

Sources: Census of India 2001 and 2011, and GOI (2020) for projections of population for 2021 and 2036

of Jammu and Kashmir and Delhi, all of which are ahead of the rest of India with respect to per capita income and many indicators of economic and social development. Kerala and Tamil Nadu, which are two of the most advanced States with a

Table 2 The Size (in millions) of the Population, Workforce, Unemployed Persons and Students in India: January 2018

Regions	Population	Workers	Unemployed	Labour force	Students
North-emerging	297.6	90.3	5.9	96.2	88.6
North-advanced	108.8	37.0	3.1	40.1	29.7
East	250.4	73.8	4.8	78.6	71.7
Central east	153.8	59.9	3.2	63.1	40.3
North-east	49.5	16.3	1.4	17.7	13.7
West	187.7	71.6	3.7	75.3	45.5
South-emerging	154.0	62.8	3.6	66.4	36.0
South-advanced	110.2	41.9	4.0	45.9	24.8
India	1317.4	458.2	30.1	488.3	350.4

Source: Estimates based on unit-level data of PLFS for 2017–2018. See NSO (2019)

slowing growth of population, have been categorized as ‘south-advanced’, while the other three southern States comprise the ‘south-emerging’ region (see Table 1 for the full list).

2.1 Population and Workforce Participation

As per the Census of 2011, India’s total population was 1210.9 million and working-age population (aged 15 to 59 years) was 735 million (which was 60.7% of the total population). According to projections made by the National Commission on Population, India’s total population and working-age population were 1363.0 million and 875.0 million, respectively, in 2021 and will be 1522.3 million and 988.0 million, respectively, in 2036 (GOI 2020). Of the projected increase in the working-age population of 113.0 million between 2021 and 2036, 79.0 million (or 69.9%) will be from the States in the north (emerging), east and central east of the country. The combined share of Uttar Pradesh and Rajasthan (north-emerging) in the total working-age population in India is expected to increase from 19.8% in 2001 to 23.3% in 2036. On the other hand, the combined share of Kerala and Tamil Nadu is expected to decline, from 10.2% to 7.3% during the same period (see Table 1).

The size of the workforce in the less-developed States of the north and east is relatively small given the size of the population of these States. In 2018 (January), the northern-emerging and the eastern States had a combined share of 41.6% in India’s population, but their share in the country’s workforce was only 35.8%. On the other hand, the combined shares of the western and the southern (emerging and advanced) States in India’s population and workforce were 34.3% and 38.4%, respectively (see Tables 2 and 3). The lower levels of workforce participation rates in the northern and eastern States are on account of the nature of both the labour supply and the labour demand in these States. On the one hand, the proportions of the very young and of students are relatively high in the northern and eastern States. On the other hand, the rate of growth of non-agricultural employment has been rather slow in these States (as we shall see below).

Table 3 Shares (in %) of Different Regions in Total Population, Workforce, Unemployed Persons and Students in India, in January 2018

Regions	Population	Workers	Unemployed	Labour force	Students
North-emerging	22.6	19.7	19.5	19.7	25.3
North-advanced	8.3	8.1	10.3	8.2	8.5
East	19.0	16.1	16.0	16.1	20.5
Central east	11.7	13.1	10.5	12.9	11.5
North-east	3.8	3.5	4.8	3.6	3.9
West	14.2	15.6	12.3	15.4	13.0
South-emerging	11.7	13.7	11.9	13.6	10.3
South-advanced	8.4	9.1	13.4	9.4	7.1
India	100	100	100	100	100

Source: Estimates based on unit-level data of PLFS for 2017–2018. See NSO (2019)

2.2 Agrarian Transitions and Enrolment in Educational Institutions

In 2004–05, as per data from the NSS survey, the proportion of the workforce engaged in agriculture and allied activities was 72.6% in Bihar and 60.0% or more in Uttar Pradesh, Rajasthan and Jharkhand. However, there was a significant shift of the workforce away from agriculture in each of these States over the next decade and a half. In 2017–18, the proportion of the workforce in agriculture and allied activities was 43.8% only in Bihar, 39.2% in the eastern States as a whole, and 47.4% in the northern-emerging States, while the average for India was 41.8% (see Fig. 1 and Table 4).

With the relatively fast growth of the working-age population, on the one hand, and the shift of the workforce away from agriculture, on the other, the potential supply of workers to the non-agricultural sectors has been very large in the eastern and the northern States. These States, and particularly Bihar and Uttar Pradesh, have been major sources of migrant labour in India.

Compared to the eastern and some northern States, the density of population is lower in Madhya Pradesh and Chhattisgarh. The proportion of the workforce attached to agriculture and allied sectors is still very high in these States. It was 58.3% in Madhya Pradesh, 63.8% in Chhattisgarh, and 56.5% in central east States as a whole in 2017–18. The share of the agricultural workforce continues to be relatively high in Andhra Pradesh and Maharashtra as well. At the same time, the share of the workforce engaged in agriculture and allied sectors was only 16.7% in Kerala, 26.0% in Tamil Nadu, and 38.5% in Gujarat (in 2017–18) (see Fig. 1 and Table 4). The southern and the western States have been major destinations for inter-State migrant workers in India.

As mentioned earlier, there has been an increase in enrolment in educational institutions across Indian States. As per the estimates based on PLFS for 2017–18, the size of the student population is as large or larger than the size of the workforce in several Indian States (see Fig. 2). In Bihar, the size of the student population (38.7 million) was 1.4 times the size of the workforce (which was 27.2 million). These

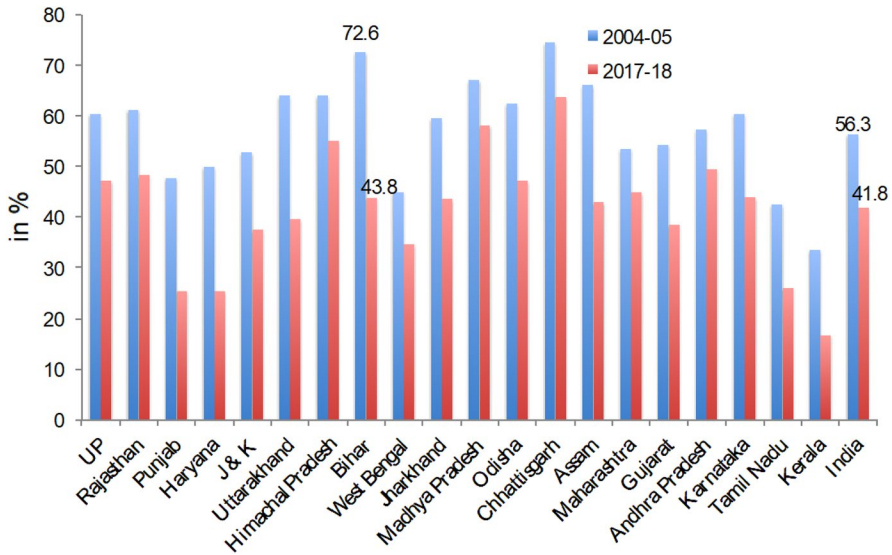


Fig. 1 The Shares (in %) of Agriculture and Allied Activities in Total Workforce, Selected Indian States: 2004–05 and 2017–18. *Source:* Estimates based on NSSO (2006) and NSO (2019)

Table 4 Sector-wise Distribution of the Workforce in Various Regions of India: January 2018, in millions

Regions	Agriculture	Industry	Construction	Services I	Services II	All Workers	Population
North-emerging	42.9	11.1	12.3	14.8	9.2	90.3	297.6
North-advanced	10.0	6.7	4.6	8.7	7.1	37.0	108.8
East	29.0	10.6	10.5	14.6	9.1	73.8	250.4
Central east	33.8	4.8	7.5	7.6	6.1	59.9	153.8
North-east	6.8	1.2	1.5	3.8	2.9	16.3	49.5
West	30.6	11.7	4.3	13.8	11.2	71.6	187.7
South-emerging	28.5	7.9	5.7	11.9	8.8	62.8	154.0
South-advanced	9.8	8.0	6.4	10.0	7.7	41.9	110.2
India	191.7	63.4	53.1	86.6	63.5	458.2	1317.4

‘Services I’ refers to the sum of employment in the following: wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; and activities of households as employers (NIC 1998 sections G, H, I and T). ‘Services II’ refers to the sum of employment in all other service activities, including information and communication; financial and insurance activities; professional, scientific and technical activities; administrative and support service activities; public administration, defence and social security; education; and health (NIC 1998 sections J, K, L, M, N, O, P, Q, R, S, and U)

Source: Estimates based on unit-level data of PLFS for 2017–18

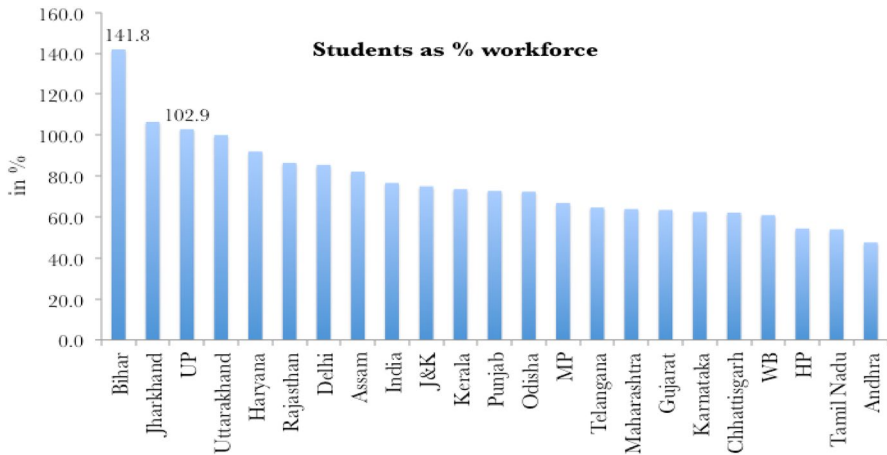


Fig. 2 Students as a Proportion of Population (in %) in Selected Indian States: 2017–18. *Source:* Estimates based on unit-level data of PLFS for 2017–18

figures provide an indicator of the job challenge several Indian States are going to face in the future. Those who are attending educational institutions in the current period will be entering the labour market in the future, with greater expectations about the nature of the jobs they seek. States with a younger population have a higher proportion of students-to-workforce or students-to-population. These States, which include Bihar, Uttar Pradesh, Jharkhand, Uttarakhand and Rajasthan, are going to witness an expansion in the numbers of educated job seekers in the coming years.

2.3 Variations in Employment Structures

Tables 4 and 5 provide the sector-wise distribution of the workforce in various regions of India. Of the total 458.2 million workers in India in January 2018, 191.7 million were employed in agriculture and allied activities, 63.4 million in industry, and 53.1 million in construction. The size of the workforce in service-sector activities employing mostly less-educated workers (referred to as ‘services I’)—which include trade, transport, hotels and domestic and household services—was 86.6 million. At the same time, 63.5 million were engaged in ‘services II’, which include public administration, education, health, information and other technology services, and so on. All these are activities that demand mostly educated workers and in which the quality of employment is relatively high.

The diversification of the employment structure has been slower in States that are economically and socially less developed (see Table 5). In 2018, the northern-emerging States accounted for only 14.6% of employment in services II activities in India, while their shares in India’s population and workforce were 22.6% and 19.7%, respectively. On the other hand, the southern-advanced and the western States had shares of 12.2% and 17.7%, respectively, of all services II employment in

Table 5 Shares (in %) of Various Regions of India in the Total Workforce in the Country by Sectors: January 2018

Regions	Agriculture	Industry	Construction	Services I	Services II	All workers	Population
North-emerging	22.4	17.5	23.2	17.1	14.6	19.7	22.6
North-advanced	5.2	10.5	8.6	10.0	11.2	8.1	8.3
East	15.1	16.8	19.7	16.9	14.4	16.1	19.0
Central east	17.7	7.6	14.1	8.7	9.7	13.1	11.7
North=east	3.5	1.9	2.9	4.4	4.6	3.5	3.8
West	16.0	18.5	8.1	15.9	17.7	15.6	14.2
South-emerging	14.9	12.4	10.7	13.7	13.8	13.7	11.7
South-advanced	5.1	12.6	12.0	11.6	12.2	9.1	8.4
India	100.0	100.0	100.0	100.0	100.0	100.0	100

Note and Source: Same as for Table 4

the country—much higher than their respective shares in India’s population (which were 8.4% and 14.2%).

3 The Mismatch between Labour Demand and Labour Supply

The growth of labour demand in India has not matched with the expansion of labour supply in the country. Persons who are 15–59 years old and are neither engaged in agriculture nor enrolled in educational institutions could form a *potential* supply of workers for industry, construction and the services sectors (if they are provided the necessary skills to make them employable). Our analysis shows that the new job opportunities created in India between 2005 and 2012 was inadequate to absorb the potential supply of workers—given the increase in the working-age population and the shift of the workforce away from agriculture and allied activities during this period (Thomas 2020).

The gap between the potential and actual absorption of workers into the non-agricultural sectors widened during the period from 2012 to 2018. The labour supply–labour demand mismatch has been particularly high in the case of women and young men (see Table 6).

3.1 Rising Unemployment and Women’s Withdrawal from the Labour Market

Between 2012 and 2018, while the population of men aged 15 to 29 years in India increased from 175.8 million to 198.2 million, those who were attached to agriculture or allied activities within this category declined from 41.5 million to 30.3 million (see Table 6). Further, students within this population category increased from 58.2 million to 73.9 million. Therefore, 15–29-year-old men who were neither

Table 6 Distribution of Male and Female Population (aged 15 to 29 years) in India by Activity Status: 2005 to 2018, in millions

Activity status	Males, 15–29 years			Females, 15–29 years		
	2005	2012	2018	2005	2012	2018
1. Population	153.0	175.8	198.2	141.9	163.2	184.3
2. Employed	108.5	107.2	97.8	48.3	36.5	24.5
2a. in agriculture & allied activities	50.8	41.5	30.3	33.5	20.3	11.1
2b. in industry, construction and services	57.8	65.8	67.6	14.8	16.2	13.4
3. Unemployed	6.1	6.7	21.1	3.2	2.7	5.7
4. Students	35.1	58.2	73.9	23.2	42.3	57.1
5. Domestic duties	0.7	0.9	2.0	65.7	80.1	95.2
6. Potential non-agricultural workers (1-(2a+4))	67.1	76.1	94.0	85.2	100.6	116.1
<i>Some key ratios</i>						
7. WPR (2 as % of 1)	70.9	61.0	49.3	34.0	22.4	13.3
8. Unemployment rate (3 as % 2+3)	5.3	5.9	17.7	6.2	6.9	18.9
9. 2b as % of 6	86.1	86.5	71.9	17.4	16.1	11.5

Source: Estimates based on NSSO (2006), NSSO (2014), NSO (2019), and Census of India

engaged in agriculture nor were students numbered 76.1 million in 2012 (that is: $175.8 - (41.4 + 58.2)$), which rose to 94.0 million in 2018. This represented an increase of 17.9 million young men who were potential new workers for the non-agricultural sectors. At the same time, the actual absorption of 15–29-year-old men into job opportunities in industry, construction and services during 2012–2018 amounted to only 1.8 million (from 65.8 to 67.6 million).⁶ The result was a sharp upward climb in the number of the unemployed within the category of 15–29-year-old men, from 6.7 million in 2012 to 21.1 million in 2018. Unemployment rate shot upwards, from 5.9% in 2012 to 17.7% in 2018 (Table 6).

The growth of non-agricultural employment opportunities has been particularly slow in the case of women over the last two decades. The population of females aged 15 to 29 years increased by 42.4 million (from 141.9 to 184.3 million) in India between 2005 and 2018. Within this population group (females aged 15 to 29 years), the number of students increased by 33.9 million while those engaged in agriculture and allied activities declined by 22.4 million. Therefore, between 2005 and 2018, 15–29-year-old women who could have been potential workers in the non-agricultural sectors grew by 29.5 million (from 85.2 million to 116.1 million) (see Table 6).

Nevertheless, the number of women (aged 15–29 years) employed in the non-agricultural sectors declined in absolute numbers—by 1.4 million (from 14.8 million in 2005 to 13.4 million in 2018) during this period. The response by females to such a massive mismatch between labour supply and labour demand was to withdraw altogether from the labour force. Our analysis shows that 15–29-year-old females who reported their activity status as attending domestic duties within their

⁶ On the slow growth of employment opportunities in industry in India, see Rakshit (2019), Thomas (2019) and Johny (2022).

own households increased from 65.7 million in 2005 to 95.2 million in 2018 (see Table 6).

It may be noted that the sectors that registered a substantial increase in female employment between 2005 and 2018 included education, health and social work, and professional and allied services, all of which demand relatively high-skilled workers. In fact, more than half of all the incremental employment created in the country in education and health after the mid-2000s went to women, although it is also likely that a large proportion of these women workers (including anganwadi workers and ASHA or community health workers) are being paid very poorly (Thomas 2020).

3.2 Labour Market Mismatches across Indian States

The increase in employment in industry, construction and services was less than adequate to absorb the potential supply of non-agricultural workers—not only in India as a whole (as shown above) but across Indian States. The gap between the potential increase and the actual absorption of workers into the non-agricultural sectors also widened after 2012, for a majority of the Indian States (see Tables 7 and 8).

In the case of Uttar Pradesh and Rajasthan (the two States combined), the net increase in male employment in industry, construction and services combined was 8.9 million during the seven-year period between 2005 and 2012, which declined to 3.6 million only during the six-year period between 2012 and 2018. The slow growth of job opportunities in the non-agricultural sectors may have been a reason behind the reversal in structural diversification of the workforce in these States. The size of the male agricultural workforce engaged in agriculture and allied activities had declined by 1.7 million in the two northern States combined during the period from 2005 and 2012. On the other hand, there was an increase in the size of the male agricultural workforce in these States during the period between 2012 and 2018 (see Table 7).⁷

There are only a few States in which the growth of male employment in industry, construction and services during the period from 2012 to 2018 was faster than the corresponding growth during the period from 2005 to 2012. These include: Bihar, Tamil Nadu, Assam, Haryana and Chhattisgarh.

The growth of female employment in industry, construction and services did not decline after 2012 only in the case of a few States. These are: Andhra Pradesh, Madhya Pradesh, Assam and Chhattisgarh. At the same time, between 2012 and 2018, there was an absolute decline in female employment in industry, construction and services in a number of States. These include: West Bengal, Rajasthan, Maharashtra and Tamil Nadu. It is notable that Rajasthan, West Bengal and Tamil Nadu had registered impressive gains in female non-agricultural employment during the period from 2005 to 2012. These gains had been reversed during the years after 2012 (see Table 7).

⁷ On the relation between agricultural growth and rural labour markets, see Thomas and Satheesha (2022).

Table 7 Net Increase in Agricultural and Non-agricultural Employment in Various Regions of India: 2005 to 2018, in millions

Regions	Males						Females					
	2005 to 2012			2012 to 2018			2005 to 2012			2012 to 2018		
	Agriculture & allied	Non-agricultural		Agriculture & allied	Non-agricultural		Agriculture & allied	Non-agricultural		Agriculture & allied	Non-agricultural	
North-emerging	-1.7	8.9		1.6	3.6		-4.7	1.7		-6.9	-1.7	
North-advanced	-1.1	3.9		-0.5	3.0		-2.1	0.9		-2.5	0.4	
East	-0.6	8.0		-4.7	7.2		-4.5	1.6		-1.9	-0.4	
Central east	0.8	4.3		0.5	3.0		-3.4	0.7		-0.3	0.5	
North-east	-0.7	1.7		-0.4	1.7		-1.3	0.4		-1.0	0.2	
West	1.3	4.6		-0.7	3.6		-4.0	0.5		-4.0	0.0	
South-emerging	-1.4	4.5		-1.1	2.3		-4.0	0.4		-3.0	0.6	
South-advanced	-1.0	3.5		-1.8	2.9		-3.2	1.8		-1.1	0.1	
India	-5.0	39.5		-7.3	26.7		-28.2	8.6		-20.0	-0.6	

Source: Same as for Table 6

Table 8 Net Increase in Non-agricultural Employment (all ages) and of Population (15–59 years) in Various Regions of India: 2005 to 2018, in millions

Regions	Males			Females		
	Non-agricultural employment	Population	Emp/Pop ratio	Non-agricultural employment	Population	Emp/Pop ratio
North-emerging	12.5	26.5	0.47	0.0	26.2	0.00
North-advanced	6.9	9.4	0.73	1.3	9.9	0.13
East	15.2	20.0	0.76	1.2	19.4	0.06
Central east	7.3	13.4	0.55	1.2	13.2	0.09
North-east	3.4	3.9	0.87	0.6	4.4	0.13
West	8.2	15.6	0.52	0.5	15.4	0.03
South-emerging	6.8	10.5	0.64	1.0	11.3	0.09
South-advanced	6.4	6.0	1.06	1.9	6.7	0.27
India	66.2	105.1	0.63	8.0	106.4	0.08

Source: Same as for Table 6

The net increase in male non-agricultural employment in the southern States (emerging and advanced combined) was 8.0 million during the period from 2005 to 2012, which declined to 5.2 million only during the period from 2012 to 2018. The net increase in female non-agricultural employment in the southern States was 2.2 million during the first period, which declined to 0.7 million only during the second period (see Table 7).

Between 2005 and 2018, male non-agricultural employment (for all ages) increased by 66.2 million, while male working-age (aged 15 to 59 years) population rose by 105.1 million in India as whole. The ratio between the former and the latter was 0.63, which provides a rough indicator of the extent to which labour absorption is keeping pace with the growth of the potential workforce. The above-referred ratio (for men) ranged from 0.47 for the northern-emerging States to 1.06 for the southern-advanced States. In the case of females, the net increase in non-agricultural employment and working-age population were 8.0 million and 106.4 million, respectively, in India as a whole, with the ratio between the two being only 0.08. The incremental employment-to-population ratio for females was the best for the southern-advanced States (0.27), while this ratio was close to zero for most regions, including for the western States (see Table 8).

4 Summary and Policy Challenges

Given the continued expansion of its working-age population, India has the potential to take advantage of the demographic window of opportunity for a few more years. Meanwhile, China has already started feeling the pressures on account of its population structure getting older.⁸ Within India, the growth of the working-age population is expected to be faster in some of the States in the eastern and northern regions of the country, including Bihar, Uttar Pradesh, Rajasthan and Madhya Pradesh. Although less developed now, the future potential for reaping the demographic dividend is quite high for these States. On the other hand, the growth of the working-age population has started slowing down in a number of States, notably Kerala and Tamil Nadu. These States will have to begin to deal with the issues related to an ageing population.

At the core of the employment problem in India is the question whether the country will be able to create new and decent jobs at a fast enough rate—to provide opportunities for fresh entrants to the working-age cohort as well as for those who exit agriculture, and at the same time, meet the rising job aspirations of the young. Since the 2000s onwards, India has attained faster progress with respect to enrolment of young women and men in schools and colleges. While achievements in education can fuel economic growth, there have been serious concerns about the quality of education offered in the country, especially in regard to adequacy of teachers, infrastructure, and the learning outcomes of pupils.⁹

Between 2005 and 2018, population in the age group of 15–29 years increased by 87.6 million (from 294.9 million to 382.5 million) in India, while the number of students among this population category rose by 72.7 million. The size of the workforce attached to agriculture and allied activities declined by 42.9 million (from 84.3 million to 41.4 million). At the same time, however, job opportunities in the non-agricultural sectors—that is, in industry, construction, and services combined—increased by only 8.4 million (from 72.6 million to 81.0 million) in the country. In other words, the increase in job opportunities in the non-agricultural sectors was far from adequate to absorb the rising supply of potential workers.

India's economy has been showing signs of a deceleration after 2011–12, particularly with respect to investment. Compared to the period between 2005 and 2012, the generation of new jobs in India has clearly slowed down during the period between 2012 and 2018. As a result of the slower generation of employment, there has been an unprecedented increase in the number of the unemployed among 15–29-year-old men in India, from 6.7 million in 2012 to 21.1 million in 2018. This was indeed the main contributor to the rapid increase in overall unemployment in India, from 2.1% in 2011–12 to 6.1% in 2017–18. Workers as proportion of population declined in India, notably in the age group of 15–29 years. This decline was especially sharp in the case of females (from 34.0% in 2005 to 13.3% in 2018) than in the case of males (to 49.3% in 2018).

⁸ See Nayyar (2013) on the history of and possibilities for long-term economic growth of developing countries. See Cai (2016) on China's economic challenges on account of its demographic changes.

⁹ On these issues, see ASER (2019).

4.1 Employment, Social and Industrial Policies

It is a daunting task for the policymakers to effectively channel the strengths of India's young women and men, while taking into account the variations in the nature of the employment challenge across Indian States. The stagnant growth of the working-age population in States such as Kerala and Tamil Nadu will be a dampener for their future growth. Given the labour shortages they face, these States have emerged as destinations for a growing number of mostly less-skilled migrant workers. At the same time, these economically advanced States have also been facing an employment crisis, as adequate numbers of jobs are not being created to meet the aspirations of educated workers in these States. Meanwhile, the inter-State migration of workers originating from the eastern and northern States has become a critical feature of India's labour market today.¹⁰

India faces severe challenges in pursuing an independent industrial policy, especially at the level of the States.¹¹ Indian States, which depend on the financial resources devolved to them from the Central government, have limited financial autonomy. With the overall decline of public investment, State governments have little option other than to compete against each other to attract private investments. This has resulted in a 'race to the bottom', with the States offering tax incentives and relaxing regulations on labour and environment, to attract new investments. The ranking of Indian states based on the 'ease of doing business reforms' is fuelling indiscriminate competition rather than helping them to pursue distinctive industrial growth paths. This ranking, which is based on the World Bank's ease of doing business surveys of countries (the methodology for which has been subject to several criticisms), favours States with a relative abundance of land and labour (Thomas 2021b).

Given the crisis facing the economy in the aftermath of the COVID-19 pandemic, public investments in the social sectors, health and education in particular, will be a big boost to reaping the demographic dividend. This is particularly so in States such as Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh and Chhattisgarh, which have a growing young population but lag in human development. Investments in health and education in these States will bring in not only positive outcomes in living standards and future economic growth, but new employment opportunities (as teachers and health professionals) as well. Industrial policies for these States could focus on sectors and economic activities that use labour intensively.

There will have to be an emphasis on higher education and research in States such as Kerala and Tamil Nadu, which have already achieved some success in providing basic health and education but now face a new set of challenges.¹² Given their ageing populations, these States have to deal with, for instance, health problems that typically affect the developed countries (a prevalence of lifestyle diseases such as

¹⁰ On inter-State migration of workers in India, see Thomas and Jayesh (2016) and Jayesh (2020).

¹¹ See also Ghose (2016) and Mehrotra (2020) on the challenges and opportunities in India's manufacturing growth.

¹² On some specific aspects of Kerala's development challenges, see Thomas (2021a) and Thomas (2021b),

diabetes). Further, with limited future prospects in labour-intensive industries, these States will also have to focus on skill- and technology-intensive sectors and economic activities to stimulate growth and create new jobs.

It is important to recognize that industrial and economic growth strategies cannot be uniform across regions in a vast and diverse country like India. However, there are limits to region-specific growth strategies in India's federal polity, given the extent of control exerted by the Central government, not only over financial resources but also over a wide range of policies in the spheres of industry, trade, exchange rates and even social sectors. Indian States should have greater fiscal and functional capabilities to pursue the policies that suit their specific stages of development. There should also be greater public expenditures at the level of the States in social sectors and for employment creation, given the urgency with which the country has to take advantage of the demographic window of opportunity.

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Declarations

Conflict of interests The authors declare that they have no conflict of interests.

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