



# STATE OF JOBS IN INDIA 2019

**WHAT IS HAPPENING TO THE JOBS?  
WHERE ARE THE JOBS?  
HOW INDUSTRY 4.0 WILL IMPACT JOBS?**



**GRAMEEN FOUNDATION INDIA**

***AUTHORED BY: NISHANT & SAKET AMBARKHANE***



# CONTENT

<b>Setting the Context: Listening to the Youth Voices .....</b>	<b>i</b>
<b>Foreword .....</b>	<b>ii</b>
<b>Summary .....</b>	<b>v</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Macro Trends in the Job Market .....	2
1.2 Geographic and Sectoral Trends .....	6
1.3 Major Challenges .....	6
1.4 Healthy and Sustainable Future .....	7
<b>2 Effects of Demographic Shifts on Jobs.....</b>	<b>8</b>
2.1 Youth Bulge .....	8
2.2 Urbanization and Internal Migration .....	9
2.3 Nuclear Families.....	9
2.4 Increased Life Expectancy.....	11
<b>3 Labor Laws and Types of Jobs.....</b>	<b>13</b>
3.1 Legacy Issues and Implications .....	13
3.2 Current Labor Laws and their Effects .....	13
3.3 Labor Reforms.....	14
<b>4 Formal and Informal Jobs .....</b>	<b>15</b>
4.1 Grade of Formal and Informal.....	15
4.2 Formal Education and Widening un-employability .....	16
4.3 Employee Welfare Issues .....	17
4.4 Invisible Employees.....	17
<b>5 Measurement Challenges.....</b>	<b>20</b>
<b>6 Wages and Inequality .....</b>	<b>22</b>
6.1 Gender based inequality.....	22
6.2 Caste Based Inequality.....	23
6.3 Wage trends.....	24
6.4 Minimum wages and formal and informal sector.....	25
<b>7 Gig economy, Changing lifestyles and Telecommuting .....</b>	<b>27</b>
7.1 Factors leading to Gig Economy .....	27
7.2 Current Size of Gig economy.....	27
7.3 Types of workers in gig economy .....	28
7.4 Future of Gig economy in India.....	28

7.5	Effect of Gig economy on traditional jobs and creation of new opportunities .....	29
7.6	Changing lifestyles .....	29
7.7	Telecommuting .....	30
<b>8</b>	<b>The Effects of Digitalisation on India's jobs scenario .....</b>	<b>31</b>
8.1	Introduction .....	31
8.2	Digitalization, 3rd Industrial Revolution and the growing gig economy.....	31
8.3	The fourth industrial revolution and its implications for employment.....	32
8.4	Digitalization: applications to the Indian employment scenario.....	33
8.5	Relatively limited short term risk of automation in India .....	34
8.6	Emerging skill requirements in the digital economy .....	35
8.7	New jobs in India's digital economy.....	36
8.8	The gig economy and implications for India .....	37
8.9	Priority areas of work.....	38
8.10	Conclusion.....	40
<b>9</b>	<b>Women At Work .....</b>	<b>41</b>
9.1	Trends in Female Workforce Participation Rate.....	41
9.2	Invisible Work of Women.....	42
9.3	Sectors of Female Employment .....	43
9.4	The Gender Wage Gap.....	44
9.5	The Gender Digital Divide .....	44
9.6	Cumulative Disadvantage through lifecycle .....	44
9.7	LATE ADOLESCENCE .....	46
9.8	Gender equality in workforce: Why should we care? .....	47
9.9	Way Forward: Women @ Work .....	49
<b>10</b>	<b>Employment gap for persons with disabilities .....</b>	<b>52</b>
10.1	Introduction .....	52
10.2	The Present Situation.....	53
10.3	Real Predicaments .....	55
10.4	CSR & Disability.....	56
10.5	Physical Access.....	56
10.6	Policy and its Implementation .....	57
10.7	Procrastination or Unwillingness to Employ PwDs .....	57
10.8	Conclusion.....	57
<b>11</b>	<b>Conclusion .....</b>	<b>59</b>
<b>12</b>	<b>Jobs in the MSME sector .....</b>	<b>65</b>
12.1	MSME Landscape in India .....	65
12.2	Economic contribution and employment spread in the MSME sector .....	65
12.3	The MSME sector and the twin shocks .....	66
12.4	Impediments to growth in the MSME sector.....	67

12.5	Challenges in skilling for MSMEs.....	68
12.6	MSME Financing .....	69
12.7	Strategies to rejuvenate the MSME sector .....	71
12.8	Conclusion.....	72
<b>13</b>	<b>Informal Economy .....</b>	<b>75</b>
13.1	Introduction .....	75
13.2	Trends in informal economy and employment .....	75
13.3	Regulatory framework for informal jobs.....	75
13.4	Spatial and Gender distribution of informal workers.....	75
13.5	Job security and issues of employment .....	76
13.6	Social security and health issues.....	78
13.7	Conclusion.....	78
<b>14</b>	<b>Green Jobs for addressing climate change and job creation .....</b>	<b>79</b>
14.1	Green Job potential in India:.....	79
14.2	FOOD.....	81
14.3	WATER.....	81
14.4	SHELTER .....	82
14.5	SUSTAINABLE FORESTRY .....	82
14.6	RENEWABLE ENERGY .....	82
14.7	GREEN TRANSPORTATION .....	83
14.8	CONCLUSION.....	84
<b>15</b>	<b>Education Sector .....</b>	<b>85</b>
15.1	Introduction .....	85
15.2	Regulatory Framework and Subsectors .....	85
15.3	Regulatory and Professional Councils .....	85
15.4	Skill Development .....	86
15.5	Services in the Education Sector / Coaching Classes .....	86
15.6	Evolution and recent milestones in the sector.....	86
15.7	Higher Education.....	87
15.8	Coaching Classes .....	88
15.9	Online education.....	88
15.10	Employment in Education Sector.....	88
<b>16</b>	<b>Jobs in IT and IT Enabled Services.....</b>	<b>90</b>
16.1	What it means for jobs.....	91
16.2	The culture of tech start-ups.....	91
16.3	The Indian IT/ITeS employee .....	93
16.4	Skills .....	95
16.5	Conclusions .....	96
<b>17</b>	<b>References .....</b>	<b>97</b>



# SETTING THE CONTEXT: LISTENING TO THE YOUTH VOICES

## Siddharth Choudhary

*(B. Tech 1st Year, Delhi Technological University)*

I am Siddharth Choudhary, 19 years old. I am an aspiring engineer, pursuing bachelor's degree from Delhi Technological University. Just as everyone else I also want to be successful in life. To achieve that, one very important aspect is building a good career. I am very enthusiastic and a hard-working student.



Technology plays a very important role in our daily lives. We cannot imagine a day without it. I want to help give our society more of it. Hence one field that I would like to build my career in is IT field. Today's technology just fascinates me and my keen interest to learn more about it on how it functions, how to improve it, how to build new things, drives me more towards this field. For me to follow my goals, I have to work on my skills and have to stay updated with the latest developments in this field. IT field is very vast in itself. One of its very interesting branches is Artificial Intelligence. It will definitely play a very vital role in the future. It is still in its initial stages and I would like to contribute in its development.

With the advances in technology and the demand for it, surely there are many opportunities. The jobs in this field vary from a basic IT professional to a developer. These jobs maybe high paying but are also demanding, which just adds up to my excitement for it. Because of our huge population, competition in any field is inevitable, hence that gives me one more reason to excel for a good job.

Studying computer science in my university has helped me to a great extent. It has taught me all the basics about computers and programming. But one small problem is that we are still following the same course which students followed about five or ten years ago. But technology has changed drastically since then. This has forced the students to gain the required knowledge from different sources like internet and coaching classes. Why should a student rely on other

sources apart from the college which is there to give him the knowledge required for his future. Hence, we need to update our courses according to today's needs. There should be one place where a student can learn everything to build their future.

## Ashita Karn

*(Bachelor of Business Administration- 3rd Year, SKVM University, Mumbai)*

I'm a 21-year-old student in the final year of bachelor's program in Business Administration. Currently, struggling with managing my time between studies, extra-curricular activities, social life and extra/online courses. Fun fact: according to a study by McKinsey there's a huge mismatch between our



educational system and the job skills employers need. Which means just completing my course is not enough. I need to do more and study more. But finding time for all of this is not a fun prospect. It's exhausting and sometimes impossible to manage everything. In school and in college we study several archaic and irrelevant subjects related to the field we want be in, while more relevant and newer concepts and skills are not taught that might be a lot more crucial. I think it would be really beneficial to students like me if colleges revised their curriculum to meet the needs of the current business environment and ensured that this mismatch is reduced. It would mean less burden on me of doing additional courses or gaining skills along with completing my coursework just to be employable. The coursework itself should be comprehensive and up-to-date so that no additional courses are required. My college does update it's courses and teaches us several crucial topics and skills, but I feel more effort is required in this direction. Especially in the weightage that is given to these topics. More concentration should be on these skills than what it is currently.

We had a week long workshop on soft skills. It is a step in the right direction as such skills are extremely important to



grow in an organization. However it isn't such a small subject that it can be covered in a week. It should have been a subject that's taught throughout the semester. Moreover, subjects like gender sensitization should also be covered (which aren't even touched upon) to help in reducing the number of sexual harassment of women in workplace and discriminatory work environment. I feel this is especially important given that at least one-fourth of women experience sexual harassment at workplace.

I wish to pursue a career in data analytics. We are taught quantitative techniques right from our first year, we are even taught SAS enterprise guide and SAS miner which are data analysis software. I'm grateful that my college provides me these wonderful courses but most corporations use programming languages like python and R for data analytics. It was suggested that we should learn these on our own time. I feel it should've been a part of the curriculum so we could have access to the help and expertise of the faculty. Moreover, it would be in the college hours so I'll be able to focus on other things after college hours. Courses like these are important to ensure that we are capable of applying the subjects we are taught. While it is important to have a strong base in any subject, it is equally important to be able to solve real-world problems using the most advanced tools at our disposal. "It is not enough to be knowledgeable, we also need to be employable."

### Pranav Kumar Mallik

*(PG Diploma in Rural Management, XISS, Ranchi)*

I have always had an interest in the development sector. That is why I chose to pursue the PGD in Rural Management. There is a lot of scope for growth and employment in the rural and semi-urban areas. Since the day I joined XISS, the only thing in my mind was to know more about the different perspectives of this sector and get a decent job in an NGO or a corporate CSR. Last year my college had 100 percent placement and many decent organizations were there. But this year, it seems to be a little slow



just like our economy. Slowing down of economy has been a major challenge for the employment in both blue collar and white collar jobs. Especially when it comes to the development sector there is a perception that it doesn't get much affected by the external market conditions, but it's not true. Even though there is great need for people in development sector, there are very few vacancies. People are either losing their jobs or switching to other organizations frequently due to lower salary in comparison to other sectors. This is not just the case of development sector but most of the other sectors are also facing these problems.

Many big organizations work for the rural sector but they prefer to take students from IIMs and other top b-schools, what about those colleges where large number of youths are enrolled. Are these colleges producing less skilled youths or is there any kind of misconception that only these top b-schools produce the most marketable youths? If these colleges are not able to produce such kind of youths, then isn't it the responsibility of AICTE or AIMA who are regulating the technical & management education in India. Youth are spending their parent's hard earned money to pursue these courses, and many times they do not get proper return on investment. This is pushing some of them towards unethical practices in public sector or corporates (less but it exists) after they get a job to fulfil their loan repayment obligation or maintaining a good standard of living. Till a few years ago, rural management was not as popular as the other mainstream courses like Marketing, Finance, IT. But now an increasing number of students are taking this course and competition has increased to a new level.

According to the UNICEF, 47 percent of youth in India will be unemployed in 2030. this is a huge challenge for youth, colleges as well as regulating authorities. There must be strong policies for regulating the type of skills provided in the colleges along with the policies for economic growth of the country. When 100 percent of FDI was introduced in many areas, there was a belief that many foreign organizations would come and would create lots of jobs. But the condition remained the same as before or we can see that it is at its worst today. Indian GDP is growing at around 5% and it has worsened the employment condition too. India is the country of youth and they constitute a major working force. So this potential of our economy needs to be utilized in the best possible way. The entrepreneurial environment should be encouraged so that youth can not only get a job, but can also create job opportunities for others.



# FOREWORD

“Over 2.8 crore people apply for 90,000 railways jobs”, read a headline in The Times of India on 31st March, 2018. To put that number in perspective, that’s more than the entire population of Australia. Indian Railways is the largest formal sector employer in India. Yet, the overwhelming response to its biggest ever recruitment drive meant that only one out of three hundred and eleven applicants, or less than 0.3 percent will get a job. The applicants included thousands of Engineers, MBAs and other highly qualified candidates. This is just one telling anecdote on the situation of Jobs in India, the country with the largest number of young people in the world. India also stands to benefit from a demographic dividend over next four decades. But that demographic dividend can only be realized if young people like **Siddharth, Ashita** and **Pranav**, whose testimonials you read on the previous pages, and 15 million other young people like them who are going to join the workforce each year have the right skills and opportunities to be employed and contribute to the country’s growth. From the stories of these three young people, pursuing three different courses in three different parts of India, several common themes emerge. They all are hopeful and yet concerned about their future career path. Siddharth and Ashita are talking about the rapid changes in technology, which the curriculum in their respective university is not able to keep pace with. It puts extra burden on them to learn about new technologies and tools outside their curriculum, and comes at the cost of their other interests that they would like to pursue. Pranav talks about the weak regulation in the education sector, which poses a question mark on the quality of education and creates an uneven playing field for students, creating barrier for entry into the vocation of their choice. Two top concerns on the minds of these young people are i) **will there be right job opportunities for me;** and ii) **will I have the right skillset to be successful in the job market.**

## Over 2.8 crore people apply for 90,000 railways jobs

Maheshwari Singh | THE TIMES OF INDIA | Mar 31, 2018, 12:09 IST

**VOLVO XC60 - A Drive To Inspire**  
VOLVO XC60



The photo used for representational purpose

### HIGHLIGHTS

- Over 2.8 crore people will take online examinations for nearly 90,000 jobs offered by the railways
- Around 20,000 more positions are likely to be offered by the railways next month.

One can also get a sense of frustration in the words of these young people due to the fact that when their college is supposed to provide them with all these skills and technologies, then why can’t the colleges do a better job at providing a more comprehensive package. There is also a strong sense of purpose, clarity of direction and optimism in these young people. They know what they want to do, and are aware of what skills and competencies they need in order to get there. Another common thread running through the stories of these three young people is their desire to do something, not only for themselves, but also for the country. Ashita also talks about another extremely critical issue affecting participation and safety of women at the workplace- the rampant sexual and gender based violence experienced by women at workplace and elsewhere. The final thought shared by Ashita sums up the priority for the young people, **“It is not enough to be knowledgeable, we also need to be employable”**.

Our educational institutions unfortunately are not fully geared to bridge the chasm between knowledge and employability as highlighted by these young people. It is this divide between the current skill sets and skill demands of the industry which is preventing many young people from finding employment, and also leads to lower productivity and growth for the industry.

At Grameen Foundation India, the news report referred in the beginning is what set off our train of thoughts to take up with urgency the issue of jobs, employment and entrepreneurship. While our organizational response to the issue of jobs and employment was to come up with a scalable model for self-employment based on micro-franchising called “Grameen Mittra”, we also saw an urgent need to create wider consciousness on these issues. This report on State of Jobs in India is an attempt to do that.

It is important to highlight that this report is based entirely on secondary data with due acknowledgement. A huge investment goes into various data collection exercises in India, which we decided to leverage for this report. But in almost every chapter, we hit a roadblock when it came to having reliable data on jobs and employment, especially, if one wanted to go into more granular details. We hope that in future, with more resources and partners, we will be able to address some of the data gaps by commissioning some primary research ourselves.

This report is divided in two parts. Part 1 explores the macro-level job trends in India. It looks at the historical and

legacy issues and current trends in employment along with state-wise and sectoral trends in India. Major challenges facing employment and social security are also discussed. It further explores the effects of demographic changes on employment, the effects of increasing working-age population and lower dependency ratio, effects of urbanization and internal migration, contrasts the effect of nuclear families and demographic dividend, increasing life expectancy and the effect of these trends on jobs. This part also looks at labor laws and their implications for jobs. It looks at legacy issues along with the existing laws while making a case for labor reforms. It studies various types of formal and informal jobs, expectations of educated youth and issues of employability and government efforts to support employee welfare to improve job satisfaction. This part also looks at the informal job market and the challenges associated with measuring the supply and demand of jobs in the informal sector. It then looks at other cross-cutting issues such as gaps in employment due to gender and caste and looks at wage differential between different segments. Effect and applicability of minimum wages, effects of changing lifestyles, emergence of gig economy and telecommuting are analyzed with respect to their impact on jobs. This part ends with the chapter on Workforce Participation of Women and participation of People with Disabilities (PWDs).

The Second part of the report looks at some of the sectors and sector-specific trends across the country to explore the state of jobs and employment. The sectors explored in this part includes education, informal sector, gig economy, MSME sector and green jobs. Some other sectors on which ran the analysis but could not include in this version of the report includes creative industries, tourism and hospitality, banking and financial services, agriculture and healthcare. This will be included in the next edition of the report.

This report is a work in progress. Given the mountains of data and other secondary literature to go through, we realized that we had set ourselves a near impossible task, of preparing a report that was comprehensive, useful, high quality and also timely. So, early on, we decided that we will not let 'perfection' become the enemy of 'good'. One can devote years conducting research, analysis and synthesis and produce a perfect report. It just won't be useful any more, since so much time would have elapsed that a new

set of challenges would be knocking at our doors and millions of more young people would have moved out from the schools, unprepared, into an uncertain future. The draft nature of this report recognizes this urgency around the issue of jobs. It recognizes that there are adequate indicators and signals out there, all telling us that that the issue of jobs is something that needs to be tackled with urgency and a sense of purpose.

It takes an entire village to create something substantial and worthwhile. We would like to acknowledge the outstanding contributions of people without whom we couldn't have put this report together. First and foremost the lead authors for the report Nishant and Saket Ambarkhane deserve a huge credit for going through mountains of data and reports to glean out things of relevance and put together a coherent narrative. Nidhi Bansal, Senior Director at CARE India a champion for women's rights and gender equality wrote the chapter 'women at work'. Reena Mathai Luke, General Manager at Dr. Reddy's Foundation and a passionate advocate for the rights of people with disability contributed the chapter on workforce participation of PwD. Varun Bahl and Amrita Pillai, Researchers at the National Institute of Public Finance and Policy, respectively wrote the chapters on 'Effect of Digitalisation on Jobs' and 'Jobs in the MSME Sector'. Young people, who are the key driver for this entire endeavor, also have been a huge contributor to this report. Prashant and Saurabh from Indian Statistical Institute, Rozi Jha and Dipti Chhugani from Guru Gobind Singh Indraprastha University, Anushka Tokas from Ambedkar University, Rishabh from Ramjas College and Simran Panesar from the Delhi School of Economics, interned with us to gather secondary data, conduct preliminary analysis and put together the first draft of various chapters. Tripta Chandola, Sudipta Sengupta and Smita Anand provided editorial and research assistance. Dr. Radhika Pandey at the National Institute of Public Finance and Policy, Tamal Bandyopadhyay, author and columnist with The Business Standard, Sabina Dewan, Founder and CEO of Just Jobs Network, Suresh Krishna, Founder of Yunus Social Business and N. Srinivasan, a veteran central Banker and Development banker made valuable suggestions on the structure and content of the report. Also, Ronisha Bhattacharyya, our communications lead put in countless hours to proof read and collaborate with the authors to get this whole endeavor completed.

# SUMMARY

India is one of the **fastest growing large economies**. Currently, the **second most populous**, India is likely to become the most populous country by the year 2030. India needs to create enough jobs for the **15 million young people entering workforce each year**. With the largest working-age population, the policy instruments need to be oriented towards creating an enabling ecosystem that creates jobs for this population.

In the post-liberalization era, there has been a growing **disconnect between economic growth and job creation**. **Automation, digitization and Artificial Intelligence are changing the nature of jobs** and impacting new jobs, particularly at the lower end of the skills spectrum.

The unemployment rate in India for FY18 is at 5.3 percent in rural India and 7.8 percent in urban India and 6.1 percent overall - a 45 year high. **Availability of quality data** on employment is a challenge since a relatively **small proportion of the overall workforce is employed in the formal sector** and sample size is also small.

About 86 percent of India's 500 million workers are in informal employment and over 90 percent are in the unorganized sector. India's strong and steady economic growth has not yet yielded a corresponding improvement in terms of broadening access to quality formal employment.

The total number of jobs in India from 2011 to 2015 grew by just about seven million, from 455 million to 462 million. Agricultural employment fell by 26 million while non-farm employment rose by 33 million. Labor moved out of agriculture into construction, trade and hospitality, and transport, the mainstays for non-farm labor.

Growth of e-commerce and technology-based sectors is leading to creation of new job ecosystems, which are becoming a large source of employment. Informal employment in sectors such as infrastructure and retail are extremely large and continues to rise. Investment in infrastructure and civic amenities such as highways, renewable energy, urban transport, shipping, affordable housing, smart cities, Swachh Bharat, rural roads program, national waterways, airports and industrial corridors, etc. has become a large job creator.

**Mega trends** such as **globalization and Industry 4.0 exponential technologies** are expected to be disruptive on sectors such as Information Technology – Business Process Management (IT-BPM) and Banking Financial Services and Insurance (BFSI) and relatively lower on core manufacturing sectors such as apparel and leather.

**Remote working or telecommuting** is increasingly becoming popular with changing lifestyles and traffic jams in urban India. Employers see numerous benefits of remote working arrangements such as retaining talent, increased productivity and reduction in overhead costs.

The **question of employability** is a critical concern in this discussion on jobs. There is a major mismatch between the skills of graduating youth and skill demand of the industry. So, on one hand, there is problem of unemployment. At the same time, the industry struggles to find the right talent.

In this scenario, **inequality in wages** adds yet another important dimension to the discussion. Policies have also been more favorable to capital over labor. An increasing share of turnover has been going to capital providers and decreasing share to wages resulting in low real wage growth rate.

There has been a sharp **increase in the employment of informal workers in the organized sector**, particularly in the organized private sector. The share of contract workers to all workers being employed increased to more than 33 percent from under 20 percent in the first decade of this century. Contract workers not only suffer from the insecurity of tenure but are also paid less and do not enjoy social security benefits.

Employment has changed with changes in the demographics, level of education and urbanization. In 2017, 462.5 million Indians were part of the workforce. An equally large number – 445.6 million were either studying, or not seeking employment. **Hidden unemployment** is a big concern as 63 million Indians considered employed did not get paid in cash or in kind (e.g.: helpers in household enterprises) on a regular basis. Put together the **unemployed and unproductive employed** constituted 18 percent of the employed workforce. Another 110 million (split almost evenly by gender) were employed for short periods (under 6 months) and 26 million are in **part-time/ secondary jobs**.

Employment itself stagnated in the decade post 2010, moving from 467 million in 2011-12 to 462.5 million in 2015-16. Informal sector employed 180 million people compared to just 30 million in the government and an even smaller 19 million in the private sector. 72 percent workers in the informal sector are employed in enterprises that employ less than 6 people.

The informal sector is characterized by lower levels of education than the formal – about 90 percent are educated up to primary or higher secondary levels, with only a small portion

of graduates or post graduates. 214.4 million workers were 'self-employed'. The bulk of these are workers who work for themselves without using any additional labor. Regular salaried employees in India were close to 100 million, up over 30 percent since 2004-05, but still a small proportion.

In the four years to 2015-16, 25 million Indians completed graduation and 6 million completed post-graduation. Education itself is not a good predictor of employment, as a quarter of the 18 million unemployed in India are graduates or post graduates.

Labor participation rate fell to 42.7 percent in February 2019. The monthly labor participation rate series has been systematically lower than the corresponding levels a year ago. The continued y-o-y fall in the labor participation rate even in 2018 and 2019 indicates a deeper or a more sustained problem ailing India's labor markets. While the labor participation rate has been falling, the unemployment rate has been rising.

While 59 percent of graduates were employed in 2011-12 and 26 percent had opted not to work, the corresponding figures for those vocationally trained were 83 percent and 9 percent, respectively.

Certain skill streams are seeing higher levels of unemployment than others, whilst others, such as those trained in textile-related work, printing technology or personal care are opting not to work. The mismatch between available jobs and job-seeker skill sets and experience is one of the key reasons for unemployment. A mismatch in remuneration expectations – more so in rural India – is another reason for unemployment. By 2021, 500 million Indians will be employed, but 470 million will have opted not to work. Another 400 million will be studying, creating the next big wave of talent supply. The need to create the right academic curriculum in line with tomorrow's expectations is urgent.

## Geographic and Sectoral Trends

Maharashtra, Gujarat and the three southern states of Tamil Nadu, Andhra Pradesh (and Telangana) and Karnataka registered the highest increases in the number of salaried people. By contrast, Uttar Pradesh and West Bengal saw increases in casual labor.

Mizoram, Chhattisgarh, Jharkhand, Meghalaya and Nagaland emerged as the leaders in employment generation as a percentage of workforce. Employment is not keeping pace with the number of people being added to working age population. In large states (Uttar Pradesh, Gujarat, Madhya Pradesh), increase in employment is less than the increase in working age population, leading to rise in unemployment numbers. Agriculture is still the main employer, employing 211.3 million Indians in 2015-16, much lower

however, than the 252.7 million employed in 2004-05.

There is a striking divergence in the availability of regular non-farm jobs across the country. Districts with a relatively high share of regular jobs were clustered in the extreme south, and in a narrow strip extending along the western coastline across the country till the extreme north. Districts with a high share of regular non-farm jobs have added more such jobs over time, while districts in the rest of the country have either regressed or added very few non-farm jobs.

Services is now the second largest employer after agriculture, employing 151 million Indians, followed by construction at 52 million. The manufacturing sector, has shown a decline from 53 million to 46 million in the decade through to 2015-16. Only a small segment (13.88 million) of the manufacturing sector employment is in the formal, organized sector. There is, however, a secular rise in the number of workers in organized factories, indicating that a larger number of people are employed in larger factories/set ups.

## Major challenges

There are two major challenges to employment in India as well as economic growth. These challenges are:

- a) **Skill development and Employment for Future Workforce:** Skill development and learning new skills will be critical to stay employed. As nearly 10-12 million persons get added annually, India faces a huge challenge in providing gainful employment and, in turn, ensuring the income necessary for consumption. This challenge has three key dimensions: **i) Knowledge-oriented rather than skill-oriented education; ii) Informal rather than formal sector-led job creation and iii) Regional disparity in employment opportunities**
- b) **Socio-economic inclusion of rural India:** While rural aspirations have begun converging with the rest of India, efforts are required to remove significant barriers preventing full socio-economic inclusion of rural India in India's growth story. However, to fulfil their aspirations three critical "access" barriers of **physical connectivity, digital connectivity and financial inclusion** needs to be prioritized.

## Effect of Demographic Shifts on Jobs

**Youth Bulge:** India has the largest working-age population (15- 64 years) in the world, giving it the biggest demographic dividend, which is expected to continue for another four decades.

**Urbanization and Internal Migration:** Rapid urbanization and internal migration is a major trend in India. The low rate of growth and income volatility in agricultural and reduction



in livelihood opportunities in rural area has led to out-migration from under developed regions. Migration has a tremendous potential to improve human development. More than a billion people globally rely on international and internal migration to escape poverty and conflict, adapt to environmental and economic shocks, and improve the income, health, and education of their families. Compared to international migration, internal migration offers even more opportunities of increasing income and convergence of welfare.

**Nuclear Families:** The proportional share of nuclear families is now converging in urban and rural areas at about 52 percent. The trend around nuclear families is drastically changing the nature of employment as well as the need for employment, particularly for women. Over half of the unmarried women in the age group 25-54 are part of the labor force. This proportion comes down by half if they are married.

**Increased Life Expectancy:** India has seen a secular improvement in overall life expectancy at birth, rising to 69 years at birth. Indian population approximately tripled during the last 50 years, but the number of elderly people increased more than four-fold. Indian population would grow by another 50 percent by the middle of this century, whereas the elderly population is likely to have another fourfold increase, and expected to comprise 20 percent of the total population by 2050. This will lead to increased dependency ratio becoming a more dominant trend compared to the demographic dividend being enjoyed by India today. As the number and proportion of elderly people increases combined with the rising trend towards nuclear families, there will be massive increase in demand for elderly care, healthcare and wellness services, mental health, old age housing and social support services, etc, all of which can be a huge generator of jobs.

## Labor Laws and their implications

Labor laws mainly cover the formal sector, while the labor market is largely informal and unregulated. Divide of formal and informal sector leads to inequality, although some laws apply to informal sector too. As a whole, the overall coverage of labor laws is extremely limited, covering only about 10 to 12 percent of the workers. Only laws relating to wages have somewhat larger coverage, although in recent years, the government has tried to cover larger number of informal workers, mostly relating to social security.

Recent labor markets trends show a gradual transfer of workers from agriculture to other sectors, increasing informalisation and 'contractualization' and shrinkage in collective bargaining. Even in formal sector, majority of workers are of informal/ flexible categories leading to increasing labor market inequalities. Formal sector also shows striking inequality, with significant increase in hiring of contract and

other flexible categories of workers.

**Labor Reforms:** The share of unorganized employment in the formal sector rose from 37.82 percent in 1999-2000 to 57.83 percent in 2009-10. The Minimum Wages Act is supposed to cover 38.1 percent of the total workforce but actually covered only 3.6 percent in 1999-2000. Other laws covered even lesser proportion of workers – Industrial Disputes Act at 2.6 percent, Industrial Employment (Standing Order) Act at 1.3 percent, Shops and Establishments Act at 1.7 percent and Workmen's Compensation Act at 0.7 percent.

The Ministry of Labor has started working on amalgamating 44 different labor laws into four codes, dealing with **wages, industrial relations, social security and health, safety and working conditions**. The first of these the new **wage code bill** was enacted earlier this year which will extend the minimum wage coverage provisions to 500 million workers, including agricultural workers, who were outside the ambit of minimum wages previously. The code streamlined the definition of wage by amalgamating four related statutes: the Minimum Wages Act, 1948, the Payment of Wages Act, 1936, the Payment of Bonus Act, 1965, and the Equal Remuneration Act, 1976.

**Formal and Informal Jobs:** There are a few very broad and clear distinctions in different kinds of jobs. The first is the distinction between the organized and unorganized parts of the economy. The second is the distinction between formal and informal work, defined by the nature of the labor contract. Only 17 percent of the workforce consists of salaried individuals while 46.6 percent of the workers belonged to the self-employed category. In 2015, non-regular workers constituted 80 percent of all employment. Considering only the wage employees, 68 percent were in informal wage employment in 2015. The vast self-employed sector is outside the scope of most laws pertaining to wages and working conditions.

**Employee Welfare Issues:** In recent years, a number of changes have been brought to address the employee welfare concerns, including amendment to the Bonus Act, Maternity Benefit, maternity benefit to the commissioning mother (in case of surrogate child) and adopting mother (in case of adoption), "work from home" to a mother with mutual consent, provision of crèche for larger establishments etc, Employee compensation and Child labor. Since 2014-15, the government has moved towards an architecture which combines the unique identification (Aadhaar) of every individual with the payment of benefits through Jan Dhan bank accounts through Direct Benefit Transfer.

**Invisible Employees:** The informally employed constitute an overwhelming majority of the workforce in India accounting for between 70 to 90 percent of the labor force depending on the definition. These jobs occur in different guises and forms. The Employee Provident Fund Organiza-

tion (EPFO) reported addition of 4 million new employees to the EPFO database in 2017. However, one needs to exercise caution in interpreting such administrative data. It is unclear whether these are new jobs or simply increased numbers arising out of compliance with laws for existing jobs, given the incentives advanced to firms for enrolling their employees.

Labor market rigidities and poor skill levels are the factors inducing creation of informal employment and decline in formal employment opportunities. The extent of informal employment was uniformly high across major industrial States, indicating that labor reform alone will not reduce informalisation. The regulatory and taxation regime may also be an important driver for informalization. Micro and small enterprises need to see the benefit of formalization such as access to finance, infrastructure, market information and access, government incentives, safety nets for enterprises and their workers before they can make the leap towards formalization.

## Inequality and Wages

**Gender based inequality:** As per PLFS (2017-18), the Labor Force Participation Rate (LFPR) stood at 49.8 percent, a sharp decline of 6.1 percentage points from 2011-12. For females, this figure was a paltry 23.3 percent, down from 31.2 percent in 2011-12. Less than half of the total working age population and a mere one-fifth of women in the working age cohort are available and seeking work. A large part of the decline in the LFPR in this cohort is driven by women. There is substantial gender gap across sectors. Irrespective of employment category (casual and regular/salaried) and location (urban and rural), women workers are paid a lower wage rate.

**Caste Based Inequality:** There are significant data gaps in measurement of caste based inequality in employment. NSS data has been used to show that upper caste Hindus have a higher chance of securing regular employment than SC and ST groups. SC as well as ST groups are over-represented in low paying occupations and severely under-represented in the high paying occupations. Especially among professionals and managers, the percentage of SC individuals is half their representation in the general population. The situation is even worse among ST groups.

**Wage trends:** Nationally, 67 percent of households reported monthly earnings of up to ₹10,000 in 2015. 98 percent households earned less than ₹50,000 per month. Only 0.2 percent of the households have a monthly earning over ₹1 lakh. Even among regular wage workers, more than half (57 percent) have monthly average earnings of ₹10,000 or less. Amongst casual workers, 59 percent have monthly earnings of below Rs 5,000.

Daily wages have increased for both urban and rural areas. Overall, rural wages have performed slightly better, growing by 5.3 percent between 2004–05 and 2011–12, while urban wages grew by 4.5 percent.

Regular/ salaried workers with formal contracts earn more than double the daily wage earnings of regular/ salaried workers with informal contracts. A higher real wage growth rate for both regular/ salaried workers (4.2 percent) and casual workers (6.8 percent) was registered during the period 2004–05 to 2011–12, as well as a reduction of the wage differential between the two categories of workers.

**Minimum wages and formal and informal sector:** Between 2000 and 2015, real wages grew in every sector. In agriculture and in unorganized manufacturing and services, the compounded annual growth rate (CAGR) was approximately 3 percent. In the most recent period, from 2010 to 2015, real wages grew at a CAGR of 2 percent for organized manufacturing, 4 percent for unorganized manufacturing, 5 percent for unorganized services, and 7 percent for agriculture. However, the high wage growth in agriculture in this period is anomalous and not a general trend. Industries such as IT, Telecommunications, and Finance have experienced much higher rates of wage growth. Wage growth in organized manufacturing has been slower than in the unorganized sector since 1999. The wage gap between the organized and unorganized manufacturing sectors has narrowed. Unorganized sector wages were 37 percent of organized sector wages in 2000, but 50 percent in 2015.

## Gig Economy, Changing lifestyles and telecommuting

India currently has 1.3 million temporary workers in the organized sector. Growth in Indian temporary staffing industry is largely attributed to two changes: i) companies have started to depend on recruitment agencies to meet their HR needs and ii) to have smaller bench strength to withstand economic shocks. Temporary staffing creates new jobs and boost employment by turning available work into jobs that otherwise would not exist. Low cost of labor is partly the reason for success of Indian IT and ITeS sector. However, due to rapid rise in the number of technologies, Indian companies are facing challenges due to shortage of skilled talent pool.

**The gig economy and implications for gig workers:** Gig workers have flexibility, allowing them to be self-employed or entrepreneurial, and use their spare time to earn income. Several gig workers actually rely on gig work as their main source of income. Fear of job security, uncertainty of income, long and irregular working hours, lack of adequate skills, as well as issues regarding payment mechanisms do concern the gig workers. Media reports have talk about the far from ideal working conditions of gig economy workers. Platforms

resorting to employ interns in peak demand season instead of recruiting regular workers have also been reported.

The Government has taken note of the unique labor challenges posed by the gig economy by including specific sections within the draft code on Social Security, 2019 for protections, such as life and disability cover, health and maternity benefits or old age protections. However, there are other more fundamental concerns like legal status of such workers, as a result of which they may be excluded from protections such as minimum wages.

Globalization has completely changed the way the world works and has had major impact on the way employment is created. Information Communication and Technology (ICT) tools have enabled movement of jobs globally. Digital revolution is changing the nature of employment as many of the traditional jobs become redundant. As India has prospered, life-styles of people have changed and job-seekers have become more aspirational in seeking employment. A key outcome of the technology revolution has been connectivity, which has fueled unprecedented access to information. These changes have had dramatic effects on the employment and labor market as well as new jobs that are based on the internet. ICT and globalization has led to disruptive innovations in the kind of jobs both in India and globally.

**Telecommuting:** In order to retain talent, reduce overhead costs and improve productivity, several corporates today are embracing telecommuting. For employees, not having to go through the grind of daily commute can keep them happy enough to stay with a company for a longer period. Particularly in urban India, telecommuting could be such a boon. Telecommuting enables the managers to widen their talent hunt and hire the best person regardless of the location. It also reduces the need for travel and cuts associated expenses. Telecommuters reported a better work-life balance and companies have lower turnover rates and costs.

## The Effects of Digitalisation on India's jobs scenario

Computers, internet and mobile brought the third industrial revolution which led to a globalized economy and widespread use of digital technologies. 3IR has changed the ways in which several industries function, for instance, retail, media and advertising, banking and financial services, software, e-commerce, online streaming, social media and digital advertising etc.

Besides the creation of new jobs, organization of work is also changing due to digital platforms, creating a 'gig economy'. Platform acts as a 'marketplace' for work, enabling entirely new form of online freelancing at a global scale. Two broad categories of work are gaining prominence: i) purely online

work (such as graphic design or software development) and ii) physical task-based service delivery (such as taxi aggregation or on-demand delivery of products). Gig is creating micro-entrepreneurs who find alternatives to formal employment.

**The fourth industrial revolution and its implications for employment:** The world is witnessing a rapid pace of technological evolution characterized as 'fourth industrial revolution' or '4IR'. Advances in Big Data, machine learning, Artificial Intelligence, Cloud computing, and Internet of Things will take the world towards increased automation and data-driven mechanization in industrial processes.

Whenever new technologies are introduced, fears are raised regarding technology substituting human labor at scale. A scenario of 'technological unemployment' is painted – a situation in which over time, labor-saving machinery will destroy more jobs than it shall create, human work is automated and a workless future is created. Because such a wide range of tasks could be automated now, technological unemployment is a real possibility.

New labor-saving technology may both increase and decrease the demand of a particular job. As seen in the banking sector, where as ATM machines took over the cash handling work performed by bank tellers, the banks tellers adjusted, reskilled and their functions within the industry changed. ATMs allowed the banks to bring down their operating cost, and expand their services to new geographies and customer segments. When scaled at an economy-wide level, new technologies end up reallocating jobs across the economy, redefining entry requirements for jobs and redefining what skills workers must acquire to earn higher wages.

Technological change is an uncertain, gradual and disparate process. Developing countries have labor cost advantage, but also and lower levels of education and skill. The probability of their workers getting affected due to automation needs to be studied further in-depth.

Instead of worrying about mass structural unemployment, one needs to instead focus on the jobs involving tasks most susceptible to automation. Low-skilled work involving manual tasks (as in agriculture, construction and some types of manufacturing), and low- and medium-skilled work involving routine, rule based tasks such as the tasks performed by cashiers, receptionists, travel agents, etc. in the services sector. The second key aspect is that entirely new jobs will be created that will involve high-skilled work, and much of this will be in the sectors where a high level of technological proficiency is required, such as the services sector.

**Digitalization: applications to the Indian employment scenario:** With a young and growing population, the structure of Indian demography is distinct from advanced economies. India currently enjoys a significant demographic dividend and



has another five decades to capitalize on this. This makes it imperative to concentrate on increasing labor force participation rate and generating jobs.

The second key aspect is a skill-productivity mismatch. Enrolment in schools do not guarantee educational outcomes. Technical and vocational skilling efforts have been much smaller in scale. Much of the workforce is currently engaged in the agriculture and construction. Within manufacturing, skill-intensive manufacturing industries have been more productive with such firms achieving some scale, but are also capital-intensive (such as automobiles). In contrast, labor-intensive manufacturing industries, have traditionally involved unskilled work. High performing services sector occupies only about 34% of the workforce. Within this, the lead sectors of IT and BFSI have historically not employed significant numbers. Much of India's workforce is engaged in low-skilled, manual and routine work that does not contribute much to the gross value added in the economy.

**Relatively limited short term risk of automation in India:** Theoretically, advanced large-scale machinery or intelligent robotics could replace as much as 77% of India's workforce. However, this susceptibility to automation does not translate into reality, since the conditions necessary for deployment of technology also need to be in place.

In the context of the services sector, there have been fears of automation especially raised in the software and business processing outsourcing services industry. Industry representatives consider these fears to overblown, but they accepted that a slowdown of hiring by up to 25 % may take place in the sector over the next 3 to 5 years. Similar slowdown of hiring is also expected in the banking and financial services industry. The sector is expected to hire at a rate of 3.5-4 percent year on year, against a historical rate of around 4.5%, to reach 2 million by 2022. However, 70 to 75 percent of the jobs in the sector will require new skill sets.

**Emerging skill requirements in the digital economy:** While the above sectors may not see significant destruction of jobs due to digitalisation, the real concern for India in the context of digitalisation is reskilling and upskilling its existing workforce, especially in the organized manufacturing and services segment. Technological changes have increased the intensity of jobs involving non-routine cognitive analytical tasks. Jobs with a predominantly routine cognitive task content have not declined. Jobs in manually intensive work have declined, largely driven by the shift towards a services-led economy and a rise in educational levels.

Looking towards the 4IR, in both organized manufacturing and services sector, 37 percent of the workforce will be in jobs with new skill sets. Much of the new skill requirements will be on competence in new technologies with priority on high-skilled, non-routine and cognitive tasks. Soft skills will become increasingly important.

New technologies may also be relevant for the agricultural sector, with potential for machine learning, drones, smart sensors, to improve productivity through 'data-driven agriculture'. In such a scenario, India's educational and skilling sectors needs to emphasize cognitive and ICT skills. The current situation appears to be discouraging. Employers routinely face difficulty in filling job vacancies due to skill and talent gaps.

**New jobs in India's digital economy:** With much of India's young population recently coming online, a large digital market has been created. India's growing digital economy has a huge potential for job creation. The Government wants India's growing digital economy to be a key driver of growth, creating up to '\$1 trillion of economic value', and productivity, with output sufficient to 'support 55 to 60 million workers' by 2025.

Some industry reports do look at figures across different segments that could be considered as the most promising parts of the digital economy. These include areas such as mobile app development, e commerce, and technology start-ups. In the mobile apps space, India currently has 1.67 million workers, up by 36% since 2016. India is forecast to have the world's largest developer population by 2024. E-commerce is expected to create ~1.45 million direct jobs by 2021, primarily led by jobs in the logistics and warehousing sector and around 0.4 million high-skilled jobs in technology and corporate functions. Start-ups account for 2.64% of the total jobs created in India in 2018 and are estimated to create between 200,000 and 250,000 jobs in 2019. India is considered to be the leading country in the online labor market, with Indians applying for around 30% of the total online freelancing jobs, dominated by software development and technology category.

**Priority areas of work:** India needs to undertake a systematic policy formulation exercise to set out a long-term vision for the economy, from a technology, industrial as well as an employment perspective. These include determining the best way to roll-out digital infrastructure to bridge India's digital divide, determining how to best leverage new innovations and research on technologies in the 4IR, creating test-beds for rolling out new technologies, etc. Given the criticality of the jobs challenge a coherent strategy with a long-term vision should address: i) Emphasizing learning outcomes from India's educational system; ii) Prioritizing cognitive and ICT skills in skill development efforts; iii) Defining "well-being" for workers in the gig economy; and iv) Improving data availability on employment and working conditions.

## Women At Work

Women and girls represent **nearly half of the working age population of India, but only 24% of the workforce and con-**

**tribute merely 17% to the GDP of the country.** The engagement of Indian women in any form of work in the market economy and their contribution to GDP is significantly lower than the global mean of 40% participation and 37% contribution to GDP. Women are employed predominantly in the informal sectors of the economy, constrained by gender norms and stereotypes and have low earnings, poor working conditions and limited opportunities for career advancements.

Contrary to the global trends, the female workforce participation rate has been falling in India, touching 18% in the latest PLFS survey. Even the absolute increase in female employment between 1994 and 2010 largely took place in low growth sectors, such as agriculture, and handicrafts, marked by low productivity and wages.

Urban female youth, despite being more educated, mobile and confident, fares poorly on unemployment rates. Gender gap in rural unemployment rates however are different, with the unemployment rates among rural females (7.7 percent) slightly lower than that of rural males (8.8 percent). Educated females with 17.3 percent unemployment rate fare significantly worse than educated males with 10.5 percent unemployment rate.

**Invisible Work of Women:** The other side of a low female labor force participation rate is a substantially high proportion of females reporting their activity status as attending to domestic duties. In 2017-18, 45.5 percent of all rural females and 47.5 percent of all urban females in India reported attending to domestic duties. **Women in India do almost ten times the amount of unpaid care work than men.**

Strict gendered division of reproductive roles leads to disproportionate disadvantage for women and girls. Due to the unpaid nature of women's work, women's labor force participation remains statistically under-reported. As traditional surveys are inadequate in measuring women's employment, time-use surveys can play a very important role in capturing women's "invisible work".

Gendered division of roles also restricts the opportunities available to girls, who are trained to take up domestic roles while boys are trained to take on remunerative livelihoods. This restricts girls' opportunities in education, vocational training, career choices and limits their aspirations. Girls who do enter the workforce have to deal with the 'double burden' of reproductive and productive roles, often having to sacrifice career advancement in favor of the demands of the marriage and family.

**Sectors of Female Employment:** Out of all establishments under women entrepreneurs, about 34.3% belonged to agricultural activities, with livestock dominating therein, having a share of 31.6%. Among non-agricultural activities owned by women entrepreneurs, manufacturing (29.8%) and retail trade (17.8%) were the dominant ones. Women have largely

been undertaking labor intensive, home-based, and informal work, concentrated in low-productivity sectors. For urban women, the service sector has become increasingly significant, with its share in employment rising to 60.7% in 2017-18. Women have seen greater concentration in professions such as teaching and nursing, which offer limited scope for career progression.

**The Gender Wage Gap:** On average, women are paid less than men, even when women perform the same jobs. **On average, women in India are paid 34% less than men.** Women are under-represented in leadership positions in both business and government. Enterprises owned by women are smaller, employ fewer people and are concentrated in sectors with limited opportunities for profit and growth. Out of 58.5 million businesses counted by the census, only 8.05 million (13.76%) were owned by women entrepreneurs. The gender digital divide also persists. Women have disproportionately lower representation in engineering roles and other white collar jobs.

**Cumulative Disadvantage through lifecycle:** Women and girls accumulate deficits in growth, learning, skills and aspirations through various stages of her life, ultimately resulting in lower employment readiness at the time of entry in the workforce and further barriers in continuing to work and growing.

A girl child faces discrimination even before she is born due to preference for male child among Indian families. After birth, girls face further discrimination in care and upbringing with discrimination in health care and in distribution of food, especially milk amongst children, impacting the physical and cognitive development, weakening the foundational indicators. In the early adolescent years, girls take on household responsibilities. Progressive policies such as free and compulsory basic education, Mid-day meals, and awareness campaigns such as 'Beti Bachao, Beti padhao', have led to the school enrolment reaching a near universal level. However, the learning outcomes are not keeping pace with the school enrolment, which could be due to erratic attendance and lack of gender responsive school environment. Another subtle, yet critical development at this stage is the socialization around gender roles, with girls receiving limited encouragement to aspire beyond the traditional gender roles.

In the late adolescent stage, when the girls' body undergoes physiological changes, the social and educational systems are ill-equipped to support the girls through these changes to continue on a growth path. Instead, social pressure and concern about safety results in restricted mobility of the girls, forcing them to stop schooling and in many cases an early marriage. Girls are overwhelmed with the household and family responsibilities, leaving no time to build skill and confidence needed to enter the workforce, reducing their chances of employment.

Women's mean age at marriage is 21.7 years in rural areas and 23.1 in urban areas. Marriage also pushes them into family responsibilities, where the decisions about their time use are determined by the family's expectations. Lack of sharing of household responsibilities between the husband and wife puts the entire burden of reproductive responsibilities on the woman, forcing her to quit or alter her career path. Women may enter profession at entry levels and exit after marriage and childbirth.

Fewer females are enrolled in both formal and non-formal vocational training, depriving her the opportunity to acquire vocational and technical skills. Less than 19 percent of the employment opportunities generated in India's 10 fastest growing occupations are taken up by women. Despite primary and secondary education, women have systematically lost out on opportunities in fast growing sectors owing to an increasing demand for technically skilled labor. Besides harassment, gender-based discrimination such as unequal pay, gender segregation of responsibilities are quite common.

#### **Why should we care about gender equality in workforce:**

Enhancing women's participation in the workforce is not only the **right thing to do** but is also the **smart thing to do**. Gender equality in workforce will positively impact the lives and livelihoods of women and girls and contribute to economic growth. Women's **work has an intergenerational impact**. The high cost of gender inequality is the untapped potential of women because of which we, as a country, are unable to reap the full benefits of the demographic dividend. As per MGI analysis, **India stands to add additional \$2.9 trillion to its GDP in 2025 by fully bridging the gender gap in the workplace**. If men and women in India were to be equally employed, India's GDP could go up by 27 percent.

**Way Forward:** Women @ Work: An increase in the female workforce participation and a reduction in their dropout from workforce will take concerted efforts. Changes are needed in the policy, social as well as market structures to address the challenges enabling women to transition into workforce and supporting them to continue working. Given the complexity of the factors driving female labor force participation, namely growth, education, fertility, and the cultural and normative context of society, supply as well as demand side actions will be needed, including investments to overcome i) Learning Deficit; ii) Confidence and Aspirations Deficit; iii) Skills Deficit; iv) Addressing Women's Time and Energy Poverty; v) Promoting Women's Entrepreneurship; vi) Lowering Entry Barriers; vii) Enhancing Retention in the Workforce; and viii) Social Barriers.

## **Employment of persons with disabilities**

Despite India's robust legislative framework for inclusion of Persons with Disabilities (PwD) in the workforce, PwDs

do not have equal opportunities and their access to work continues to be limited. India has a total of 26.81 million disabled people or 2.21 percent in the overall population. **Social attitudes and economic disparities** play an important role in limiting the opportunities for PwDs. These two concerns run deep in India.

Employment rates of persons with disability vary with geographical location, gender, education and types of disability. PwD face multiple disadvantages in employment. The first disadvantage is low levels of literacy amongst PwD. The literacy rate amongst PwDs was only 54.52 percent. PwDs also face discrimination in opportunities to participate in the workforce. Out of 26.81 million disabled people in 2011, only 9.74 million people were workers. 23.30 percent of the workers were cultivators, 30.55 percent were agricultural laborers. 41.68 percent of the PwD were working in 'other' occupations, for which granular data is not available.

Regardless of the government's affirmative direction of 3% reservation for PwD's; less than one percent of PwD are employed by companies and these numbers have barely risen in the last decade. Equal employment opportunities continue to be inaccessible to Persons with Disabilities as they are hampered by lack of skills and attitudinal barriers. Attitudinal barriers faced by PwDs in the urban areas are now less linked to superstitions but are the result of 'perceptions' that have not been addressed or challenged.

**Real Predicaments:** Persons with Disabilities confront several barriers to enter the labor market, compounded by their different needs, capabilities, circumstances and of course the kind of accommodations that each case calls for. The barriers faced by PwDs are broadly in four categories: **i) Perception issues, ii) Physical Accessibility, iii) Policy Implementation and; iv) Procrastination** (or unwillingness). Negative attitudes toward employees with disabilities continue is one of the biggest barriers and often results in discrimination.

The employers' opinion of PwDs as inefficient, problematic or difficult team players is simply a result of employers not being sufficiently "prepared" to receive PwD on their rolls. Apart from proper "job matching" to ensure the role offered is the 'right fit' for the person with disability, appropriate job accommodations is crucial for performance. Discrimination, fear of social stigma and adverse reaction from co-workers forces many PwD to shy away from applying for certain jobs.

Despite the law requiring all public buildings to be made accessible, there is an evident slackness in making this change. While structural changes to include an elevator or PwD-friendly toilet are always good and can benefit other staff members who are injured or pregnant or have a heart related issue; employers often misread this and fail to get the point to make the workplace accessible to all.

There is a gap in interpretation and ground implementation

of good frameworks and clear policies for PwD inclusion. Lack of monitoring and penalty for non-conformance with policy is one of the weakest links in ensuring PwDs have access to employment. While we have some way to go to ensure that employers are fully sensitized about the barriers faced by PwDs, there are several companies like HSBC, Lemon Tree Hotels, Wipro, Accenture, TCS, Café Coffee, IBM, Capgemini, SAP, Mirakle Couriers, Mahindra & Mahindra, Big Basket and Tata Group who proactively employ PwD. In order to make progress, cognitive and attitudinal adjustments are as critical as adjustments in physical space to accommodate PwD.

## Jobs in the MSME sector

The Micro, Small and Medium Enterprise (MSME) segment plays a huge role in driving inclusive economic growth and employment in India. There are 63.38 million MSMEs in India. 36% of all MSMEs are involved in trading; followed by 33% in other services and 31% in manufacturing. The micro enterprise segment, with 63.05 million enterprises accounts for nearly 99% of all MSMEs, whereas the small and medium segments account for a mere 0.52% and 0.01% of total estimated MSMEs respectively. MSMEs share in GDP for the year 2016-2017 is 28.9%. and has been marginally decelerating since 2013-2014. Given that MSME sector is the second largest employment generator; renewed focus is required to address impediments to growth of the MSMEs. Strongly linked to the issue of jobs creation and entrepreneurial spirit in this sector is the issue of limited availability and usage of formal credit. Job growth in this sector is impossible without addressing impediments to credit flow.

**Enterprises by employment generated:** MSMEs have the potential to create huge employment opportunities at lower capital costs and can be the key driver in making a shift from an agrarian to an industrial economy. This segment has created 111 million jobs across rural and urban areas, accounting for close to 40% of all jobs. 97 percent of all MSME employment lies in the micro enterprises. Small and medium enterprises employ around 2.8 percent and 0.16 percent of the total number of persons employed in the MSME sector.

Majority of MSMEs in India (85 percent) are informal unregistered enterprises. Informality is a huge constraint for growth, productivity and employment generation potential of MSMEs. The MSME sector is heavily cash dependent, has limited capital and reserves. Demonetization was a one-time shock which temporarily affected the normal functioning of informal systems; the introduction of the GST is an important structural change in the way businesses function. The long-term effects of demonetization on the MSMEs has not been studied in detail. The Goods and Services Tax (GST) was introduced to rationalize and simplify the taxation structure. The structure of GST inherently pushes enterprises towards formalization and digitization. This has a potential to

improve the medium to long term growth prospects of the MSME sector.

## Impediments to growth in the MSME sector

**Skill development** in the MSME sector is required for development of both workers and entrepreneurs. Given the rapidly evolving nature of business and technology, upskilling of the existing workforce is critical. Majority of workers and entrepreneurs in the MSME sector have not received any vocational/ technical training.

**MSME Financing:** Against the total addressable demand for external credit in the MSME sector estimated at Rs. 37 trillion, the overall credit supply from formal sources is estimated to be only Rs. 14.5 trillion, leaving a gap of almost Rs. 23 trillion. Informal funding sources frequently used by the MSMEs tend to be expensive and inadequate. MSMEs tend to avoid taking informal credit as long as they can. As a result, they work at sub-optimal capacity utilization or lower profitability. NBFCs have emerged as a significant lender for MSMEs. However, the NBFC crisis has resulted in slowdown in funding coming from the NBFC Sector. MUDRA (Micro Units Development Refinance Agency) scheme is enabling credit flow to the MSMEs. But 76.8 percent of MUDRA loans went to the Shishu and Kishore categories (under Rs. 5 Lakh). There is no precise estimate of the number of jobs created under MUDRA.

**Strategies to rejuvenate the MSME sector:** To make the MSME segment more employment and growth oriented, a two-pronged approach is needed to simultaneously address skilling and financing. Some strategies that may support the growth and job creation by MSMEs includes: i) Rejigging government support to MSMEs based on enterprises' growth and performance; ii) Undertake MSME census to establish accurate data about the sector; iii) Ramp up efforts to formalize and digitize the MSMEs; iv) Alternative digital lending platforms; v) Introduce Reimbursable Industry Contribution (RIC) for skill financing; vi) Re-map skilling framework; vii) Focus on women in the MSME sector.

## Informal Economy in India

Informal economy in India accounts for more than 80 percent of non-agricultural employment. Informality is found both in traditional informal economy and – increasingly also in the growth of informality in the formal sector. Limited employment creation in the formal economy means that for job seekers, the only alternative is to seek employment in the informal sector.

Women are more likely to be engaged in the informal econ-



omy and significantly more likely than men to be working as informal workers in the formal sector. The growing level of informal employment in the formal sector is largely due to the growing use of contract labor and outsourcing of production. The informal sector accounts for more than 90 percent share in total employment for each of the categories viz; rural males, rural females, urban males and urban females. Almost 98 percent of the rural and urban males and females working in crop production, animal husbandry, construction and retail trade are informal workers.

Self-employed form the majority of the workforce and are the most prominent amongst informally employed. Since 2004-05, there has been a slight decline in the share of self-employed in urban and rural areas, which may be due to individuals pursuing higher education and some individuals (particularly women) withdrawing from self-employment since there are other higher wage earning family members.

Workers in the informal sector suffer from multiple issues, such as lack of skill development opportunity, financing, job security, social security etc. A well thought out policy level initiative to address all these issues is needed, so that the informal sector may not only contribute to the economic output, but also livelihoods and job creation. The emergence of an increasingly large section of informal workers connected to formal enterprises and platform driven business models also calls for measures to address social protection issues. Formalization of informal enterprises can address some of these issues. However, formalization also brings with it the burden of compliance and regulatory costs.

## Green Jobs for addressing climate change and job creation

Climate change has emerged as one of the top concern for everyone. The damage done to the ecosystem by greenhouse gases, rising temperatures and sea-levels, loss of bio-diversity are irreversible. A number of actions are possible to mitigate the worst effects of climate change, which can also create a large number of jobs.

The concept of green jobs is at a nascent stage. Green Jobs will protect the ecosystem by reducing energy, materials, and water consumption, de-carbonize the economy and minimize all forms of waste and pollution. Given the global goal to limit global warming to below 2 degrees, Green jobs has emerged as a critically important sector. Renewable energy, solid waste management, recycling and upcycling, organic food, clean transportation solutions, sustainable agricultural practices etc are all attracting a lot of interest.

**Green Job potential:** India can create 3.19 million green jobs in the year 2021 just in the sectors of waste water management; Shelter, Renewable energy and Solid Waste Management and in urban areas.

**Waste Management:** 7,934 towns in India generate over 143,000 tonnes of solid waste and 61,948 million liters of waste water each day, out of which only 23,277 MLD is treated. Treatment of waste water, solid waste management, rainwater harvesting etc can all create large number of jobs. Skills, appropriate tools and gears and competitive wages will attract more people to these jobs, which will contribute to the green objectives.

**Organic food:** There are more than 700,000 producers and more over 500 exporters associated with organic production and exports in India. With growing interest in organic production, a large number of jobs can be created in production, certification and supply chain.

**Soil and Water conservation:** Arresting further degradation of land, rehabilitation of degraded areas, promoting efficient water use techniques, proper soil and crop management, micro irrigation, integrated farming system, etc, can create jobs in addition to preventing environmental degradation.

**Shelter:** Green New Buildings can achieve reduction in water and energy consumption. Slightly higher upfront investment in Green building pays off by itself and turns out to be cheaper due to lower operational costs.

**Afforestation:** Unsustainable exploitation of forests by paper, furniture industry and other industries like handicrafts, latex, gums etc., has made it imperative to preserve forests and encourage sustainable forestry. Afforestation can not only address India's environmental challenges, but also lead to job creation.

**Renewable Energy:** Exploiting the abundantly available and cleanest forms of energy, viz solar and wind energy can not only address India's energy poverty, it will also create a large number of jobs. The Government has scaled up the target for renewable power capacity to 175 GW, including 100 GW from Solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro power to be achieved by 2022.

**Green Transportation:** India is one of the major car markets globally. Shifting to public transport, dedicated bicycle and pedestrian lanes, electric cars etc can significantly reduce the emissions and also create jobs.

The green economy brings with it the need for a whole new set of skills. Initiatives are needed to align vocational training to competence requirements to facilitate realization of green job opportunities.

## Jobs in Education Sector

India's education sector offers a great opportunity for job creation. With approximately 29 percent of India's population being between the age group of 0-14 years. India has over 250 million school going students and has one of the largest networks of higher education institutions in the world.

**Jobs in the Coaching Classes:** There is a large and rapidly growing market for coaching and tutoring services imparted through new innovative means, particularly through digital means. Even though private investment in setting up educational institutions is increasing, still there is demand supply gap for high quality institutions.

**K-12:** Private Indian schools are collaborating with international brands to provide international standard quality education. All the sectors of K-12 industry have witnessed an increase in employment in the past 10 years. The number of Teachers grew from 1.24 million in 2011-12 to 1,52 million in 2015-16.

**Higher Education:** There is a considerable growth in the number of universities and colleges which led to the growth in the number of teachers. The number of teachers rose from 1.25 million in FY12 to 1.37 million in FY17.

**Coaching Classes:** With increasing student base and availability of new courses, the Coaching class segment has grown significantly. They also have a big market in training students for international entrance and language proficiency tests. Nearly 26% of the total number of students in the country took private coaching and tuitions.

**Online education:** Content creation in online education has emerged as a huge opportunity. Many universities are offering e-learning to reach new students in different geographies and economies on staff costs.

India trails behind other countries like China and Brazil in terms of student-teacher ratio in higher education, which adversely affects the quality of education and research. The faculty shortage has worsened over the time due to increasing enrolment rate of the students and low faculty recruitment.

## Jobs in IT and IT Enabled Services

The Indian IT Sector contributes 7.7 percent of India's GDP, accounts for 49% of total exports and has 55% share in global sourcing. The industry employs around 3.97 million people directly. 5,300 tech start-ups, most of which came up in the last decade will be a huge job creator in future.

IT Services and Exports accounts for an estimated 2 million people out of the 3.968 million people employed by the industry. In recent years, there has been a slowdown in the number of net new jobs created by the IT industry. The big opportunities today are in the tech-enabled enterprises rather than the tech enterprises themselves. Overall, the industry is on a growth path and will continue to be an important driver of jobs.

A closer look at the IT and ITeS sector reveals that the fear of job losses should not be so much about jobs becoming irrelevant as it is about the changing nature of jobs. In the face of AI replacing 'humans', automation and machine learning playing a more significant role, upskilling should take the centre stage. Technology evolution, redundancy of jobs based on older skills and emergence of new jobs using new skills is a continuous process. With the strong headwinds both due to global trade wars as well as changing skill demands, seamless transition into new job roles still remains a question.

### The culture of tech start-ups

India is witnessing emergence of a huge number of start-ups. A significant number of these are based on high end technologies such as AI, machine learning, big data, cloud computing and blockchain. Over 7,000 startups have come on the scene during 2013-18 and have raised 4.3 billion USD in 2018 itself. The emergence of AgriTech has thrown open a whole new world for those interested in agriculture and modern technology like AI, IoT, Cloud computing and big data. A number of ventures have started in this field. Tech giants like TCS, Tech Mahindra, Infosys, Cognizant, Accenture and ITC all have AgriTech projects.

With the internet connectivity and demand for vocational skilling and technical education, EduTech industry is expanding fast and employing more and more people, including sector experts. Emphasis on financial inclusion is also attracting a number of FinTech startups, their current number estimated at about 2,700. 121 startups in this space attracted \$1.4 billion in investment in 2018. There are over 550 health tech start-ups in India, out of which 64 attracted US\$ 504 million investment in 2018. The startup industry is poised for further expansion, and their growth shows a promise for job creation.

While there is an excess supply of engineers, there is also a shortage of talented workers in emerging fields like machine learning, AI and blockchain etc. Upskilling is the only bridges to connect the workforce to the emerging opportunities. Fostering tech-enabled start up culture in India is the answer to the job saturation in IT sector, as they require a range of leading edge IT sector expertise as also domain expertise.





# 1 INTRODUCTION

India is one of the fastest growing large economies in the world. Currently, the second most populous, India is likely to become the most populous country by the year 2030. Over 15 million young people enter the workforce each year, and India needs to create enough jobs for all of them. With one of the largest working-age population, the policy instruments of the government needs to be oriented towards creating an enabling ecosystem that creates jobs for this population. Studying the systemic and operational barriers as a result of the labor policy, challenges of employability, starting and operating a business therefore becomes imperative.

From the license raj days of the 1970s with the nationalization of banks to the opening of economy in 1990s, India has seen a huge change in availability of jobs and the type of jobs as well. Indian economy has been growing fast over the past two decades, averaging between 5 to 8 percent. However, in the post-liberalization era, the disconnect between economic growth and job creation has been on the rise. Automation, digitization and Artificial Intelligence are changing the nature of jobs and affecting new job creation, particularly at the lower end of the skills spectrum.

CMIE reported that July 2019 recorded a sharp increase in employment in India. At 405 million, employment during the month was over 4 million higher than it was a month ago, in June 2019. Even compared to a year ago, it was a substantial 3.9 million higher. But the composition of elements of higher access to employment in July 2019 was unsustainable according to CMIE. The increase in employment during July 2019 is entirely from the rural regions. Urban regions saw a decline of 2.5 million jobs - from 128.7 million in June 2019 to 126.1 million in July 2019. Rural India saw employment increase by a massive 7 million - from 272 million to 279 million during the same period. The rising unemployment problem is only one half of the problem, possibly a simpler problem than the problem of low labour participation rate.

“The employment rate, which is a better reflector of the economy’s health, was 39.5 per cent in October 2019. This is among the lowest employment rate recorded since January 2016. The employment rate has been falling steadily since 2016 when it averaged at about 43 per cent. By August 2018 it had fallen below 40 per cent. Since then, the rate has been largely below 40 per cent. But, it hasn’t been falling much below this. The average employment rate between August 2018 and October 2019 was 39.8 per cent. ”

A comparison across countries shows that the Indian employment ratio at 34.7% as found during the survey is very

low among peer emerging economies.

**Table 1.1:** Employment ratio across countries

Name of country	Employment to population ratio %
Bangladesh	55.8
Brazil	54.6
China	40.9
Indonesia	64.7
Russia	59.8
South Africa	40.3
United Kingdom	60.6
United States	60.4

In recent months, there has been an intense focus on the issue of jobs and unemployment in India. The Periodic Labor Force Survey (PLFS) of the NSSO reported the unemployment rate in India for FY18 at 5.3 percent in rural India and 7.8 percent in urban India and overall unemployment rate at 6.1 percent- a 45 year high. However, NSSO clarified that the data cannot be compared to the past due to changes in the sampling design and frame. [CITATION ETB19 \l 16393]. A closer look at the structural issues related to job creation is therefore warranted.

Availability of quality data on employment is a challenge. Since a relatively small proportion of the overall workforce is employed in the formal sector, the sample size is also small. Following the global financial crisis in 2008, a lot of job losses were seen in export-oriented industries and also in banking and financial services. The economic slowdown in the year 2011-12 also led to job losses. Particularly, large housing and construction sector has been experiencing continual slowdown. Events such as demonetization and implementation of the new GST tax regime also had substantial impact on the informal sector, which is one of the largest job creator in the economy.

However, it is much harder to track actual situation in the informal economy due to data availability issues. About 86 percent of India’s more than 500 million workers are in informal employment and over 90 percent are in what is known as the unorganized sector. These ratios have changed little in recent years, indicating that India’s strong and steady economic growth has not yet yielded a corresponding improvement in terms of broadening access to quality formal employment [CITATION Int10 \l 16393].

The Indian Labor Bureau's annual household survey, which covers a sample of 100,000 to 150,000 households is a good place to look at the problem holistically. As per the report, the total number of jobs in India from 2011 to 2015 grew by just about seven million, from 455 million to 462 million. This aggregate level data disguises significant structural changes. For example, agricultural employment fell by 26 million while non-farm employment rose by 33 million, or by more than eight million jobs a year. The pace of non-farm job creation dipped during the economic slowdown years of 2011 to 2013 to as low as eleven million, and rose sharply to 22 million in the following two years. Labor moved out of agriculture into construction, trade and hospitality, and transport, the mainstays of the non-farm labor market. These three sectors generated 36 million jobs from 2011 to 2015. By contrast, mining and manufacturing lost jobs during the slowdown, although manufacturing jobs seem to have grown between 2013 and 2015. The growth in non-farm jobs is also indicated by the growth in number of Employees Provident Fund members, which grew at a 7 percent rate, from 32.6 million in 2013–14 to 37.6 million in 2015–16, and currently stands at 45 million [CITATION Jon17 \1 16393].

Job surveys that focus on employment in the traditional sectors do not provide an accurate picture of job creation. Growth of e-commerce and technology-based sectors is leading to the creation of new job ecosystems, which are becoming a large source of employment. Informal employment in sectors such as infrastructure and retail are extremely large and continues to rise. Investment in infrastructure and civic amenities such as highways, renewable energy, urban transport, shipping, affordable housing, smart cities, Swachh Bharat, rural roads program, national waterways, airports and industrial corridors, etc. has become one of the largest creator of jobs in the country. Any discussion on the future of jobs in India should be amidst of this changing landscape for jobs.

The future of jobs in India will be determined by its response to the inevitable impact created by the interplay of three primary forces - globalization, demographic changes and the adoption of Industry 4.0 exponential technologies by the industry. The impact of these three mega forces is expected to be disruptive on sectors such as Information Technology – Business Process Management (IT-BPM) and Banking Financial Services and Insurance (BFSI) and relatively lower on core manufacturing sectors such as apparel and leather [CITATION NAS17 \1 16393].

Another interesting aspect of this debate is the concept of telecommuting. With changing lifestyles, traffic jams in urban India and time taken for commuting to work, the idea of working remotely is gaining ground. Various corporate houses have advocated telecommuting and outline numerous benefits of remote working arrangements even for the

employer such as retaining talent, increased productivity and reduction in overhead costs for the employer [CITATION Ent19 \1 16393].

The question of employability is also a critical concern in this discussion on jobs. A national employability report by Aspiring Minds in 2016 claimed that only 18.43 percent of engineers were employable for the software services sector, 3.21 percent for software products and 39.84 percent for a non-functional role such as Business Process Outsourcing (BPOs). [CITATION Asp16 \1 16393]. This report generated a lot of controversy [CITATION Eco18 \1 16393]. However, many experts acknowledged that this report was a true reflection on the current levels of employability. Most IT companies run full-fledged learning centres to train newly-recruited employees, shifting the onus of skill-development and employability on the industry.

In this scenario, inequality in wages adds yet another important dimension to consider. The Oxfam report "Mind the Gap: The State of Employment in India" stated that over the years, successive government policies favoured capital over labor. The nature of production in the organized manufacturing sector has also changed, with increasing share of profits and declining share of workers' wages in the net value added. Real wage growth in India has remained stagnant at a 1 percent annual rate between 1983 and 2013 as per the Annual Survey of Industries (ASI), 2015 [CITATION Diy19 \1 16393].


Despite a booming economy and increasing labor force, the progress on job creation has been extremely sluggish. The outcomes on distribution of income and wealth are strongly linked to the processes in the labor market. There has been a sharp increase in the employment of informal workers in the organized sector, particularly in the organized private sector. The share of contract workers to all workers being employed increased to more than 33 percent from under 20 percent within the first decade of this century. Contract workers not only suffer from the insecurity of tenure but are also paid less and do not enjoy social security benefits.

## 1.1 Macro Trends in the Job Market

In the initial decades since India gained independence and implemented the centrally planned model of development under the successive five-year plans, the economy grew at a modest pace of approximately 3.5% per annum, with a corresponding increase in unemployment rates.

Since economic growth alone could not tackle the issue of unemployment, a number of employment generation & and poverty alleviation programs were started since fifth five-year plan (1974-79). Following table provides the unemployment rates in rural and urban areas for different categories of workers since the beginning of the current century:

**Table 1.2:** Unemployment Rates (Per 1,000 persons in Labor Force) (All India Figures)

 (Year)	Unemployment Rate							
	Male				Female			
	Usual status (Ps)	Usual Status (Adj.)	CWS	CDS	Usual status (Ps)	Usual Status (Adj.)	CWS	CDS
<b>Rural</b>								
2011-12	21	17	33	55	29	17	35	62
2009-10	19	16	32	64	24	16	37	80
2004-05	21	16	38	80	31	18	42	87
1999-00	21	17	39	72	15	10	37	70
<b>Urban</b>								
2011-12	32	30	38	49	66	52	67	80
2009-10	30	28	36	51	70	57	72	91
2004-05	44	38	52	75	91	69	90	116
1999-00	48	45	56	73	71	57	73	94

The concept of employment /unemployment is applicable only for people within the labor force i.e. a person who is either working, seeking work or is available for the same. Persons who, owing to lack of work, had not worked but either sought work or were available for work comprise the unemployed category. Employment & unemployment indicators are measured in three different approaches, viz usual status (US) with a reference period of one-year, current weekly status (CWS) with one-week reference period and current daily status (CDS) based on the daily activity pursued during each day of the reference week. Usually unemployed excluding the subsidiary status workers is referred to as Usual status (adjusted) [CITATION Imp \16393].

While employment growth has been lower in 2009-10 and 2011-12, unemployment rate in India continued to hover around 2 percent under usual status (PS+SS) and fell under Current Daily Status (CDS). Although the unemployment rate may be lower, the number of unemployed persons is significant in absolute terms. During 2004-05, the number of unemployed persons was 11.3 million, which declined to 9.8 million in 2009-10 but again increased to 10.8 million in 2011-12 under usual status (PS+SS) (UPS (adj)). However, based on the CDS the number of unemployed person days declined from 34.3 million in 2004-05 to 28.0 million in 2009-10 and further to 24.7 million in 2011-12. Thus there is steep reduction in unemployment rate under CDS from 8.2 percent in 2004-05 to 5.6 percent in 2011-12. Overall, unemployment rates were lower in 2009-10 under each approach vis-à-vis 2004-05 and during 2011-12 compared to 2009-10, as per UPS(adj) approach, it remained constant for rural males (2 percent), rural females (2 percent) and urban males (3 percent) but decreased by 1 percentage point for urban females (from 6 percent in 2009-10 to 5 percent in 2011-12).

The fall in unemployment despite marginal growth in employment in 2009-10 (1.1 million jobs created under PS+SS during 2004-05 to 2009-10) and 2011-12 (13.9 million jobs created under PS+SS from 2009-10 to 2011-12) could also be on account of the demographic dividend, as an increasing proportion of the young population opts to continue in education rather than participating in the labor market. This is reflected in the rise in growth in enrolment of students in higher education from 4.9 million in 1990-91 to 28.5 million in 2011-12. Similarly, gross enrolment ratio (GER) in Grades I-VIII has also risen from 81.0 in 1999-2000 to 103.9 in 2010-11. In the earlier period (2009-10 compared to 2004-05) unemployment in absolute terms came down by 6.3 million as expansion in labor force was only 11.7 million vis a vis about 18 million increase in work opportunities under the current daily status (CDS) between 2004-5 and 2009-10, as per NSSO quinquennial survey. During 2011-12, as in 2009-10, urban unemployment was higher under both the UPSS and CWS but rural unemployment was higher under the CDS approach. This possibly indicates higher intermittent or seasonal unemployment in rural than urban areas. [CITATION Imp \16393].

A number of shifts have changed the way employment is available and perceived today compared to the past. Employment has changed with changes in the demographics, level of education and urbanization. Globalization and ICT revolution is creating new jobs while making a whole lot of old jobs redundant. In 2017, 462.5 million Indians were part of the workforce. An equally large number – 445.6 million were either studying, or not seeking employment. Hidden unemployment is a big concern as 63 million Indians considered employed did not get paid in cash or in kind (e.g.: helpers in household enterprises) on a regular basis. Put to-

gether the unemployed and unproductive employed constituted 18 percent of the employed workforce. Another 110 million (split almost evenly by gender) were employed for short periods (under 6 months) and 26 million are in part-time/ secondary jobs [CITATION IMA17 \I 16393].

Employment itself stagnated in the decade post 2010, moving from 467 million in 2011-12 to 462.5 million in 2015-16. Informal sector constituted the pre-dominant employer, employing 180 million people versus just 30 million in the government jobs and an even smaller 19 million employed by the private sector. This is a key reason for job distress and lack of social safety nets. 72 percent workers in the informal sector are employed in enterprises that employ less than 6 people. Over 90 percent of formal private sector employment, was added in the seven years between 2004-05 and 2012, indicating a fast acceleration, albeit from a low base. Only 45 percent of all establishments (70 million) had a fixed structure, lending itself further to the informality of employment in India.

The informal sector has been characterized by lower levels of education than the formal – about 90 percent are educated up to primary or higher secondary levels, with only a small portion of graduates or post graduates. As many as 214.4 million workers were ‘self-employed’. The bulk of these are workers who work for themselves without using any additional labor. Nearly 72 percent of all the establishments (~42 million), accounted for 44 percent of employment. Regular salaried employees in India were close to 100 million (at 98.9 million), up over 30 percent since 2004-05 (led by the private sector), but still a small proportion [CITATION IMA17 \I 16393].

In the four years to 2015-16, 25 million Indians completed graduation and 6 million completed post- graduation. None of the states has more than 8 percent of their workforce educated upto graduation or above. This study does not take into account the quality of education. Based purely on numbers, UP has almost 40 million graduates/post graduates (14.2 million women), followed by Maharashtra at 34.6 million (13.9 million women). The technically skilled talent pool with formal education, either current or studying, is concentrated in a few states – Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka, West Bengal and UP. Technology as well as medical graduates are concentrated in the three southern capitals besides Mumbai and Delhi. Mumbai and Delhi have the highest concentration of other education profiles. A quarter of the 18 million unemployed in India are graduates or post graduates. Nearly 15 million graduates and 4 million post graduates opted not to work [CITATION IMA17 \I 16393].

Labor participation rate fell from 43.2 percent in January 2019 to 42.7 percent in February. The most worrying part of the monthly labor participation rate series is that it has been systematically lower than the corresponding levels a year

ago. In every month of 2018 and in the months of 2019 so far, the ratio has been lower than it was in the corresponding month of the previous year. This was the same trend even in 2017, but that figure could be attributed to effects of demonetization. The continued y-o-y fall in the labor participation rate even in 2018 and 2019 indicates a deeper or a more sustained problem ailing India’s labor markets.

While the labor participation rate has been falling, the unemployment rate has been rising. The labor participation rate is the proportion of the working age population that is either employed or is unemployed but actively looking for a job. The working age population comprises those who have completed 15 years of age or more. The falling labor participation rate implies that lower and lower proportion of the working age population is willing to work. The unemployment rate is the proportion of the labor force that is unemployed [CITATION Sat18 \I 16393]. The problem India is facing is that even this falling labor participation rate encounters a rising unemployment trend.

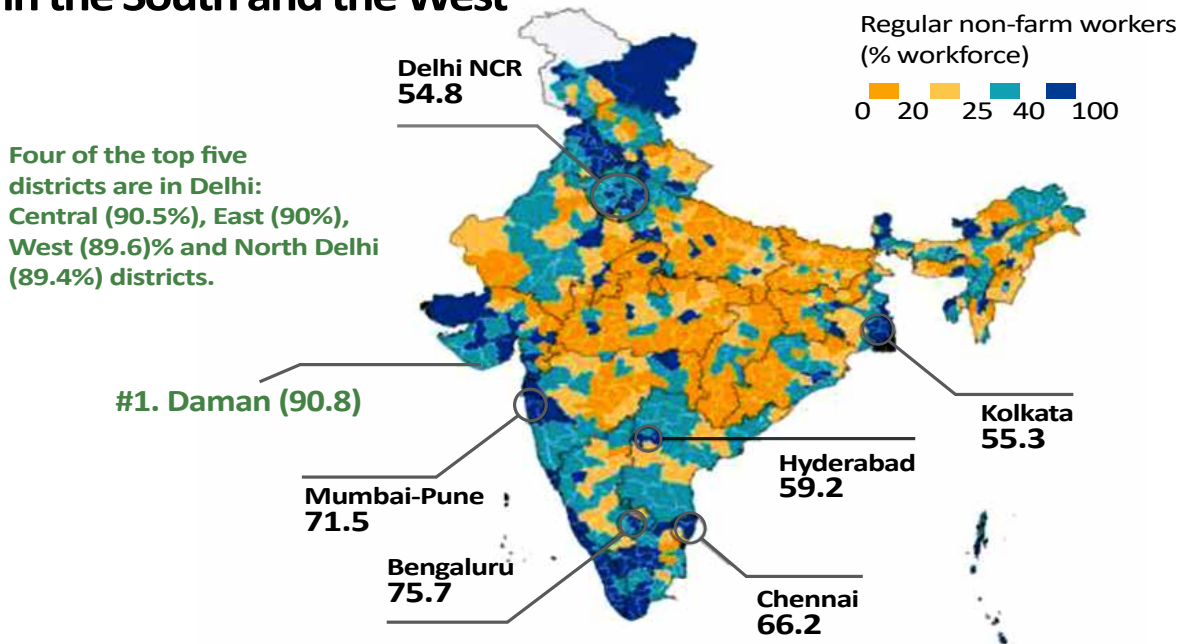
Specialized courses have greater demand with fewer individuals from engineering, technology or medical sciences backgrounds being unemployed, compared to those with humanities or science degrees. Illustratively, 50 percent of those with humanities qualifications were employed in 2015-16, compared to 67.7 percent of medical students and 61 percent engineering or technology graduates. Humanities is nonetheless the course subscribed to by the greatest number of students, with almost 10 million graduates added to the talent pool in three years till 2015-16, compared to 3 million engineering or technology grads. Vocational training is catching up, with 10-15 percent of working age population in different age bands today vocationally trained. 78.3 million Indians received vocational training in 2011-12, up massively from 45.3 million just two years prior. On the job training is the most active source of vocational training. Those vocationally trained are more employable than graduates, and are also keen to work. While 59 percent of graduates were employed in 2011-12 and 26 percent had opted not to work, the corresponding figures for those vocationally trained were 83 percent and 9 percent, respectively [CITATION IMA17 \I 16393].

Certain skill streams are seeing higher levels of unemployment (computer trade for example – which is the most preferred field) than others, whilst others, such as those trained in textile-related work, printing technology or personal care are opting not to work. The mismatch between available jobs and job-seeker skill sets and experience is one of the key reasons for unemployment. A mismatch in remuneration expectations – more so in rural India – is another reason for unemployment. By 2021, 500 million Indians will be employed, but 470 million will have opted not to work. The demand for employment will intensify if these numbers change. Another 400 million will be studying, creating the next big wave of



Chart 1a

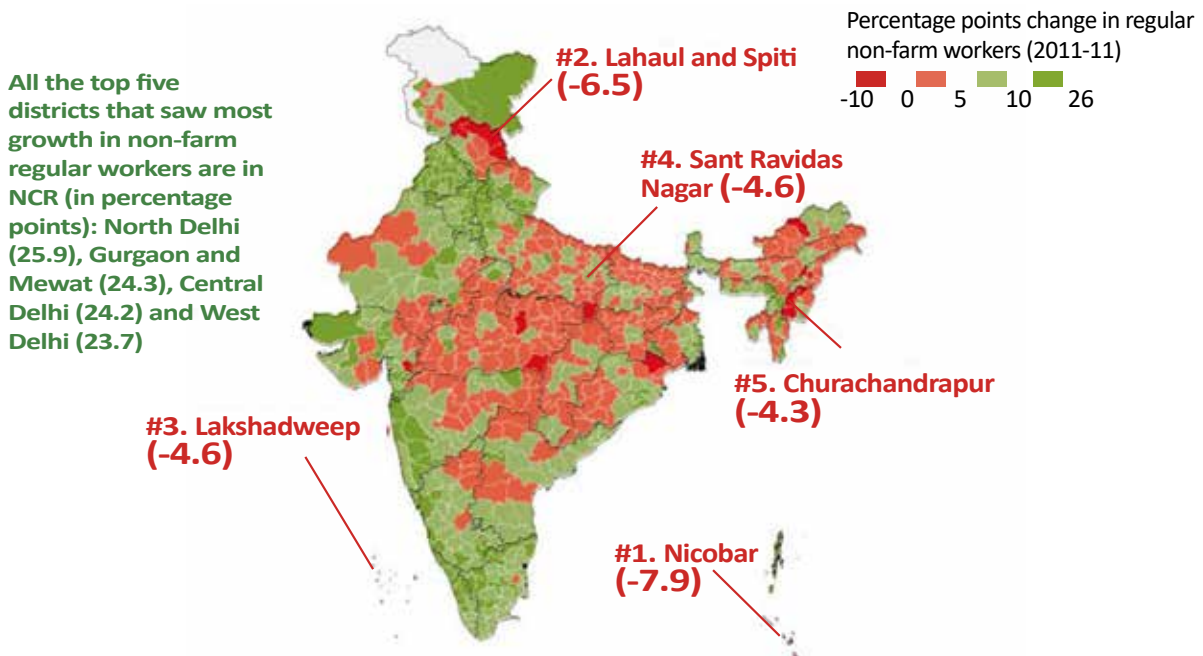
## Most non-farm jobs are clustered in a few districts in the South and the West



Source: Census 2011. Census 2001

Chart 1b

## Non-farm barely increased in the eastern and central parts of the country



Districts with the sharpest declines between 2001 and 2011 have been annotated in red while those with the sharpest increase have been annotated in green.

Source: Census 2011. Census 2001

talent supply. The need to create the right academic curricula in line with tomorrow's expectations is urgent. 75 percent of all graduates and post graduates will come from ten states, led by Maharashtra, Uttar Pradesh, Andhra Pradesh and Karnataka. At 57 percent, the 'out of labor force' population is predominantly of those who are illiterate; another 17 percent are those who have studied just up to the primary level. These numbers are projected to go to 49 percent and 18 percent respectively - again a need to pay attention to the education sector [CITATION IMA17 \I 16393].

## 1.2 Geographic and Sectoral Trends

Since 2017, Maharashtra, Gujarat and the three southern states of Tamil Nadu, Andhra Pradesh (and Telangana) and Karnataka registered the highest increases in the number of salaried people. By contrast, Uttar Pradesh and West Bengal saw increases in casual labor. Private sector share of employment, however, remains in the 12-15 percent range in 2017 even in the leading states such as Maharashtra, Haryana, Karnataka, Gujarat and Delhi.

Between 2005 and 2013, the ratio of urban establishments increased from 38 percent to 47 percent. Of these urban centres, large cities (47 that are million plus in population) account for 35 percent of total urban employment. 10 states in India account for 75 percent of all employment, led by Uttar Pradesh with 63.5 million and including Maharashtra (45.8 million), West Bengal (36.6 million), Bihar (33.4 million), Tamil Nadu (33.1 million), Karnataka (27.3 million), Rajasthan (26.5 million), MP (24 million), Andhra Pradesh (23.8 million) and Gujarat (22.6 million).

Viewed as a percentage of total workforce, Mizoram (66 percent) Chhattisgarh (66 percent), Jharkhand (64 percent), Meghalaya (62 percent) and Nagaland (62 percent) emerge as the leaders in employment generation. 10 states in India, account for 81 percent of private sector employment. Employment is not keeping pace with the number of people being added to working age population. Increase in employment is less than the increase in working age (above 14 years) population in states like Uttar Pradesh, Gujarat, Madhya Pradesh & Jammu & Kashmir, indicating rise in unemployment numbers. Smaller states including the seven North-Eastern states do much better, but with much smaller populations. Agriculture is still the main employer, employing 211.3 million Indians in 2015-16, much lower however, than the 252.7 million employed in 2004-05.

Services is now the second largest employer after agriculture. 151 million Indians are employed in services (led by retail and wholesale trade), followed by construction at 52 million. The manufacturing sector, has shown a decline from 53 million to 46 million in the decade through to 2015-16. Only a small segment (13.88 million) of the manufacturing

sector employment is in the formal, organized sector. There is, however, a secular rise in the number of workers in organized factories (from 11.79 million in 2004-05 to 13.88 in 2014-15, indicating that a larger number of people are employed in larger factories/set ups).

Manufacturing hubs by employment are limited to a few districts and concentrated in the Western and South-Eastern coast as well as some in the North. The services sector hubs are more widespread, and concentrated especially in the South and West. The decade 2001-2011 added 31 million graduates and post graduates and 110 million with secondary/higher secondary education (this is the fat middle comprising the bulk of India's workforces). Whilst falling year on year, there are still 447 million illiterates in India – which, by linear projection, will fall, but to a still high 306 million by 2021. About 140 million illiterates formed a third of the workforce in 2011-12. Graduates and post-graduates, whilst they have increased by 50 percent (to 32 million) and nearly doubled (to 12 million) respectively, in the period between 2004-05 and 2011-12, form less than a tenth of India's workforces today.

A Mint analysis of the disaggregated census jobs data released earlier this year shows a striking divergence in the availability of regular non-farm jobs across the country. Districts with a relatively high share of regular jobs were clustered in the extreme south, and in a narrow strip extending along the western coastline across the country till the extreme north, the data shows (chart 1a). What is even more worrying is the change over time. As the accompanying map (chart 1b) shows, districts with a high share of regular non-farm jobs have added more such jobs over time, while districts in the rest of the country have either regressed or added very few non-farm jobs between 2001 and 2011, accentuating the divide [CITATION Pra18 \I 16393].

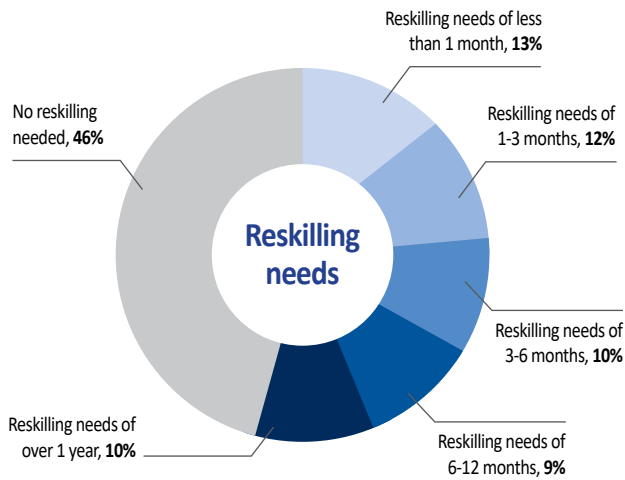
## 1.3 Major Challenges

As Indian population grows at a rapid pace with a huge working-age population looking for jobs, a few challenges gnaw at its core. The World Economic Forum, in an insight report on future of consumption in India points to three major challenges to the status of employment in India as well as economic growth. These challenges are:

- a) **Skill development and Employment for Future Workforce:** Skill development and learning new skills will be critical to stay employed. As per the report, 54 percent of all the employees will require significant reskilling and upskilling, as shown in the following graph. [CITATION Wor18 \I 16393].

Given the growing number of people entering the workforce, it is absolutely critical to keep up with the requirements for jobs in the new sectors but also for employers to focus on reskilling of

**Figure 1.1:** Expected average reskilling needs across companies, by share of employees, 3018-2022



Source: Future of Jobs Survey 20018, World Economic Forum.

existing workforce. As nearly 10-12 million persons get added annually, India faces a huge challenge in providing gainful employment and, in turn, ensuring the income necessary for consumption. This challenge has three key dimensions:

- **Knowledge-oriented rather than skill-oriented education:** While India's educational framework has focused on "knowledge" so far, the future will require a focus on "skills" to ensure employability. India's gross enrolment ratio at secondary and tertiary levels is 20% lower than China. India also ranks lowest among the BRICS nations on the Global Talent Competitiveness Index (rank 81).
- **Informal rather than formal sector-led job creation:** Only 2.3% of India's workforce is formally skilled. The National Skill Development Corporation conservatively estimates the need to skill at least 125 million Indians by 2022 to keep them relevant in the evolving economy. At the current pace of about 6-7 million job additions a year, over 30 million job seekers may face unemployment by 2030.
- **Regional disparity in employment opportunities:** Nearly half of the incoming workforce will belong to the states that have bottom-tier employment rate and health indicators. Lack of opportunities within and mass outward migration could, in turn, pose infrastructure and societal challenges in the destination states and cities [CITATION Jer19 \l 16393].

#### b) Socio-economic inclusion of rural India:

While rural aspirations have begun converging with those of the rest of India, concerted efforts are required to remove significant barriers preventing full socio-economic inclusion of rural India in India's growth story. India's rural population is spread across tens of thousands of small towns and villages. However, to fulfil their aspirations three critical "access"

barriers need to be addressed that constrain income, spending and wellbeing.

- o **Physical connectivity:** 30 percent of villages with 250 or more persons still do not have access to all-weather roads, while only about 8 percent of total villages in India have all households with reliable access to electricity. Lack of basic infrastructural amenities constrains rural dwellers' ability to access economic opportunities, essential and discretionary consumer goods, healthcare and civic services.
- o **Digital connectivity:** Only about 18 percent of rural Indians have access to the internet, compared to nearly 65% in urban India. This is a tremendous opportunity as there is significant appetite to try out new technologies
- o **Financial inclusion:** Less than 40 percent of the rural adult population is using bank accounts for savings. Even lesser number are borrowing, or buying insurance or is covered under pension. Ability to save, invest and benefit from education, health, housing, business or consumption loans is limited due to poor access and education about financial institutions and tools. [CITATION Jer19 \l 16393].

## 1.4 Healthy and Sustainable Future

An unhealthy population and cities grappling with alarming rates of congestion and pollution can significantly dampen the benefits of India's demographic dividend and urban growth and lead to a fast-deteriorating quality of life for citizens. There are four key dimensions to prioritize:

- o **Access to affordable healthcare:** Health shocks routinely deplete household incomes and assets. While more than half of India lives in villages and small towns, about 80% of doctors are located in urban India. There are only about seven doctors and seven hospital beds per 10,000 people in India.<sup>27</sup> Hence, there is need and massive opportunity to increase and upgrade of both the physical and human infrastructure to meet the healthcare needs of a 1.3 billion people.
- o **Air, water, waste crises:** India has the densest urban agglomerations among large economies of the world. Nine of the world's 10 most air-polluted cities are in India. India generates more than 150,000 tonnes of solid waste every day; while 80 percent is collected, less than 30 percent is treated.
- o **Urban congestion:** While India's cities are the engines of India's growth, their residents are facing the burden of toxic air, polluted and scarce drinking water, overflowing waste landfills and congested roads. As India's cities expand and its population rises, there is need for more housing, roads, green cover, healthy water bodies and better waste management [CITATION Jer19 \l 16393].



# 2 EFFECTS OF DEMOGRAPHIC SHIFTS ON JOBS

## 2.1 Youth Bulge

India has the largest working-age population (15- 64 years) in the world, giving it the biggest demographic dividend (proportion of working population out of total population is high). While 15 million youngsters expected to enter the workforce annually for the next five years, over 75 percent of them will not be jobs ready. Since 2018, India’s working-age population (people between 15 and 64 years of age) has grown larger than the dependent population — children aged 14 or below and people above 65 years of age. This bulge in the working-age population is going to last for another three to four decades.

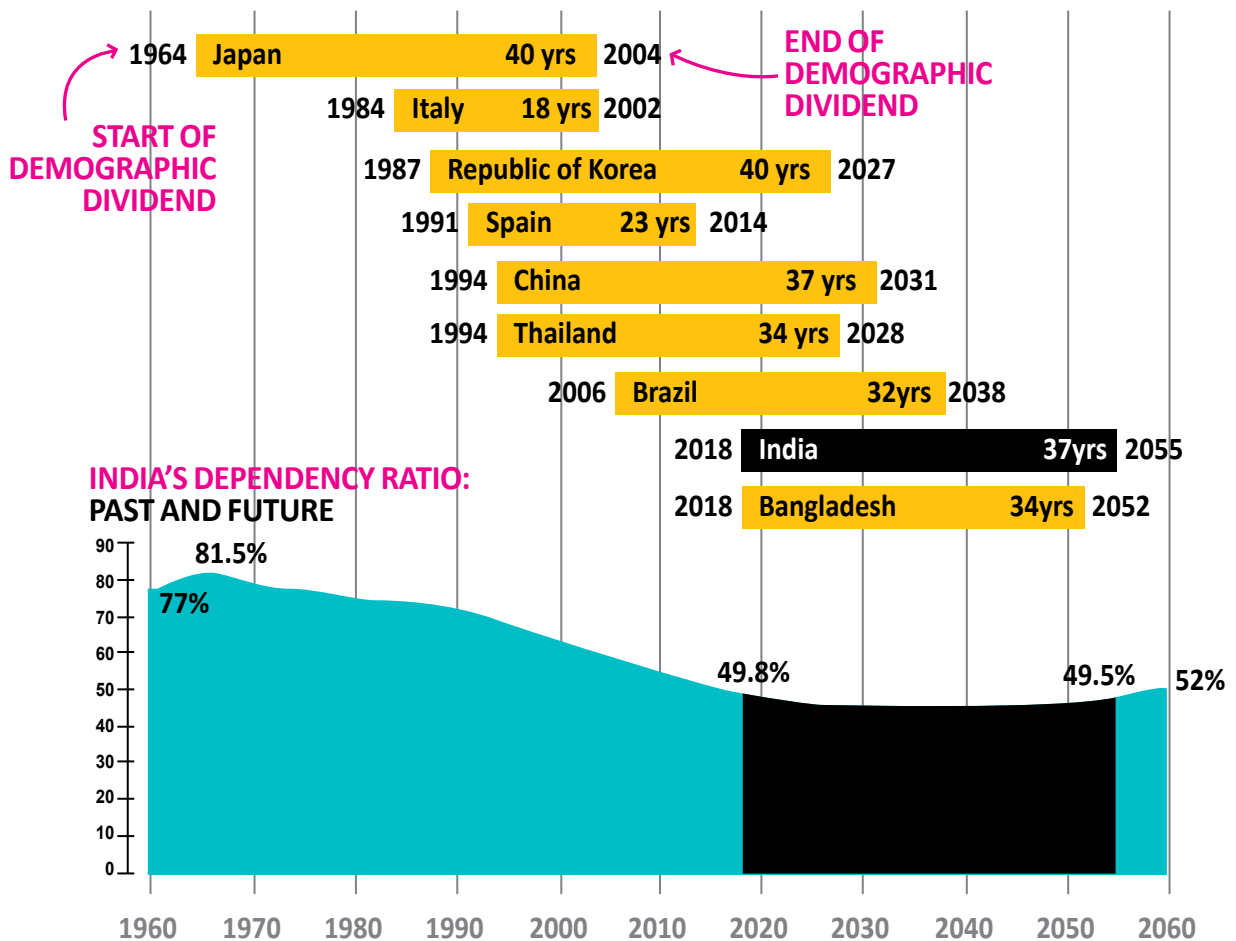
It is, however, important to note that this change in population structure alone cannot push growth. In the late 20th

century demographic dividend in Asia resulted in upto seven-fold increase in the GDP in some countries, while in Latin America the growth was only two-fold. According to UNFPA, countries can only harness the economic potential of the youth bulge if they are able to provide good health, quality education and decent employment to its entire population [CITATION Era19 \l 16393].

By 2050, India’s population is likely to reach 1.73 billion, an addition of some 400 million people. India’s median age is now 28 years compared to China’s 37. If India’s growing working age population can find productive employment, with decent incomes, the country will benefit significantly from the demographic dividend. This, in

Figure 2.1

### Period of demographic dividend in large economies



turn, would propel its economic and social development. Despite these positive signs, India's record in creating jobs in last two decades has been dismal.

A plethora of reasons are contributing to India's jobless growth. Of its estimated 480 million working age people, 30 million cannot get jobs. It now has the largest number of unemployed people of any country in the world. While 15 million people are entering the workforce each year, millions of existing jobs are disappearing each year. The Centre for Monitoring Indian Economy estimates that 11 million jobs were lost in 2018. All India Manufacturers' Organization noted that 3.5 million manufacturing jobs were lost between 2016 and 2018 [CITATION Asi19 \I 16393].

This has especially affected women who have lost millions of jobs. According to ILO and World Bank data, the percentage of women in the workforce increased in most Asian countries - but declined from 27.7 percent in 1990 to 24.4 percent in 2018 in India. The chapter on workforce participation of women looks deeper into this issue. [CITATION Asi19 \I 16393].

## 2.2 Urbanization and Internal Migration

Rapid urbanization and internal migration are some of the major issues to be tackled by India. A paper by Professor Ram Bhagat points that the development impact of migration and urbanization depends upon how the countries like India design their urbanization and migration policies. The relationship between migration, labor market, wages and capital accumulation has been a matter of debate in the development literature. [CITATION Bha17 \I 16393].

The experience of many developing countries shows that migration has tremendous potential to improve human development (UNDP 2009; IOM 2015). At present, 'more than a billion people rely on international and internal migration to escape poverty and conflict, adapt to environmental and economic shocks, and improve the income, health, and education of their families. Annual remittances to developing countries alone approach \$500 billion, triple the amount of official development assistance (ODA) (Sutherland 2013). Thus, studies confirm that migration is an important pathway out of poverty. However, compared to international migration, internal migration offers more opportunities of increasing income and convergence of welfare, although it is less emphasized (Skeldon 2008; World Bank 2009; Bhagat 2016). In the context of India, emigration also enhances social prestige and family status (Bhagat et al 2017). Migration is also a process of skill formation. Many migrants bring their relatives, friends and co-villagers once they have firmly established themselves in urban areas. Some migrants also upgrade their skill level and learn new skills (Deshinker and Akter 2009; Bhagat 2014).

The key opportunities and benefits associated with migration are listed in box below.

- i) **Labor Demand and Supply** – fills gaps in demand for and supply of labor; efficiently allocates skilled and unskilled labor; low cost labor, disciplined and willingness to work.
- ii) **Remittances** – provides insurance against risks to households in the areas of origin; increases consumer expenditure and investment in health, education and assets formation.
- iii) **Return Migration** – brings knowledge, skills and innovation (also known as social remittances).
- iv) **Skill Development** – migration is an informal process of skill development. It enhances knowledge and skills of migrants through exposure and interaction with the outside world. New skills are learnt from co-workers and friends at the new place of work.

(Source: Bhagat 2014)

Dubey et al (2004) observed that relatively better off sections of the populace and higher castes migrate from rural areas. The gaps that emerge are likely to be filled by the poor and the lower castes with implications for economic improvement and poverty reduction in rural areas. A significant negative correlation exists between migration rate and the ratio of rural poverty at the destination, and diversification of economic activities and increase in income at the source (Kumar and Bhagat 2017).

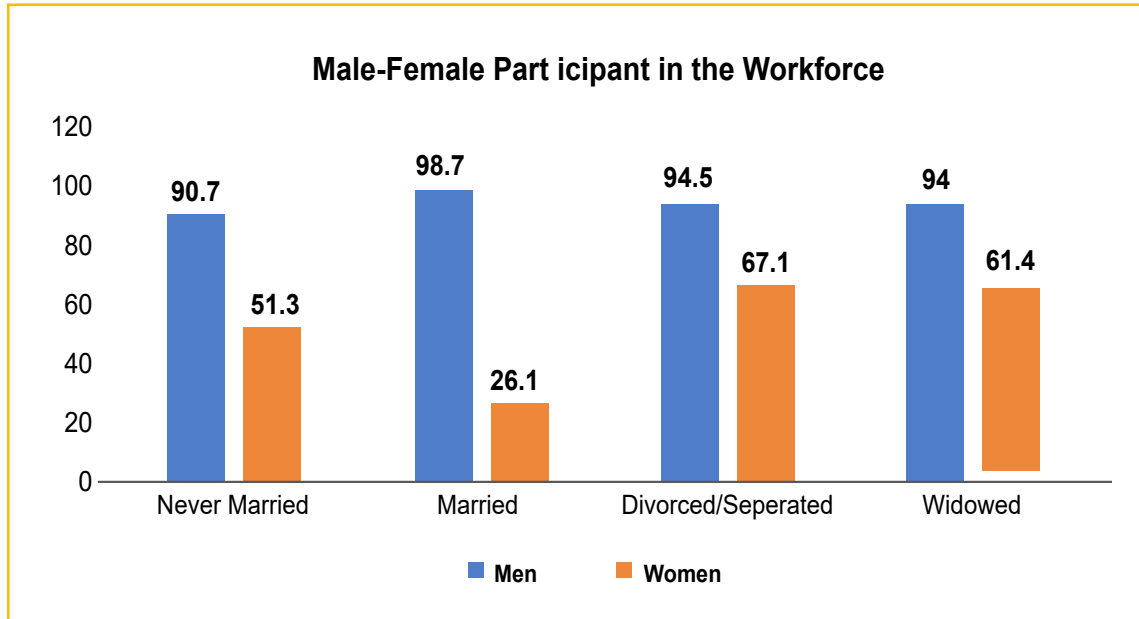
Given the current urbanization trends, migration to urban areas will further accentuate. The low rate of growth and income volatility in agricultural and reduction in livelihood opportunities in rural area has led to out-migration from under developed regions. Hence, the challenge for policy makers is to formulate migration policies linked with employment and well-being of the migrants moving to urban areas.

Another major area of concern is female migration because the pattern of female migration changes from marriage to employment and education reasons.

## 2.3 Nuclear Families

Increasing number of nuclear families in urban areas have an effect on employment. Though nuclear families are becoming the norm, the percentage of single-mother households is also on the rise. In India, there are far fewer women in the workforce compared to other countries. Nuclear families form the highest percentage of households. Extended

Figure 2.2



families (one or more parents or relatives) are also common. There are more single-mother households (5.4 percent) than single-father households. As the nuclear family system has gained traction, particularly in urban India, the percentage of 'couple only' families have increased. The percentage of single mothers too has increased [CITATION Kri19 \l 16393].

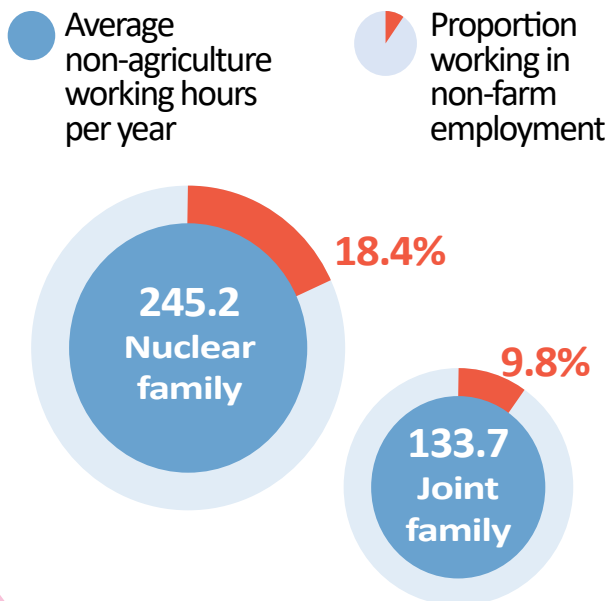
Over half of the unmarried women in the age group 25-54

are part of the labor force. This proportion comes down by half if they are married, possibly due to family constraints or economic consideration.

The proportional share of nuclear families is now converging in urban and rural areas at about 52 percent. The trend around nuclear families is drastically changing the nature of employment as well as the need for employment both

Figure 2.3

### Women in nuclear families are nearly twice as likely to be in non-farm work as those in joint families



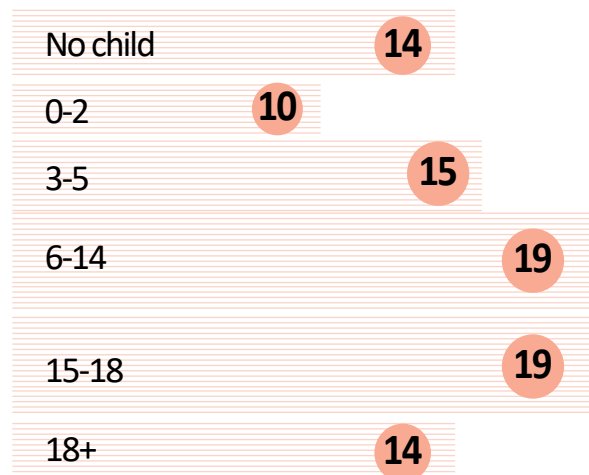
Source: Dhanaraj and Mahambare (2018), based IHDS (2011-12)

Figure 2.4

### When the children grow up, women can take up non-farm jobs

Proportion of women involved in non-farm employment (in%)

Age of youngest child



Source: Dhanaraj and Mahambare (2018), based IHDS (2011-12)

in urban and rural areas particularly for women. Domestic duties including childcare may be keeping many Indian women from working. However, living with the in-laws does not mean that women are more likely to take up jobs. Women who live in joint families are significantly less likely to participate in the labor market. Newly married couples typically tend to live with one or more married couples—usually the man’s parents—and may then move to live independently when they face a lack of space or migrate for work, data from the IHDS indicates..

The above figures clearly demonstrate that nuclear families and the age of children are the two main determining factors for women to take up non-farm jobs in India. The researchers also find that women from upper caste groups are more likely to reside in a joint family system than those from disadvantaged groups. The higher social status associated with being upper caste acts as an inhibitor for ‘allowing’ women to leave the house for paid work. Joint families in the IHDS sample are also associated with restrictions on decision-making ability and mobility.

All this indicates that nuclear families are contributing to-

wards sizable shifts in the need for employment in both urban and rural areas, particularly for women and with rapid urbanization and trend towards nuclear families, this situation is likely to change further.

## 2.4 Increased Life Expectancy

India has seen a secular improvement in overall life expectancy at birth, rising to 69 years years, with women expected to live for 70.4 years and men for 67.8 years at birth. The incredible increase in life expectancy may be a big triumph of the 20th century, but it has posed one of the toughest challenges for the 21st century India. Indian population approximately tripled during the last 50 years, but the number of elderly people increased more than four-fold. Based on the continuation of the trend, the United Nations has predicted that the Indian population would grow by another 50 percent by the middle of this century, whereas the elderly population is likely to have another fourfold increase (UN, 2008) [CITATION Sin09 \l 16393]. Elderly people (60+) are expected to constitute 20 percent (or 316 million) of the total population by 2050 (Table below).

**Table 2.1**

Age groups	2010	2020	2030	2040	2050
0-14	374 (30.8%)	364 (26.7%)	338 (22.8%)	309 (19.7%)	294 (18.2%)
15-59	749 (61.6%)	868 (63.5%)	962 (64.8%)	1011 (64.7%)	1004 (62.2%)
>=60	92 (7.4%)	135 (9.8%)	185 (12.4%)	245 (15.6%)	316 (19.6%)
Total Population	1,215	1,367	1,485	1,565	1,614
Median age (Yrs.)	25.0	28.1	31.7	35.3	38.4
Dependency ratio- Total	56	49	45	44	47
Dependency ratio- Child	48	40	33	28	27
Dependency ratio- Old	8	9	12	15	20
Life expectancy at birth	64.0	67.0	70.0	72.0	73.0

**Source:** UN, 2008, *World Population Prospects: The 2008 Revision, Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat*, <http://esa.un.org/unpp>.

By 2050, every three working Indian may have to take care of one elderly person, as compared to about eight working persons for each elderly person today

As the number and proportion of elderly people increases combined with the rising trend towards nuclear families discussed earlier, there will be massive increase in demand for elderly care, healthcare and wellness services, mental health old age housing and social support services, etc, all of which can be a huge generator of new jobs.



# 3 LABOR LAWS AND TYPES OF JOBS

## 3.1 Legacy Issues and Implications

The labor laws in India, is divided into 5 broad categories, viz. Working Conditions, Industrial Relations, Wage, Welfare and Social Securities. The enactments are based on the various ILO conventions time to time. There over fifty national laws and many more state-level laws governing employment and employment conditions. Traditionally the national and state Governments have sought to ensure a high degree of protection for workers through labor laws. While conforming to the essentials of the laws of contracts, a contract of employment must also adhere to the provisions of applicable labor laws [CITATION AAr11 \ 16393].

While the labor laws mainly cover the formal sector, the labor market is largely informal and unregulated. Scope of labor laws, however, is limited by specific provisions regarding applicability. These thresholds are defined by criteria such as types of employment, size of enterprise etc. Thus, divide of formal and informal sector leads to inequality, although some laws apply to informal sector too. As a whole, the overall coverage of labor laws is extremely limited (covering only about 10 to 12 percent of the workers). Only laws relating to wages have somewhat larger coverage, although in recent years, the government have tried to cover larger number of informal workers, mostly relating to social security [CITATION Sha \ 16393].

Indian labor laws divide industry into two broad categories:

1. **The Factories Act:** Factories are regulated by the provisions of the Factories Act, 1948 (the said Act). All Industrial establishments employing 10 or more persons and carrying manufacturing activities with the aid of power come within the definition of a Factory. The Act makes provisions for the health, safety, welfare, working hours and leave of workers in factories. The Act empowers the State Governments to frame rules, so that the local conditions prevailing in the State are appropriately reflected in the enforcement. The Act is instrumental in strengthening the provisions relating to safety and health at work, providing for statutory health surveys, requiring appointment of safety officers, establishment of canteen, crèches, and welfare committees etc. in large factories. The Act also provides specific safeguards against use and handling of hazardous substance and laying down emergency standards and measures.
2. **The Shops & Establishment Act:** The Shops and Establishment Act is a state legislation and each state has framed its own rules. This Act stipulates statutory obligation and rights to employees and employers in the shops and establishments. This Act is applicable to all persons em-

ployed in an establishment with or without wages, except the members of the employers' family. This Act lays down working hours and working days in a week, rest interval, opening and closing hours, holidays, overtime, , Employment of children, young persons and women, Rules for annual leave, maternity leave, sickness and casual leave, Rules for employment and termination of services.

In his presentation on Labor Regulations in India, Alakh N. Sharma points out that the India has a very differentiated and segmented labor market with wide variations across sectors, occupations, region, gender, location (rural/urban) etc. About half of workers engaged in agriculture contribute just 13 percent to GDP; 13 percent employed in manufacturing contribute to 16 percent of GDP, while services sector employs 27 percent, but contributes close to 60 percent of GDP. Large percentage of informal workers (93 percent) have low earnings, no social protection and low levels of education and skills. Female labor force participation rates are not only very low, but they are engaged much more in informal and lower-paid activities. There is considerable exclusion in access to good (formal) jobs in terms of regions, education, occupations and social groups. [CITATION Sha \ 16393].

The recent trends in labor markets in India shows slow transfer of workers from agriculture to other sectors, increasing informalisation and 'contractualization' and shrinkage in collective bargaining. Even in formal sector, majority of workers are of informal/ flexible categories leading to increasing labor market inequalities. These include widening wage differentials between groups and sectors, widening gap between per worker earnings in agriculture and non-agriculture, increasing share of capital and declining share of wages among others. Formal sector also shows striking inequality, with significant increase in hiring of contract and other flexible categories of workers. This has led to rising inequality in remuneration of production and managerial workers from at 2:1 in late 1990s to around 4.5: 1 today.

## 3.2 Current Labor Laws and their Effects

The central laws dealing with labor issues include:

- 1) **Industrial Employment (Standing orders) Act 1946.** This Act defines the conditions of employment. Model standing orders deal with classification of workers, holidays, shifts, payment of wages, leaves, termination etc. The workers are classified as: a) apprentice/trainee; b) casual; c) temporary; d) substitute; e) probationer; f) permanent; and g) fixed period employees



- 2) **Workmen's Compensation Act 1923.** This Act requires the employers to pay compensation for an accident suffered by an employee during the course of employment.
- 3) **Industrial Disputes Act 1947.** This Act provides for the investigation and settlement of industrial disputes in an industrial establishment relating to lockouts, layoffs, re-trenchment etc. The Act lays down the conditions that shall be complied before the termination/re-trenchment or layoff of a workman who has been in continuous service for not less than one year under an employer.
- 4) **Employees Provident Funds and Miscellaneous Provisions Act 1952.** This Act seeks to ensure the financial security of the employees in an establishment by providing for a system of compulsory savings often matched by the employers to a certain extent.
- 5) **Maternity Benefit Act 1961.** The Act regulates the employment of the women in certain establishments for a prescribed period before and after child birth and provides certain other benefits. The Act does not apply to establishments which are covered under the Employees State Insurance Act 1948.
- 6) **Minimum Wages Act 1948.** The Act prescribes minimum wages for all employees in all establishments or working at home in certain employments specified in the schedule of the Act. Central and State Governments periodically revise the minimum wages specified in the schedule.
- 7) **Payment of Wages Act 1936.** The Act specifies the common obligations of the employer in payment of wages, periodicity, method of payment etc.
- 8) **Payment of Bonus Act 1965.** The Act provides for the payment of bonus to persons employed in certain establishments on the basis of profits or on the basis of production or productivity.
- 9) **Payment of Gratuity Act 1972.** The Act provides for a scheme for the payment of gratuity to all employees in all establishments employing ten or more employees to all types of workers.

### 3.3 Labor Reforms

The labor regulation in India has focused largely on a miniscule proportion of the total workforce in the organized sector. As the unorganized workers struggle to seek relief under various laws, they have been consistently falling out of the protective realm of the fundamental labor regulations. The share of unorganized employment in the formal sector rose from 37.82 percent in 1999-2000 to 57.83 percent in 2009-10.7 The Minimum Wages Act is supposed to cover 38.1 percent of the total workforce but actually covered only 3.6 percent in 1999-2000. Other laws covered even lesser proportion of workers – Industrial Disputes Act at 2.6 percent, Industrial Employment (Standing Order) Act at 1.3 percent, Shops and Establishments

Act at 1.7 percent and Workmen's Compensation Act at 0.7 percent. That these realities may have only changed adversely for workers since the 1999-2000 is evident in, among other facts, the consistent push of the government and judiciary to restrict the purview of labor regulation (Madhav 2016) [CITATION Diy19 \l 16393].

The industrial relations system and some other aspects of labor market are still governed by mainly four labor laws: **Trade Union Act 1926; Industrial Employment (Standing Order) Act 1976; Industrial Disputes Act 1947 and Contract Labor Act.** With growth in flexible categories of workers, these labor laws apply to only about 7 percent of all workers and in the case of laws relating to industries, a miniscule proportion of about 2 percent of all workers. However, deregulation and flexibility are central issues in labor reform debates. Some provisions particularly in Industrial Disputes Act, Industrial Employment Act and Contract Labor Act are seen as restricting investment, growth and employment. [CITATION Sha \l 16393].

The Ministry of Labor has started working on amalgamating 44 different labor laws into four codes, dealing with **wages, industrial relations, social security and health, safety and working conditions.** The first of these the new **wage code bill** was enacted earlier this year which will extend the minimum wage coverage provisions to 500 million workers, including agricultural workers, painters, persons working in restaurants and dhabas and chowkidars, who were outside the ambit of minimum wages previously. Under the code the definition of wages is streamlined by amalgamating four related statutes: the Minimum Wages Act, 1948, the Payment of Wages Act, 1936, the Payment of Bonus Act, 1965, and the Equal Remuneration Act, 1976.

The reform in archaic labor laws has just begun. The guiding principle has to be improvements in quantity and quality of employment and balancing the interests of enterprises and workers. While the ongoing measures attempt to enhance security of workers to some extent, efforts seem in to be more towards facilitating the use of flexible labor and reducing further the already weak collective bargaining system. Some important reforms in labor regulation machinery may address:

1. Simplification, rationalisation and consolidation of labor laws which are important both in the interest of workers and enterprises. This is very time consuming but the exercise has brought about labor code act.
2. In spite of weak empirical evidence, provision relating to prior state permission for closures needs to be rationalized or done away with.
3. Higher separation benefits and evolving a fair, transparent and faster system for adjudication for disputes [CITATION Sha \l 16393].
4. Strengthening a collective bargaining system as multiplicity of unions and Elected Workers' Councils has made them vulnerable to various pressures that may not work in favour of the employees.



# 4 FORMAL AND INFORMAL JOBS

## 4.1 Grade of Formal and Informal

There are a few very broad and clear distinctions in different kinds of jobs. The first is the distinction between the organized and unorganized parts of the economy, defined largely by the size of the workplace and accompanying regulations regarding working hours, hiring and firing norms, rights of association, minimum wages, and other aspects of employment. The second is the distinction between formal and informal work, defined by the nature of the labor contract. As per the Employment and Unemployment Survey of 2015-16, only 17 percent of the workforce consists of salaried individuals while 46.6 percent of the workers belonged to the self-employed category as shown in the pie chart. In 2015, non-regular workers constituted 80 percent of all employment. Considering only the wage employees, 68 percent were in informal wage employment in 2015 [CITATION Ami18 \l 16393].

Figure 4.1

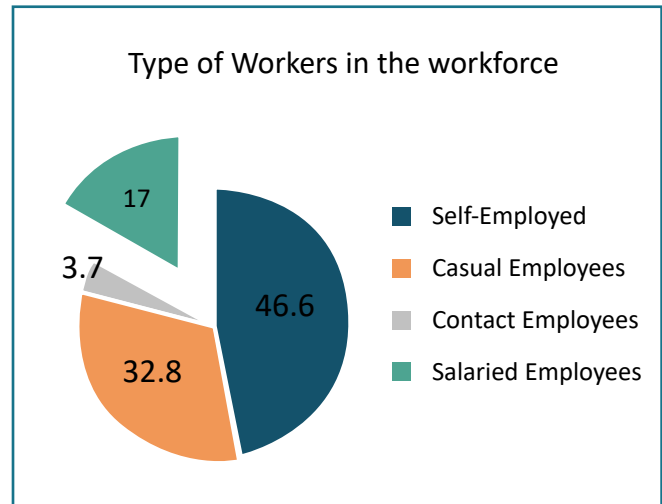


Table 4.1

Employment Type	Enterprise Type	
	Organized	Unorganized
Formal	Regular salaried work with some job security and benefits, in enterprises employing 10 or more workers.	Regular salaried employment with some benefits, in enterprises employing < 10 workers.
Informal	Various types of contract work and employment of short duration, without job security, in enterprises employing 10 or more workers	All types of casual work, work for daily, weekly, or monthly wages, and self-employment with no benefits or security, in enterprises employing < 10 workers.

As discussed above, jobs can be classified along two major typologies - formal vs informal jobs and organized vs unorganized. The table above displays the two interesting dichotomies. When the type of enterprise is overlaid alongside the type of work as in the table above, this provides a conceptual framework for identifying informal employment which includes work in unorganized sector, as well as in the organized sector that is not subject to regulation (Husmanns 2004). Further, the vast self-employed sector, consisting of those who work for themselves, is also outside the scope of most laws pertaining to wages and working conditions. This framework has been broadly adopted by the National Commission on Enterprises in the Unorganized Sector (Sengupta et al. 2007), which identified informal workers as those 'working in the unorganized enterprises or households, excluding regular workers with social security benefits, and the workers in the formal sector without any employment/ social security benefits provided by the employers'. By this definition, which includes the self-employed, over 80 percent of the workforce would fall into the informal category [CITATION Ami18 \l 16393].

The diversity of labor contracts makes any clean division between 'formal' and 'informal' difficult. We find, instead, degrees of formality and informality. For example, the availability of social security benefits alongside employment seems to be the overriding identifier of formality of employment.

However, there are multiple interpretations of what constitutes social security and consequently, multiple definitions of formal employment. Indicators such as availability of paid leave, provision of provident fund, availability of a written contract, or a combination of indicators is used to gauge formality of employment. Since information on social security benefits has only recently begun to be collected, studies have typically used a regular versus casual distinction to distinguish formal wage workers from informal ones. 'Regular work' is an expansive definition of formality. For example, a worker in a microenterprise who has no written contract or benefits, but is being paid a monthly salary on a long-term basis, would count as a regular worker.

## 4.2 Formal Education and Widening un-employability

The decade of 2000-2011 added 31 million graduates and post graduates to the potential workforce in India and 110 million with secondary and higher secondary education (this is the bulk of India's workforce). Whilst falling year on year, there are still 447 million illiterates in India. Graduates increased by 50 percent to 32 million and post graduates nearly doubled to 12 million in the period between 2004-05 and 2011-12. However, they form less than a tenth of India's workforce today. Strangely, however, having higher education is not a guarantee for a job. A quarter of the 18 million unemployed in India are graduates or post graduates, while another 15 million graduates and 4 million post graduates are opting not to work [CITATION IMA17 \ 16393].

While education can lead to employment, traditionally, there has been significant pressure on students in India to take up vocational courses like engineering or medicine for better employability. Yet we see issues in the employability of students with best qualifications such as engineering, software etc. A report by Aspiring Minds delved on widening unemployability among the youth, in particular engineers. It claimed that only 18.43 percent of engineers were employable for the software services sector and that around 95 percent of engineers produced by India were unfit for software jobs.

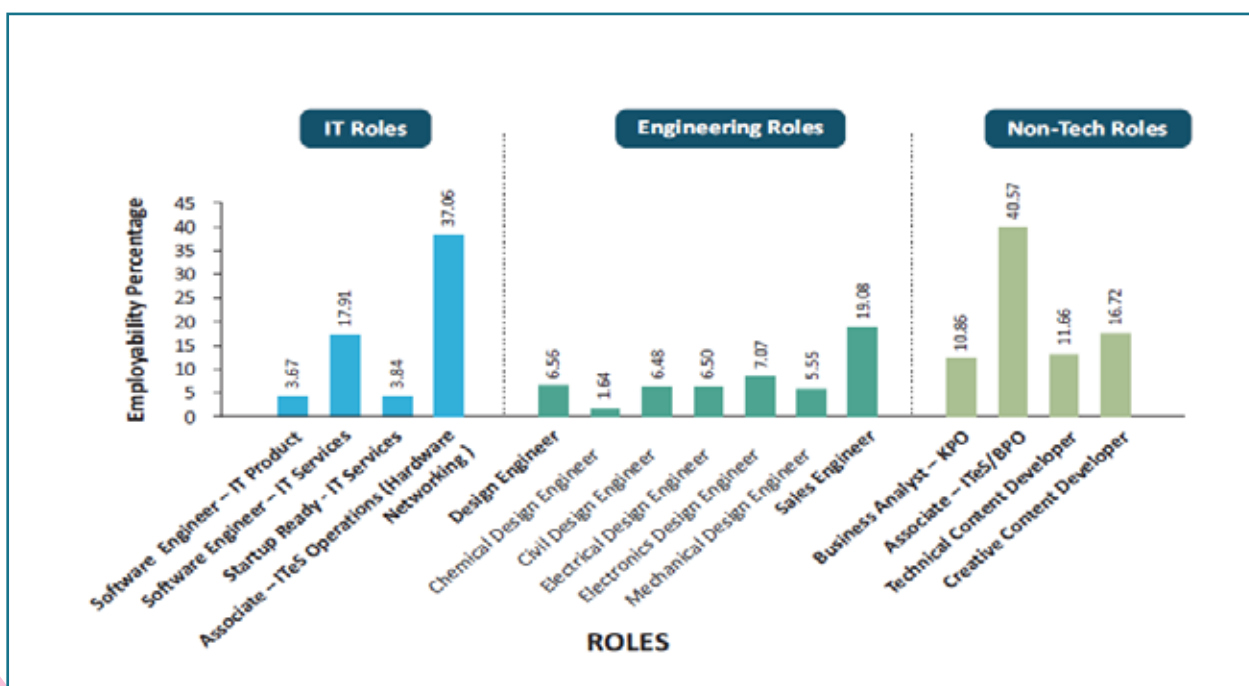
To sustain growth in the start-up space, there is a need for candidates with higher technology savvy, understanding of new products and requirements and the attitude to work in a start-up. Unfortunately, the report finds that only 3.84 per-

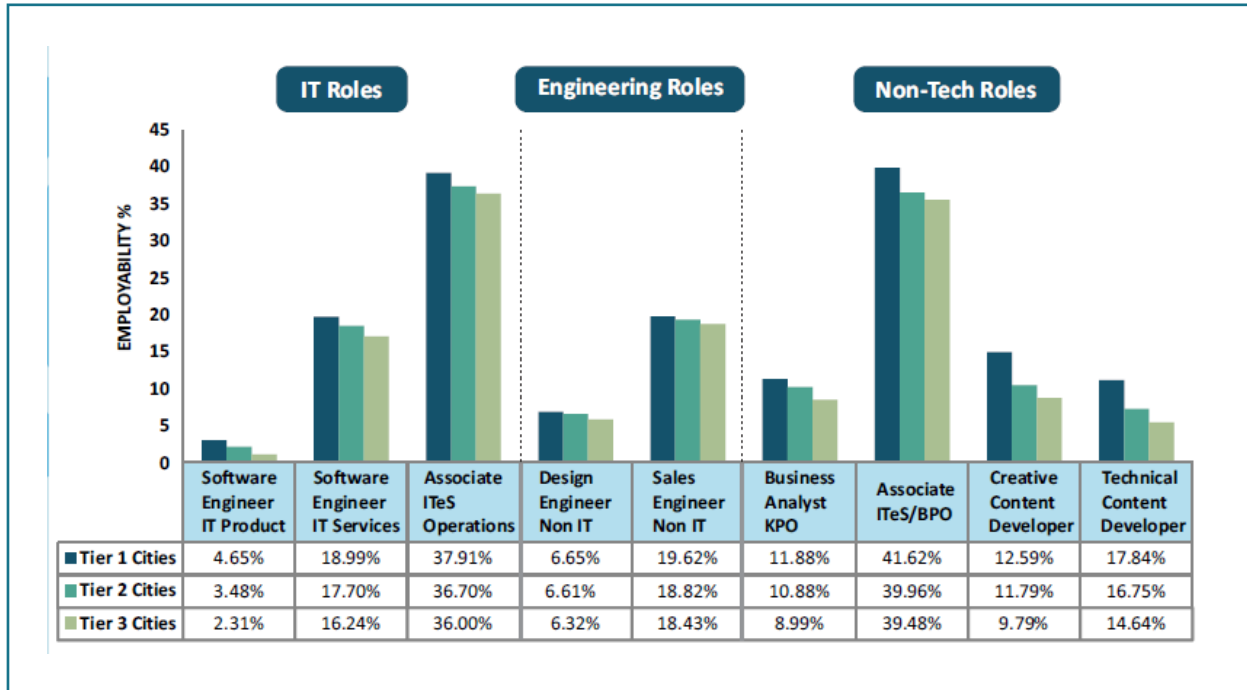
cent of engineers qualify for a start-up technology role. Only 6 percent of students were interested to work for a start-up in 2016. Students from tier 1 colleges are most inclined to work in start-ups compared to others. Men have a higher inclination to work in start-ups than women. More students are opting to work for start-ups compared to the previous year. While this is good news, there is still a long way to go as only a handful of candidates (8 percent) are interested to work for start-ups [CITATION Asp16 \ 16393].

The salary aspiration of students is also increasing. In 2015, the median salary aspiration was INR 310,000 per annum, which increased to INR 340,000 in 2016, implying that the market is also paying higher salaries. The median salary for the same skill was INR 282,000 in 2015, which increased to INR 313,000 in 2016. This means that talent is getting expensive due to the huge demand of manpower in technology sector and lack of supply. However, it is important to note that this supply is artificially low: more than 25 percent of employable candidates are beyond the top 750 engineering colleges. This pool of candidates is missed out by companies. To ensure that the war for talent doesn't lead to salaries going out of control, there is a need to find ways of better meritocratic matching of students with jobs [CITATION Asp16 \ 16393].

In India, there are 104 males for every 100 females making the male-to-female ratio (MFR) 1.04. In contrast, the Male to Female ratio in engineering colleges is 1.68. This shows that a lower proportion of females make it to engineering courses as compared to males. Analysis shows that employability for males and females is almost equal, making each role bereft of any gender-bias.

**Figure 4.2:** Employability Percentage of Engineering Graduates in Different Roles



**Figure 4.3:** Employability Percentage across Tier 1, Tier 2, and Tier 3 Cities

It may be argued that colleges located in Tier 1 cities provide better exposure to students. They may also be the preferred destination for students who have the luxury of choice (and are hence academically superior) and probably the first choice for candidates permanently residing in Tier 1 cities. While there is a drop in employability percentage as one moves from tier I to tier II and tier III cities, the drop is only marginal across most job categories. More important conclusion is that employability is low across the board, irrespective of the location. [CITATION Asp16 \ 16393].

### 4.3 Employee Welfare Issues

In recent years, a number of changes have been brought to address the employee welfare concerns. The Payment of Bonus Amendment Act 2015 enhanced the eligibility limit from Rs.10,000 per month to Rs 21,000 per month and calculation ceiling from Rs 3,500 to Rs 7,000 or the minimum wage for scheduled employment as fixed by the government, whichever is higher. The Maternity Benefit (Amendment) Bill, 2016 enhanced the maternity benefit to woman covered under the Maternity Benefit Act from 12 weeks to 26 weeks for up to two surviving children, enabling the mother to take care of the child during the most critical formative stage. It also introduced maternity benefit of 12 weeks to the commissioning mother (in case of surrogate child) and adopting mother (in case of adoption), facilitate “work from home” to a mother with mutual consent of the employee and the employer. It also makes mandatory for establishment having fifty or more employees, to have the facility of crèche either individually or as a shared common

facility and allow four visits to the crèche by the woman daily [CITATION Ini16 \ 16393].

The Employees’ Compensation (Amendment) Bill, 2016 rationalized the penalties and strengthened the rights of the worker. The Child Labor (Prohibition and Regulation) Amendment Bill, 2016 stipulates complete prohibition on employment of children below 14 years and proposed more stringent punishment for violations. However, children are allowed to help in their family enterprises only in non-hazardous occupations and that too only after school hours or during vacations. Amendment also prohibits Adolescents in the age group of 14-18 from being employed in hazardous occupations [CITATION Ini16 \ 16393].

Since 2014-15, the government has moved towards an architecture which combines the unique identification (**Aadhaar**) of every individual with the payment of benefits through bank accounts facilitated by mobile-based applications. The JAM trinity combining financial inclusion through a **Jan Dhan** account, unique identification number through the AADHAR and Mobile enables efficient and targeted implementation of various government schemes.

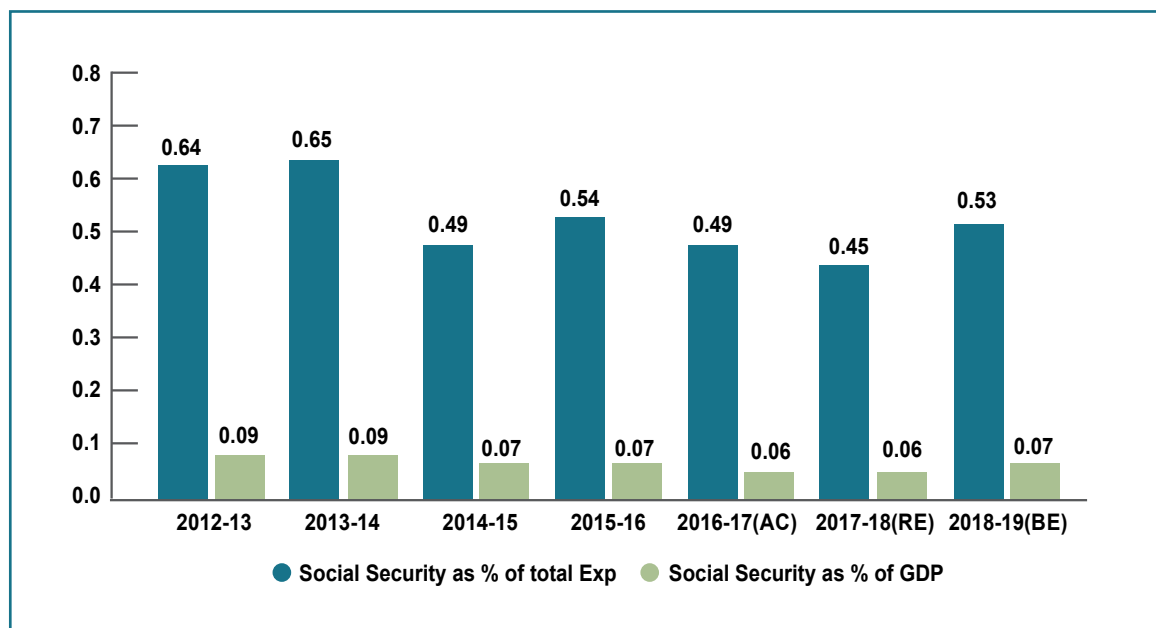
The Pradhan Mantri Suraksha Bima Yojna (PMSBY) provides an accidental death risk cover of INR 2 lakh for a premium of just INR 12 per year. The Atal Pension Yojana (APY) provides a defined pension, depending on the contribution, and its period. To encourage people to join this scheme, the Government announced a matching contribution of 50 percent of the beneficiaries’ premium limited to INR 1,000 each year, for five years, in the new accounts opened before 31st De-

ember, 2015. The Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) covers both natural and accidental death risk of INR 2 lakhs.

These schemes signaled the government's intention to move to a contributory social insurance mode of social security with minimum budgetary support. Apart from the premium amounts, there are rigid conditions on potential members,

who have irregular incomes and are not aware of the intricacies of auto-debit. Premium contributions are restrictive and constitute a first charge on meagre savings. Due to exclusive focus on these contributory schemes, the overall expenditure on social security as well as the percentage of GDP allocation to the same has come down as demonstrated in the following chart [CITATION Diy19 \l 16393].

**Figure 4.4:** Social security Expenditure as % of GDP total expenditure



Source: OXFAM report: *Mind the Gap- The State of Employment in India 2019*

## 4.4 Invisible Employees

The informally employed constitute an overwhelming majority of the workforce in India accounting for between 70 to 90 percent of the labor force depending on the definition used (NSSO, Government of India, 2011). Identified by the lack of social security benefits, these jobs occur in different guises and forms. Persistence of this form of employment despite economic growth has given rise to alternative explanations. Some theorise that the informal economy is intrinsically linked to the formal and hence grows in tandem ('structuralists') through subcontracting and outsourcing arrangements (Ghose & Chandrasekhar, 2015; Unni & Naik, 2013) while others opine that participation in the informal economy may be voluntary because the benefits of informal employment outweigh those of the formal employment ('voluntarists') (Amuedo-Dorantes, 2004; Günther & Launov, 2012; Maloney, 2003). In such cases, the informally employed may be highly educated, skilled professionals working independently in non-formal employment arrangements. One can see that all of these motivations may be operating simultaneously (Fields, 2004; Maloney, 2004) [CITATION Ros16 \l 16393].

The Employee Provident Fund Organization (EPFO) reported that 4 million new employees were added to the EPFO database in 2017. With an annual increment to the labor force of between 6 and 12 million (depending on assumptions about what fraction of those entering the working-age population is entering the labor force), this constitutes between one-third or two-thirds of new jobs. This, in turn, suggests that the increase in number of jobs of reasonable quality may have increased. One needs to be cautious, however, in interpreting such administrative data. First, the interpretation runs counter to the information coming from labor surveys and other evidence that point to falling aggregate employment. Moreover, it is unclear whether these are new jobs or simply increased numbers arising out of compliance with laws for existing jobs, given the incentives advanced to firms for enrolling their employees. While enrolment to EPFO is welcome from the welfare point of view, the conversion of informal employment to formal employment cannot be confused with net new job creation. In any case, EPFO share of total employment is still only around 12.5 percent [CITATION Ami18 \l 16393].

Labor market rigidities, poor skill levels, competition from imports as the factors inducing creation of informal employment and decline in formal employment opportunities. Labor market rigidity is blamed on the multiple labor legislations that restrict the flexibility to hire and fire in line with the market demand conditions. A CII Report shows that even when the labor reform index is high (indicating labor regulations being relaxed through procedural changes, simplifying compliance and limiting the scope of regulations), the jobs that were created in the manufacturing sector were still informal in nature. Irrespective of labor reform being a hindrance or otherwise, the extent of informal employment was uniformly high across major industrial States, indicating that labor reform alone will not reduce informalisation [CITATION ASr14 \ 16393].

Informalization is an outcome of numerous socio-economic factors such as poorly educated labor force, traditional occupations, poor financial inclusion, combined with lack of motivation or aspirations. The regulatory and taxation regime may also be an important driver for informalization. Micro and small enterprises need to see the benefit of formalization such as access to finance, infrastructure, market information and access, government incentives, safety nets for enterprises and their workers before they can make the leap towards formalization. The trend of informalisation may also see a reversal with an improvement in skill levels of the workforce that match the requirements of the job market and at the same time improve the bargaining power of the workforce to settle for decent wages, social security and job security [CITATION ASr14 \ 16393].





## 5 MEASUREMENT CHALLENGES

Given the fact that a significant size of the workforce is employed informally, measuring the employment on various parameters becomes a challenge. As discussed in previous sections, the lack of basic social security provided by employers and efforts by the successive governments both in providing basic social security and then creating awareness so that informal workers get to know about their rights and benefits is dismal. This creates a challenge for identifying and measuring the kind of informal employment, location, duration, level of skills required, availability of social security benefits etc.

The ILO defines employment in the informal sector as comprising all jobs in informal sector enterprises, or all persons who, during a given reference period, were employed in at least one informal sector enterprise, irrespective of their status in employment and whether it was their main or a secondary job. A criticism made of the informal sector definition adopted by the ILO is that persons engaged in very small-scale or casual self-employment activities may not report in statistical surveys that they are self-employed, or employed at all, although their activity falls within the enterprise-based definition. Another criticism is that informal sector statistics may be affected by errors in classifying certain groups of employed persons by status in employment, such as outworkers, subcontractors, free-lancers or other workers whose activity is at the borderline between self-employment and wage employment. Women are more likely than men to be engaged in such activities. Still another criticism is that an enterprise-based definition of the informal sector is unable to capture all aspects of the increasing so-called 'informalisation' of employment, which has led to a rise in various forms of informal employment [CITATION Ra104 \16393].

J Krishanmurthy and G Raveendran in the report "Challenges of Employment in India" by the National Commission For Enterprises In The Unorganized Sector (2009) suggest a new set of measures of labor force, employment and unemployment which would be better suited for many purposes than those currently in use along with new measures of labor time utilization and underemployment. The Labor Force Participation Rate (LFPR), obtained by dividing the number of persons in the labor force by total population, is an important parameter in employment projections. The crucial issue, however, is the basis, or the decision rule, on which a person is classified as belonging to the labor force. Four different concepts are used in India in this regard. These are:

**Usual Principal Status (UPS), Usual Principal and Subsidiary Status (UPSS), Current Weekly Status (CWS), and Current**

**Daily Status (CDS).** UPS reflects the status of an individual over a reference period of one year. The UPSS concept was introduced to widen the UPS concept to include even those who were outside the labor force on the basis of the majority time criterion but had been employed during some part of the year. The concept of Current Weekly Status (CWS) has been in use in the labor force surveys in India for a long time. Under CWS, a person is classified to be in labor force, if s/he has either worked or is seeking and/ or available for work at least one hour during the reference period of one week preceding the date of survey. The Dantwala Committee proposed the use of Current Daily Status (CDS) rates for studying intensity of work. These are computed on the basis of the information on employment and unemployment recorded for the 14 half days of the reference week. The employment statuses during the seven days are recorded in terms of half or full intensities. An hour or more but less than four hours is taken as half intensity and four hours or more is taken as full intensity [CITATION JKra \16393].

A good employment/unemployment measure should depict the baseline situation in a realistic and consistent manner, identifying those individuals who have a substantial attachment to the labor force and who spend a good part of their time at work or in unemployment. In our predominantly rural, agrarian economy, it should enable us to identify patterns of seasonal change over the different parts of the year. Hence, J Krishanmurthy and G Raveendran suggest the use of Modified Current Weekly Status (MCWS).

In both UPSS and CWS, the priority criterion results in over-estimation of the work force, because even the persons who normally remain outside the labor force most of the time would get included in the labor force if they spent just above 30 days in a year (UPSS) or one hour in a week (CWS) in an economic activity like gathering of uncultivated crops, collection of firewood, cleaning of household enterprise premises, etc. The UPSS and CWS as currently used, therefore, have limited value in estimating trends in employment and unemployment and projecting labor force. MCWS approach had been used many years ago by Prof. Pravin Visaria in an exercise involving re-tabulation of NSS data for some States [CITATION JKra \16393] **Error! Reference source not found..**

Unlike CWS, the MCWS takes better account of the time disposition of each individual over the 14 half days. It follows a two-step procedure. First, it assigns individuals to the labor force if the majority of their half-days were in the labor force. Second, within the labor force, it uses the majority time prin-

ciple to classify individuals among the two activity statuses, employed and unemployed. Only in a few cases, where the majority time rule does not give a unique solution, is the criterion of priority for labor force and employment invoked [CITATION JKra \l 16393].

Under MCWS, each surveyed individual is uniquely classified as within or outside the labor force, and again as employed

or unemployed by consistently applying the majority time principle to the time disposition information relating to all the 14 half-days of the week. The labor force estimates based on MCWS includes only those who were in the labor force during major part of the week. A member of the MCWS labor force would have been working or unemployed or a combination of both for at least 3.5 days in the reference week [CITATION JKra \l 16393].



# 6 WAGES AND INEQUALITY

## 6.1 Gender based inequality

As per the Employment Unemployment Survey (EUS) 2011-12, out of the 402 million persons aged between 15 to 64 years who were employed, only 28 percent (112 million) were women compared to 72 percent (290 million) men, indicating a very low level of workforce participation for women. More than half (51.4 percent, or 206 million people) were self-employed. Among women workers only 30 percent were in regular/ salaried employment.<sup>6</sup>

As per PLFS (2017-18), the Labor Force Participation Rate (LFPR) stood at a mere 49.8 percent, a sharp decline of 6.1 percentage points from 2011-12. For females, this figure was a paltry 23.3 percent, down from 31.2 percent in 2011-12. Less than half of the total working age population and a mere one-fifth of women in the working age cohort are available and seeking work in an economy which is set to be one of the biggest beneficiaries of the demographic dividend [CITATION Rad19 \I 16393].

A large part of the decline in the LFPR in this cohort is driven by women. The chapter on workforce participation of wom-

en deals with this in more detail. In this chapter, we only look at the gender wage gap.

Gender-based discriminations are pervasive in Indian labor market and the practice is common across various sectors. There is substantial gender gap across sectors. Irrespective of employment category (casual and regular/salaried) and location (urban and rural), women workers are paid a lower wage rate (Table 1.3). Table 1.3 shows the male and female wage rates of casual and regular workers (Diya Dutta et al, 2019).

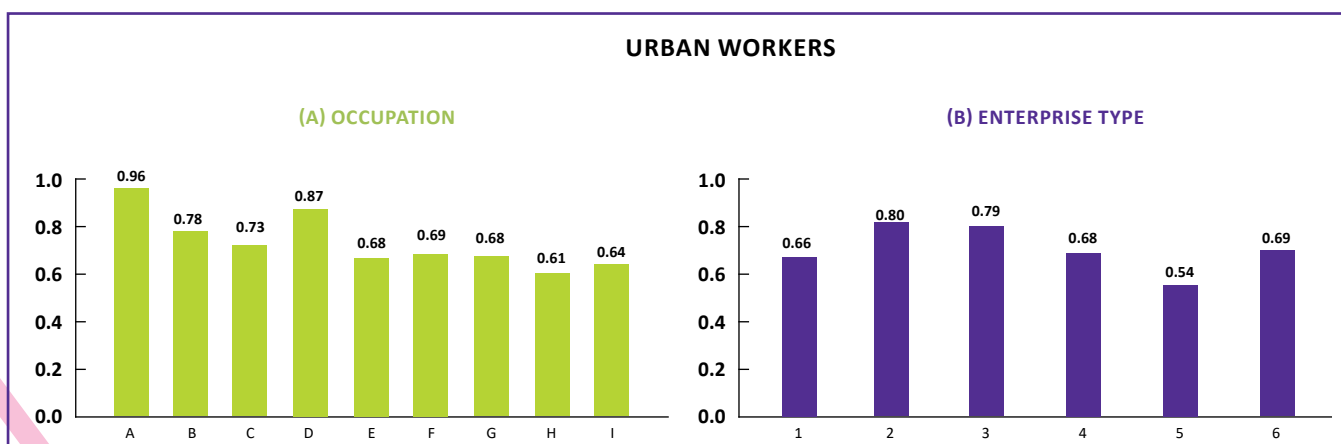
Gender pay gap exists in almost all occupations. There are two clear takeaways from the analysis of the 68th round of the NSSO Employment and Unemployment Survey (2011-12), First, irrespective of occupation or enterprise type, a female worker earns less than a male worker. Second, there are variations in the wage differences across various occupations and enterprise type. The wage difference is lesser for more skilled workers and more for semi-skilled or unskilled workers. Across enterprise type, wage difference is less for Government/public sector and Public/Private limited company, and more in the Employer's households.

**Table 6.1:** Average daily wages, by sub-group and gender, 2011-12 (INR in Nominal Terms)

Male		Male	Female	Male Female Wage Gap
Regular	Urban Workers	470	365	105
	Rural Workers	324	201	123
Casual	Urban Workers	184	112	72
	Rural Workers	151	104	47

Source: Estimates based on NSSO data

**Figure 6.1:** Ratio of average daily wage of a female worker to a male worker (in 2011-12)



## 6.2 Caste Based Inequality

There are significant data constraints in addressing the problem of measurement of caste in employment in India. Firstly, wage and income data are sparse. The only recent nationally representative large sample survey of incomes is the employment–unemployment survey conducted by the Labor Bureau in 2015–16. But this survey did not collect data on exact rupee amounts and instead asked respondents to choose an income category. It provides information for self-employed workers as well as wage workers.

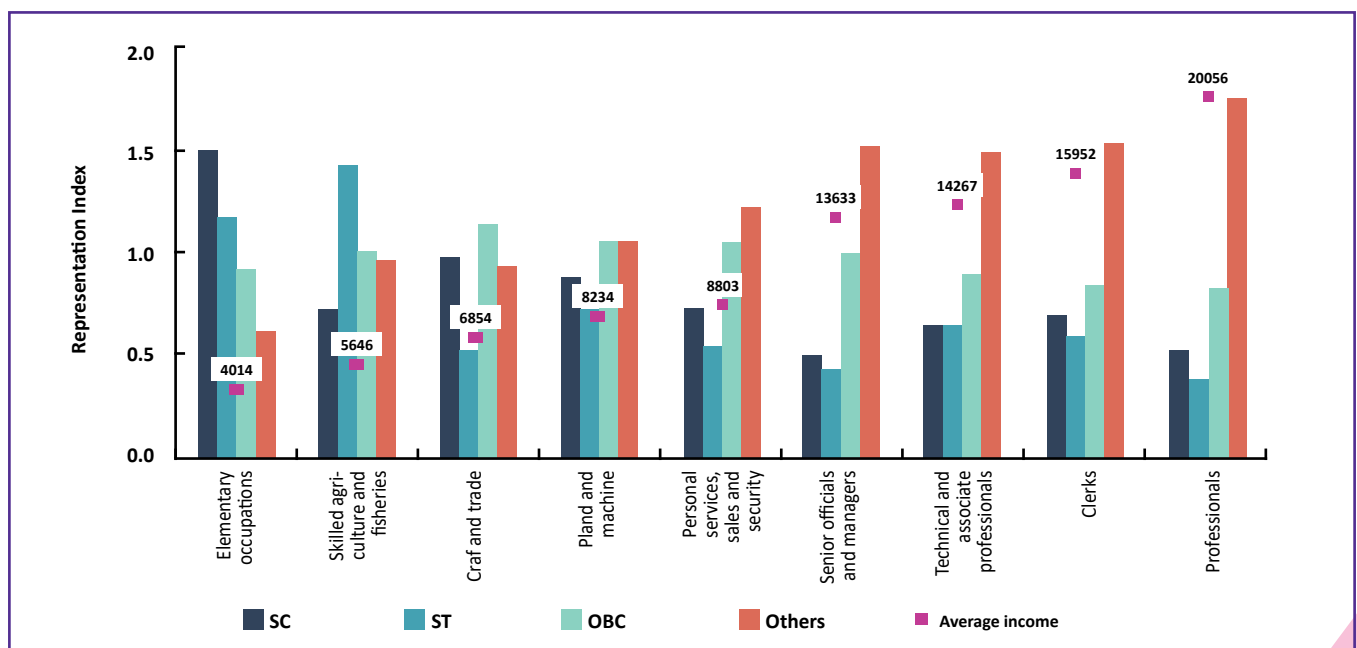
Secondly, in most surveys, ‘caste’ is categorized into large sub-groups such as scheduled tribes (ST), scheduled castes (SC), other backward classes (OBC), and ‘Others’, the last one usually taken as a proxy for upper castes. Recent research confirms that such categories can hide important variation between castes (Joshi et al 2018). Thirdly, the LB-EUS does not include information on religious identity. This is a very important omission that does not allow us to examine the state of religious discrimination and segregation in employment. Absence of data compels us to focus only on caste and gender in this chapter. We emphasize, however, the need to study religious dimensions of the Indian labor market, which has generally been less explored than caste and gender.

Household surveys can be supplemented with enterprise surveys at least for gender analyses. Wage and income data are also available in enterprise surveys such as the ASI and the NSS establishment surveys for the unorganized sector. These surveys usually do not report on the caste of workers, but the ASI reports the gender of the worker, and NSS surveys report the gender of the working owner or entrepreneur

in the unorganized sector. We use all the above sources to construct a picture of occupational and industrial segregation as well as earnings gaps. The data for this analysis comes from LB-EUS (2015), NSS-EUS (2004 and 2011), ASI (2000 to 2014) and NSS enterprise surveys (1994, 2000, 2005, 2010, 2015) (Amit Basole, 2018).

NSS data have been used to show that upper caste Hindus have a higher chance of securing regular employment than SC and ST groups (Das and Dutta 2007). Thorat and Attewell (2007) conducted a study of call-backs to job applications analogous to the one by Bertrand and Mullainathan (2004) that showed racial discrimination in the US labor market. The US study used identical resumes randomly assigned to African-American and white sounding names. In the Indian case, otherwise identical resumes had names assigned to them that were easily identifiable as Hindu uppercaste, Hindu Dalit, or Muslim. These were sent in response to job advertisements by domestic and multi-national companies in New Delhi (2005–06). The authors found higher call-back rates for the first category compared to the other two. Chakravarty and Somanathan (2008) find that SC and ST MBA graduates from the Indian Institute of Management (IIM), Ahmedabad, get significantly lower wages than those in the general category. But the difference disappears after taking Grade Point Averages into account. Recent work by Joshi and Malghan (2017) shows that faculty at IIMs are themselves drawn largely from upper-castes. There is almost no representation of SC and ST groups. Thus, caste discrimination in the Indian labor market cannot be viewed separately from that in the educational system. We now undertake an exploration of caste-based occupational and industrial segregation as well as earnings gaps since 2011.

**Figure 6.2:** SC and ST Groups are Over-Represented in Poorly Paid Occupations while Upper castes are Over-Represented in Well-Paid Ones



Sources and notes: LB-EUS 2015: Representation Index - (% in occupation/ % in workforce). Numbers indicate average monthly

Figure 5.10 shows these values for all caste groups and occupations for 2015. Note that occupations are arranged from left to right in order of increasing average remuneration or earnings. The pattern is very clear. In 2015, SC as well as ST groups were over-represented in low paying occupations and severely under-represented in the high paying occupations. Especially among professionals and managers, a value of 0.5 indicates that the percentage of SC individuals is half their representation in the general population. The situation is even worse among ST groups (0.4).

### 6.3 Wage trends

Indian labor statistics, especially in recent years, do not provide comparably collected wage data for every sub-sector of the economy. Departing from the NSS practice of collecting rupee amounts for wages, the LB-EUS categorized earnings instead. The headline statistic from the LB-EUS is that, nationally, 67 percent of households reported monthly earn-

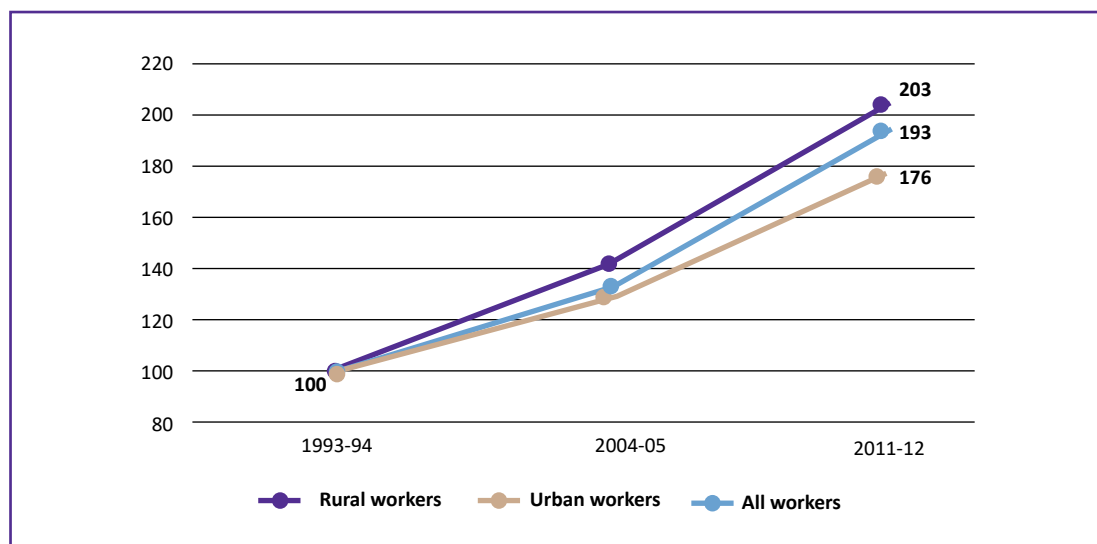
ings of up to ₹10,000 in 2015. In total, 98 percent earned less than ₹50,000 per month (Table 4.2). Earning over ₹1 lakh per month puts a household in the top 0.2 percent of income earners in the country. Even among regular wage workers, more than half (57 percent) have monthly average earnings of ₹10,000 or less, well under the Seventh Central Pay Commission (CPC) minimum stipulated salary of ₹18,000 per month. As for casual workers, 59 percent have monthly earnings of up to ₹5,000. If we assign the midpoint of a category as the approximate rupee amount earned, we find that regular workers report monthly earnings of ₹13,562, while nonregular workers earn ₹5,853 per month. To take the analysis forward, we use the current lowest wage recommended by the Seventh CPC, namely, ₹18,000 per month, as the standard for a 'decent wage'. It has also figured prominently in the Swaminathan Commission recommendations for agriculture, as well as among the demands of several national trade unions (Amit Basole, 2018).

**Table 6.2 :** Average Monthly Earnings by Employment Status, 2015-16

	Sell Employed (%)	Regular Wages/ Salaried (%)	Contract Workers (%)	Casual Labour (%)
Up to ₹5000	41.3	18.7	38.7	59.3
₹5001 to ₹7500	26.2	19.5	27.9	25
₹7501 to ₹10,000	17.4	19	20.3	12
₹10,001 to ₹20,000	11.1	23.6	11	3.5
₹20,001 to ₹50,000	3.5	17.7	2.1	0.3
₹50,001 to ₹1,00,000	0.4	1.4	0.1	0
Above ₹1,00,000	0.1	0.2	0	0

Sources and notes: LB-EUS 2015.

**Figure 6.3:** Evolution of daily wages, urban and rural, 1993-94 to 2011-12 (base year 1993-94 = 100)



Source: ILO estimates based on NSSO data.



The growth rate of daily wages increased for both urban and rural areas. Overall, rural wages have performed better, with a significant growth in wages for rural workers (5.3 percent) between 2004–05 and 2011–12 compared to the growth in wages for urban workers (4.5 percent). In spite of this, daily wages remain more than twice as high in urban areas (INR 384) as those in rural areas (INR 175) (table 4). For the entire country, the national average daily wage in 2011–12 was estimated at INR 247 (figure 7). These findings are consistent with other studies, which show that there is an overall narrowing of wage gap between rural and urban areas even though the disparities remain substantial (Hnatkovska and Lahiri, 2012; IHD, 2014) [CITATION Ind18 \I 16393].

Though many studies have distinguished between regular/ salaried and casual workers (Papola and Kannan, 2017) as proxies for formal and informal employment, this could be misleading in the real world. While all casual workers are informal workers, not all regular/salaried workers are formal workers, as many do not receive social security benefits, pensions or paid leave – the classic case being that of domestic workers. If we disaggregate the regular/ salaried workers into formal and informal employment based on their contracts and benefits, then we observe that regular/ salaried workers with formal contracts earn more than double the daily wage earnings of regular/ salaried workers with informal contracts. Figure 9 and table 5 show that between 1993–94 and 2011–12 the growth in daily wages was higher for casual workers (3.7 percent) than for regular/ salaried workers (3 percent), and that casual workers experienced an increase in wages during a more recent period (2004–05 to 2011–12). The wages of regular/ salaried workers grew by 2.3 percent

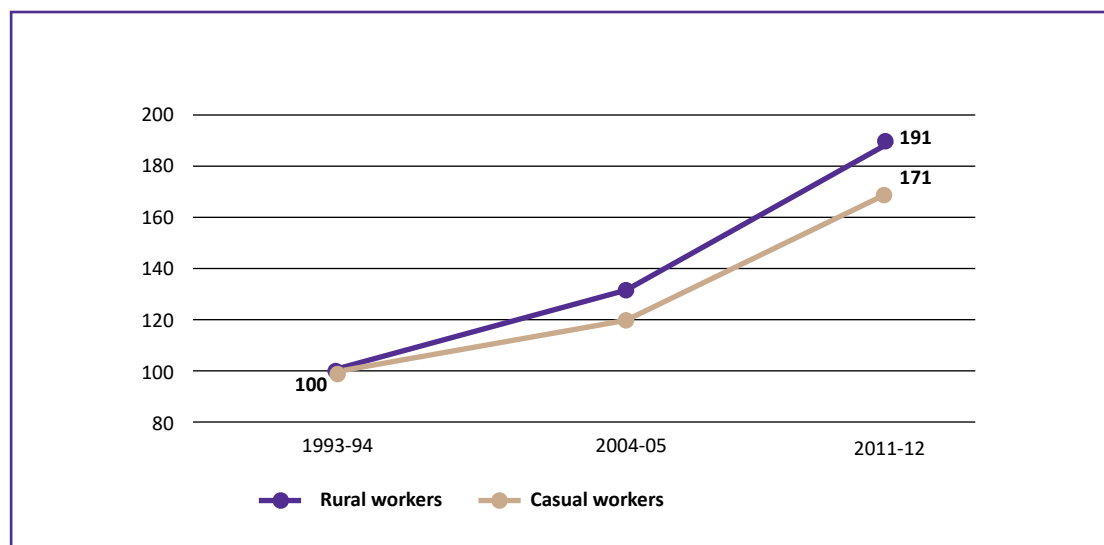
between 1993–94 and 2004–05 annually. A higher real wage growth rate for both regular/ salaried workers (4.2 percent) and casual workers (6.8 percent) was registered during the period 2004–05 to 2011–12, as well as a reduction of the wage differential between the two categories of workers [CITATION Ind18 \I 16393].

## 6.4 Minimum wages and formal and informal sector

Minimum wages can play an important role in supporting the wages of low-paid workers and reducing wage inequality. A literature review on the effects of minimum wages on employment shows that the emerging trend is that the effects of minimum wages on employment are usually small or insignificant (and in some cases positive)” (Kuddo, Robalino and Weber, 2015, p.11). This does not mean that minimum wages cannot have an adverse effect on employment if they are set too high. But it points towards the beneficial effects that minimum wages can have when they are set in a balanced way, taking into account both the needs of workers and their families as well as economic factors.

Table 4.3 gives real annual wage rates (in rupee values of 2015) by sector over a 15-year period for the years that data are available. A key caveat is that, for agriculture, we report annualized daily wage rates assuming employment is available for 25 days of the month, and 12 months of the year, at that rate. However, this is not the case in practice. Hence, these numbers should be treated as an upper limit. The most one can say is that, if work was available all year round, then

**Figure 6.4:** Evolution of regular and casual average daily wages, 1993-94 to 2011-12 (base year 1993-94 = 100)



Source: ILO estimates based on NSSO data.

earnings in agriculture would be comparable to earnings in the rest of the unorganized sector. Between 2000 and 2015, real wages grew in every sector. In agriculture and in unorganized manufacturing and services, the compounded annual growth rate (CAGR) was roughly 3 percent.

In the most recent period, from 2010 to 2015, real wages grew at a CAGR of 2 percent for organized manufacturing, 4 percent for unorganized manufacturing, 5 percent for unorganized services, and 7 percent for agriculture. However, the high figure for agriculture is anomalous and not the general trend. Papola and Kannan report that wages (across all sectors) grew at an annual rate of 6.15 percent for casual workers and 4 percent for regular workers between 2004

and 2011. Thus, overall, it appears that real wages have been growing at around 4–6 percent per annum over the past decade. Note that these data exclude the organized services sector, where anecdotal evidence suggests that industries such as Information Technology, Telecommunications, and Finance have experienced much higher rates of wage growth. Interestingly, wage growth in organized manufacturing has been slower than in the unorganized sector — at 0.8 percent over the entire period since 1999, and 1.7 percent in the most recent period. As a result, the wage gap between the organized and unorganized manufacturing sectors has narrowed. Unorganized sector wages were 37 percent of organized sector wages in 2000, but 50 percent in 2015 [CITATION Placeholder3 \l 16393].

**Table 6.3:** Annual Real Wage Rates per Annum across Sectors (2015 Prices)

Year	Agriculture (₹)	Organised Manufacturing (₹)	Unorganised Manufacturing (₹)	Unorganised Services (₹)
1999	49,014	1,22,118	45,227	49,014
2005	47,781	1,20,760	50,488	-
2010	55,491	1,28,173	57,928	56,150
2015	77,571	1,39,576	70,848	71,776

Sources and notes: Agriculture – Rural Wage Rates for en (daily) from RBI Database on Indian Economy, Organised Manufacturing – ASI various years, Unorganised Manufacturing and Unorganised Services - NSS enterprise surveys, various years.



# 7 GIG ECONOMY, CHANGING LIFESTYLES AND TELECOMMUTING

The labor markets are undergoing radical change, as digital platforms transform how they operate and revolutionize the nature of work. In many ways, this is a positive development, one that has the potential to match workers with jobs more efficiently and transparently than ever before. The ecosystem of digital labor platforms is still in its infancy, but it is developing rapidly. Large platforms like LinkedIn are also used to match high-skill workers with high-end jobs. These platforms are already expanding to accommodate middle-skill workers and jobs. (Laura Tyson, 2015).

The changes in digital platforms for employment generation apart from the changing forms of employment are leading to rapid development of gig economy, defined as labor market which supports temporary hiring including short-term contract and freelancing.

## 7.1 Factors leading to Gig Economy

A full-time job with one employer has remained the norm during last century. A narrow focus only on traditional jobs ignores tens of millions who put together their own income streams and shape their own work lives. Although independent work or self-employment is not a new phenomenon, it does not fit neatly into official labor statistics (James Manyika, 2016).

Independent work has three defining features: a high degree of autonomy; payment by task, assignment, or sales; and a short-term relationship between worker and client. Digital platforms are transforming independent work, building on the ubiquity of mobile devices, the enormous pools of workers and customers they can reach, and the ability to harness rich real-time information to make more efficient matches. Today these online marketplaces are used by 15 percent of independent workers. But the rapid growth of the tech platforms suggests we have only just begun to see their impact (James Manyika, 2016).

There are four key segments of independent workers: Thirty percent are “free agents,” who actively choose independent work and derive their primary income from it. Approximately 40 percent are “casual earners,” who use independent work for supplemental income and do so by choice. “Reluctants,” who make their primary living from independent work but would prefer traditional jobs, make up 14 percent. The “financially strapped,” who do supplemental independent work out

of necessity, account for 16 percent.

Free agents report higher levels of satisfaction than those in traditional jobs by choice. Those working out of necessity, whether as independent workers or in traditional jobs, report similar levels of dissatisfaction with their work. While this digital transformation unfolds, several other forces may fuel growth in the independent workforce: the stated aspirations of traditional workers who wish to become independent, the large unemployed and inactive populations who want to work, and increased demand for independent services from both consumers and organizations (James Manyika, 2016).

## 7.2 Current Size of Gig economy

India has about 40% of the freelance jobs offered globally, with 15 million skilled professionals fuelling the ever increasing demand of contract-based jobs or the freelance industry.<sup>9</sup> Freelancers are attracted to the gig economy because they can follow their niche and, at the same time, leverage the flexibility and independence that comes with it. Such workers or independent contractors can work from home, especially when the project is related to arts and design, information technology or creative writing. This also leads to freedom of choice for both, the employer as well as the worker or independent contractor, to look for other suitable options due to no restriction with respect to proximity to the workplace (Jha M. P., 2019).

According to a senior IMF economist, youth inactivity in India is at 30%, the highest amongst developing countries. Several websites, such as [www.guru.com](http://www.guru.com), [www.truelancer.com](http://www.truelancer.com) and [www.elance.com](http://www.elance.com) are providing a platform for employers to find the right human resource for their work. The Online labor Index, which was published under the iLabor project of Oxford University, presented the online gig economy equivalent of conventional labor standards by analyzing availability of online labor across different countries in various fields.<sup>12</sup> As per the results, the information technology and software industry were the most targeted in the gig economy in India.<sup>13</sup> This was further established when PayPal surveyed and published gig economy insights about India, and found that gig economies dominated the information technology domain, with 50% percent of the freelance workforce engaged in this sector (Jha M. P., 2019).

India is seeing the emergence of gig economy with Indian

companies beginning to use online labor. India is emerging as the third largest online labor market. Online Labor Index survey 2016 shows that India-based employers represented 5.9% of all projects/tasks posting for online labor of which 45% were for software development and technology projects. This trend suggests the changing nature of employment in the IT-BPM sector. This trend was reaffirmed as 45% of the survey respondents viewed new ways of working such as freelancing as an important megatrend shaping the industry (Ernst and Young, 2017).

### 7.3 Types of workers in gig economy

Venture capital executives see a power shift from a large organization and permanent jobs to individuals and startups happening both in India as well as globally. The view on the “power shift” seems to dovetail with the prevalent belief that the future of work will have more open talent and gig workers, and India is slowly embracing this change. Indeed, a 2019 report by Noble House, a platform that connects businesses with skilled human resources, found that 73% of its respondents wanted to opt for freelance work over a conventional full-time job. The 2017 EY study on the “Future of Jobs in India” found that 24% of the world’s gig workers come from India (Kapur, 2019).

“One part of the gig economy deals with jobs that can be quickly interchanged. For example, for a Dunzo Delivery or even a driver for Ola, who doesn’t necessarily need different skills,” said Pai of Blume Ventures. “But white-collar jobs can be giggered as well. This is the category of skilled flexi work, where more and more full-time roles are becoming part-time and freelancer driven. Both these trends add up to form the future of work and each of them has players and support functions.”

Some of these platforms, like BetterPlace, connect blue-collar workers with companies. Others like Frapp, Upwork, and

Avigna empower young students and fresh graduates to earn money by completing projects and tasks for large companies. Yet others, such as TapChief, FlexingIt, and NobleHouse, allow skilled white-collar professionals like management consultants and human resources experts to be hired on project basis (Kapur, 2019).

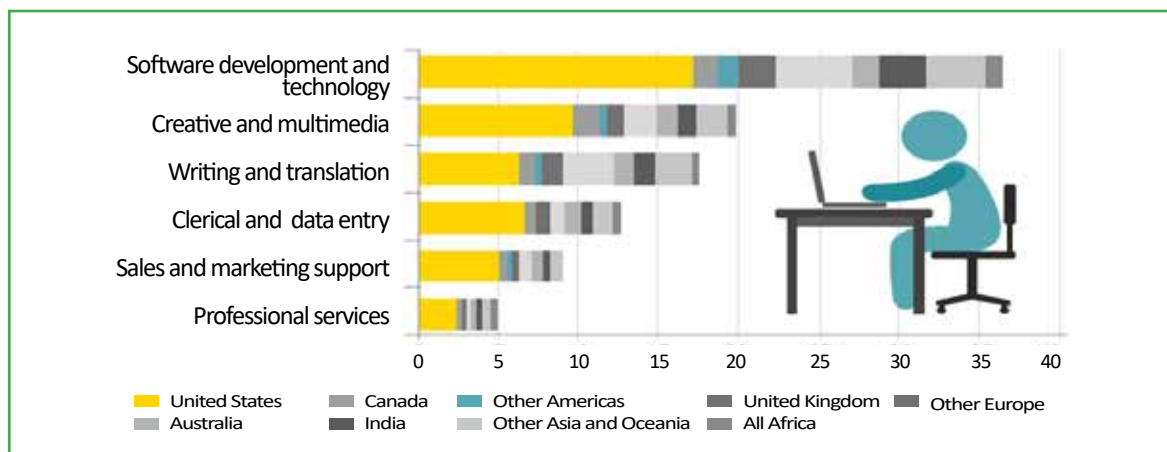
Industries like information and technology, art and design, and content creation are seeing a high demand of gig workers and freelancers, and have relatively better-educated and trained persons with access to better network infrastructure and growth prospects. Independent workers in the gig economy are paid according to the schemes designed by a company. In the absence of an employer-employee relationship, such workers are mostly not entitled to any social benefits, such as provident fund, gratuity, annual leave, sick leave, overtime payment or severance compensation. Hence, despite having no restrictions on the number of employment they might take, such workers may not have any social security including coverage under minimum wage regulations. (Jha M. P., 2019).

### 7.4 Future of Gig economy in India

Gig workers control their employment with respect to the type of job they undertake and the time they put in to such a job. Therefore, gig economy bestows upon these workers, the flexibility and independence to expand into new markets and create a talent pool for employers to choose from. The labor legislations in India have been enacted to ensure that the employees (and certain eligible workers, including contract workers) are entitled to certain benefits to sustain themselves. Time and again in India, we have encountered situations where an employer-employee relationship could or could not be established (Jha M. P., 2019).

Given the nature of the engagement or relationship, gig workers, at this stage, may not be eligible to avail any legal or stat-

Figure 7.1: The top online occupations - demand



Source: “Online labour index: measuring the online gig economy for policy and research.” Otto Kassi and Villi Lehtonvirta, Oxford Internet Institute, November, 2016.



utory claim. However, given the continuous growth of the gig economy, it is possible that some benefits may be extended to them even if not at par with the regular or contractual employees of an organization (Jha M. P., 2019).

## 7.5 Effect of Gig economy on traditional jobs and creation of new opportunities

Increasingly, organizations globally have moved to hire employees on contracts and short-term employments. This has made it easier for organizations to hire and fire employees as per the market and demand conditions. Employees, who are also willing to look for better opportunities after working on short term projects tend to prefer such mode of employment. Consultants as a category of job has come to epitomize this form of employment in the higher category of wages under such an arrangement.

India currently has 1.3 million temporary workers in the organized sector. Experts predict that by 2025, 10 percent of the overall workforce would be working as contingent workers through staffing companies. Over the past few years, the Indian temporary staffing industry has grown significantly. This is largely attributed to two changes: one, companies have started to depend on recruitment agencies to meet their HR requirements on account of the growing complexity of business and talent challenges; two, they are opting for a temporary staffing model to have smaller bench strength to withstand economic downturns. Industries, such as agriculture and agrochemicals, automobile, power and energy, FMCG, manufacturing industries, BFSI, telecommunication, hospitality, healthcare and life sciences, information technology, ITes and retail are increasingly looking to bolster their workforces with temporary staff for a variety of projects. They are likely to increasingly depend on staffing agencies to provide them with the required manpower in time [CITATION Man19 \l 16393].

The Indian Staffing Federation (ISF) attributes the growth of temporary work in India to the changing economic scenario and need for talent optimization. ISF believes that temporary staffing helps to create new jobs and boost employment by turning available work into jobs that otherwise would not exist.

Moreover, India continues to be a market where labor cost is relatively low and competitive, which is partly the reason behind the success story of IT and ITes sector. However, due to rapid rise in the number of technologies and reforms in various sectors, Indian companies are facing huge challenges which are compounded due to the shortage of skilled talent pool. Despite modest growth in last few years, the Indian industry faces challenge in recruiting and retaining the right talent. Further, in light of the current economic situation, defining the right size of the workforce remains a challenge, as

projects or order demand tends to fluctuate. Such challenges have made contract or temporary hiring an attractive proposition. But it is not a new concept, especially in the manufacturing and service sector. However, in the last decade, the IT and ITes sectors have witnessed a significant rise in the contract/temporary hiring.

A survey by the World Economic Forum and the Observer Research Foundation to understand which skills and jobs India's young people wanted, found that young Indians are ambitious and show greater autonomy in their career decisions. They acknowledge changing skill requirements and are eager to pursue higher education, undergo additional training and enroll in skill development programs. The survey came up with following key insights::

1. Indian youth are independent, optimistic and adapting to a changing labor market
2. Indian youth need more guidance and career counselling
3. Young Indians are interested in pursuing higher education and skills development
4. The private sector must do more to bridge the skills gap
5. India's socio-cultural norms add further complexity
6. Social Media and the internet can play a bigger role in effective job-hunting

The last point deserves scrutiny. It was found that 81 percent of survey respondents rely on media and internet for obtaining information about employment opportunities. The prevalence of social media and internet use among India's youth presents an opportunity to expand their awareness about education pathways, employment opportunities, skill needs, and available skill development programs [CITATION Suc18 \l 16393].

## 7.6 Changing lifestyles

Globalization has completely changed the way the world works and has had major impact on the way employment is created. Increased connectivity and Information Communication and Technology (ICT) tools have, on the one hand, enabled movement of jobs globally, while on the other hand, led to automation and unemployment in some sectors. Further technological enhancement is changing the nature of employment completely as traditional jobs become redundant. As India has prospered, life-styles of people have changed and job-seekers have also become more aspirational in seeking employment.

A key outcome of the technology revolution in India has been connectivity, which has fuelled unprecedented access to information. Millions of people who had little means to join the national discourse can now gain new insights into the world around them. Farmers can make decisions based on real time crop prices. Consumers understand global standards of prod-



uct and service quality. Rural Indians recognize the differences between the opportunities available to them and those available to their urban counterparts.

To understand the scope and scale of this change, let's start with tele density, which has improved substantially thanks to mobile telephony. The number of mobile subscribers in India jumped from 261 million in 2007-2008 to 910 million in 2013-2014 and 1.16 billion in March 2019. Along with telephony, Internet penetration is soaring in rural and urban India. Increases in the number of smartphones, cheap data plans and expanding 4G networks are further driving this growth.

Thanks to rising Internet penetration, the gross number of online users in India now exceeds the number of people who have completed primary education. This shift emphasizes the increasing relevance of India's digital economy. The number of Internet users soared from approximately 20 million in 2004 to nearly 451 million in 2019. By contrast, the number of people who have studied beyond the eighth standard is about 200 million, indicating that even uneducated or people with only primary education are accessing the Internet. While increases in use of traditional channels for gaining knowledge, such as education, may be linear, the proliferation of knowledge through use of new digital technologies appears exponential [CITATION Sha1 \I 16393].

These changes have had dramatic effects on the employment and labor market as well as new jobs that are based on the internet. ICT and globalization has also led to disruptive innovations in the kind of jobs both in India and globally marking a significant level-playing field for many in gaining employment. Indeed, without an internet connection, finding a job will be very difficult.

The government seems to have risen up to the challenge of supporting the changes in life styles as well as jobseekers. Start Up India to boost entrepreneurship; the launch of the Skill India mission; the establishment of a dedicated Ministry of Skill Development and Entrepreneurship; establishment of industry-led sector skills councils, overhaul of the Industrial Training Institutes are some of the initiatives through which the government is aligning the jobs, skills and entrepreneurship policies to the changing ecosystem.

While these initiatives indicate the government's commitment to skilling initiatives, it is imperative to devise specific strategies that address the schism between youth employment preferences and labor market realities. As the nature of jobs and work changes with the Fourth Industrial Revolution, this gap is likely to widen.

There is lots more that can be done, it needs more innovation and visionary policies. It is not necessary to create more government jobs or offer reservations to feed the demand for work – encouraging alternatives through the formalization of self-employment is another way to give today's youth a good, respectable career path with an attractive future.

## 7.7 Telecommuting

In order to retain talent, reduce overhead costs and improve productivity, several corporates today are promoting telecommuting. The internet is flooded with articles which provide information on the values of telecommuting and its increasing need. For many employees, not having to go through the grind of daily commute and required cubicle time can keep them happy enough to stay with a company for long time. This is particularly true for urban India where daily commute to and from work could take hours. The flexibility of working remotely can be the difference between attracting and retaining talent [CITATION Ent19 \I 16393].

Having the systems in place to support telecommuting employees allows managers to hire the best person for the job, regardless of location. Telecommuting options also helps in retaining top talent if an employee needs to relocate. Aetna, an insurance giant in USA saved \$78 million by letting go of 2.7 million square feet of office space. American Express reported saving \$10-15 million annually due to its telecommuting policies.

Telecommute allows companies to expand their pool of potential recruits. Companies reap the benefits of hiring from across the globe and using the talent remotely. They can also reduce the need for travel and cut associated expenses by holding interviews, training, meetings, and conferences in a virtual setting.

A study by Staples Advantage found 76% of telecommuters were willing to work overtime and felt more loyal to their company. Additionally, 80 percent reported a better work-life balance. Companies that prioritize a healthy work-life balance have lower turnover rates

Telecommuting is not just attractive to the younger millennial generation. In the United States, for example, the average telecommuter is 49 years old, earns about \$58,000 a year, and telecommutes at least two days per month. Today, 9 percent of workers report that they telecommute more than one-third of the time each month. Employee satisfaction is connected to employee loyalty and retention rates. Employees who telecommute because they want to are more likely to be satisfied with their jobs and stick around. According to one study, 76 percent of employees who are allowed to work from home are more loyal to their companies in the US [CITATION Tel \I 16393].

However, managers must know each employee's personality and how often to keep in contact with that person. It could be useful to use webinars and teleconferences to provide opportunities for team interactions, training, get together etc or else it could lead to isolation among employees. Telecommuting can also fail if employees require constant supervision, which is much more difficult, if not impossible, with remote employees.

# 8 THE EFFECTS OF DIGITALISATION ON INDIA'S JOBS SCENARIO

Varun Sen Bahl<sup>1</sup>

Research Fellow, National Institute of Public Finance and Policy

## 8.1 Introduction

One of the key vectors of change identified in current discussions around the future of work is the impact of new technologies that are leading to 'digitalisation'.<sup>2</sup> The purpose of this chapter is to examine how this ongoing digitalisation will affect the employment scenario in India. Before getting to the Indian context, it is useful to begin with some historical context behind the term.

## 8.2 Digitalization, 3rd Industrial Revolution and the growing gig economy

Throughout history, new technologies have been significant source of economic growth, productivity and development for nations, by enabling new services, goods or methods of production. However, as they have been adopted and diffused throughout an economy, they have changed the structure of labor markets, the nature of jobs and skills, and the organizations and conditions of work.

It is said that, because of technological innovations, the world has witnessed three industrial revolutions that have all fundamentally changed the world of work and have introduced structural changes in the global economy. The first industrial revolution, driven by the steam engine, brought in the factory system. The second, driven by electricity, brought in assembly lines and large-scale mass production. The third industrial revolution, beginning in the 1980s with the introduction of modern computers, mobile phones and the Internet, brought in the globalized economy and the widespread

use of digital technologies across the economy.

3IR has already changed the ways in which several industries function, and changed the determination of value in the global economy. Internet has changed the ways in which a range of industries function, bringing them online to create a new 'digital economy'. For instance, retail, media and advertising industries have fundamentally transformed how they function, becoming online-first through electronic commerce, online streaming, social media and digital advertising. Other sectors, as software or banking and financial services, have found new avenues for service delivery, through software-as-a-service or FinTech models.

In this digital economy, some firms from advanced economies that are considered to be 'platform' firms<sup>3</sup> have become the most valuable companies in the world. Some scholars, who have called these 'superstar firms' with considerable market power, have noted that they shall have profound implications for not just work, but for international security, income and prosperity, global value chains and the global economy as a whole.<sup>4</sup> That said, what is evident is that, thanks to these firms, the business model of being a 'digital platform' has become predominant today.

It cannot be said, however, that the third industrial revolution, or 3IR, has reached its logical conclusion yet, or has reached all countries equally. Although the Internet has reached more than half of the world's population, not all societies and economies have benefitted equally from this 'digitalisation'.<sup>5</sup> As the World Bank<sup>6</sup> and the OECD<sup>7</sup> have pointed out, developed economies currently remain ahead of the curve in terms of deriving productivity benefits from digitalisation, primarily due to two reasons – high levels of high-speed internet connectivity throughout the population, and higher levels of utilisation of digital technologies by firms at scale.

<sup>1</sup>The author is grateful to Radhika Pandey and Smriti Parsheera for their inputs and comments on this chapter.

<sup>2</sup>See International Labor Organization. (2018). *The impact of technology on the quality and quantity of jobs*. ISSUE BRIEF FOR THE GLOBAL COMMISSION ON THE FUTURE OF WORK. Retrieved from: [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms\\_618168.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms_618168.pdf)

<sup>3</sup>Such firms are considered to be platforms since they act as networks to coordinate economic transactions, social interactions and other activities via the use of algorithms. See Eurofound (2018). *Automation, Digitalisation and Platforms: Implications for Work and Employment*. PUBLICATIONS OFFICE OF THE EUROPEAN UNION. Retrieved from: <https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1637&context=intl>

<sup>4</sup>This chapter remains restricted to examining the role of platforms in the gig economy. For more information on this broader assessment of digital platforms on the economy, see Commission on Global Economic Transformation. (2019). *Technological Disruption in the Global Economy*. INSTITUTE FOR NEW ECONOMIC THINKING. Retrieved from: [https://www.ineteconomics.org/uploads/papers/INET\\_CGET\\_Technology\\_Meeting\\_Report\\_4-22-19.pdf](https://www.ineteconomics.org/uploads/papers/INET_CGET_Technology_Meeting_Report_4-22-19.pdf)

<sup>5</sup>An increasingly popular term across literatures, digitalisation may be formally understood as referring to both the adoption of information and communication technologies in various spheres of human activity and the implications for society and the economy thereof. See Brennan, J.S. & Kreiss, D. (2016). *Digitalization. The International Encyclopaedia of Communication Theory and Philosophy*. 1–11. Retrieved from: <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781118766804.wbiect111>

<sup>6</sup>See World Bank, World Development Report 2016 on digital dividends (arguing that not all nations have reaped the dividends of digital technologies equally). Retrieved from: <https://www.worldbank.org/en/publication/wdr2016>

<sup>7</sup>See OECD, 2019: Organization for Economic Cooperation and Development. (2019). *Productivity Growth in the Digital Age*. OECD GOING DIGITAL POLICY NOTE. Retrieved from: [www.oecd.org/going-digital/productivity-growth-in-the-digital-age.pdf](http://www.oecd.org/going-digital/productivity-growth-in-the-digital-age.pdf).

A key aspect that is relevant for developing countries is the new job opportunities being created in the digital economy, and how the organization of work is changing, due to the presence of a number of digital platforms that are creating a 'gig economy'. This involves a range of tasks, largely services, being performed by individual service providers or workers that is organized via a website or an online platform. Here, the platform acts as a 'marketplace' for work, enabling an entirely new form of online freelancing at a global scale. The work involved can range from small short-term micro- or piece-meal work to full long-term projects and assignments.

Generally, there are two broad categories of work gaining prominence in this economy: purely online work (such as graphic design or software development) as well as physical task-based service delivery (such as taxi aggregation or on-demand delivery of products). It has been noted by some scholars that there are some optimistic outlooks for developing countries in the context of the 'gig' economy. The argument is that it could give rise to micro-entrepreneurs who will be available to find alternatives to formal employment through this 'gig' economy.<sup>8</sup>

### 8.3 The fourth industrial revolution and its implications for employment

As the 3IR is ongoing, it is said that the world is witnessing such a rapid pace of technological development that a new 'fourth industrial revolution' or '4IR' is imminent. Because of advances in areas such as Big Data, machine learning, robotics, cloud computing, and the Internet of Things, it is said that the world will shift towards increased automation of various tasks and data-driven mechanization in industrial processes.

It is difficult to accurately determine the actual and potential impact of such rapid technological advances on employment as they are an evolving phenomena. History shows that, whenever new technologies have been introduced in different industries and sectors, fears have always been raised that they will substitute human labor at scale. A scenario of 'technological unemployment' is often painted – a grim situation where, over time, labor-saving machinery will end up destroying more jobs than it shall create, becoming so cheap and efficient that human work is automated away and

a workless future is created.

In the past few years, there has been a fresh round of speculations globally on how new technologies will affect labor markets and will shape the future of work. It is suggested that, because new technologies, enable a much wider range of tasks to be automated than before, technological unemployment may actually become a reality. These tasks include retrieving information, recognizing patterns, generating predictions, and improving from experience without explicit programming to that effect.

Drawing from this rapid pace of change and increasing range of automatable tasks, a number of studies have attempted to use different methodologies to estimate the susceptibility of current jobs to automation at the hands of new 'intelligent' machines relying on AI and robotics. For instance, one famous study from researchers at the Oxford Martin School estimated that 47% of all jobs in the United States were at risk of automation.<sup>11</sup> There have been several other studies, and their estimates vary widely. The MIT Technology Review noted that, while comparing 17 studies, found that this variation is because of the different factors taken into consideration, such as the type of jobs being considered, the types of technology considered, or the timescales involved.<sup>12</sup>

These attempts to examine susceptibility have since then been criticized, primarily because they cannot be equated to actual employment effects. The impact of new technologies on employment is determined by a range of factors, and they can both destroy and create jobs across sectors and industries. In fact, research literature on the history of technological diffusion in the economy shows that they have had a net neutral, and in some cases, positive impact on employment, and that the scenario of 'technological unemployment' has not occurred.<sup>13</sup>

This is primarily because there is a difference between the mere susceptibility of a job to automation and the actual likelihood of it being replaced. In practice, a new labor-saving technology may both increase and decrease the demand of a particular job. One representative example is the introduction of ATM machines in the banking sector, which did render much of the cash handling work performed by bank tellers irrelevant. There was some fear that ATM machines will destroy their jobs at scale. However, banks adjusted, and bank tellers were generally reskilled and their functions

<sup>8</sup>See Eurofound (2018). Supra note 3.

<sup>9</sup>See Schwab, 2014: Schwab, K. (2014). *The Fourth Industrial Revolution*. WORLD ECONOMIC FORUM. Retrieved from: <https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab>

<sup>10</sup>Notably, the person who coined the term – John Keynes – did not see this as a bad thing, seeing it as a 'temporary phase of maladjustment'. He stated that this would indicate that, in the long run, 'mankind is solving its economic problem' leading to an abundance of leisure and wealth. However, since then, the term has been largely utilised only to refer to the more immediate pessimistic view. See Shiller, R.J. (2019). *Narratives about Technology-Induced Job Degrations Then and Now*. NATIONAL BUREAU OF ECONOMIC RESEARCH, Working Paper No. 25536. Retrieved from: <https://www.nber.org/papers/w25536.pdf>

<sup>11</sup>See Frey, C.B. and Osborne, M. (2013). *The future of employment: How susceptible are jobs to computerization?* OXFORD MARTIN SCHOOL WORKING PAPER. Retrieved from: [https://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf)

<sup>12</sup>See Winick, E. (2018). *Every study we could find on what automation will do to jobs, in one chart*. MIT TECHNOLOGY REVIEW. Retrieved from: <https://www.technologyreview.com/s/610005/every-study-we-could-find-on-what-automation-will-do-to-jobs-in-one-chart/>

<sup>13</sup>Supra note 1. Also see Ramaswamy, K. V. (2018). *Technological Change, Automation and Employment: A Short Review of Theory and Evidence*. INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH, MUMBAI, Working Paper No. 2018-002. Retrieved from: <http://www.igidr.ac.in/pdf/publication/WP-2018-002.pdf>; World Bank. (2019). *World Development Report of 2019: The Changing Nature of Work*. Retrieved from: <http://documents.worldbank.org/curated/en/816281518818814423/2019-WDR-Report.pdf>

within the industry changed, taking on non-routine marketing and customer management roles. As research from the United States indicates, the rollout of ATMs actually allowed banks to operate branch offices at a lower cost, allowing them to open new branches and hire more tellers. By replacing routine tasks, ATMs actually played a role in increasing the employment of tellers. As the above example indicates, new technologies more often change the task compositions of jobs where they are introduced, often replacing routine tasks and freeing up workers to take on new roles. When this is scaled at an economy-wide level, new technologies end up reallocating jobs across the economy, redefining what the entry requirements for jobs are and changing what kinds of skills workers must acquire to earn higher wages. For instance, in the context of the third industrial revolution in the US, research suggests that, computer use is now higher in highly paid jobs, in jobs with more workers, in jobs employing more educated workers, and, to some extent, in jobs performing routine tasks. Further, jobs that have required higher usage of computers have grown faster.<sup>14</sup> Another aspect to consider is that new technologies also create entirely new jobs. For instance, modern computers and the Internet has created entire industries of graphic designers, app developers, electronic hardware manufacturers, information technology administrators, systems analysts, and cybersecurity specialists, amongst other.

Such effects on employment are not easy to pinpoint, distinguish, or predict. Technological change is an uncertain, gradual and disparate process. Measuring its effects can vary depending upon the frame of analysis, in terms of the time-period and the context being considered. The various social, economic, cultural and regulatory factors that shape the nature and organization of work in different economies can affect how such effects are realized. It is also necessary to note that much of this work on automation due to new technologies has focused on advanced economies, and scholars have pointed out how developing countries are characterized by an abundance of much cheaper labor and lower levels of education and skilling. The exposure of workers in developing countries to automation, which may have unique dimensions, have been largely overlooked.<sup>15</sup>

Literature review by some scholars to identify aspects that are relevant for the developing country perspective<sup>16</sup> indicate that that it is impractical to worry about mass structural unemployment, and instead focus on the jobs involving tasks most susceptible to automation. In the current context, this is *low-skilled work involving manual tasks* (as often seen in

agriculture, construction and some types of less mechanized manufacturing), and *low- and medium-skilled work involving routine, rule based tasks* (such as, jobs involving tasks that can be easily translated into software and software-driven robots, such as the tasks performed by cashiers, receptionists, travel agents, etc. in the services sector). The second key aspect is that entirely new jobs will be created that will involve *high-skilled work*, and much of this will be in the sectors where a high level of technological proficiency is required, such as the services sector.

With the above context in place, the rest of this chapter examines how it applies to the Indian context. Specific emphasis is placed the sectors likely to see the creation of jobs due to digitalisation going forward, and the implications thereof, in terms of two perspective – skilling requirements and working conditions in the ‘gig’ economy. This is discussed in Section 2. Drawing from the above, some priority areas of work are laid out in Section 3 to serve as a way forward.

A few limitations have to be noted. This chapter relies on secondary literature and has not undertaken primary research on the potential impact of digitalisation on jobs in India. This is largely due to methodological and data concerns. A second limitation is that the effects of digitalisation in the 3IR or 4IR across countries, such as the potential for a re-shoring effect due to automation, or the implications of global digital platforms for global trade or international relations, have been not been considered. A third limitation is that the possibility for indirect job creation due to the diffusion of digital technologies increasing overall productivity in India’s economy has not been considered in significant depth. This is because these aspects require much more detailed data and dedicated analysis that is outside the scope of this chapter.

## 8.4 Digitalization: applications to the Indian employment scenario

Certain characteristics distinguish India’s emerging economy from advanced economies – many of whom have ageing populations and are likely to experience shrinking workforces. Therefore, the considerations for India from a digitalisation perspective are unique to its context.

The first key aspect is that India currently enjoys a significant demographic dividend.<sup>17</sup> Around 62% of its population is in the 15-59 age bracket, constituting a young workforce.<sup>18</sup> Over the next 15 years, the size of India’s labor force is also

<sup>14</sup>See, Bessen, J. (2015). *How Computer Automation Affects Occupations: Technology, Jobs and Skills*. LAW AND ECONOMICS WORKING PAPER, BOSTON UNIVERSITY SCHOOL OF LAW. Retrieved from: <https://www.bu.edu/law/files/2015/11/NewTech-2.pdf>

<sup>15</sup>See Calvao, F. and Thara, K. (2019). *Working Futures: The ILO, Automation and Digital Work in India*. —In: INTERNATIONAL DEVELOPMENT POLICY. 11 (1). Retrieved from: <https://journals.openedition.org/poldev/3097#ftn4>

<sup>16</sup>See Ramaswamy, *supra* note 11;

<sup>17</sup>India is expected to have the youngest population in the world by 2020, with a median age of 29. See Editorial Board. (2014). *India’s Youth Challenge*. NEW YORK TIMES. Retrieved from: <https://www.nytimes.com/2014/04/18/opinion/indias-youth-challenge.html>.

<sup>18</sup>See National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India. (2019). *Periodic Labor Force Survey*. ANNUAL REPORT, July 2017- June 2018. (PLFS 2017-18) Retrieved from: [http://www.mospi.gov.in/sites/default/files/publication\\_reports/Annual%20Report%2C%20PLFS%202017-18\\_31052019.pdf](http://www.mospi.gov.in/sites/default/files/publication_reports/Annual%20Report%2C%20PLFS%202017-18_31052019.pdf)



expected to increase by 32%.<sup>19</sup> An estimated 10-12 million people enter the workforce each year. It is estimated that India has about five decades to capitalise on this dividend before the workforce ages and becomes a burden.<sup>20</sup> This makes it imperative for India to concentrate on increasing its labor force participation rate and generating formal jobs within this time frame.

The second key aspect is a skill-productivity mismatch in the employment scenario. The increased level of educational enrolments in India has not guaranteed educational outcomes (such as the instilling of foundational skills) which has historically been low.<sup>21</sup> Further, technical and vocational skilling efforts have been much smaller in scale compared to other Asian economies.<sup>22</sup> Because of this low level of skill, much of the employed workforce is currently engaged in the agriculture and construction sectors. Within manufacturing, skill-intensive manufacturing industries have been more productive with such firms achieving some scale, but have been capital-intensive (such as automobiles). In contrast, labor-intensive manufacturing industries, where workers have been absorbed recently, have traditionally involved unskilled work, populated by numerous small entities. Further, the high performing services sector occupies only about 34% of the workforce. Within this, the lead sectors of information technology and banking and financial services, historically have not employed significant numbers. India generally demonstrates a mismatch between productivity, skill-levels and employment – much of the workforce is engaged in low-skilled, manual and routine work that does not contribute much to the gross value added in the economy, while the sectors that do contribute involve high-skill, cognitive, work demonstrate low levels of employment.<sup>23</sup>

## 8.5 Relatively limited short term risk of automation in India

As discussed above, low-skilled, manual and routine work is considered to be especially susceptible to automation by robotics. Theoretically, advanced large-scale machinery or intelligent robotics could replace much of the labor in India at

scale. Some studies have attempted to estimate the susceptibility of jobs in India to automation. For instance, one study largely relied on the methodology utilised by Frey & Osborne (2013), and proposed that up to 77% of India's jobs could be automated in the future. As pointed out above, such measurements of susceptibility to automation do not translate to reality, since the conditions determining the deployment of technology must be considered.<sup>24</sup>

It is to be noted that official statistics provided by NSO makes it difficult to track the actual loss of jobs to new technologies. One example is a recent reply filed in Parliament from the Ministry of Labor and Employment which noted that between 2016 to 2018, around 5,205 workers lost their jobs due to the closure of industries.<sup>25</sup> However, several states did not report recent data. News reports also indicated that the Ministry informed the Parliament that “technology automation has not replaced workers, but improved productivity and provided workers the time to focus on other tasks involving complex decision making and social interactions”.<sup>26</sup> The evidence to support this claim, however, was not provided. In this scenario, reliance must be placed on estimates provided by researchers and industry organizations, who rely on extrapolating in terms of trends or on surveys with experts.

The research currently coming from different sectors suggests that the fear of automation is not likely to take place in the sectors employing the largest workforce, that is, agriculture, construction, and the automobile and garments industries within manufacturing. In the context of agriculture and construction, this is because of range of constraints such as limited electrification, limited access to the Internet and to capital, lack of technical capacity and small land holdings that make it impractical or impossible to introduce advanced machinery to substitute the role of labor today.<sup>27</sup> In the context of manufacturing, similar constraint persist, but the most pressing constraint is the low unit cost of labor that makes it economically unfeasible to incorporate automation. For instance, one study, looking at data from the International Federation of Robots, India in 2016 only accounts for 0.9 percent of the global supply of industrial robots, which may rise to 1.5 percent by 2020. This is an extremely minute share, that belies fears of mass displacement of workers to technology.<sup>28</sup>

<sup>19</sup>See Ministry of Skill Development and Entrepreneurship. (2015). *National Policy for Skill Development and Entrepreneurship 2015*. Retrieved from: <https://www.msde.gov.in/assets/images/Skill%20India/National%20Policy%20on%20Skill%20Development%20and%20Entrepreneurship%20Final.pdf>

<sup>20</sup>See United Nations Population Fund. 2019. *India: demographic dividend*. Retrieved from: <https://www.unfpa.org/data/demographic-dividend/IN>

<sup>21</sup>See ASER Centre. (2019). *Annual Status of Education Report 2018 - (Rural)*. Retrieved from: <http://img.asercentre.org/docs/ASER%202018/Release%20Material/aserreport2018.pdf>

<sup>22</sup>97.3% of India's available population does not have a technical education (PLFS 2017-18). This is in sharp contrast with other Asian economies. For instance, Japan and South Korea demonstrate levels of technical training over 70%. See Asian Development Bank. (2018). *Asian Development Outlook, 2018: How Technology Affects Jobs*. ADB REPORT. Retrieved from: <https://www.adb.org/publications/asian-development-outlook-2018-how-technology-affects-jobs>

<sup>23</sup>See Tandem Research. (2018). *Emerging Technologies and the Future of Work in India*. INTERNATIONAL LABOR ORGANIZATION WORKING PAPER SERIES. Retrieved from: <https://tandemresearch.org/assets/Tandem-FoW-Web-2018.pdf>; Verick, S.S. (2018). *The Puzzles and Contradictions of the Indian Labor Market: What Will the Future of Work Look Like?* IZA Institute of Labor Economics, Discussion Paper No. 11376. Retrieved from: <https://www.iza.org/publications/dp/11376/the-puzzles-and-contradictions-of-the-indian-labor-market-what-will-the-future-of-work-look-like>

<sup>24</sup>See Illavarasan, V. (2017). *Automation and Workforce in India: Terrible Consequences or Impossible?* In: THE FUTURE OF WORK IN THE GLOBAL SOUTH. Retrieved from: <https://fowigs.net/automation-and-workforce-in-india-terrible-consequences-or-impossible/>

<sup>25</sup>See Lok Sabha, Unstarred Question No. 4745 for 22.07.2019 regarding closure of industries. Retrieved from: <http://164.100.24.220/loksabhaquestions/annex/171/AU4745.pdf>

<sup>26</sup>See Sharma, N. (2019). *Modi government says India lost less than 400 industrial jobs in 2018*. QUARTZ. Retrieved from: <https://qz.com/india/1672381/modi-government-says-automation-has-not-killed-jobs-in-india/>

<sup>27</sup>See Tandem Research (2018). *Supra* note 21.

<sup>28</sup>See Islam, I., (2018). *Automation and the Future of Employment: Implications for India*. In: *South Asian Journal of Human Resources Management*. 5(2), 1-10.



Looking at the most advanced segment in manufacturing – the automobile sector – it has been noted that much of the application of robotics has been in work that is dangerous for humans such as welding and that a technology-driven displacement of workers in the sector has not been seen as of yet. The overall level of technology in the sector remains low – for instance, two-wheelers dominate ~70% of the production in the sector, which uses fairly standard technology.<sup>29</sup> In the garment sector, one study finds that despite the presence of highly routine work (such as sewing and packaging), implementing labor-saving technologies will not be economically viable, given the low cost of labor. Such technologies, if at all introduced, may only take over specific functions, such as fabric spreading or finishing work, in limited pockets. The study finds that increasing domestic demand for apparel would likely be more than sufficient to offset any technology-induced impact on labor.<sup>30</sup>

In the context of the services sector, there have been fears of automation especially raised in the software and business processing outsourcing services industry which employs around 3.9 million persons. For instance, a recent survey conducted by Infosys of 1,000 persons aged 16 to 25 found that 52 percent of those polled believed that new applications in AI would replace human jobs within the decade.<sup>31</sup> There are also several media reports discussing how India's IT services industry could lose up to 640,000 of low-skilled jobs over the next 5 to 10 years, based on research conducted by a consultancy firm in 2016.<sup>32</sup> Industry representatives have considered these estimates as overblown, but they have accepted that a slowdown of hiring of up to 25 % may take place in the sector over the next 3 to 5 years.<sup>33</sup> According to estimates calculated by two prominent industry organizations, it was found that, as opposed to the historical growth rate of 6 to 6.5%, hiring in the sector from 2017 onwards has been estimated to grow at a more modest rate of around 3 to 3.5% to reach 4.5 million in 2022.<sup>34</sup>

Similar slowdown of hiring is also reported to be the case in the banking and financial services industry. The sector is expected to hire at a rate of 3.5-4% year on year, against a historical rate of around 4.5%, to reach 2 million by 2022. As per the report, 70-75% of the jobs in the sector will require new skill sets.

## 8.6 Emerging skill requirements in the digital economy

While the above sectors may not see significant destruction of jobs due to digitalisation in India, it has been repeatedly highlighted by industry representatives that the real concern for India in the context of digitalisation will be reskilling and upskilling its existing workforce, especially in the organized manufacturing and services segment.<sup>35</sup>

There is some research indicating that technological changes have already started changing the content of jobs in India. One study from ICRIER looking at data from the National Sample Surveys in the period between 1983 to 2011 found that technological changes have increased the intensity of jobs involving non-routine cognitive analytical tasks, as well as non-routine cognitive intensive tasks in India. Notably, the study also found that jobs with a predominantly routine cognitive task content have not declined in this period. The primary types of jobs that have declined have been manually intensive work, largely driven by the structural shift towards a services-led economy and a rise in educational levels.<sup>36</sup>

Looking towards the 4IR, industry groups have pointed out that, in both the organized manufacturing and services sector, 9% of the workforce will be in completely new jobs and 37% will be in jobs with completely new skill sets. Much of the new skill requirements will rely on competence in new technologies in 4IR, since these technologies are likely to prioritise high-skilled, non-routine jobs that will be intensive in cognitive tasks. Soft skills will also become increasingly important. For instance, in the IT-BPM sector, it is expected that over 60% of the 4.5 million jobs estimated to be in the sector by 2022 will undergo change towards heavier ICT use, such as marketing professionals (shift towards digital media marketing), software designers (shift towards UX design), database administrators (shift towards database as a service analyst), etc. Assessments for the different Asian countries have also reached similar conclusions, noting that wage prospects are likely to be higher for those occupations that are non-routine, and are intensive in cognitive skills, social interaction and ICT tasks.<sup>37</sup>

These insights are particularly relevant for India, where labor continues to be concentrated in low-skilled work, or in man-

<sup>29</sup>See Mani, S. (2017). *Robot Apocalypse: Does it matter for India's Manufacturing Industry?* CENTRE FOR DEVELOPMENT STUDIES, Working Paper No. 474. Retrieved from: <http://cds.edu/wp-content/uploads/2017/12/WP474.pdf>; Also see Islam (2018). *Supra* note 24.

<sup>30</sup>See Vashisht, P. (2019). *Automation and Future of Garment Sector Jobs: A case study of India*. ICRIER WORKING PAPER NO. 385. Retrieved from: [http://icrier.org/pdf/Working\\_Paper\\_385.pdf](http://icrier.org/pdf/Working_Paper_385.pdf)

<sup>31</sup>See Infosys. (2016). *Amplifying Human Potential*. Retrieved from: <http://www.experienceinfosys.com/humanpotential>

<sup>32</sup>For instance, see ET Bureau. (2016). *IT sector to lose 6.4 lakh "low-skilled" jobs to automation by 2021: HfS Research*. Retrieved from: <https://economictimes.indiatimes.com/jobs/it-sector-to-lose-6-4-lakh-low-skilled-jobs-to-automation-by-2021-hfs-research/articleshow/53052040.cms>; Phil Fersht (2017). *Indian IT to shed half a million jobs by 2021; reskilling automation only way forward*. Retrieved from: <https://factordaily.com/indian-it-job-cuts-reskilling-automation/>

<sup>33</sup>See Edd Gent, (2017), *Why automation could be a threat to India's growth*, BBC. Retrieved from: <https://www.bbc.com/future/article/20170510-why-automation-could-be-a-threat-to-indias-growth>

<sup>34</sup>See NASSCOM and EY. (2017). *THE FUTURE OF JOBS IN INDIA: A 2022 perspective*. Retrieved from: <https://www.ey.com/Publication/vwLUAssets/ey-future-of-jobs-in-india/%-24FILE/ey-future-of-jobs-in-india.pdf>

<sup>35</sup>d.

<sup>36</sup>See Vashisht, P. *Changing Task Contents of Jobs in India: Implications and Way Forward*. ICRIER WORKING PAPER. Retrieved from: [https://icrier.org/pdf/Working\\_Paper\\_355.pdf](https://icrier.org/pdf/Working_Paper_355.pdf)

<sup>37</sup>See Asian Development Bank. (2018). *Supra* note 16.

ual work in the agricultural and construction sectors. To address this, it seems that the industry has already taken steps in this direction. In the above study, it was found that, as of 2017, over 50% of the workforce in large-sized firms (with revenues over a billion) had already been trained in digital technologies, while in medium and small firms, around 35% and 38% respectively had been reskilled.<sup>38</sup>

New technologies will also be especially relevant in the agricultural sector. There is significant potential for incorporating the use of digital technologies, such as machine learning, drones or advanced Internet-enabled sensors, to improve productivity in the sector, through ‘data-driven agriculture’. A report from a taskforce on artificial intelligence set up by the Department of Industrial Policy and Promotion noted that there exists significant potential for AI-based systems and other digital technologies to assist farmers with various functions, such as crop selection, crop monitoring, irrigation management, and post-harvest management. The report noted that, from the perspective of AI systems, training farmers to use such systems will be a key hurdle to address going forward.<sup>39</sup>

In such a scenario, India’s educational and skilling sectors should emphasize cognitive and ICT skills. The current situation appears to be discouraging – a survey of employers in India in 2016 found that 48% of employers face difficulties in filling job vacancies due to skill and talent shortages. India’s students, on average, continue to rank much lower than their Asian counterparts on metrics such as basic literacy and numeracy skills.<sup>40</sup>

## 8.7 New jobs in India’s digital economy

Much of India’s young population has recently come online. A large digital market has been created in India. At the same time, internet penetration rates are still amongst the lowest in the world, indicating space for this share to grow. The cost of accessing the Internet is also currently quite low and amongst the lowest in the world.<sup>41</sup>

Given the above, the potential of India’s growing digital economy for job creation has attracted much attention

from policy makers in recent years. The Government of India wants India’s growing digital economy to be a key driver of growth, creating up to ‘\$1 trillion of economic value’, and productivity, with output sufficient to ‘support 55 to 60 million workers’ by 2025. It has also introduced a range of programs under the umbrella effort of ‘Digital India’ to ensure the diffusion of technologies at scale throughout the economy, in order to increase productivity and create jobs throughout the economy.<sup>42</sup> However, there are no comprehensive estimates currently available on precise job creation and potential.

Some industry reports do look at figures across different segments that could be considered as the most promising parts of the digital economy. These include areas such as mobile app development, electronic commerce, and technology start-ups. In the mobile apps space, one report notes that India currently has 1.674 million workers in the mobile applications space, up by 36% since 2016. In comparison, the United States, as on April 2019, hosted 2.246 million such jobs, while the European Union hosted 2.093 million such jobs as on July 2019. The report forecasts that India will host the world’s largest developer population centre by 2024.<sup>43</sup>

In the context of e-commerce, a report estimated that e-commerce is expected to create ~1.45 million jobs by 2021 in terms of direct job creation, primarily led by creation of 1 million jobs in the logistics and warehousing sector and around 0.4 million high-skilled jobs in technology and corporate functions.<sup>44</sup> In the context of start-ups, as per an industry estimate, start-ups accounted for 2.64% of the total jobs created in India in 2018; they are estimated to create between 200,000 and 250,000 jobs in 2019.<sup>45</sup>

A McKinsey study notes that over 18 to 22 million workers have seen improved income opportunities across all of these segments, as well as the digital banking services sector, over the past three years.<sup>46</sup> All of these figures look extremely promising, but it is difficult to determine precise numbers, simply because the lines between these segments are often difficult to delineate.

Another factor to consider is that employment estimates could vary depending on how workers in India’s gig econo-

<sup>38</sup>See NASSCOM and EY. (2017). *Supra* note 22.

<sup>39</sup>See Task Force on AI. (2018). *Report on AI for India’s Economic Transformation*. MINISTRY OF COMMERCE AND INDUSTRY. Retrieved from: <https://dipp.gov.in/whats-new/report-task-force-artificial-intelligence>

<sup>40</sup>See ADB. (2018). *Supra* note 22.

<sup>41</sup>India is one of the largest Internet markets in the world, and by some estimates, constitutes 12% of the world’s online population. See Meeker, M. *Internet Trends Report, 2019*. BOND CAPITAL. Retrieved from: <https://www.bondcap.com/report/itr19/>

<sup>42</sup>See Ministry of Electronics and Information Technology, Government of India. (2019). *Report on India’s Trillion Dollar Opportunity Released*. PRESS INFORMATION BUREAU. Retrieved from: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1565669>

<sup>43</sup>The study measures direct, indirect and spillover jobs emerging from the App economy, by looking at 28 EU countries as well as Switzerland and Norway. It utilises data based on job postings. See Mandel, M. and Long, E. (2019). *The App Economy in India*. PROGRESSIVE POLICY INSTITUTE. Retrieved from: <https://bruegel.org/wp-content/uploads/2018/07/Impact-of-AI-Petrouopoulos.pdf>

<sup>44</sup>See Snapdeal and KPMG. (2016). *Impact of E-commerce on Employment in India*. Retrieved from: <https://assets.kpmg/content/dam/kpmg/in/pdf/2016/12/impact-of-e-commerce-on-employment-in-india.pdf>

<sup>45</sup>See Sabrina Korreck, “The Indian Startup Ecosystem: Drivers, Challenges and Pillars of Support”, ORF OCCASIONAL PAPER NO. 210. Retrieved from: [https://www.orfonline.org/research/the-indian-startup-ecosystem-drivers-challenges-and-pillars-of-support-55387/#\\_edn14](https://www.orfonline.org/research/the-indian-startup-ecosystem-drivers-challenges-and-pillars-of-support-55387/#_edn14)

<sup>46</sup>See McKinsey Global Institute. (2017). *India’s Labor Market – A New Emphasis on Gainful Employment*. Retrieved from: <https://www.mckinsey.com/~media/mckinsey/featured%20insights/Employment%20and%20Growth/A%20new%20emphasis%20on%20gainful%20employment%20in%20India/Indias-labor-market-A-new-emphasis-on-gainful-employment.aspx>

See Online Labor Index of the Oxford Internet Institute, which tracks online freelancing jobs in real time across at least 70% of the online market by traffic. Retrieved in November 2019 from <http://ilabor.oii.ox.ac.uk/online-labor-index/>

my are accounted for. India is considered to be the leading country in the online labor market, with Indians applying for around 30% of total online freelancing jobs, as per the Online Labor Index. Most of this work is dominated by workers in the software development and technology category.<sup>47</sup> It is estimated that 1.5 to 2 million Indians drive for ride-hailing companies.<sup>48</sup> Again, precise estimates of how many jobs will be created in this space are not available.

What is to be noted is that industry reports often consider such jobs to be “formalising” workers in the informal sector, despite being non-standard forms of employment. For instance, one report has noted that gig workers, as well as contract employees in the infrastructure sector and micro entrepreneurs supported by MUDRA schemes are expected to add a further 20-25% to the currently defined “organized” sector by 2022, bringing the share of the organized sector in the overall economy to around 10%.<sup>49</sup> In general, however, it is expected that the gig economy will play an increasing role in defining the future of the services segment in India.

## 8.8 The gig economy and implications for India

It is important to note that gig workers are not governed by a standard employment contract; rather, their task-based assignment are determined via an algorithmic matching system mediated by technology platforms with no single accessible employer at all times. It is generally accepted that the gig economy does offer flexibility to workers, and much of the rhetoric around such workers is that it allows them to be self-employed or entrepreneurial, and use their spare time to earn income.

At the same time, the reality is that several gig workers in India are likely to actually be relying on work in the gig economy as sources of full-time income. Studies examining their concern with such work often include a fear of job security, uncertainty of income, lack of adequate skills, as well as issues concerning payment mechanisms on online platforms. In addition, algorithms creating order work have opaque processes and protocols for gig workers.; (2) the increased scrutiny of the personal and working lives of drivers, posing concerns of data privacy. One study also found that, because compensations for online jobs rely on feedback and ratings from previous engagements, online freelancers in India can

find it difficult to acquire the right type of work experience to get higher quality or higher paying work. Part of the reason may be a perception that workers from developing countries lack the level of skill and quality as may be expected from workers in developed countries in the gig economy.<sup>50</sup>

The experiences of drivers working for ride-hailing aggregators, who have gone on strike at several occasions in the past few years, offer more insight into the specific challenges faced by Indian gig workers. Several drivers complain about the uncertainty of income across rides, given that platforms frequently change the metrics in determining their income per ride as well as additional incentives that may be determined according to the number of trips or distances travelled per day.

A recent interaction conducted by the Labor Department of the Government of Karnataka, to inform the development of a legal framework for the protection of workers in the gig economy, offers detailed insight into their concerns.<sup>51</sup> During this interaction, workers pointed out that, contrary to the claims of platform companies, several gig workers are full-time workers depending on their platforms for all their income. Their working conditions are far from ideal, as they work long shifts of over 12 to 15 hours a day, which affects their health. They also face considerable ‘uncertainty’ in terms of stability of payment and employment status – their earnings from delivery work may change dynamically and unilaterally by platforms, while their contracts may be terminated with limited or no notice. Further, workers also pointed out that, because they cannot collectivise under the law, there is a need to appoint a Government ombudsman to ensure that their complaints can be heard. A key concern seems to be the ways in which such workers are classified – for instance, Flipkart appoints ‘interns’ to meet demand during peak season, who do not receive social security benefits.

It is pertinent to note that not all platforms employing drivers or delivery persons should be perceived as equally problematic. There has been some research to compare different platforms operating in India according to the quality of employment conditions they foster. For instance, the Fair Work Foundation and the Oxford Internet Institute compared 12 platform companies in India and 10 companies in South Africa according to five principles of fairness: (1) fair pay (2) fair conditions (3) fair contracts (4) fair management and (5)

<sup>47</sup>See Online Labor Index of the Oxford Internet Institute, which tracks online freelancing jobs in real time across at least 70% of the online market by traffic. Retrieved in November 2019 from <http://ilabor.oii.ox.ac.uk/online-labor-index/>

<sup>48</sup>See Erickson, Amanda. (2018). *India's Uber drivers went on strike because they're making \$3 a day*. Retrieved from: <https://www.washingtonpost.com/news/worldviews/wp/2018/03/19/indias-uber-drivers-went-on-strike-today-because-theyre-making-almost-nothing/?noredirect=on> ; Prachi Salve. (2019). *India's Gig Workers: Overworked and Underpaid*. INDIASPEND. Retrieved from: <https://www.indiaspend.com/indias-gig-workers-overworked-and-underpaid/>

<sup>49</sup>See NASSCOM and EY. (2017). *THE FUTURE OF JOBS IN INDIA: A 2022 perspective*. Retrieved from: <https://www.ey.com/Publication/vwLUAssets/ey-future-of-jobs-in-india/%24FILE/ey-future-of-jobs-in-india.pdf>

<sup>50</sup>See Kathuria, R., et al. (2017). *Future of Work in a Digital Era: The Potential and Challenges for Online Freelancing and Microwork in India*. ICRIER. Retrieved from: [https://icrier.org/pdf/Online\\_Freelancing%20\\_ICRIER.pdf](https://icrier.org/pdf/Online_Freelancing%20_ICRIER.pdf)

<sup>51</sup>See Ambika Tandon. (2019). *Department of Labor Interaction Program: Online Business Platforms*. CENTRE FOR INTERNET & SOCIETY. Retrieved from: <https://cis-india.org/internet-governance/blog/department-of-labor-interaction-program-online-business-platforms>

fair representation.<sup>52</sup> Their rankings places Flipkart at the 1st place amongst the 10 companies examined, which was the only company in India that scored above 5 out of a possible 10 points.

An interesting observation from the above exercise is that platform companies may be following differential standards across countries. For instance, Uber got a much lower score in India (2) than it did in South Africa (5). However, this may be due to multiple reasons, including legal requirements and local conditions. More research and examination is required and this would be highly relevant exercise for India to determine if its gig economy workers are particularly disadvantaged. The report does hint at this conclusion, noting that “it is possible to provide greater fairness within the gig economy in the Indian context”.

To some extent, the Government has already taken note of the unique labor challenges posed by the gig economy. The Central Government has, for instance, included specific sections within the draft Code on Social Security, 2019 for protections, such as life and disability cover, health and maternity benefits or old age protections. However, the reality may be that other concerns may be more relevant in the Indian context. For instance, some scholars have argued, that a more fundamental concern facing India’s gig and platform workers is their legal status. Specifically, that the gig economy poses fundamental questions of the definitions of the current “employee” and “employer” under the new Code on Wages Act of 2019, as a result of which gig workers may be excluded from protections such as deciding minimum wages for task-based work.<sup>53</sup> Another example could be data privacy, wherein the continuous and real-time monitoring of workers, as well as the with-holding of vital trip information, by platforms could be a challenge to their individual autonomy.

## 8.9 Priority areas of work

The changes brought by digitalisation on India’s employment scenario vary across a range of policy domains. A number of industry-led initiatives comparing India’s preparedness for 4IR with the scenario in other countries indicate the broad-based nature of this challenge. For instance, the World Economic Forum, when comparing the relative readiness of 100 economies, considers India to be a ‘legacy country’, whose greatest advantage is its digital-friendly population and consumer-base, but otherwise lacking other essential require-

ments, such as an innovation base.<sup>54</sup> The Economist Intelligence Unit, looking specifically at the readiness of 25 major economies for automation, ranks India at 18th, noting a key strength is its broadband infrastructure and start-up policies, but with no notable strengths otherwise.<sup>55</sup>

In this scenario, the best way forward for India is to undertake a detailed, systematic and cross-domain policy formulation exercise informed by independent expertise, robust public consultation and evidence collected across firms, sectors and industries. The aim should be to set out a long-term vision for the economy, from a technology, industrial as well as an employment perspective. Specific aspects of technology and industrial policy will have a significant bearing on how India’s overall productivity will be ensured in the 4IR. These include determining the best way to roll-out digital infrastructure to bridge India’s digital divide, determining how to best leverage new innovations and research on technologies in the 4IR, creating test-beds for rolling out new technologies, etc.

This is especially necessary for India right now, given that the various dimensions of the interplay between technology and employment are scattered across a wide range of policy-making efforts led by a number of different departments and agencies. For instance, the Central Government has new educational, industrial and digital infrastructure policies. It is presently undertaking a significant reform of labor laws. It has considered a range of new laws, policies and programmes for the digital economy, from data protection to artificial intelligence to electronic commerce. It is also deliberating on the way forward on its new industrial policy, and also considering the formulation of an advanced manufacturing policy. There is also some apprehension around the possible implications of technologies on jobs that may not be well founded – for instance, news reports point out that the Minister for Road, Transport and Highways will refuse to permit the use of driverless cars in India, since this could lead to joblessness.<sup>56</sup> Such an attitude may affect industry outlook towards investing in new technologies and innovations, which will be detrimental from the long term competitiveness of the economy.

Such an approach ought to be avoided in favour of a more holistic appreciation of technology and its economic and social dimensions. Given the criticality of the jobs challenge in an environment of slowing productivity, a coherent strategy with a long-term vision would be critical.

<sup>52</sup>See Fair Work Project (2019). *Year-end Report on Online Fair Work*. Retrieved from: <https://fair.work/wp-content/uploads/sites/97/2019/10/Fairwork-Y1-Report.pdf>

<sup>53</sup>See Kumar, A.P. (2019). *Code on Wages and the Gig Economy*. ECONOMIC AND POLITICAL WEEKLY. 54(34). 10-11. Retrieved from: [https://www.epw.in/system/files/pdf/2019\\_54/34/CL\\_LIV\\_34\\_240819\\_Alok\\_Prasanna\\_Kumar.pdf](https://www.epw.in/system/files/pdf/2019_54/34/CL_LIV_34_240819_Alok_Prasanna_Kumar.pdf)

<sup>54</sup>See World Economic Forum. (2019). *Readiness for the Future of Production Report 2018*. WORLD ECONOMIC FORUM. Retrieved from: <https://www.weforum.org/reports/readiness-for-the-future-of-production-report-2018>

<sup>55</sup>See Economist Intelligence Unit and ABB. (2018). *Automation Readiness Index*. Retrieved from: <https://automationreadiness.eiu.com/>

<sup>56</sup>See NDTV. (2017). *Driverless Car’s won’t be allowed in India: Nitin Gadkari*. Retrieved from: <https://auto.ndtv.com/news/driverless-cars-wont-be-allowed-in-india-says-nitin-gadkari-1728961>



Within such an exercise, the following priority areas of work from a labor market perspective may be necessary for the government to consider:

Emphasizing learning outcomes from India's educational system: It is well established that learning outcomes from India's educational system has been historically low. Indian students, on average, continue to rank much lower than their Asian counterparts on metrics such as basic literacy and numeracy skills.<sup>57</sup> As the workforce grows year on year, re-tooling the education system to focus on learning outcomes will be necessary. One specific area to emphasize will be digital literacy, which will become the foundational skill to work with new technologies as they get diffused throughout the economy. The new National Educational Policy does emphasize the need for computational thinking and digital literacy, but contains little information on how these can be best incorporated into curricula or pedagogy.

### 8.9.1 Prioritizing cognitive and ICT skills in skill development efforts:

Ensuring that the existing workforce can migrate towards high-skilled work is an ongoing concern for India's skill development efforts. This shall only be exacerbated in the 4IR, which requires emphasizing not only ICT-focused skills, but also human skills, such as creative and critical problem solving, interpersonal skills, client engagement skills etc. Different skilling requirements will have to be accounted for different sectors and will require coordinated efforts from both the government and the industry. For instance, in the agricultural sector, it may be necessary to focus on basic computational skills and with simple mobile phone applications that can provide with relevant information on crops and yields. Similar basic competencies would be required to ensure that workers across the economy in manual or highly routine tasks can at-least acquire familiarity with basic technologies now considered mainstream, such as the Internet, e-mail or the mobile phone. New certifications could be designed to measure basic digital competencies, looking at frameworks such as the Digital Competence Framework 2.0 constituted by the European Union.<sup>58</sup> By contrast, in the services sector, the requirements would be extremely different, emphasizing upskilling, reskilling and continuous education. Some skills that would be required for IT workers would involve the use, creation, management or interpretation of big data analytics, cybersecurity services, robotics, machine learning, natural language processing, service delivery automation, etc.

The government needs to periodically undertake an economy-wide skill gap analysis, emphasizing new technologies.<sup>59</sup>

### 8.9.2 Defining "well-being" for workers in the gig economy:

The existing and proposed legal frameworks for formal employment may not adequately cover the concerns of gig workers in India today. However, the difficulty with defining 'gig workers' and accounting for different types of work generally available in the economy make it difficult to design uniform protections, as well as to determine what types of protections would best work for such workers in the Indian context. It is also necessary to remember that India's labor laws have historically been responsible for stifling the manufacturing sector due to the presence of onerous labor protections and requirements that have prevented several firms from scaling beyond a limited size. In order to find a balanced solution, India needs to define a holistic concept of 'well-being' for gig workers that goes outside the traditional frame of social protections originally designed for traditional jobs defined by an employment contract. This conception could be informed by multiple perspectives, such as the notion of 'decent work' as defined by the ILO, or from a data privacy perspective, accounting for the methods in, and any information asymmetry concerns with, which data is collected about worker's behaviour via platforms.

### 8.9.3 Improving data availability of employment and working conditions:

There are pressing data gaps in official statistics making it difficult to estimate the impacts of automation. For instance, Government statistics on labor displacement can be simplistic or be fraught with underreporting, making it difficult to determine layoffs due to technological change. In this scenario, industry-specific studies from researchers or industry organizations must fill these data gaps. Opposing views are often put forward in the media, making comparisons difficult both within and across sectors. Given the rapid pace of technological advancement, consistent monitoring of technological changes and their employment effects will be required going forward. This will require high quality employment data as well as in-depth analysis of technological capabilities, particularly in the field of machine learning. In order to address this, India will need to shift towards more consistent systems of assessing the labor market.

<sup>57</sup>See ADB. (2018). *Supra* note 22.

<sup>58</sup>See DigComp 2.0 of the European Union. Retrieved from: <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

<sup>59</sup>See NASSCOM and EY (2017). *Supra* note 33.



## 8.10 Conclusion

The potential offered by new innovations in the 4IR continue to fuel rhetoric around the substitution of labor by machines. However intuitive this rhetoric may sound, two flaws underline it: (1) a machine's theoretical superiority in one discrete task does not mean it will actually be used in real industry practice (2) machines can, instead of substituting humans entirely, allow them to upskill and move into different roles and jobs. This underlines the precise challenge with focusing on mass unemployment as the immediate cause for concern posed by digitalisation. From the standpoint of technological change as a public policy concern in India, the

attention should be on the changes to the composition and quality of jobs.

There are indeed multifarious problems posed by digitalisation for India to also examine, from reinvigorating skill development, addressing working conditions gig economy, enhancing digital infrastructure and ensuring the diffusion of technologies at scale. These are complex questions across various public policy domains. Addressing such problems requires significant analysis and coordinated policy response. A systematic, multi-disciplinary effort, informed by evidence and public consultation, would be the best way to determine how to best move forward.



# 9 WOMEN AT WORK

- By Nidhi Bansal, Senior Director, CARE India

*Women and girls represent nearly half of the working age population of India, but only 24% of the workforce and contribute merely 17% to the GDP of the country. The engagement of Indian women in any form of work in the market economy and their contribution to GDP are lower than the global average of 40% participation and 37% contribution to GDP. Furthermore, when women are employed, it is predominantly in the informal sectors of the economy, constrained by gender norms and stereotypes and provide low earnings, poor working conditions and limited opportunities for career advancements.*

## 9.1 Trends in Female Workforce Participation Rate

This first section of the paper presents the major trends in women's workforce participation. Data gleaned from national statistical reports and some analysis by national and international economists is presented here to build the picture of where we stand today:

### 9.1.1 Falling Female Labor Force Participation Rates (FLFPR)

Globally, women's workforce participation has seen an increase in recent decades however, when the Government of India recently brought out its Periodic Labor Force Survey (PLFS) for the period July 2017 to June 2018, it was significant in its finding that **India's female labor force participation rate (FLFPR) fell to 18%, its lowest level since Independence.**

Female labor force participation in India has remained stubbornly low since 1955, hovering around 20 and 30 percentage points. Starting at 24% in 1955, the FLFPR peaked to 33% in 1972 and has fluctuated a few percentage points during the in-between years (1972 – 2011). However, there has been a sharp decline from 23% in 2011 to 18% in 2017-18, a fall of 5 percentage points<sup>60</sup>.

Chaudhary and Verick (2014)<sup>2</sup> estimate that absolute increase in female employment between 1994 and 2010 largely took place in low growth sectors, such as agriculture, and handicrafts, marked by low productivity and wages. Further, they posit that **if women had access to the same work opportunities as men, the absolute increase**

**female employment would have been up to three times higher during this period.**

### 9.1.2 Widening Gender and Locational Gap in Workforce Composition

Researchers estimate that in most countries, men still tend to participate in labor markets more frequently than women<sup>61</sup>. In India, this is borne out by the significant **gender gap of 38% between male and female Labor Force Participation Rates** as per the PLFS 2017-18.

One of the starkest data points in PLFS was the **very high unemployment rates (UR) at 27.2% during 2017-18 for urban female youth (persons of age 15-29 years)**. This is almost 9% higher compared to the unemployment rate for urban male youth (18.7%). The unemployment rate among urban female youth is almost double that of the rural females (13.6%). This data has surprised the analysts as the urban female youth is likely to be more educated, more mobile and more confident than her rural counterpart and yet fares comparatively poorly on unemployment rates.

In urban areas, with increase in education, the unemployment rate among the females of age 15 years and above fell somewhat, coming down to 19.8%, a reduction of 7.4% as compared to overall population of female urban youth. However, the gender gap still stands at 10.6 percentage points. The story of gender gap in unemployment in rural areas is different from urban areas, with the unemployment rates among females being slightly lower than that of males (7.7% among rural females compared to 8.8% among rural males). This gap, however, reverses between educat-

<sup>60</sup> ILO Asia-Pacific Working Paper Series: Female labor force participation in India and beyond, Ruchika Chaudhary and Sher Verick October 2014.

<sup>61</sup> Working women: Key facts and trends in female labor force participation, October 16, 2017 by Esteban Ortiz-Ospina and Sandra Tzvetkova. Accessed @ <https://ourworldindata.org/female-labor-force-participation-key-facts> on October 29, 2019

ed (highest level of education secondary and above) rural males and females, with the educated females at 17.3% unemployment rate faring worse than the educated males at 10.5% unemployment rate.

Besides, significant gender gap in unemployment for all categories of males and females, barring general rural population, what is most worrisome about the unemployment data, is that the unemployment rate is amongst the highest among the young, educated urban females. This data alone indicates that women face multiple barriers to entry, retention and growth in employment. Merely enhanced literacy and education is not going to address the unemployment problem amongst women. Deep-rooted and systemic gender issues need to be addressed to achieve parity in employment. When compared across years, the estimates of Workforce Participation Rates (WPR) obtained in different quinquennial rounds of NSSO (NSSO 2004-5 to 2011-12) and PLFS 2017-18, it is seen that the WPR has decreased for both males as well as females, but the drop for females is higher than that of males. The UR has also sharply increased among those who are more educated.

According to the PLFS 2017-18 estimates, there is a huge discrepancy between the sex ratio and female to male worker ratio. Sex ratio for the economically active age group (15-

59) is 982, the female to male worker ratio in the same age group is only 38%, indicating a larger proportion of women and girls in the economically active age, are not participating in the workforce. National Sample Survey (68th Round) results indicated that the worker population ratio for females in rural sector was 24.8 and 54.3 for males in 2011-12. In urban sector, the ratio is 14.7 for females and 54.6 for males. This has huge implications for the economic planning of the country.

On one hand, economists consider the population dividend, especially the youth bulge to be a significant contributor to India's growth in the coming decades, but on the other hand, a large proportion of economically active females are not able to contribute to the country's economy. Thus, as a country, we will be unable to reap the full benefits of the population dividend and the youth bulge.

## 9.2 Invisible Work of Women

In India, the other side of a low female labor force participation rate is a substantially high proportion of females reporting their activity status as attending to domestic duties. In 2017-18, 45.5 percent of all rural females and 47.5 percent of all urban females in India reported attending to domestic duties.

### INVISIBLE WORK THAT WOMEN DO

**Women in India do almost ten times the amount of unpaid care work that men do.** This unpaid work includes household duties and reproduction: care roles such as taking care of children, elderly and sick; household chores like cooking, cleaning; and ensuring availability of water and cooking fuel. For most households, women's burden of unpaid care work is exacerbated due to poor access to basic services in rural as well as urban areas.

Strict gendered division of reproductive roles leads to disproportionate disadvantage for women and girls. **Due to the unpaid nature of women's work and the definition of economic activity, women's labor force participation remains statistically under-reported.** The role played by women in care activities falls outside the system of national accounts in India, whereas the international definitions include production of goods for self-consumption within the production boundary of the System of National Accounts (SNA). The broader the definition used, the greater will be women's economic contribution. As traditional surveys are quite inadequate in measuring women's employment, time-use surveys can play a very important role in capturing women's "invisible work" as it gives information on SNA, Extended-SNA and also Non-SNA activities (Hirway and Jose, 2011: Feminist Economics Volume 17, 2011 - Issue 4: Understanding Women's Work Using Time-Use Statistics: The Case of India).

Besides the direct impact, indirectly, this gendered division between male and female roles results in restricting the opportunities made available to girls. Starting early on in life, girls are trained to take up domestic roles while boys are trained to take on remunerative livelihoods. **This restricts girls' opportunities in education, vocational training, career choices and limits their aspirations to merely being a good wife and mother.** On the other hand, girls who do enter the workforce have to deal with the 'double burden' of reproductive and productive roles, often having to sacrifice career advancement in favour of the demands of the marriage and family.

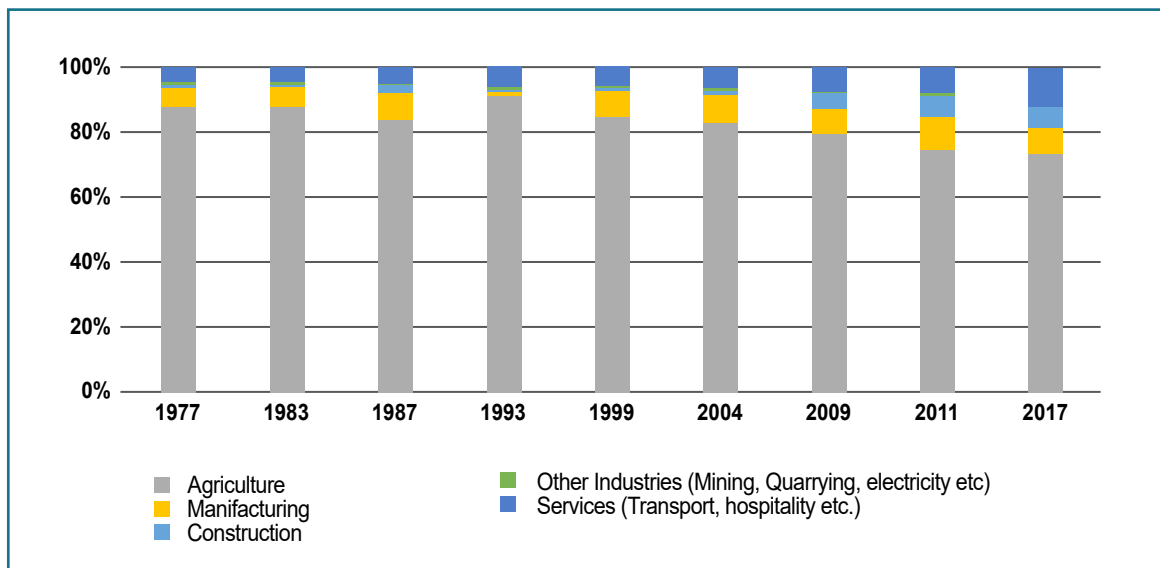
### 9.3 Sectors of Female Employment

According to the MOSPI's Sixth Economic Census 2013-14<sup>62</sup>, out of all establishments under women entrepreneurs, about 34.3% belonged to agricultural activities, with livestock dominating therein, having a share of 31.6%. Among non-agricultural activities owned by women entrepreneurs, manufacturing (29.8%) and retail trade (17.8%) were the dominant ones. The total of 15% female ownership of proprietary establishments, is divided as 13% coming from the non-agricultural sectors and 21% from agricultural activities.

Analysis of NSSO data (1970 – 2018) shows that women have largely been undertaking labor-intensive, home-based, and informal work, concentrated in low-productivity sectors. The agriculture sector has seen a larger decline for the rural men as compared to rural women with 73.2% rural women still working in agriculture sector, compared to only 55% rural men.

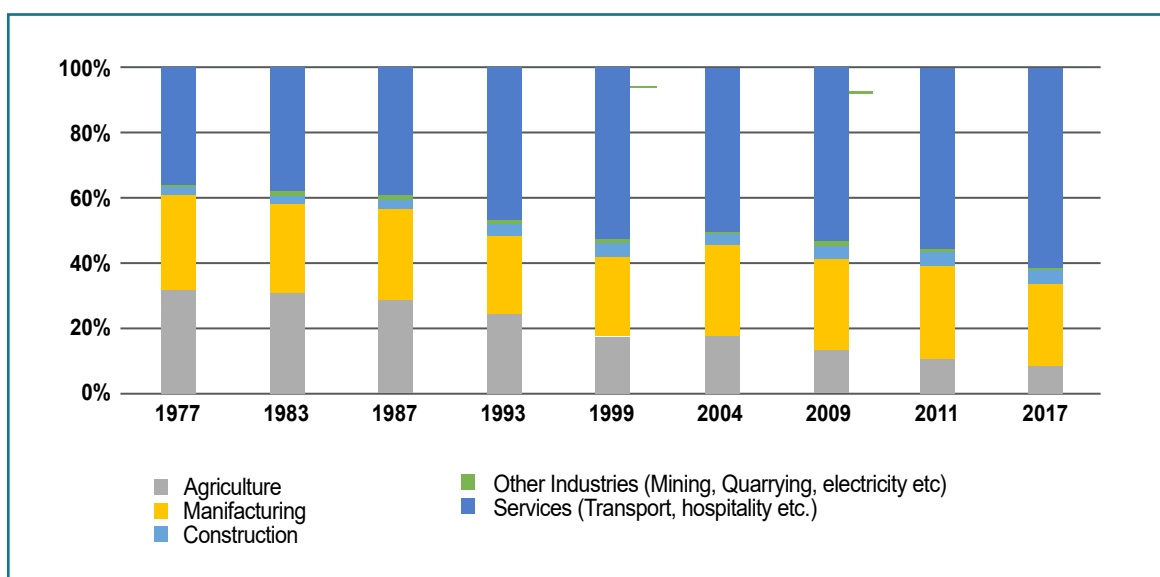
For urban women, the service sector has become increasingly significant, with its share in employment rising from 35.7% in 1977-78 to 60.7% in 2017-18. In this sector, women have become concentrated in professions such as teaching

**Figure 9.1:** Employment by Sector for Rural Females



Source: NSSO data; author's calculations.

**Figure 9.2:** Employment by Sector for Urban Females



Source: NSSO data; author's calculations.

<sup>62</sup>Sixth Economic Census (2014), Ministry of Statistics & Programme Implementation(MOSPI)

and nursing, which offer only limited scope for career progression. Unlike men, neither urban nor rural women could significantly increase their presence in the secondary sector.

## 9.4 The Gender Wage Gap

On average, women are paid less than men, even when women perform the same or equal-value jobs. As per the International Labor Organization's (ILO) Global Wage Report 2018-19<sup>63</sup>, women are paid the most unequally in India, compared to men, when it comes to hourly wages for labor. **On average, women in India are paid 34% less than men.**

The gender wage gap is wider in the rural areas- 103 Rs. for females compared to 149 Rs. for males (for non- public works), while is reverse gender gap in urban areas, with female wages at 182 Rs. per day compared to 111 (NSS 68th round 2011- 12)

The sixth Economic Census (2014), Ministry of Statistics & Program Implementation, In India, women's share in proprietary establishments is 22% (24% in rural and 19% in urban areas), as high as 80% in Manipur and low of 7% in Chandigarh.

Women are under-represented in leadership positions in both business and government. The Credit Suisse Research Institute (CSRI) reports<sup>64</sup> that India significantly lags in the percentage of women in senior management roles. **India ranks 23rd out of 56 countries with 8.5 percent of women occupying senior roles.** Even though the statistic has increased from 6.9 percent in 2016, India still occupies the third lowest spot among APAC. When it comes to female CEO representation, India occupies the third lowest rank among APAC with 2 percent representation.

When it comes to entrepreneurship, compared with businesses owned by men, enterprises owned by women are smaller, employ fewer people and are more concentrated in sectors with limited opportunities for profit and growth. According to the data from the Sixth Economic Census<sup>65</sup>, conducted between January 2013 and April 2014, **out of 58.5 million businesses counted by the census, only 8.05 million were owned by women, corresponding to a rate of 13.76% women entrepreneurs.** The average employment per establishment for women owned establishments was found to be only 1.67.

For urban areas, the average per day wage for male employ-

ees of age group 15- 59 years is highest for mining and quarrying sector, while the same was highest for female employees in the same age group is highest for electricity, water and gas industry.

## 9.5 The Gender Digital Divide

The gender digital divide persists. In India there are disproportionately lower percentage of women in engineering roles when compared to women's representation in the population and even when compared to percentage of women in white collared jobs. The Indian technology industry has only 26% women in engineering roles, and nearly 50% women engineers quit core engineering roles to move to marketing, product management or consulting roles<sup>66</sup>. This reinforces the assumption that STEM jobs attract less women.

One of the things that the current status of female workforce participation in India establishes beyond doubt is that there are systemic barriers to women's workforce participation arising out of the social, economic as well as the political institutions.

The World Economic Forum published the most recent Global Gender Gap report<sup>67</sup> and India ranks at 108 overall. In Economic Participation and Opportunity, the rank drops to 142, 114 in Educational Attainment and 147 in Health and Survival. The figure above indicates that India's score deviates from the average score for three out of four indices – Economy, Education and Health.

## 9.6 Cumulative Disadvantage through lifecycle

This section analyses how a girl accumulates deficits in growth, learning, skills and aspirations through various stages of her life, ultimately resulting in lower employment readiness at the time of entry in the workforce and further barriers in continuing to work and growing.

In a study undertaken by the Mackinsey Global Institute<sup>68</sup>, they found a strong linkage between gender equality in work and in society across India's states and concluded that gender equality in work cannot be achieved without achieving gender equality in society.

For this paper, the MGI developed a new score—the India Female Empowerment Index or Femdex— based on a sub-set of

<sup>63</sup>ILO 2019, Global Wage Report 2018-19: What Lies Behind Gender Pay Gaps

<sup>64</sup>The Credit Suisse Research Institute (CSRI) 2019, The CS Gender 3000 in 2019: The changing face of companies

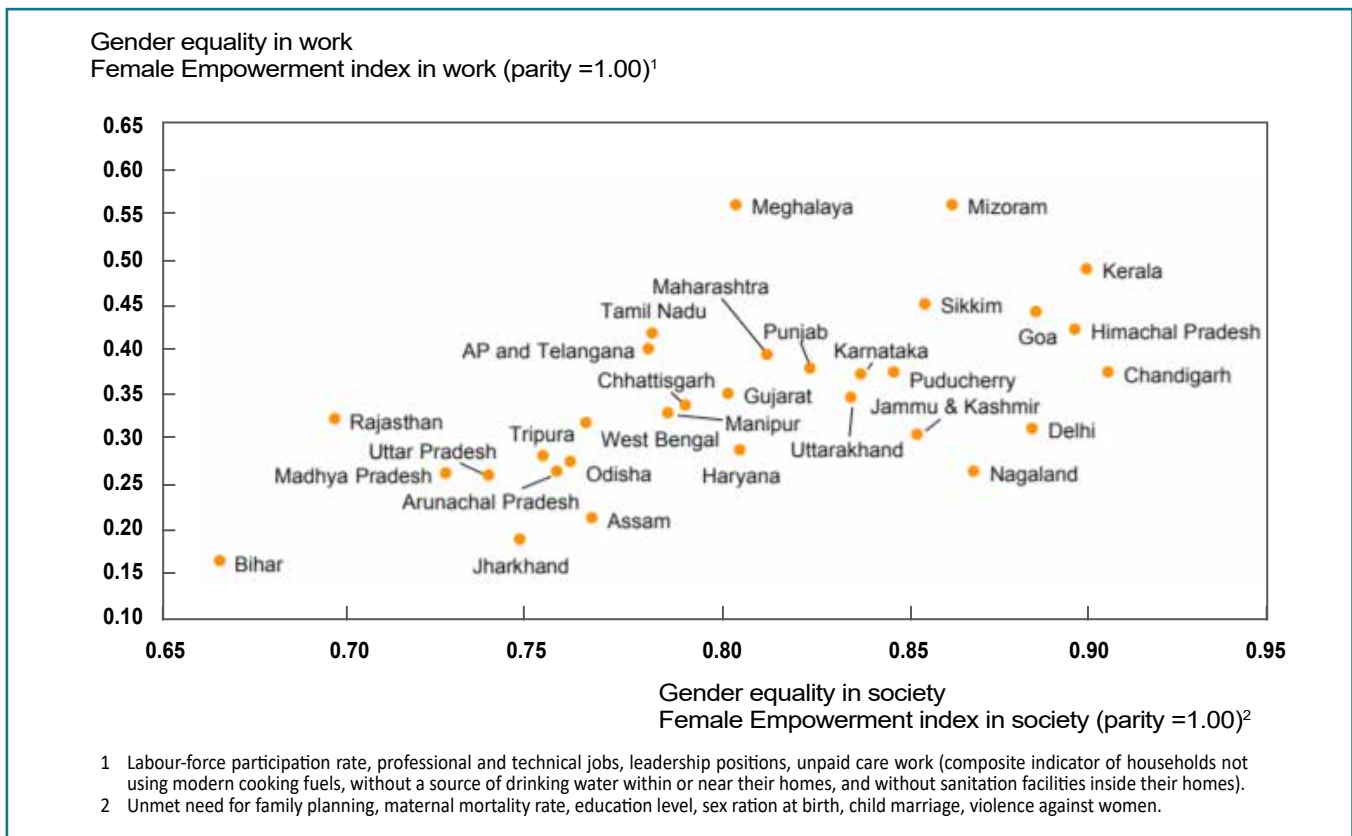
<sup>65</sup>MOSPI 2014, India Sixth Economic Census 2013-14, accessed @ [http://www.mospi.gov.in/sites/default/files/economic-census/sixth\\_economic\\_census/all\\_india/5\\_Highlights\\_6ecRep.pdf](http://www.mospi.gov.in/sites/default/files/economic-census/sixth_economic_census/all_india/5_Highlights_6ecRep.pdf)

<sup>66</sup>Blogpost by Belong.co, Women in tech: There are 3 times more male engineers to females. Accessed @ <http://blog.belong.co/gender-diversity-indian-tech-companies> on 11 November 2019

<sup>67</sup>World Economic Forum; Global Gender Gap Report 2018

<sup>68</sup>McKinsey Global Institute, November 2015: The Power of Parity: Advancing Women's Equality in India



**Figure 9.3:** There is a strong linkage between gender equality in work and in society across India's states

Source: Mckinsey Global Institute analysis

10 of the 15 indicators for which data are available at the state level in India. MGI found a wide variation in gender equality among India's 32 states, which indicates where efforts to bridge gender gaps need to be focused. MGI's Femdex finds strong linkages between gender equality in work and in society.

Challenges and barriers that girls and women face through the lifecycle, aggregate to create a cumulative disadvantage for women's participation in the workforce. Here is a lifecycle analysis of the cumulative deficits that determine the rate of female participation in labor force:

### 9.6.1 EARLY YEARS



The social institutions such as the family, community and the school are the sites where the foundations of future are laid. A girl child faces discrimination even before she is born. The strong son preference among Indian families, coupled with limiting the family size due to economic reasons is manifesting itself in the low sex ratio of 9 which further drops down

to 918 females to 1000 males in the age-group 0-6 years. Practices such as foetal sex determination and sex selective abortion are resulting in this disparity.

After birth, girls further face discrimination in care and upbringing with low breastfeeding, discrimination in health care and in distribution of food, especially milk amongst children. This discrimination is also visible in the lower attendance of girls in the aanganwadi centers. These discriminatory attitudes impact the physical and mental growth of the girl child, already weakening the foundational indicators.

### EARLY ADOLESCENCE



From an early age, girls are expected to take on household responsibilities to help their mothers. As a result of several progressive policies and programs of the Government namely the free and compulsory basic education policy, social safety net programs such as MNREGS and Mid-day meals, and large scale awareness raising campaigns such

as ‘Beti Bachao, Beti padhao’, there has been an increase in school enrolment to a near universal level. However, the learning outcomes are not keeping pace with the school enrolment, which could be due to erratic attendance and lack of gender responsive school environment. According to the PLFS 2017-18, the literacy rate in both rural and urban areas was higher among males than females by at least 10 percentage points.

Another subtle, yet critical development at this stage is the socialization around gender roles, with girls receiving limited encouragement at home, from the community or in school to aspire beyond the traditional gender roles of a wife and mother. The training at home is also to prepare girls to take on those roles, even though a girl might demonstrate potential for other roles. This socialization is further reinforced by lack of role models in local context. Overt and covert privileges to the male sibling also start establishing the female’s subordinate status in the society.

The learning deficit and aspiration deficit accumulated during this period impacts the choices when the girl is ready for transitioning into the workforce.

## 9.7 Late Adolescence



If there is one critical life stage, that pushes the females back in the path of life, it would be the late adolescence. This is the period when the girls’ bodies undergo physiological changes. The social and educational systems are ill-equipped to support the girls through these changes to continue on a growth path. Instead, there is immense social pressure at this stage, borne out of a fear of the girl bringing ‘dishonor’ to the family, should there be any sexual activity. Lack of safety in and around schools and high incidence of street harassment by boys and young men, further exacerbates these fears. This social pressure often results in restricted mobility of the girls, forcing them to stop schooling and in many cases an early marriage, in the hope that this would ‘protect’ the girl.

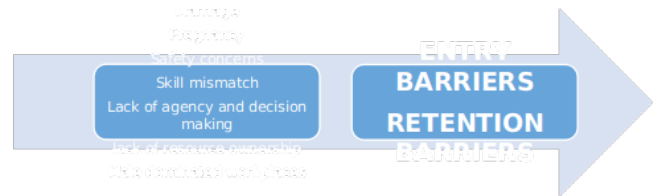
Prevalent myths around sexual reproductive issues, taboo around discussing such topics, coupled with lack of SRHR in-

formation and services results in girls entering into an early marriage, without adequate knowledge about pregnancy and contraception. This is one of the reasons of very high rate of adolescent pregnancy, especially amongst married adolescents. The girls are overwhelmed with the household and family responsibilities, leaving no time to build skill and confidence needed to enter the workforce, reducing their chances of employment – whether paid or self, to almost negligible.

Socialization on gender roles, lack of alternate role models and lack of encouragement from family and community is reflected in the lack of self-confidence as well as the choice of subjects made by the adolescent girls who continue to secondary and tertiary education. While 15% of both men and women graduate with degrees in the Natural Sciences. However, as expected, women are over-represented in the Social Sciences, Journalism and Education and underrepresented in Engineering, Manufacturing and Construction subjects. Gender Parity Index by educational level (2015-16): It slightly favors females till senior secondary education but reverses in favor of males in higher education<sup>69</sup>.

As girls traverse this crucial stage in their life, they are likely to further accumulate deficit in the area of skills, confidence and opportunities, creating a huge disadvantage for them to enter and stay competitive in the workforce.

### 9.7.1 ADULT WOMEN



According to MOSPI’s data, women’s mean age at marriage is 21.7 years in rural areas and 23.1 in urban areas<sup>70</sup>, indicating that a large proportion of women are less likely to have completed their tertiary education and gained employment skills. On the other hand, marriage also pushes women into family responsibilities, where the decisions about their time use are determined by the family’s expectations, rather than their own aspirations. The overall age fertility rate is also highest for the age group 20-24 years in both rural and urban areas<sup>71</sup>, thus creating further domestic demands on the woman’s time.

Incidentally, this is also the age at which a large number of women quit the workforce or change their course of employment from core technical roles to administrative roles. The lack of sharing of household responsibilities between the husband and wife puts the entire burden of reproductive re-

<sup>69</sup>Educational Statistics at a Glance 2016 and D/o Higher Education, MHRD

<sup>70</sup>Social Statistics Division, Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India, 2018, Women and Men in India (A statistical compilation of Gender related Indicators in India) 20th issue

<sup>71</sup>ibid

sponsibilities on the woman, forcing her to quit or alter her career path. If women get married, have children and exit the labor force because of a gendered division of labor at home and the absence of affordable good quality childcare, then the benefits accrued from reducing educational gaps will be eventually nullified.

There are several issues related to the pipeline problem here – fewer working women imply that there will be fewer women available in the pipeline for top leadership positions. Subtle and not-so-subtle discriminatory practices also mean there is a ‘leaky’ pipeline issue. Women may enter professions at entry levels and then marriage and childbirth cause them to exit from the labor market. That may well explain the staggeringly large number of young women who are neither in education nor in employment.

An important determinant of women’s low participation in workforce is the lack of support from the family. In fact, women’s income is considered ‘secondary’ and therefore, rise in family wealth leads to women dropping out of workforce.

It is seen that for both formal and non-formal vocational training, a higher percentage of males compared to females receive vocational/technical training. Women’s inability to acquire technical skills plays to their disadvantage as Kapsos (2014) found that less than 19 percent of the new employment opportunities generated in India’s 10 fastest growing occupations were taken up by women<sup>72</sup>. Despite increases in primary and secondary educations, women have systematically lost out on opportunities in fast growing sectors owing to an increasing demand for technically skilled labor, and men having higher tertiary educational and vocational training levels.

Most of the workplaces remain dominated by men, with very low or no sensitivity to the specific needs and vulnerabilities of female colleagues. Being “the only one” is still a common experience for women. Rather than being gender responsive, the workplaces are an added site of harassment and abuse. This has been highlighted time and again, by numerous incidents of rape, abuse and harassment that resulted in the Supreme Court of India issuing the Vishakha judgement, later on The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013. However, the implementation of the law remains a challenge as recently highlighted by the widespread ‘Me Too’ movement.

Besides harassment, various forms of gender-based discrimination at the workplace, are commonplace in India including unequal pay for same work, gender segregation of responsibilities, lack of provisions to account for the specific needs and vulnerabilities of women. All these play a role in holding women back.

Women in India, tend to be grouped in certain industries and occupations such as basic agriculture, sales and elementary services, and handicraft manufacturing. The problem is that these sectors have not seen employment growth in recent years, which has put a brake on female employment growth.

## 9.8 Gender equality in workforce: Why should we care?

Women’s access to and control over resources is another roadblock to women starting own enterprises or the growth of women owned enterprises. Less than 43% of women have an account in a financial institution, nearly 20% less than that of men. This figure for women is also likely to be much lower in the rural areas where financial inclusion for women in formal institutions is a serious problem.

**Enhancing women’s participation in the workforce is not only the ‘right’ thing to do but is also the ‘smart’ thing to do.** Gender equality in workforce will positively impact the lives and livelihoods of women and girls, as well as has ramifications for the community and the country, resulting in enhanced progress on human development, labor markets, productivity, and GDP growth.

The human rights case for gender equality is incontrovertible. Article 23 of the Universal Declaration of Human Rights (UDHR) clearly states the ‘Workers’ Rights’, proclaiming everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment. Everyone, without any discrimination, has the right to equal pay for equal work. Every grown-up has the right to do a job, to a fair wage for their work, and to join a trade union.

**Women’s increased participation in workforce is universally accepted as one of the key measures of their empowerment** and has been found to be positively correlated to their ability to make decisions and exert their agency and choices in key domains of their life, thereby improving the quality of their life and their status in the family and community.

**Women’s work has an intergenerational impact.** Experience across the globe suggests that women tend to invest more of their earnings into the education and health of their children. Households where women earn an income, are more likely to invest in the education of the girl child. Women themselves report an increased sense of self-worth and ability to resist domestic violence.

<sup>72</sup>Kapsos, S.; Silberman, A.; Bourmpoula, E. 2014. Why is female labor force participation declining so sharply in India?, ILO Research Paper, No. 10. Accessed @ [http://ilo.ch/wcms-sp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_250977.pdf](http://ilo.ch/wcms-sp5/groups/public/---dgreports/---inst/documents/publication/wcms_250977.pdf) on 12 November 2019

It's hard to develop in an inclusive and sustainable way when half of the population is not fully participating in the economy. The high cost of gender inequality is the untapped potential of women because of which we, as a country, are unable to reap the full benefits of the population dividend. Unlocking this large potential could work as catalyst in achieving goals as set under Sustainable Development Goals. For individual companies, research shows a clear linkage between gender diversity and increased Return on Investment. **Companies with 30% women executives rake in 6 percent points more in profits.**<sup>73</sup>

Besides the personal and social benefits of women's participation in the economy, there is compelling evidence that women can be powerful drivers of economic growth of nations. Econometric modeling by various researchers

have helped quantify women's economic contribution to determine the impact of achieving parity in women's participation in workforce. McKinsey Global Institute's estimates indicate **India stands to add 2.9 trillion \$ additional annual GDP in 2025 by fully bridging the gender gap in the workplace.**

This would be 60% higher than business as usual GDP in 2025.<sup>74</sup> Booz & Company estimates that if men and women in India were to be equally employed, India's GDP could go up by 27 percent.<sup>75</sup>

Greater gender equality means a country is associated with better education and health, higher per capita income, faster and more inclusive economic growth, and greater international competitiveness.

## SEIZE NEW OPPORTUNITIES IN THE AGE OF AUTOMATION

The future job market will be shaped by the increasing automation and use of AI, with huge implications for the future jobseekers as well as workers in some current job segments. Routine physical tasks and routine cognitive work would likely be fully or partially automated. However, complex cognitive, and social and emotional skills will continue to be dependent on human skill set.

A report by McKinsey and Company finds that men and women will experience similar scale of potential job losses and gains but in different areas. In India, 12 Million or 10% of the women's jobs are at risk of being displaced by automation by 2030, as compared to 44 Million or 12% of men's jobs at risk. Since a large number of women work in subsistence agriculture, losses in this occupational category could account for 28 % of jobs lost by women, compared with 16% percent of jobs lost by men.

The increased use of technology is likely to lead to higher educational requirement. This could pose a challenge as female education rates continue to lag behind men. In absence of reskilling and necessary transitions, women could face an increasing wage gap. At the same time, a potential glut of workers in lower-wage jobs, including men displaced from manufacturing, could put downward pressure on wages. Over the longer term, some women could leave the labor market entirely as the economic costs associated with being in the labor force rise

To weather the disruption expected on account of AI and automation, women (and men) need to be skilled, mobile, and tech-savvy. Unfortunately, women often face pervasive systemic and societal barriers that could hinder them in all three of these areas.

There will be job gains, too, as economies grow, resulting in rising incomes and consumption, investment in infrastructure and energy, and increasing healthcare needs due to increased life expectancy. Women would be somewhat better placed to capture these potential job gains than men.

Manufacturing, accommodation and food services, retail and wholesale trade, and construction are like-

<sup>72</sup>Kapsos, S.; Silberman, A.; Bourmpoula, E. 2014. Why is female labor force participation declining so sharply in India?, ILO Research Paper, No. 10. Accessed @ [http://ilo.ch/wcms-sp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_250977.pdf](http://ilo.ch/wcms-sp5/groups/public/---dgreports/---inst/documents/publication/wcms_250977.pdf) on 12 November 2019

<sup>73</sup>Peterson Institute for International Economics February 2016, Working Paper16-3 Is Gender Diversity Profitable? Evidence from a Global Survey Marcus Noland, Tyler Moran and Barbara Kotschwar accessed @<https://www.piie.com/publications/working-papers/gender-diversity-profitable-evidence-global-survey>

<sup>74</sup>MGI 2015, The Power of Parity: Advancing Women's Equality in India

<sup>75</sup>Strategy&, 2012: Empowering the Third Billion: Women and the World of Work. Accessed @ <https://www.strategyand.pwc.com/gx/en/reports/strategyand-empowering-the-third-billion-full-report.pdf>

ly to be the sectors experiencing job growth. Women will have an edge over men in manufacturing and healthcare due to over-representation compared to economy wide participation. On the other hand, job growth in construction, accommodation and food services will be advantage men.

Higher social emotional skills, a skill set less valued in the current jobs market and demonstrated by women employees, will become an invaluable asset. The need is to nurture this skill set while preparing women for acquiring a more diverse skill set. It is also vital that women participate in the creation of technology, not only because diverse teams have distinct benefits, but also because their contribution can help tackle concerns about inbuilt gender bias in AI algorithms.

Other gains expected for women could be advances in telecommunication reducing the need to co-locate and increased flexible and remote working solutions. To some extent, this will address the barriers that women face on account of the domestic responsibilities, because they disproportionately carry the “double burden” of working for pay and working unpaid in the home.

## 9.9 Way Forward: Women @ Work

An increase in the female workforce participation and a reduction in their dropout from work will take concerted efforts by a number of stakeholders. Changes are needed in the policy, social as well as market structures to address the challenges enabling women to transition into workforce and supporting them to continue working. Given the complexity of the factors driving female labor force participation, namely growth, education, fertility, and the cultural and normative context of society, supply as well as demand side actions will be needed. The barriers that women face emanate from the family, marital, educational and social status.

### 9.9.1 Overcoming Learning Deficit

The gender-based marginalization starts early on in girls' lives and is manifested strongly in educational opportunities and learning outcomes. While the free and universal primary education policy has had a positive impact on girls' enrolment in primary school, but the gender gap remains in secondary and tertiary education, especially low transition from upper primary to secondary and a further drop in transition to tertiary. Gaps also remain in learning outcomes that are necessary to provide strong foundations to girls on which they can build the skills needed for employment readiness include, proficiency in languages, including English, mathematics and science.

- Setting targets for girls' learning outcomes and resource allocation (for tutoring support etc.) to meet those targets

- Ensuring relevance of education to future life by introducing vocational education together with academic subjects
- Schools and Universities co-creating technical curriculum with Industry
- Creating provision of sponsorship/ scholarship for girls pursuing STEM in higher education
- Holding the Head teachers and the School Management Committees accountable for improving the school environment, especially focusing on improving safety and security in and around schools
- Incentivise parental support for girls' higher education while intensifying parental engagement on value of education and gender equality

### 9.9.2 Overcoming Confidence and Aspirations Deficit

One of the persistent challenges even amongst the educated young women is the lack of aspirations. Even with long strides in girls' education across the country, it is still seen as a means of fetching a better 'husband' for the groom. For girls themselves as well, lack of female role models in their surroundings limits their aspirations. Coupled with aspirations is the challenge of lack of self-efficacy amongst girls. The civil society and media can play a pivotal role in influencing the attitudes and choices:

- Celebrating the success of women in professions
- Parental and male engagement on women's participation in the economy
- Interactions with role models from all walks of life



- Challenging and changing deep-seated attitudes about the role of women in work and in society.

### 9.9.3 Overcoming the Skills Deficit

To enter the labor force and bridge the gender pay gap and gendered job stratification, women will need to gain relevant technical, technological and management skills. One area where women have an advantage over their male counterparts is in social emotional skills. This skill set needs to be nurtured, if women have to reap the benefits of emerging jobs. Some of the practical steps that the Government and the market actors can take to enable women overcome skills deficit include:

- Targeted skills training for women in key growth sectors
- Incentives to training institutions for registering female trainees and added incentives for successful placement of female trainees
- Coupling skilling with apprenticeship opportunities
- Integrating elements of mobilizing family support in skill building and placement programs
- Reskilling opportunities for Mid-career women

### 9.9.4 Addressing Women's Time and Energy Poverty

One of the biggest barriers to women's participation in the workforce in India is their unpaid care responsibilities including household chores, caring for children, sick and elderly and water and fuelwood collection. At a practical level, the issue needs to be addressed by making provisions, such that women's time can be freed up, but on the other hand, the strategic concern around strict gendered division of labor within families, needs to be challenged and changed to bring about a transformative and intergenerational change for women.

- Improving infrastructure and services to address the high burden of routine domestic work, childcare and elder care and fetching water and fuelwood
- Increased allocation for gender budgeting
- Easing the burden of domestic responsibilities by making provisions such as child care, creche, availability of time and labor saving devices at affordable prices
- Sensitizing men to equally share the household responsibilities, as women have started sharing the earning responsibilities
- Administering time-use surveys to capture women's "invisible work" to inform the calculations of the National System of Accounts

### 9.9.5 Promoting Women's Entrepreneurship

Not all women enter the workforce in paid employment. Women's self-employment and entrepreneurship needs to be supported.

- Making diversified microfunding sources available to women entrepreneurs
- Incentivising women-led tech startups
- Expanding the reach of financial and digital services to enable women entrepreneurs;
- Improving the entrepreneurship ecosystem for women startups
- Provide incentives to medium, small and micro enterprises that make a provision for mat leave, creche, flexi working hours and other gender responsive provisions for female employees

### 9.9.6 Lowering Entry Barriers

The higher unemployment rate amongst females indicates that women who are ready and looking for a job are facing supply side barriers in entering the workforce. This gender gap is mostly reflective of gender biased attitudes of the hiring managers. This entry level barriers further translate into low growth potential and eventually women dropping out of the jobs.

- Closing gender gaps in hiring and promotions, especially early on, to ensure a gender diverse workforce, that can provide a strong pipeline for further promotions to higher positions
- The Industry associations can determine industry targets for gender diversity and hold employers accountable through a system of incentives and penalties
- Analysis of the deep culture of the workplace and build programs to address elements such as 'boys' clubs', gender blind policies in formal and non-formal ways

### 9.9.7 Enhancing Retention in the Workforce

Retention of women in the workforce becomes a challenge either when they get married or when they decide to start a family. At both these points in her life, woman's decision to deprioritize her work is guided by the strong family and societal expectations from a good wife and a good mother. At this point, crucial decisions like location of residence, her time use pattern and her self-worth are all taken out of her hand. While this is largely an issue to be addressed within families and in the society, there are practical steps that the companies can take to encourage women to continue despite the social challenges.

- Women friendly policies on parental leave (not just maternity leave), creche, feeding corner, flexi working hours, remote working options
- Initiatives to identify women with high growth potential and invest in building a strong 'career identity' before they hit the crucial age of 25-32, the time for family expansion
- Incentives and facilities for women seeking reskilling in mid-career
- Stepping up gender diversity policies and practices in private sector organizations, including accountability to the Government
- Digital and mobile literacy programs targeting women
- Zero tolerance and demonstrated action to support the workplace safety policy, especially the provisions related to preventing sexual harassment at the workplace

### 9.9.8 Overcoming Social Barriers

There are a number of societal attitudes, beliefs and practic-

es that deprioritize women's economic participation. While these norms impact all other domains listed earlier, following are certain specific beliefs and practices that need to be addressed

- Restrictions on Mobility on account of concern for safety: This requires building efficient and safe infrastructure – safety in transportation services, at marketplaces, in workplaces
- Child, early, forced marriage: concerns for girls' marriage are associated with the idea of maintaining the girls' virginity before marriage. While there is a law against child marriage in India, the accountability of Government officials would be essential for stricter enforcement of the provisions of the law
- Further strengthening legal provisions for women and the enforcement of laws
- No value of women's economic contribution: The need is to build recognition of women's economic contribution to the economy of the household, the community and the nation.



# 10 EMPLOYMENT GAP FOR PERSONS WITH DISABILITIES

- By Reena Mathai Luke, Dr. Reddy's Foundation

## Summary

*Despite India's robust legislative framework for inclusion of Persons with Disabilities (PwD) in the workforce, it is well documented that PwDs do not have equal opportunities and their access to work continues to be limited. This chapter, through interviews and reviews of literature, highlights the biases and barriers faced in the hiring of Persons with Disabilities.<sup>76</sup> It attempts to bring to the fore, how 'perceptions' and unfamiliarity about disability issues among many employers continue to flaw and impact hiring practices and equally, how some changing usage of words and attitudes by the "advocates for the disabled" may be leaving hiring "practitioners" confused and cautious.*

*While several empirical studies have been done to investigate employer attitude regarding PwD employment in other countries, there is limited research done in India. However, since these studies do reflect practices and problems that are relevant to PwD recruitment in our present context they have been referenced in this chapter. In addition, some evidence-based responses<sup>77</sup> from employers and persons with disabilities have been included to help understand the pain points that need to be addressed.*

*Further, since several studies have successfully identified the main hindrances that impede PwD employability, this article attempts to highlight whether these hindrances continue to be a challenge or if there has been some changes in the trend and practices for PwD Employment.<sup>77</sup>*

## 10.1 Introduction

As per 2011 census, India a total of 26.81 million people were disabled in India, which consisted of 14.97 million male and 11.82 million female. In percentage terms, this represented 2.21 percent in the overall population, 2.41 percent amongst males and 2.01 percent amongst females. In terms of geographic dispersion, 18.63 million PwDs lived in rural areas and 8.18 million in the urban areas.

With the economy slowing down, there is little doubt that the increasing unemployment dilemma will have an amplified impact on Persons with Disabilities and they may further fall behind and face an increased risk of economic vulnera-

bility and socially marginalization.

It will also have a pronounced economic impact on their family members as cited in a World Bank Report<sup>78</sup> and underlined by Amartya Sen - who referred to this as "earning handicap" and the "conversion handicap" - for not only will PwDs' find it harder to get regular full time jobs and retain it; but may also be forced to deal with the increased possibility of getting paid lesser; thereby being burdened further with healthcare expenses, assistive tools or engage an attendant etc. in order to have a fair chance of good living.

Social attitudes and economic disparities play an important role in limiting the opportunities for Persons with Disabili-

<sup>76</sup>This chapter is limited in its focus on people with physical disabilities, and does not include people with mental illness and hidden disabilities like depression, HIV/AIDS, diabetes, epilepsy rheumatism etc. Further, this chapter is focused narrowly on organized, formal employment, and does not address the issues faced by persons with disability in the informal employment and self-employment.

<sup>77</sup>‡ Responses included are from an ongoing study by the author to find out about the inclusion of persons with disabilities in the workforce after the new legislation, the Disabilities Act 2016 expanded from 7 to 21 conditions.

Case stories: DRF-PwD aspirants with their permission- all names changed.

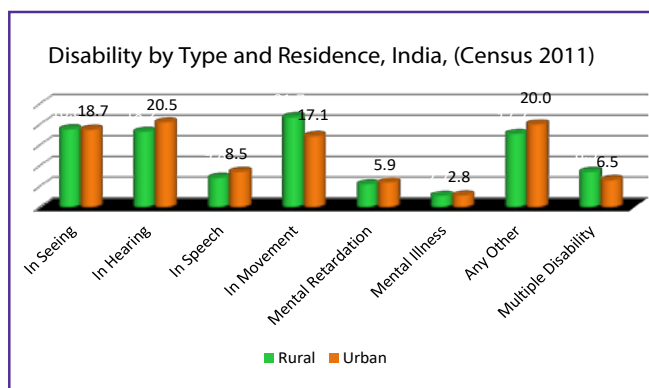
<sup>78</sup>World Bank Report on Disability

ties. In India this is a big challenge as these two concerns run deep and are wide ranging; underlining the need for a relentless effort to correct this and ensure inclusion and diversity at workplaces is not limited to HR policies or external facing communication, but is implemented in letter and spirit.

It is understandable that employment rates of persons with disability will vary with geographical location, gender, education and types of disability, but a survey of employers and PwDs, (along with some not-for-profit organizations committed to promoting disability rights) highlight a gap in the way each of these groups looks at the issue of employability. And it must be added that while each group has their own concerns and priorities (largely limited by each group's need, understanding of the issues and the existing environment they are part of) there is an evident mismatch of expectations which is the basis of mistrust and reluctance, resulting in either stonewalling or slowing the process.

While some of this comes from genuine unawareness of PwD issues, we also traced diffidence, attitude, impatience, confusion and anxiety in some of the responses all of which tend to make people on both sides more defensive or slow to change. It is important therefore to get the basics right before we focus on critical interventions to tackle this challenge.

**Figure 10.1**



## 10.2 The Present Situation

While there is a slow but notable behavior change in how people, at least in urban areas, attempt to address disability we still have a long way to go when it comes to understanding the issue of PwD employability in the context of equal rights to employment and the 'right to work' which is recognized as a fundamental human right<sup>79</sup>.

PwD face multiple disadvantages in employment. The first disadvantage is low levels of literacy amongst PwD. As per Census 2011, the literacy rate amongst PwDs was only 54.52

percent, as compared to overall literacy rate in the population at 74.04 percent. With this significant disadvantage in access to education, its not a surprise that PwDs also face discrimination in opportunities to participate in the workforce. Out of 26.81 million disabled people in 2011, only 9.74 million people were workers, while 17.07 million persons were categorized as non- workers. 23.30 percent of the workers were classified as cultivators, whereas 30.55 percent were classified as agricultural labors. 41.68 percent of the workers with disability were classified as working in 'other' occupations, for which more granular data is not available.

Regardless of the government's affirmative direction of 3% reservation for PwD's and the detailed guidelines in the "Rights of Persons with Disabilities Act 2016" ; less than one percent of PwD are employed by companies in India and these numbers have barely risen in the last decade. Also, equal employment opportunities - the stress being on 'equal'- continues to dodge Persons with Disabilities as they are hampered by lack of skills and limited by structural as well as attitudinal barriers.

However, on a positive note, some further scrutiny highlights, among the young PwDs there is an increased appetite to be assertive and independent and linked to this, is the increasing awareness for the need to get skilled to find employment. Many (at least in urban areas) have a better understanding of their rights, thanks to the work on awareness generation done by the non- profits and rights groups associated with this issue. Also, it was noticed that the attitudinal barriers faced by PwDs in the urban areas are now less linked to superstitions but are the result of 'perceptions' that have not been corrected or challenged.

So while there might be a slackening of some rigid attitudes towards PwD, the shift to appreciate and include PwD in the main workforce is still slow despite India (among the developing countries) having one of the more progressive disability policy frameworks and a vibrant disability rights movement.

This softening of attitude could be the result of advocacy and or the result of the need to be on the right side of the law; but our experience at the grass root level endorses several studies that indicate that persons with disabilities are still unable to mesh into the workforce spontaneously.

Says Suparna (name changed) who has B. Ed degree and is very independent "Despite my training, I have been rejected at several interviews on the grounds of my visual impairment. What pains me most, is that while I was admitted for the B. Ed course based on my merit, when it comes to employment, I am deprived of an equal opportunity by citing

<sup>79</sup>In 2007, India ratified the United Nations Convention on the Rights of Persons with Disabilities (CRPD) which recognizes the right to work as a human right, however as per the Indian Constitution, under Article 41, the right to work is placed in Part IV (Directive Principles of State Policy) which hence makes it unenforceable in the court of law.



silly reasons like I will not be able to use the blackboard as a tool! I agree, conventional teaching methods use the blackboard a lot. But today, with technology there are so many other teaching aids available for a teacher which are sometimes more effective and interesting to a child. But this calls for accommodation and some investments on the school's side and they are not willing to do that, instead they prefer to sideline me! I wish I was told black board teaching would be an issue when I applied for B.Ed. Now after having spent so much time and effort I am back here at this centre to learn another set of skills."

*"Despite my training, I have been rejected at several interviews on the grounds of my visual impairment. What pains me most, is that while I was admitted for the B. Ed course based on merit, when it comes to employment, I am deprived of an equal opportunity by citing silly reasons like I will not be able to use the blackboard as a tool!"*

- A visually impaired person with B.Ed Degree

Table 10.1

Main Issues	
From PwDs Perspective	From Employer's perspective:
<ul style="list-style-type: none"> <li>✓ Presuming their incompetence without even giving them a chance</li> <li>✓ Accessibility/Infrastructure – A study highlighted that 95% respondents found this a major concern</li> <li>✓ Unwillingness to make some accommodations in line with their need to function</li> <li>✓ Communication/Discrimination</li> </ul>	<ul style="list-style-type: none"> <li>✓ Lack of appropriate skills to keep pace with the changing market</li> <li>✓ Expensive and cumbersome adjustments and accommodations</li> <li>✓ Work timings and leave</li> <li>✓ Investment vs Productivity</li> <li>✓ Communication barriers</li> <li>✓ Performance appraisals</li> <li>✓ Attitude</li> </ul>

Figure 10.2





### 10.3 Real Predicaments

Persons with Disabilities confront several barriers to enter the labor market. These are compounded by their different needs, capabilities, circumstances and of course the kind of accommodations that each case calls for.

Of these, some issues like lack of education and skills, lack of financial resources or a restrictive family environment are not issues that employers can remedy even though they do have direct impact on employment. But apart from these, anecdotal evidence suggests most of the other glitches regarding the employment of PwDs can be categorized under four main concerns: Perception issues, Physical Accessibility, Policy Implementation and Procrastination (or plain unwillingness) and can be addressed with a little bit of effort on all sides.

**Perceptions and Attitudinal Challenge:** Negative attitudes toward employees with disabilities continue to be one of the biggest blocks and often results in discrimination. While these might be less overt these days, they continue to exist and stem largely from lack of awareness, stereotyping, and

fear. But mostly these are based on “perceptions” or hearsay and employers tend to assume a host of issues based on presumptions and unfounded fears. Since most employers lack the experience of seeing a PwD in action at work, their attitudes towards PwDs are often based on perceptions or beliefs rather than facts.

Most employers think of PwDs as inefficient, problematic or difficult team players. DRF’s experience of finding placements<sup>80</sup> and job opportunities for persons with disabilities, indicate some of these issues are the direct result of employers not being “prepared” sufficiently to receive PwD on their rolls. Apart from proper “job matching” to ensure the role offered is the ‘right fit’ for the person with disability, appropriate job accommodations is crucial for performance. When these are not addressed, work may suffer and problems arise. The study on disability conducted by the World Bank confirmed that reservation for PwDs in the Public sector exhibits in unsatisfactory outcomes due to design and implementation problems. As a result, the share of PwD in all posts remains negligible’.

Manju (name changed) had completed her M.Phil with good grades and had a “secure” government job with all the perks for a person with disability. But within eight months she left her job and signed up for the DRF training program just to avail the placement support. Her only request – “please get me a job in a blind school.”

Manju suffers from dwarfism and she felt harassed by her colleagues’ comments and references to her disability which was initiated because she could not climb on to a regular office chair! Crushed by the experience, she wanted to ensure she would not be subjected to any further discrimination and hence her request to get a job in a blind school.

The following case story illustrates how the lack of appropriate accommodation – in this case, just a suitable seating arrangement – and unchecked biases, lack of sensitivity and derogatory remarks forced a person to leave despite the person being excellent in her work.

It is because of this kind of discrimination – fear of social stigma and adverse reaction from co-workers - that some Persons with Disabilities shy away from applying for certain jobs. This is more likely in the absence of an effective integration process of Persons with Disabilities at the workplace.

**Stereotyping:** Too often, employers fail to get these nuanced complexities of PwD issues and instead, view ‘Persons with Dis-

abilities’ as a “category” (like SC/ST/OBC - probably prompted because of the reservation stipulation for them) and as a result of this reckless bracketing of all PwDs as one category, employers have been unable to realize that every person with disability has a different need. This naïve stereotyping leads to irritants on both sides especially when job related accommodations have to be factored in for recruitments.

DRF’s Placement Officers, who are tasked with finding placement opportunities for PwD students, corroborated that when they go to meet an employer for the first time, there is a lot of stonewalling especially if the organization does not have a clear mandate to recruit PwDs. DRF’s experience of working to get PwDs placed also indicated even organiza-

<sup>80</sup>Dr. Reddy’s Foundation (DRF) trains youth with disabilities and supports them to find employment. DRF has trained 15, 430 aspirants in the job force and placed 62% successfully.

tions that do have an 'inclusion and diversity' policy, are reluctant to employ PwDs with "severe" disability. They added that most recruiters have a limited understanding of PwD needs and often stall recruitment of PwDs by saying they "do not have the amenities like an elevator or a ramp." Also, when it comes to interviewing hearing impaired persons for the first time, the discomfort is more perceptible and evident at the interview stage itself when the recruiter is either talking

too loudly or trying to resort to some kind of sign language! Some recruiters had to be told that despite their type of disability being the same, each person with a hearing impairment had a different need and so while some managed with hearing aids, others depended on lip reading and still some others depended on sign language to communicate; and it was important for the interviewer to check with the person individually as to what they were comfortable with.

Table 10.2

Understanding Inclusion		
Low Belongingness		High Belongingness
Low Value in Uniqueness	<p>Exclusion</p> <p>Individual is not treated as an organizational insider with unique value in the work group but there are other employees or groups who are insiders</p>	<p>Assimilation</p> <p>Individual is treated as an insider in the work group when they conform to organizational/dominant culture norms and downplay uniqueness</p>
High Value in Uniqueness	<p>Differentiation</p> <p>Individual is not treated as an organizational insider in the work group but their unique characteristics are seen as valuable and required for group/ organization success</p>	<p>Inclusion</p> <p>Individual is treated as an insider and also allowed/encouraged to retain uniqueness within the work group</p>

Source: <https://wmfdp.com/wp-content/uploads/2016/05/JOM-Inclusiveness.pdf>

## 10.4 CSR & Disability

While Corporate Social Responsibility is a welcome proactive effort to ensure industry is not limited to profit making motives, instead pauses to look at social needs too. As a result, several Corporates have included disability as one of their CSR priorities; but it has been observed that to club PwD recruitment as a CSR activity seems to tinge the entire exercise as a 'social service' or 'act of charity'; thereby diluting the need to see PwD employment as a 'Right to Work.'

A senior HR person who attended DRF's sensitization workshop acknowledged, "When I analyze this now I think our 'PwD recruitment drive' might be seen as "social work" because it is a CSR activity and therefore, the attitude of the staff, though well-meaning, may be that of "doing charity" or "some good work" as they engage with PwDs."

This might not be restricted to just the employers' perception alone. Some of PwDs we spoke to did think of CSR initiatives as a "kind act" or "social work" by the company.

A leading MNC recruiter with more than ten years of experience in recruiting PwD employees said "Despite our CSR

teams coaching PwDs about what to say and how to attend formal interviews, the moment we ask them to introduce themselves or say something about themselves, it starts with their life story and the challenges they faced or the dire need of their families and ends with the plea to just employ them! There is no sharing of their competencies or aspirations. They expect us to be sympathetic but also then say they do not want sympathy which leaves us totally confused."

*Therefore, instead of conducting PwD recruitment drives under the CSR banner, it might be better to mandate the conducting sensitization workshops for all staff to get everyone on board as a CSR activity and embed PwD recruitment as a Company policy like Gender equality.*

## 10.5 Physical Access

Though it is now mandated by law to make all public buildings accessible, there is an evident slackness in making this change especially in private buildings. Companies often tend to drag their feet because they fear that this would call for a major overhaul of the structure and apart from added cost, it would also disrupt their work.

While structural changes to include an elevator or PwD-friendly toilet are always good and can benefit other staff members who are injured or pregnant or have a heart related issue; employers often misread this and fail to get the point that to make the workplace accessible to persons with disabilities. In many cases, all it might take is just some minor alterations. Lack of awareness about how to alter the workspace or what structural changes to make often holds employers back and frequently miss the point that this change is largely limited to a PwD person's need. For example, a person would need a ramp or an elevator if he/she uses a wheel chair. And even in the case of orthopedically challenged persons, sometimes all one might need to do are just minor changes.

*What is important is that the 'lack of accessibility' is not cited as a reason for an organization not employing persons with disability and every organization should be encouraged to get their workplace audited to understand how they can support the inclusion of persons with disability.*

## 10.6 Policy and its Implementation

While there are some good frameworks and clear policies to support PwD inclusion - including the 'Standards of Professional Conduct, Etiquette & Code of Ethics for Rehabilitation' - there is a big gap in the interpretation and implementation of this on the ground. Moreover, while several incentives and tax exemptions are available for the private sector to encourage them to recruit persons with disabilities, this has not really translated into proactive willingness to accommodate PwDs.

Also, lack of stringent monitoring and penalty for non-confirmation of policy implementation is one the weakest links in ensuring PwDs have access to employment.

*Some checks and balances to ensure policy implementation by giving incentives for employment of PwDs with "severe disability" or mental disability and also enlarging it to include workplace accommodations may be worth considering. More importantly, penalizing organizations for not ensuring that there is a representation of PwD on their staff, not having the right infrastructure to facilitate PwDs and not efforts to sensitize all staff at least once a year could alter the present reluctance by employers.*

## 10.7 Procrastination or Unwillingness to Employ PwDs

Addressing this is an important step to ensure PwD Employment. At present, there is no monitoring of the reasons and

its validity for refusal to employ PwDs. A centralised cell/domain with public access could be established where NGOs/ Placement Officers, could record organizations and their reasons for not enlisting PwDs on their staff, could pave the way for some scrutiny, vigilance and action.

Informing PwD candidates the specific reason for their rejection, may be a good practice for the employers. This would stem random discrimination and encourage mindfulness on the part of employers in addition to helping the PwD person know where they need to improve.

## 10.8 Conclusion

While it is evident that we have some way to go to ensure that employers understand the distinction between "Right to Work" vs "Charity" for PwD employment; there are several companies like HSBC, Lemon Tree Hotels, Wipro, Accenture India, TCS, Café Coffee, IBM, Capgemini, SAP Labs India, Mirakle Couriers, Mahindra & Mahindra, Big Basket and Tata Group of Industries to name a few; who proactively employ people with disability. In some companies, for example the Tata Group, differently abled constitute about 4 percent of their employee strength and are given tasks with low levels of body risk, the least physical movement and minimum verbal communication.

It has also been observed that PwD inclusion is a dynamic component of the companies approach and mind-set (and not just limited to the implementation of a mandate) when the "top decision makers" are committed to the inclusion of persons with disabilities.

Encouraging employers to focus on the 'ability' rather than the 'disability' is the key. Finally, both employers and PwDs need to understand that there will never be a "perfect environment" but it can be achieved by working together to address these issues.

India being one of the signatories to The Convention on the Rights of Persons with Disabilities and its Optional Protocol adopted on 13 December 2006 at the United Nations Headquarters in New York is obliged to organize, strengthen and extend comprehensive employment, education and social services (Article 26). In 1997 the Government incorporated the National Handicapped Finance and Development Corporation (NHFDC) in order to help entrepreneurs with disabilities through financial assistance.

Employers need to pay attention to not only adjustments in their physical space to accommodate PwD, cognitive and attitudinal adjustments are equally critical.

## References

- Why Employers Don't Hire Persons with Disabilities - by Mark L Lengnick-Hall, Philip M Gaunt & Adrienne AR Brooks
- AIF Disability Manual
- <https://workplaceinsight.net/disabled-workers-continue-face-barriers-workplace/>
- <https://www.ncpedp.org/Employment?textsize=small> 4. (Source: World Bank, South Asia Region Human Development Unit, 2007. Persons with Disabilities in India: From Commitments to Outcomes.)
- <https://researchondisability.org/national-disability-employment-survey>
- <file:///C:/Users/Reena/Desktop/PWD%20Research/AIF%20Disability%20Manual.pdf>
- Journal of Business and Psychology: pp 1–24 | The Participation of People with Disabilities in the Workplace Across the Employment Cycle: Employer Concerns and Research Evidence (Authors: Silvia Bonaccio, Catherine E. Connolly, Ian R. Gellatly, Arif Jetha, Kathleen A. Martin Ginis) <https://link.springer.com/article/10.1007/s10869-018-9602-5#CR71>
- Challenges faced By People with Disability for Getting Jobs: Entrepreneurship Solution for Unemployment Norhasyikin Rozali, Shuhairimi Abdullah, Siti Intan Diyana Ishak, Alia Ashrani Azmi , Nurul Husna Akhmar. [http://hrmars.com/hrmars\\_papers/Challenges\\_faced\\_By\\_People\\_with\\_Disability\\_for\\_Getting\\_Jobs\\_Entrepreneurship\\_Solution\\_for\\_Unemployment.pdf](http://hrmars.com/hrmars_papers/Challenges_faced_By_People_with_Disability_for_Getting_Jobs_Entrepreneurship_Solution_for_Unemployment.pdf)
- [https://www.who.int/disabilities/world\\_report/2011/chapter8.pdf](https://www.who.int/disabilities/world_report/2011/chapter8.pdf)
- Parallel Report on the Convention on the Rights of People with Disabilities (CRDPD) [https://www.ncpedp.org/sites/all/themes/marinelli/documents/DRAFT%20CRPD%20India%20Parallel%20Report%20\(31st%20March%202017\).pdf](https://www.ncpedp.org/sites/all/themes/marinelli/documents/DRAFT%20CRPD%20India%20Parallel%20Report%20(31st%20March%202017).pdf)
- <https://www.ncpedp.org/Employment>
- [https://www.who.int/disabilities/world\\_report/2011/chapter8.pdf](https://www.who.int/disabilities/world_report/2011/chapter8.pdf) World Report on Disabilities





# 11 CONCLUSION

Jobs and employment in India has been dynamic and will continue to remain so, as our economy grows and becomes more and more integrated with the global economy. Due to myriad issues that we have discussed in various parts, India has not seen the desired growth in jobs. After a brief period of growth for some years, the labor market is again slowing and facing major headwinds. Multiple factors contribute to this situation, including structural and legacy issues, global cycles, growth impetus, archaic laws and lack of reforms, access to education and skill development, changing nature of jobs in industry 4.0 among many others.

The data provided by National Sample Survey Office (NSSO) in June 2019 does highlight the crisis in availability of jobs as the Periodic Labor Force Survey (PLFS) of the NSSO reported the unemployment rate in India for FY18 at 5.3 percent in rural India and 7.8 percent in urban India. There are also other issues like inequality in employment of women and jobseekers from weaker sections, mismatch in the education and skills of prospective employees and available jobs, lack of employability due to lack of required skills, regional and sectoral disparity in both availability of jobs and quality of employment, urbanization and internal migration leading to lack of quality of life, significant number of self-employed and under-employed labor, low and uncertain wages among many others.

However, the situation is not all grim. Multiple reports have alluded to limitations in availability of quality data for analysis of employment scenario. This is of particular concern when it comes to informal jobs. The 2017 McKinsey Report on India's Labor Market points out that current sources of data fulfil their main purpose of assessing some labor market trends, particularly labor force participation rate and employment shifts, but are not really designed to assess the wellbeing of the workforce or the extent of change in gainful employment. These data limitations have existed in the past too. However, they assume particular significance in light of global trends—also mirrored in India—that favour more independent work, flexible or part-time jobs, and supplementary income generation activities which are not captured by surveys and frameworks currently.

The surveys measure the labor force participation rate, or the share of people willing to work and looking for work. This is a useful metric to understand how a population chooses to approach working vs. other ways to spend time (for example, in education, unpaid care work, or leisure), but a declining participation rate by itself is not necessarily a sign of deteriorating labor market dynamics. The labor force participation

rate is affected by multiple factors, such as age, education, income, job opportunities, and cultural attitudes. India's participation rate has fallen in past decades as more young people have stayed in the education system to acquire higher skills rather than entering the labor force immediately after primary school. This is a healthy trend. Similarly, declining female participation may be a sign of higher income security in some cases: the labor force participation rate of women is highest in low-income households that combat extreme poverty, and the first sign of entering the middle class is often for the woman of the household to withdraw from poor-quality work. Yet it is unclear if demographic and income changes can explain movements in the participation rate over a year or two. Recessionary conditions can lead to temporary dip in participation rate, but even this may happen only over a longer period of time or under extreme economic stress.

The surveys suggest that, of those in the labor force, nearly everyone finds work, with a steady 4 percent unemployment rate throughout the last four years. This is natural in India's context where unemployment is not really an option, while entering the informal sector as a worker is the norm. Some 86 percent of India's workforce is employed in the informal sector, and more than 90 percent is in informal employment. Rarely would a poor rural boy who had dropped out of school remain "unemployed"—he would typically be put to "work" on the family's small piece of land or would lend a hand at the small business run by his family. While both of these positions qualify as jobs and add to the employment measured by labor market surveys, they may not reflect whether the worker is gainfully employed [CITATION Jon17 \l 16393].

The headline number of jobs created according to these surveys does not help us assess growth in the amount of work done (or so-called man-days or man-hours actually worked). A person who engages in ten months of work is on a par with one who has engaged for seven months of work during the 12-month reference period. In its recent annual surveys, the Labor Bureau has attempted to focus on this issue by classifying workers who sought 12 months of work into four categories (those who found work for 12 months, six to 11 months, one to five months, and less than one month). By this measure, some 65 percent of those seeking full-time work through the year found it. However, the rest did not, and any increase in the number of days or hours such people worked would result in rising gainful employment, although not in new job creation [CITATION Jon17 \l 16393].

An essential question is whether economic growth is creating upward social mobility (or the upward movement of



individuals and households between socioeconomic strata). Social mobility can be assessed only if longitudinal studies are done with the same set of respondents, such as a panel, to track year-on-year trends in the gainful employment of a given sample of workers. For instance, these studies would ask workers how they spend their time, how much work they do, how much they earn, how their standard of living has changed, and how satisfied they are with various aspects of their work. In the absence of longitudinal data, researchers try to assess proxies, such as the returns to work by each cohort of workers (for example, average income earned by high school dropouts) or the type of work done by each cohort (for example, casual labor or self-employment) [CITATION Jon17 \ 16393].

The sector split of employment does not fully capture underlying product and labor market shifts: Labor market surveys tell us how many workers are employed in each sector, but with some limitations. First, the share of workers classified as being employed in agriculture may overestimate the actual time spent in agriculture; in reality, workers in India move fairly seamlessly from agricultural work to non-farm work (such as construction, retail trade, light manufacturing, and community or personal services) depending on the season, the economic cycle, and personal circumstances. A significant portion of the informal workforce is employed in more than one sector through the year. The sector classifications in labor market surveys reflect the majority of work, but the shift from one sector to another may not be binary. Second, job classifications depend on the primary sector in which the employer-enterprise is classified, not that of the occupation or work content of the worker. This means that jobs classified as manufacturing may, in reality, have high services content (for example, design, marketing, finance, human resources, security, cleaning, and maintenance). The disaggregation of value chains globally as well as in India means that more and more specialist firms undertake these functions on behalf of manufacturing firms. This by itself would reduce the share of manufacturing employment as recorded in labor market surveys.

The survey conclusions are not easy to interpret: Interpretation is challenging because there is a lag. The annual labor market surveys involve a six-month data collection phase, in which respondents are required to describe their labor market status in the preceding year. In effect, we analyze data with a 12- to 24-month lag. The latest data available at this point, in 2017, pertains to the annual survey published in 2015–16, which reflects labor market trends in the financial year 2014–15. Moreover, more could be done to improve the clarity of survey findings, even at a basic level of estimating the total number of jobs created in the economy, or relating this to corroborating evidence, such as macroeconomic and sector growth trends.

The 2017 McKinsey Report on India's Labor Market focus-

es on three forces that have been particularly relevant in shaping the workforce landscape over the past few years: urbanization and the need to bridge infrastructure gaps, automation and knowledge-intensive work, and new digital ecosystems and independent work. These are not unique to India—they mirror the trends in other parts of the world. Government policy and action in recent years has provided an impetus to some of them.

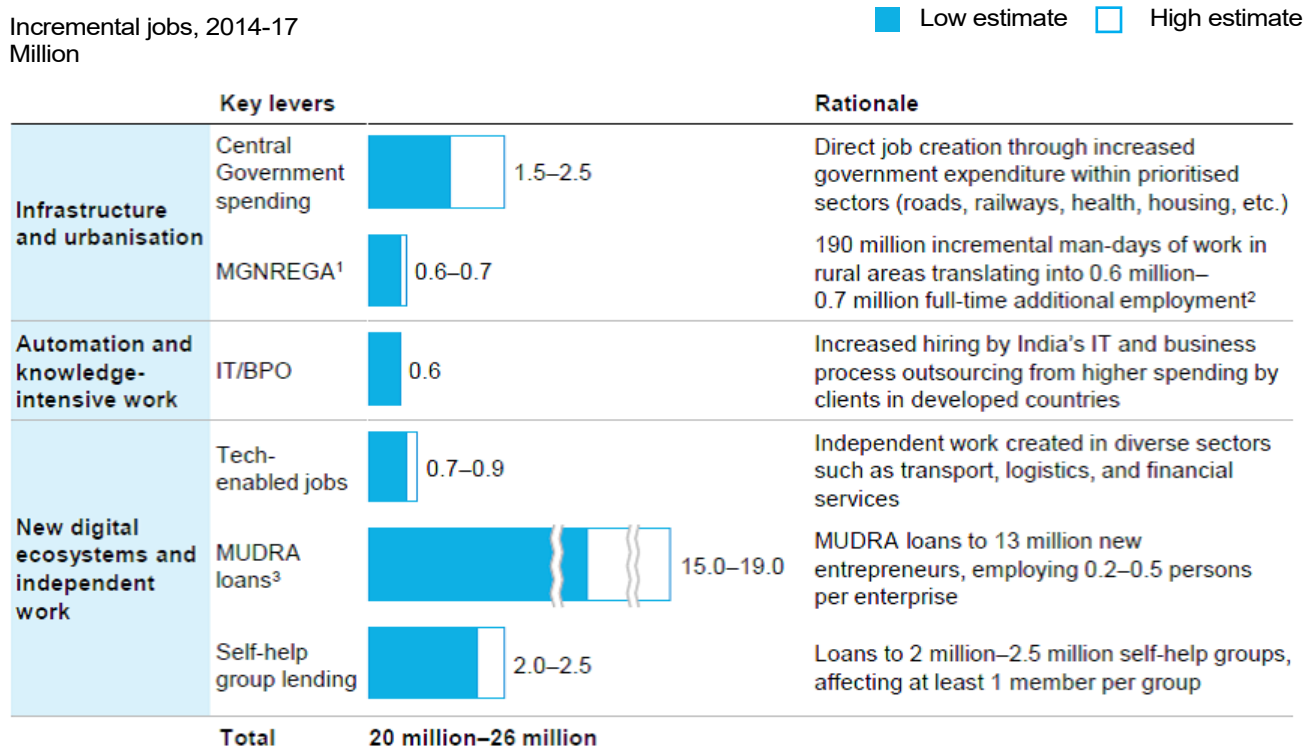
It is estimated that a combination of increased government spending, additional IT hiring, the rise of independent work, and an increase in entrepreneurship created gainful employment for between 20 million and 26 million people between 2014 and 2017. This estimate is not a watertight one for net job creation in India. Rather, it is illustrative of how gainful employment opportunities can be enhanced by these broader global themes, as India shifts from agriculture and towards construction, trade and transport, and other services.

The internet and exponential technologies are creating an exciting space in which numerous gainful employment opportunities are emerging. While the same technologies are responsible for a job slowdown in the organized sector. If nurtured and supported they have the potential to transform the job landscape in the country. The impact of these technologies are on both white collar and blue collar workspace.

The first area of employment opportunities is the emergence of new ways of 'white-collar' working also known as the gig economy. India is the leading country in the Online Labor Index with a 24 percent share of the online labor market as shown in Figure 5. The gig economy is providing employment opportunities to Indian software developers, creative and multimedia professionals, online sales and marketing professionals, writers, translators and data entry operators. This employment model is expected to grow significantly in the coming years [CITATION NAS17 \ 16393].

The second big trend that is generating employment opportunities is the technology aggregator model that enables organizing highly inefficient markets. The 'Uber' model of technology aggregation of cab service providers on the one side and retail customers on the other, is being applied much beyond cab hailing services, in building maintenance, healthcare and other home services. The Indian unorganized/informal sector provides close to 50 percent of output, 92 percent of the jobs and encompasses at least 90 percent of the firms. Technology aggregation models that address the inefficiencies of the unorganized sector would be able to not only organize the market but also provide increased employment/income generation opportunities to many. The "Uber" model has organized the unorganized cab segment, resulting in increased market efficiency and higher incomes to cab drivers who are part of the network. The business architecture of future start-ups in the country could be around an "Inefficient Market" + "Uber" like platform.

**Figure 11.1:** Increased government spending, rise of independent work, and entrepreneurship have boosted gainful employment for 20 million-26 million people



1 Mahatma Gandhi National Rural Employment Guarantee Act.

2 Assuming 300 working days in an year.

3 Micro Units Development and Refinance Agency Bank. Data from MUDRA pertains only to loans disbursed during the year, and does not reflect the longer-term viability of businesses to which these loans were made.

NOTE: Incremental job totals do not account for offsetting job reductions. Some overlap in each category is possible. Incremental jobs could amount to additional work for current labour force rather than new workforce participants. Income generated by each of the categories cannot be concluded. Numbers may not sum due to rounding.

Source: Mckinsey Global Institute analysis

A recent Zomato report “The stories behind the red t-shirts” gives insights into the lives of their delivery partners (available at <https://www.zomato.com/blog/delivery-universe>). The Zomato service is provided in 250 cities across India, and the report revealed how the new age service has given a lifeline to young men in small towns – of the 1.8 lakh delivery partners, 99 percent are male, and 72 percent are unmarried. What is interesting is that 83 percent of delivery partners are the sole earners in their families, with family dependency highest in Tier-3 cities followed by Tier-2. The service is not restricted to large metro towns, though Delhi NCR makes up a sixth of the fleet, 54 percent of the delivery fleet operates from Tier-2 and Tier-3 cities, 46 percent are in Tier-1 cities. As expected, majority are 12th standard, but one in every three delivery partners has a degree or a diplo-

ma. Clearly, this is not meant to be their lifelong career -15 percent want to continue with their education and 52 percent want to buy a car someday [CITATION Sum19 \l 16393].

This is therefore an aspirational work segment that the government can easily tap into and lend support to make it a sustainable career choice for the youth. For instance, the online platforms can be encouraged to give opt-in mechanisms for pension, healthcare and insurance schemes that will give such incomes more stability and benefit the households that depend on these jobs. To meet the aspirations of the youth, it is important to help further their careers, help the transition to other fields – here the numerous government skill development programs can target the platforms to offer upgrading of appropriate skills to delivery partners [CITATION Sum19 \l 16393].

# END OF JOBS REPORT PART I

# PART II JOBS IN SELECTED SECTORS





# 12 JOBS IN THE MSME SECTOR

**Amrita Pillai<sup>81</sup>, Research Fellow, Macro/Finance Policy Group, National Institute of Public Finance and Policy**

## 12.1 MSME Landscape in India

The Micro, Small and Medium Enterprise (MSME) segment of the Indian economy is expected to play a huge role in driving evenly distributed and inclusive growth. The sector is broadly classified into enterprises engaged in manufacturing and those involved in providing or rendering services. Both these broad categories in turn are classified into micro, small and medium enterprises based on their investment in plant and machinery (for the manufacturing sector) or on equipment (sector providing or rendering services)<sup>i</sup>. This sector has notably contributed to labor intensive employment, innovation and exports in the past decades and continues to do so. Reigniting growth in this segment assumes greater significance especially in the light of India trudging towards achieving the daunting target of a 5 trillion USD economy by the year 2024-2025. Given that this sector is the largest employment generator, next only to agriculture; it is time for renewed focus on addressing impediments specific to job creation in MSMEs.

One of India's greatest opportunities presently is its youthful demographic profile. Approximately 70 million additional persons, in the age group 15-29 years, are expected to enter the workforce by the year 2023, pushing the total workforce to include a total of 404.15 million people<sup>ii</sup>. Projected to remain younger longer over Asian peers such as China and Indonesia, India needs to effectively harness its youth potential before it turns into a demographic liability. In order to do so, the industrial policy needs to have improved focus on producing productive, formal jobs with simultaneous effort in jobs preparedness and skilling for newer activities in the sector.

Strongly linked to the issue of jobs creation and entrepreneurial spirit in this sector is the issue of limited availability and usage of formal credit. The small and medium enterprises within this sector, given its vast potential to achieve impact at scale, have consistently remained financially constrained. Research shows that bank credit has been focused on advancing loans to large infrastructure and industry at the cost of the MSME sector, discernibly so, since these enterprises do not start off by being credit worthy<sup>iii</sup>. Usage of government schemes offering credit is marred by skewed

utilization, with informal, micro businesses receiving the majority of such loans<sup>iv</sup>. Such businesses however turn out to be unproductive and thereby are unable to grow and generate further employment. Job growth in this sector therefore, is impossible without addressing impediments to adequate and consistent credit flow to this sector.

This chapter seeks to provide a comprehensive account of the functioning of MSMEs and their potential to create jobs in India. It utilizes a two-pronged approach in identifying skill development and financing as key challenges to resolve in tandem, in the pursuit of tapping this sector's growth and job creation possibilities. The final section of this chapter identifies possible strategies with which the ultimate objectives of increased formal employment and steady finance availability in this sector may be achieved.

## 12.2 Economic contribution and employment spread in the MSME sector

### 12.2.1 Contribution to GDP and GVA

As per the Annual Report 2018-2019, released by the Ministry of Micro, Small and Medium Enterprises<sup>v</sup>, MSMEs share in GDP for the year 2016-2017 is 28.9%. The table below maps MSME contribution to GDP and Gross Value Add (GVA) for the past four years. MSME contribution to both GDP and GVA has been marginally decelerating in a steady fashion since 2013-2014.

**Table 12.1:** Share of MSMEs in GVA and GDP

Year	Share in GVA (%)	Share in GDP (%)
2013-2014	32.71	30.20
2014-2015	32.21	29.70
2015-2016	32.03	29.20
2016-2017	31.83	28.90

*Source: Annual Report 2018-2019, Ministry of MSME, GoI*

### 13.2.2 Enterprises by broad based activity and segment

As per the National Sample Survey (NSS) 73rd round conducted in 2015-2016<sup>vi</sup>, there are 63.38 million MSMEs in India. Spread across manufacturing, services and trade activities, 36% of all MSMEs are involved in the trading sector; followed closely by 33% in other services and 31% in manufacturing.

<sup>81</sup>The author is grateful to Radhika Pandey and Raghunath Seshadri for their inputs and support in writing this chapter

The micro segment, with 63.05 million enterprises accounts for nearly 99% of all MSMEs, whereas the small and medium segments account for a mere 0.52% and 0.01% of total estimated MSMEs respectively. Research suggests that while micro enterprises form a dominant part of many world economies, a specific cause for concern in India emerges because unlike other countries, small businesses are far less productive here for longer periods of time and are informal in nature<sup>vii</sup>.

### 12.2.3 Enterprises by employment generated

Given that MSMEs have the potential to create huge employment opportunities at lower capital costs especially in rural regions, it is seen as a key driver in marking a shift from an agrarian to an industrialized ecosystem. This segment has created 111 million (11.10 crore) jobs across rural and urban areas, accounting for close to 40% of all jobs in the economy; with the largest employment created in trading activities at 35%, followed closely by manufacturing and other services at 32% and 33% respectively<sup>viii</sup>.

As is the case with the number of enterprises, 97% of all MSME employment lies in the micro enterprises. Small and medium enterprises employ around 2.8% and 0.16% of the total number of persons employed in the MSME sector.

### 12.2.4 Geographic spread

MSMEs are concentrated in ten states, with Uttar Pradesh and West Bengal housing the lion's share at around 14% each. The top ten states together account for 74% of the total estimated MSMEs in the country<sup>ix</sup>.

### 12.2.5 Onboarding new MSMEs

Majority of MSMEs in India (85 percent) are informal unregistered enterprises, and only the balance (15 percent) are estimated to be registered<sup>x</sup>. The informalisation is a huge concern from the growth, productivity and employment generation potential of MSMEs. Despite the introduction of a simplified, non-mandatory, self-declaratory registration system, the Udyog Aadhaar Memorandum (UAM), registration has shown minimal improvement. It is clear that the MSMEs perceive the benefits of remaining informal outweigh those from moving into the formal ecosystem.

Research world-wide has noted that job creation is spurred by firms that are small yet formal and scale to medium sized enterprises within an appropriate period of time<sup>xi</sup>. In India, however, the vast majority remains informal and has implications for further employment generation. While there needs to be a sustained urge to convince the informal firms to become formal, studies indicate that aggressively pursuing the objective of incentivizing firms to start formal is equally or more important. It is argued that informal firms remain so for longer durations because they focus on surviving and not on increasing productivity and generating more employment<sup>xii</sup>.

## 12.3 The MSME sector and the twin shocks

Demonetization announced in 2016 and the roll out of the Good and Services Tax (GST) in 2017 have garnered immense attention in the recent past, often labelled as dual 'shocks' to the system. Both these events were sprung on the economy within a year of each other and have been criticized for being introduced without offering the informal segments the chance to adequately prepare to weather its aftermath. The MSME sector is heavily cash dependent, has limited capital and reserves and consists largely of sole proprietors with very low turnovers. Evidence suggests that the impact of these dual shocks on this sector has been crippling. While demonetization was a one-time shock with a huge propensity to derail normal functioning of informal systems; the introduction of the GST was a structural change in the way businesses would function thereafter. Sectors such as manufacturing and construction especially, were reported to be most severely affected by these dual shocks but have started showing signs of improvement recently<sup>xiii</sup>.

The long-term effects of demonetization on the MSMEs have not been officially studied in detail. There are other studies however that indicate a spur in reverse migration to villages in nine northern states, post demonetization. This reverse migration occurred due to contractual daily wage labor being laid off jobs in cash strapped MSMEs. These informal workers turned to the employment guarantee scheme (MGNREGA), with large states such as Uttar Pradesh and Gujarat recording a huge turnout demanding jobs under this scheme<sup>xiv</sup>. Upto 70 percent decline in all business activity was recorded in this sector during the first few weeks of the roll-out, whereas a permanent negative impact in terms of 20-30% of MSMEs shutting shop has been indicated<sup>xv</sup>. A national survey has highlighted a decline in rural consumption and job creation in the immediate run, especially for smaller enterprises in sectors such as textiles, consumer durables and steel amongst others<sup>xvi</sup>.

The government has shown renewed focus on this segment of the economy, especially given this was one of the two sectors (the other being agriculture) that bore the brunt of the demonetization. With a host of augmenting measures announced last year as part of the MSME Support and Outreach Program, ranging from 59-minute loans to technological and cash flow certainty support, there has been a recognition of how the sector suffered a significant setback due to demonetization. It is however difficult to definitively ascertain whether the negative effects of demonetization continue to linger and stunt growth in this sector or whether these effects have been overcome by way of these interventions.

The Goods and Services Tax (GST) was introduced to rationalize and simplify the taxation structure in India by doing away with a plethora of central and state levies and bringing them

under one common architecture of GST to improve tax compliance and tax collection. The structure of GST inherently (and perhaps also intentionally) pushes formalization and digitization. In turn, this can enhance the ease of doing business by developing a robust supply chain database of transactions that would allow better financing for businesses. This would thereby improve the medium to long term growth prospects of the industry as a whole. For this to fructify however, certain challenges in identification and incorporation of eligible MSMEs into the tax net need to be overcome. These challenges mostly emerge due to the fact that multiple databases capture various facets of MSME functioning and are not yet linked to the GSTN.

The UAM is presently a non-mandatory, self-declaratory mode to register an MSME. Since enterprise details are self-declared however, this information is often not regarded as authentic by buyers and lenders. As of today, enterprises with a turnover of more than 40 lakhs need to register under the GSTN, however most MSMEs fall below this turnover limit and therefore are not required to be GST compliant. However, the GST architecture incentivizes the larger firms to procure from GST compliant firms, thereby, inherently creating a disadvantage for the smaller, informal firms. The smaller, informal firms on the other hand, evaluate the increased cost and burden of compliance in becoming formal vis a vis the advantages of remaining informal and hence small. A recent report<sup>xvii</sup> has noted that if the penultimate objectives of formalization and digitization need to be met, there has to be linkage between the GSTN and the UAM. However, without linkage between this database and the GSTN (which at present has 12 million taxpayers of which many may be MSMEs but go unidentified), there may be enterprises that are left out of the tax net.

The Trade Receivables Electronic Discounting System (TreDS) which is the trading platform used by MSMEs has played a catalytic role in ensuring timely payment and easing cash flow cycles of MSMEs. The system however should also be linked to the GSTN. This would eliminate financiers' fears of fraudulent invoices and fake bills thereby greatly enabling credit discipline. Additionally, once uploading GST invoices regularly becomes necessary to be eligible for bill discounting via TReDs, MSME vendors will have to ensure that they are GST compliant. This cash flow information database would also help banks take quick data driven decisions regarding lending to smaller enterprises. Given the multiple benefits that can accrue from TReDS being linked to the GSTN, this process needs to be prioritized.

## 12.4 Impediments to growth in the MSME sector

### 12.4.1 Skill development and jobs preparedness

Skill development in the MSME sector involves development of both labor resources and entrepreneurs. Increase in number of skilled workers and educated entrepreneurs are especially necessary for this segment of the industry. Given the rapidly evolving nature of businesses and technology used in such enterprises, commensurate upskilling of the existing workforce is critical.

The Economic Survey for 2018-2019 has noted that if the labor force participation rate (LFPR) is assumed to remain at about 60% in the next two decades, about 55-60 lakh jobs will have to be created annually over the next decade<sup>xviii</sup>. These jobs will need to be formal in nature for it to be of sustained value and will require appropriate skills and education and a vibrant entrepreneurial ecosystem to bolster and create further jobs in the pipeline. Challenges in skilling for the MSME sector are manifold and need to be dealt with appropriately before the demographic dividend asset that India has does not become a liability.

Policymakers, trainers and enterprises have a huge task at hand going by the Periodic Labor Force Survey (PLFS) 2017-2018 results released recently<sup>xix</sup>.

Across India, only 1.8 percent of the population reported receiving formal vocational/ technical training. 42 percent of the population in the age group 15-29 years that received any such formal training was outside the labor force. Only 5.6% reported receiving informal vocational training including self-learning and on the job training. It follows that close to 93% of the population did not receive any vocational/ technical training from either formal or informal sources. Women, across all working age groups, were predominantly left out of the workforce. While the unemployment rate in general is a huge cause for concern, unemployment among youth who were freshly trained the previous year was very high, at 40%.

Given the appalling state of employment in the country, this is an opportune time to revisit the recommendations of the Sharda Prasad Committee set up in 2016<sup>xx</sup>, to look into rationalization of Sector Skills Councils, which are set up by the Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI) and other associations. The expert committee noted the importance of life-long learning over short term courses that offer no real-life skills and sub-optimal paying jobs. The widely marketed 'Skill India' campaign has been criticized for being too ambitious and not addressing the root cause of the issue. It is clear that a re-assessment of national standards is necessary given the massive unemployment situation and these standards must be met with in-demand skill sets that allow national or international mobility in present jobs and those expected in the future. Given that this MSMEs are the second largest employer in the country, it is time that a serious plan to address its informal nature and unemployment problem is drawn up.

## 12.5 Challenges in skilling for MSMEs

- Mobilisation of persons in working age group, especially women:** As highlighted earlier, initiatives to mobilise eligible entrant working age population (15-29 years) to enroll for formal and informal training has not shown uptake. Research suggests that a traditional mindset, low willingness to migrate, non-recognition of long-term premium associated with skilling, inability to pay for training, amongst a host of reasons, have made the general workforce less responsive towards skilling initiatives by the government<sup>xxii</sup>.

Women in particular are not being adequately mobilized. Evidence suggests that vocational training programs in some states are leaving women behind and that the ones that do undergo training are less likely to receive job offers and take them<sup>xxiii</sup>. Identifying specific segments that offer flexible work models for women is necessary, since migration and lack

of social support are key factors for why women do not wish to undergo formal training and be part of the workforce. At an all time low of 23.3 percent, the female labor force participation rate in India is amongst the lowest in the world.<sup>xxiv</sup>.

- Mismatch between sectoral required incremental human resources and vocational skill training received:** The PLFS presents findings on number of persons receiving vocational training under 22 fields of training. The Ministry of Skill Development and Entrepreneurship in its Annual Report for the year 2016-2017 has published the incremental human resource requirements necessary until the year 2022. On a deeper analysis of the two, there appears to be a mismatch such that sectors that require most additional number of workers are not the ones receiving commensurate vocational training or vice versa. The table below highlights the need for the government to re-assess this key lacuna in its skill mapping framework.

**Table 12.2:** Table mapping incremental human resource requirements (2017-2022) and present levels of vocational/technical training by sector

Sector	Incremental human resource requirement identified by Ministry for the period 2017-2022	Percentage distribution of persons between ages 15-59 years receiving formal vocational/technical training	Comments
Building Construction and Real Estate	30.6 million	4.2	Training fields include civil engineering (construction, paints, coatings plumbing) and iron and steel, mining, earth moving, infra building combined together
IT and ITeS	1.5 million	20.5	For a sector that only requires 1.5 million persons by 2022, training for this sector stands extremely high; 2nd highest percentage of all those receiving training receive it for IT-ITeS
Electronics and IT hardware	3.4 million	11.5	As is the case above, the 3rd highest percentage of persons trained are in the fields of electrical, power and electronics where number of incremental persons required is much lower than other sectors
Gems and jewellery; Leather and leather goods; Furniture and furnishing (combined)	11.7 million	0.3	For labor intensive sectors that require 11.7 million additional workers, only 0.3% of those formally trained were trained in allied manufacturing – gems and jewellery, leather, furniture and fitting, rubber and printing. The Economic Survey has further identified rubber manufacturing as a high employment elasticity segment for renewed focus.
Gems and jewellery; Leather and leather goods; Furniture and furnishing (combined)	11.7 million	0.3	For labor intensive sectors that require 11.7 million additional workers, only 0.3% of those formally trained were trained in allied manufacturing – gems and jewellery, leather, furniture and fitting, rubber and printing. The Economic Survey has further identified rubber manufacturing as a high employment elasticity segment for renewed focus.
Handloom and handicraft	4.7 million	1.8	1.8% of those trained were trained in cottage based production and artisan/handloom/handicraft/creative arts works; 10 other fields of training received more persons trained over this sector despite this being a focused MSME sector

Source: Analysis based on Skill India, Annual Report 2016-2017 and PLFS Findings, 2017-2018



- *Lesser focus on building entrepreneurial abilities:* Traditional vocational training focuses on skilling (and re-skilling) workers for present jobs but rarely delves into entrepreneurship development. A Gallup study of 20 economic entities in Asia<sup>xxv</sup> showed that India ranked extremely low (bottom quartile) on indicators of a stable and well-functioning entrepreneurial ecosystem. The framework used to measure this ecosystem focused on the interplay between various individual variables such as attitude and talent; and contextual variables such as access to industry and training information. A major finding was that of the Indians surveyed, only 22% who those who wanted to start a business within the next year had formal or informal training to start a business; this figure is in stark contrast to the Asia average of 44%. Particularly in rural areas, access to such mentorship or entrepreneurship training is lacking.
- *Non-implementation of the National Skills Qualification Framework (NSQF) in letter and spirit:* The NSQF recommended only around 450 courses, in adherence with international vocational and higher education training courses. The current framework offered in institutes has around 10,000 standards wrapped into 2,000 qualification packs/job roles. The short-term nature of the courses offered has been highlighted as a concern, since it is also not seen to offer skills to land lucrative job offers<sup>xxvi</sup>. The Sharada Prasad Committee had also recommended that the number of Sector Skills Councils (SSCs) should correspond to the National Industrial (Activity) Classification (which has 21 economic activities across the entire economy). Hardly any satisfactory action has been taken on this front and we have 37 SSCs operational in the country today.
- *Low private sector financial contribution towards vocational training:* Financing for training has largely come from the government and more recently, multilateral financing as well. Private sector has been limited to specific technology centres set up within large companies. In most other economies, the government plays a marginal role in determining qualification standards and leaves most of it to the private sector since it is assumed that the industry will offer financial support to aid training in specific areas in which it requires labor, offer machinery and equipment for practical training, internships and apprenticeships, help develop curriculum etc. The outcome in India has been dismal and voluntary financial credit has not flown from the industry.
- *Low quality of training, perceived by employers and trainees alike:* Ground assessments have revealed that the absence of quality content and trainers and a negative perception about these courses amongst employers and those seeking/ being trained alike have led to 60% of them feeling these courses are ineffective. Development of contemporary skills in particular is found

missing, resulting in 72 percent of the employers feeling that such training is not beneficial for the industry<sup>xxvii</sup>. The perception about SSC reputation itself is mixed and so is their impact. Industry has shown little interest in initiatives such as the Modular Employable Skills – Skill Development Initiative (MES-SDI), focused on existing workers in the informal economy, due these reasons<sup>xxviii</sup>.

## 12.6 MSME Financing

The total addressable demand for external credit in the MSME sector is estimated to be 37 trillion rupees whereas the overall supply of finance from formal sources is estimated to be 14.5 trillion rupees. The overall credit gap in the sector therefore is estimated to be 20 – 25 trillion rupees<sup>xxix</sup>.

Formal and informal funding sources contribute to the overall supply of credit to the MSME sector. While studies indicate that more than half of total MSME funding comes through informal sources, the exact quantum is difficult to establish since there is a general data on credit flow from informal institutional sources.

### Informal funding channels

Studies indicate that informal sources of funding comprise as much as ~84% of total credit received by the MSMEs in India<sup>xxx</sup>. These informal channels include institutions such as moneylenders or chit funds and non-institutional ones such as social network, including friends and family. While money lenders are seen to finance larger ticket size enterprises, community institutions such as unregistered chit funds are seen to finance small and micro businesses. Despite uncertainty in ascertaining the exact quantum of credit flowing through these sources, there is a general consensus that informal debt forms the dominant part of overall debt flow to this sector. This trend is observed due to the fact that such funding sources do not necessitate registration and have no formalized processes such as the mandatory requirement of immovable collateral<sup>xxxi</sup>. Informal credit also tends to be way more expensive. So, MSMEs also tend to avoid taking informal credit as long as they can. As a result, they either work at sub-optimal capacity utilization or lower profitability due to high cost of credit.

### Formal funding channels

It is estimated that the MSME sector receives 10.9 trillion rupees in formal debt from banking and non-banking institutions. At an aggregate level, the outstanding bank credit to MSME sector stood at 17.4 trillion rupees as of March, 2019. However, at around 5%, credit to this sector accounts for a very small proportion of total outstanding bank credit. Scheduled Commercial Banks account for 90% of all outstanding bank credit. Banks play a huge role in external financing of MSMEs. The small and micro portfolios of banks have declined to a little less than 5% in 2017-2018 while the



medium enterprise portfolio is especially small and stood at 1.35% for the same period. The share of MSMEs in bank credit is abysmally low in India when compared to its foreign counterparts<sup>xxxii</sup>.

Large industries get the bulk of credit flow from banking system. Access to other financing avenues such as using the bond market remains a challenge for MSMEs, given their lack of credit worthiness and restricted size<sup>xxxiii</sup>. Overall credit to MSMEs has shown a sharp decline in quarter ending June 2019. The steepest decline has been in the micro segment with the year on year growth falling by 8% between March 2018 and June 2019<sup>xxxiv</sup>.

Another formal avenue for credit is Non Banking Finance Companies (NBFCs). Non-bank lenders have gained significant market share from public sector banks in the run up to June 2019. While credit growth to this sector has been decelerating consistently, it is partly attributed to the liquidity crunch faced by non-bank lenders post the collapse of ILFS in September 2018. NBFC share in credit grew only by 13.7% between June 2018 and June 2019, in sharp contrast to the 34.7% growth it recorded in the previous cycle<sup>xxxv</sup>.

Studies have indicated that NBFCs are a worthy lender for this sector because of their light structure and the advantage of easier adaption to serve niche market segments. Banks and NBFCs differ in their credit assessment process as well with the latter looking at variables such as cash flows, future company potential in addition to collateral as opposed to banks that look at balance sheets and collateral. However, despite these lenders being the better lending choice for the sector, the NPA rates for NBFCs has seen an increase, from 4.4% in period ending June 2018 to 5.9% in period ending June 2019. For NBFCs in particular, the absolute NPA amount increased in the range 25-28%<sup>xxxvi</sup>

Formally directed and sectoral credit programs are rolled out to enable further access to low cost capital. These however are mired with issues that need immediate attention to meet the objective of supporting and enabling further growth and employment in this sector.

Primary issues with two of these programs namely, the Priority Sector Lending (PSL) program and the MUDRA loans are discussed below. The former assumes importance since a major proportion of bank credit flows from SCBs who disburse under the PSL and the latter is one of the most famous flagship programs for targeted and easy credit support to this sector.

I. Priority Sector Lending (PSL): Banks must allocate 40% of their Adjusted Net Bank Credit (ANBC) to priority sectors under these lending guidelines. 7.5% of this overall allocation is required to go into micro enterprises. Such targeted lending has been considered rigid by an expert committee studying this subject and has also led them to conclude that little dif-

ferentiation in lending strategies under PSL exists due this rigid target allocation. Banks are unable to innovate; more likely, they are disinterested in specializing their lending strategies for a particular sector, by focusing on the customer, as they would otherwise.

It has been indicated that PSL norms cast onerous responsibility on banks, despite being designed to safeguard the interest of strategically sectors and achieve a balanced growth in the economy. The Priority Sector Lending Certificates, offered as eligible trading instruments, are meant to incentivize them to choose a specialized sector/s to lend to. This might offer banks some respite but it remains to be seen whether these concerns will be addressed in the longer run<sup>xxxvii</sup>.

The Economic Survey has noted how MSME guidelines are creating perverse incentives for firms to remain 'small'. It suggests these guidelines be altered to prioritize firms in high employment elastic sectors and sub-sectors such as manufacturing of rubber and plastic products, electronic and optical products, transport equipment, machinery, textiles and leather & leather products etc. so that the objective of increasing employment is not forgotten<sup>xxxviii</sup>.

II. MUDRA loans: As one of two additional credit guarantee funds offered by the government, MUDRA (Micro Units Development Refinance Agency) scheme has been operational since 2015. The success of this scheme in helping the sector meet credit needs is found to be limited. As per the most recent MUDRA credit disbursement performance for the year 2018-2019<sup>xxxix</sup>, 44.78% of total disbursed loans went to the Shishu category which accounts for extremely small loans of upto 50,000 rupees, 32.02% went to the Kishore category for loans between value 50,000 rupees and 5 lakhs and 23.18 % went to the Tarun category for loans valued upto 10 lakh. It is imperative to note that such loans impose potential credit risks given they are collateral free and have been flagged as being capable of spiralling into NPAs.

An RTI application filed earlier this year revealed that the total value of NPAs from loans issued under MUDRA stood at 16,481.45 crore rupees as of 31st March 2019, implying that public sector NPAs of the loans issued under the scheme have increased by Rs 9,204.14 crore in just one year<sup>xl</sup>. Another RTI application seeking information on the number of jobs created under MUDRA remained unanswered.

Interestingly, the MUDRA website does not provide information on the number of loans that have soured or bank collection details yet. There is also no forward linkage with employment creation in the enterprises that received these loans. While an impact assessment study was commissioned by the agency, the report is not out yet and the lack of information in this regard posits a serious problem in effectively ascertaining the quantum of bad loans under this scheme.

The banking system is currently dealing with a range of issues

on loans such as Kisan Credit Card loans and large industry loans apart from the ongoing liquidity shortage in general. While MUDRA loans don't form the dominant chunk of bad loans, NPAs from bad Mudra loans has been steadily increasing and needs immediate focus from the bank regulator and the government.

## 12.7 Strategies to rejuvenate the MSME sector

There is enough evidence to establish that enthusiasm in placing confidence in large enterprises to be most productive and create maximum number of jobs, is misplaced. Smaller sized entrepreneurial ventures that grow into bigger enterprises are known to generate more jobs, faster. This is a huge concern for India since it is one of those emerging economies that have a 'missing middle'<sup>xii</sup>. More so because it is clear that smaller Indian firms are incentivized to stay small through size based incentives offered presently. To make this segment more employment generating and growth oriented, a two-pronged approach must be undertaken simultaneously - skilling and enhancing jobs preparedness; and bolster affordable and sustained credit to this sector. Some strategies to unshackle the sector are discussed below.

*I. Base government support strictly on enterprises' growth:* The Economic Survey of 2019-2020 has rightly pointed out how the existence of 'dwarf' firms is impinging upon potential creation of more jobs in the sector. The existence of dwarf firms (those that employ less than 100 workers despite being more than 10 years old) is enabled by size based incentives offered by firstly, labor legislations that don't require registrations for firms employing workers below 100 in number and therefore don't need to adhere ancillary norms as well, and secondly, credit schemes and covers that don't require small firms to provide immovable collateral and provide them credit at subsidized rates, irrespective of the firm's age. Such incentives enable these dwarf firms to subsist with low productivity and employment, without growing into more efficient and competitive enterprises.

In contrast, infant firms and startups create more jobs at a faster rate, with the right enabling environment. It may be necessary to find ways to withdraw incentives for dwarf firms that have not been able to grow despite being part of the industry ecosystem for a long time.

The idea is to shift to using firm's growth, productivity and capacity to generate employment as a reason to offer government support and guarantees. This would also help in shifting focus to nurturing and

supporting the growth of small and medium enterprises, which presently are not given as much attention as the micro ones.

*II. Undertake MSME census to establish accurate data regarding sector:* The latest dedicated data available on MSMEs is the All India MSME Census, last conducted in 2006-2007. The latest data on MSMEs and other industrial activity is the Economic Census conducted in 2013. However, given the importance of this sector, and its dynamic nature, both in terms of economic contribution and employment generation, it is imperative that the dedicated MSME census be conducted every 2-3 years<sup>xiii</sup>. It is also vital that this employment statistics regarding this sector be woven into the census. This would be especially beneficial to ascertain whether these enterprises are running at full capacity, irrespective of size. Data collected under the Data Bank initiative of the MSME Ministry presently is self-certified by enterprises, the efficacy of which cannot be ascertained. Thus, while it provides basic details about registered enterprises, it will not prove as useful.

*III. Ramp up efforts to formalize and digitize the MSME sector:* As illustrated in the challenges to accessing credit section earlier, given the massive informality in this sector, both in terms of employment it generates and the credit it accesses, there is an urgent need to step up efforts to formalize this sector.<sup>xiiii</sup> While registration under the Udyog Aadhaar Memorandum (UAM) and the implementation of the Goods and Services Tax (GST) has led to more streamlined registration and digitization process and capture, the number of MSMEs registered is nowhere close to the estimated number of total MSMEs in the country. Their lack of registration impedes access to formal credit; coupled with the fact that numerous informal credit channels exist and are easier to tap than formal ones. Additionally, the fact that they can remain small as long as they wish is a negative spin off on their formalization. They thus have more to gain from remaining informal than being part of the formal ecosystem. Increased outreach is necessary to address the information asymmetry that surrounds this sector since such small enterprises rarely have the wherewithal in terms of latest technical, managerial or legal knowhow. The government may also devise ways to introduce a 'no-hassle' post-registration period of 3-5 years to boost formalization.

*IV. Tap alternative digital finance lending platforms:* With massive internet and mobile penetration in the country, digital finance lending platforms offer a viable alternative model of credit. Unlike most banks and NBFCs, they offer unsecured loan products, are comfortable

with higher risk profiles, alternative credit assessment techniques such as social, behavioral and financial data including social media influencing traction etc. These fintech models also have very little physical assessments since they're automated and have no physical branches unlike the usual formal financing channels. From a financial inclusion point of view, such platforms have the potential to reach corners that traditional formal channels of financing might find difficult to tap<sup>xiv</sup>.

- V. *Introduce Reimbursable Industry Contribution (RIC) for skill financing:* As suggested by the Sharda Prasad Committee, the RIC model may be considered to address the issue of the private sector not contributing enough to the skill development process. Such a model, unlike the voluntary financing model for the private sector as it exists today, might lead to a positive outcome where companies realize that their investment improves both quality and productivity and they more than recover the money they invested on skill development. Under such a model, the industry makes a financial contribution which is a reimbursable portion of their payroll amount to be used for training/ skilling.
- VI. *Re-map skilling framework using the latest Period Labor Force Survey findings:* The survey presents a grim picture of the state of employment and vocational training uptake in the country. There is a need to take stock of the reasons for the same and re-orient both their skilling and MSME financing strategies based on these. High elasticity sectors such as rubber production, textiles, tourism amongst others, have the propensity to create more employment. Skilling and re-skilling workers and promoting entrepreneurship in these sectors may prove more beneficial given the need to generate employment quickly and effectively.
- VII. *Focus on women in the MSME sector:* Women constitute only around a fifth of the sector's total workforce, and run home-based, smaller enterprises that are largely unregistered and informal. Evidence suggests that women entrepreneurs' decision to join this sector is largely constrained by lack of capital – both social and financial, other assets and perception regarding their capabilities to juggle familial duties and be successful entrepreneurs. This also affects their capacity to draw credit from formal and informal institutions<sup>xiv</sup>. There is a need for specific targeting of women to enter this sector. While business development services need to be

bolstered across the board, customizing them assumes more importance for women led MSMEs. FinTech lenders are focusing on women since they have realized that women MSMEs have lower default and perform better on other parameters

## 12.8 Conclusion

The MSME segment in any economy is a powerful force in integrating especially the youth and women into the economic workforce. India's biggest advantage lies in its demographic dividend. With the dividend expected to last until the year 2055, India has 36 years more to effectively tap its youth potential, in its twin pursuit of higher economic growth and turning around the employment slump.

The MSME sector requires interventions using a two-pronged approach - first, the need to ramp up job preparedness and skills in the sector. Skill development of both present labor force and entrepreneurial education is of importance. Given how labor intensive this sector is, there is massive scope to generate further employment if mapped with the appropriate industry demand. The industry must be nudged further to contribute more than it does at present, both financially – using a model such as the RIC and in terms of knowledge building. Second, is to make available formal, low cost credit conveniently and on a sustained basis. In addition to the efforts to formalize this sector, efforts are also needed to ensure that benefits of formalization also accrue to the enterprises. In this regard, it is imperative that financial allocations be made sensibly – productive enterprises with demonstrable abilities to grow larger should be encouraged and rewarded, those that are distressed and require further financial, managerial or administrative support should be identified and allowed to restructure while those that remain small and generate neither more value nor employment should not be given incentives indefinitely.

It is imperative to remember that most Indian households rely on informal sector jobs to earn their livelihoods. It follows then that when there is a decline in such informal sector growth and employment, overall consumption demand would fall. Without concerted effort to revive demand, enterprises will show no enthusiasm to expand or set new shop. This sector requires a set of consistent and complementary interventions aimed at providing necessary support to enterprises that show potential to grow and create more jobs.

S.7, Micro, Small and Medium Enterprises Development Act, 2006.

Manish Kumar, The 3 challenges to skill development in India – and how to tackle them, World Economic Forum, <https://www.weforum.org/agenda/2019/10/india-skill-development-programme/>

International Finance Corporation, Financing India's MSMEs, November 2018.

Pradhan Mantri Mudra Yojana Annual Performance Report 2018-2019 url: <https://www.mudra.org.in>

Ministry of Micro, Small and Medium Enterprises, Annual Report 2018-2019.

National Sample Survey Office, Ministry of Statistics and Programme Implementation, Government of India, NSS 73rd Round, Key Indicators of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, July 2015-June 2016.

Venkatraman Anantha Nageswaran, Gulzar Natarajan, India's Quest for Jobs: A Policy Agenda, Paper, Carnegie India, 09.10.2019, url: <https://carnegieindia.org/2019/10/09/india-s-quest-for-jobs-policy-agenda-pub-79967>

Ibid vi.

Ibid vi.

Ibid iii.

John Haltiwanger, Ron S. Jarmin, and Javier Miranda, Who Creates Jobs? Small Versus Large Versus Young, Review of Economics and Statistics XCV, 2 (2013): 347–361, [http://www.mitpressjournals.org/doi/pdf/10.1162/REST\\_a\\_00288](http://www.mitpressjournals.org/doi/pdf/10.1162/REST_a_00288).

Ejaz Ghani, Stephen D. O'Connell and Gunjan Sharma, 'Friend or Foe of Family? A Tale of Formal and Informal Plants in India. WB Working Paper No.6588, September 2013

World Bank, India Development Update: India's Growth Story, World Bank Group, New Delhi, March, url: <http://documents.worldbank.org/curated/en/814101517840592525/India-development-update-Indias-growth-story>

India Development Foundation, Reassessing the impact of demonetization on agriculture and informal sector, January 2017, url: [https://www.idfresearch.org/uploads/R\\_a\\_c\\_e/1546941125\\_7201701304321.pdf](https://www.idfresearch.org/uploads/R_a_c_e/1546941125_7201701304321.pdf)

Edel Pulse, Demonetization, December 2016, url: [https://vakrangee.in/data/analyst\\_coverage/Edelweiss%20Research\\_002.pdf](https://vakrangee.in/data/analyst_coverage/Edelweiss%20Research_002.pdf)

ASSOCHAM, Innovative Financial Solutions for MSMEs, October 2018, url: [https://www.resurgentindia.com/pro\\_bfloors/services\\_img/pdf\\_teders/1868771320Innovative%20Financial%20Solutions%20for%20MSMEs.pdf](https://www.resurgentindia.com/pro_bfloors/services_img/pdf_teders/1868771320Innovative%20Financial%20Solutions%20for%20MSMEs.pdf)

Report of the Expert Committee on MSMEs, RBI, 25.06.2019 url: <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924#CH2>

Economic Survey 2018-2019 url: [https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap03\\_vol1.pdf](https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap03_vol1.pdf)

National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India, Periodic Labor Force Survey, July 2017-June 2018,

Ministry of Skill Development and Entrepreneurship, Report of the Committee for the Rationalisation and Optimisation of the Functioning of Sector Skills Councils, December 2016, url: <https://www.msde.gov.in/assets/images/ssc-reports/SSC%20Vol%20I.pdf>

FICCI and KPMG, Skilling India Report, url: <http://ficci.in/spdocument/20405/FICCI-KPMG-Global-Skills-report.pdf>

Ibid xiv.

Charity Troyer Moore, Rohini Pande, Soledad Artiz Prillaman, Vocational training programs in India are leaving women behind, but this needn't be the case, <https://www.theigc.org/blog/vocational-training-programs-india-leaving-women-behind-neednt-case/>

Labor force participation rate, female (% of female labor force participation ages 15+), World Bank World Development Indicators, 2018 url: <https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS>

Yamini Tandon and Daniela Yu, India's Big Problem: Nurturing Entrepreneurs, Gallup Business Journal, 1.08.2012, url: <https://news.gallup.com/businessjournal/156143/india-big-problem-nurturing-entrepreneurs.aspx>

Santosh Mehrotra and Ashutosh Pratap, Skill India urgently needs reforms, Business Standard, 6.04.2018, url: <https://www.thehindu.com/opinion/lead/skill-india-urgently-needs-reforms/article23447258.ece>

PTI, Vocational education mostly ineffective in India: Survey, The Economic Times, url: <https://economictimes.indiatimes.com/industry/services/education/vocational-education-mostly-ineffective-in-india-survey/article-show/63098719.cms?from=mdr>

British Council, ILO, Skills Assessment in India, October 2014 url: [https://www.ilo.org/wcmsp5/groups/public/--asia/---ro-bangkok/---sro-new\\_delhi/documents/publication/wcms\\_346824.pdf](https://www.ilo.org/wcmsp5/groups/public/--asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_346824.pdf)

Report of the Expert Committee on MSMEs, RBI, 25.06.2019 url: <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924#CH2>

Ibid iii.

Ibid iii.

Ibid iii.

Ila Patnaik and Radhika Pandey, Savings and Capital Formation in India, NIPFP WP Series No. 271, 10.06.2019, url: [https://www.nipfp.org.in/media/medialibrary/2019/06/WP\\_271\\_2019.pdf](https://www.nipfp.org.in/media/medialibrary/2019/06/WP_271_2019.pdf)

MSME PULSE, October 2019, url: [https://sidbi.in/files/announcements/MSME%20PULSE%20OCTOBER%202019\\_Edition%207.pdf](https://sidbi.in/files/announcements/MSME%20PULSE%20OCTOBER%202019_Edition%207.pdf)

Ibid xxxiv.

Ibid xxxiv.

Nathan Associates Inc. Reprioritising Priority Sector Lending in India: Impact of Priority Sector Lending on India's Commercial Banks. Economic Impact Analysis. Nathan Associates Inc, Dec. 2013. url: <https://www.nathaninc.com/insight/priority-sector-lending-in-india/>

Ibid xx.

Ibid xi.

Ibid iv.

Dheeraj Mishra, NPAs under Modi's MUDRA scheme more than doubled to Rs. 9204 cr in 1 year : RTI, Business Standard, 24.06.2019 url: [https://www.business-standard.com/article/economy-policy/npas-under-modi-s-mudra-scheme-doubled-to-rs-9-204-cr-in-just-1-year-rti-119062400108\\_1.html](https://www.business-standard.com/article/economy-policy/npas-under-modi-s-mudra-scheme-doubled-to-rs-9-204-cr-in-just-1-year-rti-119062400108_1.html)

Anne O. Krueger, The Missing Middle, Stanford King Center on Global Development, Working Paper no. 343, May 2007, <http://scid.stanford.edu/publications/missing-middle>; and Finance and the Missing Middle, Entrepreneurial Finance Lab, Center for International Development, Harvard University, 2008, <https://sites.hks.harvard.edu/cid/efl/finance.html>

Ibid xvii.

Ibid xvii.

Ibid iii.

International Center for Women, Gender Issues in the MSME sector in India, August 2014, url: <https://open-knowledge.worldbank.org/bitstream/handle/10986/28531/119304-WP-IN-TF013641-Gender-in-MSME-Aug-2014-PUBLIC.pdf?sequence=1&isAllowed=y>



# 13 INFORMAL ECONOMY

## 13.1 Introduction

Informal economy is where the labor is primarily employed in jobs that do not have a formal contract or agreement on terms of salary, terms of employment, leaves or provides enough social security. A major part of the workforce in India work in the informal sector. To estimate the contribution of Informal sector to gross domestic product the definition of informal sector was included in the System of National Accounts (SNA), 1993. The definition is, therefore, in terms of characteristics of the enterprise rather than in terms of the characteristics of the worker. Thus, a large number of workers with informal job status were excluded. Some of the reasons for the exclusion are.

- (i) The persons engaged in very small-scale or casual self-employment activities may not report in statistical surveys that they are self-employed, or employed at all, although their activity falls within the enterprise-based definition.
- (ii) Certain groups of persons such as out-workers, sub-contractors, freelancers or other workers whose activity is at the borderline between self-employment and wage employment are likely to be missed or wrongly classified.
- (iii) An enterprise-based definition of the informal sector will not be able to capture all aspects of the increasing “informalization” of employment, leading to various forms of informal employment even in the formal sector.
- (iv) Persons employed in private households as domestic servants, gardeners, drivers etc. are likely to be left out in an enterprise-based definition (Naik, 2009).

## 13.2 Trends in informal economy and employment

Despite high levels of economic growth during the past two decades, the informal economy in India still accounts for more than 80 percent of non-agricultural employment. Informality is found in both the traditional informal economy and – increasingly also in the growth of informality in the formal sector. Limited employment creation in the formal economy means that for many people the only alternative is to seek employment in the informal economy.

Informality also has a gender bias. Women are somewhat more likely to be engaged in the informal economy and significantly more likely than men to be working as informal workers in the formal sector. The growing level of informal

employment in the formal sector is largely due to the growing use of contract labor and outsourcing of production. This also suggests that encouraging the informal sector to formalize with a mix of incentives and enforcement is no longer enough (Informal economy in South Asia).

Having defined terms of employment (such as a in the form of a code of conduct) benefits the employers in the informal sector enormously as they will obtain clarity on their obligation as employers, which would enable them to provide fair terms without being reliant on placement agencies and other middlemen who currently informally dictate the terms and conditions of workers and employers.

## 13.3 Regulatory framework for informal jobs

The pakoda-sellers of India belong to the policy category of street vendors. It was over a course of more than 2 decades of organizing and struggles by the street vendors that the government adopted a National Policy for them in 2004 which took another decade to be legislated into the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014. The Act provided for recognition and representation of the rights of the street vendors through Town Vending Committees constituted by urban local bodies under the direction of the state and central governments. The Act has the potential to remarkably improve the conditions of work for the street vendors in Indian cities.

## 13.4 Spatial and Gender distribution of informal workers

The informal sector accounts for more than 90 percent share in total employment for each of the categories viz; rural males, rural females, urban males and urban females. Almost 98-99 percent of the rural and urban males and females working in the sectors of crop and animal production, construction and retail trade were informal workers. Among the other sectors the distribution of informal workers spatial and gender-wise is not uniform. For instance, rural males are engaged in land transport, other services, manufacture of other non-metallic mineral products, manufacture of wearing apparel, hotels & restaurants etc. while more of rural females are engaged in manufacture of tobacco products and textiles. While in the case of urban males' majority are engaged in manufacture of wearing apparel, wholesale trade, furniture etc urban females are mainly engaged in manufacture of food products

and beverages, wearing apparel, hotels and restaurants, tobacco products, textiles, activities of households as domestic personnel. There is significant involvement of urban males and females in human health activities sector as informally employed, while the activity working as domestic servants is predominated by urban females (98 percent) (Shirke, 2014).

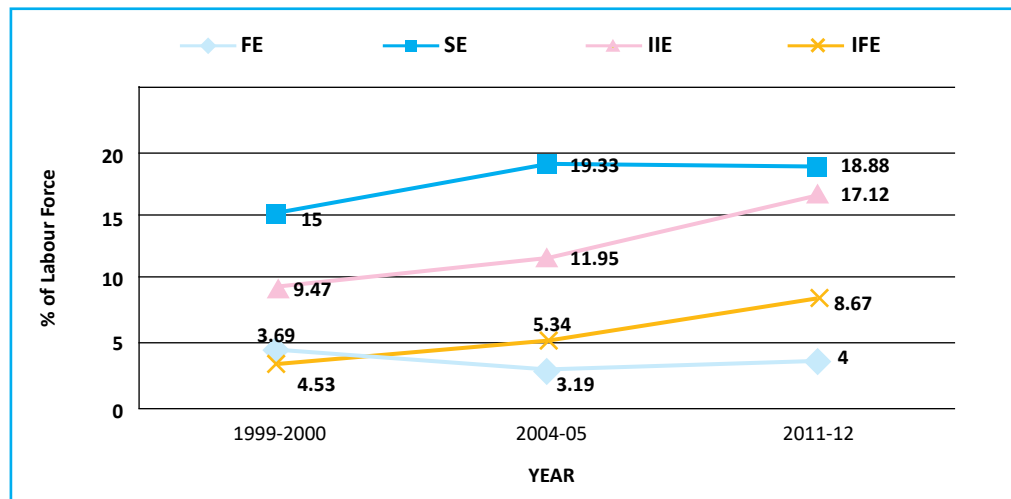
**Table 13.1:** Distribution of Informal Employment Gender and Spatial wise in 2011-12 (share in percent)

Sector	Rural Male	Rural Female	Urban Male	Urban Female
Crop and animal production, hunting and related service activities	99.98	99.97	98.89	99.73
Construction	98.55	99.92	92.17	97.19
Retail trade, except of motor vehicles & motorcycles	98.89	99.36	97.49	96.66
Land transport and transport via pipelines	92.85		83.38	
Other services	97.32		92.62	96.44
Education	38.19	60.27	37.39	50.61
Manufacture of other non-metallic mineral products	92.64			
Manufacture of food products and beverages	88.82		86.14	96.26
Manufacture of wearing apparel	95.94		94.12	94.78
Hotels & restaurants	97.65			92.97
Manufacture of tobacco products		98.83		93.69
Manufacture of textiles		98.85	86.23	97.94
Business activities			58.79	46.86
Public administration and defence; compulsory social security				14.31
Wholesale trade, except of motor vehicles & motorcycles			90.98	
Manufacture of furniture			94.95	94.92
Manufacture of fabricated metal products, except machinery and equipment			82.58	
Human health activities (hospital, medical)			62.03	52.27
Financial service activities, except insurance and pension funding			26.61	
Manufacture of machinery and equipment n.e.c.			69.31	
Manufacture of chemicals and chemical products			46.84	
Manufacture of leather and related products			87.69	
Manufacture of computer, electronic and optical products			43.87	
Activities of households as employers of domestic personnel				98.07

Source: Calculated using unit level data of NSSO Employment Unemployment Survey 2011-12

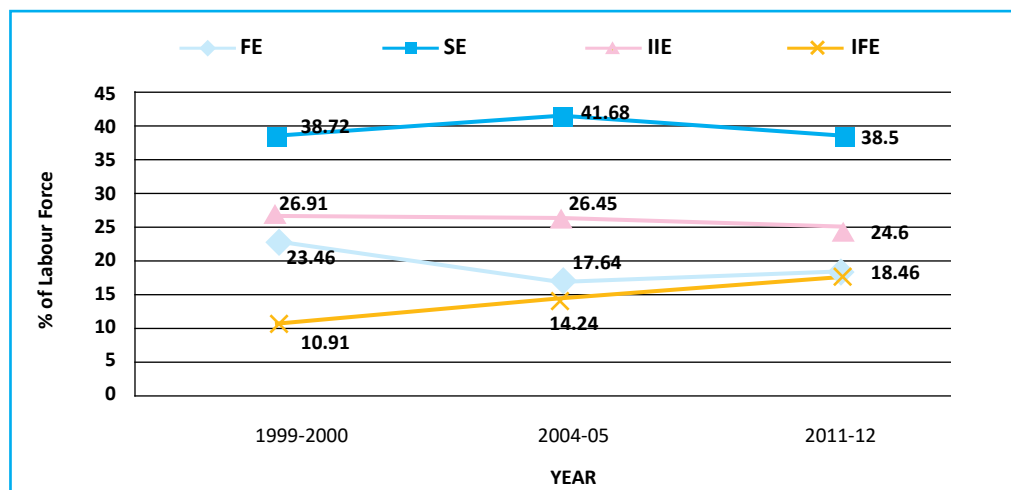
### 13.5 Job security and issues of employment

In India, the self-employed form the majority of the workforce and are the most prominent of the informally employed. Since 2004-05, there has been a slight decline in the share of self-employed in urban and rural areas (Figure 1 & 2). This may be due to a number of reasons including individuals pursuing higher education and individuals (particularly women) withdrawing from distressful self-employment activities thanks to higher wage earnings of other working family members (A K Ghose, 2013). However, they continue to be the largest among the employment groups. Given the ease of entry into such activities and the unavailability of formal employment, it is not surprising that self-employment was the most prevalent economic activity (Abraham, 2016).

**Figure 13.1:** Trends in Employment Statuses in Rural India, 1999-2000 - 2011-12

Source: Author's computations using unit-level data from relevant rounds of NSS EUS

**Note:** FE- formal employment, IIE-informal employment in informal enterprises, IFE-informal employment in formal enterprises, SE- self-employment.

**Figure 13.2:** Trends in Employment Statuses in Rural India, 1999-2000 - 2011-12

Source: Author's computations using unit-level data from relevant rounds of NSS EUS

**Note:** FE- formal employment, IIE-informal employment in informal enterprises, IFE-informal employment in formal enterprises, SE- self-employment.

The most interesting aspect in the analysis of trends in forms of informal employment is the gradual growth in enterprise-based informality. Almost 80 percent of jobs created between 1999-2000 and 2011-12 were generated by the informal enterprises and the majority were informal (NCEUS 2007). The informally employed in informal enterprises (henceforth IIE) increased in rural areas from 9 percent in 1999-2000 to 17 percent in 2011-12. This may be a consequence of the greater proliferation of informal enterprises in these regions (Ghani, Goswami & Kerr, 2012) On the other hand, the share of IIE has remained fairly stagnant in urban areas at around 25 percent. Formal enterprises on the other hand have contributed less than 20 percent to employment

creation in the last decade (NCEUS 2007). These jobs have been mainly in the urban areas, having increased from 10 percent of the labor force to 18 percent in 2011-12. In fact, the hiring of formal workers by these formal enterprises (FE) has declined over the years. Instead they have increasingly hired informal workers, creating a new form of informal employment, i.e. informal employment in formal enterprises (henceforth IFE).

Considering the low skill levels, the status of employment of the informally employed shows that majority are working as self-employed or casual workers which in turn keeps them outside the purview of the labor legislations.

**Table 13.2:** Status of the Informally Employed Workforce (in million)

Status	2004-05	2011-12
Self-employed	257.16 (60.34)	244.97 (56.22)
Regular wage/ salaried	36.19 (8.49)	48.79 (11.19)
Casual Worker	132.81 (31.16)	99.36
Total Informal Workforce	426.16 (92.73)	435.66 (91.78)

Source: Calculated from NSSO unit level data of 2004-05 and 2011-12

Note: Figures in brackets indicates the share of the informally employed.

### 13.6 Social security and health issues

Between 2000 and 2005, 60 million jobs were created in total, but women lost out, as 14.6 million of those jobs were attributable to a rise in rural female unpaid family workers in the agriculture sector. This is because most of the paid jobs went to men and the unpaid jobs were left for women to take up.<sup>2</sup> According to McKinsey (2015), women in India do almost 10 times as much unpaid work as men. This would be much more if we take into consideration domestic unpaid work done by women. Women comprise 99.4 percent of the workforce performing domestic or domestic and allied work. It is estimated that if this unpaid care work is recognized and there is direct public investment in the care economy of 2 percent of GDP, then India will create 11 million new jobs (ILO 2018) (Diya Dutta, 2019).

One of the biggest reasons for women losing out on employment opportunities is because of social norms. Women often need permission from the men in their families before taking up employment while men do not face any restrictions on their movement outside the home. Further, women seek employment out of conditions of poverty. Once their family income rises social norms dictate women to withdraw from paid labor as it is a marker of social status (Bhandare 2017). This was therefore not a positive development, but in fact, a retrogressive development which goes against the basic tenets of women's realization of their economic potential and human rights. In 2004-05, of the 148 million women workers in the Indian economy, 96 percent or 142 million were unorganized workers including unpaid family workers (Swaminathan 2013). In 2011-12, according to the NSS 68th round, there were 129 million women workers, only 10.7 million of

whom were in formal enterprises (Diya Dutta, 2019).

The term 'unpaid care and domestic work' describes the direct care provided to children, the elderly, ill and disabled people at the household and community level; as well as domestic work such as cooking, cleaning, washing and fetching water or firewood for the household.

### 13.7 Conclusion

As discussed in this chapter, the informal sector makes the most significant contribution to employment and job creation in India. However, workers in the informal sector suffer from multiple issues, such as lack of skill development opportunity, lack of financing, job security, lack of social security etc. A concerted policy – level initiative has to be made to address all these issues holistically, so that the informal sector may not only contribute to the economic output, but also livelihoods and job creation. The emergence of an increasingly large section of informal workers connected to formal enterprises and platform driven business models also calls for measures to address issues such as working conditions, social security, minimum wages etc.

While formalization of informal enterprises has been considered as an approach that can address some of these issues, formalization also brings with it the burden of compliance and regulatory costs. In order to support the growth of informal sector, the policy makers need to think of ways in which the barriers associated with informality may be addressed without imposing the onerous burden for very small informal enterprises.

# 14 GREEN JOBS FOR ADDRESSING CLIMATE CHANGE AND JOB CREATION

Climate change has emerged as one of the most important concern for not only for climate activists, planners and policy makers, but literally everyone- industry, scientists, farmers and the ordinary public. For a country like India not only because it is vulnerable to the risks and impacts of climate change but also, given low investment capacity to mitigate the adverse impacts of climate change.

The damage done to the environment and ecosystem by greenhouse gas emissions, climate change, rising temperatures and sea-levels, loss of bio-diversity are irreversible. So, sustainable future of the planet and humankind lies in taking corrective steps before the damage is done. Fortunately, a number of actions are possible today that a country like India can take today to mitigate the worst impacts of climate change and environmental degradation. The added advantage is that these measures can also create a huge number of jobs, which addresses the problem of jobs and unemployment in the country.

The United Nations Environment Programme defines Green Economy as the one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. The idea of Green Economy has existed since long time in India. Recent examples like introduction of Green tax on visitors by Uttarakhand Government ban of single-use plastic, introduction of CNG for public transport in selected cities, increasingly stringent norms for vehicular pollution etc are some of the measures to address climate change. However, the concept of green jobs is at a nascent stage.

According to International Labor Organization, Green Jobs are defined as decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing or construction, or in emerging “green” sectors such as renewable energy and energy efficiency. They not only help to protect ecosystem by reducing energy, materials, and water consumption, but they also de-carbonize the economy and minimize all forms of waste and pollution for sustainable development. Given the global mission to limit global warming to below 2 degrees, Green jobs has suddenly emerged as a critically important sector. If the global goals on climate change and global warming are to be met, then massive steps will be needed in sectors such as renewable energy, solid waste management, recycling and upcycling, organic food, clean transportation solutions, sustainable agricultural practices etc.

## 14.1 Green Job potential in India:

Developing consciousness around sustainable consumption and lifestyle has tremendous potential to generate green jobs in India. We estimate the number of jobs that can be created in the Green Jobs sector alone to be over 3.19 million in year 2021, only in in sectors such as water (Sewage Treatment, Rainwater harvesting); Shelter ( Green housing, Sustainable Forestry, Urban farming), Renewable energy (Solar energy, Wind energy), Solid Waste Management (Collection, transportation, sorting, treatment, disposal, recycling and management), Transport (Electric vehicle, Bicycles), and focusing only on urban areas largely as per following table:

**Table 14.1**

Estimation of Green Jobs in 2021	
<b>Water</b>	<b>2,021</b>
Community STP	14,688
Decentralized STP	50,266
Rainwater harvesting	15,080
<b>Water- Total</b>	<b>82,055</b>
<b>Shelter</b>	
Sustainable Forestry	257,660
Urban farming	555,760
<b>Shelter- Total</b>	<b>813,420</b>
<b>Renewable energy</b>	
Solar Energy	782,037
Wind Energy	133,544
<b>Renewable Energy- Total</b>	<b>915,581</b>
<b>Solid Waste Management</b>	
Collection, Transport	582,267
Treatment, disposal, management	113,542
Recycling	500,000
Composting	8,350
Resource Recycling	2,872
<b>SWM -Total</b>	<b>1,207,031</b>
<b>Transport</b>	
Green Transport	68,806
EV	104,375
<b>Transport Total</b>	<b>173,181</b>
<b>Total Green Jobs</b>	<b>3,191,268</b>

References: Reddy and D'Souza (2019, SCGJ Report (2016), Waluj Case study (2019), Lahiry (2019).



Adopting environmentally sustainable practices by citizens of India can generate up to 150 jobs in each town municipal corporation, and 260 jobs in each city municipal corporation. (Reddy and D’souza, Sept 2019, Indiaspend.in). Calculations the basis of 2011 census, and taking an urban population of 377 million, the solid waste generated each day is 143,000 tonnes from 7,935 towns alone (205 city corporations (CC), 263 city municipal councils (CMC) and 7,467 Town municipal councils (TMC)<sup>82</sup>.

**SOLID AND LIQUID WASTE RESOURCE MANAGEMENT IN AMBIKAPUR**

The SLRM Model initiated in Ambikapur, town with a population of less than 150,000 presents an environmentally and economically sustainable, and relevant alternative that is easily replicable for solid waste management. The model created over more than 525 green jobs particularly employing women from poor urban families for door to door collection, sorting of recyclables, composting and other spin offs in the solid waste value chain. Ambikapur initiative shown that every town with a population of 100,000 can create 150+ green jobs just in the solid waste value chain.

Urban India generates 61,948 million litres per day (MLD) waste water, out of which only 23,277 MLD is treated through 920 STPs (average capacity of 25.3 MLD).<sup>83</sup> So, 1,528 additional STPs need to be built to treat all waste water, generating 64,000 jobs by 2021. Similarly, rainwater harvesting can create over 15,000 jobs.

There is a need to manage perceptions about green jobs. A lot of people carry a negative perception about jobs in waste management, sanitation etc, creating a mismatch with the aspirations of the job seekers. Training for further skill development, effective communication skills, provision of appropriate tools and gears and ensuring payment of competitive wages will attract more people to these jobs, which will be a first step towards achieving the green objectives. Ensuring occupational safety for Green workers is another imperative, since many a times serious accidents take place due to inadequate equipment, training and safety precautions.

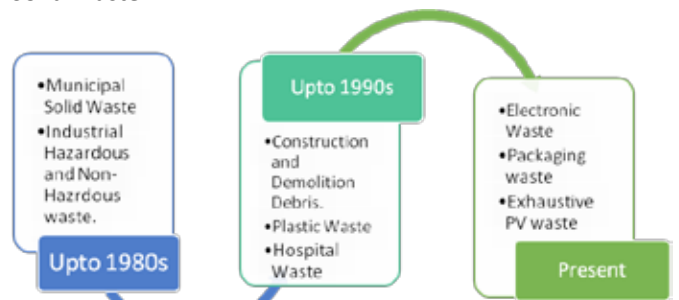
**RECYCLING**

“Waste is simply a misplaced resource. By ignorance, we destroy value of what we waste. We need a new attitude which is to permit what we waste to continue to have its value and join a process stream which enhances its value, for the greater good of society”

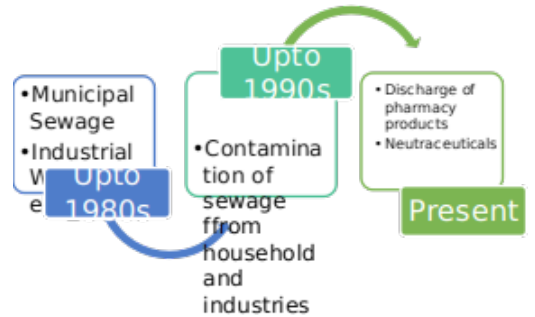
–Shantharam Shenai

Few decades ago, Public Health and Environmental Protection were the main drivers of waste management, but now, climate co-benefits and realizing the resource value of waste, have taken the same place. There is no doubt about the fact that waste in India has been growing at an increasing pace. The components of wastes have also been changing. Suneel Pandey (The Energy and Resource Institute) reports the following in which the composition of waste has evolved overtime and become more complex as well as hazardous.

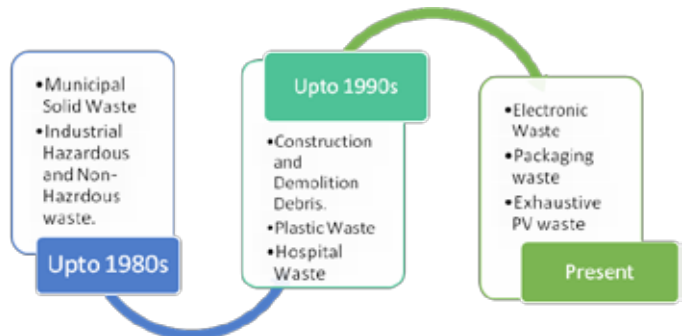
**Figure 14.1 Solid Waste**



**Liquid Waste**



**Gaseous Waste**



<sup>82</sup>Provisional Population Totals Urban Agglomerations and Cities, Census 2011, Govt of India.

<sup>83</sup>National status of waste water generation & treatment, by ENVIS Centre on Hygiene, Sanitation, Sewage Treatment Systems and Technology, May 2019

Nonetheless, there are many reasons that result in lack of recycling efforts:

- Plastic bags are easily available
- Lack of adequate waste recycling units
- Waste collection people are lethargic
- Waste is not segregated properly at source
- No information / guidelines for recycling
- Waste recycling is not a priority for the Government
- No focus on R&D in waste recycling
- New inventions in this field are not given any importance
- Lacks of latest technologies for effective waste management etc.

Thus, this sector requires a large workforce not only to create awareness among people but also to train them so that the abovementioned problems are tackled at both individual as well as macro level.

Tinsukia town in Assam with a population of around 135,000 had no solid waste services of door to door collection and segregation until July 2018. An initiative by CARE North East Foundation has now created over 85 jobs in door to door collection with 35% of jobs given to women. The potential is over 150+ jobs but non-cooperation from the municipalities and governance deficits prevent creating those jobs in processing of waste and promoting alternatives to plastics like stitching clothe bags, paper bags, bamboo products etc.

Tinsukia town in Assam with a population of around 135,000 had no solid waste services of door to door collection and segregation until July 2018. An initiative by CARE North East Foundation has now created over 85 jobs in door to door collection with 35% of jobs given to women. The potential is over 150+ jobs but non-cooperation from the municipalities and governance deficits prevent creating those jobs in processing of waste and promoting alternatives to plastics like stitching clothe bags, paper bags, bamboo products etc.

## 14.2 FOOD

### 14.2.1 Organic Agricultural Practices-

India is one of the leading countries in terms of organic certification with exports being mainly in organic rice, beverages, processed food products and other cereals and rice millets to US, Canada, Europe, and South East Asian countries. There are more than 700,000 producers and more than 500 exporters associated with organic production and exports in India.

Uttar Pradesh has the highest certified area under organic cultivation (2.59 million hectares) followed by Himachal Pradesh (0.93 million hectares) and Madhya Pradesh (0.43 million hectares) in 2011-12. Orissa has the highest organic production in the country followed by Maharashtra and Rajasthan. Because organic produce is usually more expensive due to higher labor cost and comparatively lower yields, organic farming in India is mainly export intensive.

Agriculture Skill Council of India aims to create a sustainable industry aligned eco system for robust skill & entrepreneurship development in Agriculture & Allied sector. It presently has 938 training partners, 620 industry partners, 8 assessment partners, 622,038 trainees enrolled, and 508,513 completed assessments and has developed 173 qualification packs.

### 14.2.2 Soil and Water Conservation

Despite years of research and study with regard to sustainable land use in India and schemes for soil conservation and watershed management have failed to adequately address severe erosion problems due to unfolding climate change. The degraded area in India is reported to be in ranges of 100 to 190 million ha (2017). Thus, it is of utmost importance to develop methods to control land degradation, rehabilitate degraded areas, enhance productivity of rain dependent areas on sustainable basis and promote efficient water use techniques like multiple use of water, proper soil and crop management, micro irrigation, integrated farming system, etc, which can also create jobs in addition to preventing environmental degradation and soil and water conservation.

## 14.3 WATER

### 14.3.1 Waste Water Treatment

Rapid urbanization and growing population not only puts stress on per capita water availability, but also liquid and solid waste generated by the population leading to increasing pollution of air, water and soil. Much of the waste enters water bodies through the discharge of waterborne waste from domestic, industrial and non-point sources carrying unwanted and unrecovered substances. As the population and number of cities has increased, increased water supply has also led to increased wastewater generated irrespective of the location. Worse still, the proportion of Wastewater treated has declined since late 1970s in both big and small cities. Untreated wastewater (sewage) containing a large amount of organic matter, if discharged into a river / stream, will consume the dissolved oxygen for satisfying the Biochemical Oxygen Demand (BOD) and thus deplete the dissolved oxygen of the stream, thereby killing the marine life and unbalancing the aquatic ecosystem.

Wastewater can be reused for Domestic, Industrial and Mu-

municipal purposes. Municipal uses of treated wastewater include the irrigation of road plantings, parks, playgrounds, golf courses and toilet flushing etc. Industrial reuses of wastewater include cooling systems, agricultural uses (irrigation and aquaculture), the food processing industry and other high rate water uses.

## 14.4 SHELTER

### 14.4.1 GREEN HOUSING

Unprecedented pace of growth in urbanisation has led to a 3.3 percent increase in urban population percentage to 31.1 percent in 2011. This causes severe stress on the environment. Buildings consumes more than one third of the world's energy and, in most countries, is the largest source of greenhouse gas emissions. This is the reason why concept of Green Building has come in. The terms "green" and "green building" apply not only to products, but to construction strategies, building design and orientation, landscaping, building operations and maintenance. Investments in Green building may have slightly higher upfront investment, but in the long run, they turn out to be cheaper due to lower operational costs.

Most tangible benefits of Green New Buildings are reduction in water consumption (around 30-50% savings) and energy consumption (around 20-30% savings) from day one of occupancy. Intangible benefits include enhanced air quality, day lighting, health & well-being of occupants, safety benefits and conservation of scarce national resources. As mentioned in IGBC Annual report 2017-2018, following list shows the achievements in terms of this sector as on October 2018-

There are other certification bodies like TERI GRIHA and BEE working for achieving the same goal.

Figure 14.2



## 14.5 SUSTAINABLE FORESTRY

Forests are one of the most vital and complex natural resource on earth. They are not only home to greatest variety of biological lives on the planet, but also provide important resources for shelter and livelihood of mankind. India possesses around 2.5% of world's land area with 1.85% of the total forest cover, while it has to serve the needs of 17% of world's population and 18% of total livestock population (Shashikant, 1996). However, unsustainable exploitation by paper, furniture industry and non-wood industries like handicrafts, latex, gums etc., has made it imperative to formulate policies to preserve forests and encourage sustainable forestry.

A small, yet important, part of sustainable forestry is conservation of biodiversity. India accounts for 8% of the total global biodiversity with an estimated 49,000 species of plants of which 4,900 are endemic (Kumar and Asija, 2000). With the current level of deforestation, by year 2100 only about 10% of the land area of the Indian Himalaya will be covered by dense forest (>40% canopy cover)—a scenario in which almost a quarter of the endemic species could be wiped out, including 366 endemic vascular plant taxa and 35 endemic vertebrate taxa.

Another important aspect of sustainable forestry is Afforestation. As reported by the Government of India, the total forest and tree cover of the country as per 2013 assessment is 789,164 sq. km. (78.92 million ha) which is 24.01 percent of the geographical area of the country and there is an increase of 5,871 sq. km in the forest cover of the country in comparison to 2011 assessment. While there has been increase of forest cover of 40 sq km and 2,396 sq km in hill and tribal districts of the country respectively, the North-Eastern States and Mangrove cover has seen a decline of 627 sq km and 34 sq km respectively.

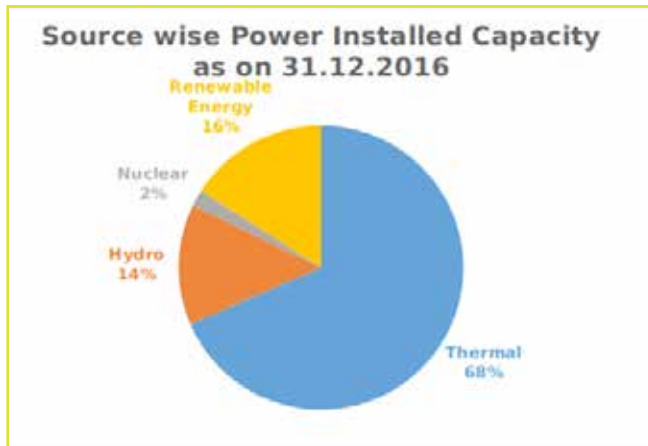
## 14.6 RENEWABLE ENERGY

India has seen a big shift in infrastructure in terms of inclusion of all economic activities on digital platform. Thus, power plays an important role in shaping economic growth for better. As the figure below, the power installed capacity is highest for thermal energy and least for nuclear energy.

The Government has upscaled the target of renewable power capacity to 175 GW which includes 100 GW from Solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro power to be achieved by 2022. It also reported that the largest ever wind power capacity addition of 3,423 MW, exceeding target by 43%. Other than having low maintenance cost, Solar power also stabilizes the cost of electricity generation in long run because it hedges against price volatility of fossil fuels. As local air pollution and extensive use of

fresh water for cooling of thermal power plants are becoming serious concerns in the scenario of climate change, the use of solar power become critical since it does not produce any greenhouse gases (GHG) and uses little or no water.

**Figure 14.3**



Source: Annual Report (2016-17),  
Ministry of New and Renewable energy.

Wind Energy uses air flow through wind turbines to provide the mechanical power to turn electric generators and traditionally to do other work, like milling or pumping. India has a vast coastal line, which is a good resource of wind and modern techniques like offshore wind turbines and highway windmills are used to create wind power. Not only these devices produce no hazardous wastes or consume no natural resource, they also represent an environmental improvement over energy-producing technologies that burn fossil fuels. India ranked fourth in the world in terms of wind power installed capacity as compared to rest of the world and the total wind power installed capacity was around 487 GW at the end of 2016.

## 14.7 GREEN TRANSPORTATION

At approximately 3 million cars per year, India is one of the major car markets in the world. On the other side, the current trajectory of adding ever more cars running on polluting fuels and cluttering overcrowded cities suffering from infrastructure bottlenecks and intense air pollution is just not unfeasible. Thus it is clear that transportation, whether public or private, will have to turn green, since transportation is one of the largest producer of greenhouse gases.

Following facts highlight the structure of EV market in the country, as reported by the abovementioned TFE consulting in its report in 2017:

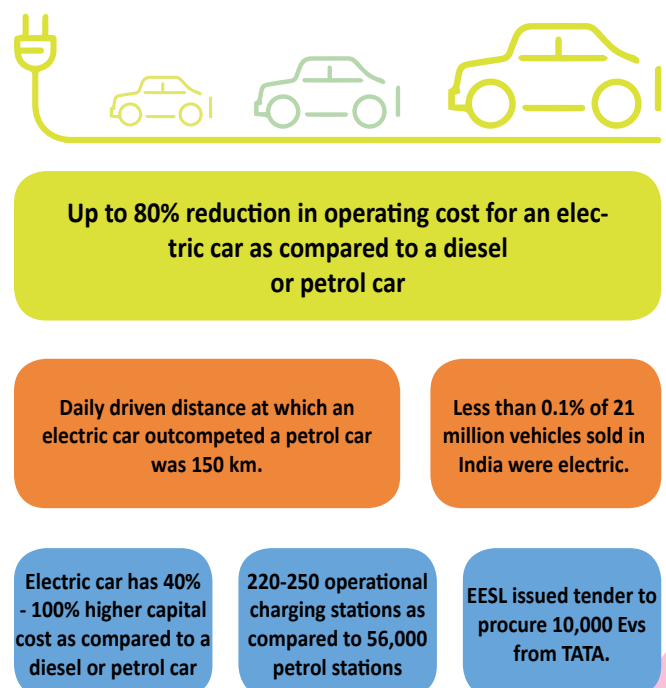
The Government of India launched the National Electric Mobility Mission Plan (NEMMP) 2020 in 2013. It aims to achieve

national fuel security by promoting hybrid and electric vehicles in the country. There is an ambitious target to achieve 6-7 million sales of hybrid and electric vehicles year on year from 2020 onwards. As part of the NEMMP 2020, Department of Heavy Industry formulated a Scheme viz. Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme in the year 2015 to promote manufacturing of electric and hybrid vehicle technology and to ensure sustainable growth of the same. Also, GST council slashed tax rates on electric vehicles and chargers recently, implying that the government is working hard to achieve its goal.

As far as future prospects of the industry are concerned, "The Society of Indian Automobile Manufacturers (SIAM), along with its automobile manufacturers, aims to achieve new vehicle sales in the country to be hundred percent pure electric vehicles by the year 2047 with following roadmap:

- All new vehicles for intra-city public transport to be electric vehicles by 2030;
- Forty percent of new passenger vehicle sales in the country to be pure electric vehicles by 2030;
- Sixty percent of new vehicle sales in the country to employ greener technologies like hybrids & other alternate fuels by 2030; to ensure smooth phasing in of pure electric vehicles and to sustain the transition to cleaner fossil fuel vehicles. Progressively cleaner fossil fuel vehicles would be an essential stepping stone in this journey towards hundred percent pure electric;
- Finally, all new vehicle sales to be pure electric vehicles by 2047. In the process, the Indian automobile indus-

**Figure 14.4**



try also aims to become a leading global hub for design, manufacture and export of pure electric vehicles supporting the 'Make in India' initiative." (Adopting Pure Electric Vehicles: Key Policy Enablers, SIAM, 2017).

Improving Power storage and charging infrastructure, efficiency of vehicles and exploring new battery chemistries, thus reducing unit costs of batteries, will make EV market more economically viable. Also, this market not just would reduce oil imports, it will lead to demand in electricity at the same time in the country. This implies that there is going to be a transition of employment from the former sector to the latter at the same time, moving more towards highly skilled technological forefront of car manufacturing sector.

## 14.8 CONCLUSION

A bunch of forces like demographic transition, climatic changes, technological innovations and rapid urbanization have risen the need to look into the way our economy is currently working. Not only India, every country is looking into finding an equilibrium in such a situation. In fact, the green economy concept was developed by the United Nations Environment Programme (UNEP) in 2010. It defines a green economy as one that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2010). According to Forest Europe, "green jobs opportunities result from employment in production of green products and services and/or employment in environmentally friendly processes providing they are decent jobs. Generally, all jobs associated with sustainable forest management have a potential to be green" (Forest Europe, 2015b). The emergence of green jobs, brings with itself, the need of whole new set of skills. For example, in case of renewable energy sector, as new

installations are undertaken, the skills set demand might shift to a decreased focus on manufacturing and installation and a greater demand for maintenance and management skills. Targeted short-term programmes, like retraining electricians to become installers of photovoltaic solar panels, are a practical solution to overcome the skills set challenge (Green jobs and renewable energy: low carbon, high employment, ILO). Thus, major initiatives have to be taken in order to spread awareness defining changes in competence requirements as well promoting changes to vocational and education training system in each of the sector where there is existence of any kind of green job. Even though there are many educational institutes in India like Center for Environmental Nuclear Research (CENR), Center for Environmental Planning and Technology (CEPT), Indian Agricultural Research Institute (IARI), National Environmental Engineering Research Institute (NEERI), The Energy and Resources Institute (TERI), Centre for Environment Education (CEE), Sri Paramakalyani Centre for Environmental Sciences (SPKCES) etc., which provide various courses on environment protection, there is now, need for the same to go to root levels of education system.

Skill Council for Green Jobs is one of the most recently launched initiatives of the Government of India aligned to the National Skill Development Mission. It is promoted by the Ministry of New and Renewable Energy (MNRE) and Confederation of Indian Industry (CII). Its mission is to identify skilling needs of service users as well as manufacturers/service providers, within Green Businesses sector, and implement nation-wide, Industry led, collaborative skills development & entrepreneur development initiatives that will enable meet India's potential for "Green Businesses". It covers various sectors like Renewable Energy, Green Construction, Waste Management, Water Management etc. More such initiatives could lead to awareness and realization of sustaining our environment for future generations, among the general public.



# 15 EDUCATION SECTOR

## 15.1 Introduction

India's education sector offers a great opportunity with approximately 29 percent of India's population being between the age group of 0-14 years. India's higher education segment is expected to increase to Rs 2,44,824 crore (US\$ 35.03 billion) by 2025. The education sector in India is estimated at Rs 6,40,891.3 crore (US\$ 91.7 billion) in FY18 and is expected to reach Rs 7,06,587.9 crore (US\$ 101.1 billion) in FY19. As of December 2018, internet penetration in India had reached 46.13 percent. Increasing internet penetration will help in education delivery.

India has over 250 million school going students, more than any other country. It also has one of the largest networks of higher education institutions in the world. Number of colleges and universities in India reached 41,901 and 993, respectively in 2017-18. India had 36.64 million students enrolled in higher education in 2017-18. Gross Enrolment Ratio in higher education reached 25.8 percent in 2017-18. In December 2018, the government of India published that 3.43 million candidates had enrolled in the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2016-20 scheme. Up to January 24, 2019 as many as 2.52 million candidates were trained under the scheme's Short-Term Training (STT) (India Brand Equity Foundation, 2019).

## 15.2 Regulatory Framework and Subsectors

Education falls in the Concurrent List of the Constitution of India i.e. both the centre and the states have the authority to legislate on it. Additionally, the centre has the power to determine the overall standards for higher educational institutions whereas the states can incorporate and regulate universities through private or state university legislations.

### 15.2.1 Regulated Segment

#### K-12 / SCHOOL EDUCATION

K-12 is an abbreviated term for schooling from the Kindergarten to the 12th grade covering primary and secondary education. The target population for this segment is from the age group of 3-17 years. It is referred to as the basic necessary education an individual must possess to be able to make him suitable for a decent employment opportunity. The National Council of Educational Research and Training (NCERT) is the governing body managing the curriculum related matters for school education in India, it also provides support

and technical assistance to the schools and looks after the enforcement of education policies in India.

### 15.2.2 Higher Education

The regulatory framework that governs the Higher Education in India is quite complex with both the central and state governments sharing the roles and responsibilities respectively. University Grant Commission (UGC) set up in 1956 is the apex body governing university education in India with the mandate of coordination and maintenance of standards for university education in India. (Higher Education, n.d.).

### 15.2.3 Central Government and State Government

The Ministry of Human Resource Development (MHRD) is the nodal authority through which the central government plays a key role in defining public policy for higher education in the country. There are 15 other ministries and departments which also regulate higher education, related to other fields. The state government discharges its responsibilities through respective government departments for higher education. Many states have also set up state councils and advisory boards for providing guidelines for the proper functioning of higher education institution in the states. The Central Advisory Board of Education (CABE) acts as a common forum for coordination between the state and central governments.

## 15.3 Regulatory and Professional Councils

Statutory bodies such as University Grants Commission (UGC) and All India Council for Technical Education (AICTE) along with professional councils such as Bar Council of India (BCI), All India Medical Association are responsible for the regulation, coordination and development of higher education in India. These programs help students develop technical understanding.

### 15.3.1 Accreditation Bodies

The regulatory bodies/professional councils are assisted by accreditation bodies such as National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) in benchmarking higher education institutions. National Council for Teacher Education (NCTE) and National University of Educational Planning and Administration (NUEPA) are responsible for teacher accreditation.

### 15.3.2 Vocational Education

The Government has been actively encouraging private participation in vocational education through private and public private partnerships. The government has also announced incentives including financial assistance for public private participation in Industrial Training Institutes. The All India Council for Technical Education (AICTE), Ministry of Human Resource Development (MHRD) recently launched the National Vocational Education Qualification Framework (NVEQF) to be implemented in polytechnics, engineering colleges and other colleges in the university system from 2012-13. This is expected to cater to at least 5 million students applying for vocational degrees and diplomas each year and can provide self-employment or meaningful employment even if 1/3 of the institutions are approved to conduct these programs. (A Comprehensive Training for Technical Teachers, 2018).

## 15.4 Skill Development

Skill development and entrepreneurship efforts in India have been highly fragmented till date. As opposed to developed countries, wherein the overall percentage of skilled workforce is between 60% and 90% of the total workforce, India records an abysmal 4.69% of workforce with formal vocational skills. There is a need for speedy reorganization of the ecosystem of skill development and entrepreneurship promotion in the country to suit the needs of the industry and enable decent quality of life to its population. It includes unregulated vocational courses (languages, training, etc.) Error! Reference source not found.

## 15.5 Services in the Education Sector / Coaching Classes

There is a vast opportunity for provision of innovative services. Given regulatory constraints, lack of infrastructure and severe competition for quality education, there is a large and rapidly growing market for coaching and tutoring services imparted through new innovative means, particularly the internet. (Skill Development in India, 2015).

## 15.6 Evolution and recent milestones in the sector

India has nearly 550 million people below the age group of 25 years. As per the estimates by Census, about 32 percent of the total 1.3 billion population lies between the age group 0-14, that makes people needing primary and secondary education alone in India significantly exceeds the entire population of a country like US. At present nearly 11 million students are a part of the Higher Education system that is a small proportion of 11 percent of the of the 17-23-year-old population. Increasing this to at least 21 percent by 2019

has been the target of government which still falls short of the world average. India's emergence as a knowledge-based economy has made way for human capital to attain maximum /major strength. While going through this it has put a major spotlight on several inadequacies of India's infrastructure for delivery of education particularly higher and vocational education (Annual Report PLFS, 2017-18).

For the past few decades Indian society has put premium on knowledge and its assets and as a result spending on education is the single largest outlay just after food and groceries for a middle-class household. With its rapidly expanding middle class, India's private and public expenditure on education need to increase manifold if it were to come at par with the developed economies. Even though private investment in setting up educational institutions is increasing still there exist demand supply gap particularly in high quality institutions are being taken into consideration.

Example- In India only 1 out of 150 applicants get to study in the reputed Indian Institute Technology (IITs) compared with the ratio of 1:10 for MIT. Thus, as per the reports of industry chamber it is quite true that around 450,000 Indian students spend over USD 13 billion each year in acquiring higher education overseas. The solution proposed in 12th FYP (2012-17) to reduce demand supply gap is to set up 6,000 schools at block level as model schools to benchmark excellence, wherein of these 2500 schools will be set up under Public Private Partnership (Annual Report PLFS, 2017-18).

**Table 15.1:** Public and Private share

2017-18	PUBLIC and PRIVATE
INVESTMENTS TILL DATE	US \$ 2.21 billion
GER	25.20%
NUMBER OF TEACHERS	13.7 lakhs

Some major investments and developments in the recent past brought about following achievements in the education and training sector-

- In 2017 the Indian education sector witnessed 18 merger and acquisition deals worth US \$ 49 million (India Brand Equity Foundation, 2019).
- The Skill India Mission has taken the responsibility wherein more than 1 crore youth are being trained to earn livelihood. In the last 3 years around 2.5 crore people are being trained so far (Skill India).
- Under the Government's Pradhan Mantri MUDRA Yojana following are the estimates for two financial years. (Mudra Yojna, n.d.)

India is poised to become the third largest economy by 2025, with one of the largest and youngest workforce in the world. The country will reportedly need to create jobs for around 100 million people who enter the job market over the next decade. There will certainly be a major overhaul in the coun-

try's overall skill-development framework and job-creation and in order to make the workforce ready for the evolved nature of jobs. Consequently, the nature of jobs by 2025-30 will be substantially shaped by the rapidly evolving pace of technological change.

## K12

The K-12 market is estimated at Rs. 1,655 billion in FY17 and is expected to grow at a CAGR of over 13% over the next 3-4 years to reach Rs 2,400 billion. Private spend is estimated to account for approximately 90% of the total K-12 market size in FY17, which can be attributed to consistent shift towards private schools in India. Private Indian schools are collaborating with international brands to provide international standard quality education on the back of increasing awareness about the importance of education in the country.<sup>84</sup>

**Table 15.2:** Market size of K-12

K-12 MARKET SIZE	FY 17	FY 20
Population – billion	1.27	1.27
Target Population (3-18 years of age) - billion	0.33	0.33
Target Population as % of total population	25.84	24.61
Net Enrolment Ratio	63.37	69.25
Enrolled population billion	0.21	0.23
% share of government schools	76.2	74.2
% share of private schools	23.8	25.8
Total Market Size - Rs. Billion	1,655	2,400

All the sectors of K-12 industry have witnessed a proportionate increase in employment in the past 10 years. Primary and Middle schools are the ones with the highest increase followed by Senior secondary. For the year 2015-16<sup>85</sup> Secondary School had the least intake of teachers as per Educational Statistics report.

### Proportion of Indian population involved in the sector

The number of Teachers has grown from 12,47,453 in 2011-12 to 15,18,813 in 2015-16 to 66,89,196 2017-18 but the increase is mainly at entry level i.e. Assistant Professor. Representation of female teachers at all levels is low except for Demonstrator/ Tutor or equivalent and there is no improvement in the scenario over the years. State-wise Post-wise Number of Teachers during last 5 years is hereby shown.<sup>86</sup>The reasons for this change is basically due to policies implemented by the government that has encouraged working culture amongst the citizens. Furthermore, the

government has started providing additional benefits to the citizens, apart from increasing the vacancies in this field of sector.

## 15.7 Higher Education

The market size of the Indian higher education segment stood at approximately Rs. 2,230 billion in FY17 and is expected to grow at a CAGR of over 11% over the next three years to reach Rs 3,100 billion; driven by increasing no of enrolments, large no. of courses offered and the higher fees (especially in case of the private institutes). There has been an increase in the income levels and willingness to spend on quality education in the country. Further, the growth in the segment is fuelled by the growth of services sector in the country.<sup>87</sup>

**Table 15.3:** Market size of Higher Education

Higher Education Market Size	FY 17	FY 20
Population -million	1,266	1,326.10
Target Population (18- 23 years of age) - million	136.1	138.8
Target Population as % of total population	10.7	10.5
Net Enrolment Ratio	25.2	27.5
Enrolled population million	38.2	34.3
Total Market Size - Rs. billion	2,230	3,100

India has the largest school going population and higher education infrastructure in the world. The sector is estimated to grow at CAGR of 7.5% to \$ 144 billion by 2020. It is expected that employment opportunities will continue to grow in this sector for the next two decades.<sup>88</sup>

**Table 15.4:** Total number of Universities and Colleges in India

Number of Universities and Colleges		
Year	Universities	Colleges
FY13	667	35,525
FY14	723	36,634
FY15	760	38,498
FY16	799	39,071
FY17	864	40,026

There is a considerable growth in the number of universities and colleges which led to the growth in the number of teachers. The growth in number of teachers was from 12.5

<sup>84</sup>CareRatings Report, 2018

<sup>85</sup>Education Statistics at a Glance, 2008-2017

<sup>86</sup>AISHE Report, 2009-2017

<sup>87</sup>CareRatings Report, 2018

<sup>88</sup>AISHE Report, 2009-2017

lakh in FY12 to 13.7 lakh in FY17. The student enrolments in higher education also witnessed a rise reaching 357.1 lakh in FY17 from 291.8 lakh in FY12. Therefore the total enrolments grew at a faster CAGR of 4.1% during as compared to the growth of teachers at 1.8% during the period 2012-17.<sup>89</sup>

## 15.8 Coaching Classes

The market size of the Indian coaching classes segment stood at Rs. 2,170 billion in FY17 and is expected to grow at a CAGR of over 13% over the next three years to reach approximately Rs 3,150 billion, driven by growing importance for pursuing professional education, increasing opportunities requiring specialised education and training, with increasing number of aspirants in relation to the seats available under the respective courses they wish to choose.

**Table 15.5:** Market size of Coaching Classes

Coaching Classes Market Size	FY 17	FY 20
Target Population (18- 23 years of age) - million	136.1	138.8
% share of overall students taking private	26	30
coaching for levels of school education		
Enrolled population million	120.5	139.5
Total Market Size - Rs. billion	2,170	3,150

Technology is evolving at a path-breaking pace, enabling companies to experiment with new ideas at speeds that were unimaginable even a decade ago. The impact of these changes will be especially higher as compared to today's scenario, because earlier such major shifts across industries were spread over a decade, or even generations, in some cases. However, today, such changes are happening much faster, leaving less room for people to adjust, understand skill requirements and suitably prepare themselves for the job market on a dynamic basis.

With the advent of increasing student base and the advancement of new courses availability these days, the Indian Coaching classes segment has grown significantly. Coaching classes are also sources of training students international entrance tests and language proficiency exams. However, with the advent of organized players now-a-days are willing to fund the coaching class industry with respect to the classroom size i.e. strength of students in a batch, use of technology in education etc. has undergone a drastic change.

According to the 71st Survey conducted by the NSSO nearly 26% of the total number of students in the country took private coaching and tuitions with 36% belonging to secondary and higher secondary classes while 20% were graduation students.<sup>90</sup>

## 15.9 Online education

### 15.9.1 On-line education- The 'Virtual University'

The basic concept of virtual university is that there is no physical manifestation of the university or any educational institution. Students and teachers are in distant locations. Both of them are connected to each other for their educational discourse through Internet or on-line connectivity. Furthermore, the staff that develops programmes may not be those who support them, and those who assess them may be different again.

### 15.9.2 Distance education-online

Many face-to-face universities, which do not provide distance education through print or audio-video inputs, have started offering e-learning courses as part of their effort to develop on-line distance education. Such attempts envisage economies in staff costs. Once a course is created, it can be repeated to indefinite number of students without further staff intervention. Moreover, these courses provide wider students' access and facilitate globalisation of academic programmes.

### 15.9.3 Collaborative education

Of late, there have been efforts by some organizations to offer courses that have been created by other institutions. According to MHRD data, 2.65 million undergraduate students studied in distance mode in 2016-17, compared to only 1.75 million in regular program. Therefore, a considerable increase in globalised initiatives is quite visible. The growing demand for the education activities increase the employment of the teaching and the non-teaching staff.

## 15.10 Employment in Education Sector

India trails behind several countries including Brazil and China in terms of student-teacher ratio in higher education segment, a government report has revealed. The 24:1 ratio of India is lower than 19:1 in Brazil and China. Among the eight countries compared, India's student-ratio has turned out to be the lowest - against Sweden's 12:1, Britain's 16:1, Russia's 10:1 and Canada's 9:1. This not only results in overburdening a small group of teachers but also adversely affects the quality of academic research taken up by them, says a Human

<sup>89</sup>AISHE Report, 2009-2017

<sup>90</sup>71st NSSO Report, 2014

Resource Development Ministry report (Singh P. , 2019).

“A low student-teacher ratio indicates the burden on a single teacher of teaching multiple students as well as the lack of time that each student gets. Apart from this simplistic effect, in an institution of higher learning, a smaller number of overburdened teachers are also unable to pursue any research or encourage their students to do so. “Consequently, the culture of questioning and reasoning cannot be inculcated as a part of higher education in most institutions,” the Education Quality Upgradation and Inclusion Programme (EQUIP) report said. The faculty shortage has worsened over the time due to increasing enrolment rate of the students and low faculty recruitment in the higher education institutes. As per the ministry’s All India Survey on Higher Education statistics, while the student enrolment in higher education institutes have increased from 32.3 million in 2013-14 to 36.6 million in 2017-18, the total number of teachers have declined from 13,67,535 to 12,84,755 (Singh P. , 2019).

“In addition to the low number of sanctioned faculty positions, faculty vacancy even in sanctioned strength is an extremely serious problem. Due to various reasons such as lack of funds, and the reluctance of states to bear the long-term salary burden, a large number of faculty positions are not filled. Attracting faculty is a big challenge for rural and backward areas because of the lack of infrastructural support and reluctance of teachers in moving to non-urban areas,” it stated.

In June, the University Grants Commission had issued guidelines asking the government operated higher education institutions to fill up 3 lakh vacancies within six months. Union HRD Minister Ramesh Pokhriyal ‘Nishank’ has also been emphasizing on filling up faculty positions on war footing in various meetings with the higher education institutions (Singh P. , 2019).

This clearly indicates that there is huge scope of employment in the education sector with a lot of opportunities.





# 16 JOBS IN IT AND IT ENABLED SERVICES

The Indian IT Sector contributes 7.7 percent of India's GDP, which is expected to grow to about 10 percent by 2025. It accounts for 49% of total exports and 55% of global sourcing. The industry employs around 3.97 million people directly and with a massive 5,300 tech start-ups<sup>91</sup>, most of which came up in the last decade, the industry has become a mammoth part of the economy. The start-ups have created jobs for about 24,000 people who are skilled in AI and Big Data analytics alone.

In terms of revenue, the Indian IT-ITeS industry is expected to generate USD 181 billion in 2018-19. A huge proportion of the revenue in the sector is generated through exports making it a valuable earner of foreign exchange for the country. Apart from the traditional exports destinations like the UK, US and EU that share about 90% of the exports, there is also emerging demand from APAC<sup>92</sup>, Latin America and Middle East Asia.

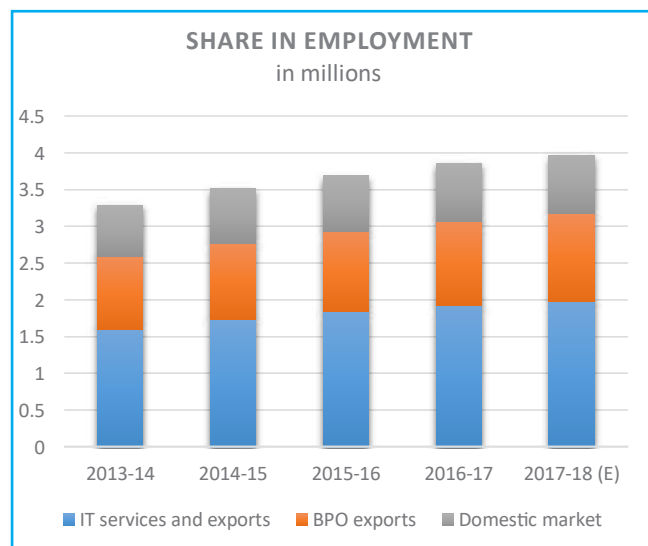
In 2018, revenue per employee was estimated to be approximately 42,065 USD.<sup>93</sup> At this level of revenue per employee, IT sector is estimated to employ a little above 4.3 mn people.<sup>94</sup> This is in line with the NASSCOM estimate for the number of people directly employed<sup>95</sup>.

In an online survey conducted for the purpose of this report among IT industry professionals about their expectation for the number of jobs in IT in next 5 years, their responses ranged between 4 to 10 million, with majority in the range of 7 to 10 million jobs.

The IT subsectors along with their market share as on 2017-18 is given in Figure 3. Not surprisingly, IT services and exports leads the way with 52% of the revenue. Both software products and the BPM subsectors contribute roughly one-fifth of the revenue each while the rest is contributed by the Hardware sector.

In terms of employment numbers, IT Services & Exports itself accounts for an estimated 2 million people out of the 3.968 million people employed by the industry<sup>96</sup>. It added 0.14 million people from FY 2013-14 to FY 2014-15. Subse-

Figure 16.1



Source: IBEF

quently, it added lesser and lesser numbers, with the addition expected to be just 0.063 million between FY 2016-17 to 2017-18. This fall has been attributed- by some industry experts- to a kind of saturation being hit by the sector. The big opportunities today are in the tech-enabled enterprises rather than the tech enterprises themselves.

One of the industry experts attributes the falling additions to IT sector workers to stagnant wages and rising costs of higher technical education. The increase in the number of engineers has resulted in a situation of excess supply, which further depresses wages. Indeed, on 07 April, 2016, the HRD ministry increased the tuition fees of undergraduate courses at IITs from Rs. 90,000 to Rs. 2,00,000. With salaries in the range of 8,000 to 11,000 rupees per month, it is becoming increasingly difficult to afford this job with its low pay.

Overall, the industry is set on a path of growth and will continue to be an important driver of employment. The Government is focused on building India a \$1 trillion digital economy by creating affordable technologies, supportive policies, last-mile connectivity and inclusive environment<sup>97</sup>.

<sup>91</sup>IBEF IT & ITeS report, May 2019 and Annual report of Software Technology Parks of India (STPI)

<sup>92</sup>Asia Pacific: Countries in or near the western Pacific Ocean.

<sup>93</sup>2018-19 revenue/ 3.97 mn workers (see IBEF footnote)

<sup>94</sup>Using the government's revenue estimate

<sup>95</sup>NASSCOM estimates that more than 4 million people will be directly employed in the IT industry in FY 2019, a growth of 4.3%

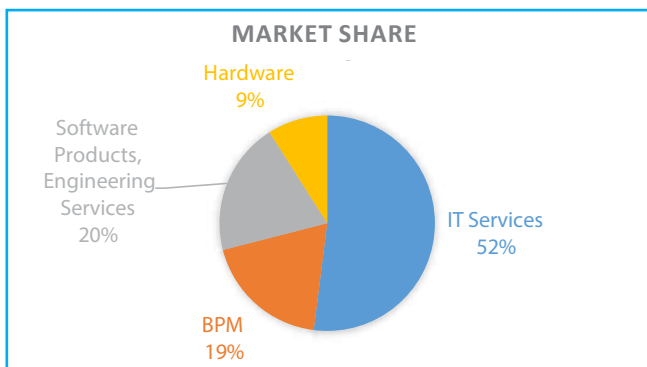
<sup>96</sup>BPO exports is estimated to account for 1.191 million while an estimated 0.793 million people work in the domestic market segment.

<sup>97</sup>Annual Report (2016-17) of STPI

## 16.1 What it means for jobs

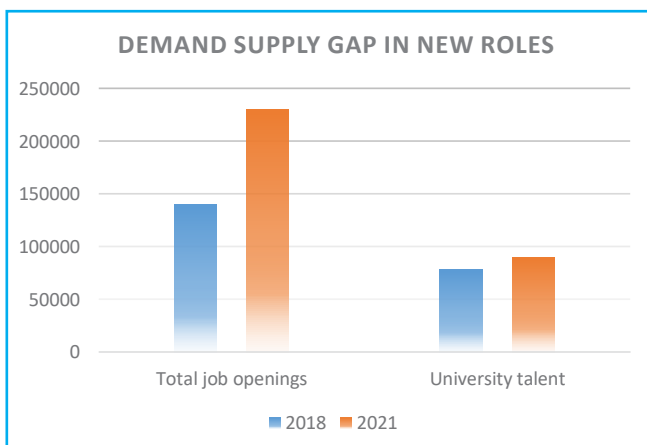
In last two decades, IT and IT enabled services has emerged as one of the most important sectors for creation of high end jobs as well as being an important foreign exchange earner for the country. Despite all the noises about the fear of job losses in recent months, a closer look at the IT and ITeS sector reveals a completely different picture. As it turns out, the fear should not be so much about jobs becoming irrelevant as it should be about the changing nature of traditional jobs. In the face of artificial intelligence replacing 'human calculators', automation and machine learning taking over the ropes of running enterprises, machines, governments and industries, upskilling should take the centre stage of discussions. A pertinent question to ask is, - should we be surprised? When typewriters were replaced by computers, a whole cadre of people working as typists and stenographers lost their jobs. However, faced with the challenge of redundancy, the workforce has time and again proved to be resilient. With the Government of India's enabling policy framework, the IT industry is taking strides towards training the existing workforce and the ease of access to training (due to IT itself, cyclically), transitioning today is much easier than it used to be.

Figure 16.2



Source: Ministry of electronics and information technology website

Figure 16.3



Source: NASSCOM Zinnov Talent Demand & Supply report

An industry expert describes working in the industry as “The day you stop learning, you start lagging that day.” “The kind of work IT people are doing right now, the jobs are not going to be replaced but the tasks are going to be,” says another industry expert. With the strong headwinds both due to global trade as well as changing skill demands, seamless transition into new job roles still remains a question. Lack of high end trainers is considered as a critical bottleneck in retraining the workforce. This is also reflected in figure 1.

An comprehensive approach to upskill the workforce requires active participation of everyone- workers, employers, government and trainers.

## 16.2 The culture of tech start-ups

The trend of start-ups that began roughly a decade ago, India is witnessing emergence of a huge number of start-ups. A significant number of these are based on high end technologies such as AI, machine learning, big data, cloud computing and blockchain. With the backing of schemes like Start-up India, Indian firms have flourished and are taking huge strides in their respective fields, making India the third largest start-up ecosystem in the world.

Over 7,000 startups who have come on the scene during 2013-18 and have raised 4.3 billion USD in 2018 itself<sup>98</sup>. It is worthwhile to take a case by case look at the various fields that the IT sector has changed.

“The new kids who are coming up are brainy, they have the appetite and potential. Rather than going for a job, they’re going their own way. If it stays like this for the next 10 years, the complete Indian IT arena can change, we can also come up with the kind of products like WhatsApp,”

- An IT Sector Expert

### Case study: AgriTech

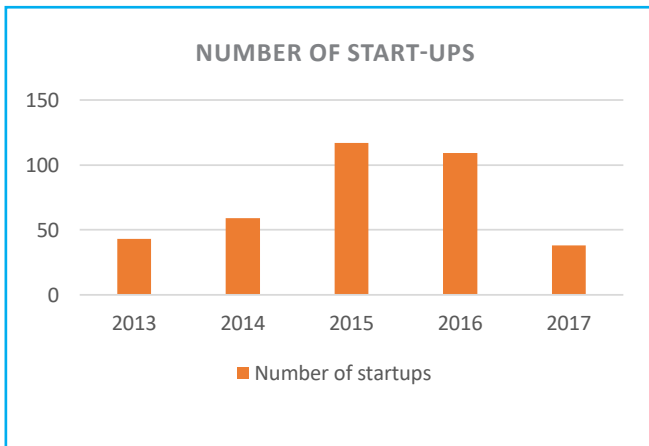
The emergence of AgriTech has thrown open a whole new world for those interested in both agriculture and modern technology like Artificial intelligence, Internet of Things, cloud technology and data analytics. A number of ventures have started in this field, paving the way for employment of yet more IT minds.

Figure A.1 shows the growth in the number of start ups in

<sup>98</sup>NASSCOM ZINNOV report on the start-up ecosystem in India, 2018

Agri tech over the last few years. 2015 and 2016 in particular witnessed huge growth in the number of start-ups. Even established tech giants like TCS, Tech Mahindra, Infosys, Cognizant, Accenture and ITC have dedicated AgriTech projects.

Figure 16.4a



Source: NASSCOM

**Case study: EdTech**

As was the case with Agritech, we witness a spike in the number of start-ups incorporated in 2015 and 2016. With further permeation of internet connectivity and ever greater demand for vocational skilling and technical education, this area is expected to expand and employ more experts for their technological skills.

**Case study: FinTech & HealthTech**

According to Inc42's State of Indian Startup Ecosystem Re-

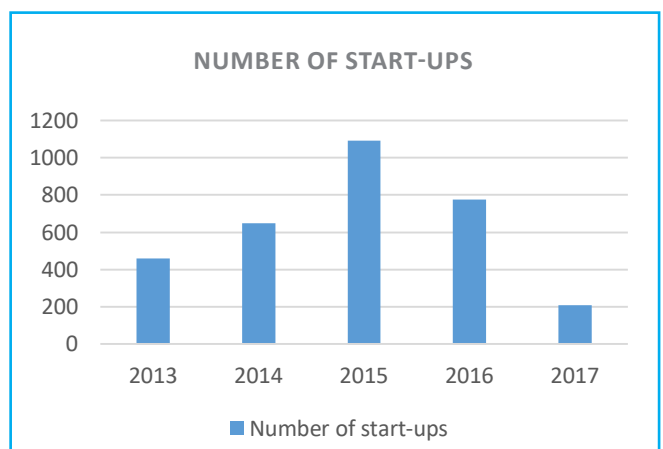
port 2018, there are about 2,700 fintech startups in the country.

Close to US\$ 3 billion was invested in this space in 2017 and 1.4 billion USD in 2018. 121 start ups were funded in 2018. The fall has been attributed to the tightening of the space with the introduction of the payment bank license<sup>99</sup>.

In 2018, 504 million USD was invested in health tech start-ups in India, with 64 startups being funded. There are over 550 health tech start-ups in India, according to a NASSCOM-Zinnov 2018 report.

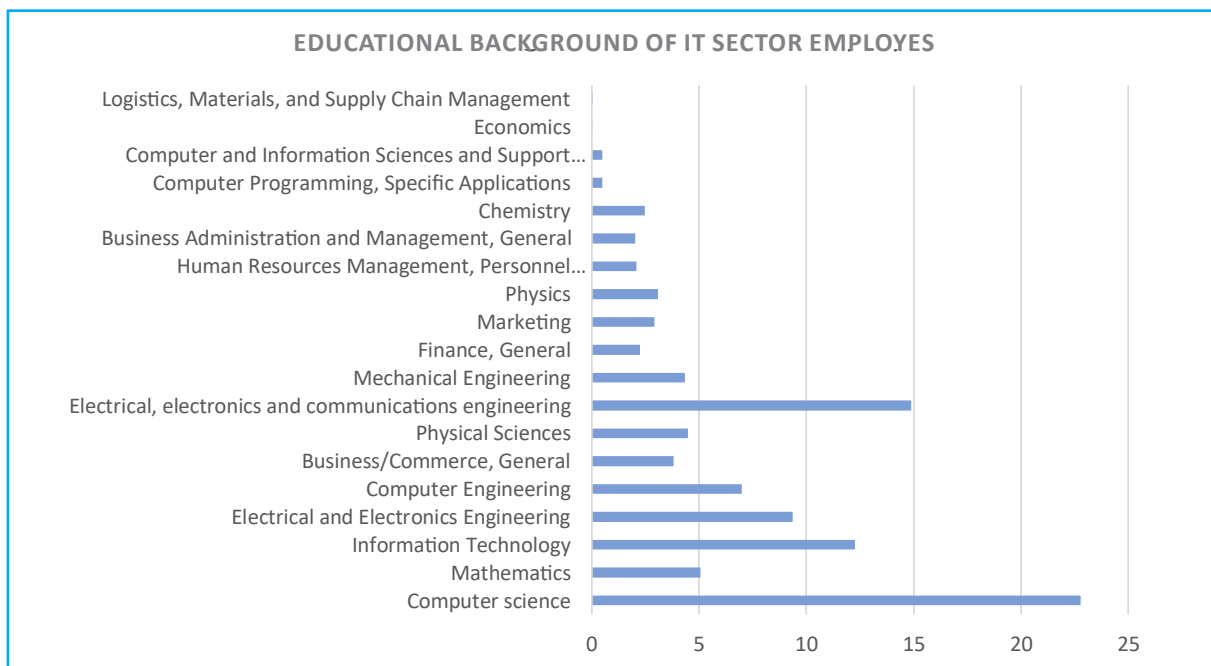
The industry is finely poised for further expansion, and the growing number of start-ups show a promise to provide the employment answer the country needs.

Figure 16.4b



Source: NASSCOM

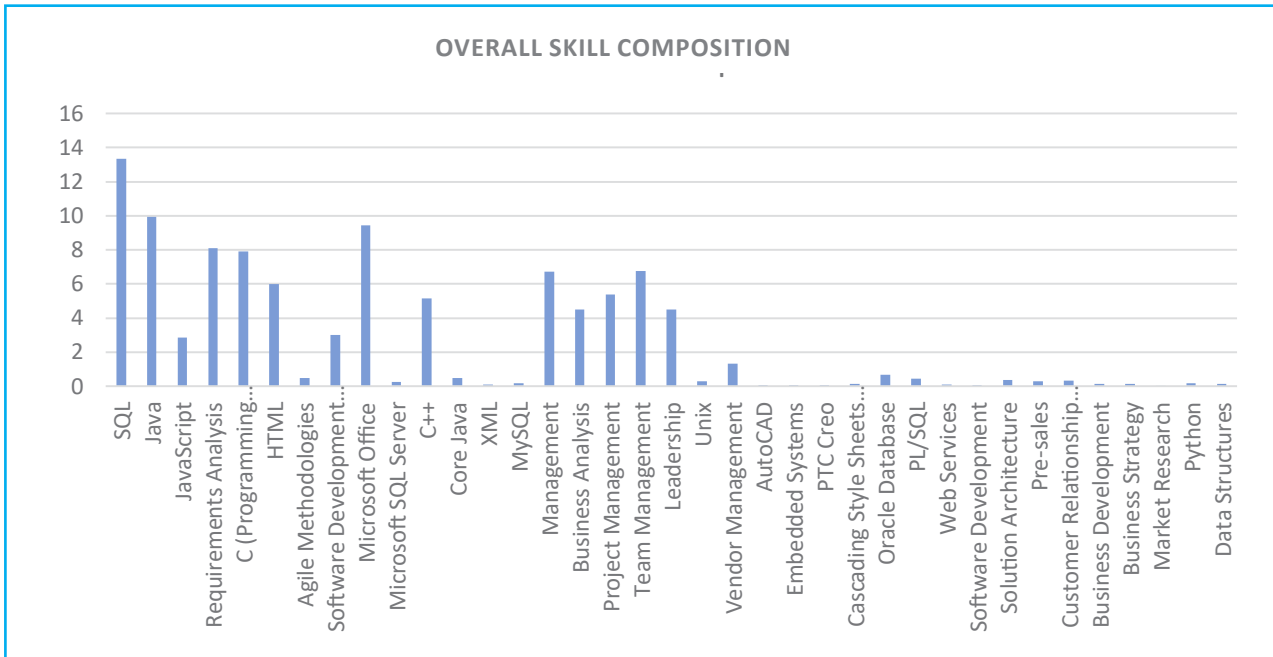
Figure 16.5



Source: LinkedIn

<sup>99</sup>Inc42 Indian Tech Startup Funding Report 2018

Figure 16.6



Source: LinkedIn

### 16.3 The Indian IT/ITeS employee

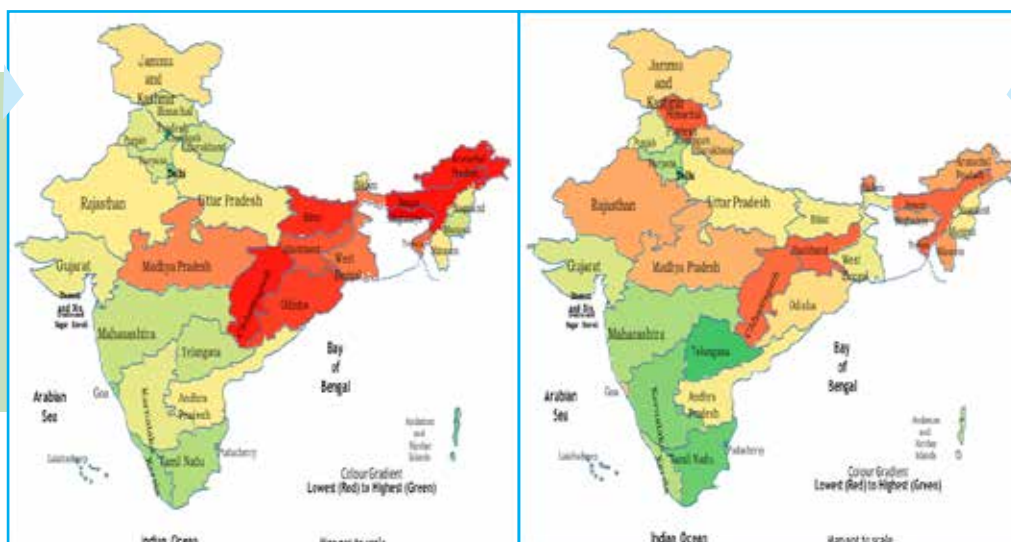
A typical software worker in India is a young male; hails from an urban and a semi-urban background; and belongs to the upper socio-economic stratum of the society. He holds an undergraduate engineering degree, not necessarily in computer science. He is trained by the employers as per the needs of the Western market, and works for longer hours than required. He earns more than his counterparts in the other industries, and is promoted periodically based on work experience.

This is the description of a typical Indian IT workers as set out in 'Is Indian Software workforce a case of uneven and combined development?' (Vigneswara Ilavarasan 2007).

In the engineering fields, most popular courses are electrical and electronics engineering and electrical, electronics and communications engineering. Physical sciences, Physics, Mathematics and Chemistry are also not unheard of courses to be done for a job in the sector.

In the matter of skills, most of these companies have people who know MySQL, Java, C programming language, C++ and Microsoft Office. Traditional programming languages have the highest share of skill base. Some skills are particular to a few companies. For example, the knowledge of Oracle database is there among the employees working for Mphasis, Oracle, 3i Infotech Ltd., NIIT Technologies Ltd. and Zensar technologies but not among the rest. Requirements analysis is another skill that stands out.

Figure 16.7



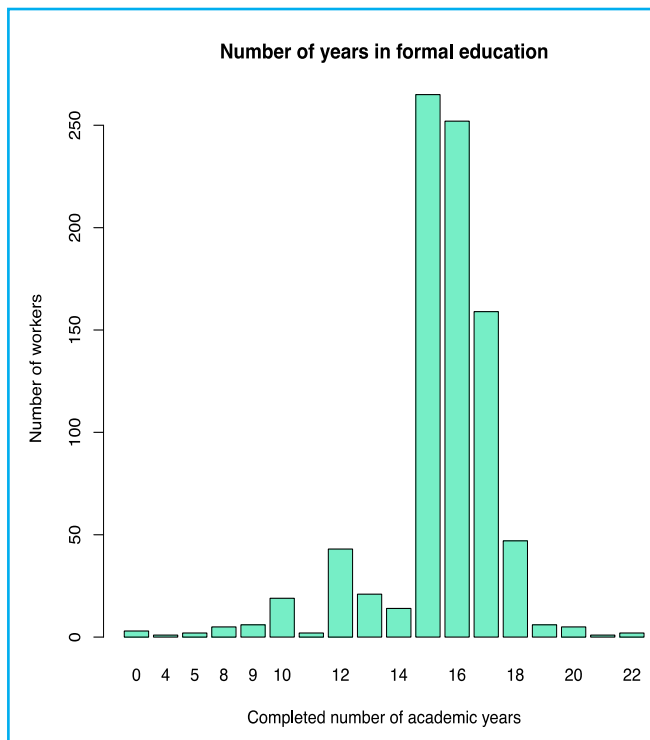
Heat map showing literacy rates (only for diploma/Certificate course, graduate and post graduate and above) (Age: 15 and above) Source: Annual Report, PLFS, 2017-18

Heat map showing percentage distribution of workforce (by usually working status) Source: Annual Report, PLFS, 2017-18 Percentage of workforce employed in section J of NIC 2008

Roles in the sector are highly skill-intensive. Some minimum level of formal schooling is a pre-requisite to working in the sector. In the heat maps in Figure 8, we can see a similarity between the distribution of the workforce and the technical or post school level education distribution. Southern India, where the majority of the workforce hails from, turns out to be where the majority of the work is being done. Data from the Periodic Labour Force Survey (2017-18) finds that the largest fraction of labour force has completed at least 15 years of formal schooling.

The Indian English-speaking population is both a boon and a bane for the sector. It is a boon because it was one of the main reasons why firms in the United States and UK chose to outsource to Indian workers rather than anyone else providing cheap labour, for example, China. However, it also proves to be an impediment to people who cannot afford the fees of private schools, usually the main centres where the Indian population learns English. "Usually companies would avoid taking work from Latin countries due to the prevalence of Spanish there. It acts as a language barrier. The company would require a parallel Spanish workforce," says a sector expert. "Without the knowledge of English, it would be very difficult to survive in the industry," iterates another industry professional.

Figure 16.8



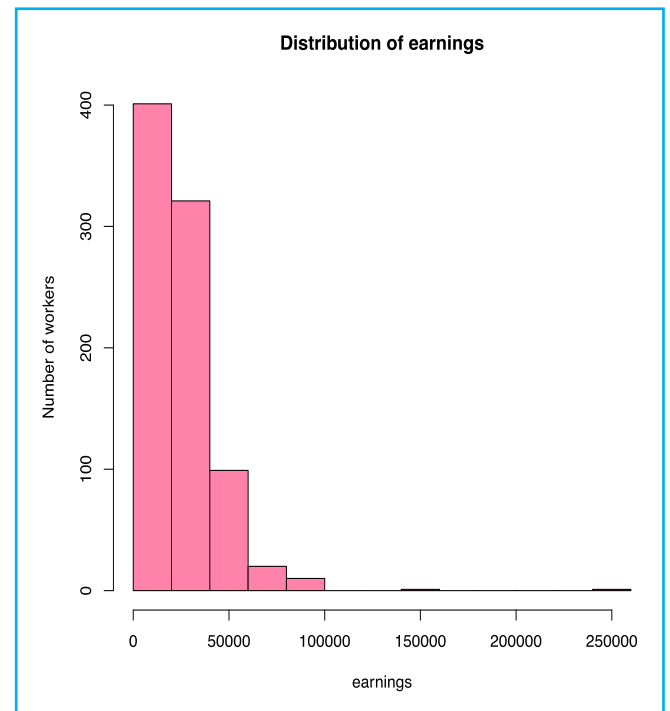
Source: PLFS 2017-18.

In the online survey with 33 industry professionals, 26 reported that knowledge of the language ranges from somewhat important to indispensable. Sector experts emphasize that the importance of soft skills becoming more and more

highlighted- "If you are not able to present your work or talk about your work effectively among the team, it effects (your performance). If you are not able to communicate what you are going to do, if you are not able to present your ideas, your thoughts, you certainly will be left behind. The person who has good communication skills, they are making their mark in a much better way than those who don't. Effective communication is certainly going to play a key prominent role."

Data from PLFS 2017-18 allows us to take look at the earnings of the workers according to the particular field in which they are working. It can be noted that some fields are in particularly poorly paid. For example, publishing of operating business and other applications (Code 58202) is rather poorly paid with the highest earning being in the range of Rs. 35,000 per month. Jobs like software installation, software support and maintenance, writing, testing and modifying of computer program and other computer service activities fetch better incomes ranging upto a lac per month.

Figure 16.9



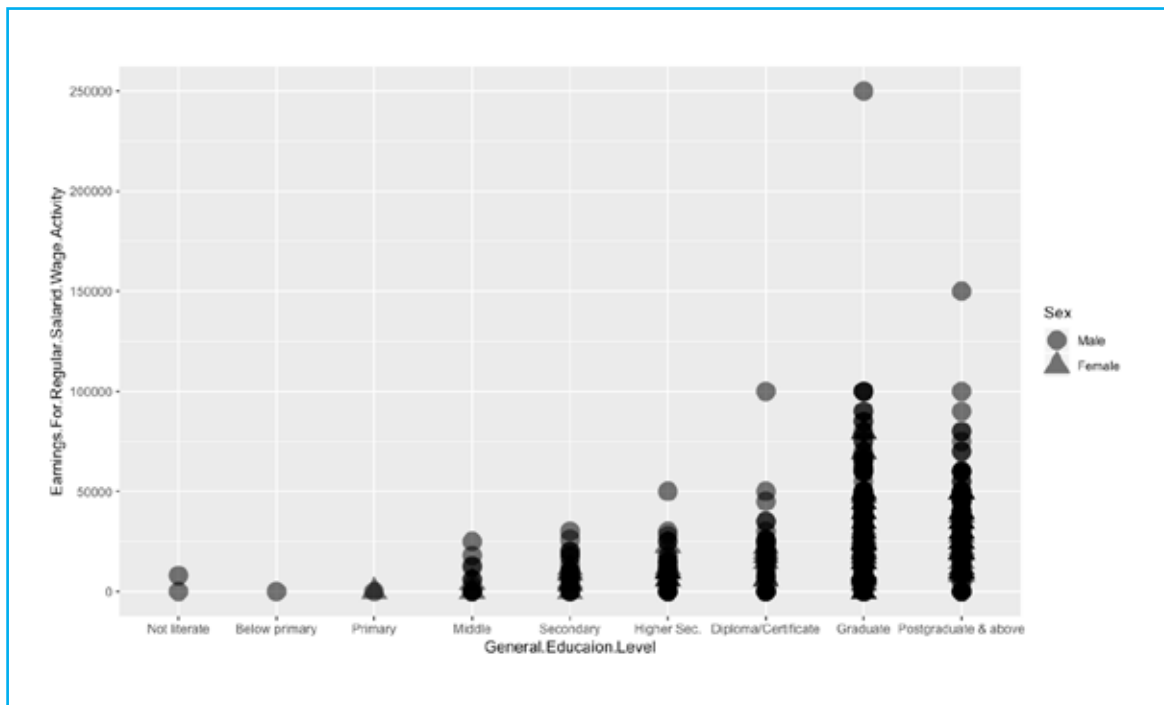
Source: PLFS 2017-18

A look at the overall distribution of earnings (Figure 10) gives us a hint that a small percentage also earns figures as huge as Rs. 150,000 to Rs. 250,000 per month. Most of the earnings, though, falls below Rs. 50,000 with a relatively small fraction also earning in the range of Rs. 50,000 to Rs. 1,00,000.

There is a slight advantage of being a male in the industry with males being better paid than females. (Figure 11) There is also a strong connection between the earnings of a worker and his education level. People at the lower rungs of the



Figure 16.10



Source: PLFS 2017-18

educational ladder are paid the least. Education upto a diploma can only fetch salaries of upto Rs. 50,000 per month. Higher studies though is not a guarantor of good earnings as, although the range expands, there are still a lot of graduates and post graduates who are paid low wages. Thus, graduation is a must but is not alone sufficient for earnings above half a lac rupees per month.

## 16.4 Skills

The question of skills is the more relevant and pressing question in the field of information technology. With some skills moving towards obsolescence and others coming to the fore, it has become very important to shift the discourse towards timely and mass skilling. So, what are the skills that are dying down? What skills are becoming more relevant? How does one acquire these skills?

In the online survey, the skills that received largest share of votes to be fading in relevance were:

1. Application Development/ Deployment/ Maintenance – 24.2%
2. Testing & QA – 36.4%
3. Infrastructure Management Services – 15.2%

4. Customer Relationship Management – 15.2%
5. Software testing – 27.3%
6. Hardware testing – 24.2%
7. Technical Documentation/ writing – 24.2%
8. Quality assurance and engineering – 18.2%
9. Technical Support – 27.3%

The skills that received largest share of votes to be expected to gain in relevance were:

1. Data Scientists – 69.7%
2. Information security – 36.4%
3. Application Development/ Deployment/ Maintenance – 27.3%
4. Business Process Analytics – 24.2%
5. IT Consulting – 24.2%
6. Testing & QA – 24.2%
7. Software Development – 33.3%
8. R&D – 21.2%
9. Solution Architecting – 21.2%

There are mixed signals for both application development/deployment and maintenance and Testing & QA. Demand for data scientists is overwhelmingly predicted to expand. Other skills that would continue to be relevant/ would gain relevance are software development, information security, etc.

## 16.5 Conclusions

The story of the IT industry is, thus, two-fold. Where on the one hand there is an excess of engineers with too little space to scam them all up due to twin problems of saturation and changing demand, on the other hand there is a shortage of talented professionals in the fields of machine/deep learning, artificial intelligence, blockchain, cloud computing and Internet of Things.

There is only one bridge that can gap the gulf that is opening up. That bridge is that of upskilling and reskilling. Using that, members from this overcrowded ship can cross over to the other side where there are a lack of sailors. However, in order for this need of reskilling to be realized, initiatives need to be taken not just by the employees, but by the employers, government, industry conglomerations, and academia.

A second important conclusion is that the answer to the job saturation in the IT sector is provided by the tech-enabled start up culture in India. It is the third largest start up ecosystem in the world. With growing number of start ups spanning many verticals (and entering new ones), the demand for data scientists, software developers and cy-

ber security experts are expected to touch sky high.

Thirdly, the working environment in IT is relatively good. Not a lot of high tech work is done by Indian service providers though the shift towards more complex jobs is currently underway. There is slight male bias in earnings but the representation of women is better than most other industries. The sector is mostly located in urban areas and employs a young working population.

The predictions for the sector by different agents- NASSCOM, the government is similar and optimistic. The job seeker is strongly recommended to equip herself/himself with tools like Big data analysis, machine learning, cloud computing and so on to make herself/himself relevant for the coming decade or two.

The bleak picture that is painted about the impact of automation on jobs seems to be, largely, misplaced. Tasks are going to be changed, and jobs are going to evolve. But they have evolved in the past too and several groans were heard then too. It is upon the government and the industry participants to address the groans and ensure a smooth transition. But the change, in itself, cannot and should not be put to question. For what are we doing, if we don't evolve?



# 17 REFERENCES

- (n.d.). Retrieved from <https://economictimes.indiatimes.com/news/politics-and-nation/life-expectancy-in-india-improves-marginally/long-live-india/slideshow/71051028.cms>
- (MoSPI), M. o. (n.d.). Labor and Employment. Retrieved from Statistical Year Book India: [http://mospi.nic.in/sites/default/files/Statistical\\_year\\_book\\_india\\_chapters/Labor%26Employment.pdf](http://mospi.nic.in/sites/default/files/Statistical_year_book_india_chapters/Labor%26Employment.pdf)
- Abraham, R. (2016). *Informal Employment In India: An Analysis Of Forms And Determinants*. Bangalore, India: The Institute for Social and Economic Change.
- al, A. B. (2018). *State of Working India 2018*. Bangalore India: Azim Premji University.
- al, D. D. (2019). *The State of Employment in India*. New Delhi: OXFAM India.
- Amit Basole, A. J. (2018). *State of Working India 2018*. Bangalore India: Azim Premji University.
- Anant Gupta, G. K. (2019). *Emerging Technologies: Changing how we live, work and play*. Ernst and Young, The Mint.
- Arun, A. (2011). *Labor and Employment Laws of India 2011*. Retrieved from [www.adapt.it](http://www.adapt.it): [http://adapt.it/adapt-index-a-z/wp-content/uploads/2014/09/Labor\\_Employment\\_Laws\\_India.pdf](http://adapt.it/adapt-index-a-z/wp-content/uploads/2014/09/Labor_Employment_Laws_India.pdf)
- Bhagat, R. (September 2017). *Migration and Urban Transition in India: Implications for Development*. United Nations Expert Group Meeting On Sustainable Cities, Human Mobility And International Migration. New York: United Nations.
- Diya Dutta, S. G. (2019). *The State of Employment in India*. New Delhi: OXFAM India.
- EconomicTimes. (2018, June 04). *ET Online*. Retrieved from Economic Times, Bennet Coleman and Company: <https://economictimes.indiatimes.com/jobs/only-6-of-those-passing-out-of-indias-engineering-colleges-are-fit-for-a-job/articleshow/64446292.cms>
- EconomicTimes. (2019, June 01). *ET Bureau Jobs*. Retrieved from The Economic Times, Bennet Coleman and Company: <https://economictimes.indiatimes.com/jobs/indias-unemployment-rate-hit-6-1-in-2017-18/articleshow/69598640.cms>
- Entrepreneur.com. (2019). *Telecommuting Definition*. Retrieved from Entrepreneur India: <https://www.entrepreneur.com/encyclopedia/telecommuting>
- Ernst and Young, N. (2017). *Future of Jobs in India: A 2022 Perspective*. NASSCOM, FICCI, E&Y.
- Forum, W. E. (2018). *The Future of Jobs Report*. Geneva: World Economic Forum.
- Hussmans, R. (December 2004). *Measuring the informal economy: From employment in the informal sector to informal employment*. Policy Integration Department Bureau of Statistics International Labor Office Geneva .
- ILO. (2010). *India Country Brief - International Labor Organization*. Washington DC: International Labor Organization.
- IMAIndia. (2017). *The India Employment Report*. IMA India.
- Ingilizian, J. J. (2019). *Future of Consumption in Fast-Growth Consumer Markets: INDIA*. Geneva: World Economic Forum and Bain and Company.
- Initiatives taken for worker welfare in India. (2016, December 28). Retrieved from Best Current Affairs: <https://www.bestcurrentaffairs.com/initiatives-taken-workers-welfare-india/>
- Jha, S. (2019, May 31). *Economic Policy Article*. Retrieved from Business Standard: [https://www.business-standard.com/article/economy-policy/job-crisis-for-real-as-unemployment-hits-6-1-highest-in-45-years-119053101462\\_1.html](https://www.business-standard.com/article/economy-policy/job-crisis-for-real-as-unemployment-hits-6-1-highest-in-45-years-119053101462_1.html)
- Jonathan Woetzel, A. M. (April 2017). *India's Labor Market: A New Emphasis on Gainful Employment*. McKinsey Global Institute, McKinsey and Company.
- Kale, S. (2019, July 01). *The Changing Nature of Jobs*. Retrieved from The Economic Times/ Bennet Coleman and Company: <https://economictimes.indiatimes.com/blogs/arta/the-changing-nature-of-jobs/>
- Kapoor, R. (September 2019). *TIF - Understanding India's Jobs Challenge*. The India Forum.
- Krishnan, V. B. (2019, July 04). *How the Nature of the Indian Families is Changing*. Retrieved from TheHindu.com: Over half the unmarried women aged 25-54 are part of the labor force. This proportion halves when they are married, possibly due to family constraints or requirements. A higher % of married men than single men are part of the labor force, which means th

Life expectancy in India improves marginally. (2019, September 10). Retrieved from The Economic Times/ Bennet Coleman and Company: <https://economictimes.indiatimes.com/news/politics-and-nation/life-expectancy-in-india-improves-marginally/long-live-india/slideshow/71051028.cms>

Loubier, A. (2017, July 20). Benefits Of Telecommuting For The Future Of Work. Retrieved from Forbes.com: <https://www.forbes.com/sites/andrealoubier/2017/07/20/benefits-of-telecommuting-for-the-future-of-work/#517f523116c6>

Mahapatro, S. R. (2012). The Changing Pattern of Internal Migration in India: Issues and Challenges. European Population Conference. Stockholm: Princeton University.

Minds, A. (2016). National Employability Report. Aspiring Minds.

National Statistical Survey Office, M. o. (July 2017 - June 2018). Annual Report - Periodic Labor Force Survey. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.

Nuclear families decline in urban, increase in rural India. (2017, July 06). Retrieved from Developmentchannel.org: <https://www.developmentchannel.org/2017/07/06/nuclear-families-decline-in-urban-increase-in-rural-india/>

Phillpott, S. (2017, November 07). 13 disappearing jobs that won't exist in 2030. Retrieved from careeraddict.com: <https://www.careeraddict.com/disappearing-jobs>

Pramit Bhattacharya, S. D. (2018, November 21). The Geography of Employment in India. The Mint/Live Mint/ The Hindustan Times. New Delhi, New Delhi, India: <https://www.livemint.com/Politics/LNUBeGGZYurm8UrXGSojCP/The-geography-of-employment-in-twentyfirst-century-India.html>.

Raveendran, J. K. (April 2009). The Challenge of Employment in India. NATIONAL COMMISSION FOR ENTERPRISES NATIONAL COMMISSION FOR ENTERPRISES NATIONAL COMMISSION FOR ENTERPRISES NATIONAL COMMISSION FOR ENTERPRISES IN THE UNORGANIZED SECTOR .

Report, P. (2014, November 08). 50% of occupations today will no longer exist in 2025: Report. Retrieved from Business Standard: [https://www.business-standard.com/article/pti-stories/50-of-occupations-today-will-no-longer-exist-in-2025-report-114110701279\\_1.html](https://www.business-standard.com/article/pti-stories/50-of-occupations-today-will-no-longer-exist-in-2025-report-114110701279_1.html)

Roy, S. (2018, January 20). On Recent Employment Trends in India. NewsClick.in. New Delhi, New Delhi, India: <https://www.newsclick.in/recent-employment-trends-india>.

S, R. (2019, February 19). <https://www.livemint.com/news/india/great-indian-family-doesn-t-help-working-women-1550524334031.html>. Retrieved from livemint.com: <https://www.livemint.com/news/india/great-indian-family-doesn-t-help-working-women-1550524334031.html>

Saigal, M. (2019, March 11). India: a temporary workforce hotspot. Retrieved from Deccan Herald: <https://www.deccanherald.com/opinion/panorama/india-a-temporary-workforce-hotspot-722705.html>

Saunak Ghoshal, I. M. (2017). Leveraging Emerging Digital Technologies For India's transformation. Delhi NCR: PricewaterhouseCoopers.

Sharma, A. N. (2016, March 10). Labor Regulation in India: Emerging Perspectives For Reform. Institute For Human Development Journal. New Delhi, Delhi, India: International Labor Organization.

Sharma, S. (2000). India Vision 2020; Employment Vision 2020. New Delhi: Planning Commission.

Sharma, Y. S. (2019, August 02). Parliament passes Wage Code Bill to ensure minimum wage for workers . Retrieved from economictimes.indiatimes.com: <https://economictimes.indiatimes.com/news/economy/policy/rajya-sabha-passes-wage-code-bill/articleshow/70501009.cms?from=mdr>

Shashank Tripathi, A. M. (n.d.). Future of India The Winning Leap. Delhi NCR: PricewaterhouseCoopers.

Shirke, A. S. (2014). An Analysis of the Informal Labor Market in India. Confederation of Indian Industry.

Singh, J. P. (2009). United Nations Paper on Problems of India's Changing Family and State Intervention . Retrieved from United Nations Department of Economic and Social Affairs: <https://www.un.org/esa/socdev/family/docs/egm09/Singh.pdf>

Suchi Kedia, S. G. (2018, October 05). Here's what young Indians really want from life. Retrieved from World Economic Forum: <https://www.weforum.org/agenda/2018/10/here-s>

what-young-indians-really-want-from-life/

Surjit Bhalla, T. D. (2005-06). Pre and Post-Reform India: A revised look at Employment, Wages and Inequality. India Policy Forum, pp. 183-254.

Tafsir, E. (2019, March 01). The curious case of rising working age population and falling labor force in India. Retrieved from The Financial Express: <https://www.financialexpress.com/economy/the-curious-case-of-rising-working-age-population-and-falling-labor-force-in-india/1502256/>

Telecommuting Can Save Businesses Money. (n.d.). Retrieved from Ohio University: <https://onlinemasters.ohio.edu/blog/how-telecommuting-can-save-businesses-money/>

Thakur, A. (2019, July 22). India Enters 37-year period of demographic dividend. Retrieved from The Economic Times/ Bennet Coleman and Company: <https://economictimes.indiatimes.com/news/economy/indicators/india-enters-37-year-period-of-demographic-dividend/articleshow/70324782.cms?from=mdr>

Tortajada, A. K. (2019, April 17). India's demographic dividends could be a boon - or bane. Retrieved from Business Times.com Singapore: <https://www.businesstimes.com.sg/opinion/indias-demographic-dividends-could-be-a-boon-or-bane>

Xavier Estupiñan, P. B. (2018). India Wage Report. International Labor Organizati

<sup>i</sup> S.7, Micro, Small and Medium Enterprises Development Act, 2006.

<sup>ii</sup> Manish Kumar, The 3 challenges to skill development in India – and how to tackle them, World Economic Forum, <https://www.weforum.org/agenda/2019/10/india-skill-development-programme/>

<sup>iii</sup> International Finance Corporation, Financing India's MSMEs, November 2018.

<sup>iv</sup> Pradhan Mantri Mudra Yojana Annual Performance Report 2018-2019 url: <https://www.mudra.org.in>

<sup>v</sup> Ministry of Micro, Small and Medium Enterprises, *Annual Report 2018-2019*.

<sup>vi</sup> National Sample Survey Office, Ministry of Statistics and Programme Implementation, Government of India, NSS 73rd Round, Key Indicators of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, July 2015-June 2016.

<sup>vii</sup> Venkatraman Anantha Nageswaran, Gulzar Natarajan, India's Quest for Jobs: A Policy Agenda, Paper, Carnegie India, 09.10.2019, url: <https://carnegieindia.org/2019/10/09/indias-quest-for-jobs-policy-agenda-pub-79967>

<sup>viii</sup> Ibid vi.

<sup>ix</sup> Ibid vi.

<sup>x</sup> Ibid iii.

<sup>xi</sup> John Haltiwanger, Ron S. Jarmin, and Javier Miranda, *Who Creates Jobs? Small Versus Large Versus Young*, Review of Economics and Statistics XCV, 2 (2013): 347–361, [http://www.mitpressjournals.org/doi/pdf/10.1162/REST\\_a\\_00288](http://www.mitpressjournals.org/doi/pdf/10.1162/REST_a_00288).

<sup>xii</sup> Ejaz Ghani, Stephen D. O'Connell and Gunjan Sharma, 'Friend or Foe of Family? A Tale of Formal and Informal Plants in India. WB Working Paper No.6588, September 2013

<sup>xiii</sup> World Bank, India Development Update: India's Growth Story, World Bank Group, New Delhi, March, url: <http://documents.worldbank.org/curated/en/814101517840592525/India-development-update-Indias-growth-story>

<sup>xiv</sup> India Development Foundation, Reassessing the impact of demonetisation on agriculture and informal sector, January 2017, url: [https://www.idfresearch.org/uploads/R\\_a\\_c\\_e/1546941125\\_7201701304321.pdf](https://www.idfresearch.org/uploads/R_a_c_e/1546941125_7201701304321.pdf)

<sup>xv</sup> Edel Pulse, Demonetisation, December 2016, url: [https://vakrangee.in/data/analyst\\_coverage/Edelweiss%20Research\\_002.pdf](https://vakrangee.in/data/analyst_coverage/Edelweiss%20Research_002.pdf)

<sup>xvi</sup> ASSOCHAM, Innovative Financial Solutions for MSMEs, October 2018, url: [https://www.resurgentindia.com/pro\\_bfloors/services\\_img/pdf\\_teders/1868771320Innovative%20Financial%20Solutions%20for%20MSMEs.pdf](https://www.resurgentindia.com/pro_bfloors/services_img/pdf_teders/1868771320Innovative%20Financial%20Solutions%20for%20MSMEs.pdf)

<sup>xvii</sup> Report of the Expert Committee on MSMEs, RBI, 25.06.2019 url: <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924#CH2>

<sup>xviii</sup> Economic Survey 2018-2019 url: [https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap03\\_vol1.pdf](https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap03_vol1.pdf)

<sup>xix</sup> National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India, Periodic Labor Force Survey, July 2017-June 2018,

<sup>xx</sup> Ministry of Skill Development and Entrepreneurship, Report of the Committee for the Rationalisation and Optimisation of the Functioning of Sector Skills Councils, December 2016, url: <https://www.msde.gov.in/assets/images/ssc-reports/SSC%20Vol%20I.pdf>

<sup>xxi</sup> FICCI and KPMG, Skilling India Report, url: <http://fikki.in/spdocument/20405/FICCI-KPMG-Global-Skills-report.pdf>

<sup>xxii</sup> Ibid xiv.

<sup>xxiii</sup> Charity Troyer Moore, Rohini Pande, Soledad Artiz Prillaman, Vocational training programs in India are leaving women behind, but this needn't be the case, <https://www.theigc.org/blog/vocational-training-programs-india-leaving-women-behind-neednt-case/>



- <sup>xxiv</sup> Labor force participation rate, female (% of female labor force participation ages 15+), World Bank World Development Indicators, 2018 url: <https://data.worldbank.org/indicator/SL.TLECACT.FE.ZS>
- <sup>xxv</sup> Yamini Tandon and Daniela Yu, India's Big Problem: Nurturing Entrepreneurs, Gallup Business Journal, 1.08.2012, url: <https://news.gallup.com/businessjournal/156143/india-big-problem-nurturing-entrepreneurs.aspx>
- <sup>xxvi</sup> Santosh Mehrotra and Ashutosh Pratap, *Skill India urgently needs reforms*, Business Standard, 6.04.2018, url: <https://www.thehindu.com/opinion/lead/skill-india-urgently-needs-reforms/article23447258.ece>
- <sup>xxvii</sup> PTI, Vocational education mostly ineffective in India: Survey, The Economic Times, url: <https://economictimes.indiatimes.com/industry/services/education/vocational-education-mostly-ineffective-in-india-survey/articleshow/63098719.cms?from=mdr>
- <sup>xxviii</sup> British Council, ILO, Skills Assessment in India, October 2014 url: [https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new\\_delhi/documents/publication/wcms\\_346824.pdf](https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_346824.pdf)
- <sup>xxix</sup> Report of the Expert Committee on MSMEs, RBI, 25.06.2019 url: <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924#CH2>
- <sup>xxx</sup> Ibid iii.
- <sup>xxxi</sup> Ibid iii.
- <sup>xxxii</sup> Ibid iii.
- <sup>xxxiii</sup> Ila Patnaik and Radhika Pandey, Savings and Capital Formation in India, NIPFP WP Series No. 271, 10.06.2019, url: [https://www.nipfp.org.in/media/medialibrary/2019/06/WP\\_271\\_2019.pdf](https://www.nipfp.org.in/media/medialibrary/2019/06/WP_271_2019.pdf)
- <sup>xxxiv</sup> MSME PULSE, October 2019, url: [https://sidbi.in/files/announcements/MSME%20PULSE%20OCTOBER%202019\\_Edition%207.pdf](https://sidbi.in/files/announcements/MSME%20PULSE%20OCTOBER%202019_Edition%207.pdf)
- <sup>xxxv</sup> Ibid xxxiv.
- <sup>xxxvi</sup> Ibid xxxiv.
- <sup>xxxvii</sup> Ibid xx.
- <sup>xxxviii</sup> Ibid xi.
- <sup>xxxix</sup> Ibid iv.
- <sup>xl</sup> Dheeraj Mishra, *NPAs under Modi's MUDRA scheme more than doubled to Rs. 9204 cr in 1 year : RTI*, Business Standard, 24.06.2019 url: [https://www.business-standard.com/article/economy-policy/npas-under-modi-s-mudra-scheme-doubled-to-rs-9-204-cr-in-just-1-year-rti-119062400108\\_1.html](https://www.business-standard.com/article/economy-policy/npas-under-modi-s-mudra-scheme-doubled-to-rs-9-204-cr-in-just-1-year-rti-119062400108_1.html)
- <sup>xli</sup> Anne O. Krueger, *The Missing Middle*, Stanford King Center on Global Development, Working Paper no. 343, May 2007, <http://scid.stanford.edu/publications/missing-middle>; and *Finance and the Missing Middle*, Entrepreneurial Finance Lab, Center for International Development, Harvard University, 2008, <https://sites.hks.harvard.edu/cid/efl/finance.html>
- <sup>xlii</sup> Ibid xvii.
- <sup>xliiii</sup> Ibid xvii.
- <sup>xliiii</sup> Ibid iii.
- <sup>xliiii</sup> Ibid iii.
- <sup>xliiii</sup> International Center for Women, *Gender Issues in the MSME sector in India*, August 2014, url: <https://openknowledge.worldbank.org/bitstream/handle/10986/28531/119304-WP-IN-TF013641-Gender-in-MSME-Aug-2014-PUBLIC.pdf?sequence=1&isAllowed=y>





## **GRAMEEN FOUNDATION INDIA**

E- 86, LGF, Sun City, Sector 54, Golf Course Road,  
Gurugram- 122011, Haryana, India.

Website: [www.GrameenFoundation.in](http://www.GrameenFoundation.in) ;

Twitter @GrameenInd