



Inclusive Future of Work Republic of India

Country brief prepared for the 1st EWG under the 2019 Brazilian presidency
of the BRICS

August 2019

Contents

Abstract.....	1
Introduction	2
Main drivers of the future of work and expected developments	3
Opportunities and challenges for workers, enterprises and labour institutions.....	6
Policy responses.....	10
Conclusion.....	14
Bibliography.....	15

Abstract

India remains the fastest-growing major economy in the world with annual GDP growth at 6.8 per cent. However, the rising unemployment rate despite falling labour force participation in 2017-18 is a concern. High levels of informality in the economy continue to be a persistent issue. Almost 92 per cent of the population is employed in the informal sector and its numbers have swelled in the organized sector in recent years as a result of globalisation and new technologies. The vulnerability of workers is also expected to increase due to global warming.

Current policy priorities to increase economic growth and generate decent work, taking into consideration future of work drivers, are to attract private investment; reorient policies for MSME growth; redesign the minimum wage setting system; reform labour laws; and promote use of technology to facilitate the transition to a digital economy. While economic growth is primarily driven by the services sector, India is now focussing on boosting the manufacturing sector with the adoption of a new industrial policy.

The future of work in India will be determined by the country's response to the impact of four primary drivers: globalization, demographic and climate changes and the adoption of new technologies by Indian economic units, in particular in agriculture and manufacturing. Sectors need to focus on rapidly restructuring their production and business models in light of these drivers to ensure competitiveness and also to drive large scale reskilling of the existing workforce. Reform of labour administration, which will be reflective of new emerging forms of employment as well as act as a catalyst for competitiveness, will be essential.

Introduction

Home to around 1.3 billion people, India alone comprises of 18 per cent of the global population and will be the most populous country in the world by 2030.¹ The past two decades have shown rapid economic growth averaging 7.2 per cent between 1998 and 2018.² With economic growth, incomes of the working population have on average risen, contributing to significant progress in poverty alleviation. The estimated share of workers in extreme poverty declined from 42 per cent in 1998 to 13.4 per cent in 2018.³ As a result of rising household incomes and as one of the world's largest populations, India is set to play an increasingly important role in the global economy, both as a producer and a consumer.

However, the recent growth trends show a decline due to sluggish domestic demand. The IMF has cut India's growth forecast to 7 per cent for 2019⁴. Further, the Periodic Labour Force Survey (PLFS)⁵ for 2017-18 also reveals slow job growth in the non-agriculture sectors. Male youth unemployment rose to 18.7 per cent from 8.1 per cent in 2011-12, while for females it rose to 27.2 per cent from 13.1 per cent in 2011-12. Between 2011-12 and 2017-18, labour force participation rate for rural and for urban males decreased by nearly 3 and 2 percentage points respectively, while it decreased by about 7 percentage points for rural females and remained at the same level for urban females.

India continues to be driven by the services sector. Agriculture and industry continue to be pressure points. The predominance of firms that are both small and older than ten years⁶ – half of all the firms in organized manufacturing – is a persistent issue. Their share in employment is only 13.3 per cent. An average firm in India only employs 40 per cent more workers when it is forty years old compared to when it was less than five years old.⁷ The overall push for entrepreneurship through schemes such as Start-Up⁸ India, which to date has reported 21,079 new businesses since 2016 in addition to online coaching support to more than 0.2 million aspirants, are also beginning to positively impact jobs and opportunities for livelihood.

¹ UNDESA, World Population Prospects: The 2017 Revision, online data; available at: <https://population.un.org/wpp/DataQuery/> [Accessed 22 May 2019].

² Author's calculations based on GDP growth (annual %, constant prices), International Monetary Fund, World Economic Outlook Database, April 2019; available at: <https://www.imf.org/external/pubs/ft/weo/2019/01/weodata/index.aspx> [Accessed 30 May 2019].

³ Working poverty rate (percentage of employed living below US\$1.90 PPP), ILOSTAT; available at: <https://www.ilo.org/ilostat/> [Accessed 21 May 2019].

⁴ IMF, World Economic Outlook Reports: Still Sluggish Global Growth; available at: <https://www.imf.org/en/Publications/WEO/Issues/2019/07/18/WEUpdateJuly2019> [Accessed 23 July 2019]

⁵ Annual Report: PLFS, 2017-18; available at: <http://mospi.nic.in/publication/annual-report-plfs-2017-18> [Accessed 15 July 2019].

⁶ Economic Survey 2018-19, Volume 1, available at: https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap02_vol1.pdf [Accessed 15 July 2019].

⁷ Ibid.

⁸ See for details : www.startupindia.gov.in

Lingering structural and societal challenges pose a risk of accentuating decent work deficits and increasing vulnerable employment, currently at 77 per cent⁹, despite strong job creation in some ICT-intensive services. This is because a significant portion of the jobs created in the services sector over the past couple of decades have been in traditionally low value added services, where informality and vulnerable forms of employment are often dominant.

In addition, the country faces a massive gender pay gap. The earnings of a male regular wage/salaried employee are 1.2-1.3 times that of a female one; and self-employed men earn twice as much as self-employed women¹⁰. Not all workers in India have secure employment despite working an average of 50 hours a week. Among regular wage earners/salaried employees in the non-agriculture sector, close to 50 per cent are not eligible for any social security benefit.

More people are moving away from agriculture sector jobs to services, but agriculture still employs the most people in India, accounting for 44 per cent of all jobs. Given India's large investments in highways, renewable energy, urban transport, shipping, affordable housing, smart cities, sanitation, rural roads, national waterways, airports and industrial corridors, infrastructure has become one of the largest creators of jobs in the country. At the same time, informal employment in sectors such as infrastructure and retail is extremely large. Almost three in four workers were in informal employment, according to the latest ILO estimates (ILO, 2018a).

Low pay and wage inequality along with the relatively high unemployment rate remain serious challenges to the achievement of decent working conditions and inclusive growth¹¹. Any discussion on the future of work in the country should take place in the context of this changing job landscape. These challenges need to be addressed through policies that support workers and economic units that are adversely affected by climate change, technological change, globalisation and other future of work drivers.

Main drivers of the future of work and expected developments

Technological changes

The growth of e-commerce and technology-based sectors¹² is leading to the creation of new job ecosystems, which are becoming a large source of employment. India has the second-fastest growth rate of digital adoption amongst 17 leading economies of the world. India's digital divide is narrowing fast as less developed states and rural pockets leapfrog to catch up with more progressive regions. According to an analysis by the Ministry of Electronics and Information Technology, India could generate up to \$1 trillion

⁹ Modelled ILO estimate, ILOSTAT database; available at: <https://ilostat.ilo.org/> [Accessed 18 July 2019].

¹⁰ Annual Report: PLFS, 2017-18; available at : <http://mospi.nic.in/publication/annual-report-plfs-2017-18> [Accessed 15 July 2019].

¹¹ ILO, 2018c. (Note : The estimate from the periodic labour force survey 2018 is significantly higher than the ILO estimate based on the national sample survey 2011-12 due to the application of a different measurement criterion).

¹² NASSCOM Report (2019) : "FutureSkills"; available at: https://www.nasscom.in/sites/default/files/FutureSkills_An_Industry_Response.pdf [Accessed on 25 July 2019].

of economic value from the digital economy by 2025, if the country successfully realises its digital vision. These economic gains would come alongside the creation of 60 to 65 million jobs. Some 40 to 45 million workers would, however, need retraining and be redeployed as digital technologies reshape their current work.¹³

The wave of digital transformation has also empowered women in many ways. These include helping women find opportunities for gainful employment, one of the key areas where they lag behind their counterparts in peer countries. For example, the business-process outsourcing (BPO) industry in India employs some 4 million workers and about 30 percent of them women.¹⁴

Over the last few decades, India has seen a transformation of its economy largely due to the success of its information technology (IT) industry. As the world's largest sourcing destination of the IT industry, it is often assumed that the country is now well poised to reap the rewards of the current technological revolution. India in 2017 had close to four million IT professionals, and is expected to create an additional 2.5-3 million jobs in the sector by 2025.¹⁵ In 2017, India's exports in IT services accounted for more than 40 per cent of all of its service exports and 16 per cent in total exports.¹⁶ However, in order to leverage and consolidate its position, India will have to ensure that it moves up the value chain in the global ICT service market, which will likely require large scale capacity building and augmentation through skilling, up-skilling, and re-skilling drives as well as much higher spending on R&D—which has remained stagnant around the 0.6-0.8 per cent of GDP mark in the last two decades.¹⁷

Considering that more than 50 per cent of the working population is in agriculture, that farm size is shrinking and that per capita output is small, technology use in the agriculture sector will be critical. The emergence of farm technologies integrated with a robust information and communication technology (ICT) framework is still evolving in India, and it holds tremendous potential to both increase agricultural performance and enhance farmers' income.

Similarly, despite being the sixth-largest manufacturing country, a recent World Economic Forum global assessment of readiness for the future of production assessed the country's capacity to use innovative technology in its production systems. It ranked India as a "legacy" country, meaning it currently has a strong production base but is at risk for the future because of its low human capital stock and the lack of sustainable resources.¹⁸

¹³ 'India's Trillion-Dollar Digital economy', Ministry for Electronics and Information Technology (MEITY), GoI; available at : https://meity.gov.in/writereaddata/files/india_trillion-dollar_digital_opportunity.pdf [Accessed on 25 July 2019]

¹⁴ Ibid.

¹⁵ Ministry of Electronics & Information Technology: "Employment prospects in India's IT Sector: Robust Outlook", Press Release, 23 May 2017.

¹⁶ ILO World Employment and Social Outlook – Trends 2018; available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---/wcms_615594.pdf [Accessed 30 May 2019].

¹⁷ Economic Survey of India -2018, available at : mofapp.nic.in:8080/economicsurvey/; [Accessed 30 May 2019]

¹⁸ Report "Readiness for the Future of Production Report 2018", available at : www3.weforum.org/docs/FOP_Readiness_Report_2018.pdf [Accessed on 27 July 2019]

Demographics

India has a large share of youth in its population but is also starting to age. The median age of the labour force in India is projected to increase from 38.4 years in 2020 to 40 by 2030.¹⁹ By 2050, India will have 3.4 million people above 60 years of age.²⁰

At the same time, the working-age population (people aged 15 to 64) will grow by roughly 9.7 million per year during 2021-31 and 4.2 million per year in 2031-41. Depending on the trajectory of the labour force participation rate during 2021-41 – currently it is around 53 per cent for the age-group 15-59 years (80 per cent for males, 25 per cent for females) – a large number of additional jobs will need to be created to keep pace with this increase in the labour force.

While this places India favourably compared to some ‘hyper-aged’ societies, it is still important to note that the pace at which India is experiencing population ageing is significantly faster than what had occurred for the currently aged countries. It is projected that it will take India around 30 years to transition from an aged society to a ‘hyper-aged’ society, compared to countries like Australia or New Zealand in the Asia Pacific region, which both took more than 60 years to make the same transition.²¹

But ageing in India will occur at lower levels of per capita income compared to the experience of advanced economies. Given the situation, it is imperative to focus on India’s preparedness in terms of social security. Only about 35 million out of a labour force of 400 million have access to formal social security in the form of old-age income protection.²² Another important feature of the ageing process in India is the increasing feminisation of the elderly due to faster increase in life expectancy among females compared to males.

India has a large share of youth in its population but only 2.3 per cent of the Indian workforce has had formal skills training²³. The government’s recent skill gap analysis concludes that by 2022, another 109 million or so skilled workers will be needed in the 24 key sectors of the economy. In order to harness the productive potential of this youth dividend, the country will have to take significant steps to equip the youth, especially women, with market-responsive skills, while at the same time designing and implementing a macroeconomic framework that is favourable to innovation and job creation.

Finally, internal migration for work is central to India. It is highly circular, with migrants working in multiple destinations during their lifetimes and retiring in their places of origin. There are over a hundred million migrant workers in India²⁴, most of whom are

¹⁹ UNDESA, World Population Prospects: The 2017 Revision, online data; available at: <https://population.un.org/wpp/DataQuery/> [Accessed 22 May 2019].

²⁰ Chapter 7, Economic Survey of India 2018-19, Volume I; available at: https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap07_vol1.pdf [Accessed 16 July 2019].

²¹ A society is defined as “aged”, when the share of population aged 65+ lies between 7 and 14 per cent, and it is defined as “hyper-aged”, when this share is above 14 per cent. See ILO, forthcoming.

²² Report : Elderly in India – Profile and Programmes, 2016, MOSPI, GoI; available at: mospi.nic.in/sites/default/files/publication_reports/ElderlyinIndia_2016.pdf. [Accessed 23 July 2019]

²³ Skill India Mission available at <https://www.msde.gov.in/assets/images/Mission%20booklet.pdf> [Accessed on 20 July 2019]

²⁴ Economic Survey 2016-17; available at:

seasonal migrants. Social security coverage, in particular portability of benefits, in addition to infrastructure development to absorb this floating population is a priority for the country.

Climate change

The consequences of climate change are already being felt in India and are likely to result in more frequent extreme weather events that pose risks to livelihoods, food security, water supply, health, and economic growth (IPCC, 2018). The annual losses in India due to extreme weather events come to USD\$9-10 billion annually (ILO, 2018b).

India is particularly vulnerable to climate change because a large share of the population lives in rural areas and bases its livelihood on natural resources. Seasonal migration is a reality for people from regions that face frequent shortages of rainfall or experience floods.

India is projected to lose 5.8 per cent of working hours by 2030, a productivity loss equivalent to 34 million full-time jobs, due to heat stress related to global warming, particularly impacting the agriculture and construction sectors (ILO, 2019). This is expected to reinforce and worsen already existing poor working conditions for the most vulnerable.

Responding to climate change and making progress on the national commitment to transition to a low-carbon economy will result in a net gain of jobs. Approximately 3 million new “green” jobs could be created while around 259,000 existing jobs would be lost (ILO, 2018d). With growing attention to the transition to a low carbon economy and consequent investment in the energy sector, the renewable energy sector created 47,000²⁵ new jobs in India in 2017, employing 432,000 people. In all, 20 per cent of the more than 500,000 new green jobs created globally in 2017 were in India, numbering 100,000 and bringing to 721,000 the total number of Indians employed in the sector, when those working with large hydro-electric projects are included.

Opportunities and challenges for workers, enterprises and labour institutions

By 2022, technological and demographic changes will have the strongest employment impact. Over one-third of workers (37 per cent) will engage in jobs with radically changed skill sets and 9 per cent of India's 600 million workforce in new jobs that do not exist today²⁶.

Technological changes

As a major ICT service exporter, concerns about technological unemployment in this sector have raised alarms in India. In a country marked by low female labour force

<https://www.indiabudget.gov.in/budget2017-2018/es2016-17/echap12.pdf> [Accessed on 27 July 2019]

²⁵ Renewable Energy and Jobs: Annual Review 2019; IRENA; available at: https://www.irena.org/-/media/.../IRENA/Agency/.../IRENA_RE_Jobs_2019-report.pdf [Accessed on 28 June 2019]

²⁶ Future of Jobs in India; FICCI-NASSCOM-EY 2017; available at: <https://www.ey.com/.../ey-future-of-jobs-in-india/.../ey-future-of-jobs-in-india.pdf>; [Accessed on 13 July 2019]

participation, robots, artificial intelligence and other forms of automation are expected to place up to 12 million women in India at risk of losing their jobs by 2030.²⁷

The government, however, is confident of continued employment growth in the ICT sector and is promoting a positive macroeconomic environment to foster innovation. Research from multiple parties nevertheless indicates that low-skill service jobs—including in the ICT sector—are at risk of automation even though demand for high-skilled workers in the sector is expected to continue growing.²⁸ A major challenge for the Government of India will therefore be not simply to invest in skills development on a large scale, but also to support workers affected by technological disruption to transition to new jobs, including with adequate social protection.

India's agriculture sector could gain in productivity by increasing the level of farm mechanisation and use of new technologies. Farmers are beginning to adopt precision agriculture to optimize inputs and enhance yields. With growing rural to urban migration by men, an increasing number of women engage in multiple roles as cultivators, entrepreneurs and labourers. Initiating activities that specifically target women to ensure that benefits of various programs/schemes reach them and focusing on women's groups to connect them to micro-credit, to provide information and to ensure they are represented in different decision-making bodies will be critical.

The electronic waste sector may be developed as it is expected to create 450,000 direct jobs by 2025 and another 180,000 jobs in the allied sectors of transportation and manufacturing.²⁹ It is estimated that between 60 and 85 per cent of the country's e-waste continues to be handled by workers in the informal economy, which necessitates a strategy for transition to formality.

Emerging technologies pose regulatory challenges while also raising questions about the decent and sustainable nature of such work. This has been discussed mainly in relation to workers in digital labour platforms, including ride-hailing drivers.³⁰ The absence of clearly defined employment relationships, of any wage-setting mechanism, social protection and the ensuing difficulties in ensuring compliance with labour rights, have cast shadows on the promise of greater flexibility and independence that such work was expected to bring.³¹

²⁷Future of Women at Work 2019; McKinsey Global Institute; available at: <https://www.mckinsey.com/featured-insights/gender-equality/the-future-of-women-at-work-transitions-in-the-age-of-automation> ; [Accessed on 1 August 2019]

²⁸ See, for example, Ministry of Commerce & Industry: "Formulation of a new Industrial Policy", Press Release, 29 August 2017; Press Trust of India: "Workplace automation in India to double in next 3 years: Report", in *The Economic Times*, 23 May 2018; and N. Christopher: "Automation to eat away one third of low skill jobs by 2022", in *The Economic Times*, 6 September 2017

²⁹ IFC New Ewaste recycling solution for India; available at: <https://www.ifc.org/wps/wcm/...ext.../ifc.../ewaste+recycling+solution+for+india> [Accessed on 1 August 2019]

³⁰ See, for example, S. Chatterjee: "No easy exit as Ola and Uber drivers in India face spiralling debt trap", in *The News Minute*, 28 May 2019.

³¹ Berg, et al., 2018 offers insight on aspects of the quality of work for crowdworkers in India. The question of whether platform-based workers are employees or contractors had surfaced in the Delhi High Court with *Delhi Commercial Driver Union vs Union of India*. However, the withdrawal of the matter has left the status of platform-based workers undefined.

Despite the challenges, India is uniquely placed to take advantage of rapid technological changes. For one, it already has a large pool of ICT professionals (although still representing a relatively small share in total employment), which offers scope for increasing investments in up-skilling the workforce and moving up the ICT service exports value chain. Furthermore, as a large market of internet-connected consumers, India is likely to be an important consumer as well as supplier of digital services. Leveraging technology for expanding access to public goods through services such as telemedicine and online learning, for instance, can offer immense opportunities for improving access to basic services, such as health and education. Furthermore, technology could become a vehicle for the promotion of technology-aided or enabled policies, including various e-Government strategies that have the potential to encourage the transition to formality.³²

Demographics

One-third of India's skilled youth were unemployed in 2017-18. India is faced with a paradox: there is significant youth unemployment, and yet the private sector bemoans a lack of adequately skilled and market-ready workers. Notwithstanding the government's role in providing basic education and training, there is a significant need for greater private sector involvement. This will ensure that training initiatives are demand-driven and impart skills that match industry requirements. Many youth report facing multiple barriers to finding desirable and suitable job opportunities. Factors like information asymmetries on jobs and skills, and lack of guidance for setting realistic career goals and making professional choices, are holding back young Indians. Greater access to career counselling and mentoring services can help to address these misalignments between skills and aspirations and improve young Indians' career choices.

While the rising trend in youth who are neither in employment, education and training (NEET) is a concern, equally the rising old age dependency ratio—projected to reach close to 20 per cent by 2050³³—is expected to put considerable pressure on society to support the elderly. Increasing the coverage of old-age pensions and improving overall social protection coverage especially to informal sector and rural economy workers are likely to gain centre stage in policy making. As the country ages, the labour force will start shrinking, which might act as the push to get more women to engage in paid economic activity. The female labour force participation is declining in India and is at 26 per cent, among the world's lowest.

With ageing will also come an increase in demand for care work. This demand could offer significant job opportunities in the formal sector, particularly for women who are already providing the bulk of care as unpaid carers. On average, women in India spend almost 5 hours (297 minutes) per day on unpaid care work. An investment of 2 per cent of GDP in the care economy has the potential to create 11 million jobs in India.³⁴ There is also a need to ensure that the sector creates decent work by increasing wages, raising working conditions and providing access to social protection.

³² See Chacaltana, et al., 2018 and Bhattarai, 2018.

³³ Old-age dependency here is defined as the ratio of population aged 65+ per 100 population 15-64. Source: UNDESA, World Population Prospects: The 2017 Revision, online data; available at: <https://population.un.org/wpp/DataQuery/> [Accessed 22 May 2019].

³⁴ Issue brief : Addressing care for inclusive labour markets and gender equality, ILO; available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---/wcms_618165.pdf

Ageing can also open up new avenues for other sectors to grow, including healthcare, which could become important future drivers of the economy. India's health care industry, which stood as the fourth largest employer in 2017, is expected to reach \$372 billion by 2022³⁵. Within the sector, hospital industry is witnessing huge investor demand, in addition to medical tourism. There is huge potential for growth in the primary care industry, which is valued at \$12 billion and is currently largely unorganised.

Migration within India has gained pace in the last two decades, prompting policy makers to factor in issues such as social protection, health, education, and housing. As the proportion of agricultural labour compared to cultivators in the rural economy rose (40.3% in 1991 to 54.9% in 2011, Census of India) and as agricultural labour offers seasonal employment only, more workers are migrating to find work in urban areas. Indians who have acquired formal skills are also seeking to migrate internationally for jobs overseas, whether they are doctors, engineers, nurses or construction workers. This makes India one of the top migrant-sending countries in the world; but it is also a major destination and transit country for migrants, predominantly from the subcontinent.³⁶

By 2030, 40% of the country's population, or 600 million people, will reside in cities, thus accounting for much of infrastructure investment, in particular housing. Public investment programmes, such as Pradhan Mantri Awas Yojana (PMAY), SMART Cities, or the Atal Mission for Rejuvenation and Urban Transformation (AMRUT)³⁷, have contributed to the creation of jobs, primarily in construction sector by absorbing the rural surplus. However, formal skills training and access to social protection will help the workers engaged in the sector, especially migrants, to reduce their vulnerability.

Climate change

Already one of the most disaster-prone countries in the world,³⁸ India could increasingly face major challenges in the form of climate change-induced disasters. With agricultural employment accounting for around 40 per cent of total employment,³⁹ droughts, floods, hurricanes, and other extreme weather events threaten the livelihoods of a substantial proportion of the country's population and may also lead to displacement and increased migration for work. Changes in climatic patterns could also have negative implications on the health of the population and hence increase the demand for care (usually provided by women), making it less likely for women to be able to engage in paid work or access training and skills development opportunities (ILO, 2018e).

³⁵ See for details : www.investindia.gov.in

³⁶ India Statement, Intergovernmental Conference to Adopt the Global Compact for Safe, Orderly and Regular Migration, 10-11 December 2018, <https://www.un.org/en/conf/migration/assets/pdf/GCM-Statements/india.pdf>

³⁷ Pradhan Mantri Awas Yojana (PMAY) is a government initiative that provides affordable housing to the urban poor with a target of building 20 million affordable houses by March 2022. SMART Cities is an urban renewal and retrofitting program with the mission to develop 100 cities across the country making them citizen friendly and sustainable. The Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aims at giving basic civic amenities such as water supply, sewerage, urban transport, parks to improve the quality of life for all especially the poor and the disadvantaged.

³⁸ United Nations: "Address of the Secretary-General to the General Assembly", 19 September 2017.

³⁹ Employment distribution by economic activity (by sex) -- ILO modelled estimates, November 2018, ILOSTAT; available at: www.ilo.org/ilostat [Accessed 27 May 2019].

On the more positive side, adapting to green production and making the transition towards a greener economy can bring significant economic gains if the country is able to invest sufficiently in its expansion. Climate-responsive investments, such as investments into renewable sources of energy, making existing energy consumption more efficient and building climate-resilient infrastructure, among others, will potentially not only accelerate the transition towards a greener economy and the achievement of sustainable development goals, but can also generate a large number of “green jobs”.⁴⁰ At the same time, there is considerable scope for employment generation in sectors like agriculture, energy, buildings and waste management, among others. Most studies indicate gains in the order of 0.5–2 per cent, which would translate into 15-60 million additional jobs globally⁴¹. In addition, transition strategies need to take into account the vulnerability and job losses of workers engaged in brown or mining sector and those affected due to shift of their industry to low carbon technology-oriented services and products.

Policy responses

Each of these three drivers of the ‘future of work’ are prompting federal and State governments, corporations, social groups and individuals to move on the path of an integrated growth strategy. There have been several direct and indirect interventions to organise the unorganised, empower the small, informal and indigenous sectors, facilitate job creators and create innovative job avenues.

Technological changes

In 2015, the country launched the Digital India initiative with the vision of creating a knowledge-based economy aided by digital empowerment of the society.⁴² The programme has three key pillars: promoting digital infrastructure as a key utility for every citizen, digital governance and services on demand, and digital empowerment of citizens. With the completion of the Bharat Net programme in 2019, all village-level local governments will be digitally connected. In the next phase, the last mile connectivity to the individual villages will be completed to ensure digital delivery of all government services by 2022-23, thereby eliminating the digital public services divide.

The process for drafting a new industrial policy⁴³ was initiated in 2017. It is anticipated to include policy directions on the industrial use of modern technologies, such as the Internet of Things, artificial intelligence and robotics, with special emphasis on MSME development. The ultimate aim is to foster an era of advanced manufacturing while also addressing key policy concerns such as technological unemployment. This industrial policy is expected to provide a further boost to the Make in India initiative, which aims to turn India into a global manufacturing hub.

⁴⁰ ILO, 2018c estimates the potential of future jobs in renewable energy in India in Box 5.2.

⁴¹ ILO Green Job Assessment Report [Accessed 24 July 2019].

⁴² Digital India Home Page, Ministry of Electronics & Information Technology, GoI; Available at: <https://digitalindia.gov.in/content/vision-and-vision-areas> [Accessed on 14 July 2019].

⁴³ See for details: Draft Industrial Policy 2017; Department for Promotion of Industry and Internal Trade, GoI; available at: <https://dipp.gov.in/whats-new/industrial-policy-2017-discussion-paper> [Accessed on 17 July 2019].

Artificial intelligence will also play a role in other sectors than manufacturing. In June 2018, NITI Aayog—the government’s policy think tank—released a discussion paper on a National Strategy for Artificial Intelligence which focuses on the promotion and application of artificial intelligence in sectors such as agriculture, healthcare, education, smart urban development and infrastructures, and smart mobility (NITI Aayog, 2018).

Policy reforms to propel MSME growth have been a major focus given that MSMEs are the second largest employer in India after agriculture and since the average employment level for 40-year old firms in India is only 40 per cent greater than the employment when the enterprise is newly set up⁴⁴. To boost productivity and upgrade management practises in MSMEs, various government initiatives are underway, including lean manufacturing competitive scheme (LMCS) and Zero Effect Zero Defect (ZED)⁴⁵. Review of current subsidies and support measures targeted at firms of specific sizes will help breaking the artificial ceiling this system creates and promote growth of firms beyond that small size.

One of the most fundamental preparations with regards to the country’s adaptation to technological changes is ensuring that the labour force is digitally literate. As such, one of the Digital India initiative’s aims is to digitally empower citizens. Moving beyond simple digital literacy, the Government has prioritized the development of workforce skills – particularly technical, vocational and industrial skills – in order to advance the country towards the goals set by the Make in India initiative of increasing the share of manufacturing in national GDP. Skill India is a government flagship initiative launched in 2015, covering various schemes aimed at providing skills training to 400 million people by 2022. Another government initiative, the Atal Innovation Mission, seeks to “promote a culture of innovation and entrepreneurship”.⁴⁶ The government has also invested considerably in skilling and training workers before they migrate overseas for employment.⁴⁷

The National Policy on Software Products (NPSP)⁴⁸ aiming to develop India as a Software Product Nation plans to nurture 10,000 technology start-ups in the software product industry, including 1,000 such technology start-ups in Tier-II and Tier-III towns & cities and generating direct and indirect employment for 3.5 million people by 2025. Further, NPSP plans to create a talent pool for the software product industry through up-skilling of 1 million IT professionals, and generating 10,000 specialized professionals that can provide leadership. Contrary to the popular belief that technology only serves the educated, it is reaching farmers in the form of e-NAM (the electronic National Agriculture Market), informing farmers of the prices of produce across the country and cutting down substantial costs in transport, storage and distribution (including middlemen).

⁴⁴ Economic Survey Volume 1, 2018-19.

⁴⁵ Zero effect refers to a production process, which has zero adverse environmental and ecological effects. Zero defect refers to production mechanisms wherein products have no defects. See for details: www.dcmsme.gov.in

⁴⁶ See for details : National Institution for Transforming India (NITI Aayog): "Atal Innovation Mission", website: <https://niti.gov.in/content/atal-innovation-mission-aim>

⁴⁷ India Statement, Intergovernmental Conference to Adopt the Global Compact for Safe, Orderly and Regular Migration, 10-11 December 2018, <https://www.un.org/en/conf/migration/assets/pdf/GCM-Statements/india.pdf>.

⁴⁸ See for details : <https://meity.gov.in/content/national-policy-software-products-2019>.

Technology adoption in labour administration and dissemination of information about labour laws, such as the Unified Shram Suvidha Portal⁴⁹ developed as a one-stop-shop for labour law compliance, has been an important milestone in the ongoing efforts to improve accountability and transparency, and in improving coverage of both the formal and informal sector. The shift to Direct Benefit Transfer (DBT) is another significant step by the Government to reform its delivery system by re-engineering the existing process in welfare schemes for simpler and faster flow of information/funds and to ensure accurate targeting of the beneficiaries, de-duplication and reduction of fraud.

Demographics

Demographic changes are nudging policymakers toward a renewed focus on social security of the ageing labour force, inclusion of informal sector workers, and introducing special provisions for women, children and migrants.

There are numerous welfare schemes in India, both contributory and non-contributory, to support aged persons, widows, disabled persons and bereaved families on the death of the primary bread winner in below poverty line households. The Indira Gandhi National Widow Pension Scheme, and the Annapurna scheme are directed towards the elderly and are part of the larger National Social Assistance Programme. Beyond these social assistance programmes, there are also other pension schemes, such as the employees' provident fund and other gratuity schemes for industry workers (ILO, 2017) as well as contribution schemes, such as the National Pension Scheme and the Atal Pension Scheme. Considering that the self-employed amount to 78 per cent of total employment in India and informal economy workers to over 90 per cent, the government launched in 2019 the Pradhan Mantri Karam Yogi Maandhan (PMKYM) programme for own account enterprises (primarily retail traders and small shopkeepers), the Pradhan Mantri Shram Yogi Maandhan (PMSYM) programme for unorganised sector workers, and the PM-KISAN programme for small and marginal farmers. Adequate coverage for migrant labourers and factory workers is a top priority, and the effort is on to cover 100 million workers in the Employees' State Insurance Scheme by 2022.

The current process of consolidation and rationalisation of 44 labour laws into four labour codes is a step to improve the ease of doing business in India and also to extend coverage to all sectors and categories of enterprises. In August 2019, parliament paved the way for the implementation of a wage code, which extends coverage to all categories of workers in both formal and informal sectors. Further, to align the minimum wage system to rapidly changing markets and future of work drivers, especially migration, due to wage disparities and income inequality across states, efforts are currently ongoing to redesign the minimum wage setting system in India.

More than five start-up or entrepreneurship schemes are ongoing to promote entrepreneurship in India, including schemes especially to encourage women to start their own businesses⁵⁰. Ninety million women have been supported to start-up a business under Stand up India initiative. Ten million youth are being offered industry-relevant skill training through the Pradhan Mantri Kaushal Vikas Yojana (PMKVY)⁵¹ and yet another

⁴⁹ See for details: <https://shramsuvudha.gov.in/home>.

⁵⁰ See for details: <https://www.startupindia.gov.in/content/sih/en/government-schemes.html>.

⁵¹ Short-term skill development and placement programme of Ministry of Skill Development and Entrepreneurship, GoI; see for details: <https://www.msde.gov.in/pmkvy.html>.

500 million youth in rural India by 2022 under Deen Dayal Upadhyay Grameen Kaushal Yojana (DDU-GKY)⁵². This is helping to create a large pool of skilled workers. Massive online open courses through the SWAYAM⁵³ initiative have helped bridge the digital divide for the disadvantaged students who have not been able to join the knowledge economy (e.g. learners with disabilities or students with poor Internet connection).

Climate change

India has been undertaking one of the world's largest renewable energy expansion programmes in the world and its share is progressively increasing in the Indian energy mix. Globally, India stands 4th in wind power, 5th in solar power and 5th in overall renewable power installed capacity. India accounted for 719,000 jobs in the renewable energy sector in 2018.

Committed to the transition to a low carbon economy, public investment projects on infrastructure development, namely, Pradhan Mantri Grameen Sadak Yojana (PMGSY, rural roads programme), Pradhan Mantri Awas Yojana (PMAY) and others, are making a shift to green technology including use of environmentally-friendly and biodegradable materials. The national cleanliness drive, Swachh Bharat Mission, has been expanded to undertake sustainable solid waste management in every village. The Kisan Urja Suraksha Evam Utthaan Mahabhiyan (KUSUM) scheme has been launched to provide financial and water security to farmers and for de-dieselization of the farm sector. Ujjwala Yojna is enabling provision of safe cooking fuel to households.⁵⁴

India is a signatory to multiple international agreements, including the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, and the Quito Declaration on Sustainable Cities and Human Settlements for All. India made environmental sustainability a central objective of its development strategy in its twelfth Five-Year Plan (2012–17) and set up a comprehensive framework for skills development for green transition at the national level, targeting key sectors (ILO, 2018d). Several institutions were created as a result, including the Skills Council for Green Jobs in 2015, with the backing of the Ministry of New and Renewable Energy and the Confederation of Indian Industry. India is set to surpass its commitment to increase the share of renewables in its energy generation basket and reduce the amount of carbon dioxide pollution produced for every dollar of GDP by 33-35% ahead of 2030 as per its intended nationally determined contributions committed under the Paris Agreement.

Specific policy documents provide more targeted information on national actions on climate change. For example, the National Action Plan on Climate Change 2008 is a key document that aims to bring together the dual objectives of national development and the adaptation to, and mitigation of, climate change into one harmonized set of policy measures (MoEF, 2014). Finally, the Strategy on Resource Efficiency⁵⁵ was released by the NITI Aayog in 2017 with the aim to set “a broad strategy for enhancing resource use efficiency in the Indian economy and industry and circular economy” (NITI Aayog, 2017)

⁵² DDU-GKY is a short-term skill training and placement programme for rural youths by the Ministry of Rural Development, GoI; see for details: ddugky.gov.in/approved-projects

⁵³ SWAYAM is an online coaching platform of the Ministry of Human Resource Development, GoI. See for details: <https://swayam.gov.in/>

⁵⁴ Budget 2019-20; available at: <https://www.indiabudget.gov.in> [Accessed on 23 July 2019]

⁵⁵ See for details: <https://niti.gov.in/.../files/.../Strategy%20Paper%20on%20Resource%20Efficiency.pdf>

including the proposal to set-up a resource efficiency cell. The country has a sustainable Finance Scheme for funding sustainable development projects to MSMEs that contribute energy efficiency and cleaner production but not covered under the international or bilateral lines of credit. A task force is currently working on preparing a draft action plan on sustainable public procurement. The government is also considering a proposal for setting e-mobility targets for a greener India, which emphasises the sale of only electric vehicles by the year 2030⁵⁶.

India hosts the secretariat for the International Solar Alliance and for the first time will host the 14th session of the Conference of Parties (COP-14) of the United Nations Convention to Combat Desertification (UNCCD) in September 2019.

Conclusion

In a rapidly changing world of work, the country's low labour cost advantage is being eroded, but its demographic dividend offers opportunities for the digital revolution and green business development. With the right ecosystem, India could gain a significant share of the market for embedded software services, data management, supply chain restructuring, green enterprises, etc. Large-scale investments in requisite the digital ecosystem, climate-friendly technology and renewable energy are needed. Highly competitive micro, small and medium enterprises (MSMEs) can be central to the growth of manufacturing with small-scale localized smart manufacturing becoming feasible. Tapping into the rural economy potential for driving local economic development will be key for inclusive and sustainable growth.

Moving forward, India will need to develop and strengthen its framework for formal labour protections in the emerging digital gig economy and for communities at risk due to climate change, both in the formal and informal economy. Policy measures to reduce barriers for these groups to acquire the skills and technical competencies they need is key to enable them to participate in the new emerging economy. At present, for more than 90 percent of workers in India, the informal economy remains the only source of income.

⁵⁶ See for details: https://niti.gov.in/writereaddata/files/document_publication/EV_report.pdf.

Bibliography

- Berg, J; Furrer, M; Harmon, E; Rani, U; Silberman, M. 2018. *Digital labour platforms and the future of work: Towards decent work in the online world* (Geneva).
- Bhattarai, T. N. 2018. *Emerging trends in the use of technology as a driver of the transition to formality: Experiences from Asia and the Pacific*, ILO Asia-Pacific Working Paper Series (Bangkok, ILO).
- Chacaltana, J.; Leung, V.; Lee, M. 2018. *New technologies and the transition to formality: The trend towards e-formality*, ILO Employment Policy Department Working Paper No. 247 (Geneva, ILO).
- Department of Industrial Policy and Promotion. 2017. *Industrial Policy - 2017: A discussion paper*; available <https://dipp.gov.in/whats-new/industrial-policy-2017-discussion-paper>.
- International Labour Organization (ILO). 2017. *World Social Protection Report 2017-19* (Geneva).
- . 2018a. *Asia-Pacific Employment and Social Outlook 2018: Advancing decent work for sustainable development* (Bangkok).
- . 2018b. *India Decent Work Country Programme 2018-2022* (New Delhi).
- . 2018c. *India Wage Report: Wage policies for decent work and inclusive growth*. (New Delhi).
- . 2018d. *World Employment and Social Outlook: Greening with jobs* (Geneva).
- . 2018e. *Care work and care jobs for the future of decent work* (Geneva).
- . 2019. *Working on a warmer planet: The impact of heat stress on labour productivity and decent work* (Geneva).
- . Forthcoming. *Preparing for the future of work: National policy responses in ASEAN+6 countries* (Bangkok).
- International Federation of Robotics (IFR). 2018. *Executive Summary World Robotics 2018 Industrial Robots* (Frankfurt).
- Intergovernmental Panel on Climate Change (IPCC). 2018. *Global warming of 1.5°C*, (Geneva).
- Ministry of Environment, Forests and Climate Change (MoEF). 2014. *India's Progress in Combating Climate Change*, Briefing Paper for UNFCCC COP 20, Lima, Peru (New Delhi, Government of India).
- Ministry of Finance. 2018. *Economic Survey 2017-18* (New Delhi, Government of India).
- Ministry of Social Justice and Empowerment. n.d. *National Policy for Older Persons Year 1999* (New Delhi, Government of India).
- National Institution for Transforming India (NITI Aayog). 2017. *Strategy on Resource Efficiency* (New Delhi).
- . 2018. *Discussion Paper: National Strategy for Artificial Intelligence* (New Delhi).
- United Nations Population Fund (UNFPA). 2017. *Caring for our elders: Early responses: India Ageing Report - 2017* (New Delhi).
- Verint Systems. 2019. *Engagement in the always-on era* (New York).
- World Health Organization. 2003. *Climate change and human health: Risks and responses* (Geneva).