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India's Employment Challenges and the Demand for Skills

Pallavi Choudhuri

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National Council of Applied Economic Research
11, Indraprastha Estate
New Delhi -110002, India
Telephone: +91-11-2345-2657, 6120-2698
Email: info@ncaer.org
www.ncaer.org

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INDIA'S EMPLOYMENT CHALLENGES AND THE DEMAND FOR SKILLS

NCAER Skilling India Working Paper

Pallavi Choudhuri*

Abstract Over the last two decades, less than half of the Indians who sought jobs actually got them, with many more millions set to enter the job market over the next two decades. Despite extensive unemployment and under-employment, however, there is a growing shortage of skilled workers. One of the ways to address this skills shortage is to train unemployed youth and those who have dropped out of the labour market by imparting them the skills they lack, focusing on higher levels of both cognitive and non-cognitive skills that can enhance the adaptability and employability of workers. Another route is to formally recognise workers with skills acquired through informal and non-formal learning, and enhance the skills of such workers by providing them potential pathways into the formal labour market. A third route is to incentivise on-the-job training, not only in large firms, but also in micro, small, and medium industries (MSMEs), and building greater awareness on the returns to skilling. While the focus of policy makers has been on the creation of jobs, which is a daunting challenge, there is also need for discussions on job creators or entrepreneurs, and on the key skills that can equip more labour market aspirants and the existing workers to become job providers /opportunity entrepreneurs. As production processes have increasingly become more automated, the challenge is to impart transferable skills to workers that can enable them to ride through the wave of automation, and any resulting structural shifts in the labour market. A growing and related challenge is also to address the issue of women's participation in the workforce. This necessitates not only a rethinking of ways to create appropriate jobs for women, but also equipping more women with the requisite life skills, while also training women to be able to work in both the skill-intensive and capital-intensive sectors in addition to the labour-intensive industries.

Keywords: Occupation, skills mismatch, employability

JEL codes: E24, J08, J21, J24

* Associate Fellow, National Council of Applied Economic Research, New Delhi. Email: pchoudhuri@ncaer.org

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1. Introduction

"If the poor cannot come to education, education must reach them at the plough, in the factory, everywhere."

- Vivekananda, 1894

Over 22 years of economic growth (1991 to 2013), less than half the Indians (140 million of 300 million) who sought jobs have got them (UNDP, 2016). By 2050, over 280 million more people will enter the job market. The economy grew at a rapid pace of 7.3 per cent on an average (CAGR) between 1999-2000 and 2011-12. However, during the same period, the output elasticity of employment, measuring the responsiveness of employment to growth in output, stood at a meagre 0.2. The output elasticity of employment was 0.5 in the first half of the 2000s, falling to an abysmally low of 0.06 between 2004-05 and 2011-12. As labour productivity,¹ one of the key factors of production, continues to increase (Amirapu and Subramanian, 2015), the challenge of creating jobs for the millions who will join India's labour force remains daunting. The goal is, however, to create not only jobs but an ecosystem that generates decent work for sustainable development, and to incentivise the formation of skilled human capital while simultaneously promoting the spirit of lifelong learning.

Data from 2004-05 and 2011-12 show that not only has the rate of job creation fallen but a huge proportion of jobs that are being created remain informal in nature, without offering social security benefits or any form of job contracts, the nature of which defies the notion of "decent work" formulated by ILO. "Decent work" is centred on four basic pillars: 1) work and employment itself; 2) rights at work; 3) social protection; and 4) representation and dialogue (ILO's Decent Work Agenda), also adopted as part of the eighth Sustainable Development Goals (SDGs) that form the 2030 UN Agenda for Sustainable Growth. In the context of employment and skill challenges, the notion of decent work involves the formation of skills/human capital in order to build a productive workforce, supplemented by a network of adequate social security and health benefits that further enhance worker productivity. This assumes even greater importance in the context of female labour force participation, which has dropped significantly over the years, including a sizeable section of women who are willing to work but are still not in the labour force.

An effective skill development mechanism does not merely stop with educational and training institutions and needs to become an integral part of on-the-job training and lifelong learning in order to sustain productivity growth in the face of rapid technological change. The challenge is also to address the moral hazard problem that leads to under-provisioning of such a training mechanism, especially in the unorganised and MSME sectors, and how restrictive labour laws distort incentives for imparting skills to workers. While job creation remains a critical focus of policymakers across rural and urban sectors, more Indians aspire for a regular salaried job, and even more so public sector jobs, with entrepreneurial aspirations yet to catch up in India as compared to the developed nations and some of the other emerging nations. Which core skills are necessary for developing entrepreneurial

¹ Labour productivity refers to the quantity of goods and services that can be produced by an individual labourer.

skills and what are the key policies that can promote a more entrepreneurial-conducive environment, especially for women entrepreneurs? While the rates of unemployment and under-employment continue to be high, paradoxically, the industry also exhibits a severe skill shortage, indicating a supply-demand mismatch that has been the centre of intense debate. This distortion reflects a combination of factors such as lack of employable skills, skill-sector mismatch, and/or lack of adequate and appropriate quality jobs.

A peculiar feature of the Indian labour market is that not only are a majority of the workers employed informally, but a massive proportion of them do not have formally trained vocational skills and have never been to college. The challenge is to provide visibility to workers with unrecognised skills, that is, to create a pathway for formally recognising the learning outcomes of such workers, including self-employed micro-entrepreneurs, who have accumulated human capital outside the formal system. This chapter highlights the need for greater industry-academia collaboration in developing learning objectives, along with more emphasis on building both cognitive flexibility (Scott, 1962) and non-cognitive skills (Deming, 2015). These skills have assumed greater importance in view of the rapid pace of technological advancement, which has not only disrupted both the services and manufacturing sectors but has also made it difficult to predict job roles and the nature of job-specific occupational structures that will prevail even five years from now.

Section 2 briefly discusses some of the challenges in the Indian labour market including low labour force participation, the prevalence of a high degree of unemployment and under-employment, higher aspirations for salaried jobs, and how these trends reflect a skill mismatch or the lack of appropriate and in-demand skills. Section 3 discusses some broad employment trends across sectors, including the troubling issue of declining labour intensity even in the labour-intensive sectors, pervasive wage inequality between formal and informal workers across sectors and across different levels of educational and vocational skill attainment. Section 4 highlights the importance of recognition of prior learning, challenges in the MSME sector and under-investment towards skill formulation on the job. Section 5 points to the need to focus on entrepreneurship and multi-skilling. Section 6 concludes the chapter by reflecting on the demand for skills, the growing importance of higher-ordered cognitive skills and non-cognitive skills, and the need sustain lifelong learning.

2. Broad Trends in the Labour Market

2.1. Labour Force Participation

The National Skill Development Mission was launched by the Government of India in 2015 to meet the skill training requirements of the labour market, by boosting employment opportunities for those entering

Table 1: Labour Force Participation Ratio

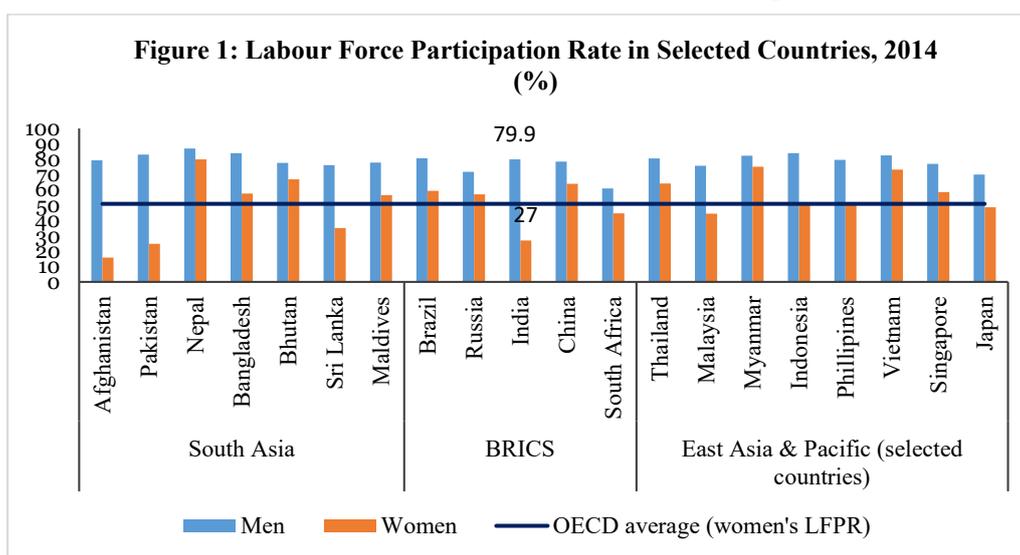
Year	Male	Female
2004-04	83.09	32.64
2011-12	79.07	23.35

Source: Author's calculations based on data from the NSSO 61st and 68th Rounds, usual principal activity status.

the labour market, and providing pathways for those seeking to upgrade their skills for career progression. The broad trends in the labour market throw up several key questions in this regard, which policymakers need to address to make the skilling initiative more socially inclusive, and to prepare a workforce that can meet the industry demand for skills.

Between 2004-05 and 2011-12, the Labour Force Participation Ratio (LFPR) decreased overall from 58.9 per cent to 51.6 per cent (based on usual principal activity status). The data on gender-based participation in Table 1 shows that the LFPR continued to remain higher for men, dropping only marginally. On the other hand, 15 million women dropped out of the labour force.

Interestingly, Sikkim had the highest proportion of women in the labour force, at 62.3 per cent, while Bihar is at the other end of the spectrum, at 5.5 per cent, indicating wide State-level variation (see Figure 1 in the Appendix). The State of Bihar also reports the lowest female literacy at 53.33 per cent, according to the 2011 Census, while Haryana reports one of the lowest sex ratios in the country, indicating that several social, cultural, and demographic factors could be driving the State-level dispersion in addition to educational attainment and learning outcomes.



Source: World Development Indicators 2014 (modelled ILO estimate).

Across the world, the gender gap in employment decreased by only 0.6 percentage points between 1995 and 2015 (ILO “Women at Work”, 2016), with chances of women entering the labour market being 27 percentage points lower than men—the gap increased for South Asian and East Asian countries (see Figure 1). India’s female LFPR trails behind those of Sri Lanka and Bangladesh, and is higher than only those of Afghanistan and Pakistan. The gender gap in India is also significantly higher than in the rest of the BRICS nations.

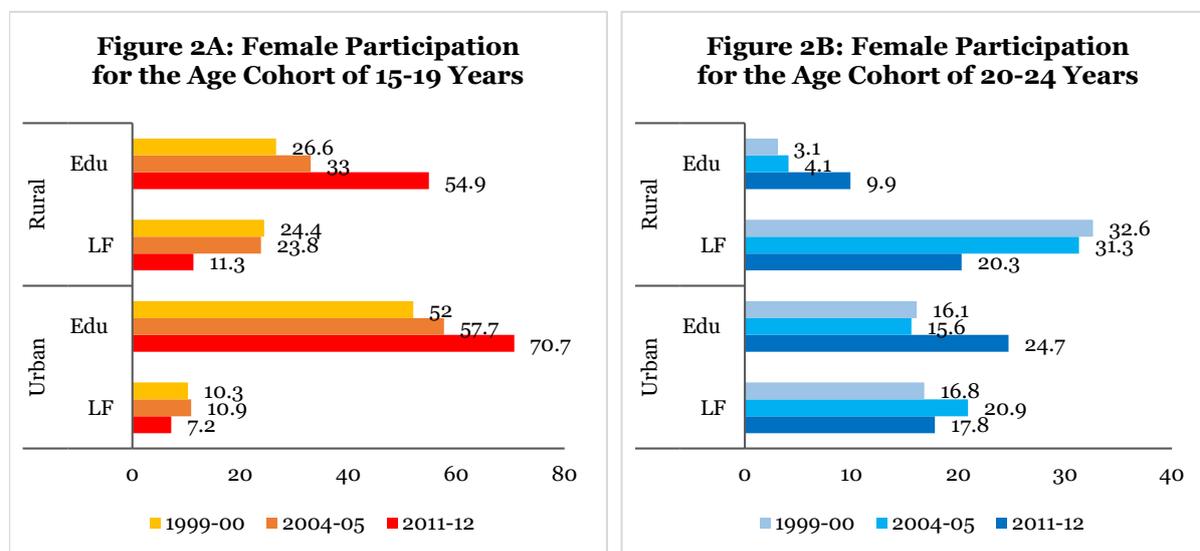
While female labour force participation (FLFP) is a key factor driving economic growth, and it increases with economic development, the relationship between FLFP and growth is not linear. Goldin (1995) found evidence of a U-shaped relationship between the two, with a high FLFP reflecting higher levels of poverty in developing countries. In contrast to this, female participation has steadily increased in

Bangladesh’s labour force since the economy started accelerating from the 1990s onwards. However, work participation pivoted primarily around a few labour-intensive industries such as textiles and garments, with little improvement seen in the gender wage gap. Rahman and Islam (ILO, 2013) show that access to education and skill development initiatives in Bangladesh remain vital for women’s empowerment, along with access to credit, and change in social and cultural norms.

2.2. India’s Missing Women: Why Are Women Dropping Out?

Increased industrialisation and rising per capita income in developing and transitioning economies are often associated with higher female labour force and work force participation—this is also reflected in the growing recognition of women’s contribution to the nation’s economic output. However, with more women falling out of the labour force despite the Indian economy being on a higher growth trajectory, there is a need to revisit the issue in terms of human capital formulation, and how the acquisition of skills can change this troubling dynamics. Imparting the right set of skills to the workforce will not only help increase the FLFP but also has the potential to create a cascading effect on human capital formulation at the household level. Research confirms that when women have greater earning power, they invest more in the health and education of their children (OECD, 2010), thus playing a key role in the inter-generational transmission of human capital formulation.

Figure 2: Transition to the Labour Force



Note: LF = labour force; Edu = education (currently attending); Figures reflect percentages within the respective age groups. *Source:* Author’s estimate based on various NSSO rounds using usual principal activity status.

Data from the NSSO Employment-Unemployment survey reveal that 16 million more working-age women were enrolled for education in 2011-12 than in 2004-05. However, the percentage of working-age women enrolled dropped from 12 per cent to 7 per cent, during the same time. While more teenage girls, aged between 15 to 19 years, are pulling out of the labour force to attend educational institutions, the

corresponding figures for those in the age group of 20 to 24 years reveal that fewer women are entering the labour force (Figures 2A and 2B). Further, the problem is worse in rural areas than in urban regions. It is highly likely that while young women are permitted to attend educational institutions, they do not enter (or are not allowed to enter) the labour force once they attain marriageable age—this could indicate either the availability of inadequate opportunities for appropriate jobs (Chatterjee, Murgai, and Rama, 2015; Desai, 2017), or the greater involvement of women in unpaid household care work and children’s education, or caste and culture norms, and in some cases wealth considerations (Eswaran, Ramaswami, and Wadhwa, 2013; Desai and Mehta, 2017).

Desai, et al. (2010) noted that the LFPR amongst women tends to decline with education, turning around only after college graduation. Klasen and Pieters (2015) found evidence of a U-shaped relationship between the LFPR and educational attainment for urban women within the age group of 25 to 54 years.² However, a higher LFPR amongst university graduates does not always translate into higher work force participation, and a higher proportion of females with graduate degrees and above were found to be unemployed than their male counterparts in 2011-12.

Occupational Segregation

Chatterjee, Murgai and Rama (2015) emphasised in their study that the decline in farm jobs in rural areas between 2004-05 and 2011-12 was not matched by a similar increase in non-farm regular wage employment in urban areas, explaining the declining LFPR. There is also a persistent gender gap amongst the educated unemployed (Figure 4) because of the perception of a competence gap between the sexes, and a gender-based occupational segregation. This could lead to more women dropping out of the labour force due to the “discouraged worker effect” (Chandrasekhar and Ghosh, 2014).

While quality education (beyond the secondary level) is vital for improving job outcomes and labour market participation, access to quality employment remains a critical impediment in developing countries (Verick, 2014). In India, not only is labour force participation low for women, the proportion of women in high-productivity, high-income, and secure jobs is also low, with a higher proportion of women engaged in the agricultural and allied sectors, and in informal manufacturing. Even within the sectors where women dominate, the proportions of women owners and women managers remain low (see Table 2). Further, women managers and directors are heavily concentrated in activities where job roles are perceived to be primarily low-skilled. Within manufacturing, there is a higher concentration of women in labour-intensive manufacturing industries, along with a wide gender wage gap (see Figure 7 in Section 3.1).

Dismantling Gender Stereotyping

Interestingly, as activities become less labour-intensive, men tend to take over those job roles; for instance, more men are working in the manufacturing of machines and equipment. The share of female managers in the manufacturing of computers was

² Klasen and Pieters (2015) showed that the LFPR is high amongst illiterate women, lowest among women who have had some schooling or just completed high school, and highest among University graduates (25 per cent).

5.9 per cent, while that in computer programming is 11.5 per cent in 2011-12. Disha, the UNDP initiative (UNDP, 2016), seeks to break this mould through interventions providing training, entrepreneurial skill development, and employment. For instance, young women in Haryana, who were trained in short vocational courses in plastic engineering, are currently working in various industrial hubs across the State. Another group is being offered formal training in both technical and non-cognitive skills to succeed in the steel industry, an area presently largely dominated by men.

Table 2: Gender-Sectoral Breakdown of Managers in 2011-12

Male Managers			Female Managers		
<i>Rank</i>	<i>Sector</i>	<i>Share[†] in the Total (%)</i>	<i>Sector</i>	<i>Share[†] in the Total (%)</i>	<i>Gender Share*</i>
1	Retail trade	35.9	Retail trade	33.7	12.0
2	Food and beverage service	7.8	Manufacture of wearing apparel	10.6	30.8
3	Land transport and transport via pipelines	6.1	Food and beverage service	8.2	13.4
4	Wholesale trade	5.2	Manufacture of textiles	7.2	37.9
5	Construction of buildings	4.1	Manufacture of food products	5.8	18.4
6	Food	3.7	Manufacture of tobacco	4.6	78.7
7	Manufacture of wearing apparel	3.5	Other personal service activities	3.6	23.5
8	Wholesale and retail trade and repair of motor vehicles and motorcycles	2.6	Accommodation	3.5	38.8
9	Financial service	2.2	Manufacture of wood and products of wood	3.3	23.5
10	Manufacture of fabricated metal products	1.8	Financial service	2.8	15.5
Total Top Ten Sectors		72.9	Total Top Ten Sectors	83.1	

Source: Author's computation based on 68th Round NSSO data.

Notes: Only the manufacturing and services sectors have been considered for calculating sectoral concentration.

*Gender Share in sectors having a high concentration of women managers. Share of female managers.

† Share of male (female) managers in respective industry in terms of total male (female) managers across all industries.

Connecting to Work

Reducing the distance to work and access to better modes of transportation and infrastructure (Desai, 2017), and enhancing workplace security (Nathan, Saripalle and Gurunathan, 2016), and sanitation remain key concerns for improving women's workforce participation. Additionally, remote working is also possible for

entrepreneurs and segments of salaried workers. With the spread of Information and Communication Technology (ICT) and the advent of digitised service aggregators, such as Urban Clap and e-commerce websites such as FlipKart and IndiaMart, women who want to work part-time and prefer flexible schedules have a choice to enter the workforce as entrepreneurs, working independently or via contractors providing access to the market. Das et al. (2015) show that more flexible labour markets tend to be associated with higher FLFP and a greater likelihood of being employed, including in the formal sector.

Data from the 2011-12 NSS 68th Round data reveal that 78 per cent of those who are willing to work (but are not in the labour force), are available for part-time or occasional work. Engaging in such ventures, however, require a spectrum of skills in addition to job-specific technical skills. Successful income generation capacity requires cognitive skills, digital skills, and business skills (Field, Jayachandran and Pande, 2010) for business viability, in addition to non-cognitive skills such as life skills³ (Dohmen, 1996; WHO 1999). Singh (2003) noted that imparting lessons on life skills need not be confined to any specific age group, and needs to be integrated in the context of lifelong learning across communities, social groups, and study, work

Box 1: SHG-Skilling Linkage for Rural Female Labour Force Participation

While UNICEF's Kanyashree cash transfer programme aims to foster life skills amongst young girls and incentivise them to stay in school, policy-makers also need to consider policy options for older marginalised women working in the informal sector and those who have dropped out of the labour force. In this respect, Self-Help Groups (SHGs) have had an enormous impact on rural women, fostering among the latter greater awareness of their rights, and health and hygiene, in addition to providing self-employment and livelihood generation opportunities. These SHGs tend to be informal groups of 10-20 individuals with the objective of promoting the savings habit amongst their members. Sinha, Parida, and Baruah (2012) show that the SHG-bank linkage programme of the National Bank for Agriculture and Rural Development (NABARD) led to significant social and economic empowerment of families directly linked to the programme, including imparting learning of the basic concepts of financial management (a derivative of cognitive skill development). Further, regular peer involvement and leadership rotation practice provided behavioural incentives for developing certain key non-cognitive managerial skills such as decision-making, problem-solving, self-motivation.

One key drawback of SHGs, however, as pointed out by Lalita (2002)¹ is that SHGs often tend to suffer from low skill base and received inadequate training towards income-generating activities. Given the enormous potential of the SHG programme in enhancing the social and economic status of women, a more co-ordinated skill training programme can be provided to the SHG members. In this respect, the *Deen Dayal Upadhyay Swaniyojan Yojana (DDU-SY)*, the rural avatar of the *Start-Up India* programme, was launched in 2016, to promote entrepreneurship in rural areas, with SHGs and women as some of its primary targeted beneficiaries. DDU-SY is aimed towards providing skills required towards self-employment and livelihood generation, with potential for further credit linkages backed loans where necessary. The DDU-SY programme will be funded by the National Rural Livelihood Mission (NRLM) of the Rural Development Ministry. The programme would be co-ordinated with other government departments to enable the rural poor, in general, to set up livelihood activities across sectors.

³ Life skills are psycho-social skills that equip an individual with problem-solving abilities, critical thinking, and self-confidence.

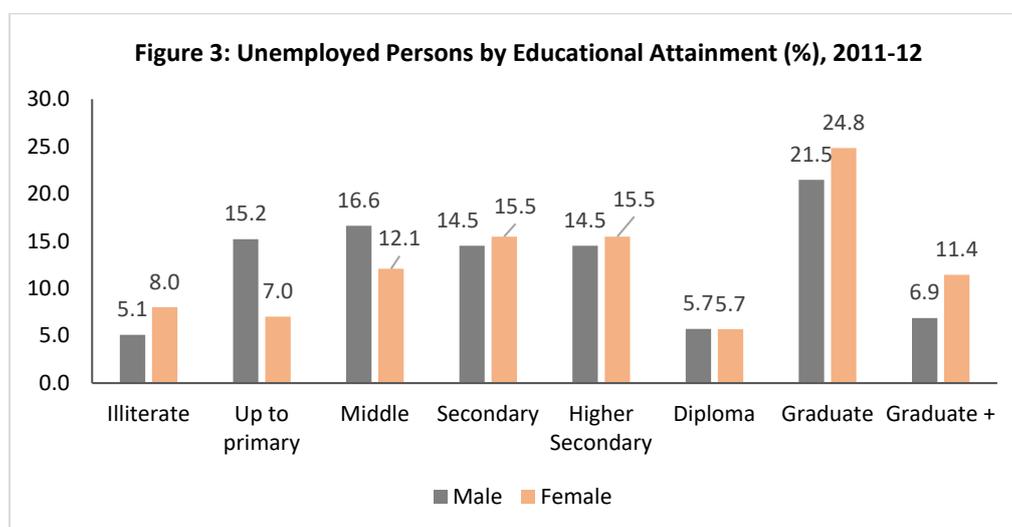
and ‘life spaces’—this is all the more important for women who struggle to enter the labour force, or drop out because of cultural and social barriers, or because of the discouraged worker effect mentioned earlier.

2.3. Unemployment, Under-employment, and Lack of Adequate Jobs

Counselling

Figure 3 shows the gender distribution of educational attainment for the unemployed. The high proportion of those having graduate degrees and higher qualifications or a diploma/certificate can indicate frictional unemployment resulting from information asymmetry, or lack of adequate jobs or of job-relevant skills.⁴ These figures are also higher for women, indicating that any policy response to the challenge of unemployment needs to address issues related to skills and gender segregation, in addition to the lack of demand for female labour. Focusing on life skills (as mentioned in the previous section) such as decision-making and rethinking of the appropriateness of jobs for women are vital.

A UNDP-commissioned study (2016) showed that a huge section of women in Delhi lacked adequate access to information, emphasising the need for bridging the information gap which would enable women to chart out their career paths. This led to the setting up of career counselling centres in the national capital, under *Disha*, a UNDP initiative, with the centres being run by the Self Employed Women’s Association (SEWA).



Source: Author’s estimate based on NSSO 68th Round data. Individual bars reflect the percentages of unemployed people (male/female) with a particular level of educational attainment.

Role Model

In another initiative linked to *Disha*, young women were also introduced to a female role model (Skill Sakhi) in the community. Contact with such Skill Sakhis, besides

⁴ The NSSO data makes it difficult to distinguish between these three possibilities.

bridging the information gap on employment opportunities, can potentially improve socio-emotional skills such as confidence-building, and decision-making, among others.⁵ In particular, policy-makers need to attract adequate institutional responses towards counselling and mentoring, and building social networks for States with low FLFP rates.

In this respect, SHGs, through peer-involvement, have had an enormous impact on rural women by fostering greater awareness of women's rights, in addition to providing self-employment and livelihood generation opportunities, thus encouraging women's participation (see Box 1). Such initiatives need to be implemented on a wider scale for women in all age cohorts across different social strata and caste groups.

Under-employment

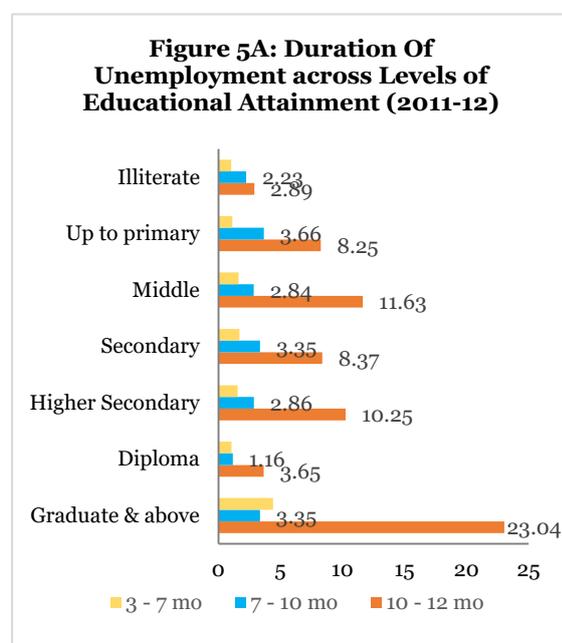
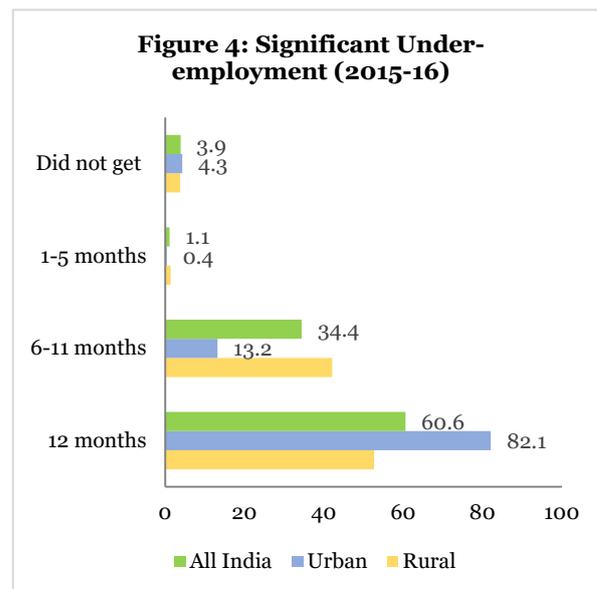
Recent figures from the fifth Annual Labour Bureau Employment-Unemployment Survey indicate that the unemployment rate for people aged 15 years and above is 5 per cent based on the UPSS (usual principal and subsidiary status),⁶ with the rate being higher for women, at 8.7 per cent, as compared to 4 per cent for men. The unemployment figures, however, mask considerable under-employment, a scenario wherein workers do not get enough work for the duration for which they are available for the work (see Figure 4).

As per Labour Bureau estimates, in 2015-16, the figures of approximately 58.3 per cent of unemployed graduates and 62.4 per cent of unemployed post-graduates indicated that the primary reason for unemployment is a mismatch between jobs and education/skills, along with the lack of adequate experience, thereby emphasising the need for greater industry-academia collaboration. The second most important reason for unemployment was cited as inadequate compensation by 22.8 per cent of graduates and 21.5 per cent of post-graduates.

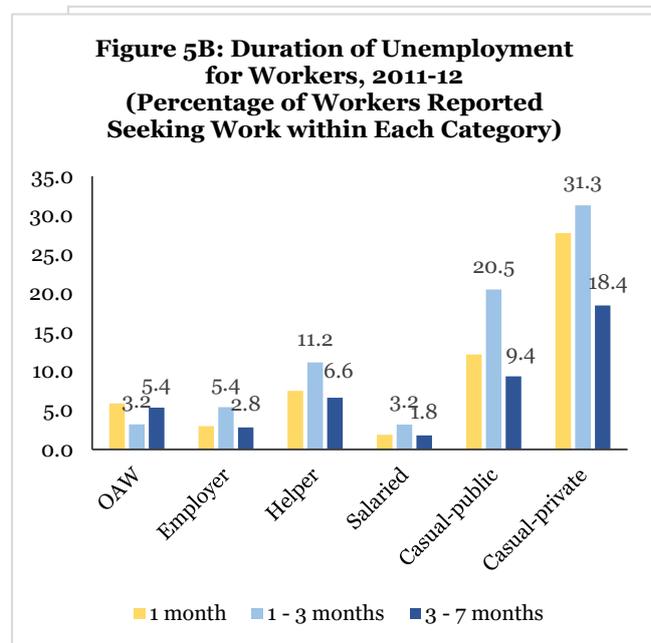
⁵ The Skill Sakhi initiative is incubated by the Pratham Foundation under *Disha*. <https://undp-india.exposure.co/disha-in-action>.

⁶ The Labour Bureau survey figures are higher than the all-India unemployment rates arrived at by the National Sample Survey Office (NSSO, 2011-12), which reported rates of 2.3 per cent for the rural areas, 3.8 per cent for the urban areas, and 2.7 per cent for India as a whole.

The unit level employment-unemployment statistics, using UPSS, from the 2011-12 NSSO 68th Round, show that the unemployment rate in 2011-12 was only 2.7 per cent. However, it is the duration of unemployment that reveals the extent of an in-progress spell of joblessness and potential labour market frictions. The data show a higher extent of joblessness (in terms of the duration of unemployment) for those with graduate degrees and above (Figure 5A). Further, around 90 per cent of such unemployed graduates are in the age group of 18 to 30 years, and another 6.36 per cent are aged 31 to 35 years.



Source: Author's estimate based on NSSO 68th Round data based on principal activity status, reported as a percentage of those seeking work. The latter is used as a base (100%) for calculation.



Source: Author's estimates based on NSSO 68th round data, based on principal activity status.

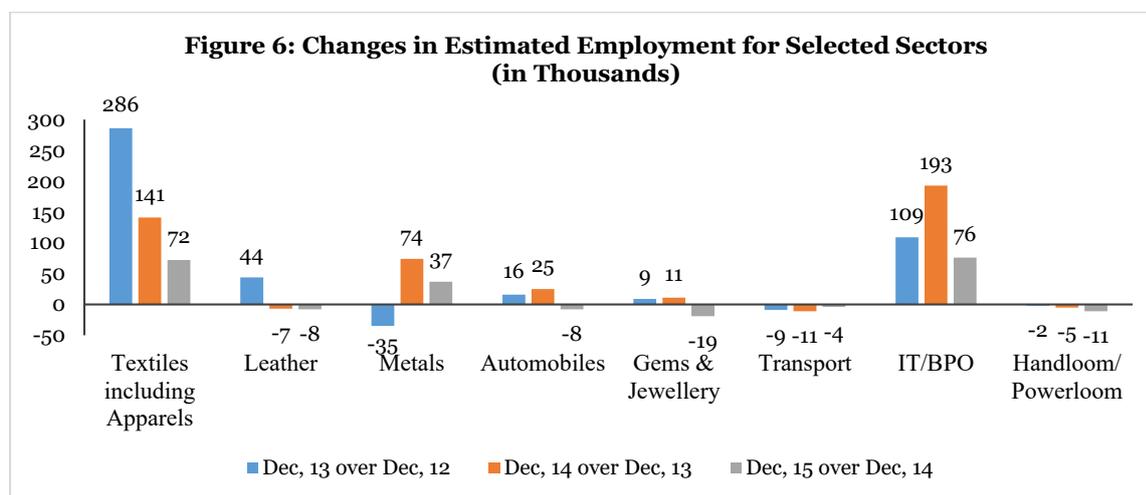
A potential problem that could be plaguing the educated unemployed is the skill-sector mismatch. The labour-intensive industries such as manufacturing of textiles, apparels, and food tend to absorb workers with lower levels of education, and offer relatively lower wages. Whereas we observe a higher proportion of educated unemployment. As such, the increased spell of joblessness could be also due to more structural reasons, signalling lack of adequate well-paying jobs or skills-mismatch. Longer periods of joblessness can also result in skill obsolescence and/or skill depreciation. This can occur when an educated person is employed in a job that does

not require her level of education/skill (Khalifa, 2013). The focus of policy-makers, thus, should not be just on creating jobs, but also on incentivising the creation of quality jobs, and a more knowledge-based economy.

The data also show that around 9 per cent of own account workers or self-employed workers were looking for work (see Figure 5B), implying that such workers could have been pulled into entrepreneurship due to barriers to entry into the formal labour market or lack of job opportunities or employable skills. A higher proportion of casual workers (in both public works and the private sector) also reported a higher duration of unemployment (Figure 6B)— 14.5 million people looked for work for 3–7 months, with another 20.6 million having sought work for 1–3 months. The longer duration of unemployment appears to be a cause for concern even for those who enter the regular/salaried job market.

3. Broad Employment Patterns across Sectors

Tepid Job Growth



Source: 28th Round Quarterly Employment-Unemployment Survey, Labour Bureau, Government of India.

The Indian economy added 1.35 lakh jobs in the calendar year 2015 across eight major sectors, signifying a 67 per cent drop in employment generation from the previous year, as per the 28th Round Quarterly Employment-Unemployment Survey. In comparison, the economy added 4.21 lakh jobs in 2014 and 4.19 lakh jobs in 2013. The net additions to employment went down in 2015 in some of the more labour-intensive sectors such as textiles and apparels (see Figure 6). On the other hand, GVA estimates from the Central Statistical Office (CSO) indicate that economic production expanded by 7.1 per cent in FY2015 as compared to 6.3 per cent in FY2014, showing a wide disparity between economic output and employment generation.

Broad Sectoral Trends

Historically, manufacturing has provided the fastest route out of the poverty trap. However, in India, the sector has offered moderate growth in terms of employment

opportunities, with the bulk of the workforce still employed in agricultural and allied activities.⁷ The gap between GVA and employment growth, and the shift from agriculture to services-led growth, without going through a process of industrialisation, has been peculiar to the structural transformation of the Indian economy. Several explanations for the structural shift have been put forward in the literature such as factor market distortions, supply-side infrastructure bottlenecks, and inappropriate specialisation (Amirapu and Subramanian, 2015).

As regards the broad sectoral patterns (see Table 3), the share of services in the national Gross Value Added (GVA) rose from 35 per cent in the 1980s to more than 50 per cent after the 2010s. However, growth in employment has not kept pace with the GVA, with the employment share of services at 28.7 per cent of all sectors in 2014 (GoI, 2016, *Economic Survey*, 2015-16). Table 3 further shows a gradual decline in the contribution of the agricultural sector to GDP, along with a simultaneous increase in the share of services. The share of industry grew during this period.

Table 3: Sectoral Output and Employment

Sectors/Sub-sectors	Sectoral GDP Share (%)		Sectoral Employment Share (%)		Output Elasticity of Employment (CAGR approach)	
	2004-05	2011-12	2004-05	2011-12	1999-00 to 2004-05	2004-05 to 2011-12
Agriculture, forestry and fishing	19	14.4	58.3	48.8	0.855	-0.460
Industry						
Mining and quarrying	2.9	2.1	0.6	0.5	0.771	-0.053
Manufacturing	15.3	16.3	11.6	12.5	0.717	0.167
Electricity, gas and water supply	2.1	1.9	0.3	0.5	0.462	1.456
Construction	7.7	7.9	5.6	10.6	0.847	1.142
Services						
Trade, hotels and restaurants	16.1	16.1	10.3	11.0	0.126	0.179
Transport, storage and communication	8.4	10.6	3.9	4.9	-0.795	0.317
Financing, insurance, real estate and business services	14.7	18	1.6	1.1	1.426	-0.362
Community, social and personal services	13.8	12.7	7.8	10.0	0.323	0.587
All sectors	100	100	100	100	0.426	0.068

Source: GDP at constant prices (2004-05) from CSO Employment (Usual Principal and Subsidiary Status) data is from the 61st and 68th Rounds of NSSO's Employment-Unemployment Survey.

Note 1: The output elasticity of employment has been computed using the CAGR approach; the calculation of unit-level employment data is from various NSSO rounds.

Note 2: Sector-wise classification remains the same as the CSO's for comparison.

⁷ 47 per cent, as per the 2011-12 NSSO 68th Round data.

The sectoral output elasticity of employment shows that elasticity declined for agriculture, registering negative employment elasticity in the second half of the 2000s. For the purpose of this study, the output elasticity of employment has been calculated using the CAGR approach. Although elasticity in manufacturing also declined, the fall was less pronounced as compared to the agricultural sector. In comparison, the energy (electricity, gas, and water supply) and construction sectors witnessed an upswing in the output elasticity of employment in the second half of the 2000s. Elasticity also declined in financial and real estate services in the second half of the 2000s to a negative 0.362, resulting from increased digitisation of banking and financial services.

Declining Labour Intensity

Within manufacturing, there is growing evidence of declining labour intensity in both labour-intensive and capital-intensive industries over the last decade. While declining labour intensity in capital-intensive industries is not surprising as firms automate, computerise, and invest in new technologies to stay competitive, the advent of such trends in labour-intensive industries is disconcerting. Sen and Das (2014) show that the overall labour intensity in registered manufacturing fell between 1980 and the 2000s, on an average. Further, the shares of labour-intensive sectors have experienced either a constant or declining value added growth over the last two decades, while capital-intensive industries have grown much faster (ILO, 2009).

One explanation offered by Sen and Das (2014) for the decreasing labour intensity is the increase in the wage rate/rental price of the capital ratio, driven primarily by a sharp decrease in the relative price of capital, which was brought about by the increased liberalisation of trade with respect to capital and intermediate goods since 1991. Another possible explanation for the declining labour intensity of such firms could be the lack of adequately skilled workers, which has led to the increased substitution of capital for labour in organised manufacturing, in addition to increasing productivity gains from automation. In order to be globally competitive, firms are rapidly automating production processes. The rapid pace of technological development and firm digitisation, along with falling prices of capital equipment, increases the likelihood of further replacement of manual labour with machines, especially for work that requires routine cognitive skills which are repetitive in nature and can be easily replicated. This phenomenon is not necessarily restricted to manufacturing, with advanced technology making inroads in the services sector also.

3.1. Quality of Employment

Not only is there an enormous disconnect between output and employment within manufacturing, but there are also wide differences between organised and unorganised manufacturing.⁸ Ghani, Kerr, and Segura (2015) demonstrated that the formal manufacturing sector contributes over 80 per cent of India's manufacturing

⁸ According to the National Commission for Enterprises in the Unorganised Sector (NCEUS, 2008), the organised sector is defined as consisting of registered enterprises employing 10 or more workers when using electricity, and 20 or more workers when not using electricity, required to register under the Factories Act of 1948. Firms with 100 workers or more are subject to inspection under employment protection laws.

output while hiring only 20 per cent of all manufacturing workers across 1 per cent of the manufacturing establishments. The authors further noted that since 1989, most of the employment generation in manufacturing took place within informal establishments, especially in the tradable sectors, which are industries with high export and import ratios to gross output levels. While the informal sector has been the key in generating employment opportunities for India's workforce, does it yield quality employment?

**Table 4: Average Wage of Workers in Manufacturing Sector—
Organised versus Unorganised (2011-12)**

Manufacturing Sector		Salaried			Casual		
		Total	Male	Female	Total	Male	Female
Rural	Organised	241.7	256.2	129.1	153.7	165.4	116.2
	Unorganised	154.9	161.21	120.2	158.3	171.1	105.3
Urban	Organised	406.9	427.9	218.9	133.6	146.8	125
	Unorganised	209.7	217.9	95	149.1	162.7	90.4

Note: Author's computation based on 2011-12 NSSO 68th Round Employment Unemployment Survey; see Footnote 15 for the definitions of organised and unorganised sectors.

An analysis of the 2011-12 68th Round NSSO data (see Table 4) reveals that well-paid jobs are mostly concentrated in the organised sector. Additionally, a wide wage disparity exists across rural and urban sectors. Regular salaried workers in the organised sector are paid Rs. 241.7 and Rs. 406.9 in the rural and urban areas, respectively, on an average, while the corresponding wages for those employed in the unorganised sector are Rs. 154.9 and Rs. 209.7, respectively. The gender gap in wages is even more startling.

The low wage in the unorganised sector mostly reflects the low productivity of firms in the sector. As Panagariya (2014) pointed out, one of the primary reasons as to why small firms (mostly those operating in the unorganised sector) are low in productivity is that they are too small to exploit economies of scale and invest in modern technologies. The small size also prevents firms from investing in reskilling their workers or enhancing their skills, leading to a severe skill gap, thus decreasing the likelihood of breaking the low productivity-low wage cycle. This issue has been discussed further in Section 4.2.

Contractualisation and Informalisation

Between 2004-05 and 2011-12, the Indian economy added 17.25 million salaried jobs (see Figure 2 in the Appendix), with 6.5 million people absorbed as casual labourers in the public and private sectors, as per the principal activity status. Further, the number of self-employed people (own-account workers or OAWs) increased by 10 million, with 7.9 million of them operating in the non-agricultural sector. The number of employers as a proportion to the labour force increased only marginally to 1.53 per cent. Further, data from 2011-12 indicate that only 31.8 per cent of the salaried workers had a job contract of more than a year, as compared to 28.2 per cent in 2004-05, indicating the persistence of some form of casualisation amongst salaried workers. The short nature of the contract raises the question of firm incentive to reskill such contract or casual workers or enhance their skills, and public policy responses for bridging any resulting skill gap, and improving the quality of

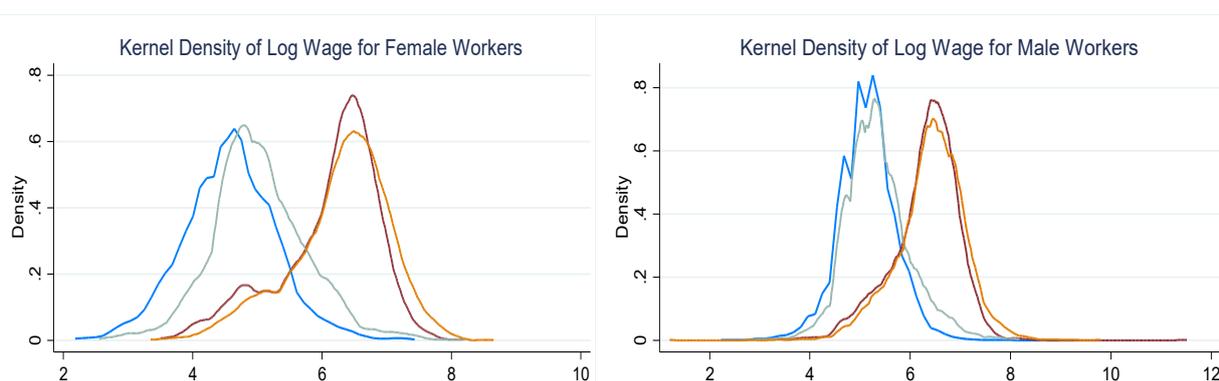
employment. Goldar and Aggarwal (2010) showed that labour market reforms lead to the creation of more regular jobs—this emphasises the need for such reforms for providing a greater incentive for human capital formation.

Apart from the job contract, informality is also expressed in terms of access to social security benefits. Data from the NSSO 68th Round show that as of 2011-12, 92 per cent of the workforce in the age group of 15 years and above (amounting to 352 million workers) did not have access to any form of social security benefits, while 94.5 per cent had no health care benefits—this includes own account workers, helpers, and employers. In addition, 90 per cent of the female workforce did not have health care and maternity benefits. It has been well documented in the literature that health outcomes affect work productivity and human capital formation, and hence, ensuring access to health and social security benefits becomes vital for building a knowledge economy.

Informalisation of the workforce results primarily from barriers to entry into the formal labour market, which can be an outcome of the socio-economic background of the worker, inadequate educational attainment and skill development, or the lack of enough job opportunities in the organised sector. Shonchoy and Junankar (2014) demonstrated that workers with lower levels of education, who are from poorer households and/or lower caste groups, tend to join the informal sector.⁹ The authors further examined rural to urban migration, and showed that longer duration of work in urban areas increases the likelihood of a migrant worker moving into the formal sector.

Incidentally, informal wage workers¹⁰ (or those without social security benefits) can exist both in the organised and unorganised sectors, and data reveals wide wage inequality between the formal and informal workers in both sectors—this becomes evident from Figure 7, which shows the average daily wage distribution of wage workers in urban areas. The figure shows that apart from wage disparity between formal and informal workers, there are also wide differences in gender wage

Figure 7: Wage Distribution of Urban Workers across the Organised and Unorganised Sectors (2011-12)



Source: Author's computations based on NSSO 68th Round Employment-Unemployment Survey for both manufacturing and services.

Note: The Gaussian kernel has been used for both the graphs. The chosen width is the optimal width that minimises the mean integrated squared error.

⁹ Shonchoy and Junankar (2014) classify the informal sector as one consisting of self-employed and informal wage workers

¹⁰ The NSSO provides weekly wage data only for regular/salaried workers and casual workers.

distribution. The average wage of male workers appears to be concentrated at mode, with lower dispersion, while in the case of female workers, the distribution is wider, especially for workers in the informal sector. For both male and female workers, however, the right tail of the distribution for informal workers in the unorganised sector shows that some informal sector workers could be getting higher wages—enterprises may find it more profitable to hire such workers (who possess higher qualifications or job-specific skills) than hiring formal workers at higher defined employment benefits. Box 2 discusses some of the issues pertaining to formalisation of the informal workforce.

Regulatory Regime and Contract Workers

The availability of a skilled workforce at competitive wages in a favourable labour environment is a key factor that tends to affect hiring practices as firms strive to optimise factor allocation in the production process. The slow pace of labour reforms has prompted firms to seek a flexible labour regime by hiring workers on fixed-term contracts. The practice of hiring contract workers (through labour contractors) in registered manufacturing indicates a trend towards informalisation of the workforce within the organised sector. Using data from 1998 to 2004, Saha, Sen, and Maiti (2013) show that higher import penetration induced firms to hire more contract workers to remain competitive, and this is more likely to occur in the presence of restrictive labour laws.

Data from the Annual Survey of Industries (ASI) reveal that the proportion of contract workers increased from 18 per cent in 1985 to 24 per cent in 2008, and further to 26 per cent in 2011-12. Increasing casualisation and contractualisation of the workforce, however, reduces firm incentives for providing on-the-job training for skill upgradation of its workers, especially for those on short-term contracts, or for those likely to quit, leading to the classic problem of under-provisioning of investment in skill training. On the other hand, wages in the unorganised sector (as shown in Table 4), along with the contractual nature of such work, often prove to be a significant deterrent for workers to invest in constant life-long learning and skill upgradation.

Formalising Informal Labour

Providing incentives for greater registration of firms, improving regulatory transparency, and easing of the regulatory burden (including labour laws) of Doing Business (World Bank, 2016) for better compliance may aid in expanding the size of the formal sector. This, in turn, could potentially accelerate the pace of creation of formal jobs, and/or allow for the formalisation of informal labour. However, informal labour is not necessarily a characteristic feature of the unorganised sector. In fact, there is an increasing trend of hiring informal labour even in the formal sector. This phenomenon has been termed as “flexibilisation” of labour, raising concerns about the quality of employment, especially in developing countries (Saha, Sen, and Maiti, 2013; WTO, 2009)¹. For instance, as per the Employees’ Provident Fund and Miscellaneous Provision Act (1952), all companies with over twenty employees are required to register with the EPFO (Employees Provident Fund Organisation). However, 98 per cent of the firms in India employ less than ten

workers (as per the Sixth Economic Census) and are outside the ambit of such regulation, thus providing no EPF benefits.

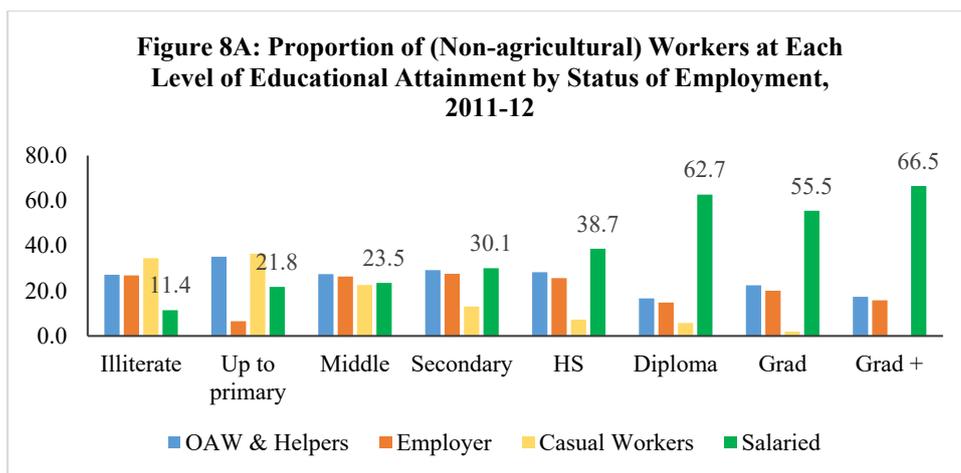
Further as noted in Section 3.1, informal workers, whether in the organised or unorganised sector, have no access to social security and healthcare benefits. While the existing labour laws lay down social security benefits for the organised workforce, no such comprehensive policy has evolved for informal workers whether at the Centre or at the level of the States. More recently, the Labour Bureau under the Central Government is working towards offering social security benefits, such as insurance and pension to unorganised workers, through the Aadhaar Enabled Payment System. In 2016, hundreds of SEWA women operating in the unorganised sector in Gujarat received an Unrecognised Workers Identification Number (UWIN), a form of recognition that provides access to government-sponsored social security benefits. The UWIN cards were offered under State provisions implemented as part of the Social Security Act, 2008, and also extended cashless benefits in the event of critical diseases.

Between 2011 and 2016, 9 million people migrated, on an average, between States for either work or education (Economic Survey, 2016-17). The increased pace of migration necessitates greater inter-State co-ordination for extending social protection for informal workers, especially for casual and contractual labourers, who do not have access to employer-provided benefits. For ensuring better traceability of workers and more effective delivery of State-sponsored schemes, especially for migrant workers, it is recommended to launch a universal social benefits plan, tied to the Aadhaar-based worker identity card, with Centre-State coordination.

Another challenge is that a large section of informal workers have no graduate degree or any formal vocational training. The lack of a degree or certification from a formally recognised institute poses a systematic disadvantage in terms of entry into the formal labour market, with most of these workers operating as either own account workers or as casual and wage labourers, often with no work contract. Another pathway in the context of skill development is to recognise and validate their prior learning, and provide avenues for skill certification. The issue of Recognition of Prior Learning has been more extensively discussed in Section 4.1.

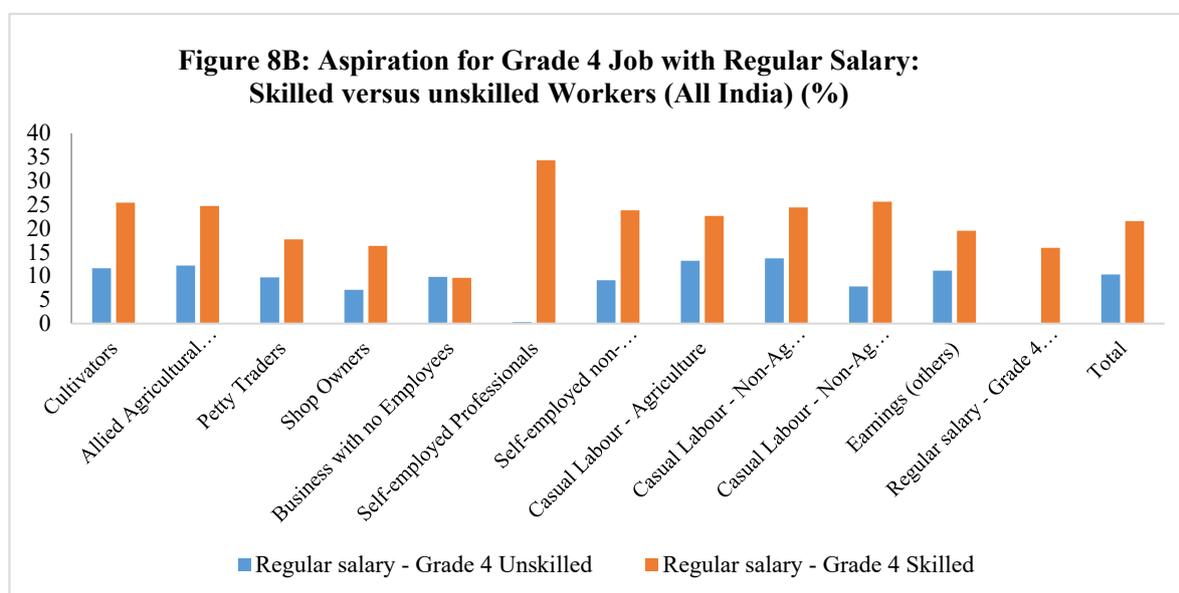
Aspiration for Regular Salaried Jobs

An examination of educational attainment (Figure 8A) amongst the broad categories of workforce reveals that a higher proportion of the workforce with diplomas and graduate degrees and above have been absorbed as salaried workers, which also reflects the aspiration for such jobs. However, the following questions need to be considered: Are such regular salaried jobs being created at a fast enough pace to absorb the unemployed youth, female aspirants, and those slated to enter the labour market over the next decade? Is the general education and the VET system capable of equipping labour market aspirants to be not only job-seekers but also innovation-led job providers?



Source: Author's computations based on 2011-12 68th Round NSSO data.

An examination of NCAER's National Survey on Household Income and Expenditure (NSHIE) data regarding the aspirations of Chief Wage Earners (CWEs) reveals some unique perspectives.¹¹ The data show that approximately 61.2 per cent of the CWEs are engaged in the same occupations that they had aspired for. The data further indicates a consistently higher (74.1 per cent) demand for regular salaried jobs for those not satisfied with their current occupations. The aspiration for regular salaried job remains high since it entails a steady stream of income with a higher potential for consumption smoothing over the life-cycle.



Source: Author's computations based on NCAER-NSHIE data, 2010-11.

¹¹ The NCAER-NSHIE initiative was carried out in 2010-11 across 32 States and Union Territories, covering 99,384 households out of a total of 5.22 lakh listed households.

Figure 8B highlights the desire for skilled versus unskilled Grade 4 salaried jobs across CWEs who are not engaged in the same occupations that they had aspired for. The figure also depicts the aspirations of casual wage labourers for regular wage jobs in the formal sector. Further, the difference between the rural and urban sectors reflects that a higher proportion of CWEs in the rural areas aspire for regular salaried Grade 4 skilled jobs. Interestingly, there is a higher demand for regular Grade 4 unskilled jobs in rural areas across all groups. Figure 3 in the Appendix indicates the occupational aspirations amongst urban wage earners, which also points to a higher demand for regular salaried skilled jobs.

Skill Mismatch: The primary reason for dissatisfaction with their current employment among CWEs appears to be irregular or low earnings. An analysis of educational attainment of CWEs who expressed a low level of satisfaction in their current employment, however, indicates that only 1.55 per cent of them have graduate degrees and above or technical/vocational education, emphasising that the absence of education and employable skills is an important factor that can potentially hold back workers from achieving their occupational aspirations and their desire for regular incomes.

4. Employment Challenges and Skill Formulation on the Job

Table 5: Average Educational Attainment by Sub-sector, 2011-12

Sectors/Sub-sectors	Workforce with at Least Secondary Education (%)	Workforce with at Least Higher Secondary Education (%)	Workforce with a Graduate Degree and above (%)	Workforce without Vocational Training and Graduate Degree
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
Agriculture	17.16	7.23	2.3	96.07
Mining	32.66	19.98	13.02	17.66
Manufacturing	32.52	18.73	8.25	86.19
• Food products, beverages and tobacco	22.67	13.13	6.05	92.23
• Wood, cork, straw and plaiting materials	15.64	7.15	1.71	96.86
• Textiles, apparel and leather products	24.09	11.48	4.35	91.16
• Machinery and equipment	72.98	55.04	29.9	49.41
• Other manufactured goods	41.84	24.25	10.39	83.29
Electricity	42.69	30.74	17.8	73.76
Construction	16.99	7.07	2.43	95.67
Services	53.75	37.75	26.8	60.27
• Trade	46.62	27.07	13.2	84.24
• Transport, storage	35.68	16.46	7.17	83.03
• Hotels and restaurants	33.83	16.63	7.34	90.63
• Information and communication technologies	91.74	82.77	65.86	25.03
• Financial services	93.11	81.04	64.63	30.05
• Real estate	73.55	52.15	32.87	64.01
• Professional, scientific and technical activities	87.80	76.59	62.92	30.37
• Public administration and defence	78.07	60.96	38.6	55.98
• Education	88.57	81.28	63.08	29.48
• Health	78.03	65.44	40.49	41.98
• Other Services	32.02	19.06	9.52	85.95
All sectors	30.51	18.32	9.00	83.44

Source: Author's computation based on principal activity status from the 2011-12 NSSO 68th Round.

Note: The figures reflect percentages of the workforce within a particular sub-sector with different levels of educational attainment.

An overview of the educational attainment of the workforce across sectors (see Table 5) reveals that services tend to absorb more workers with a higher level of education than does manufacturing. While India's GDP has grown rapidly over the last decade buoyed by services, the sector has relatively low absorptive capacity for the most-abundant factor of production, that is, workers with lower levels of educational attainment. Further, within manufacturing, the machinery and equipment sector employs a higher proportion of workers with at least a secondary level of education, while food products, textiles and apparels are dominated by workers with far lower levels of educational attainment. However, taking educational attainment as a metric for the level of skills associated with a worker or a potential labour market entrant can be problematic, given the disparate needs of job roles across industries. For instance, based on educational qualification, a major segment of the workforce engaged in the traditional handloom sector will be deemed as un-skilled, especially if such workers are also not formally vocationally trained. Interestingly, Table 5 shows that 83.44 per cent of the workforce do not have vocational training and/or a graduate degree.

4.1. Recognition of Prior Learning (RPL)

In 2005, following 33C/Resolution 10 of the 33rd session of UNESCO's General Conference, the UNESCO Institute for Lifelong Learning (UIL) undertook studies on recognising and validating non-formal and informal learning. Resulting from the discourse of the meeting and following evidences presented in international research (see Singh and Duvekot, 2013), recognition of prior learning became an integral part of lifelong learning strategies, reforms towards national qualification frameworks, and addressing the skills gap in the labour market.

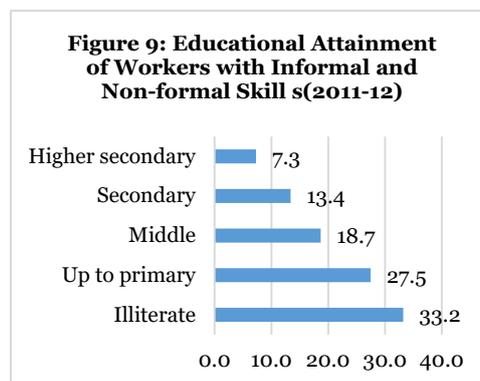
As is evident from Table 5, 83.4 per cent of the workforce (aged 15 years and above) has no formal vocational training and has never been to college, as per 2011-12 data from the NSSO Employment–Unemployment Survey. While some of these workers have acquired knowledge through non-formal sources via work or from the community and hereditary sources, the majority have received no training at all, and have acquired learning primarily from informal sources. Further, a huge section of this workforce is working in the unorganised sector, where no formal on-job training is provided. These workers primarily hail from less developed areas, systematically left behind due to the lack of adequate education facilities, with another sizeable section opting out of formal schooling in order to eke out a living and meet their basic needs.

Educational attainment and the skill levels of a worker determine labour productivity, and in effect, the wage received. In the absence of formally recognised skills, wage inequality will continue to persist between the formal and informal sectors, with such workers more vulnerable to any kind of external shock. Formally evaluating previously unrecognised skills, acquired outside formal educational and vocational training, can provide a path for skill certification and further skill upgradation for these workers. Skill certification, as per the signalling theory, can signal higher productivity for potential and existing employers, and can thus pave the way for social recognition, job mobility, and better wage and compensation benefits.

Types of Learning

Overall, there are three broad structures of learning (Werquin, 2010). This is primarily guided by the fact that learning takes place in a continuum, and people often accumulate skills and knowledge outside formal settings.

- i. *Formal learning* occurs within the framework of a formal educational or training institution—it is guided by a formally developed curriculum and leads to the acquisition of a formally recognised degree/credential/certificate.
- ii. *Non-formal learning*, though structured, takes place outside the framework of formal institutions. It may be provided through civil society organisations, workplace, community, or other organisations set up to complement formal institutions. It may also be imparted through mass media, or at a higher end via open online courses provided by educational institutions. Such learning is usually intentional from the perspective of the student/learner.
- iii. *Informal learning* is more incidental in nature, and can take place through daily activities, communities, or work experience. This typically does not follow a structured curriculum and does not lead to certification.



Source: Author's computation based on NSS 68th Round data.

Sectoral Focus

Data from the NSSO 68th Round survey (2011-12) indicates that a majority of such workers are employed in the manufacturing of food products, wood products, textiles and apparels, construction, and retail trade, among others (estimates are based on the portion of the workforce with no college degree and no formal vocational education as depicted in Table 5, Column IV). In 2011-12, there were approximately 39 million workers in construction and 15.9 million workers in textiles and apparel, with no vocational skills. Around 33 per cent of these workers are illiterate, with another 45 per cent having lower-than-secondary level of education (Figure 9). Table 6 shows the key states with a concentration of such workers with informal and non-formal skills.

While the assessment of acquired skills is an important factor for achieving national qualification standards and ensuring safety and quality control, there is, however, a lack of awareness among employers and workers about the need for skill certification. Most of the work in construction, for instance, is sub-contracted to small contractors who have little long-term incentive to invest in skilling their workers, with an equal lack of interest on the part of developers, who engage in large-scale sub-contracting, and are

Table 6: Top Ten States with the Highest Proportion of Workers with Unrecognised Skills

Uttar Pradesh	1
Maharashtra	2
Andhra Pradesh	3
West Bengal	4
Tamil Nadu	5
Bihar	6
Madhya Pradesh	7
Gujarat	8
Karnataka	9
Rajasthan	10

Source: Author's computation based on principal activity status, NSSO 68th Round. Classification of workers based on Column IV in Table 5.

thus not directly associated with the workers. The problem gets compounded when one considers the migratory nature of the workforce, with their future traceability being a major factor in preventing employers from formally investing in any re-skilling or up-skilling initiatives. Another potential problem that plagues these sectors is that most of these workers are daily wage earners, often inclined to switch jobs for higher wages without any notice, creating a moral hazard problem for firm level investment in training.

Another important sector where RPL becomes vital is the health sector. Evidence suggests that in rural India, up to 75 per cent of primary care visits are carried out by informal health care providers and self-declared doctors, reflecting the absence of a sufficient number of trained health professionals in such areas. Das et al. (2016) noted that training such workers increased the incidence of correct case management and improved health care provision.

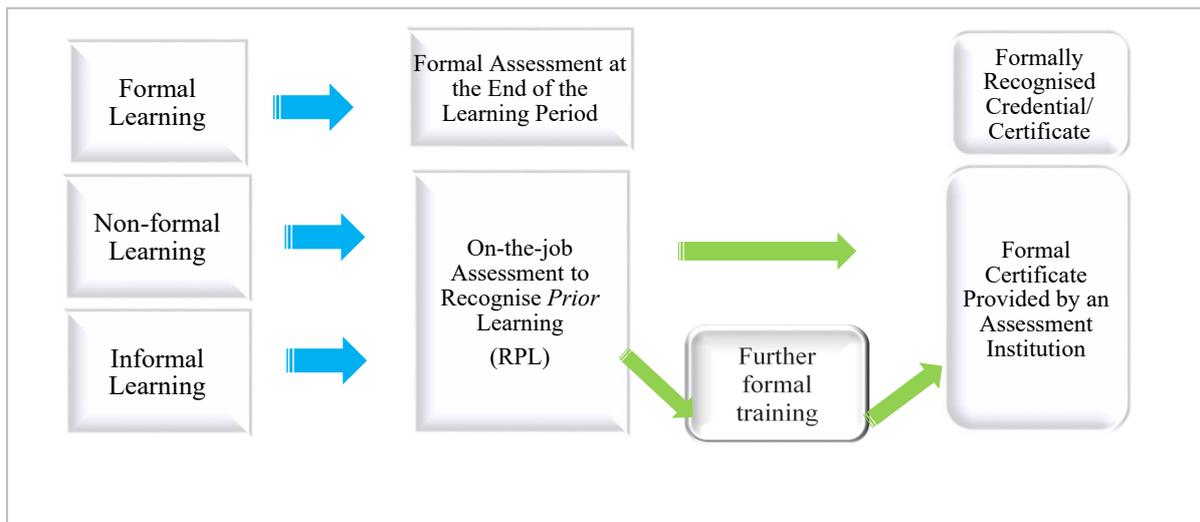
Why Is RPL Necessary?

Across countries there is a growing recognition of the need for matching labour market demands and the supply of skills. One of the ways to address the shortage of skills is to train unemployed youth and those who have dropped out of the labour market or stayed away from the labour market as they fall short of the requisite skills. Another route is to recognise informal and non-formal learning outcomes and getting the industry to appreciate their existing knowledge, skills, and competency gained via alternate means. This has increasingly gained pace in several countries where clear linkages can be drawn between the lack of recognition of learning outside the formal framework and skill shortages in the labour market. Western Australia, for example, used the RPL framework for addressing skill shortages. Similarly, Slovenia had a huge segment of the workforce without formal certificates but whose performance was at par with those having formal certification (Werquin, 2010). Evidence suggests that most non-formal and informal learning often takes place at the workplace.

Under the Pradhan Mantri Kaushal Vikas Yojana (PMKVY-2), the Ministry of Skill Development, in association with the National Skill Development Corporation (NSDC), has launched an outcome-based RPL for pre-assessing the industry-specific skills of workers at a work site, with recommendations for training based on such assessments. In the Indian context, under the PMKVY-2 Skill Development Mission, launched by the Government of India, the assessment by the accredited authority, registered with the National Skill Development Agency (NSDA), would allow for the skill profiles of workers to be mapped into the requisite qualification packs (QP) based on the National Occupational Standards formulated by the respective Sector Skill Councils. This also provides an opportunity for the formal upgradation of skills after an assessment of any potential skills gaps (see Figure 10).



Figure 10: Recognition of Learning



Source: Author's conceptualisation based on literature review presented in Section 4.1

Benefits of RPL

- (a) Employers benefit from a skilled worker, qualified as per the NSQF National Occupation Standards (NOS), with the potential for improved competitiveness and firm productivity. Further on-the-job training of the assessed and accredited workers can also be more cost-effective for firms as they gain greater awareness of the workers' existing skill gaps, if any, along with the knowledge that the outcome of such an investment in training can be documented for further assessment.
- (b) RPL can also provide greater access to information about the skill levels of the local workforce in different regions reducing the supply–demand skill mismatch. This can be particularly useful for the MSME sector. Visibility and accreditation of skills, along with mapping into QP levels can, thus, provide scope for greater occupational mobility for the certified worker, including potential entry into the formal sector, especially for workers who have remained systematically disadvantaged.
- (c) The recognition and validation of skills can also reduce the time needed to complete the certification process, thereby reducing the time away from the workplace, and consequently the opportunity cost of training for an existing worker.

Returns to Learning

Table 7 shows the average daily wages of workers across various stages of educational attainment, with and without formal vocational educational training (VET). Formal VET programmes differ in scope and duration depending on the level at which they are offered, that is, for those who have completed middle school, secondary school, or higher secondary. The daily wages of workers with VET are higher than those for workers with non-formal and informal learning across all categories of educational attainment, signifying higher returns for a formally recognised training and certification process. Interestingly, the figures also reflect higher returns to VET for

salaries of salaried workers with secondary education and higher secondary education than for those who have done schooling up to the middle level. Within informal and non-formal learning, there are some marginal differences between average wages for those who received knowledge via hereditary sources, and for those who acquired learning on-the-job and through other informal sources (not included in the table). In either case, the figures in Table 7 point towards the larger need for recognising all informal/non-formal sources of learning for increasing work productivity.

Table 7: Returns To Learning: Average Daily Earnings For Workers (in Rupees)

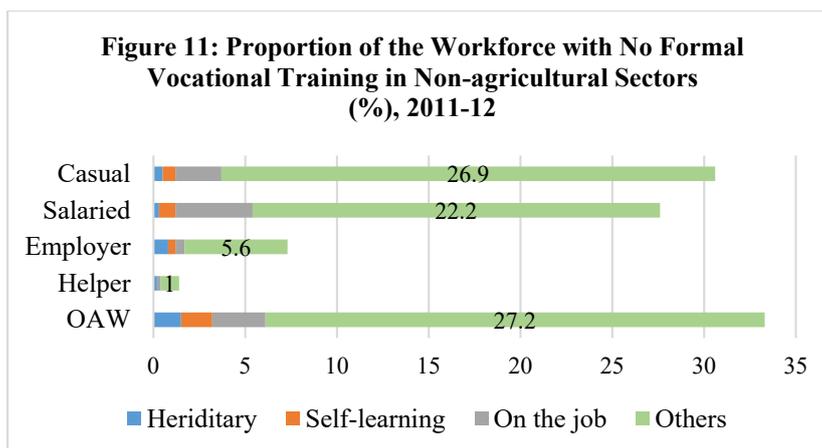
Type of Labourer	Form of Vocational Learning	Total	At Most			Higher Secondary
			Primary	Middle	Secondary	
Salaried	Receiving formal	282.5	243.3	216.5	266.3	331.4
	Received formal	341	276.5	265.3	388.3	391.3
	Informal and Non-formal	246	176.3	216.4	301.5	364.5
Casual	Receiving formal	166.2	136.7	225.2	151.8	113.1
	Received formal	225.6	207.2	255.8	212.9	206.1
	Informal and Non-formal	140.3	133.8	159.6	160.4	152.1

Source: Author's computation based on the 2011-12 NSSO 68th Round Employment Unemployment Survey

Note: The daily wages of workers have been calculated using usual principal activity status for all members of the working age population of 15 years and above. The figures show returns to formal and informal VET for workers with different levels of educational attainment.

Challenges in Implementing RPL and the Way Forward

Because of externalities in skill formulation, a private firm may not be able to reap all its benefits from investment in training and certifying its workers. Hence, the public provision of such infrastructure becomes important. This assumes even greater importance in the unorganised sector wherein a vast number of Own-Account Workers (OAWs) operate as household/micro entrepreneurs. The current focus on RPL in India is largely oriented towards industry sites, which leaves out such OAWs. As per the 2011-12 NSSO estimates, 33.3 per cent of workers with unrecognised skills are OAWs (see Figure 11). While they are difficult to track, such self-employed workers form a large part of the workforce, especially in industries such as construction, textile and apparels, and retail.



Source: Author's computations based on principal status work for working age population from NSSO 68th Round data.

According to the Handloom Census of India (NCAER, 2010), 61 per cent of the handloom workers are independent workers, having acquired their skills mostly on a legacy basis. They are independently involved in the entire production process and are often subject to market and business risks. Further, as pointed out by Pilz, Uma, and Venkatram (2015), street food vendors tend to acquire a wide range of specialist skills outside the formal system and practices such as a non-formal apprenticeship system. Recognising and validating the skills of such workers and offering a path to upgrade these skills based on the NSQF National Occupation Standards (NOS) could improve the marketability of their products, and enhance their competitiveness and livelihood opportunities. It is also important to ensure the traceability of such workers by providing them an Aadhaar identification number or another number for both social protection and human capital formation over the life cycle.

4.2. Human Capital Formation and On-the-job Training

Firms Size and Restrictive Labour Laws

While the issue of unrecognised skills of existing workers was discussed in the previous section, another challenge is to reskill the existing workers and upgrade their skills based on job-specific demands, especially given the massive skills gap across a variety of sectors. India's skills gap is not only restricted to manufacturing, and is also prevalent across the services sector. As shown previously in Table 6, 83.44 per cent of the workers across sectors do not have a college degree and/or formal VET. In comparison, 68 per cent of the workers in the UK, 75 per cent in Germany, and 96 per cent in South Korea are formally trained. Based on data obtained during a field study, Mehrotra et al. (2013) noted that most firms were willing to provide in-company and on-the-job training for new employees, though companies with less than 100 employees cannot typically afford to invest in skilling initiatives. This poses a conundrum for the Indian economy, where 95 per cent of the firms employ less than 5 workers, with another 3 per cent employing 6–9 workers, as per the Sixth Economic Census.

Exploring the variation in the rigidity of labour laws across States, Hasan and Jandoc (2012) have shown a growing share of small enterprises (employing 0-9 workers) in States with rigid labour laws.¹² Rigidity with regard to size and operations often prevents large private firms from entering the market, or expanding the scale of operations, leading to sub-contracting of work. On the other hand, the small scale of enterprises creates a disincentive for firms to invest in the skill upgradation of existing workers, resulting in a severe shortage of skilled labour. This further affects firm productivity, since investment in human capital is crucial for enhancing productivity growth and gaining a competitive edge in a very globalised economy.

Firm Size and On-the-job Training

Using World Bank enterprise level data from 99 countries, Almeida and Aterido (2015) show that there is a high correlation between firm size and investment in on-the-job training. Using matched employer-employee data from Malaysia and Thailand, Almeida and Faria (2014) show that investment in on-the-job training is positively linked to firm productivity and average wages at the firm. The challenge is that small firms often disregard the role of skills in the overall business planning process. An examination of the data (a 2014 World Bank Enterprise Survey of organised sector firms in India) indicate that while 60 per cent of the large firms are willing to train their full time permanent employee, only 25 per cent of small companies and 39 per cent of medium companies will do so. Interestingly, amongst those who do not train, 58 per cent of firms across different size distributions emphasise that there is no need for formal training.¹³

While skill training is often undertaken at the firm level for meeting the firm's own human capital requirements, such investment is more prevalent amongst large firms that can bear the cost of such training. The disconnect between formal education and jobs, and the inadequate training of trainers, translating into a lack of employable skills among entry-level hires and fresh graduates, have prompted employers to make their own provisions for such training, in addition to upgrading the skills of existing workers in order to boost productivity.

Implementing such modules in SMEs becomes a challenge because of the scale disadvantage resulting from the small size of such firms. It has been observed that 95 per cent of the firms employ less than 5 workers, with another 3 per cent employing 6-9 workers, according to the Sixth Economic Census. The small size of firms offers little to no incentive for hiring apprentices for on-the-job training. Beyond apprentices, the small scale of firm operations also often translates into under-investment in the skill training of existing workers and informal business practices. Additionally, increasing contractualisation of work, as discussed in Section 3.1, is often a disincentive for providing on-the-job training, especially when contracts are of a shorter duration or irregular in nature.

¹² Labour laws such as the Industrial Disputes Act (1948) prevents firms, employing more than 100 workers (1982 amendment), from retrenching and laying off workers during unprofitable periods. Further, the Minimum Wage Act restricts firms from altering wages during lean periods.

¹³ Using the CMIE Prowess database, Pohit and Biswas (2015) show that the incidence of on-the-job training also differs across the manufacturing and services industries. The expenditure share of training in service industries is higher for Indian private firms, while foreign firms invest more for the manufacturing sector. However, the data does not provide information on the skills/educational attainment of the workers, or whether the training was provided for permanent or contract employees.

Box 2: Demand-driven Entry-level Interventions for On-the-Job Training in Large Firms

On-the-job training to plug the skills gap and improve the employability of workers can involve short-term training programmes for imparting non-cognitive skills, along with cognitive skills such as functional language and communication skills, or longer-term training in technical skills and domain knowledge, or apprenticeship training, among other things.

- In an effort to improve employability, Bosch India implemented the “Learn by doing” Graduate Apprenticeship Program aimed at full-time engineering graduates— – this is a 12-month course providing on-the-job and classroom training in technical and non-cognitive skills (such as decision-making).
- Infosys soft-skills training: Covering a period of 3–4 months, this programme is intended for fresh graduates recruited via campus placements, and involves training in functional language skills (business skills), communication skills, and gaining real-time knowledge of the industry.

In an effort to align skills with jobs, over the last few years, several Industrial Training Institutes (ITIs) have signed agreements with large industrial houses, in addition to upgrading their existing infrastructure. Such collaborations with the industry were primarily triggered by the need for developing a curriculum that is more in alignment with industry needs and for ensuring the adequate training of trainers. The quality of State-run ITIs offering vocational courses has been subject to severe criticism, resulting in the poor employability of trainees (Joshi, Pandey, and Sahoo 2014; Tara, Kumar, and Pilz, 2016), and hence the need for such interventions. Box 3 highlights some of the best practices of direct engagement of large firms in providing skilling initiatives, and/or collaborating with private training providers.

Box 3: Industry–Knowledge Providers Connect

Technical Institutes

- (i) In 2016, Boeing, in collaboration with Tata Advanced Materials Limited (TAML) and Nettur Technical Training Foundation (NTTF), launched their three-year diploma programme, titled, “Learn and Earn” to train front-line workers for the Aerospace Manufacturing Technology (Advanced Composites) under the ‘National Employability Enhancement Mission’ (NEEM). The programme involves training in fundamental theory, practical application, and non-cognitive (behavioural) skills, and is aimed at students who have completed higher secondary level education from the science stream.
- (ii) Mercedes-Benz India launched the ‘Advanced Auto Body Repair Training Centre’ initiative in association with Don Bosco ITI, Chinchwad, in August

<p>2016, with the goal of filling the skills gap for technicians in the automotive sector. The programme involves designing a curriculum based on modern automotive technology, extensive hands-on training of lecturers at Mercedes-Benz India, and supply of advanced technical tools and equipment, along with Mercedes-Benz cars for training purposes.</p>
<p>Private Training Provider:</p> <p>Apart from ITIs, private training providers also offer vocational training based on industry needs. Amongst some of the noteworthy institutes, SkillSonics offers fee-based training modules to both large and small companies. These training programmes involve dual-track Swiss VET (apprenticeship) modules, running for multiple years (two to three) for multi-skilled production technicians, or for six months to one year for specialised production technicians, with the goal of equipping workers to perform tasks with skill sets at the international level. Such a dual track training programme offers practical training at the designated company premises, along with a classroom curriculum in VET subjects.</p> <p>Courses offered by SkillSonics for NSDC/SSC candidates are, however, for shorter duration, running from four weeks to one year.</p>

The challenge is to scale up such individual models of industry–academia connect and to impart skills, adopting the latest technology and infrastructure. This particularly becomes an issue for the SME sector, in order to overcome the classic problem of under-provisioning of on-the-job-training (Brunello and De Paola, 2004). Acemoglu and Pischke (1999) argued that in a perfect labour market, firms are unlikely to invest in imparting training in generic skills because a trained worker is more likely to quit. In such a scenario, a firm is more likely to invest only in firm-specific skills, which will improve the productivity of the worker only in her current job.¹⁴ However, training in firm-specific skills poses a challenge when similar technologies are being used across a group of firms within the same industry, or when there is a lack of awareness regarding the returns to skills. Further, skill training is often regarded as an expenditure, instead of being perceived as an investment, with the returns to be reaped from improved productivity, an issue particularly reiterated by the MSME Foundation.

Challenges in the MSME Sector

As per the 2007 MSME Census, 95 per cent of the firms in this sector are micro-enterprises, investing Rs. 25 lakh and less in plant and machinery—these enterprises mostly serve local markets and suffer from their sub-optimal scale of operation. Data from the 2010-11 67th Round NSSO survey of unincorporated enterprises show that one of the key hurdles faced by entrepreneurs in the unorganised MSME sector is the

¹⁴ Becker (1964) distinguished between generic and specific skills. Generic skills can be useful for other employees whereas specific skills are peculiar to the concerned firm.

non-availability of labour (see Figure 12).¹⁵ Several of the other issues, such as uncertainty in demand and access to credit can also be addressed to a certain extent by providing the right set of core business skills.

The data further show that only 37 per cent and 20 per cent of the employers use formal book-keeping and accounting methods in urban and rural areas, respectively (Table 8A). The lack of accounting skills and knowledge of cash flow calculations, along with managerial and marketing skills, leave MSME firms fully exposed to market and business risks, and remain a key impediment in applying for formal sources of credit. This impacts their working capital cycle, which in turn, adversely affects their ability to expand, upgrade, or hire skilled manpower. Further, the lack of digital skills (see Table 8B) prevents firms from gaining access to regional or national markets, leaving them exposed to uncertainty in local demand. Interestingly, data also shows that an estimated 37 per cent of the enterprises that are expanding their operations face a severe shortage of labour.¹⁶

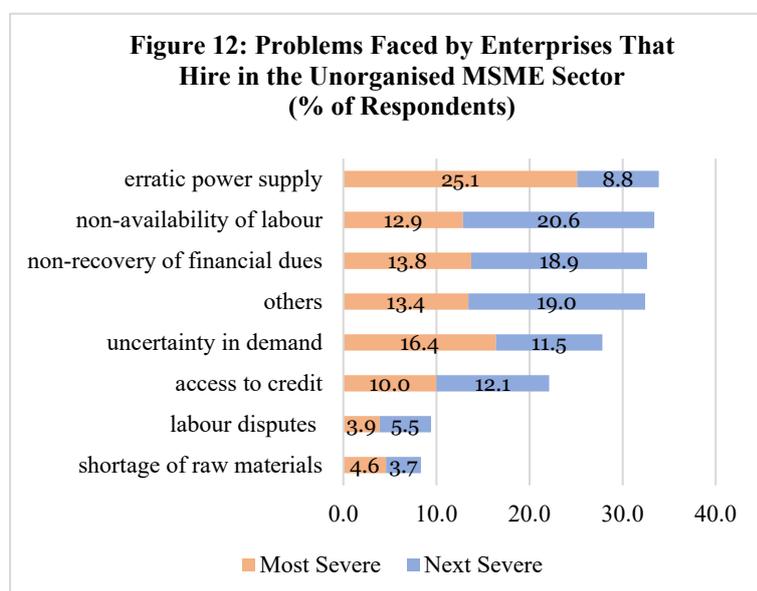


Table 8A: ICT Usage by Enterprises That Hire

	Rural	Urban
	5%	17.5%

Table 8B: Formal Accounting by Enterprises That Hire

	Rural	Urban
	20%	37%

Source: Calculation based on 2010-11 NSSO 67th Round Employment-Unemployment Survey; the data corresponds to opportunity entrepreneurship, which in turn, corresponds to enterprises with hired workers.

Cluster-based Skill Initiatives

In the presence of under-provisioning of firm-based skill training, a question that arises is: Who should pay for such training? The National Skill Development Mission was launched for addressing not only the need for training unemployable youth, but

¹⁵ Data from the NSSO 67th Round have been used for analysis of the MSME sector—investment in the level of fixed assets owned and hired has been used as determining factor for the MSME sector based on the new definition provided by the Ministry of Micro, Small, and Medium Enterprises.

¹⁶ As per the data, approximately 51 per cent of the opportunity entrepreneurs reported that they are expanding their operations.

also the issue of upgrading the skills of workers. The training courses offered by NSDC through its empanelled training institutes provide focused industry-specific job role-based training. However, the initiative may not be sufficient for bridging the plethora of skill gaps faced by MSME firms in India.

While the skill development goals can follow the unified guidelines offered by the National Standard Qualifications Framework, as noted by Singh (1999), any such training needs to be tailored to meet the skills, capabilities, and attitudes based on local socio-cultural settings and local labour market conditions. Mitra (2002) argued that such training needs to be tuned to local industry-specific and firm-specific requirements, and to address the necessary skills gap within the socio-economic context in which the workers operate. This is particularly important in the context of the MSME sector, which is highly fragmented in nature and is characterised by varied levels of skill gaps.

Industry clusters often tend to share several commonalities in terms of sector concentration and socio-economic and demographic characteristics, which builds the case for cluster-based skill initiatives in collaboration with knowledge partners and training hubs. This also calls for an increasing role for State Skill Development Missions, and local MSME industrial associations for appropriate skill transfer mechanisms. As pointed out by Mehrotra et al. (2013), small firms are more willing to invest in training once the cost is shared with the Government, essentially presenting a case for indirect subsidies (via public-private partnerships) for firm-based training. The cluster-based initiative can also be employed for technology upgradation of MSME firms, most of which suffer from a very high degree of technological obsolescence. More recently, in August 2016, the Ministry of Skill Development and Entrepreneurship (MSDE) entered into partnership with German International Cooperation (GIZ) to adapt the German model of vocational education and training within the automobile, electronics, and construction clusters in India. This also includes the adoption of gender-responsive approaches for a more inclusive skilling framework.

Innovation Vouchers

Innovation enablers for MSME growth often fail to take off because policy-makers tend to superimpose pre-designed solutions which are not structured to cater to the demands of the target group of firms (GIZ, 2016). In this respect, GIZ, in co-ordination with the Ministry of MSMEs, experimented with innovation vouchers. The voucher programme encourages local entrepreneurs to come forward with their ideas and business plans instead of providing incubation support based on pre-determined areas. A 2010 OECD document on innovation vouchers shows that the programme aligns the incentives of SMEs with those of knowledge providers. Under the programme, SMEs tend to approach knowledge providers for solutions to their innovation challenges, while knowledge providers are keener to work with SMEs instead of catering to their traditional clients or corporates. A pilot project was implemented in the State of Tamil Nadu by GIZ (2016). Scaling up of such programmes with industry-academia collaboration can address the challenge of technological obsolescence and low-level technological adoption in SMEs.

SME Apprenticeship

A 2014 ILO case study of SMEs in India on returns to skilling uses the Return on Investment (ROI) for drawing up a cost-benefit analysis instead of merely examining wage rate changes of the individual worker following training. ROI is of particular interest to firms since it is a measure of profitability, and therefore, further research in this area is of utmost importance. The report cites positive returns for firms as early as the first year following a completed apprenticeship, with benefits accruing in most cases within the apprenticeship period itself. The case study looked at modules involving dual-track apprenticeship, which involved theoretical (25 per cent) and practical (75 per cent) training in technical skills and non-cognitive skills, mentoring support, and shop floor experiences. Incentivising SMEs to take up apprenticeship programmes would necessitate building a greater awareness on the returns to investment in the skill training of apprentices, and such investment is likely to outweigh the opportunity cost of workers quitting their jobs. A new programme, the National Apprenticeship Promotion Scheme (NAPS) was launched in August 2016 to incentivise industry, including SMEs to engage in apprenticeship training. NAPS offers incentives to employers by sharing 25% of the total cost of the stipend paid to the apprentices, and by reimbursing the cost of basic training to Basic Training Providers providing such training.

4.3. Entrepreneurship and Jobs

A growing recognition of the need to create more jobs, and nurture more entrepreneurial intentions, led the Central Government to launch Start-Up India in 2016.¹⁷ However, in developing countries, entrepreneurial intentions are often not associated with the inclination to exploit business opportunities, but persist because of entry barriers to the formal labour market. Although the last decade saw a spurt in innovation-led entrepreneurial ventures in the services sector, primarily via e-commerce and technology platforms, a vast majority of the entrepreneurs in India remain necessity entrepreneurs, operating in the unorganised sector.

Push or Pull?

In the Indian scenario, entrepreneurs can be divided into the following two categories:

- (a) Own-account workers or necessity/pull entrepreneurs: They are often low on productivity, and lack accounting, managerial, and marketing skills, leaving them fully exposed to market and business risks. Such workers tend to leave entrepreneurship for formal employment as and when the labour market gains traction (Parga and Mondragon-Velez, 2008; Daymard, 2015). Deshpande and Sharma (2013) noted significant caste- and gender-based segmentation in enterprise characteristics, with SC-ST entrepreneurs more likely to be smaller own account enterprises, and located in rural areas. Further, the authors also found evidence of a caste-gender overlap, with a greater proportion of female-owned enterprises amongst SC-ST enterprises. These disparities are often the result of lower levels of education and skills, along with fewer assets and poorer networks.

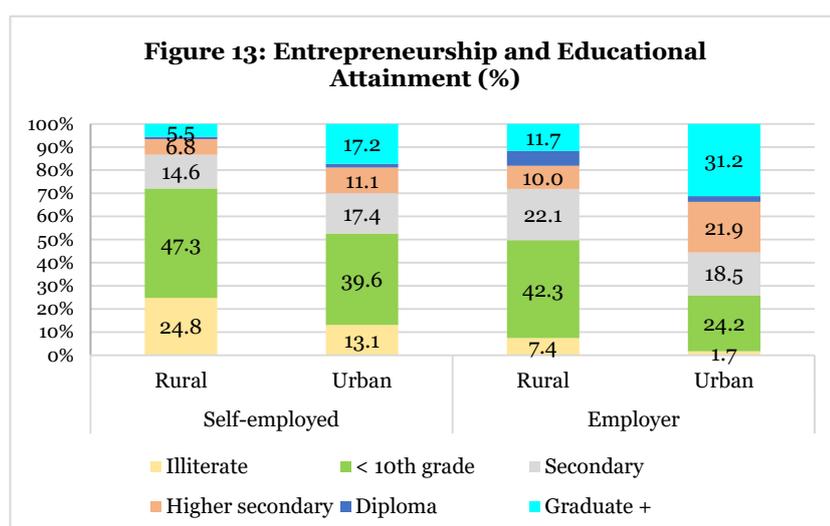
¹⁷ Entrepreneurship is often considered to be a pathway for creating new jobs (Schumpeter, 1942).

(b) **Push or opportunity entrepreneurs:** These are usually drivers of innovation, more keen to exploit new business opportunities, and more likely to expand business and hire people. Ghani, Kerr, and O’Connell (2011) noted the difficulty of using self-employment as a driver for the type of entrepreneurship necessary for achieving substantial job growth and highlighted the importance of opportunity entrepreneurs. The proportion of such entrepreneurs is strikingly low in India, with only 1.53 per cent of the workforce serving as employers, as of 2011-12 (estimate based on NSSO data).

Why do opportunity entrepreneurs form such a tiny proportion of the workforce? What are the factors that drive risk-taking behaviour and innovation-based entrepreneurial intentions and what are the hampering factors?

Entrepreneurship and Education

An ever-growing body of research points to a highly positive relationship between entrepreneurship and economic growth, wealth creation, and a variety of labour market outcomes, while also examining whether such entrepreneurial mindsets and the requisite knowledge and skills can be imparted at educational institutions and during training programmes. Data from the NSSO 68th Round data show (Figure 13) that on an average, entrepreneurs who hire workers have more years of schooling than those who are self-employed, and this is even more true in urban areas. Studies have found evidence of substantial linkages between entrepreneurship and educational attainment (Ghani et al. 2011; Kolstad and Wiig, 2013; Daynard, 2015), while Parker and Praag (2006) indicated that education increases the likelihood of getting access to credit by signalling the loan repaying ability to banks. The Ministry of Skill Development and Entrepreneurship (MSDE), established by the Government of India, aims to boost entrepreneurial skills through the Indian Institute of Entrepreneurship, focusing on training, research, and consultancy services for SMEs.



Source: Author’s computation based on the 2011-12 NSSO 68th Round Employment-Unemployment Survey; data reflects entrepreneurship in non-agricultural sectors for the working age population of 15 years and above.

Evidence shows that during the first half of 2016, a handful of much anticipated start-ups collapsed, suffering from various constraints including lack of innovation, access to finance, pertinent skills gap, and inappropriate business models among

other potential hurdles (Punit, 2016). In addition to general education and technical knowledge and skills, the entrepreneurship spirit requires innovation, creativity, and risk-taking appetite and cognitive flexibility (Baron, 2004), traits which are usually difficult to develop. Entrepreneurs are often required to operate in an uncertain environment and risk-taking behaviour, when grounded in entrepreneurial skills, provides greater scope for business sustainability. Using German SOEP panel data, Caliendo, Fossen, and Kritikos (2006) show that risk-taking appetite is often enhanced with additional years of education, with entrepreneurs having higher levels of educational attainment and more years of work experience, as compared to employees.

Entrepreneurship and Multi-skilling

In contrast to skilling for sector-specific jobs, which requires sector-specific specialisation, training for entrepreneurship requires a multi-skilling approach. A multi-skilled worker is an individual who possesses a range of skills and knowledge which can be applied to tasks that may fall outside the job requirements of a regular salaried employee. Apart from sector-specific technical/vocation skills, key cognitive and non-cognitive skills and sector-specific technical/vocation skill and related knowledge, as discussed previously, entrepreneurs also need to be equipped with business skills such as accounting and financial management skills, marketing skills, and inventory management skills for smooth conduct of business. At the very basic, numeracy, financial literacy, and digital literacy become vital.

Lack of basic accounting skills and/or financial illiteracy can prove to be an impediment in access to formal sources of credit, necessary inventory management, and maintaining appropriate cash flow. All of these can lead to inadequate capital for future investment denting the ability to earn profit for the long-term viability of the enterprise. Field, Jayachandran, and Pande (2010) provided evidence that women who took training courses covering financial literacy (including basic accounting skills, interest rates, and life-cycle planning), business skills (cost reduction, investment, and customer service), and an aspirational module¹ were more likely to launch or expand their micro-enterprises—the two-day training programme was imparted by SEWA for randomly selected women who actively saved with the bank.

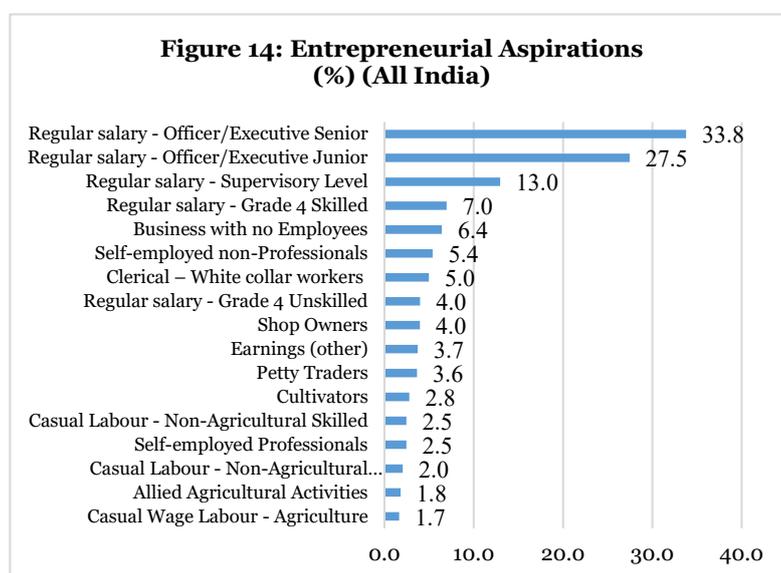
While the National Skills Qualification Framework provides details of core competencies required for job roles across sectors, PMKVY-II the Pradhan Mantri Kaushal Vikas Yojana (PMKVY-II)) programme has made it mandatory for training providers to impart additional hours of training in financial literacy and digital literacy. The goal is to ensure self-employment for those who are unable to secure wage employment. However, merely providing digital and financial literacy is not enough for launching a viable micro-enterprise, and needs linking up with labour networks or connecting with livelihood activities. The importance of providing direct market linkages was particularly highlighted during NCAER discussions held with SEWA Bharat, along with the need for providing mentoring support over the life-cycle of the business, especially to vulnerable low-income groups that may not have access to such services, or the requisite know-how for running viable businesses. Women members of SEWA Bharat are not only provided training in technical and business skills but are also connected to markets. Additionally, women are also encouraged to form cooperatives, which not only act as support networks but also provide a platform for developing life skills.

Identification of Opportunities

Along with entrepreneurial skills, one of the key factors needed for the realisation of entrepreneurial intentions is identification of opportunities, which can arise out of a number of scenarios, as discussed below.

- **Business Plan Challenge:** Business plan competition and innovation challenges, provide the scope for experiential learning, and have the potential to serve as a launch pad for start-up enterprises. Such initiatives include the “10,000 start-ups’ programme by NASSCOM and Sankalp–MSME Business Plan Challenge.
- **Spin-offs:** Employees having sufficient work experience often leave firms to ‘spin-off’ their own firms (Chatterjee and Rossi-Hansberg, 2012). Such spin-offs can occur as a result of the generation of ideas borne out of experience or out of dissatisfaction with current employer/occupation. A classic example off a spin-off firm is Flipkart, whose owners previously worked for the e-commerce giant Amazon.
- **The Gig Economy:** The birth of service aggregators such as Ola (cab aggregator) and UrbanClap (service aggregator), and e-commerce platforms such as IndiaMart have given wings to entrepreneurial spirit across India. For instance, UrbanClap has provided an online service marketplace, matching urban customers to skilled and certified self-employed professionals offering a variety of services. Given its vast potential, National Skill Development Corporation (NSDC) has signed an agreement with UrbanClap Technologies Pvt. Ltd. for opening up the service portal to NSDC-certified workers.

Aspirations



Source: Author’s computations based on NCAER-NSHIE 2010–11.
 Figures reflect percentages across different categories of Chief Wage Earners.

NCAER's National Survey on Household Income and Expenditure (NSHIE) data on the aspirations of Chief Wage Earners (CWEs) reveal that while entrepreneurship is often deemed to be the pathway for creating many more jobs, national-level data shows that there is a consistently higher demand for regular salaried jobs. Due to the paucity of appropriate data, it is not possible to draw any conclusions on the willingness and ability of young graduates and unemployed persons to set up an enterprise or on how the relaxation of the regulatory environment and business laws could help create a start-up ecosystem that can potentially boost job growth. However, NSHIE data allows us to examine the entrepreneurial spirit of CWEs, identifying how many of them want to set up a business or enterprise if they are not satisfied with their current occupation.

The data indicates that those with regular salaried jobs, primarily at the officer/executive level, aspire to set up their own enterprises (see Figure 14). Incidentally, such workers also tend to have higher levels of education. Klepper and Sleeper (2005) indicated that employees who tend to be dissatisfied with their employers because of the rejection of an idea about an innovation are more likely to launch their own firms. Such initiatives, however, require an enabling entrepreneurial environment along with the relevant entrepreneurial skills.

Enablers

Ghani et al. (2011) noted the evidence of local physical infrastructure, agglomeration economics, and supporting industrial structures for forward and backward linkages as the key factors contributing to a higher entry rate of new establishments. Amongst interventions that support entrepreneurial activity, easing of business regulatory bottlenecks creates an enabling environment for start-ups, and to this effect, DIPP's intervention towards State-level implementation of the 340-point business reform plan in India and launching of Udyog Aadhar Memorandum (UAM) for streamlining the registration process for MSMEs can usher in a period of growth of registered enterprises.

In addition, the Government of India launched the Micro Units Development Refinance Agency (MUDRA) Bank¹⁸ to provide credit to young, educated, or skilled workers and entrepreneurs including women. Mudra is empowered to nurture small businesses through different stages of their life-cycles, while also providing support for developing financial literacy and financial management skills.

Women Entrepreneurs

Data from the sixth Economic Census, carried out between January 2013 and April 2014, show that only 13.76 per cent (that is, 8.05 million) of the establishments are owned by women. The establishments owned by women provide employment to 13.45 million people, indicating the micro nature of the average enterprise. Out of these entrepreneurs, 65.7 per cent operate in the non-agricultural sectors, with manufacturing and retail trade accounting for 29.8 per cent and 17.8 per cent of the entrepreneurs, respectively. The Census figures also indicate that a vast majority (95.55 per cent) of these entrepreneurs do not have access to institutional sources of finance, and only 1.08 per cent borrowed from formal financial institutions.

¹⁸ MUDRA is the regulatory body for Micro-Finance Institutions (MFIs).

The skewed gender disparity in entrepreneurship deserves further policy interventions to incentivise greater female-led start-ups. Ghani, Kerr, and O’Connell (2012) used micro-level data on the unorganised enterprises and found evidence that adequate infrastructure and higher education levels result in a higher rate of female entrepreneurship. Further, the existence of a higher number of female incumbent entrepreneurs can often serve as a predictor for a greater share of subsequent female start-ups—this emphasises the need for more visible women role models to encourage work participation amongst women, an issue reiterated previously in Section 4.2. Further, evidence from experimental research also suggests that peer effect is likely to positively influence the performance of women subject to social and cultural restrictions (Field et al. 2016).

4.4. Demand for Skills

Much of the post-liberalisation era has witnessed growing capital-augmenting technological transformation, including automation of tasks previously carried out by low-skilled workers. Using ASI data on manufacturing firms, Berman, Somanathan, and Tan (2003) find evidence of skill-biased technological change. This translated into increased skill premia between 1983 and 1999 (Chamarbagwala, 2006), resulting in rising wage inequality. Kijima (2006) indicates that the wage inequality in urban India mainly resulted from an increase in returns to tertiary education. Azam (2012) further noted that wage inequality resulting from returns to higher education, increased further at the higher quantiles.

Across industries, automation and digital technologies are driving productivity and efficiency, making it extremely vital for firms to initiate technology upgradation in order to enhance competitiveness, along with re-training their workforce with the skills necessary for increased adaptability. Infosys, a global software technology giant, released 8000-9000 employees in 2016 because of automation of low-end jobs—these employees are now working on advanced projects, indicating that automation is not necessarily stealing jobs, but rather transforming jobs.

Skills-Technology Linkages

Several studies have examined skills-technology linkages, arriving at the consensus that skilled labour and technology are complementary but unskilled labour and technology are substitutes. Autor (2015), for instance, showed that technology is more likely to substitute routine cognitive jobs such as clerical work, accounting, and factory shop floor assembly line work, or activities that are repetitive in nature and can be performed within the threshold of pre-defined guidelines (Autor, Katz, and Kearney, 2006; Goos, Manning, and Salomons, 2014). However, jobs that require higher-ordered cognitive skills such as creativity and complex problem-solving are likely to thrive. Autor (2015) further noted that low-skilled jobs have been surprisingly resistant to automation and are less likely to be wiped away as rapidly, creating an increasingly polarised labour market and widening wage inequality.

Such growing wage inequality is also evident in India, with Azam (2012) demonstrating that in 2004, a positive wage premium was paid by sectors that tend to be more capital-intensive or skill-intensive, while a negative wage premium was

paid by sectors that employ less capital-intensive or skill-intensive workers.¹⁹ The author, however, noted that the share of these skill-intensive industries in the total workforce remained low, which presents a challenging scenario for policy-makers, that is, how to incentivise the creation of more well-paying jobs. In India, skill-biased and capital-biased technological change have translated into declining labour intensity even in labour-intensive industries in organised manufacturing in the post-liberalisation era, pushing more workers into the informal sector. However, the pace of rapidly evolving disruptive technology has the potential to cause disruption in both the formal and informal sectors.

Labour markets around the world have gradually noticed a decline in middle-skill jobs. The “missing middle” is associated with jobs that have a high content of routine cognitive task. In this context, Deming (2015) found evidence that labour markets increasingly value non-cognitive socio-emotional skills, and that employment and wage growth have been higher in jobs that require both higher-ordered cognitive skills and higher levels of social skills. Deming, however, carried out his analysis using data on the US labour market—no such comparable analysis has been done in the Indian context. While routine cognitive jobs are prone to automation, non-routine interaction and flexible social skills are hard to simulate, and hence cannot be easily automated, thereby increasing the demand for such skills.

The Case for New Mapping of Skills in India

The discussion so far makes it important to identify the key skills that firms demand across different occupational roles and how the firms can prepare for such skills. A report by Manpower Group (2016) pointed out that skills cycles are now shorter than ever and that technological disruption is likely to hit India very hard, with 75 per cent of the businesses expecting automation to require new skills over the next few years. The direct implication of this is that both labour market entrants and the existing workforce need to prepare and train for jobs that do not yet exist. Cortes et al. (2014) showed that those with higher education found it easier to adapt to the changing labour market scenario than those with less education. However, the growing disconnect between industry and academia has led to an acute shortage of skilled workers across sectors. The NSDC, in response to the growing skill mismatch, formulated the NSQF²⁰ framework for job-specific training for a variety of industries based on a skill gap analysis assessment at the State level—such job-specific training is provided by NSDC-certified training providers across the nation.

However, vocational training in such task-based industry-specific job-related skills may provide a temporary solution for the acute skills shortage faced by the Indian industry. A recent World Bank study (2015) showed an extremely high turnover of such workers, with only 32 per cent of NSDC-certified workers found to be still in employment 1–2 years after training. Further, such task-based detailed mapping of job roles, for instance, offers little guidance in the event of a major technological shock, leading to widespread structural unemployment and skill obsolescence. Skill

¹⁹ Azam (2012) noted the following industries to be (a) capital-intensive: mining, electricity, manufacturing of machinery, petroleum; (b) skill-intensive: computer, financial intermediation; (c) less-capital intensive: light manufacturing such as the foodstuffs, tobacco, and textiles; and (d) less-skill intensive: agriculture and hotels.

²⁰ The NSQF (National Skill Qualification Framework) is a competency-based framework anchored at the National Skill Development Agency (NSDA), which charts out career progression of a worker in specific job roles in respective sectors, mapping task-based job roles over ten levels.

obsolescence can also occur due to several factors, including, but not limited to, job-specific obsolescence caused by technological change, whereas sector-specific obsolescence may occur due to structural shifts in employment, and firm-specific obsolescence due to displacement (De Grip, 2006).

One of the primary ways to avoid skill obsolescence is to provide a set of core competency skills that will eventually foster a spirit of engaging in higher-ordered cognitive skills such as self-learning, lifelong learning, and 'learning to learn', thus increasing adaptability. One of the leading training providers in Germany, bfw-Unternehmen für Bildung, for instance, offered a blended learning module for up-skilling the existing nurses working in the Dubai healthcare sector—apart from the core courses, the programme also offered extensive periods of self-learning, practical training consisting of internship at an industrial unit, and class-room seminars (iMove, 2015).²¹

Over the longer term, issues related to potential structural unemployment and skill obsolescence build the case for developing an education and training system, with greater industry–academia connect, and one that lays greater emphasis on nurturing higher-ordered cognitive skills such as creativity, critical thinking, and lifelong learning, while fostering an environment for building socio-emotional interactive skills, instead of a structured theoretical system that encourages only rote learning. Pavlova and Maclean (2013) further noted an increasingly greater demand for employees who are self-motivated and constantly strive to upgrade their skills. This makes the case for employees who have both higher levels of cognitive flexibility and non-cognitive skills. Such skills are all the more important for entrepreneurs, who often operate in an uncertain environment, and have to continually adopt their business models in response to changing economic scenarios.

Demand for Skills—Identification and Motivation

The above arguments make it important to classify skills into cognitive and non-cognitive skills, and between routine cognition and non-routine cognition in the Indian context, and map key skills across broad occupational levels (see Table 9). This is necessary in order to assess the existing skill gaps and further examine jobs that are based on routine cognitive tasks, and subject to greater threats of automation. In effect, what are the key skills that can aid workers across different occupational profiles to ride the automation wave and survive the fourth industrial revolution?

The skills framework in Table 9 depicts the demand for skills across broad occupational levels, based on the literature review and analysis presented in this chapter. Some of the key features of the framework can be summarised as follows:

- *Skills* have been broadly categorised into cognitive skills, non-cognitive skills, Job-specific skills (a combination of cognitive and non-cognitive skills along with physical skills). The broad classification is similar to the World Bank Steps Survey framework (Banerji et. al., 2010).

²¹ This programme was as part of "International Vocational and Educational Training for the Health Sector Dubai" (iVET4Health)

- *Cognitive skills* can be further classified into routine cognitive skills and higher-ordered cognitive skills (Bloom et. al., 1956; Autor and Acemoglu, 2011; Cunningham and Villaseñor, 2016), along with language skills, digital/ICT skills, and financial skills.
- *Reading, writing, and numeracy* are basic/routine cognitive skills, providing the basis for more advanced cognition. These skills are in general demand across all jobs in all sectors. The framework in Table 9 differentiates between numeracy and mathematics across occupational categories.
- *Numeracy*, a necessary skill for all occupations (OECD, 2000; 2006), signifies basic mathematical literacy and the basic ability to work with numbers, whereas mathematics can involve working with wide range of mathematical tools.
- *Higher-ordered/non-routine cognitive skills* comprise skills such as active learning,²² complex communication, critical thinking, complex technical problem-solving, advanced mathematical reasoning, creativity, adaptive learning, and cognitive flexibility (Bloom et al., 1956; Scott, 1962; Cunningham and Villaseñor, 2016; WEF, 2016), skills which are, in general, more difficult to replicate, and hence, more likely to survive in the face of increased automation (Autor, 2015; Acemoglu and Autor, 2011).
- Skills such as active (independent) learning/self-learning/learning to learn, critical thinking, and cognitive flexibility provide tools for adaptability in different economic scenarios and induce greater job security in flexible labour markets, while also enhancing risk-taking attributes for entrepreneurship.
- *Cognitive flexibility* has been defined as the ability to adjust thinking in response to the changing environment/objectives, including the ability to simultaneously think about multiple concepts (Scott, 1962). An assessment carried out by Infosys (2016) listed cognitive flexibility as one of the top ten skills that will be increasingly in demand by employers. Further, cognitive flexibility is pivotal for the recognition of opportunities, and is a core skill for entrepreneurs and managers (Baron, 2004), product developers, and innovation leaders.
- *Digital skills* also provide greater access to markets and firm operations are getting digitised at a rapid pace. There is thus need for larger recognition of digital skills for all the sectors, making it a part of core competency in order to reap the digital dividend (World Bank, 2016). Dr. Reddy's Foundation, for instance, offers training in digital literacy, language and communication skills, numeracy, and soft skills as part of the core competency framework for its training courses. With the advent of virtual marketplaces such as E-bay, Amazon, and Flipkart, a worker/entrepreneur is no longer bound by the physical boundaries of geographical spaces.
- *Financial skill*: Basic financial literacy is a necessary skill, and Field, Jayachandran, and Pande (2010) showed that women (members of SEWA) who took training course covering financial literacy, business skills, were more likely to launch or expand their micro-enterprises (see discussion in Box 3 in Section 4.5). Financial management, on the other hand, is a more advanced skill and is important for financial sector professionals, managerial level workers, entrepreneurs, etc.

²² See O*NET <https://www.onetonline.org/skills/>

- *Language skills*: While Azam, Chin, and Prakash (2013) demonstrated higher returns for the English language in India using IHDS-I (2005) data, communication (reading, writing, and verbal) in the local language may also be important for jobs involving greater customer interface across the social spectrum and/or for workers operating in the informal sector. Interestingly, international research has also pointed out the importance of a common language between the employer and employee (Berman, Lang, and Siniver, 2000; OECD, 2014).
- *Non-cognitive skills* comprise skills such as socio-emotional skills, emotional intelligence, work ethics, attitude to work, co-ordination, negotiation, and gender sensitivity. Heckman and Rubinstein (2001) pointed out the importance of non-cognitive skills in enhancing earnings capacity and educational attainment. More recently, Heckman and Kautz (2012) noted that soft skills often predict success in life, while Deming (2015) found evidence of increasing returns to social skills in the workplace.
- Non-cognitive skills such as decision-making, coping with stress and emotions are key life skills (WHO, 1999), which are important not only for existing workers for their career progression, but also for those about to or willing to enter the labour market. Imparting such life skills is also particularly important for women to enable them to increase their participation in the labour force (see discussion in Sections 2.2 and 2.3).
- *Social sensitivity* includes gender, race, and caste sensitivity. Gender sensitivity is an important non-cognitive skill, which needs to be recognised formally in order to boost women's workplace participation and for ensuring safety at work sites and public spaces. More women are opting for higher education, but not participating in the labour market.
- *Job-specific skills* are derivatives of cognitive and non-cognitive skills along with physical skills (including psycho-motor skills) and reflect firm specific needs (O*NET; World Bank, 2010).
- The framework for the demand for skills has been drawn across broad occupational levels at the aggregate across sectors as follows:
 - (1) CEO/Director/Opportunity entrepreneur; (2) Self-employed (highly skilled) professional; (3) Self-employed livelihood/necessity entrepreneur; (4) Manager; (5) Highly skilled worker/specialist professional/trainer; (6) Supervisor; (7) Skilled worker/associate professionals; (8) Operative/trade worker (medium-skilled); and (9) Casual worker (low-skilled).
- The framework provided in Table 9 can be mapped into both the NSQF for various sectors and the NCO 2004 classifications. The intensity of the skills will differ across different industries. The sector-specific roles will also differ. The division of the broad categories of skills conceptualised in Table 9 is based on the literature review conducted in this chapter.
- The framework in Table 9 also differentiates (opportunity) entrepreneurs (Ghani, Kerr, and O'Connell, 2011; Daynard, 2015) or those who hire, from self-employed high-skilled professionals and self-employed livelihood (necessity) entrepreneurs. The key skills in each category are based on the previous discussion in this section and the in the preceding section on entrepreneurship and jobs (Section 4.5).

Table 9: Demand for Skills across Occupational Roles in India

Skills	Job Roles	CEO/Director/ Opportunity Entrepreneur	Self-employed (Highly Skilled) Professional	Self-employed Livelihood/ Necessity Entrepreneur	Manager
		(1)	(2)	(3)	(4)
	<i>Routine Cognitive Skills</i>	Reading comprehension, writing, mathematics	Reading comprehension, writing, functional mathematics,	Reading, writing, numeracy, communication	Reading comprehension, writing, functional mathematics,
Cognitive	<i>Non-routine Cognitive Skills</i>	Cognitive flexibility, active (independent) learning, complex communication, complex technical problem-solving, critical thinking, creativity	Cognitive flexibility, active (independent) learning, complex communication, complex technical problem-solving, critical thinking, creativity	Active learning, critical thinking, problem-solving, creativity	Cognitive flexibility, Active (independent) learning, complex communication, complex technical problem-solving, critical thinking
	<i>Language Skills</i>	Functional language skills (verbal, reading, writing)	Functional language skills (verbal, reading, writing)	Functional language skills (verbal, reading, writing)	Functional language skills (verbal, reading, writing)
	<i>ICT Skills</i>	Advanced ICT skills	Advanced ICT skills	Functional ICT skills	Advanced ICT skills

	Financial Literacy	Financial management skills	Financial literacy/ financial management based on sectors	Financial literacy/basic financial management	Financial Literacy/ financial management
	Knowledge	Sector (broad), product, market, management	Sector (broad), occupational, product	Sector, product, occupational, market	Sector, occupational, product
Sector/Job-Specific Technical Skills	Cognitive, Non-cognitive & Physical	Job-specific skills, including managerial skills and broad understanding of relevant sectors	Job-specific technical skills, physical skills including job-specific complex psychomotor skills	Job-specific skills, physical skills including psychomotor skills	Job-specific skills, sector skills/knowledge (broad), job-specific complex physical skills including complex psychomotor skills
Non-cognitive	Core Non-cognitive Skills	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity
	Other Non-cognitive Skills	Decision-making, negotiation, leadership, coordination, problem-solving, emotional intelligence	Decision-making, negotiation, leadership, coordination, problem-solving, emotional intelligence	Decision-making, problem-solving	Decision-making, negotiation, leadership, coordination, problem-solving, emotional intelligence

Contd.

Skills	Job Roles	Highly Skilled Worker /Specialist Professional/Trainer	Supervisor	Skilled Worker/ Associate Professionals	Operative/ Trade Worker (medium-skilled)	Casual Worker (low-skilled)
		(5)	(6)	(7)	(8)	(9)
Cognitive	Routine Cognitive Skills	Reading comprehension, writing, functional mathematics,	Reading comprehension, writing, mathematics, communication	Reading, writing, mathematics, communication	Reading, writing, numeracy, communication	Reading, writing, numeracy, communication
	Non-routine Cognitive Skills	Active (independent) learning, complex communication, complex technical problem-solving, creativity, critical thinking, cognitive flexibility	Active learning, technical problem-solving, critical thinking	Technical problem-solving, critical thinking.		
	Language Skill	Functional language skills (verbal, reading, writing)	Functional language skills (verbal, reading, writing)	Functional language skills (verbal, reading, writing)	Verbal, reading, writing	Verbal, reading, writing
	ICT Skills	Advanced ICT skills	Functional ICT skills	Functional ICT skills	Basic ICT	Basic ICT

	Financial Literacy	Financial literacy/financial management (job-/sector- specific)	Financial literacy/basic financial management (job-/sector-specific)	Financial literacy/ basic financial management (job-/ sector-specific)	Basic financial literacy	Basic financial literacy
	Knowledge	Sector, specialised occupational knowledge	Sector, occupational, trade	Specialised occupational, trade	Trade knowledge	Trade knowledge
Sector-/Job-specific Technical Skills	Cognitive, Non-cognitive and Physical	Job-specific technical skills, physical skills including job-specific complex psychomotor skills	Job-specific skills, physical skills including psychomotor skills	Task/job-specific relevant skills, physical skills including psychomotor skills	Task-/job-specific skills, physical skills including basic psychomotor skills	Task-/job-specific skills, physical skills including basic psychomotor skills
Non-cognitive	Core Non-cognitive Skills	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity	Behavioural skills (such as interpersonal skills), attitude to work, social sensitivity
	Other Non-cognitive Skills	Decision-making, problem-solving, emotional intelligence	Decision-making, negotiation, leadership, coordination, problem-solving, emotional intelligence	Problem-solving		

Source: Author's conceptualisation based on literature review conducted in this paper, especially in Section 4.6. Key references include Bloom et al., 1956; Acemoglu and Autor, 2011; Banerji et al., 2010; ILO and British Council, 2014; WEF, 2016; O*NET. Section 4.6 highlights the key literature for the respective skills, apart from the motivation for the framework in this table.

Note:

- Language skills include English language skills and local/foreign language skills where necessary.
- Social sensitivity includes gender, caste, and religious sensitivity.
- Behavioural skills include self-confidence, sociability (team work, congeniality), and emotional stability.
- Attitude to work involves work effort, discipline, determination, time management, stress management, and hygiene.

- Physical skills include psychomotor skills.
- Emotional intelligence includes non-cognitive skills identified by WHO under life skills such as empathy, coping, self-awareness, etc.
- Ten WHO life skills: self-awareness, empathy, critical thinking, creative thinking, decision-making, problem-solving, effective communication, interpersonal relationship, coping with stress, coping with emotion.
- Complex communication skills include functional skills, gathering and processing of information along with clarity of presentation, interpersonal communication, etc.
- Active (independent) learning includes self-study, learning to learn, etc.
- Complex technical problem-solving involves abstract reasoning, analytical skills, and critical thinking in order to provide insightful job-relevant solutions.

4.5 *Research and Data Gaps*

This section highlights some of the key gaps in research and data availability in the context of employment and skill formulation based on the discussion in this paper.

- The current available data from the NSSO does not provide sufficient information on the labour market. For instance, 34 per cent of unemployed males and 43 per cent of unemployed females have a graduate degree and above, or a diploma/certificate. However, there is no information on the reasons for such unemployment, particularly among the educated unemployed and in cases of extended periods of joblessness. Do the figures reflect the lack of adequate quality jobs, or lack of job-relevant skills, inadequate cognitive and non-cognitive skills, or do they reflect information asymmetry leading to frictional unemployment or supply-demand mismatch resulting from structural shifts in employment? While ASER and IHDS data assess the cognitive skills of children and teenage youth, there is no assessment of skills of the working age population based on cognitive and non-cognitive skills.
- The ASI is the only annual unit level data available which provides detailed information on inputs and outputs at the firm level for the registered manufacturing sector. However, the ASI does not provide information on the skills profiles of workers, and how such skills differ across permanent and contractual workers. Further, it is inappropriate to refer to contractual workers as unskilled or semi-skilled workers, and permanent workers as skilled workers, especially when there is an increasing trend across the world towards employing workers on flexible contracts. This makes it difficult to assess the supply and demand for skilled labour across industries or to examine worker productivity based on skill levels and educational attainment/vocational training. Further, there is no such comparable annual data for the unorganised sector or the services sector.
- Currently, no matched employer-employee data is available for estimating wage returns to on-the-job training, and mapping into the skill levels of workers in the Indian labour market. Most of the literature on the returns to skills for the Indian labour market uses the educational attainment of workers from NSSO Employment-Unemployment Surveys. Yet, as Powdthavee and Vignoles (2006) showed, it is the level and appropriateness of the skill of the worker that determines firm productivity and not educational qualifications. The data also do not provide insights on how the skills were acquired, that is, whether from formal on-the-job training or work experience (current or prior).
- While the CMIE Prowess data provides information on whether the firms covered in the sample provide on-the-job training and can be used to examine returns to on-the-job training, there is no information on the type of training received, the type of workers who received on-the-job training, that is, permanent or contractual, and the detailed profile of the workers, which makes it difficult to evaluate such training programmes and examine the resulting change in factor productivity, and its effect on firm profitability.
- The rate of return analysis will further provide a useful signal about the demand for various types of skills, that is, cognitive skills, non-cognitive skills, and job-

specific technical skills. The matched employer-employee data also has the potential to provide valuable insights on the under-provisioning of training, particularly in the MSME sector, and its effect on firm productivity, and how the relationship differs across sectors and by firm size. Further, it will also provide insights on how skill requirements differ across manufacturing and services, and the kind of training/educational attainment that is required for such workers.

4.6 Conclusion and Policy Highlights

Women's Participation

While the Indian economy has been growing at the highest rate across regions, employment generation has been a challenge, with the year 2015 registering the lowest job growth in several years. Adding to these woes is the dismal figure for the labour force participation of women, which went down over the second half of the last decade. While more women are opting for higher levels of education, lack of adequate quality jobs, and social and cultural perceptions have kept many women outside the workforce.

Women are currently at a higher risk of structural unemployment from technological disruption— a higher proportion of women are working in labour-intensive industries, which have witnessed declining labour intensity over the last several years because of increased mechanisation. While Bangladesh's female workforce participation has gone up due to expansion of the apparel sector, policy-makers also need to rethink the appropriateness of jobs for women, and promote female participation in more capital-intensive or skill-intensive sectors. This necessitates providing skill training opportunities for women to perform job roles in industries dominated by men, instead of focusing only on typical industries such as beauty and wellness, food and beverage, and textiles and apparels to boost female participation. It is imperative to adopt such an approach in the country to be able to reap the benefits of the gender dividend. The UNDP initiative, *Disha*, which is providing training and entrepreneurship opportunities for women in the steel and plastic engineering industries, previously dominated by men, is a step in the right direction. Section 2.2 discusses in greater detail issues pertaining to women's labour force participation.

Entrepreneurship and Job Creation

One of the more daunting challenges that policy-makers need to address is identifying ways to create more jobs so that the much talked about demographic dividend does not turn into a demographic debt. One of the ways to boost job creation is to foster a spirit of entrepreneurship amongst both men and women, and across the social spectrum. However, more Indians aspire to secure regular salaried jobs than to become an entrepreneur—this can be attributed to low levels of education and inadequate entrepreneurship skills, which often acts as a dampening effect on risk-taking incentive, a key attribute for entrepreneurship. Prospective entrepreneurs require a combination of higher levels of both cognitive and non-cognitive skills, including an enabling and effective regulatory framework.

There is also need for greater focus on imparting digital skills, and financial literacy and/or basic financial management (see Field, Jayachandran and Pande, 2010) that can empower more self-employed workers across the spectrum to adopt sustainable business practices, improve access to markets and finance, and increase their likelihood of becoming opportunity entrepreneurs. This is necessary not only for potential labour market entrants, but also for the vast cohort of self-employed micro-entrepreneurs operating in the informal sector, with skills adopted via informal or non-formal means. Additionally, the Government further needs to incentivise the use and augmentation of digital infrastructure in order to reap the benefits of the digital dividend. These issues have been discussed in greater detail in Section 4.5.

While connecting of entrepreneurs to markets is essential, it is also important to provide support over the life-cycle of the worker, beyond the initial incubation support, especially for women entrepreneurs and those belonging to more vulnerable sections. Such support networks over the life-cycle of the worker are provided by SEWA Bharath for women members of its society, and needs to be adopted more widely.

Training for Jobs

Revisiting the Approach to Skills: One of the key challenges in achieving productive work is the lack of adequate education and training in the requisite skills. This results not only in a high turnover of employees, but also unemployment and under-employment. Compounding this problem is the incidence of educated unemployed, often resulting from a sector-skills mismatch. Prolonged periods of joblessness, as pointed out in Section 2.3, can result in skill obsolescence, especially in the event of structural shifts in the labour market. Thus, the focus of policy-makers should not be just on creating jobs, but also on incentivising the creation of quality jobs, and on building a more knowledge-based economy. The latter would necessitate a longer-term approach to skilling of the workforce, with greater focus on building higher ordered cognitive skills and higher levels of non-cognitive skills for ensuring adaptability, instead of devising training geared only towards task-specific work. This also necessitates equipping the younger generation first and foremost with basic cognitive skills, such as reading, writing, numeracy, and communication, skills which can be viewed as foundational skills. Interestingly, ASER studies point out gaps in basic cognitive skills for school children in both rural and urban India, indicating the monumental task that policy-makers face in terms of imparting the right set of skills to the future generation.

Vocational Training: Across industries, there is a shortage of skilled workers, despite the prevalence of widespread unemployment and under-employment. In order to bridge the demand–supply mismatch, the Central Government decided to launch the National Skill Development Mission to train unemployed youth in a variety of job-specific skills. However, vocational training in task-based industry-specific skills provides a temporary solution for the acute skill shortage faced by the Indian industry. A recent World Bank study (2015) showed a high turnover of such trained workers—only 32 per cent of the NSDC-certified workers were still employed 1–2 years after training. This makes it necessary to equip workers in a broad spectrum of skills that are transferable across sectors and enhance worker mobility, both vertically and horizontally, while also reducing employee turnover. Job searches and work force participation often require one to operate in an increasingly competitive

environment, and consequently, more workers need to be equipped with life skills for coping and survival, skills that further enhance attributes such as curiosity, interest, and self-starting qualities which build the pillars for lifelong learning (Singh, 2003). The demand for a skills framework, as depicted in Table 9 in Section 4.6, delineates the skills necessary across broad occupational roles, focusing on the overall framework of cognitive skills and non-cognitive skills (including life skills), along with job-specific technical skills. The framework can be mapped into both NSQF and NCO 2004 classifications.

Recognition of Prior Learning: Another way to address such a skill shortage is to recognise the informal and non-formal learning outcomes of informal workers. The recognition of knowledge acquired previously will add to the formal visibility of skills, thus reducing information asymmetry regarding the skill levels of the local workforce—this has the potential of reducing the supply–demand skill mismatch, and can be particularly useful for MSMEs, which tend to suffer from an acute skills shortage and under-provisioning of on-the-job training. Despite being challenging, RPL is also vital for a huge section of such workers with invisible skills, who are operating as own account workers or micro-entrepreneurs, and have acquired skills and knowledge outside the formal framework. RPL, by plugging the necessary skill gaps, can provide a pathway for business sustainability, and expansion. Section 4.1 discusses these issues in greater detail.

Cluster-based Training: While large firms have adopted a variety of mechanisms for reskilling and upgrading the skills of their workers, the promotion of lifelong learning and continuing skill upgradation appears to be a challenge for MSMEs. Further, the skilling needs of workers tend to be different for MSMEs as compared to large firms, and a more demand-driven cluster-based approach tuned to the local industrial needs and socio-cultural set-up should be adopted to address the plethora of skill gaps plaguing the sector. The challenge here is to overcome the low recognition of the need for training, and to perceive such training as an investment in human capital that will yield both near- to longer-term returns instead of viewing such training as a mere form of expenditure. One potential way to overcome under-investment in such on-the-job training is to provide indirect subsidies to firms, or to enter into a collaboration with knowledge partners and government institutions for cost-sharing.

Transferable Skills: While training unemployed youth in job-specific skills is a much-needed intervention in skill formulation, policy-makers also need to take into account some of the peculiarities of the Indian labour market, wherein workers are often engaged in multiple jobs, especially in the rural sector and those working in seasonal industries. Data from the second wave of IHDS (2011-12), for instance, shows that workers employed in the textiles and apparels sector are often involved in four different jobs in urban areas, while the number can go up to six in rural areas (Desai and Vanneman, 2012). While appropriate training in skills can provide better employment opportunities, the seasonal nature of some industries and the ever-changing nature of work in others makes it necessary to equip workers with a set of transferable skills that will empower a worker over the life path of his/her career, and/or enable the worker to multi-task across industries or switch industries; this is also reflected in the demand for a skills framework presented in the next section, which has been drawn for various occupational roles and can be mapped across all sectors. Transferable skills become particularly useful in the event of structural shifts

in the labour market, and can be viewed as a set of foundational skills, including key attributes such as ‘learning to learn’ and cognitive flexibility.

Focusing on Future Skills

As the country gears up to train workers for jobs that may not even exist a few years from now, what is vital at this stage is to promote experiential methods of learning that promote higher-order cognitive and non-cognitive skills, such as self-learning, learning to learn, critical thinking, creativity, problem-solving, and interactive social skills. Greater emphasis needs to be laid on training modules consisting of theory, practicals, modules of self-learning, and on-the-job training. There is also need to emphasise the building of greater industry–academia collaborations in knowledge-sharing and designing of curricula. The Government of India can offer grants/tax rebates for taking up formal skills and upgrading courses in order to incentivise lifelong learning and ensure that the workforce remains agile and adaptive to the new trends in the economy. In this context, lessons can be drawn from the “*Skills Future Credit*” programme rolled out by the Singapore Government.

This can enhance both horizontal and vertical job mobility, and promote greater job resilience over the life-cycle of the worker, even in the face of potentially disruptive technological innovation, as more and more firms start adopting flexible hiring practices. As labour markets become increasingly flexible, job security can be ensured by providing safety nets for the unemployed, extending social protection for workers in both the formal and informal sectors, and providing pathways for reliable and responsive lifelong learning, a phenomenon known as ‘flexicurity’ (Auer, 2007). As traditional learning methods fall short of providing students/labour market entrants and current employees with the knowledge they need to tackle career challenges, the need of the hour is to combine theory with application, along with imbibing a spirit of learning to learn. This can induce greater adaptability and employability for all workers.

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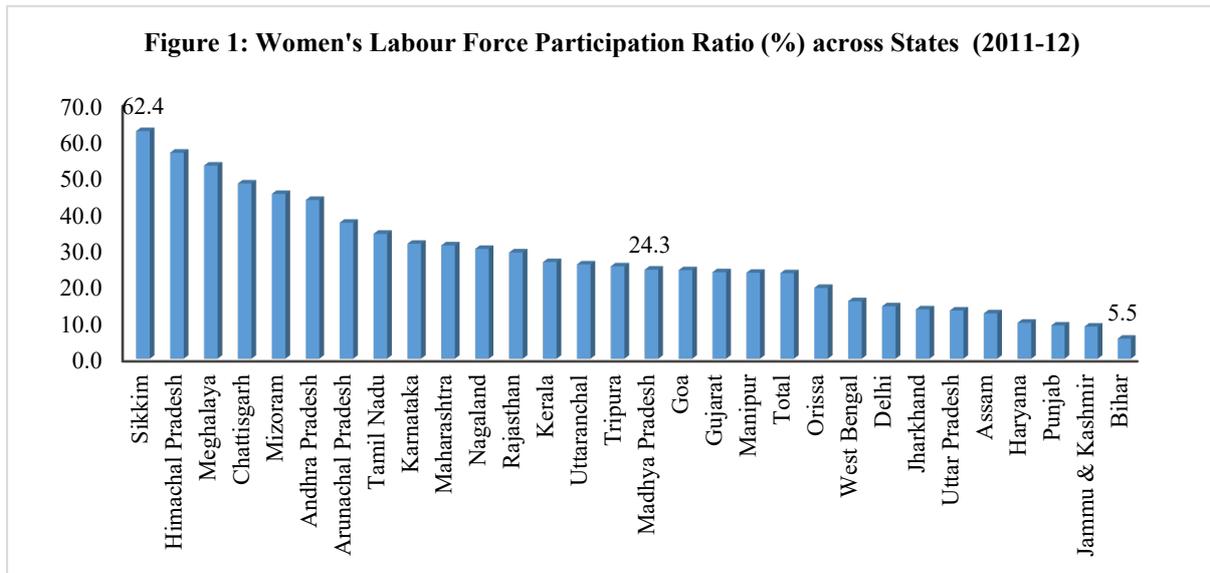
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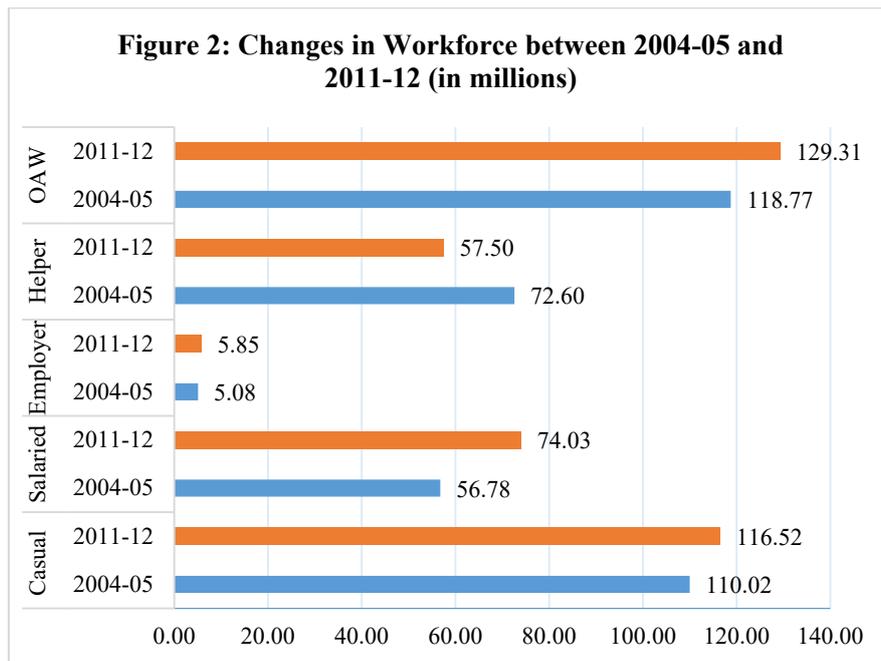
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Appendix



Source: Author's calculation based on NSSO 68th Round, Employment and Unemployment Survey.



Source: Author's computations based on principal status work for working age population from various NSSO rounds; OAW: Own Account Worker. Data corresponds to working-age population of 15 years and above.

Figure 3: Aspiration for Government Grade 4 Job with Regular Salary: Skilled versus Unskilled (Urban India) (%)



Source: Author's computations based on NCAER-NSHIE 2010-11.