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# ► Impact on labour supply due to COVID-19 containment measures in India

An informal employment analysis





# ► **Impact on labour supply due to COVID-19 containment measures in India**

An informal employment analysis

Xavier Estupinan, Bharti Birla and Mohit Sharma

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## ► Foreword

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**T**he COVID-19 pandemic has changed the world as we know it. Governments have been forced to introduce various measures to mitigate the spread of the virus, and travel restrictions, physical distancing, schools and workplace closures are some of the immediate actions many countries have had to face to deal with the pandemic. The resulting economic and social disruptions have dramatically affected the livelihoods of millions of women and men workers globally, and vulnerable workers, especially those in the informal economy, have endured life-threatening situations.

In March 2020, India was among the first countries that put in place stringent measures against the pandemic, including a nationwide lockdown. Gradually, these were relaxed for essential workplaces and in regions outside red zones. The lockdown impacted the Indian labour supply by reducing working hours and causing job losses, and workers without social protection or paid leave saw a reduction in their labour income. India has a high share of informal employment and, therefore, many own-account, contract labour, temporary, casual, daily-wage or piece-rate workers, such as home workers, have seen their work and income interrupted during the lockdown. Further, many of these workers have little or no capacity to continue their work remotely from home.

We have witnessed a massive exodus of workers returning to their villages to find some sort of security. Many of these migrant workers are part of India's informal employment and lost their livelihoods in the urban setting during the lockdown. The labour supply disruptions are only the first-order shock that India will face. With job and income losses, a demand shock will further enhance the crisis, and it is necessary to act immediately to protect both workers and enterprises.

There is a critical need to assess the impact of the COVID-19 lockdown on India's employment situation, emphasizing the informal economy. The current study presents the first-order supply impact due to the lockdown. The results may be used in a constructive social dialogue to develop urgent actions to mitigate the initial lockdown disruptions' impact and to lay special attention to the most vulnerable workers. Consequently, it raises the attention on the lack of social protection that many workers face in India.

The ILO is committed to supporting our aim to build back better from the current crisis, and we look forward to your feedback on the report.

**Ms Dagmar Walter**  
Director  
Director, ILO DWT/CO–New Delhi

## ► Acknowledgements

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This document results from intense research efforts and discussions about how the lockdowns during the COVID-19 pandemic have impacted India's labour market. The analysis is centred on the informal economy and informal employment, representing the vast majority of total employment in India. The study aims to provide the necessary insights to our social partners to understand better how COVID-19 containment measures have impacted informal employment.

The discussion on India's informal economy requires engaging with different stakeholders, from ILO constituents and practitioners to the academic diaspora. We extend our gratitude to Dr Anoop Satpathy (Fellow, V. V. Giri National Labour Institute) and Dr Santosh Mehrotra, who have constantly provided us with relevant inputs.

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## ► Abbreviations

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EoUs	Export-oriented units
EUS	Employment and Unemployment Surveys
FSFE	Formal sector formal employment
FSIE	Formal sector informal employment
GoI	Government of India
ICLS	International Conference of Labour Statisticians
ILC	Indian Labour Conference
ILS	International Labour Standards
ISFE	Informal sector formal employment
ISIE	Informal sector informal employment
LFPR	Labour force participation rate
MGNERGA	Mahatma Gandhi National Rural Employment Guarantee Act
MSMEs	Micro, small and medium enterprises
NCEUS	National Commission for Enterprises in the Unorganized Sector
NCO	National Classification of Occupations
NIC	National Industrial Classification
NSS	National Sample Survey
NSSO	National Sample Survey Office
OSH	Occupation safety and health
PLFS	Periodic Labour Force Survey
RLI	Remote labour index
SEZs	Special economic zones
UT	Union territory

## ► Executive summary

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The COVID-19 pandemic has unleashed an unprecedented world crisis affecting millions of workers and businesses across the world. As of 13 February 2021, the number of confirmed COVID-19 infections had exceeded 108 million cases worldwide. Governments in almost every country have taken multiple steps, such as lockdowns, travel restrictions, closures of businesses and educational institutions, and social distancing measures to flatten the disease curve while responding to the economic and social disruptions. However, the resulting economic and social interruptions have significantly affected women and men workers' livelihoods and well-being globally, especially those in the informal economy, directly affecting labour markets and provoking labour supply shocks. The ILO estimates that workplace closures enforced in various countries as part of COVID-19 containment measures have affected around 81 per cent of the global workforce. In April 2020, nearly 1.1 billion informal economy workers were in a whole lockdown scenario, with an additional 304 million workers in countries in partial lockdown (ILO 2020a).

In India, on 24 March 2020, the government established a nationwide lockdown for 21 days, putting 1.3 billion persons under one of the most stringent preventive and containment measures against the pandemic anywhere in the world. These measures were relaxed slightly on 14 April 2020, and they were further relaxed for workplaces in regions outside red zones on 4 May 2020. The closure of workplaces had an immediate impact on most workers, especially those who lack job or income security with a specific focus on those in the informal economy, including the own-account/self-employed workers (such as rickshaw pullers, auto and car drivers, carpenters, plumbers, electricians, street vendors, fisherfolk and others); contract labour, temporary, casual, daily wage or piece-rate workers, such as home workers, artisans, craft workers engaged in a myriad of informal micro and small enterprises in urban regions of India (catering to domestic and international supply chains in manufacturing, construction, transport, food and catering, retail activities and other services); and domestic workers working in private households.

Vulnerabilities related to lack of income and social security, lack of disposable income, and jobs' precarious nature are further enhanced. Many such workers are from excluded and backward sections of society. Many of them are inter- and intra-state migrant workers who have lost their livelihood in urban areas during the lockdown. This precipitated a mass exodus of workers towards rural areas (ILO 2020c). In India, the informal economy workers represent 90.1 per cent of total employment.

Against this background, this study attempts to estimate the COVID-19 lockdown first-order labour supply impact on the Indian labour market, focusing on the informal economy. Based on lockdown notifications in India, some sectors classified as "essential" had permission to continue work in different lockdown phases. Besides, specific jobs, occupations, or activities can be carried out from home, which was especially useful for the non-essential sector to allow workers to continue with their work where feasible.

This study looks at the International Conference of Labour Statisticians' (ICLS) framework to gauge the extent of the informal sector and informal employment in India. It also considers the National Commission for Enterprises in the Unorganized Sector's (NCEUS) definition of the informal economy in India. The terms "formal/informal" and "organized/unorganized" are used interchangeably despite remaining consistent with ICLS standards.

The study also looks at the employment situation in India, laying particular emphasis on informal employment. Employment in India is characterized into two major categories: the self-employed (the majority of whom are own-account workers), and those defined as wage earners (with an employment relationship, and who are subdivided into regular/salaried and casual wage employment by the National Sample Survey Office (NSSO).

Using data from the NSSO 2017–18 PLFS and the projected census population, we estimated that for March 2020, the labour force constitutes 495.7 million persons, which is about half of the working-age

population (15 years and above) in India. Of these, men constitute 382.5 million workers, while women are only 114.3 million workers (as estimated by the authors for March 2020). The urban areas account for only 34 per cent of the total employment (27 per cent men and 7 per cent women); most of the total employment in India, 66 per cent, is rural employment (50 per cent men and 16 per cent women).

The dualistic view of informality is captured both by the enterprise and the job lens. India is primarily characterized by informal sector enterprises (80.7 per cent) compared to the formal sector (18.2 per cent), and households have a minor share (1.1 per cent). It is important to note that even in the organized/formal sector and in households, there is a higher share of workers with little or no protection, which defines them as informal employment.

Further, total employment in India has a 9 per cent share of formal employment and 91 per cent share of informal employment. Informal employment in India comprises:

- ▶ 2 per cent employers,
- ▶ 39.9 per cent own-account workers,
- ▶ 15.8 per cent regular/salaried workers,
- ▶ 27.4 per cent casual workers, and
- ▶ 14.9 per cent unpaid family members.

These results are consistent with the structure found at the regional level, where the majority of workers are concentrated in the informal sector (77.4 per cent), 6.9 per cent in informal employment in the formal sector and 3.5 per cent in the household sector (ILO 2018).

To estimate the labour supply impact in India, we followed an approach similar to the one used in a study by del Rio-Chanona et al. (2020). Similarly, we adapted the methodological framework from Estupinan et al. (2020). In the latter, estimating the total impact on labour supply, two points were considered: First, they estimated the workers employed in essential or non-essential industries based on the Government of India's (GoI) lockdown notifications of 24 March and 15 April 2020 respectively. Second, a remote labour index (RLI) was developed to address the share of occupations in the Indian context that can be performed remotely from home.

The first-order labour supply impact is estimated using the 2017-18 PLFS data and considers those workers who work in a non-essential industry but cannot work from home. A significant limitation of the study concerns the assumption and related implications that a person's occupation and related activities are independent of each other. It would imply that workers produce independently of other workers. There are no restrictions or interdependencies on the provision of raw materials and other intermediate products and factors required for production. However, in reality, businesses and economies are interdependent and such complementarities and working dynamics usually lead to non-linear results.

The findings on India's labour supply shock impact due to the lockdown measures should be read, keeping in mind the limitations related to main implications or assumptions as stated before. The estimated outcome of the first order labour supply impact offers a conservative assessment of the workers, sectors and geographies affected, which can be of great interest to policymakers and academicians. This can be further analysed for more comprehensive policy responses towards minimizing the lockdown's impact and mitigating the crisis.

The paper concludes that the first lockdown measures directly affected 104 million informal workers. Furthermore, the impact estimate under the relaxed notifications (15 April 2020) dropped to 69.5 million informal workers. The estimated share of informal employment directly impacted by the first and the second lockdown periods represents 89.5 and 88 per cent of the total employment affected by the containment measures, respectively.

Most of the affected informal employment (75 per cent) are employed in the informal sector, with 17.8 per cent in the formal sector and 7.2 per cent in private households. Similarly, the two categories of

workers with the highest share of affected informal workers are regular/salaried workers (40.2 per cent) and own-account workers (35.0 per cent). The other categories, which are even more vulnerable in terms of job and income dimensions, are informal, casual workers (18.2 per cent) and unpaid family members (5.3 per cent).

The lockdown had little effect on the agriculture sector as this sector was categorized as essential. Ninety per cent of informal employment workers affected by the lockdown were concentrated in seven sectors of the economy. Manufacturing accounted for 32.1 per cent of all informal workers struck by containment measures, the transportation sector for 17 per cent, other services for 9.9 per cent, accommodation for 9.3 per cent, construction for 8.4 per cent and households for 7.3 per cent. The composition of the sector and the geographical location shows that urban areas have twice as many affected informal workers as rural areas. Among informal economy workers who were significantly impacted, women are overrepresented in urban areas, the manufacturing and services sectors, and the household sector.

While it is estimated that the impact on rural informal male employment is 34.9 per cent, the impact on rural informal women workers is 45.2 per cent. Similarly, data reveals that younger workers aged 15–29 are overrepresented in the informal population affected by the lockdown. These findings confirm that women and the youth in informal employment are overrepresented in high-risk sectors and face a more significant burden under the COVID-19 crisis. The youth dividend may be endangered as employment, training and opportunities are diminished by the crisis. If appropriate measures are not taken to mitigate this risk, there will be economic and social implications for the future, making it more difficult to regain the path towards inclusive growth in a post-COVID economy.

## ► Introduction

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Since March 2020, the COVID-19 pandemic has unleashed an unprecedented economic crisis affecting millions of people worldwide. As of 13 February 2021, the number of confirmed COVID-19 infections has exceeded 108 million cases worldwide.<sup>i</sup> Initially, as the pandemic spread, governments faced a double challenge: containing the virus through lockdowns and social distancing measures to flatten the curve of the epidemic while responding to economic and social disruptions. Lockdowns do not eliminate the virus – they only provide governments with time to ramp up testing, prepare health infrastructure and build community networks to trace and isolate infected patients.

The economic and social impacts of COVID-19 threaten to batter the livelihoods and well-being of women and men workers, particularly in the informal economy. Lockdowns and related business disruptions, travel restrictions, school closures, social distancing and other containment measures taken by governments globally have halted large parts of many economies. In this context, most governments' first policy responses in terms of lockdown measures have directly affected labour markets and provoked labour supply impacts. The ILO estimates that countries that have included workplace closures within their COVID-19 containment measures include around 81 per cent of the global workforce.<sup>ii</sup> As of 22 April 2020, approximately 1.1 billion informal-economy workers lived and worked under a full lockdown scenario, with an additional 304 million in countries in partial lockdown (ILO 2020a).

Around 68 per cent of the global workforce (including 81 per cent of employers and 66 per cent of own-account workers) currently live in countries with recommended or required workplace closures (ILO 2020d). Most of them are found in low-income and lower-middle-income countries. Their situation becomes more critical as these economies have high levels of informality and limited fiscal means and policy space to respond to such enterprises' needs and own-account workers. *ILO Monitor: COVID-19 and the world of work* has reported the latest labour market developments since the crisis erupted. It estimated the proportion of employment significantly affected by lockdown and social distancing measures. Women are overrepresented in high-risk sectors: 42 per cent of women workers work in these sectors compared to 32 per cent of men (ILO 2020a). Among the higher-risk sectors is the wholesale/retail trade sector, which employs a high proportion of informal workers. This sector holds one third of the informal employment in developing countries (ILO 2020a), where it is common to find street vendors or informal own-account workers.

The first case of COVID-19 in India was reported in Kerala on 30 January 2020. On 11 March 2020, the GoI<sup>1</sup> and different state governments invoked the nearly 125-year-old Epidemic Diseases Act, 1897, which was first enacted to deal with the bubonic plague in Bombay (now Mumbai). New ordinances were issued at the national and state levels<sup>2</sup> so that guidelines and orders could be issued in the context of COVID-19.

On 14 March 2020, the union government declared COVID-19 a notified disaster under the National Disaster Management Act, 2005. On 24 March 2020, the GoI established a nationwide lockdown for 21 days under the same Act, putting 1.3 billion people under stringent preventive and containment measures<sup>iii</sup> against the COVID-19 pandemic. At this time, the number of positive COVID-19 cases in India had touched approximately 500.<sup>iv</sup> Compared to other countries, India enacted one of the most rigorous lockdown measures globally, and these measures by the GoI are described in detail in Annex 2a. Apart from lockdown notifications, closing businesses and workplaces, educational institutions – which remain

1 GoI, Press Information Bureau, "High level Group of Ministers reviews current status, and actions for prevention and management of COVID-19", 11 March 2020.

2 The Epidemic Diseases (Amendment) Ordinance, 2020, promulgated on 22 April 2020, amended the Epidemic Diseases Act, 1897. Several states like Delhi, Andhra Pradesh, Gujarat, Kerala, Maharashtra, Karnataka, Kerala, Nagaland, Meghalaya, Haryana and Odisha also brought out state-specific ordinances.

physically closed – curbs on the movement of people and goods (except essential ones), closure of public transport, malls, cinemas, theatres, pubs, gyms, sports complexes, places of tourist interest, religious places, public spaces and other social distancing measures were implemented to contain the spread of the disease. Simultaneously, the government also initiated a series of labour market measures to reduce the pernicious effects of COVID-19 and related policy measures on the economy and the labour market. Such measures were introduced by the central government and many state governments. A summary of these measures, compiled by the ILO India office, is available online as *COVID-19 in India: Labour market measures taken by the central and state governments*<sup>3</sup> and has been updated regularly since the lockdown.

Based on data from the OxCGRT tool<sup>v</sup> created by the University of Oxford, which tracks and compares COVID-19 policy responses around the world, India had the highest level of containment and closure policies – at a 100 per cent (30 points out of 30) performance on all eight indicators since 25 March 2020. These policies were relaxed slightly on 20 April (29 points) and on 4 May 2020 (23 points), after the government eased workplace norms in regions outside red zones.<sup>vi</sup>

While containment measures were implemented at an appropriate time and seemed to counteract the spread of the disease, the economy experienced a severe supply shock. The closure of workplaces had an immediate impact on workers, and vulnerable workers without job or income security, including workers in the informal economy, faced the worst distress. Inter- and intrastate migrant workers in India's densely populated urban areas sought to return home to their villages as the sudden lockdown gave them few alternatives, and migrants with little or no income to sustain themselves in urban areas, with inadequate food provision, returned home by foot to survive.

Informal workers in India are engaged in many informal micro and small enterprises in the country's urban and rural regions, and these cater to domestic and international supply chains. In India, these micro, small and medium enterprises (MSMEs) play a critical role in employment creation and the economy. As per the 73rd National Sample Survey (NSS) conducted by the NSSO during 2015–16, 63.4 million unincorporated non-agricultural MSMEs in the country were engaged in different economic activities. Thirty-six per cent of these are found in the trade sector, 33 per cent in other services, and 31 per cent in the manufacturing sector.<sup>4</sup> The MSMEs produce a diverse range of products and services to meet the demands of domestic and global markets. Like most low-productivity sectors, they also have low savings with little or no capital accumulation.

Most informal workers are in precarious employment with little job security. They include contract labour, and temporary, casual and daily wage workers in manufacturing, construction, transport, food and catering, retail activities and other services, or piece-rate workers such as home workers, artisans and craft workers, to cite some examples (ILO 2020c). Apart from these categories of workers, urban areas in India are also home to many self-employed or own-account workers (such as rickshaw pullers, auto and car drivers, carpenters, plumbers, electricians, street vendors, fishers and others) and domestic workers working in private households. These workers are most affected by the pandemic and will continue to bear the brunt of it in the coming days. Most of these workers are also from excluded and backward sections of society.

The loss of livelihood and lack of financial resources due to lockdown measures has resulted in a massive exodus of workers to their villages from urban and semi-urban centres where they worked (ILO 2020c). They also faced eviction from their rented accommodations in these areas as they were unable to pay rent, forcing them to go home. This increased the burden on the rural economy, which was also facing multiple challenges. One such challenge is the issue of healthcare. Migrants have often used remittances to cover health expenses for family members in rural areas. With the resultant loss in income, migrants and their families may have had to forgo spending on health, which could only add to the pandemic's other challenges. Besides, workers faced a dilemma – to die of hunger or to die from the virus; they struggled for food, shelter and sanitation for themselves and their families.

3 ILO, *COVID-19 in India: Labour Market Measures Taken by the Central and State Governments*, 2020.

4 National Sample Survey (NSS) 73rd round, conducted by National Sample Survey Office, Ministry of Statistics and Programme Implementation, available at <https://msme.gov.in/sites/default/files/Annualrprt.pdf>.

## ► Informality

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**I**nformality exists in all countries, but it is more prevalent in developing countries. Employment in the informal economy, in essence, comprises employment in the informal sector and informal employment outside the informal sector. Before the COVID-19 crisis, more than 60 per cent of the world's employed population (about 2 billion people) earned their livelihoods in the informal economy.<sup>vii</sup> The majority of these workers, 1.7 billion or 85 per cent, are in the informal sector. Many women work in the most vulnerable forms of informal employment (as domestic workers, home-based workers or as contributing family workers<sup>viii</sup>). Eight of ten small and micro enterprises are also informal (ILO 2018c, p 20–21).

The ILO has recognized the resilience and dynamism of workers and economic units in the informal economy. In the 2002 International Labour Conference (ILC), tripartite member states developed a broad consensus on the need to address the vulnerabilities of the informal economy actors (ILO 2013b). Most actors in the informal economy are often not recognized and not captured in national statistics. Besides, even if they are registered in national systems and programmes, they may be out of the scope of social protection, labour legislation and protective measures at their workplace. They lack protection under the law and are unorganized, without a voice to demand their rights. Their workplaces may be unsafe and unhealthy, and work usually comprises long working hours with low productivity and incomes.<sup>ix</sup>

Workers in most informal economies usually are not there by choice but rather due to a lack of formal economic opportunities, and this is a characteristic of many South Asian countries. These informal workers constitute a vulnerable segment of society with low job or income security, as we shall further analyse, and in India, informal economy workers represent 90.1 per cent of the total employment.

Against this background, this study attempts to estimate the impact of COVID-19 on the Indian labour market's labour supply<sup>5</sup> with a particular focus on informal employment. Other studies have tried to estimate the overall risk impact derived from both the demand and supply shocks in the COVID-19 crisis. This study looks at only the first-order labour supply impact driven by the lockdown measures implemented in India. Policymakers need to understand the magnitude of the supply shock due to containment circumstances. The capacity of the economy to operate in a lockdown is limited because of various reasons, but the lack of available workers due to the lockdown is a critical factor; many workers went home and have been restricted from leaving their premises; others were stranded in different locations, wanting to return home, while some sectors classified as essential have been granted permission to continue their work. Besides, there are specific jobs, occupations or activities that can be carried out from home. Therefore, the supply shock must capture the idiosyncratic risks of employment under these first COVID-19 policy responses in India.

In general, the informal economy comprises a series of activities outside the ambit of the normal regulated economy, often escaping official record-keeping. Academic literature discusses many informal economy features. Various studies are available on the informal sector (Amaral and Quintin 2006; Chaudhuri 1989) and informal employment (Günther and Launov 2012; Kucera and Roncolato 2008; Lehmann 2015; Sapkal and Sundar 2017).

These discussions have revolved around the informal sector's role in developing countries and have divergent views such as whether informality constrains development or contributes to the whole economy as a dynamic sector (Mazumdar 1976; Bromley 1978; Gerxhani 2004). Some studies examine the dualistic nature of labour markets, especially in developing economies. The existence of labour

5 A labour supply impact leads to a labour supply shock, where the economy reduces its capacity to produce either goods or services at given prices due to external factors. Lockdown measures impeding workers from working can be seen as a supply shock. From an economic perspective, containment measures can reduce productivity akin to a temporary drop in employment. However, technology, the internet and online database information may enable certain jobs and activities to continue their work from home, attenuating output contraction.

market segmentation under different circumstances appears in various theoretical frameworks. However, literature has been ambiguous on distinguishing between the formal and informal sectors (Fields 2004). Lewis<sup>x</sup> (1954) used the terms of modern and traditional sectors. Other theories grounded the labour market division under the human capital theories (Mincer 1974; Becker 1964; Schultz 1961).

The formal and informal sector divisions were first introduced in the 1970s, suggesting a dualistic structure found in developing countries (Hart 1973). There is ample research explaining the informal sector's prevalence and growth trends (Maloney 1999; Fields 1990; De Soto 1989; Günther and Launov 2012). The term has been used extensively in reports referring to labour market conditions and analyses of many dimensions under its definition. Different aspects of governments' regulations may hold the key to identifying a clear definition that distinguishes a formal from an informal activity (De Soto 1989; Swaminathan 1991). However, an ongoing debate in the literature has been that of the definition of the informal economy, its characteristics and what it encompasses.

The discussion on the informal sector also includes the characteristics of both the informal sector (enterprise-based) and informal jobs (job-based) (Hussmanns 2004). The debate has various expressions over whether informal economy workers suffer more decent-work deficits, or whether they are there by choice (Kucera and Roncolato 2008); are they informal for the more flexible working arrangements or due to limited work opportunities (Maloney 1999; Fields 2003; Perry et al. 2007; Meng 2001). The debate notwithstanding, measuring informal employment has seen significant developments under the ICLS. The 13th ICLS resolution in 1982 recommended that countries measure informal sector activities, and in 1993, the 15th ICLS discussed resolutions concerning employment statistics in the informal sector (ILO 1993a) and defined both the informal sector and employment in the informal sector and endorsed it (Hussmanns 2004).

In 2002, the ILO broadened the concepts of formality and informality from a "sector" to an economy-wide phenomenon. It included the production unit and the characteristics of the job or worker based on a "job-based" definition. The 17th ICLS endorsed these guidelines for a statistical definition of informal employment (ILO 2003a) using an operational definition of informal employment based on the concept of an informal economy. Previously, an enterprise-based definition had failed to capture the informal employment in the formal sector, (International Labour Conference 90th Session 2002, Report VI *Decent work and the informal economy*), and the concept was discussed at the 17th ICLS (2003), which suggested a conceptual framework<sup>xi</sup> for statistically defining and measuring the informal economy.

In India, the annual report of the 2017–18 PLFS used the ICLS framework to gauge the extent of the informal sector and informal employment. Moreover, the NCEUS definition of these terms<sup>xii</sup> uses "formal/informal" and "organized/unorganized" interchangeably to remain consistent with ICLS standards.

Whatever the definition used, workers and business owners in India's informal economy under the containment measures face a real-life dilemma on subsisting and sustaining their livelihoods. The informal economy, dominated by small units of less than ten workers, including own-account workers and unpaid family workers, is more vulnerable to shock. Unregistered own-account workers and informal employment in small-scale economic units, usually with low cash availability, operate daily. Any disruption in their work increases the risk of subsistence.

Casual workers who depend on daily wages and have little or no job or income security face the most significant distress. The reduced opportunities under the lockdown and the health risk exposure to the virus puts them in a life-threatening dilemma. Most casual, informal workers work for an average daily rate of 155–255 Indian rupees a day. Casual daily workers have few options to work from home, take time off or avoid public transportation to practice social distancing. They usually get work from "labour chowks", where casual workers aggregate in the morning, and labour brokers, petty contracts and even households pick them to work. Alternatively, they stand outside factory gates or at construction sites, hoping to get daily work. Some others depend on petty contractors and labour agents for work. Casual daily workers may require special attention within the government's proposed strategies to mitigate the lockdown's impact and the COVID-19 situation on the working population and their families.

Another set of critical informal workers struck by the crisis are those with regular employment status but with no employment or social security to face any contingencies, including contracting the virus. A majority of wage/salaried employees in the informal sector have no written contracts, and over half were not eligible for paid leave. Nearly half of the salaried workers in non-agricultural jobs are not entitled to any social security benefits, including healthcare.

## ► Study Structure

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The study has been organized as follows. Section 1 provides an overview of employment and informal employment in India. It uses the framework laid down in the 17th ICLS to measure the informal sector's share and looks at the informal employment both in the formal and informal sectors. It then turns to the NCEUS methodology to estimate informal employment by type of employment or labour status, urban–rural location, gender, occupation and level of median earnings or wages.

Section 2 presents a methodological framework for estimating the impact on the labour supply due to the lockdown measures in India. We use the methodological framework of Estupinan et al. (2020), which develops an RLI to gauge the share of occupations (adapted from the National Classification of Occupations [2015] in India) and activities that can be performed remotely from home.<sup>6</sup> The methodology for the COVID-19 labour supply impact under the lockdown explores the different notifications under which some sectors were left unrestricted to work (essential sectors). In contrast, others were constrained from performing any work activity in India. Combining the effect of the sector-focused lockdown implemented on 24 March 2020, the other relaxed sectors and locations, and the buffering effect of the RLI on the National Classification of Industries (NCI), it is possible to estimate the direct impact of the share of workers under the first-order supply shock.

Section 3 presents the supply shock results on employment and specifically on informal employment in India: the sector-wise, gender-wise, state-wise, employment-type-wise reduction in labour supply (jobs) under the notifications issued on 24 March and 15 April 2020 respectively are discussed. The results obtained provide a detailed analysis of the effects of the lockdown measures.

Section 4 presents the conclusions and policy recommendations to attenuate the labour supply impact and address immediate policy responses to protect informal economy workers and economic units.

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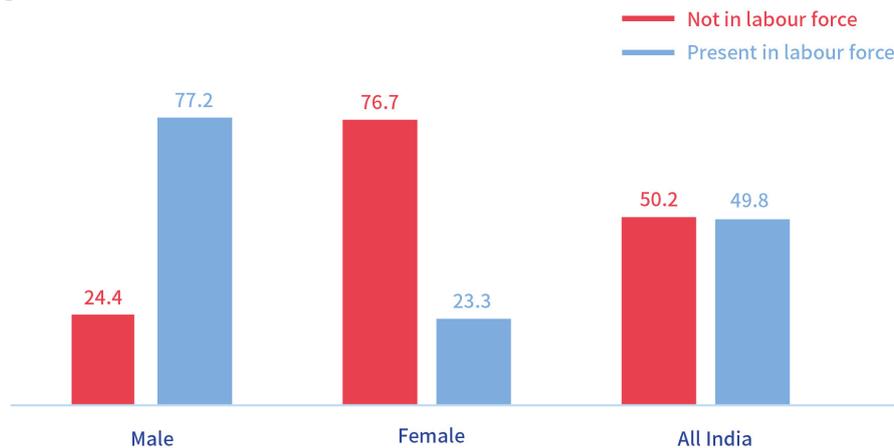
<sup>6</sup> According to the ILO's COVID-19 guidance for labour statistics data collection, remote work comprises work that is fully or partly carried out on an alternative work site other than the standard place of work.



## ► Section 1: Employment and informal employment in India

We turn to the latest available data set of labour force information to retrieve the main characteristics of India’s labour market in 2017–18. This report has used the usual principal and subsidiary employment status of the NSSO PLFS in India to estimate all the crucial parameters. All the estimates are adjusted using the projected census population to obtain absolute numbers. We have projected the census population to get an estimate for March 2020.<sup>7</sup> The 2017–18 PLFS shows that India’s labour force participation rate (LFPR) is around 50 per cent, relatively low compared to other countries in the region (ILO APESO 2018). However, a more revealing feature of the LFPR in India unveils a high gender gap variance of 52 percentage points. While 77.2 per cent of the male working-age population are part of the labour force, women only participate at a rate of 23.3 per cent. Figure 1 shows that the labour force is about half of the working-age population (15 years and above), representing 495.7 million persons, and out of these, 382.5 million are male workers. At the same time, only 114.3 million are female workers (March 2020).

**Figure 1. Working-age population (present and not in the labour force) in India, 2017–18 (in percentage)**



Source: Authors’ calculations for 2020 based on 2017–18 NSSO data.

There has been endless discussion concerning the low participation rate of women in the Indian workforce. Some views mention that the withdrawal of self-employed and low-paid rural women workers has been the major contributor to the decline of the women’s LFPR over the last years.

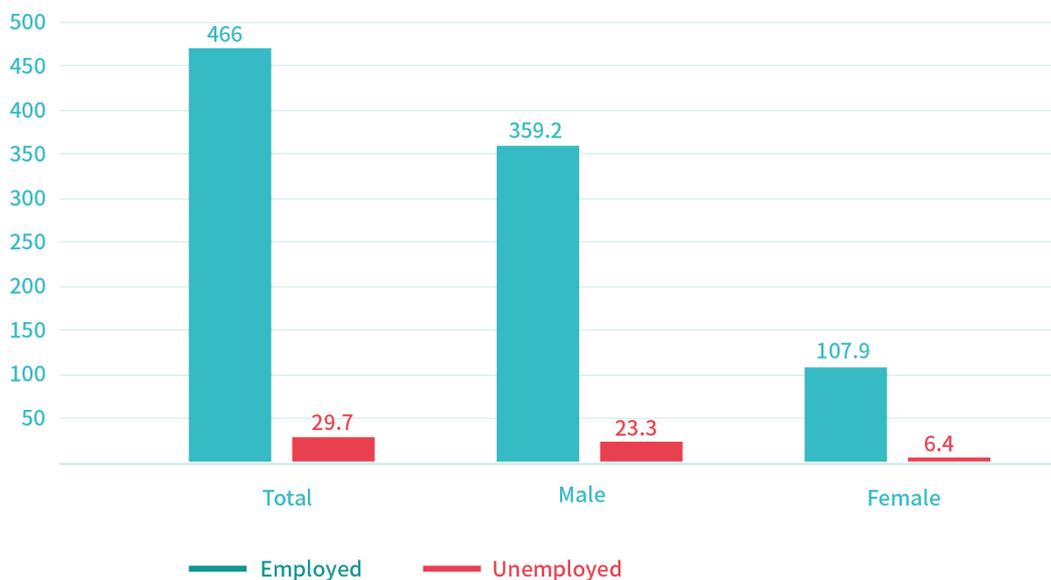
A lack of public care facilities, an increase in life expectancy and the dependency ratio has increased the unpaid care burden on women. This unpaid care work becomes a significant determinant of whether women will join and stay in employment and of the nature and quality of jobs they do as they search for the flexibility to balance their jobs and unpaid care work. We see an increase in women taking up part-time, casual employment or work as homeworkers and domestic workers. Most of these jobs are informal jobs, devoid of social security benefits. Anecdotal evidence suggests that even where

<sup>7</sup> GoI, Ministry of Health and Family Welfare, National Commission on Population, Population Projections for India and States, 2011–36: Report of the Technical Group for Population Projections, November 2019. Available at <https://main.mohfw.gov.in/documents/reports>. The assumption implied is that there is no employment structural change between June 2018 and March 2020. For instance, we assumed that the proportion of regular and salaried workers, casual labour and self-employed workers remains the same between 2017–18 and March 2020.

women work in the formal sector, such as in the garment sector, they leave formal jobs to work as home workers, home-based workers, cooks, domestic workers or caregivers because garment work is exhausting after a few years because of the tight deadline pressures and health challenges women face in such factories. Such working conditions, coupled with care work, do not allow women to continue working, and many tend to stop.

The greatly unbalanced participation rates in the labour market reveal that there are 3.35 men for every woman in India's labour force. The ratio slightly decreases to 3.33 when we focus on employment. We estimated (March 2020) that the Indian labour market employs 466 million persons, three quarters are men workers (360 million), and one quarter constitutes women workers (108 million).

**Figure 2. The Indian labour force (employed and unemployed), estimated March 2020 (in millions)**

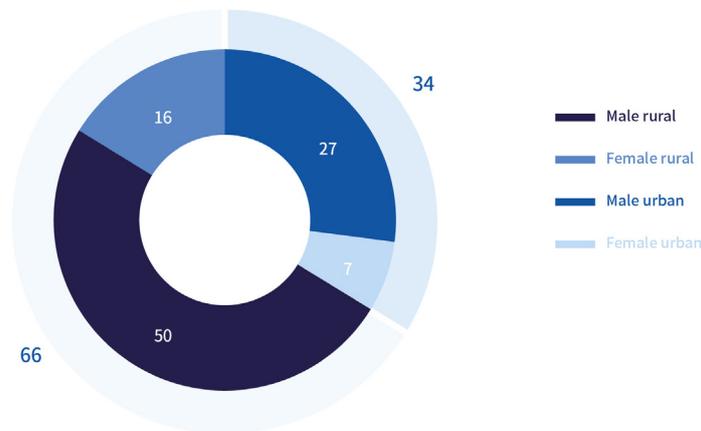


Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

Under a structural transformation, we are likely to find a shift of the labour force from farm to non-farm sectors and from rural to urban. India has witnessed a weak structural transformation since the economic reforms of 1991. Over the last decade, an increase in employment has occurred in urban areas. However, urban areas concentrate only 34 per cent of total employment; the majority of 66 per cent is rural (figure 3). Many studies have corroborated that the share of agriculture in the Indian GDP has declined sharply although the share of agriculture and rural employment continues to be high (Papola and Sahu 2012).

The urban sector employs only 16 million women workers (5 per cent of total employment). For every woman employed in the urban sector, there are 4.6 men workers. On the other hand, women are overrepresented in rural employment, and the ratio falls to 3.1 men workers for every woman worker. Many studies find that women are concentrated at the lowest part of the income distribution, contributing to India's high gender pay gap (Madheswaran and Khasnobis 2007; Khanna 2012; Bhattacharjee et al. 2015; Duraisamy and Duraisamy 2016).

**Figure 3. Urban and rural employment, 2017–18 (in percentage)**



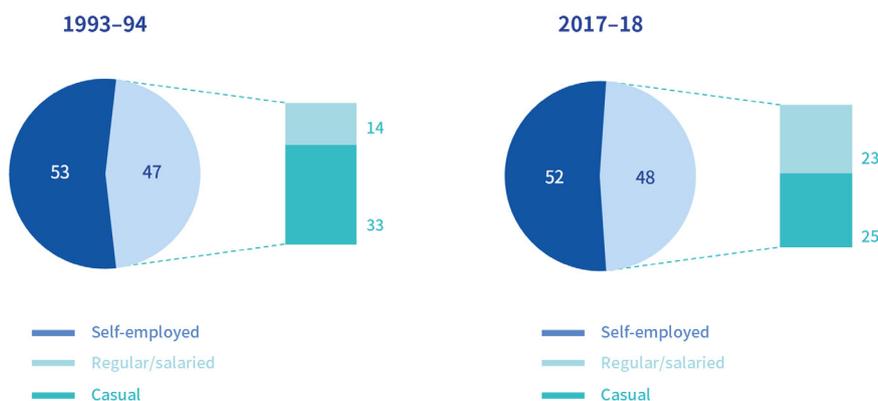
Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Employment in India comprises two major categories: self-employed (most of whom are own-account workers) and wage earners.

Wage earners, or employees, are those who hold an employment relationship. Under this category, the NSSO divides workers into regular/salaried and casual wage employment.<sup>8</sup> The ILO's *India Wage Report* in 2018 separates both categories as belonging to two different labour markets. Those workers in the casual labour market are from economically poorer households, without job security, compensated daily, and have low education or skills levels. The incidence of such labour is associated with socially disadvantaged groups (ILO 2018). Casual workers are usually underemployed as working cycles are irregular and their work is compensated only for days worked. Casual labourers are, by nature, more vulnerable, with little or no job and income security. Given their characteristics, they are likely to be more vulnerable to any economic shocks. On the other hand, regular or salaried workers have continuous employment, and their wages are paid periodically (weekly or monthly).

Over time, the proportion of wage earners in India has increased only slightly from about 46 per cent in 1993–94 to 49 per cent in 2011–12 (ILO 2018). The 2017–18 PLFS data shows that wage earners remained stagnant at 48 per cent. However, the share of regular/salaried workers increased from 14 per cent in 1993–94 to 23 per cent in 2017–18. Similarly, the share of casual workers has progressively decreased from 33 per cent in 1993–94 to 25 per cent in 2017–18 (figure 4).

**Figure 4. Self-employed and wage earners' structure, 1993–94 and 2017–18 (in percentage)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

<sup>8</sup> A person casually engaged in other farm or non-farm enterprises (both household and non-household) and getting a wage in return according to the terms of the daily or periodic work contract is defined as a casual wage labourer.

Of the half of the workforce classified as self-employed, their share has seen little change. Self-employment comprises employers, unpaid family workers and own-account workers. The latter constitutes the most prominent group. Many own-account workers are also home-based workers<sup>9</sup> and home workers.<sup>10</sup> They have similar characteristics to casual workers with regard to the nature of work, periodicity and fluctuating income levels.

## 1.1 The formal and informal sector

In broad terms, the central characteristic of the Indian economy is its dualism with two main sectors: the organized and unorganized or formal and informal. These definitions are used interchangeably in different contexts. The NSSO has classified manufacturing units under the Annual Survey of Industries as the organized sector. Similarly, government and public enterprises are considered part of the organized sector. Under the National Accounts' scope, the organized sector is linked to those segments in the economy where data and statistics are regularly available. Under the ambit of laws and regulations governing employment and working conditions, the application of the categories of organized and unorganized sector is usually linked to the numbers of workers in an enterprise.

The organized sector comprises all public establishments and all non-agricultural establishments outside the general ambit with ten or more workers. Most labour laws and institutions have evolved in response to organized labour demands (ILER 2014). As a result, the organized sector has relatively better working conditions including non-wage benefits and social security.

Dualism in the Indian economy refers not only to the sector denoting the enterprises but also to employment and income. Formal or informal employment relates to the type of contractual arrangements made for workers. Formal employment may include a formal written employment contract, eligibility for paid leave or be based on social security benefits<sup>11</sup> (mainly pension benefits) provided by the employer. In contrast, informal employment refers to their absence. The formal or organized sector consists primarily of regular workers. However, evidence suggests a trend to employ workers on an informal basis that includes both regular and casual workers in the formal or organized sector as well. The informal sector consists overwhelmingly of own-account and casual employment.

Viewed in this way, employee-category workers, such as regular and casual workers, broadly correspond to the formal-informal types of employment. According to the PLFS, the majority of workers in India are informal (91 per cent). It results from the nature of the workplace (organized and unorganized sectors) and employers' employment conditions.

## 1.2 Trends in the formal and informal sector/employment

Behind the pervasive levels of informality in the Indian labour markets are two underlying but countervailing trends. On the one hand, the share of workers in the unorganized or informal sector (enterprises with fewer than ten workers including own-account workers) has progressively dropped from 86.3 per cent to 84.3 per cent between 2004–05 and 2009–10, reaching 82.2 per cent in 2011–12 (ILO 2017). We have estimated that for 2017–18, the share of workers in the informal sector was 80.7 per cent. On the other hand, the proportion of informal workers in the organized/formal sector has

9 The term "home-based worker" refers to the general category of workers who carry out remunerative work within their homes or in the nearby/surrounding grounds/areas. Such workers may include those in the self-employed/own-account category, or those who work on their own as well as industrial outworkers, or those who work for others. The term "homeworkers" covers only the second category of workers and as such, the concept of "home-based workers" is broader than that of "homeworkers".

10 As per the Home Work Convention, 1996 (No. 177), "homework" may be defined as work carried out by a person to be referred to as a homeworker (i) in his or her home or in other premises of his or her choice other than the workplace of the employer; (ii) for remuneration; (iii) which results in a product or service as specified by the employer, irrespective of who provides the equipment, materials or other inputs used as long as this person does not have the degree of autonomy and of economic independence necessary to be considered an independent worker under national laws, regulations or court decisions.

11 The Social Security (Minimum Standards) Convention No.102 (1952) sets out the minimum levels of protection. These benefits are often referred to as the branches of national social security systems and include medical care and benefits in case of sickness, unemployment, old age (pension), employment injury, family responsibilities, maternity, invalidity and death of the breadwinner.

increased significantly through greater contractualization and other forms of casual or temporary labour. Due to these two trends that offset each other, the share of informal employment in India has remained stagnant. We have estimated the informal employment to be 90.9 per cent in 2017–18.<sup>12</sup> Hence, most employment in India is informal, with few social security benefits or even paid leaves.

The impact of the COVID-19 lockdown on informal economy workers may have different outcomes according to the sectors and jobs in which the informal employment is found. Some of these workers face higher risks of falling into poverty as they may find it more difficult to secure their work under containment measures. If work can be done from home or physical distancing norms can be implemented in “essential” sectors, this may increase workers’ chances of retaining their work and income during the lockdown.

With the COVID-19 crisis, hundreds of millions of workers are deprived of their livelihoods, including a considerable proportion of women and youth who are usually concentrated in low-paid, low-skilled jobs or are self-employed. They work as casual, daily wage earners, piece-rate workers or as own-account workers. Lockdown conditions expose their vulnerabilities due to the reduction of their economic activity or even closure of their work. Consequently, it puts them at a high risk of losing their jobs or income sources without an income replacement solution (ILO 2020c).

However, the broad statistical definitions do not describe the heterogeneity of the nature and character of informal economy workers. To understand this, the determinants, components and characteristics of different informal sectors, different forms of informal employment in formal and informal sectors, and the characteristics of the workers who work in this type of economy need to be distinguished. To illustrate the point, a home-based worker can include a highly skilled and paid professional from the IT industry and a piece-rate wage worker cutting extra threads from stitched garments, engaged in the lowest tier of the domestic or global supply chain. While the former earns much above the minimum wage, the latter may earn just a fraction of the notified minimum wage. They may also have varying levels of vulnerabilities, skill levels and needs that may impact the nature of the jobs available to them.

This heterogeneity within the workers themselves is a result of several underlying factors. These include chronic poverty, gender and social norms (and related exclusions) and educational levels. These challenges are also caused by agrarian crises, development- and climate-change-linked displacements, a lack of livelihood in rural areas and distress migration. All of these contribute to and exacerbate the vulnerabilities of working in the informal economy. Such workers may accept precarious work, which is low paid, mostly in low-productivity sectors, and continue to work in conditions similar to forced labour. The COVID-19 crisis and lockdown can affect such workers much more than those in jobs with social security or those who can sustain themselves during jobless months.

Specific informal sector units and informal jobs exist because they offer complementarity to the formal sector and formal employment outside of the informal sector to promote economic growth. There has been increasing flexibilization and informalization of production and employment relationships, and most new jobs created are in the informal economy. Larger and more formal enterprises in the upper tiers of supply chains have linkages with smaller enterprises in formal and informal economies. Due to competitive markets and demands for speedy delivery, these enterprises often adopt highly flexible production and work patterns. These business practices result in more informal working arrangements, piece-rate production, home-based work, and workers’ engagement in diverse and non-standard forms of employment. On the other hand, in the formal sector, regular jobs with social protection are becoming scarce, while informal work arrangements are increasing.

The PLFS of 2017–18 provides a new perspective for assessing the Indian labour market. With a slightly different methodology than the Employment and Unemployment Surveys (EUS) of the NSSO, this quarterly analysis also looks into the same employment categories as other NSSO data sets.

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12 Using updated information from the Census, the estimation of the informal employment share for March 2020 is estimated at 90.1 per cent.

### 1.3 Classifying employment-type categories by labour income

The demand for regular/salaried employment status has increased. This category refers to employment with better job security and higher pay. Similarly, a salaried worker employed by an enterprise with ten or more workers (organized sector) is also entitled to social security and retirement benefits. Others may register voluntarily for social provident funds. Hence, employment in the organized sector should automatically grant social security benefits and better working conditions. Both men and women employed as regular/salaried workers earn more on average than other employment categories such as own-account or casual workers.

We can assume that working in the organized sector and having social security benefits (pensions) improves employment quality. However, we must question if this can be assumed for all categories of workers. We use the median monthly level of wages or earnings as an indicator of “quality” of employment to differentiate all identified employment categories using both criteria: if workers are employed in the organized, unorganized or household sector or receive social security pension benefits.

This exercise may also help classify workers, depending on their levels of wages or earnings and their job security status as those who are more or less at risk. We have used all employment categories as defined in the NSSO (regular/salaried, casual, own-account, unpaid family members and employers). We have disaggregated all five categories, considering whether they belong to the organized, unorganized and household sectors, and registering if they are under a retirement saving and pension scheme of social protection (provident fund).

As shown in table 1, 17 different employment categories were ordered in terms of their median monthly labour income (wages or earnings). There are five demarcated levels of income: (1) above 22,500 rupees; (2) from 10,000–15,000 rupees; (3) from 8,000–9,000 rupees; (4) from 5,000–6,500 rupees; and (5) null income. Another feature that emerged for most workers, except for employers in the organized sector, is high gender pay gaps with women earning significantly lower than men in the same category.

► **Table 1. Employment categories disaggregated by sex, ordered by median monthly labour income (wages/earnings)**

PF	Employment categories	Total		Income scale	Male		Female	
		Share	Median earnings/wages (INR)		Share	Median earnings/wages (INR)	Share	Median earnings/wages (INR)
Yes	O-employer	0.2	25 000	●	0.2	25 000	0.0	35 000
Yes	O-regular/salaried employees	8.0	22 500		8.3	24 000	6.9	20 000
Yes	O-own account	0.4	15 000	◐	0.4	17 000	0.2	2 600
Yes	U-regular/salaried employees	0.4	15 000		0.5	15 000	0.3	10 000
No	U-employer	1.8	15 000		2.2	15 000	0.5	7 000
Yes	EH-regular/salaried	0.0	10 000		0.0	18 000	0.0	6 000
No	O-regular/salaried employees	6.3	9 000	◑	6.1	10 000	7.0	6 000
No	U-own account	36.2	8 000		41.3	8 000	19.4	3 200
No	U-regular/salaried employees	7.2	8 000		8.1	8 000	4.1	5 000
Yes	O-casual labour	0.1	6 500	◒	0.1	6 977	0.1	2 600
Yes	U-casual labour	0.0	6 067		0.0	6 067	0.0	1 820
No	O-casual labour	3.2	6 067		3.1	6 933	3.9	3 900
No	EH-casual labour	0.2	6 067		0.1	6 977	0.3	4 333
No	U-casual labour	21.5	5 612		21.1	6 067	22.8	3 467
No	EH-regular/salaried	0.9	5 000		0.4	8 000	2.7	3 500
No	O-unpaid family members	0.1	0	○	0.1	0	0.1	0
No	U-unpaid family members	13.6	0		8.1	0	31.6	0

Note: O: organized sector workers; U: unorganized sector workers; EH: employers' household.

The income scale refers to different median levels of wages and earnings. A complete painted circle refers to the higher scale, and an unpainted circle means these workers receive no type of compensation.

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Five out of the 17 categories in table 1 showed a meagre share participation in total employment (that is, casual workers with social protection) with less than 1 per cent share, which we considered atypical employment categories. We also found group categories that have similar income and employment status levels, and so we combined them (that is, regular/salaried workers without social protection in the unorganized and organized sectors). We ended up with seven main categories or groups of workers (representing 98 per cent of total employment) ordered in terms of their median monthly earnings or wages using the same five income scales as in table 1 (see table 2).

► **Table 2. Main employment categories disaggregated by sex, ordered by labour income levels**

PF	Categories	Total			Male		Female		GPG (%)
		Share	Median earnings/wages	Income scale	Share	Median earnings/wages	Share	Median earnings/wages	
Yes	O-regular/salaried employees	8.0	22 500	●	8.3	24 000	6.9	20 000	17
No	U-employers	1.8	15 000	●	2.2	15 000	0.5	7 000	53
No	O-regular/salaried employees	6.3	9 000	●	6.1	10 000	7.0	6 000	40
No	U-regular/salaried employees	7.2	8 000	●	8.1	8 000	4.1	5 000	38
No	U-own account workers	36.2	8 000	●	41.3	8 000	19.4	3 200	60
No	O/U-casual labour	24.7	5 671	●	24.2	6 178	26.7	3 530	43
No	U-unpaid family members	13.6	0	○	8.1	0	31.6	0	
	<b>Total</b>	<b>97.8</b>			<b>98.3</b>		<b>96.2</b>		

Note: O: organized sector workers; U: unorganized sector workers; EH: employers' household.  
Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

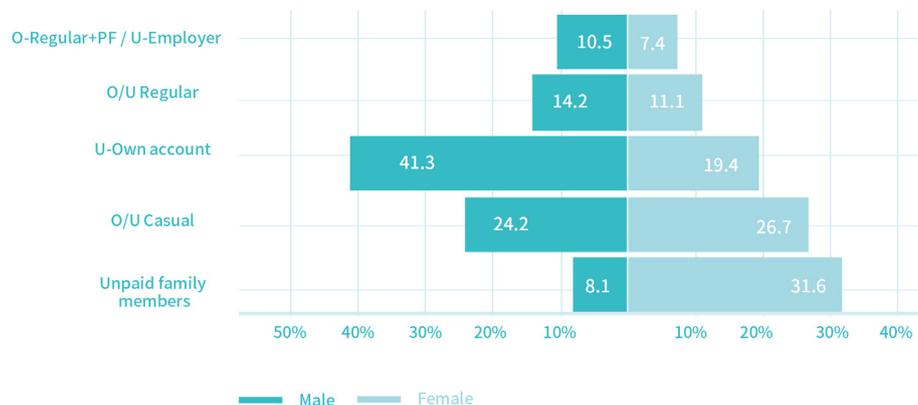
1. Curiously, the highest category of "quality" employment corresponds to the only formal employment category defined under the ICLS framework (as described further). The other lower-paid categories are those found in the informal employment definition. These main categories of employment, ranked by their income levels in descending order, are listed here.
2. Regular/salaried workers with social protection employed in the organized sector have better job security. Still, they have, on average, better monthly labour incomes (22,500 rupees as median monthly wages) than other employment categories. They represent 8 per cent of the total employment. This category shows a 17 per cent gender pay gap, meaning that women, on average, earn a median monthly wage equivalent to 83 per cent of the male median monthly wage.
3. Employers in the unorganized sector correspond to the second-best employment category with median monthly earnings of 15,000 rupees. This category only represents 1.8 per cent of total employment and has a 53 per cent gender pay gap.
4. Regular/salaried workers employed without social protection, irrespective of the sector that employs them, on average receive a median monthly labour income of 8,466 rupees. This category of employment holds a 13.5 per cent participation share of the total employment. The gender pay gap for the organized sector workers is 40 per cent, and the unorganized is 38 per cent. Own-account workers in the unorganized sector account for 36.2 per cent of total employment and have a median monthly labour income of 8,000 rupees. This worker category exhibits a wide income disparity between male and female earnings with a 60 per cent gender pay gap. Women own-account workers have median monthly earnings of 3,200 rupees.
5. Casual workers from both the organized and unorganized sectors are the second-worst employment category in their income level. They are usually paid daily, with little or no job security, no social

protection and have the lowest average income (5,670 rupees median monthly wage). This category holds a 22 per cent share of total employment and a 43 per cent gender pay gap.

- 6. Finally, unpaid family members are at the bottom of the income scale and hold 5 per cent of the total employment share.

These main categories of employment by income group (organized and unorganized regular and own-account workers have a similar median monthly income level) give a comprehensive picture of India’s labour market composition. Nonetheless, if we analyse the gender distribution of these representative categories of employment, we find that women workers are overrepresented in the lowest-paid categories (unpaid family members and casual workers). In contrast, male workers have higher participation in the higher-paid categories (figure 5).

**Figure 5. Share of workers by main employment categories for male and female workers, 2017-18 (in percentage)**



Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

### 1.4 Measuring informal employment in India

As for international standards, the 17th ICLS states that informal employment comprises informal jobs in the informal sector and households, and informal jobs in the formal sector. Own-account workers and employers are closely linked to the type of enterprise they own. Therefore, their jobs reflect the enterprise’s characteristics, that is, jobs are informal if they pertain to the informal sector. Contributing family workers are informal employment by nature. Only employees can have either formal or informal jobs depending on if the employment relationship, in law or practice, falls out of the realms of national labour legislation, income taxation or social protection, or does not provide entitlement to employment benefits (ILO 2013). This may occur for various reasons, including lack of enforcement, compliance or non-registration.

Members of informal producers’ cooperatives operate in a manner similar to own-account workers and employers. Hence, the formal or informal nature of their jobs is tightly linked to the cooperative’s characteristics and nature. Ultimately, own-account workers engaged in producing goods exclusively for final use by their households<sup>13</sup> are considered employed according to the 13th ICLS’s definition of employment (ILO 1982).

<sup>13</sup> Estimates of informal employment presented here follow the definition of employment as defined according to the 13th ICLS. The concept of informal employment as discussed in the 17th ICLS goes beyond employment as defined in the more up-to-date resolution concerning statistics of work, employment and labour underutilization adopted at the 19th ICLS. Different activities are now excluded from employment that were previously included. This concerns in particular own-use production of goods, which is an important component in informal employment, especially in developing economies. Some adjustments to the definition of informal employment are needed and are currently being discussed for adoption in the next ICLS in 2023.

Further, the ILO definition of the informal sector suggests that the number of employees<sup>14</sup> threshold should be decided as per national circumstances. This allows for the country's discretion in specifying the enterprise's employment size limit, a threshold based on the number of employees, below which the enterprises are to be considered under the national definition of the informal sector. However, countries should provide figures separately for enterprises with fewer than five employees for international comparison and reporting.

The NCEUS found it appropriate to set a threshold and the ownership criteria for defining the informal sector. They took a ten-worker threshold, noting that labour and social security legislation applied mainly to enterprises with ten workers or more. The NCEUS defined the informal sector as comprising "all unincorporated enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten workers" (NCEUS 2008).

The NCEUS is aligned to the ICLS and ILO definitions on the following issues:

- ▶ Own-account workers in the informal sector or private households and employers in the informal sector are considered informal because the economic units are informal.<sup>15</sup>
- ▶ Unpaid family workers are invariably regarded as informal employment.
- ▶ Paid employees can be informal or formal employment, depending on job security and social security availability.
- ▶ Casual workers, irrespective of the informal or formal sector in which they are employed, are considered without job and social security.

These criteria were taken to estimate the different informal employment categories both in the formal and informal sectors. Nevertheless, the classification of economic units in the formal sector include all government/public sector, public/private incorporated companies, cooperatives and trusts. In addition, proprietary (male and female) units; partnerships with members from the same household or members from different households; and employers' households are classified in the informal sector unless they have ten or more workers.

Other enterprises are classified in the formal sector if they employ ten or more workers. For those enterprises in the agricultural sector with no definition of the type of enterprise and number of workers, we first identified if they provided social benefits to workers. If they did, we classified them in the formal sector. If there were no social security benefits, by exclusion, we classified them in the informal sector.

To capture informality dimensions at the enterprise level and worker level, we classified the informal sector into two mutually exclusive categories: informal sector informal employment (ISIE) and informal sector formal employment (ISFE). Accordingly, the formal sector was also classified into two mutually exclusive categories: formal sector informal employment (FSIE) and formal sector formal employment (FSFE).

<sup>14</sup> For operational purposes, enterprises of informal employers may be defined, depending on national circumstances, following at least one of these criteria: (i) the size of the unit below a specified level of employment; (ii) the non-registration of the enterprise or its employees. The criterion of the number of workers is not a robust one, and the ILO recommends criteria that refer to the legal recognition of economics (registration, formal bookkeeping). India is one of the countries where the size of the unit determines legal obligation. However, this is usually not a recommended criterion.

<sup>15</sup> In India, the terms "unorganized sector" and "informal sector" are used interchangeably. The informal/unorganized sector consists of enterprises which are own-account enterprises and operated by own-account workers or unorganized enterprises employing hired workers. They are essentially proprietary and partnership enterprises.

► **Table 3. Share of informal and formal employment by type of production units and employment status (in percentage)**

Production units by type	Jobs by status in employment							Total
	Own Account		Employer		Contributing family workers	Employees		
	Informal	Formal	Informal	Formal		Informal	Formal	
Formal sector		0.4		0.2	0.1	9.9	8.8	19.4
Informal sector	35.8		1.9		12.9	28.4	0.5	79.4
Households	0.0		0.0			1.2	0.0	1.2
<b>Total</b>	<b>35.8</b>	<b>0.4</b>	<b>1.9</b>	<b>0.2</b>	<b>13.0</b>	<b>39.5</b>	<b>9.3</b>	<b>100.0</b>

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Using the conceptual framework for informal employment under guidelines of the 17th ICLS, but adapting them slightly to the Indian context (table 3), we can summarize that:

- Employment is distributed as follows: 79.4 per cent in the informal sector, 19.4 per cent in the formal sector and 1.2 per cent in households.
- Employment comprises 9.9 per cent (0.4 + 0.2 + 9.3) formal employment and 90.1 per cent (35.8 + 1.9 + 13.0 + 39.5) informal employment.

Informal employment employs the majority of workers in India, and they are distributed as follows.

- The informal employment composition: 87.6 per cent is in the informal sector, 11.1 per cent is in the formal sector and 1.3 per cent is found in households.

In terms of job status, informal employment is composed of 2.1 per cent employers, 39.7 per cent own-account workers, 17 per cent regular/salaried workers, 26.8 per cent casual workers and 14.4 per cent unpaid family members. The results are consistent with the structure found at the regional level, where the majority of workers are concentrated in the informal sector (77.4 per cent), 6.9 per cent in informal employment in the formal sector, and 3.5 per cent in the household sector (Bonnet and Chen 2019).

Table 4 displays the dualistic view of informality in India. The enterprise-based sectors show that all employ a higher share of informal employment. Even in the organized/formal sector and household sectors, there is a higher share of workers with little or no protection, which defines them as informal employment.

► **Table 4. Share of informal and formal employment in different sectors (in percentage)**

	Formal employment	Informal employment	Total
Formal sector	9.4	10.0	19.4
Informal sector	0.5	78.9	79.4
Households	0.0	1.2	1.2
<b>Total</b>	<b>9.9</b>	<b>90.1</b>	<b>100</b>

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Similar to global informality estimates, most of India's economic units are found in the informal sector. According to the different employment types (table 5), own-account workers have the highest informality levels (98.9 per cent), which is much above the global average of 86.1 per cent. Wage earners or employees have very different informality levels. Casual workers are 99.7 per cent informal, over regular/salaried workers who are 62.4 per cent informal.

► **Table 5. Share of informal and formal employment by status in employment (in percentage)**

	Formal	Informal	Total
<b>Employer</b>	9.6	90.4	100
<b>Own account</b>	1.1	98.9	100
<b>Regular/salaried</b>	37.6	62.4	100
<b>Casual worker</b>	0.3	99.7	100
<b>Unpaid family member</b>	0.0	100.0	100
<b>Total employment</b>	<b>9.9</b>	<b>90.1</b>	<b>100</b>

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Employees (casual and regular) have a 43.8 per cent and own-account workers have a 39.7 per cent participation rate within informal employment. However, if we look at global figures, these show a slightly different picture. Worldwide, employees make up 36.2 per cent of informal employment and own-account workers make up 45 per cent (ILO 2018).



## ► Section 2: Measuring the labour supply impact

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To estimate the labour supply impact on India's labour market, we followed an approach similar to the one used by del Rio-Chanona (2020) and took the methodological framework from Estupinan et al. (2020)

To contain the spread of COVID-19, the GoI issued several notifications to impose social distancing, which curtailed activities, especially in non-essential sectors. Against this background, the impact on the labour supply side of the informal economy is linked with two critical assumptions:

1. Specific industries under the GoI COVID-19 notifications were considered essential and remained open through the lockdown duration. Hence, work under these essential industries was not disrupted.
2. The extent to which workers belonging to non-essential industries can perform their activities at home. The study uses PLFS 2017–18 data to make an in-depth employment assessment of the supply shock impact of India's COVID-19 measures and revise different labour market dimensions and workers' characteristics.

### 2.1 Classification of essential and non-essential industries

To distinguish between essential and non-essential industries, Estupinan et al. used the government notifications issued during the first and the second lockdown. At the time of the lockdown, an essential industry was allowed to operate by the government. Therefore, we can assume that no job loss would occur in industries categorized as essential. We followed the same methodology and primarily used the notifications released in the first and second lockdowns to classify industries as essential and non-essential. The first notification was released on 24 March 2020, which declared the nationwide lockdown for 21 days till 14 April 2020, and it contained a list of activities prohibited during the lockdown period.<sup>16</sup>

As the number of cases for COVID-19 kept increasing, the Indian government decided to extend the lockdown for three more weeks. During this phase, the GoI came up with consolidated guidelines on 15 April 2020 and subsequent addendums in the next week or two.<sup>17</sup> However, during this phase, the government also relaxed the restrictions put under the first lockdown for some of the industries. The relaxations were implemented explicitly in rural areas, outside the limits of municipal corporations and municipalities.<sup>18</sup> As a result, the classification of industries is done separately for both rural and urban areas.

The National Industrial Classification (NIC) at a five-digit level has been used. The PLFS 2017–18 used a five-digit classification of NIC 2008 to document workers' (employed persons) industry of work. According to PLFS 2017–18, there are a total of 1,223 five-digit NIC 2008 industries in which workers are employed. The proportion of essential industries in rural and urban areas was the same at 37 per cent during the first lockdown.<sup>19</sup> During the second lockdown, the proportion of essential industries increased both in rural and urban areas. It more than doubled in rural areas and increased 31 per cent in urban areas (table 6).

<sup>16</sup> GoI, Ministry of Home Affairs, Order to take effective measures to prevent the spread of COVID-19 in India for a period of 21 days with effect from 25 March 2020. Available at: <https://mha.gov.in/sites/default/files/MHAorder%20copy.pdf>; Guidelines on the Measures to Be Taken by Authorities and Government Institutions in India for Containment of COVID-19 Epidemic. Available at: [https://mha.gov.in/sites/default/files/Guidelines\\_0.pdf](https://mha.gov.in/sites/default/files/Guidelines_0.pdf).

<sup>17</sup> See Appendix A for details.

<sup>18</sup> See Appendix A for details.

<sup>19</sup> The notifications issued by GoI in the first lockdown did not distinguish between rural and urban areas.

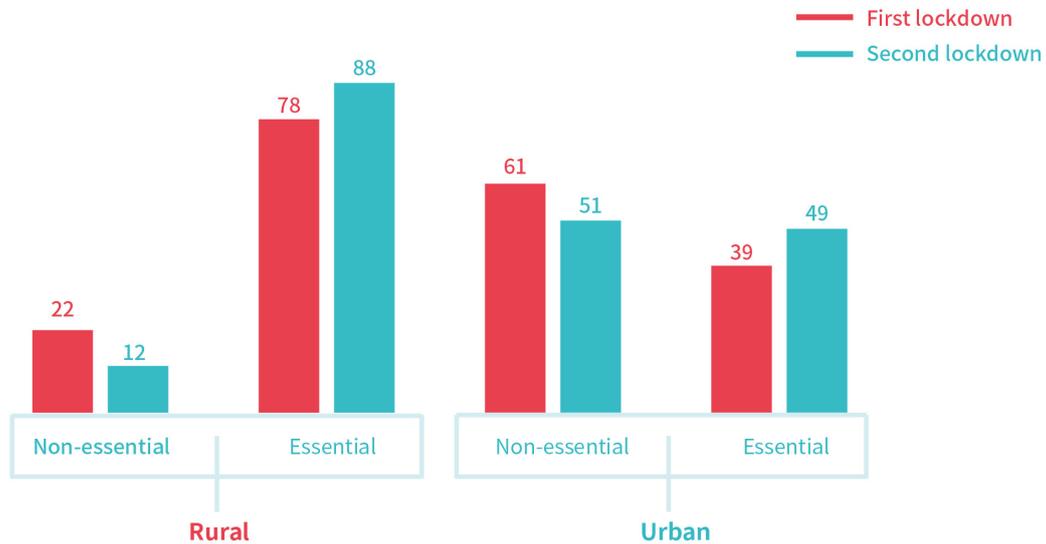
► **Table 6. Essential and non-essential industries under first and second lockdown notifications (in absolute numbers and percentages)**

	Rural				Urban				
	Essential		Non-essential		Essential		Non-essential		
	Industries	%	Industries	%	Industries	%	Industries	%	
First lockdown	453	37	770	63	453	37	770	63	
Second lockdown	937	77	286	23	593	47	630	53	
<b>Total number of 5-digit NIC industries</b>								<b>1223</b>	

Source: Adapted from Estupinan et al. (2020).

Similarly, the proportion of workers engaged in essential and non-essential activities during the first and second lockdown in rural and urban regions were estimated (figure 6).<sup>20</sup> Higher proportions of workers were engaged in non-essential activities during the first lockdown as compared to the second lockdown in rural and urban areas. For instance, 22 per cent and 61 per cent of workers were engaged in non-essential activities during the first lockdown compared to 12 and 51 per cent during the second lockdown in rural and urban areas respectively. It is noted that a higher share of workers is engaged in non-essential activities in urban areas than in rural areas. We can interpret this as primarily essential farm activities, and these are concentrated in rural areas. This may also indicate that the rural sector may become a refugee sector for workers in times of crisis.

**Figure 6. Proportions of workers engaged in essential and non-essential industries during the first and second lockdowns, rural and urban (in percentage)**



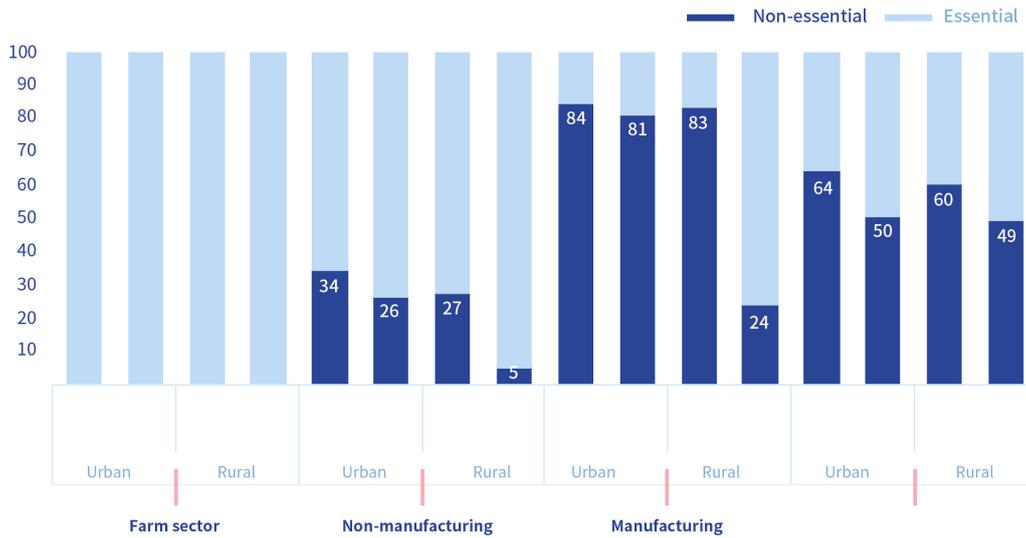
Source: Adapted from Estupinan et al. (2020).

Moving forward, we also explored the sectors where most non-essential activities were found. Figure 7 shows the broad proportion of workers engaged in essential and non-essential activities in rural and urban areas. The manufacturing and services sectors have the highest portion of workers engaged in a non-essential activity, and they are likely to be impacted due to the lockdown. In the farming sector, almost all the workers are engaged in an essential activity. The trend is similar for both urban and rural

<sup>20</sup> The number of workers is estimated according to usual status (ps+ss).

areas during the first and second lockdowns. The non-manufacturing sectors have a relatively lower proportion of workers in non-essential activities.

**Figure 7. Sector-wise proportions of workers engaged in essential and non-essential industries, rural and urban (in percentage)**



Source: Adapted from Estupinan et al. (2020).

In urban areas, the share of manufacturing workers engaged in non-essential activities hardly changed during the first and second lockdowns; in rural areas, the share of manufacturing workers in non-essential activities dropped substantially due to the second lockdown notification, from 83 to 24 per cent. For the service sector, the first lockdown placed 60 and 64 per cent of workers in non-essential activities in rural and urban areas respectively. The second lockdown reduced that share to 49 and 50 per cent respectively.

## 2.2 Work from home

To get a comprehensive picture of the impact of COVID-19 on job losses, our methodology considers work that can potentially be done from home by workers employed in non-essential industries. There have been many studies on the direct loss of labour from the COVID-19 pandemic. Still, few have used a bottom-up approach to assess the different occupations and activities of workers that can be performed from home. Zhang et al. (2020) surveyed Chinese citizens one month after a lockdown had been implemented and found that 38 per cent of the workers were working from home and 27 per cent were still travelling to their workplaces. Adams-Prassl et al. (2020) surveyed the citizens of the United Kingdom and the United States in March 2020 to identify that higher wage occupations have a greater ability to work from home.

Dingel and Neiman (2020) estimate that 37 per cent of jobs can be performed entirely at home under the impact of social distancing measures in the US. They also find this would represent 46 per cent of the total share of wages. The study, applying the same methodology for 85 other countries, found out that developing nations, in comparison to developed nations, have a lesser proportion of jobs that can be carried out from home. Similarly, Saltiel (2020) finds that few jobs can be performed from home, varying from 5 to 23 per cent across ten developing economies (Armenia, Bolivia, the Yunnan Province (China), Colombia, Georgia, Ghana, Kenya, Laos, Macedonia and Vietnam), and further reports a positive relationship between the share of jobs that can be performed at work and GDP per capita. According to a Delphi survey, approximately one in six occupations at the global level and nearly one in three

occupations in advanced countries can be done at home. Still, the potential to do so requires, at a minimum, that countries make necessary investments in improving telecommunications infrastructure. Finally, Baker (2020) and Koren and Peto (2020) use O\*NET survey data to construct how occupations cannot be done at home or are affected by social distancing.

For this study, we constructed an RLI from the methodological framework of Estupinan et al. (2021). The RLI estimates the extent to which work can be performed from home, and it ranges from 0 to 1. Zero (0) implies that none of the work activities pertaining to an occupation can be performed from home. An RLI score of one (1) implies that all the activities pertaining to an occupation can be performed from home. To map work activities to occupations, we used the NCO-2015 classification, which contains the list of work activities pertaining to occupations. As the PLFS used the NCO-2004 framework, we used the concordance table in NCO-2015 to match NCO-2004 occupations.<sup>21</sup>

After the mapping exercise, the authors provided personalized ratings to categorize whether a particular work activity can be performed from home or not. Two scales were used to rate the activity: binary and a Likert scale of 3. A binary rating of 0 implies that the work cannot be performed from home, and 1 implies it can be performed from home<sup>22</sup> (see Appendix A2). A Likert scale score of 0 implies that the work is very unlikely to be performed from home; 1 implies that the work is somewhat likely to be performed from home; and 2 implies that the work is very likely to be performed from home.<sup>23</sup> As the Likert scale allows for more variation and helps capture the close calls while rating work activities better, we decided to use an RLI generated by using the Likert scale to estimate the labour supply impact in this paper.<sup>24</sup>

Using the scores generated at the NCO three-digit level, we estimated average RLI scores at the NCO one-digit-level division. Workers belonging to occupational group of legislators, senior officials and managers, professionals, and clerks are most likely to work from home according to both the Likert scale and the binary rating. On the other hand, workers belonging to occupational groups such as service workers, shop and market sales workers, skilled agricultural and fishery workers, craft and related trades workers, plant and machine operators, and elementary occupations are unlikely to work from home.

The average RLI scores for most of these groups seemed to be according to the expectations except for occupational group clerks. However, on closer scrutiny, we found that activities such as “check and format documents prepared by other staff, deal with incoming and outgoing mail, screen requests for meetings or appointments, and perform a variety of administrative support tasks”; “obtain, compile and compute accounting, bookkeeping, statistical, financial, and other numerical data, and take charge of cash transactions incidental to business matters”; and “provide or obtain information in person, by telephone or electronic means such as e-mail in connection with making travel arrangements, describing the products or services of an organization, registering and greeting guests and visitors, making appointments, connecting telephone calls and collecting information from survey respondents or applicants for services”<sup>25</sup> pertaining to secretaries, numerical clerks and client information clerks, respectively have rightly received a high score from the raters, justifying the high scores received by occupational group clerks.

21 For this study the mapping of work activities and occupation is done at NCO three-digit level.

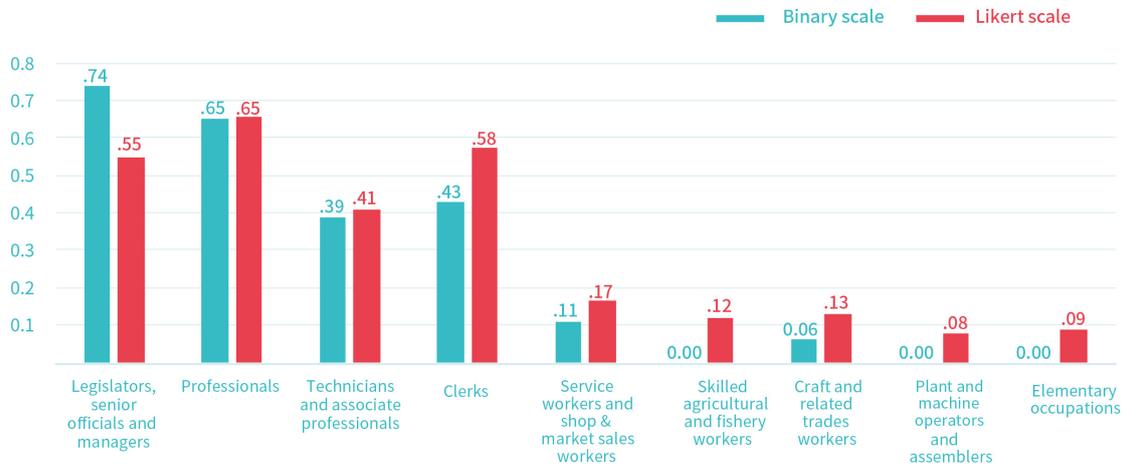
22 For the binary scale, we considered an activity can be performed from home if three or more raters have agreed on it.

23 Appendix A2 covers a detailed methodology to derive the RLI using Likert scale responses from raters.

24 As a robustness check, we estimated the correlation between the RLI scores using the binary ratings and the Likert scale. We found that there is 87 per cent correlation between the RLI scores generated using both these tools.

25 Tasks or activities performed by workers in different occupational groups are compiled in the International Standard Classification of Occupations – ISCO-08.

**Figure 8. Average RLI scores for NCO at one-digit-level division**



Source: Authors' estimations based on the tasks and activities of NCO-2015 matched to the NCO from the 2017-18 NSSO data.

### 2.3 Limitations of the study

A significant limitation of the study concerns the implication or assumption that an occupation and its related activities are independent of other occupations with similar or different activities. We assume that all activities carry an equal weightage along with the respective occupational group. We also assume a simple linear production relationship, which would imply that workers produce independently of other workers. In addition, there are no restrictions on the provision of raw materials and other intermediate products required for production. However, in reality, complementarities and working dynamics usually lead to non-linear results. We can think of various situations where production requires a combination of activities, tasks and occupations. If one of these activities, tasks or even occupations is dismissed, production is either not possible or does not generate similar results. Nevertheless, the estimated outcome offers a conservative assessment of the supply shock that can be of great interest for policymakers and academicians, leading to further analysis and policy responses to mitigate the crisis.

Moreover, while important, we neglect several effects that are yet not significant compared to the effect of the shocks associated with the lockdown and social distancing measures. For instance, we do not include estimates due to health impairment or quarantine confinements.



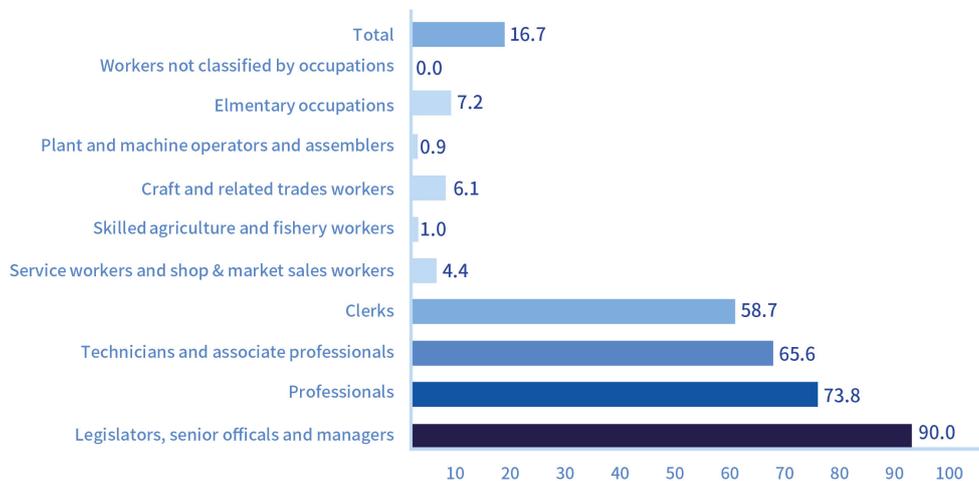
## ► Section 3: First-order labour supply impact results

We analysed the combined effect of the lockdown measures addressed towards non-essential industries and the buffering effect caused by the possibility of remote work using an RLI applied to different activities using India’s national classification of occupations. This was then used to estimate the total number of workers directly impacted by the first-order supply shock<sup>26</sup> under the lockdown notifications of 24 March and 15 April 2020.

The first-order supply shock has two timeframes. The first timeframe is when the lockdown started on 24 March 2020 with the first set of notifications issued to regulate particular industries’ closure (non-essential). We assume that workers employed by essential industries received no direct impact from the lockdown supply shock. We assume that workers in non-essential industries were directly impacted by the lockdown considering they were impeded to work. The second timeframe is from 15 April 2020, when the lockdown was eased for particular industries and locations, reducing the direct impact of the supply shock on employment through the second set of notifications.

Using the RLI, we gauged the proportion of work activities under NCO-2005 that could be performed from home during the lockdown, attenuating the labour supply impact. Using the RLI for each occupation, we estimate that in a broad context, on average, 16.7 per cent of workers would be capable of working remotely (figure 9).

**Figure 9. Share of workers capable of working remotely from home at NCO one-digit-level division (in percentage)**



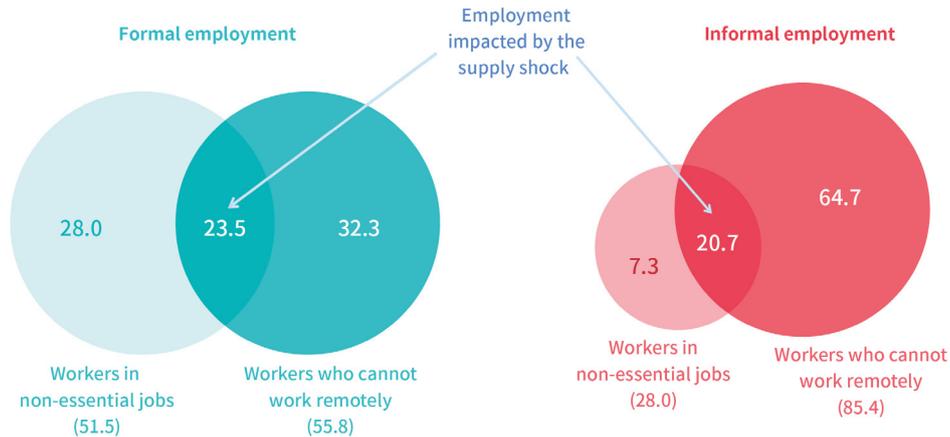
Source: Authors’ calculations for 2020 based on 2017-18 NSSO data.

Hence, the net supply shock effect on employment will consist of workers who cannot work from home and who are engaged in non-essential industries. The analysis yielded some interesting findings. The data suggests that 23.5 per cent and 20.7 per cent of formal and informal workers respectively have been impacted together in Lockdown 1.0 and Lockdown 2.0. Figure 10 provides the combined weighted proportion of employment impacted by the supply shock for the two lockdowns. It is clear that the impact has a different storyline for formal and informal employment. In formal employment, the share of workers found in non-essential activities is 51.5 per cent on average. Of these, 54 per cent can work from home and, therefore, may not be affected by the lockdown. However, the 46 per cent who, given

<sup>26</sup> The detailed methodology is covered in Appendix A.

their characteristics, cannot work remotely are considered to be workers impacted by the first order supply shock, that is, 23.5 per cent of total formal employment.

**Figure 10. Workers in formal and informal employment directly impacted by the first-order labour supply shock (in percentage)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

In informal employment, of 28 per cent of workers in non-essential jobs, only 26 per cent can work remotely. The latter means that most informal workers (74 per cent) in non-essential activities have been affected by the lockdown facing a high risk of losing their jobs; 20.7 per cent of informal workers are impacted in this situation.

The broad picture emerging from the analysis is that the supply shock would have directly impacted 21 per cent of total workers in the Indian economy due to both lockdown notifications. In absolute terms, using census estimates, the data reveals that the total number of workers impeded to work in the first stage of the lockdown is 116.2 million workers and 78.9 million workers in the second period, an overall, combined weighted average of 97.6 million workers. Of the workers who felt the direct impact of the first notifications, 80 per cent were men, and 20 per cent were women workers. However, the relaxed lockdown measures relatively impaired more women workers than men workers, meaning that the second notification directly impacted 77.3 per cent of men workers and 22.7 per cent women workers.

### 3.1 Sectors under the first lockdown notification

The first-order supply shock lockdown was sector-oriented by nature. Businesses were obliged to shut, people forced to stay at home and work from home if possible – the first notifications made no distinction in geographical locations, either urban or rural. As estimated earlier, 770 NIC five-digit-level industries (63 per cent of NIC sectors) were identified as non-essential, placing them under a strict lockdown.

Before presenting the results, it is wise to look at those sectors identified as essential. In general, industrial establishments remained closed, except for the manufacturing of essential commodities.<sup>27</sup> Coking coal, iron-ore mining or production of steel and ferroalloys, supply of explosives, transportation were also considered essential and excluded from the lockdown. However, agriculture and activities related to farming were by far the largest sector exempted from the lockdown.

27 Seven commodities are scheduled under the Essential Commodities Act, 1955, as essential: drugs; fertilizers, whether inorganic, organic or mixed; foodstuffs, including edible oil seeds and oils; hank yarn made wholly from cotton; petroleum and petroleum products; raw jute and jute textile; and seeds of food crops, fruits and vegetables, cattle fodder, jute and cotton.

Agriculture and related activities, such as fisheries, employ nearly 42 per cent of the total employment in India. Using census-estimated figures, the data reveals there are 193.3 million workers in the farming or agricultural sector (table 7). The latter includes 59 per cent of the total rural workers, 62 per cent of the total self-employed, and 26 per cent of the total casual workers in India. The other industries that were not disrupted by the lockdown under the first notification were public sector activities,<sup>28</sup> electricity,<sup>29</sup> water supply,<sup>30</sup> health,<sup>31</sup> and financial<sup>32</sup> sectors. All the sectors classified as essential, including agriculture, employ 46.3 per cent of the workforce (215.6 million workers) in India (table 7). We can then argue that the lockdown supply shock may directly impact the other 53.7 per cent employed in the economy (249.7 million workers).

Agricultural activities and other essential activities faced both supply and demand disruptions. Wholesale markets were closed, and there was news of shortages of farm labourers and transportation. Because the process of the supply chain involves interactions with various interlinked industries, the implications of a no-supply shock would envisage no disruption on labour mobility, and the lockdown ignored the difficulty of restructuring intrastate supply chains and connecting product markets. However, our analysis is limited to assessing the supply shock under lockdown notifications and the workers' capacity to work remotely from home.

Against this background, the data analysed revealed that workers employed by non-essential industries in five sector categories have, on average, a higher rate capacity for working from home than other sectors. These categories are information technology, real estate, extraterritorial organizations and bodies, education, and professional activities. The combined effect of the lockdown of non-essential activities and the work rate from home resulted in a net supply shock impact directly affecting 25 per cent of the workforce in these five sectors (6.8 million workers). On the other hand, workers employed in non-essential industries such as accommodation and other services were amply constrained by the lockdown and presented a low RLI index. As a result, the supply shock impacts 75 per cent of their workers (13.8 million). For obvious reasons, workers employed by households have a practically null capacity to perform their activities from home, leading to a 94 per cent impact on this sector (5.2 million workers).

Three sectors impacted differently are mining, administrative activities and arts/entertainment. Mining was marginally locked down under the first notification (22.1 per cent of the workforce). The number of activities that may be carried out remotely is meagre, resulting in a 20.5 per cent direct impact (0.40 million workers affected). In administrative activities, 65.4 per cent of workers were constrained to work under the lockdown, and 26.7 per cent of them could perform their work from home, which buffers the direct impact to 38.7 per cent of the non-essential workforce in this sector (2.3 million workers).

Arts and entertainment, due to the nature of their work, were banned entirely under the lockdown. However, 42.5 per cent of workers in this sector were estimated to be performing from home (0.81 million workers were directly impacted). Of the latter, we must acknowledge that 50.5 per cent of these workers are identified as writers and creative or performing artists and correspond to NCO classification 245. These workers have been rated as capable of performing from home due to the corresponding description of the activities of this occupation which entail: "conceiving and creating literary works, interpreting and communicating news and public affairs through the media and translating or interpreting from one language into another". Here, we must point out a caveat: these activities do not fully capture the work done by performing artists.

28 Across all states, offices of the police, home guards, civil defence, fire and emergency services, disaster management and prisons remained functional. The district administration and treasury also continued to work.

29 Power generation, transmission and distribution units and services in the private sector continued to provide electricity.

30 Offices to ensure electricity, water and sanitation also functioned and remained open. Staff required for essential services like sanitation, personnel related to water supply and so on in municipal bodies remained open. They were advised to work with a minimum number of employees.

31 All hospitals and related medical establishments of the public and private sectors like laboratories, clinics, nursing homes, ambulances, including their manufacturing and distribution units, remained open and functional.

32 Banks, insurance offices and ATMs remained open.

The data provides preliminary evidence that the highest impact on employment is concentrated in the manufacturing, transportation, wholesale and construction sectors. These four sectors employ 187.2 million workers. The first lockdown notifications restricted work for 57 per cent of total workers. Despite this, their RLI is comparatively low (12 per cent weighted average); the supply shock directly impacts 86.8 million workers on the whole. This includes 38.5 million from manufacturing, 18.9 million from wholesale, 15.8 million from construction, and 13.7 million from transportation. These sectors include 74.7 per cent of the workers directly impacted by the COVID-19 lockdown in India. Consequently, these figures suggest that the employment structure found in these sectors and prevalent characteristics of workers in these industries are likely to depict the prevalent types of workers at risk from the COVID-19 lockdown.

### 3.2 Sectors under the second set of lockdown notifications

On 14 April 2020, the lockdown was extended until 3 May. The Indian government announced a notification to relax the lockdown, to ease supply chains and alleviate the economic disturbance. All agricultural activities would remain fully functional, including dairy, aquaculture, tea, coffee and rubber plantations, and agriculture suppliers of fertilizers, chemicals, seeds or machinery.

Although essential activities had been identified to ensure the production, distribution and sale of bare-minimum goods and services, food supply remained a significant concern. The National Food Security Act and Public Distribution System assured additional food grains for three months to around 800 million beneficiaries. Consequently, the second notification issued measures to restart other operations such as oil and gas exploration, refineries, brick kilns in rural areas, and services provided by self-employed persons such as electricians, IT repairs, plumbers, motor mechanics and carpenters. The manufacture of IT hardware, coal and mineral production, and mining were also included. Manufacturing and other industrial establishments with access control in special economic zones (SEZs) and export-oriented units (EoUs), industrial estates and industrial townships were also allowed to operate, ensuring arrangements for workers to stay within their premises. The employer would also arrange the transportation of workers to the workplace.

Additional economic activities, such as public work programmes, were re-categorized as essential activities. The construction of roads, irrigation projects, buildings, industrial projects and renewable energy projects were also allowed to restart operations. The latter supposes that construction sector workers faced a reduction on a direct impact from the supply shock lockdown. The data seems consistent as for the second notifications, and only 11.4 per cent of construction workers were directly impacted by the lockdown (table 7), with 9.7 million workers returning to construction activities.

The second set of notifications also eased the lockdown measures for various manufacturers, wholesalers and service providers. The figures suggest that 12.6 million manufacturing workers,<sup>33</sup> mainly regular/salaried and self-employed, could return to their activities. However, the manufacturing sector still had 57.2 per cent of its workforce constrained as non-essential activities. Another impact of the second notification resulted in relaxing lockdown norms that facilitated the return of 14.2 million

33 According to the consolidated MHA guidelines, the following would be allowed from 15 April onwards: (a) industries operating in rural areas, that is, outside the limits of municipal corporations and municipalities; (b) manufacturing and other industrial establishments with access control in special economic zones (SEZs) and export oriented units (EoUs), industrial estates, and industrial townships; (c) manufacturing units for essential goods, including drugs, pharmaceuticals, medical devices, their raw material and intermediates; (d) food processing industries in rural areas, that is, outside the limits of municipal corporations and municipalities; (e) production units, which require a continuous process, and their supply chain; (f) manufacturing of IT hardware; (g) coal production, mines and mineral production, their transportation, the supply of explosives and activities incidental to mining operations; (h) manufacturing units of packaging material; (i) jute industries with staggered shifts and social distancing; (j) oil and gas exploration/refinery; (k) brick kilns in rural areas, that is, outside the limits of municipal corporations and municipalities (see the [list of MHA orders and guidelines](#) on the National Disaster Management Authority website).

workers to the wholesale trade<sup>34</sup> industry. Seventy-one per cent of these workers are small own-account workers and 26 per cent of regular/salaried workers in the sector.

► **Table 7. Labour supply impact under first and second sets of lockdown notifications across industries (in millions of workers and percentages)**

Sectors	Total		Non-essential (%)	Working remotely (%)	Net impact (millions)	Net impact (%)	Non-essential (%)	Working remotely (%)	Net impact (millions)	Net impact (%)
	Millions	%								
			First set of lockdown notifications				Second set of lockdown notifications			
Farm sector	193.3	41.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Electricity	1.7	0.4	0.0	0.0	-	0.0	0.0	-	0.0	0.0
Water supply	1.3	0.3	0.0	0.0	-	0.0	0.0	-	0.0	0.0
Financial act.	5.4	1.2	0.8	0.6	0.0	0.0	0.0	-	0.0	0.0
Public admin.	8.0	1.7	0.0	0.0	-	0.0	0.0	-	0.0	0.0
Human health	6.0	1.3	0.0	0.0	-	0.0	0.0	-	0.0	0.0
<b>Subtotal</b>	<b>215.6</b>	<b>46.3</b>	-----	-----	-----	-----	-----	-----	-----	-----
Mining	1.9	0.4	22.1	1.6	0.4	20.5	5.1	0.7	0.1	4.4
Manufacturing	59.8	12.9	83.4	19.1	38.5	64.3	57.2	14.0	25.8	43.2
Construction	53.9	11.6	31.5	2.2	15.8	29.3	12.3	1.0	6.1	11.4
Wholesale trade	49.6	10.7	54.5	16.4	18.9	38.1	12.8	3.3	4.7	9.5
Transportation	23.9	5.1	65.4	8.2	13.7	57.2	63.6	8.0	13.3	55.6
Accommodation	9.2	2.0	100.0	26.6	6.8	73.4	100.0	26.6	6.8	73.4
Information	5.2	1.1	70.0	59.1	0.6	10.9	69.6	59.0	0.6	10.6
Real estate	1.1	0.2	100.0	66.7	0.4	33.3	100.0	66.7	0.4	33.3
Professional activities	4.3	0.9	64.2	37.4	1.2	26.9	64.2	37.4	1.2	26.9
Administrative	6.0	1.3	65.4	26.7	2.3	38.7	65.4	26.7	2.3	38.7
Education	18.3	3.9	100.0	74.5	4.7	25.5	100.0	74.5	4.7	25.5
Arts/entertainment	1.4	0.3	100.0	42.5	0.8	57.5	100.0	42.5	0.8	57.5
Other services	9.4	2.0	96.3	21.9	7.0	74.5	96.3	21.9	7.0	74.5
Act. of HHS	5.5	1.2	96.1	1.7	5.2	94.4	96.1	1.7	5.2	94.4
Act. of extra	0.0	0.0	100.0	71.8	0.0	28.2	100.0	71.8	0.0	28.2
<b>Subtotal</b>	<b>249.7</b>	<b>53.7</b>	-----	-----	-----	-----	-----	-----	-----	-----
<b>Total</b>	<b>465.3</b>	<b>100.0</b>	<b>35.4</b>	<b>10.5</b>	<b>116.2</b>	<b>25.0</b>	<b>25.2</b>	<b>8.2</b>	<b>78.9</b>	<b>17.0</b>

Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

Under the second set of notifications, the relaxed lockdown effect benefited 37.2 million workers, including 32.1 per cent of the initial 116.2 million workers that it had first affected. In rural areas, three sectors received the most relief through the second lockdown notifications: wholesale trade, manufacturing and constructions were classified as essential sectors, reducing the direct impact for 36.5 million workers.

<sup>34</sup> The supply of essential goods is allowed as under, in certain circumstances: (i) all facilities in the supply chain of essential goods, whether involved in manufacturing, wholesale or retail of such goods through local stores, large bricks-and-mortar stores or e-commerce companies should be allowed to operate, ensuring strict social distancing without any restriction on their timing of opening and closure (see the MHA order dated 15 April 2020).

**Figure 11. First-order labour supply impact across sectors under first and second sets of lockdown notifications (in millions)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

### 3.3 The lockdown supply shock for occupations

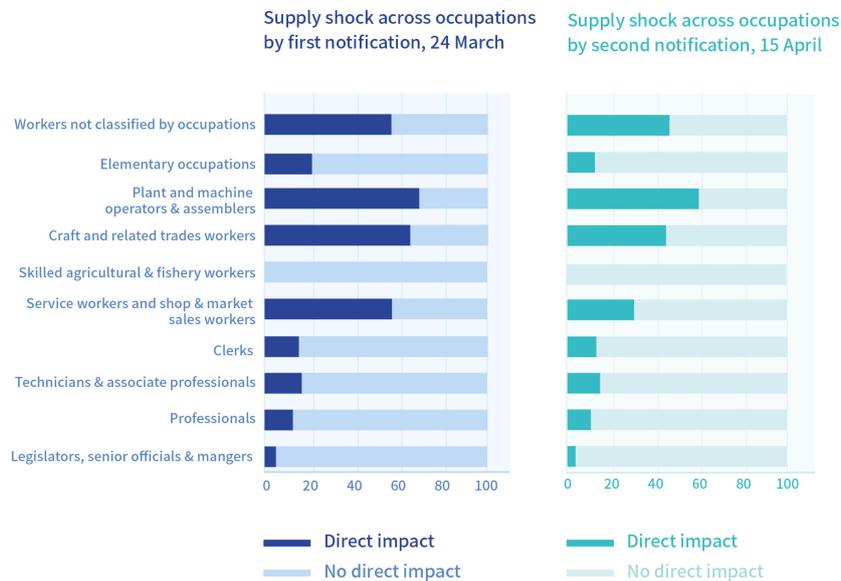
The analysed data provides additional evidence that workers’ occupations and work activities were crucial in the lockdown context, reducing the threat of the labour supply impact. We know that the lockdowns were sector and location (urban and rural) oriented. Hence, the work structure and activities performed within non-essential industries, to some extent, will determine the degree of the impact. Usually, labour-intensive industries doing manual work, which require face-to-face interaction, have limited options to work remotely from home and may encounter a higher risk of complete work disruption. Empirical studies demonstrate a considerably higher use of telework in knowledge-based industry sectors, mainly in services and education (Eldér 2019). However, in developing and emerging countries, many workers are employed in occupations that can only be done in the workplace, such as street vendors or most agriculture occupations (Berg et al. 2020).

In India, the farming or agricultural sector generally employs two types of occupations: skilled agricultural and fishery (70 per cent) and elementary unskilled occupations (28 per cent). There is likely to be a null direct impact from the lockdown. Almost all workers under this category are registered under the agricultural sector, which is an essential sector.

There are workers employed in certain occupations who can work remotely from home under the lockdown. This study uses an RLI to address the extent to which work activities under each occupation can be performed from home. However, the RLI does not consider the environment or infrastructure that would allow workers to effectively perform their work from home (that is, access to broadband internet, electricity, hardware, fixed clients, and so on). Our findings suggest that workers employed in non-essential activities, division 1, which corresponds to legislators, senior officials and managers, have a 91 per cent probability of continuing their work from home. Similarly, professionals (82 per cent), technicians (75 per cent) and clerks (60 per cent) have higher chances to adapt their activities to working from home. This explains why occupations with the flexibility to adapt to working conditions outside the workplace and the feasibility of continuing performing under the lockdown help reduce the overall supply shock impact as compared to other jobs.

Other occupations such as service workers, machine operators and elementary occupations have 5 per cent or less probability of working remotely from home. Workers such as plant and machine operators and assemblers have a higher potential risk of being affected by the supply shock. Figure 13 shows the impact of the lockdown on these occupations. It corroborates that plant and machine operators and craft and related trades workers are the most affected by the lockdown, with 69.5 and 65.5 per cent workers affected respectively, under the first government notifications.

**Figure 12. Workers directly impacted by occupation (in percentage)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Our findings reveal that under the first lockdown notification, of all workers directly impacted by the supply shock, only 8 per cent comprise legislators,<sup>35</sup> senior officials and managers, professionals, technicians and clerks (table 8).

Table 8 shows a “heat map” of the number of workers directly impacted by the lockdown. The vertical axis describes the sectors under the first and second notifications, while the horizontal axis highlights the occupations. Most directly impacted workers are concentrated in occupations such as craft and related trades, service and sales workers, plant and machine operators, and elementary occupations across seven sectors (manufacturing, construction, wholesale and retail trade, transportation, accommodation, other services and households). Under the first lockdown, these sectors made up 91.1 per cent of all affected workers. If we consider only these occupation categories in these sectors, these workers now represent 87.4 of all affected workers. Notably, the second set of notifications eased the lockdown, particularly for these sectors, benefiting a substantial amount of workers in these four occupation categories.

As sectors were exempted from the lockdown, the direct impact on these specific occupations decreased. Exempting wholesale trade under the second notification reduced the impact on approximately 11 million service and sales workers (65 per cent in urban and 35 per cent in rural locations). Similarly, lockdown relief for the construction sector lessened the impact on 3.5 million craftsmen and 5.5 million workers in elementary occupations, the majority of whom were from rural areas (86 per cent). The manufacturing activities released from the lockdown reduced the impact on 11.9 million workers in three occupational categories; 61 per cent craft workers, 17 per cent machine and plant operators, and 22 per cent in elementary occupations.

Taken together, the data presented here provides evidence that under the second notification, 89.9 per cent of the workers affected by the lockdown supply shock are from low- and middle-skilled occupations. This comprises 32.7 per cent workers from craft and related trades, 21.2 per cent from plant and machine operator occupations, 18.1 per cent from elementary occupations and 17.5 per cent are service and sales workers (table 8).

<sup>35</sup> According to the NCO, legislators determine, formulate and direct policies of national, state, regional or local governments and international governmental agencies. They make, ratify, amend or repeal laws, public rules and regulations. They include elected and non-elected members of Parliament, councils and governments.

► Table 8. Labour supply impact under first and second sets of lockdown notifications across occupations and industries (in millions of workers)

	Senior officials managers	Professionals	Technicians	Clerks	Service workers & sales workers	Skilled agricultural workers	Craft and related trades workers	Plant & machine operators	Elementary occupations	Net impact
First lockdown notifications impact 24 March 2020 (millions of workers)										
Manufacturing	0.6	0.4	0.4	0.2	1.1	0.1	24.1	5.6	6.1	38.4
Construction	0.1	0.2	0.1	0.0	0.1	0.1	7.1	0.4	7.7	15.8
Wholesale trade	0.3	0.2	0.2	0.2	13.0	0.1	2.5	0.4	2.0	18.9
Transportation	0.1	0.0	0.1	0.1	0.6	0.0	0.2	11.3	1.2	13.7
Accommodation	0.1	0.0	0.0	0.1	4.4	0.0	0.9	0.3	0.9	6.8
Other services	0.0	0.5	0.1	0.0	2.9	0.1	1.4	0.3	1.7	7.0
Act. of HHS	0.0	0.0	0.0	0.0	1.5	0.1	0.1	0.5	2.9	5.2
Other sectors	0.6	1.3	2.4	0.8	2.0	0.1	1.0	0.6	1.4	10.3
<b>Total in millions</b>	<b>1.9</b>	<b>2.6</b>	<b>3.3</b>	<b>1.5</b>	<b>25.6</b>	<b>0.5</b>	<b>37.3</b>	<b>19.4</b>	<b>24.0</b>	<b>116.1</b>
	1.6%	2.3%	2.9%	1.3%	22.0%	0.4%	32.1%	16.7%	20.7%	100.0%
Second lockdown notifications impact 15 April 2020 (millions of workers)										
Manufacturing	0.5	0.3	0.2	0.2	0.7	0.0	16.8	3.6	3.4	25.8
Construction	0.0	0.1	0.0	0.0	0.1	0.0	3.5	0.1	2.3	6.1
Wholesale trade	0.1	0.0	0.1	0.1	1.6	0.0	2.0	0.2	0.7	4.7
Transportation	0.1	0.0	0.1	0.1	0.6	0.0	0.2	11.1	1.1	13.3
Accommodation	0.1	0.0	0.0	0.1	4.4	0.0	0.9	0.3	0.9	6.8
Other services	0.0	0.5	0.1	0.0	2.9	0.1	1.4	0.3	1.7	7.0
Act. of HHS	0.0	0.0	0.0	0.0	1.5	0.1	0.1	0.5	2.9	5.2
Other sectors	0.6	1.3	2.4	0.8	2.0	0.1	0.9	0.6	1.2	9.9
<b>Total in millions</b>	<b>1.5</b>	<b>2.2</b>	<b>3.0</b>	<b>1.3</b>	<b>13.8</b>	<b>0.3</b>	<b>25.8</b>	<b>16.7</b>	<b>14.3</b>	<b>78.8</b>
	1.9%	2.8%	3.8%	1.7%	17.5%	0.4%	32.7%	21.2%	18.1%	100.0%

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

### 3.4 The lockdown supply shock by employment status

Before we analyse the data, it would be wise to remember that the farming or agricultural sector employs 53 per cent of all own-account workers in the Indian labour market, 44 per cent of casual workers and 80 per cent of contributing family members. We acknowledge from these findings that significant shares of workers employed in agriculture and related activities, categorized as essential, would not have been directly impacted by the supply shock from the lockdown.

Own-account workers are the biggest category of self-employed workers in India. Our data shows that apart from agriculture, other essential industries employ 15 per cent of this category (approximately 26 million workers), primarily working in the wholesale and trade industry. Consequently, only 32 per cent of all own-account workers would be restricted by the lockdown (53.7 million workers). Nonetheless, the RLI for this category suggests that just over one third of own-account workers can work from home. Hence, the number of own-account workers directly impacted by the initial supply shock is estimated to be 34.2 million workers (17.8 million in urban areas and 16.4 million in rural areas; see figure 11).

Figure 11 provides a summary of the lockdown impact on all employment categories for both notification periods. These findings suggest that regular/salaried workers were the most affected by the lockdown in both notification periods. The majority of directly impacted regular/salaried workers are found in manufacturing (34 per cent), wholesale and trade (17 per cent), transportation (12 per cent), education (9 per cent), private households (9 per cent) and accommodation (6 per cent). The data reveals that the second notifications benefitted 11.6 million regular/salaried workers. The measures lifted the restrictions for manufacturing, wholesale and construction activities (47.2 per cent in urban areas and 52.8 per cent in rural areas).

As of 15 April, under the new lockdown measures, and considering that on average, 36 per cent of regular/salaried workers in non-essential activities can work from home, it is estimated that 27.5 million urban and 9.4 million rural regular/salaried workers would be constrained from work (figure 13).

**Figure 13. First-order labour supply impact under first and second sets of lockdown notifications by employment categories (in millions of workers)**



Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

Similar to own-account workers, large numbers of casual workers are employed in essential activities. Around 44 per cent of all casual workers are in agriculture and 29 per cent in essential construction activities and were not constrained by the first lockdown notification of 24 March 2020. The first lockdown impacted 25 million casual workers (15.4 million in rural areas and 9.6 million in urban areas) who were concentrated mainly in the construction and manufacturing sectors (19.3 million workers). The relaxed measures of the second notification, especially in rural areas, allowed 12.3 million casual workers to return to work. The overall direct impact on casual workers accounts for 11.4 per cent of total workers under this category (12.7 million workers to 8.3 million in urban areas and 4.4 in rural areas).

The impact on contributing family members affected 3.7 million workers, mainly in manufacturing (52 per cent), accommodation (19 per cent) and private households (16 per cent).

### 3.5 The supply shock across states and union territories

The lockdown effect has had effects on each state and union territory (UT) in India, and the most significant numbers of workers come from the most populated states/UTs. Hence, more than 80 per cent of total impacted employment in India is in 13 states/UTs, namely Maharashtra, West Bengal, Uttar Pradesh, Tamil Nadu, Gujarat, Andhra Pradesh, Karnataka, Rajasthan, Telangana, Bihar, Madhya Pradesh, Delhi and Kerala (table 9).

► **Table 9. Labour supply impact and variations under first and second sets of lockdown notifications across states (in millions of workers and percentages)**

No.	States	First lockdown impact (in millions)	Share (%)	Change (in millions)	Change (%)	Second lockdown impact (in millions)	Share (%)	Own-account workers (%)	Employers (%)	Unpaid family members (%)	Regular/salaried workers (%)	Casual workers (%)
1	Maharashtra	11.2	9.6	-2.7	-24.1	8.5	10.7	26	1	3	58	13
2	West Bengal	11.9	10.2	-3.5	-29.4	8.4	10.6	34	0	4	40	21
3	Uttar Pradesh	13.3	11.4	-5.3	-39.7	8.0	10.1	40	0	9	38	13
4	Tamil Nadu	11.0	9.5	-3.6	-33.0	7.4	9.4	18	2	5	54	21
5	Gujarat	6.8	5.9	-1.8	-26.6	5.0	6.3	26	1	8	55	9
6	Andhra Pradesh	5.8	5.0	-1.2	-21.5	4.6	5.8	41	2	8	36	13
7	Karnataka	5.1	4.4	-1.1	-21.3	4.0	5.1	9	0	3	65	23
8	Rajasthan	5.7	4.9	-2.2	-38.7	3.5	4.4	41	2	5	44	9
9	Telangana	4.3	3.7	-0.9	-20.1	3.5	4.4	43	1	2	45	9
10	Bihar	7.5	6.5	-4.2	-55.4	3.4	4.3	41	3	2	29	25
11	Madhya Pradesh	5.0	4.3	-1.6	-33.2	3.3	4.2	35	0	10	36	18
12	Delhi	4.0	3.4	-0.9	-23.0	3.1	3.9	31	1	2	62	4
13	Kerala	4.3	3.7	-1.4	-31.6	3.0	3.7	28	2	1	35	34
		95.9	82.5	-30.4	-31.7	65.4	82.9					

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Although all states/UTs have been directly affected by the lockdowns, given the size of the workforce coming from these areas, it is surprising not to find Odisha, Chhattisgarh and Jharkhand on the list of most impacted states. This is because the supply shock has affected states and UTs unevenly. We find that, on average, the supply shock affected 24.6 per cent of all workers across states/UTs under the first notification. The states with the lowest impact were Chhattisgarh (the farming sector employs 65 per cent of its workers) and Sikkim, with 12.8 per cent of workers affected.

The data also indicates that more than half of the workers in states/UTs such as Delhi and Daman and Diu, were affected by the lockdown because more than 98 per cent of these workers were employed in non-essential activities. Amongst the states/UTs most impacted by the lockdowns, Uttar Pradesh, Rajasthan, Bihar, Andhra Pradesh and Telangana have a high share (above 40 per cent) of affected own-account workers; Maharashtra, Tamil Nadu, Gujarat, Karnataka and Delhi registered a high share of regular salaried workers (above 50 per cent) being affected. Meanwhile, states like Kerala registered a high share (34 per cent) of impacted casual workers, and Madhya Pradesh showed a high share (10 per cent) of family contributing members directly impacted by the lockdown (table 9).

As seen previously, the second lockdown notifications relaxed containment measures. Similarly, the range of impacted workers directly affected varies between less than 10 per cent (Meghalaya and Chhattisgarh) of the total employment to 44 per cent (Delhi) across states/UTs. The relaxation of the lockdown also had different effects across states/UTs. States like Bihar (construction, manufacturing and wholesale), Himachal Pradesh (construction), and Odisha (construction, wholesale and manufacturing) halved the workers that had been affected in the first notification lockdown. At the same time, the Andaman and Nicobar Islands, Karnataka, Telangana, Lakshadweep and Chandigarh did not benefit much from the relaxation. In these places, after the second notification, the share of workers affected by the first notification was reduced by less than 20 per cent.

► **Table 10. States with a higher share of impacted employment under first and second sets of lockdown notifications (in percentage)**

States	First notification 24 March			Second notification 15 April		
	% Non-essential	% NE RLI workers	Net direct impact (%)	% Non-essential	% NE RLI workers	Net direct impact (%)
Delhi	71.1	14.1	57.0	56	11.8	43.9
Daman & Diu	68.5	10.4	58.1	45	8.7	36.4
Chandigarh	61.6	20.1	41.5	48	13.1	34.7
D & N Haveli	56.1	14.7	41.5	41	12.4	29.1
Puducherry	57.4	16.6	40.8	41	13.3	27.7
Kerala	50.9	15.9	35.0	36	12.2	23.9
Punjab	46.1	12.7	33.4	33	9.7	23.5
Haryana	44.0	12.6	31.4	32	8.8	23.3
Goa	53.4	21.2	32.1	40	16.6	23.1
Tamil Nadu	47.4	13.8	33.7	33	10.8	22.6
Telangana	38.5	10.5	28.1	31	8.9	22.5
West Bengal	43.5	12.4	31.1	31	9.5	21.9
Tripura	38.1	8.3	29.8	29	7.9	20.9
Gujarat	40.4	12.1	28.3	30	9.7	20.7
Lakshadweep	38.6	13.5	25.1	33	12.3	20.5
Nagaland	44.4	18.2	26.2	38	17.8	20.4
Mizoram	38.0	12.1	25.9	29	11.3	18.1
Maharashtra	36.0	12.9	23.1	28	10.4	17.5
Andhra Pradesh	29.8	7.7	22.1	23	6.1	17.3
Uttarakhand	34.5	9.6	24.9	26	8.4	17.2
<b>ALL INDIA</b>	<b>35.4</b>	<b>10.5</b>	<b>25.0</b>	<b>25</b>	<b>8.2</b>	<b>17.0</b>
Assam	32.6	8.6	24.0	24	7.3	16.7
A & N Islands	26.8	5.6	21.2	21	4.7	16.6
Manipur	37.9	12.8	25.0	27	11.9	15.5
Karnataka	37.0	18.3	18.7	29	14.5	14.7

States	First notification 24 March			Second notification 15 April		
	% Non-essential	% NE RLI workers	Net direct impact (%)	% Non-essential	% NE RLI workers	Net direct impact (%)
Rajasthan	29.2	7.4	21.8	19	6.0	13.4
Jharkhand	27.9	8.4	19.5	20	6.5	13.1
Uttar Pradesh	29.8	8.3	21.5	19	6.1	12.9
Bihar	35.5	7.3	28.2	18	5.5	12.6
Jammu & Kashmir	27.1	8.1	19.0	19	6.5	12.0
Odisha	29.2	7.3	21.8	17	5.6	11.8
Arunachal Pradesh	26.0	10.3	15.6	20	9.4	11.0
Himachal Pradesh	28.5	6.8	21.7	16	5.6	10.8
Madhya Pradesh	22.0	6.3	15.7	16	5.1	10.5
Sikkim	30.4	17.2	13.2	24	13.7	10.0
Meghalaya	27.0	11.3	15.7	19	9.9	9.5
Chattisgarh	16.9	3.8	13.1	12	3.3	8.7

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

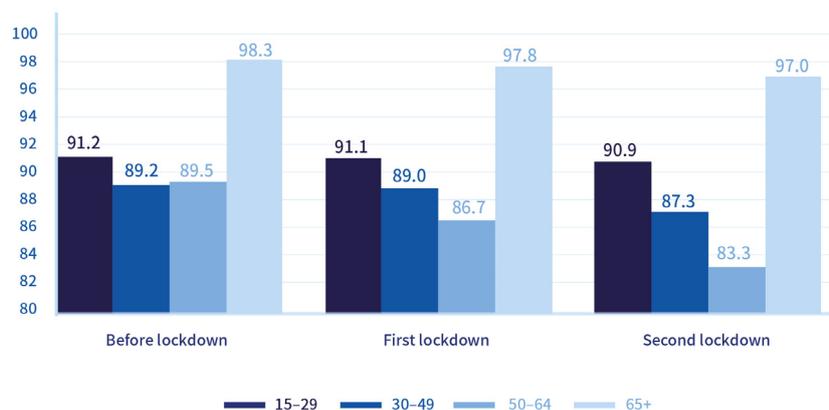
### 3.6 The impact on informal employment

We now focus on how the containment measures affected informal economy workers and economic units. The estimated share of informal employment directly impacted by the lockdown represents 89.5 and 88 per cent of the total employment for the first and the second lockdown periods respectively (table 11). Expressed as March 2020 Census-estimated figures, the absolute number of informal workers impacted corresponds to 104 million workers and 69.5 million workers respectively.

The share of informal employment across different age groups tends to follow a pattern seen in regional and worldwide statistics. The proportions of informal employment are higher for young workers and workers above 65 years of age, dropping steadily from the 25–29 age group to the 35–54 age group (ILO 2018). A similar trend was found in India, with workers in the 15–29 and above-65 age groups registering a higher share of informal employment of 91.2 per cent and 98.3 per cent of total employment respectively as compared to the in-between age groups.

The evidence suggests that the lockdown accentuated this pattern. The workers affected by lockdown in the 15–29 and above-65 age groups show a much higher difference of informal employment share as compared to other age groups (figure 14) after lockdown measures.

**Figure 14. Share of informal employment in total employment before and after lockdown by age groups (in percentage)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

The composition of informal workers’ in terms of the proportions of workers of different ages, represented in four age groups, shows that workers below the 50-year age threshold accounted for 77 per cent of the total informal workers before the lockdown. From 50–64 years, older-age workers account for 19 per cent, and those above 65 years represent 4 per cent of the total informal employment. However, the lockdown affected a higher share of workers below 50 years old compared to the older age cohorts. The data reveals that younger workers in the 15–29 and the 30–49 age brackets affected by the containment measures represent 84 per cent of total informal employment (table 11).

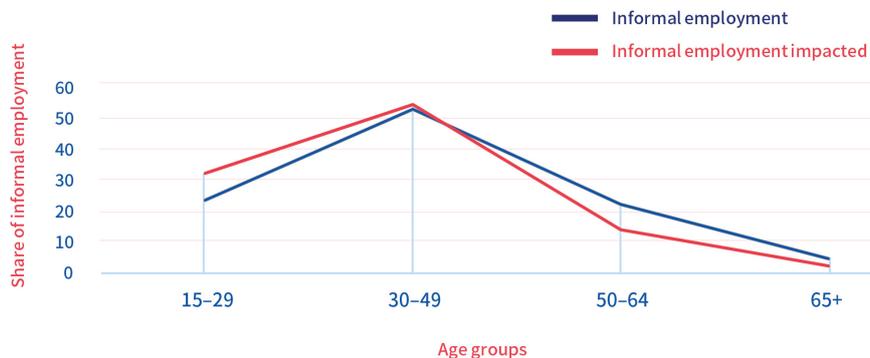
► **Table 11. Informal employment and direct impact on it under first and second sets of lockdown notifications by age group (in millions and percentage)**

Age groups	Informal employment before the lockdown (millions)	Share (%)	First lockdown IE impact (millions)	Share (%)	Second lockdown IE impact (millions)	Share (%)
15–29	106.0	25.3	33.0	31.7	21.3	30.7
30–49	216.0	51.5	54.2	52.1	36.8	53.0
50–64	80.3	19.1	14.3	13.8	9.5	13.7
65+	17.0	4.0	2.6	2.5	1.8	2.6
<b>Total</b>	<b>419.3</b>		<b>104.0</b>		<b>69.5</b>	
<b>% of total employment</b>	<b>90.1</b>		<b>89.5</b>		<b>88.0</b>	

Source: Authors’ calculations for 2020 based on 2017–18 NSSO data.

This finding is consistent with the findings in *ILO Monitor: COVID-19 and the world of work*, stating that young people constitute the major victims of the pandemic’s social and economic consequences, and are disproportionately affected by the COVID-19 crisis. The disruptions that young workers face because of the COVID-19 crisis has various dimensions. They may not only be at the risk of losing their jobs but may also come across constraints for education and training, employment and income losses, which only enhance the difficulties of finding a job. Figure 15 shows that young workers in informal employment (red) impacted by the lockdown are overrepresented compared to those found in the total informal composition of employment (blue).

**Figure 15. Share of informal employment and informal employment directly impacted by the lockdowns by age group (in percentage)**



Source: Authors’ calculations for 2020 based on 2017–18 NSSO data.

Among the informal economy workers who were significantly impacted, women are wildly overrepresented in urban areas and manufacturing and service sector. It is estimated that the impact of total informal urban male employment reached 34.9 per cent in the second period of notifications, the impact rate for informal female employment in urban areas is as high as 45.2 per cent. The evidence

shows that women working in informal employment in urban areas face the harshest impact of the lockdown, much above the average impact rate, corresponding to 16.6 per cent of total informal employment (table 12).

► **Table 12. Informal employment impact under first and second sets of lockdown notifications by gender and location (in percentage and millions)**

	First notification		Second notification	
	% impacted	In millions	% impacted	In millions
Urban male	45.2	45.6	34.9	35.1
Urban female	49.3	12.2	45.2	11.2
Rural male	17.1	37.8	8.3	18.4
Rural female	12.2	9.0	7.1	5.2
<b>Total</b>	<b>24.8</b>	<b>104.6</b>	<b>16.6</b>	<b>69.9</b>

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

Informal employment in rural areas showed a lower impact from the lockdown, especially after the notifications eased restrictions on 15 April 2020. The impact rate on informal employment in rural areas is estimated at 8 per cent; male rural informal workers faced an 8.3 per cent impact, which was slightly higher than their female counterparts at 7.1 per cent.

### 3.7 Lockdown supply shock on formal and informal employment

The distribution of formal and informal employment in both essential and non-essential activities becomes a key determinant in understanding how lockdown affects both employment categories.

The data provides evidence that a larger share of informal employment is allocated in essential-sector activities than formal employment. The latter suggests that a more significant share of formal employment workers would be exposed to the containment measures than informal employment workers. In urban areas, the formal sector's most affected workers were mainly in the manufacturing and transport sectors. In rural areas, the most affected formal workers were in the transport sector. Figure 12 reveals the different exposures that formal and informal employment faced under the lockdown scenario. During the first notifications, 55.3 per cent of formal workers were involved in non-essential activities and were impeded to work. In comparison, only 33.3 per cent of informal workers faced a similar situation. The relaxed measures changed these participation shares to 47.7 per cent and 22.7 per cent in non-essential activities restricted to work (figure 16) respectively.

**Figure 16. Share of total formal and informal workers affected by first and second lockdown measures (in percentage)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

However, the RLI of formal and informal workers reveals two different outcomes. The share of formal employment who can work from home in the non-essential industries oscillates between 27.1 and 28.8 of total formal employment. The RLI for informal workers translates to a much lower capacity for work from home, ranging between 6.2 per cent and 8.5 per cent of total informal employment during both lockdown periods. The final result of the lockdown, taking into account these two metrics, is consistent with other studies, suggesting that workers with higher skills are more likely to be found in the formal sector and can adapt their work activities to be performed from home.

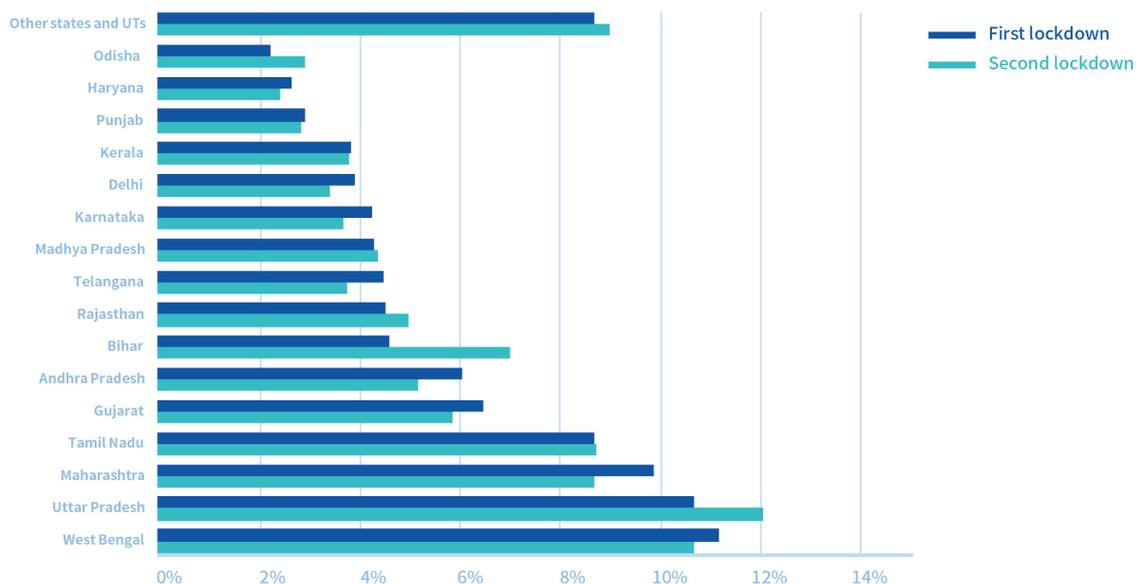
In the end, the net effect of the lockdown on both formal and informal employment is not as different as initially expected. Under the first lockdown measures, 26.4 per cent of formal employment and 24.8 per cent of informal employment was expected to be directly struck. The second lockdown impact was reduced to 20.6 per cent and 16.6 per cent respectively (figure 16).

### 3.8 Impact of COVID-19 lockdown measures on informal employment

The impact of COVID-19 lockdown measures affects a lower share of informal employment than the affected share of formal employment. Nonetheless, in absolute numbers, the informal workers affected by the lockdown are seven to eight times greater than those affected in formal employment.

We have seen that the most populated states/UTs have higher numbers of workers impacted by lockdown measures. While analysing the impacted informal employment across states/UTs, we find that the same 13 states/UTs that account for more than 80 per cent of the total employment hit by the lockdown have 83.3 per cent of the informal employment facing similar circumstances. West Bengal and Uttar Pradesh hold more than a fifth of total informal employment struck by the lockdown. Maharashtra and ten other states/UTs hold another three fifths of informal workers impacted in India. Among these highly populated states, Uttar Pradesh and Bihar were amongst those that benefited the most by the second notifications, reducing nearly half the number of directly impacted informal workers as the restrictions were lifted, especially for the wholesale, manufacturing and construction sectors.

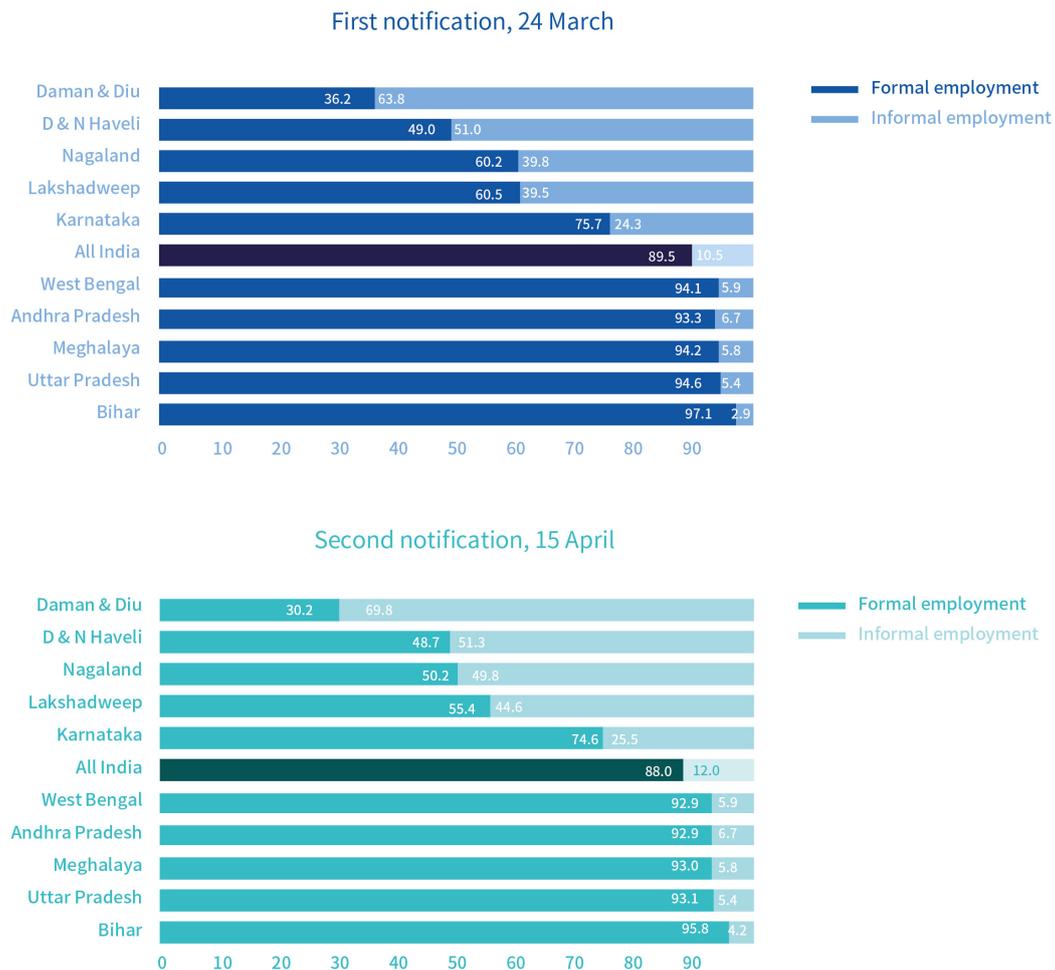
**Figure 17. Share of total informal workers affected by first and second lockdown measures by state/UT (in percentage)**



Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

In 30 of 36 states and UTs, the share of informal employment affected by the lockdown represents more than 80 per cent of total directly impacted employment. The data reveals that Bihar, Uttar Pradesh, Meghalaya, Andhra Pradesh and West Bengal have the highest share of affected informal workers. On the other hand, states like Karnataka, Lakshadweep, Nagaland, Dadra and Nagar Haveli, and Daman and Diu, had the lowest share of informal workers affected by the COVID-19 lockdowns (figure 16). Thus, only the last two states have more formal workers affected by the lockdown than informal ones.

**Figure 18. Share of formal and informal employment affected by first and second lockdown measures by state/UT (in percentage)**



Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

In general, there is more informal employment in the informal sector. The results also reflect that the informal sector has a larger share of impacted workers (75 per cent). Other informal workers that have been affected by the containment measures comprise households workers (7.3 per cent) and workers in the formal sector (17.8 per cent).

By international standards, according to the 17th ICLS, informal employment combines all informal jobs found in the informal sector or households plus informal jobs in the formal sector. The sector with a higher impact on informal employment would be the household sector, where 94.4 per cent of the workers were affected by confinement measures. In the formal sector, informal employment faced a 42.7 per cent impact from the first lockdown and a 26.3 per cent from the second. The formal sector also

shows a higher RLI result compared to other sectors. This sector consists of regular/salaried informal workers who are the most representative type of employment to be affected, with 19.7 million and 12.2 million workers in the first and second lockdown respectively (table 13).

The most significant share of informal employment workers hit by the lockdowns is found in the informal sector. This “unorganized” sector accounts for 75.2 per cent of all affected informal employment workers. Most of them are own-account workers in the second-highest employment category with the chances of working remotely from home (figure 18). However, 24.4 million workers impacted by the second lockdown are involved in activities that are not feasible to be carried out from home.

► **Table 13. Informal employment sectors and types of employment directly impacted by first and second sets of lockdown notifications (in millions of workers)**

Sector	Type of employment	First lockdown					Second lockdown				
		Essential	Non-essential	RLI	Direct impact	%	Essential	Non-essential	RLI	Direct impact	%
Formal sector (FS)	Regular/salaried workers	11.2	20.0	6.8	13.2	12.7	15.0	16.2	6.3	10.0	14.3
	Casual workers	8.0	7.0	0.5	6.5	6.2	12.6	2.4	0.2	2.2	3.2
	<b>Total</b>	<b>19.2</b>	<b>27.0</b>	<b>7.3</b>	<b>19.7</b>	<b>18.9</b>	<b>27.5</b>	<b>18.7</b>	<b>6.5</b>	<b>12.2</b>	<b>17.5</b>
	of total FS employment	41.6	58.4	15.8	42.7	N/A	59.6	40.4	14.1	26.3	N/A
Informal sector (IS)	Employers	5.1	3.5	2.1	1.4	1.3	6.5	2.1	1.3	0.8	1.2
	Own-account workers	113.7	52.8	18.9	33.9	32.6	129.1	37.5	13.1	24.4	35.0
	Regular/salaried workers	11.0	24.3	3.7	20.6	19.8	18.8	16.5	2.9	13.6	19.6
	Casual workers	78.1	18.6	0.9	17.7	17.0	86.4	10.3	0.6	9.7	14.0
	Unpaid family members	52.4	8.1	2.5	5.6	5.4	55.4	5.1	1.4	3.7	5.3
	<b>Total</b>	<b>260.4</b>	<b>107.3</b>	<b>28.1</b>	<b>79.2</b>	<b>76.2</b>	<b>296.2</b>	<b>71.6</b>	<b>19.3</b>	<b>52.2</b>	<b>75.2</b>
	of total IS employment	70.8	29.2	7.6	21.5	N/A	80.5	19.5	5.3	14.2	N/A
Households	Regular/salaried workers	0.2	4.4	0.1	4.4	4.2	0.2	4.4	0.1	4.4	6.3
	Casual workers	0.0	0.8	0.0	0.7	0.7	0.0	0.8	0.0	0.7	1.1
	<b>Total</b>	<b>0.2</b>	<b>5.2</b>	<b>0.1</b>	<b>5.1</b>	<b>4.9</b>	<b>0.2</b>	<b>5.2</b>	<b>0.1</b>	<b>5.1</b>	<b>7.3</b>
	of total HH employment	3.9	96.1	1.7	94.4	N/A	3.9	96.1	1.7	94.4	N/A
<b>Total informal employment</b>		<b>279.9</b>	<b>139.5</b>	<b>35.4</b>	<b>104.0</b>	<b>100.0</b>	<b>323.9</b>	<b>95.4</b>	<b>25.9</b>	<b>69.5</b>	<b>100.0</b>

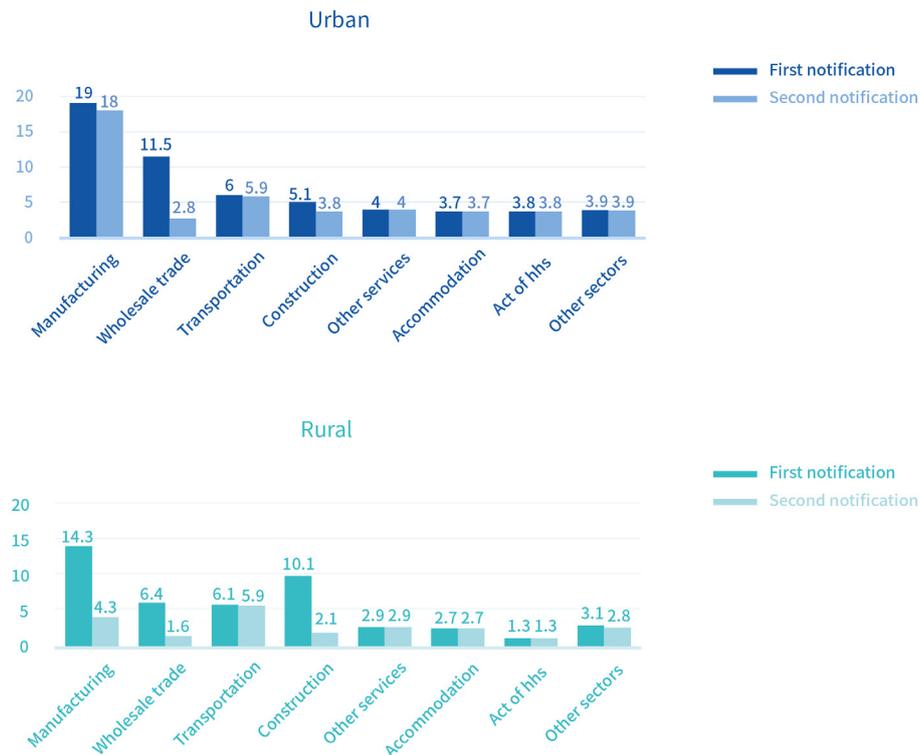
Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

### 3.9 Affected sectors

The supply shock due to the lockdown-associated measures has impacted various sectors in different ways. The informal economy's largest sectors are often directly impacted by COVID-19 and associated measures to ensure physical distancing. Among informal economy workers significantly impacted, women are heavily overrepresented in urban areas and manufacturing and services. While it is estimated that the impact on total urban male employment will reach 28 per cent, the figure for women is 36 per cent. Of total informal employment in manufacturing, 40.9 per cent of all men workers were impacted, and for women, the proportion reached 57.2 per cent.

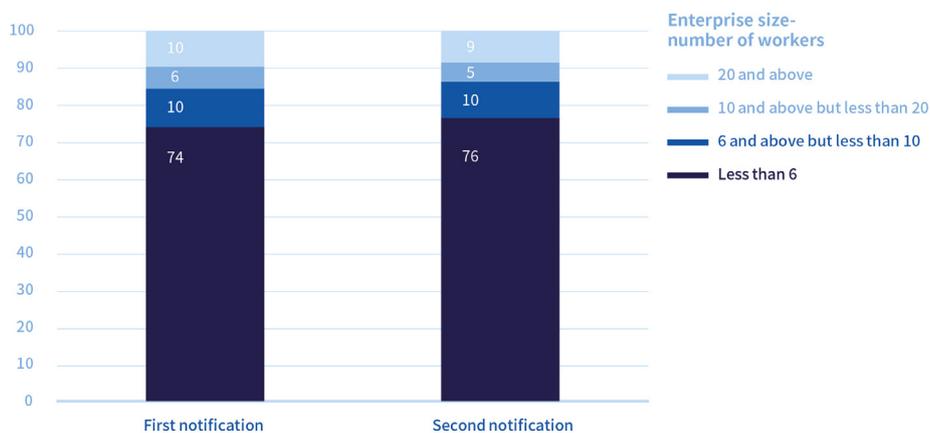
The informal economy is dominated by microeconomic units, including own-account workers who are more vulnerable to shocks. According to the *ILO Monitor: COVID-19 and the world of work*, unregistered own-account workers and informal employment in small-scale economic units, where the impact has been particularly devastating, account for most informal employment in low- and lower-middle-income countries. Our findings seem consistent with the latter as the impact of the lockdown measures is concentrated in small and medium enterprises that account for 76 per cent of informal employment (figure 19).

**Figure 19. Urban and rural informal workers affected by first and second lockdown measures by sector (in millions)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

**Figure 20. Share of informal workers affected by first and second lockdown measures by enterprise size (in percentage)**



Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

In general, we found that most impacted industries were trade, hotels, manufacturing, services related to broadcasting, transport communication, public administration, defence and other services. Moreover, 116 million workers and 104 million workers were impacted during Lockdown 1.0 and Lockdown 2.0. Of 116 million workers impacted during Lockdown 1.0, 79 million workers were informally employed and belonged to the unorganized sector.

The predictions we provide in this report are for the immediate short-term and can mostly be captured through the first-order supply shock. However, as the pandemic spreads, its effect on the second-order demand (wage/income loss) and supply shocks (supply chain linkages) would gradually dominate. In the worst-case scenario, the job losses leading to a fall in the aggregate demand could bring further job losses leading to a further fall in demand. Guerrieri et al. (2020) show that the aggregate demand losses due to the initial supply shock could be more significant than the shock itself. Thus, the domestic demand must be sustained either through fiscal or other liquidity enhancing means. Given that the fiscal space is already constraint, Goyal (2020) suggests a credit-led growth post-COVID scenario. Moreover, these initial findings contribute to a better understanding of the effects of the lockdowns and their impact on India's pervasive informal employment.



## ► Section 4: Conclusions and recommendations

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The COVID-19 pandemic unleashed a crisis of unprecedented magnitude. Most countries struggled to contain the spread of the virus, turning to lockdown and social distancing measures to keep their citizens safe. However, the social and economic disruptions that come with these decisions have become the principal burden, especially for labour market economies with a high incidence of informality, such as the Indian labour market.

Lockdowns and related business disruptions, travel restrictions, school closures and other containment measures taken by governments have halted a large part of their economies and directly affected labour markets, and lockdown-associated measures affect informal employment more significantly. Own-account workers, regular/salaried unprotected or casual workers in small firms of less than ten workers represent informal employment and are more vulnerable to shocks.

This paper has analysed the first order supply shock impact on India's labour market, focusing on informal employment. Using the data from the PLFS 2017–18 and updating the figures with the census estimates, a methodology was applied to gauge the impact of the lockdown measures implemented on 24 March 2020, which were later relaxed by government notifications on 15 April 2020.

The results of the study should be read keeping in mind the limitations related to the main implications or assumptions that occupations and their related activities are considered independent of other occupations with similar or different activities and that they carry an equal weightage along with the respective occupational group. The study assumes a simple linear production relationship, which would imply that workers produce independently of other workers. There are no restrictions on the provision of raw materials and other intermediate products required for production. However, in reality, this process may be non-linear in practice. For example, production requires a combination of activities, tasks and occupations to occur, and any disruption in one process can impact it.

There are also supply and demand disruptions in essential sectors, including agriculture. For example, wholesale markets may be closed, or there may be a shortage of farmworkers and transportation. Goods and services are delivered with the participation of different supply chain actors and processes. This involves interactions with various interlinked industries, and a break in the supply chain process can directly impact subsequent steps. The estimated outcome offers a conservative assessment of the supply shock which may be of great interest to policymakers and academicians. This outcome can be further analysed for more comprehensive policy responses towards minimizing the impact of lockdown and mitigating the crisis.

We conclude that the first lockdown measures have directly affected 116.2 million workers (25 per cent of total employment). After easing the lockdown and lifting restrictions on specific sectors that became essential under the new notifications, we estimate that this impact directly affected 78.9 million workers or 17 per cent of the total employment.

The paper also analysed the impact of the lockdown measures on informal employment. Estimates suggest that 104 million informal workers were directly affected in the initial lockdown. The impact estimate under the relaxed notifications (15 April 2020) dropped to 69.5 million workers. The estimated share of the informal employment directly impacted by the lockdown represents 89.5 and 88 per cent of the total employment during the first and the second lockdown periods respectively.

Most of the impacted informal employment (75 per cent) are employed in the informal sector, 17.5 per cent are in the formal sector, and 7.3 per cent are in private households. Similarly, the two categories of workers with the highest share amongst affected informal workers are regular/salaried workers (40.2 per cent) and own-account workers (35 per cent). Other categories, which are even more vulnerable in terms of job and income dimensions, are informal, casual workers (18.2 per cent) and unpaid family members (5.3 per cent).

The lockdown had little or no impact on the agricultural sector as it was categorized as an essential sector. Ninety per cent of informal employment workers impacted by the lockdown came from seven sectors in the economy. Manufacturing accounted for 32.1 per cent of all informal workers struck by the containment measures, the transportation sector for 17 per cent, other services for 9.9 per cent, accommodation for 9.3 per cent, construction for 8.4 per cent and households for 7.3 per cent. The sector and geographical location composition reveals that urban areas held twice as many affected informal workers than in rural areas.

Among informal economy workers who were significantly impacted, women are overrepresented, especially in urban areas, the manufacturing and services sectors, and the household sector. While it is estimated that the impact on urban informal male employment will reach 34.9 per cent, the impact on informal urban women is 45.2 per cent. This contrasts with a lower impact on men and women workers of 8.3 per cent and 7.1 per cent respectively in the rural sector. Similarly, data reveals that younger workers aged 15–29 are overrepresented in the informal population affected by the lockdown. These findings confirm that women and youth in informal employment are overrepresented in high-risk sectors and face a more significant risk in the COVID-19 crisis. The youth dividend may be further endangered as employment, training and opportunities are diminished by the crisis. What happens if appropriate measures do not mitigate this impact? In that case, there will be implications on the future, and it will make it more challenging to regain the path towards inclusive growth in a post-COVID economy.

The pandemic has seen a massive increase in the number of people working from home. The analysis in this paper shows that based on their occupations in India, 16.7 per cent of workers can adapt to working remotely. This is especially true for those with higher valued occupations, such as legislators, managers, supervisors, professionals, technicians and clerks. About 12 per cent of workers in the rural sector and 29 per cent in the urban sector can work remotely from home.

Eighty per cent of total impacted employment in India comes from 13 states/UTs, such as Maharashtra, West Bengal, Uttar Pradesh, Tamil Nadu, Gujarat, Andhra Pradesh, Karnataka, Rajasthan, Telangana, Bihar, Madhya Pradesh, Delhi and Kerala, although all states/UTs have been directly affected by the lockdown. However, Odisha, Chhattisgarh, and Jharkhand are not on the most-affected list, even though they hold a high share of India's workforce. This is because the supply shock has affected states/UTs unevenly based on the essential and non-essential list across states. Under the first notification, we find that the supply shock had effects on an average of 37 per cent of workers across states/UTs. The impact was lowest in Sikkim, with 16.7 per cent of workers affected, and other states/UTs like Delhi and Daman and Diu had more than 80 per cent of workers directly influenced by the lockdown.

As seen previously, the second notifications relaxed the lockdown, and similarly, the range of impacted workers varies between 12 per cent (Meghalaya) to 64 per cent (Delhi) across states/UTs. The relaxation of the lockdown also had different effects across states/UTs. Bihar, Himachal Pradesh and Odisha halved the workers affected in the first notifications. For the Andaman and Nicobar Islands, Karnataka, Telangana, Lakshadweep and Chandigarh, workers affected by the first notifications reduced by less than a fifth.

## 4.1 Recommendations

The COVID-19 pandemic is an unprecedented socio-economic and health crisis. Even before the crisis and lockdown began in India, both global and domestic supply chains and trade were affected. Travel restrictions, lowered demand for goods and early lockdowns by some countries had started affecting the labour market even before the lockdown was initiated in India. Some export sectors and domestic supply chains had started facing shortages of components, raw material and no work orders or cancellation of existing orders. The initial trade shocks had started reaching India even before the actual lockdown began. The lockdown in India was introduced when there were only 500 confirmed COVID-19 infections. The lockdowns have now been relaxed, but the infections have reached a high of 250,000-plus confirmed cases as of 9 June 2020.

The lockdowns affected all non-essential services in India, including the manufacturing and construction sectors, affecting enterprises and businesses and millions of workers in India. With only a small workforce protected by labour laws, having some form of protection against termination, the bulk of the workers remain unprotected against any income or job loss and without social protection or unemployment protection.

The impact of the pandemic is uneven on workers and sectors, and it is more pronounced in some states than others. This adds significantly to existing vulnerabilities and inequalities. In the recovery phase, considerably more attention should be paid to strengthening employment policies to support enterprises and workers, building strong labour market institutions, and comprehensive and well-resourced social protection systems, including health infrastructure and public care policies. These medium- and long-term policies can be bridged with the humanitarian responses already in place.

Effective response in a crisis requires swift policy action, and speed and flexibility are needed to tailor interventions for pressing needs emerging because of the crisis. Such responses need to address the heterogeneity and varied characteristics of the economy in question and those affected. Labour market responses should look at the challenges faced by different sectors and the kinds of workers affected and try to make the maximum gains. The speed of response can be obtained by keeping systems and administrative processes simple and using existing schemes to deliver benefits as they already are connected to beneficiaries. Those who are not covered will require special attention as they may also be the most vulnerable and excluded sections of society. It may request a consultation with social partners, including those affected, to aid the timely and effective management of the response and a robust feedback system to assess what is working and what needs to be changed.

In the context of lockdown, the key challenges are preventing job losses for the formal sector and preventing regular jobs from slipping into informal jobs. Special attention must be paid to protect casual and own-account workers (including those in supply chains), and those who are invisible, like home-based workers, unpaid family members and those working in households as they are predominantly the most vulnerable. Amongst these categories, women and youth may require targeted approaches to enable decent work, wages and social protection. A similar focus is needed on the most affected sectors, and more attention should be given to enterprises at a higher risk of falling out of business.

While such impact on labour is evident in most countries, in India, these losses are immense because of the substantial informal workforce and a similarly high proportion of informal enterprises providing livelihood to millions of workers in India. The pandemic has affected both the manufacturing and service sectors. India is characterized by a large service sector and growing gig-and-platform economy, employing many young workers. It is vital to look at comprehensive policy responses to respond to different needs.

Apart from sectoral losses, the heterogeneity in the informal economy's labour force, both in types of jobs and enterprises that are diverse in nature and size, results in various impacts that compromise livelihoods and sustainability to varying degrees within the informal economy. The vulnerabilities of informal workers, and the sustenance and viability of the considerable number of informal and micro enterprises, exacerbated by the crisis, is deepening the existing inequalities and causing the most vulnerable workers to slip into poverty. Even formal enterprises can become unviable unless supported. With world economies looking to consolidate their supply chains, the pressure on the export sector can be immense unless it is supported adequately.

Many academicians, governments, international agencies and policymakers have monitored and carried out rapid assessments of the situation to work out efficient and prompt measures to mitigate the effects of the COVID-19 crisis. In this context, this paper attempts to estimate the first-order supply shock impact on informal employment in India due to containment measures. The findings of the study reflect the potential impact and likelihood of informal employment in India:

- A total of 104 million informal workers were directly impacted, 46.1 per cent of urban and 15.9 per cent of rural informal employment, under the lockdown measures from the government notification of 24 March 2020.

- Similarly, under the notification of 15 April 2020, which relaxed the lockdown measures for specific essential activities in the Indian economy, 37 per cent of urban and 8 per cent of rural informal employment was affected, with a total direct impact of 69.5 million workers.

For any policy response to be just and equitable and promote inclusiveness and social justice, the International Labour Standards (ILS) become a strong foundation for shaping such responses and enabling a sustained recovery. Designing policy responses that protect workers, sustain enterprises and boost the economy using a human-centred approach is vital for an equitable and just recovery. The ILS approach ensures that even during crises, fundamental and core labour standards are followed and human rights, including core labour rights, are protected. The existing vulnerabilities of workers are not exploited.

In terms of policy responses, India will need to consider various short-, medium- and long-term responses to sustain, revive and boost economies, and protect jobs and incomes. Thus, it is essential to consider the needs, characteristics and risks, especially of specific groups of workers and economic units. These policies need to be formulated based on evidence assessments, looking at the incidence of the lockdowns and contraction of economic activities, and the impact on workers and enterprises. Since workers and enterprises are affected differently, such policies, as mentioned earlier, may also require sector-specific responses. Similarly, some workers are more affected than others and need particular attention. Such policy options should be explored and rolled out in discussion with social partners through social dialogue and by bringing in the voices of stakeholders and affected populations through a participative dialogue process and following the ILS, with particular adherence to core conventions and fundamental principles rights at work.

The following recommendations are drawn from the ILO Policy Framework in tackling the COVID-19 crisis based on the ILS and various ILO policy response documents, including *ILO Monitor: COVID-19 and the world of work* to give policy directions. These have been adapted and refocused on in the context of the findings from the study for India. While looking at possible actions and response measures, in the medium to long term, it is essential to keep in mind that this is not just a public health issue but also a significant socio-economic challenge. The COVID-19 public health emergency is to balance healthcare access, possibly contain localized areas to restrict movement (localized lockdowns), and the safety and wellbeing of all. The underlying fear is that people will become cautious about spending, and there may be a fall in demand for consumer goods and other non-essential material and services. This can impact the demand for existing products and services, and enterprises may need to reinvent business models, services and products, and plan for opportunities that may arise in the future.

Against this background and with the findings gathered in this document, we make the following recommendations.

## 1. Pillar 1: Stimulating the economy and employment

- 1.1 **Further in-depth research and evidence to make policy response:** Estimating the size of the shock constitutes the first order of designing policy responses and may also develop other analyses on gross value addition, or income impact, in the Indian economy to support policymakers in their response to the crisis. Further research and other updated assessments of the labour market would be recommended to build more robust policy responses.
- 1.2 **Demand-led employment strategy:** A demand-led employment strategy for a medium- to long-term recovery of jobs and incomes will be required. The promotion of employment creation in strategic sectors, restoring a conducive business environment, propelling productivity growth, diversifying the economy and making the best use of technological advances will be needed.
- 1.3 **Immediate stimulus packages for enterprises and workers:** Reducing the impact of the crisis requires urgent stimulus packages. Enterprises, especially in the MSMEs sector, need immediate financial relief, as some industries are more affected than others, and a sectoral

focus is also critical in formulating a short-term and long-term response. Small businesses may need support to develop business continuity plans to help minimize losses due to business disruptions. Support packages for MSMEs should also ensure that workers' wages rights will be protected. In the medium term, assistance may be required to restructure or transform their businesses. Governmental support should focus on services and strategies to innovate, diversify markets and supply chains, improve competitiveness, innovation and productivity. A sustainable and resilient recovery may only be achieved if smaller enterprises can be reinstalled into the economic fabric, playing a vital role in the immediate response to the crisis and the medium term. Small traders are most vulnerable during this crisis, and further support for this group will also be needed as mid-term support, along with a focus on demand creation and instilling business confidence.

- 1.4 **Short-term, sectoral policies reaching the micro-level:** As seen earlier, the three sectors most affected by the lockdown are manufacturing, construction and wholesale trade. These sectors will need immediate financial support for investments. A sectoral impetus will be required in the form of monetary relief and bailouts, and bridging loans or grants. Such packages should reach the lowest level and the smallest enterprises, including micro and home-based units, which are physically and statistically invisible. The pandemic has greatly affected self-employed/own-account workers linked to these microeconomic units, where women's representation is higher. A particular focus needs to be placed on microeconomic units comprising self-employed/own-account workers in sectors related to manufacturing and trade (and others like accommodation, food/restaurants and so on). This also requires measures to help enterprises cover their fixed costs during the crisis and get cash promptly to pay their bills and their workers' wages. Possible measures may include loan and other debt moratoriums, grants, tax incentives or deductions, easy access to credit, employment-intensive investment and facilitating MSMEs access to government procurement, with particular attention to women-owned enterprises.
- 1.5 **Formalizing informal enterprises and reaching smaller enterprises:** Formalizing the informal economy requires a systematic process of conducting informality diagnostics and revising laws and socio-economic policies fostering a formalization process. Such laws and policies may also influence enterprises to turn formal or informal, based on legal or statistical standpoints. At the entry level, the registration of enterprises in the short term can help identify these economic units and provide support. Such formalization in the medium term can help prevent problems for enterprises and workers in the future. It is crucial to work towards that goal now, building on financial relief programmes and entry-level registration initiatives. Identifying and reaching out to informal enterprises is a daunting task for governments. The government can consider self-identification by owners, accompanied by an "entry-level" registration process, which may be a way forward. MSMEs could be registered using existing institutions or through local governments with support from community centres and other social and solidarity organizations.
- 1.6 **Investment in labour-intensive employment:** The highest impact of the supply shock lockdown on employment is concentrated in the manufacturing, transportation, wholesale and construction sectors. The government will need to play a critical role in stimulating sectors that employ many workers. The construction sector has been dramatically affected by the lockdowns and employs many workers as both formal and informal workers. The revival of this sector can also contribute to the country's infrastructure development needs. Still, it can also serve as a refuge for workers (in addition to agriculture, which appears to be the sector where the most significant focus may be needed in the future). Such investments should also include issues like housing for workers in cities and urban areas. To allow migrant workers to come back and resume work, the transport and journey expenses and other provisions, such as accommodation under the Inter-state Migrant Workmen Act, need to be looked after.
- 1.7 **Disruptions in supply chain impact:** Disruptions in production and demand will affect the world's supply chains. All businesses, regardless of size, face severe challenges with a real

threat of significant declines in revenue, insolvencies and job losses. The crisis has also exposed the vulnerability of those in the formal sector. Any disruptions in supply chains characterized by putting-out systems (where the work is put out to smaller businesses) directly impact the workers and the smaller enterprises at the lower tiers of the supply chains. Sustaining business operations will be particularly tricky for MSMEs. With uncertainty, consumers are more cautious in their expenditure and may be reluctant to purchase goods and services. The current environment of fear may delay investments, purchase of goods, hiring of workers or giving out of work (put-out work). This will directly affect microeconomic units, home-based enterprises, and other informal or home-based workers connected to the supply chains. Workers are insufficiently covered under the law and have no or little social protection and income security. They may have lost their jobs or work due to a sudden drop in demand for products or services with the breakdown of global and domestic supply chains. Tripartite and bipartite discussions enable wage payments, ensure paid leaves for workers during the crisis, and ensure employment guarantees for formal and informal workers (casual/contract/daily-wage workers) engaged by them. This must go along with providing support to sustain these businesses.

## 2. Pillar 2: Supporting enterprises, jobs and income

- 2.1 **Extend social protection to all:** A critical lesson from previous crises and this crisis is that support for social protection must be a core element of any stimulus package. Immediate relief measures such as the extension of social protection schemes and other economic assistance packages to disadvantaged groups in the informal economy are required. This is an opportunity to coordinate with both contributory and non-contributory social protection schemes, extending the coverage and using current administrative and delivery mechanisms. The bulk of the workers affected by the crisis have no social protection, income security and disposable income to support themselves and their families in such times. It is recommended that public expenditure on existing programmes be increased and social protection coverage be extended for all. A tiny percentage of workers can access social security and pension, and a large proportion of informal/unorganized workers remain excluded from these benefits. Governments must move towards setting up social protection floors and provide social protection to everyone. Social protection becomes vital as it is needed not only for workers but also for society to survive. One option for protecting workers in the informal economy is pursuing innovative policies to reach them quickly through a combination of non-contributory and contributory schemes. The latter facilitates their transition to the formal economy in the long term.
- 2.2 **Social insurance packages:** One lesson learnt is that countries that have invested in social insurance before the crisis are better prepared to provide immediate responses for job losses. Countries with unemployment protection schemes to support job retention through short-time work schemes, including self-employed or domestic workers, are examples of the “new normal.”
- 2.3 **Enhancing coverage of informal workers in public policy:** Informal workers and enterprises are not always registered workers or are not entirely under the scope of public policy. Identifying and reaching disadvantaged groups in the informal economy is crucial for a better understanding of their situation. Their inclusion at an early stage of the design policy process will be a crucial determinant in enhancing the effectiveness of such measures through their representatives.
- 2.4 **Income support:** Huge numbers of informal economy workers, most of whom are in low-paid sectors, have been hurt the most in the lockdown. An immediate policy response is needed for income support, both for the workers and the enterprises (formal and informal) that employ them or provide them with livelihood to prevent them from slipping into poverty. One-off payments can be made to broad categories of the population. A sectoral approach

that prioritizes workers in occupations significantly affected and relevant for the rapid revival of the economy can also be implemented. In-kind support, such as food and shelter, may be necessary to prevent hunger among the most affected. The disruption of food supply chains and the distribution mechanisms may lead to a shortage of necessary items and price volatility. Under this scenario, cash transfers may not be sufficient to attend to vulnerable workers and their families.

- 2.5 **Use of digital technologies:** Digital technologies can be harnessed to identify and register workers and pay benefits. However, alternative mechanisms need to be made available for those who do not have access to technology.
- 2.6 **Reorganizing business operations:** Within each sector, certain functions are either dispensable in the short term or easier to perform remotely. Companies reopening would, therefore, determine which jobs could remain virtual or begin later.
- 2.7 **Strengthening existing schemes for greater reach:** Income and other support requires not just designing new schemes but also increasing existing schemes, expanding coverage, lowering entry barriers and expanding the scope of such schemes. In India, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) can play a significant role and needs special attention and expansion beyond rural areas. Unconditional and conditional cash transfers are required for vulnerable workers. Some of these schemes can be facilitated for workers registered with unorganized workers welfare boards, construction and other building welfare boards, and similar state boards for different categories of workers, where they exist. These welfare boards needed to be strengthened to provide enhanced social protection coverage, and equal focus should be placed on enhancing these boards' coverage and membership. The registration/membership in a trade union/membership-based organization can be considered valid proof of being a worker. Many workers are not registered with such boards, and many are not even recognized as workers. There is also a need for unconditional cash transfers to enable the survival of such workers. Such cash transfers are also needed for self-employed and own-account workers, street vendors, waste pickers, domestic workers and so on. Besides, casual/contract, daily-wage earners, piece-rate workers, own-account/self-employed and home-based workers also require tailored relief packages. A possible threshold for such cash transfers should be at the same level of the notified minimum wage per month, at least at the unskilled level or the MGNREGA wage, applicable until containment measures are lifted, and normalcy is achieved. The registration of workers in the Pradhan Mantri Jan Dhan Yojana has been a valuable tool in providing such cash transfers, but not all workers, especially those in the home-based settings, have a bank account.
- 2.8 **Implement employment retention measures, especially in the formal sector:** The lockdown has had a significant impact on regular/wage workers (up to 40.9 per cent, as suggested by this paper). These include workers who are formally employed and contractual wage workers. Formal sector enterprises and workers require support to ensure that they do not slip into informality due to the crisis. The protection of wages and employment will require both financial and non-financial measures. Such measures may often include work sharing and shorter working weeks, wage subsidies, relocation of workers to higher demand areas without terminating the employment of existing permanent workers, temporary suspensions of tax payments and delayed submissions of social security contributions. The workers must retain their jobs, and their length of services not reduced as it directly impacts their social security benefits. It may also require reskilling and redeployment of workers. These training and skills developments can be planned based on business needs, making them more adept in transitioning quickly to different jobs once regular activity resumes. However, these need to be discussed and agreed upon after the social dialogue between workers' organizations (trade unions) and employers organizations is completed. Any decrease in earnings must be compensated for through wage supplements/income support, and this needs to be discussed

through a social dialogue process. Substantial reductions in both the hours of work and wages can cause severe hardship, particularly among low-wage workers.

- 2.9 **Youth employment:** The people in younger age groups are more affected than other workers as they are concentrated in the worst-affected sectors. They may be on a regular wage or have informal jobs, and many may work in the platform-and-gig economy. This lockdown generation will need comprehensive and prompt responses from the government to integrate them back into the labour market. This may need support for work-based learning, entrepreneurship, social protection, and improving rights and conditions in the workplace for young people not to be excluded from the labour market or take up precarious jobs. The focus on youth employment needs to be revived and a focus needs to be placed on social protection coverage to protect the youth from such shocks.
- 2.10 **Financial, tax and other relief for enterprises:** The MSME sector in India faces severe difficulties because of the pandemic. This sector is vast and provides employment and livelihood to a large number of workers. The sector is also essential as it allows larger enterprises to become more sustainable as they look for flexibility, competitiveness and innovation. To maintain and sustain supply chains, both domestic and global, it is vital to support the MSME sector and the workers employed or connected to the sector. Both financial and non-financial measures, including easy access to soft loans, moratorium periods, enhancing cash and liquidity, enabling them to participate in public tendering, reducing and simplifying registration processes, are necessary. This also represents an opportunity to formalize such economic units and understand what the different incentives are and what further incentives will the MSME sector require for revival, including technology packages. For workers, extending social protection coverage is critical.

### 3. Pillar 3: Protecting workers in the workplace

- 3.1 **Strengthening occupational safety and health measures and sector-specific health guidelines:** Investments are necessary for all health systems to recruit, deploy and retain sufficient numbers of health workers. The COVID-19 pandemic reveals the urgent need for a strong health workforce as an integral part of every resilient health system. This is now recognized as an essential foundation for the recovery of our societies and economies, and for our preparedness for future health emergencies. Sector- and occupation-specific health guidelines should be developed for street vendors, domestic workers, home-delivery workers, waste pickers and taxi drivers. Such guidance should be developed in consultation with workers and their representatives. Protective personal equipment should be used by workers in the workplace and provided by the employer at no cost to the workers.
- 3.2 **Adapt work arrangements (that is, teleworking/remote work, staggered shifts and so on):** The RLI used in the study identifies sectors where telework and remote work is possible. Businesses will need to become more flexible and allow workers to engage in remote/telework. This may require investments in remote software systems, innovative business processes and investment in the hardware and tools needed to do tele- or remote work. The training and requisite reskilling of a worker may be necessary to make remote work efficient and productive. Similarly, in the new normal, physical distancing may be required for some time.
- 3.3 **Prevent discrimination and exclusion:** Taking effective measures to include all workers in the response framework is essential for promoting equality. In times of crisis, it is crucial to ensure that the rights and protections contained in the ILS are realized for all workers. A humanitarian response should include mitigation and support measures for all individuals and vulnerable subgroups within a population. However, some workers remain invisible; many do not perceive themselves as workers, have no voice and collective strength to claim access to services and measures. These workers must be included explicitly in response measures, and their access

to these measures enabled. This requires a particular focus on the most vulnerable groups, including:

- 3.3.1 **Women:** The participation of women in the workforce is already meagre in India. During the COVID-19 crisis, women are more affected as they work in the most precarious occupations and low-paid sectors. As seen earlier, women are concentrated in the labour force as unpaid family workers, own-account workers and casual workers, and they form a large proportion of informal economy workers. They also remain unpaid as contributing family workers or are paid substantially less than their male counterparts even in low-paid work, especially as own-account and casual workers. Working in the confines of home-based and microenterprises, as own-account and home-based workers, most women workers are invisible, do not enjoy social protection and income security, and can slip into poverty. The crisis has also enhanced their existing care responsibilities and household chores, and anecdotal evidence confirms increased violence and harassment, including domestic violence. In the formal sector, a significant proportion of women workers are in the retail trade and hospitality sectors, which are greatly affected by lockdown measures. To prevent the already shrinking participation of women in the workforce, employment and social protection policies must focus on women workers.
- 3.3.2 **Micro-entrepreneurs, self-employed and own-account workers:** The lockdown has severely impacted a large proportion of workers such as micro- and informal home-based units, independent and own-account workers, including carpenters, electricians, plumbers, street vendors, rickshaw pullers, car and autorickshaw drivers, local craftsmen and artisans, and entertainers and folk artists. Uncovered and unprotected by social protection and healthcare coverage, they need special attention. Especially when jobs are scarce, micro-entrepreneurs and self-employed workers help sustain families and generate local employment. This group may require expedited assistance, and their access to credit and loan guarantees will need to be prioritized. Many of these workers are also connected to domestic and global supply chains. Microenterprises employ informal casual and daily wage workers. Own-account home-based workers may be associated with different supply chains and get work from sub-contracted enterprises through agents and contractors. Even when work can be performed at home, disruption in supply chains, demand reduction, non-availability of raw material (especially in the non-essential sector), and other similar challenges have affected these workers.
- 3.3.3 **Casual workers:** Casual workers are employed in formal and informal sectors, and because of the lockdown, they have been severely affected. Many of them work in informal enterprises or are informally employed in the formal sector. These workers, primarily in construction, manufacturing and other supply chains, come from the most vulnerable and excluded communities. They work in disguised employment, with no social protection and often through a chain of contractors and labour agents. It has been observed that crises often precipitate forced-labour-like situations for these workers as they tend to accept precarious employment to survive. The extension of labour law and social protection coverage for such workers is critical to prevent these workers from slipping into poverty.
- 3.3.4 **Migrant workers:** A considerable proportion of informal/unorganized workers are also migrants. They are either daily wage or piece-rate workers or are own-account/self-employed workers with little or no job security. Like other informal workers, they are usually from excluded social backgrounds, economically disadvantaged and typically landless or own a small piece of land. The challenges migrants face are exacerbated because of income/wage loss and a lack of any disposable income to support them in crisis times, making it difficult for them to stay in urban/semi-urban locations without work. Since most of these workers are informal economy workers, they remain outside the protection of labour laws, lack social security and rights, and

remain invisible to the system at large. They stay mostly unorganized and have no voice and representation. Most of them are not included in schemes for local workers and citizens in the states they work in (except in some states). They cannot access rights and entitlements available to workers and domiciled residents of the state, including subsidized rations, access to healthcare, social protection and welfare measures, and access to justice. A comprehensive mechanism to cater to the needs of migrants is required with the involvement of state-, district- and local-level authorities, which underpins the roles and responsibilities of labour-sending and -receiving states. Migrants should have the same rights and entitlements as local workers in the states. They need additional protections to reduce their existing vulnerabilities and provide the necessary protection.

- 3.3.5 **Older workers and people with disabilities:** It has been seen that the elderly are the most affected by COVID-19. The government should ensure that pension payments are made in advance, should reach elderly and retired workers, and the government should consider a special emergency package for this group. Similarly, pensions, compensations to workers who have suffered workplace injuries, and other social security pensions such as widow and disability pensions must be made available in advance and reach the workers.
- 3.4 **Provision for adequate occupational safety and health (OSH) and preventive measures for workers, OSH training and provision of protective gear:** Both workers in healthcare services as well as those engaged in providing essential services, including those engaged in agriculture, manufacturing, packaging, transport and home deliveries, need to be provided with safe and healthy working environments. Specialized OSH training needs to be organized for employers and workers, and workers should be provided with the necessary protective gear. Employers and owners of these businesses have the primary responsibility to assess the OSH risks involved in the work and mitigate them at the source. This further includes providing necessary guidance to enterprises and businesses that are opening up and providing these services during emergencies.
- 3.5 **Safety of frontline workers providing healthcare and services support:** Special helpline/helpdesks for workers and businesses to enable information dissemination and provision of services should be operational. Helpdesk/frontline workers must have adequate health protection, physical security and medical and life insurance. The capacities of panchayat leaders, health-scheme workers (Anganwadi, auxiliary nurse midwife (ANM), and accredited social health activist (ASHA) workers and so on) and health workers should be enhanced, especially to work with migrants returning to villages, counselling them as needed, encouraging them to self-quarantine/isolate as far as possible. Similar capacity building and protection are also needed for field workers from trade unions, membership-based organizations and other community workers providing additional support and resources. Capacity building can be done online using mobile phones or online technologies as far as possible. Adequate protective masks, sanitizers and training (including training to protect oneself) need to be given to such frontline workers, who should also have adequate insurance cover.
- 3.6 **Healthcare access in rural areas and informal workers returning:** Immediate accessibility of healthcare facilities and medicines, especially in rural areas, and reducing or eliminating administrative or financial barriers to healthcare is essential. Informal workers and their families should be able to access medical services without any impediments. Guaranteeing adequate access to affordable healthcare and ensuring a basic income security level for sick people is essential to safeguard public health and livelihoods. The evidence that workers in the informal economy usually do not have access to specific sickness benefits, or any other social security benefit, makes it more relevant for governments to reach out and extend or introduce new benefits to address their needs. A humanitarian approach should be bridged to a medium or more extended development of a comprehensive, cohesive and articulated social protection system.

**3.7 Investment in labour-intensive employment:** The highest impact of the supply shock lockdown on employment is in the manufacturing, transportation, wholesale and construction sectors. The government will need to play a critical role in stimulating sectors that employ a large number of workers, and sectors, such as construction and infrastructure development, can play a critical role. The construction sector has been severely affected by the lockdowns and employs many formal and informal workers. The revival of the sector can not only contribute to infrastructural development needs but can provide refuge for workers (in addition to agriculture, which appears to be the critical sector where the most focus may be needed) in the coming days.

## 4. Pillar 4: Relying on social dialogue for solutions

**4.1 Strengthen employers' and workers' organizations' capacity and resilience:** Employers' and workers' organizations can play a critical role in delivering or advocating support services. These social partners can reach out to those in need, and they can promote benefits such as access to technology and finance, and strengthen linkages between the formal and informal sectors. Social dialogue enables workers, employers and governments to assign and share responsibilities, look at collective approaches to protect the interests of the workers, employers and the government, enabling a peaceful society and social justice. Like the ILS, social dialogue is a critical governance tool that is essential in times of crisis. Simultaneously, workers' and employers' organizations need to seek innovative ways to bring in and represent the voices of women, informal sector workers, and other vulnerable and marginalized groups most affected by the COVID-19 crisis. The ILS needs to be the guiding framework for interventions at all steps of the process. Apart from the core labour standards, the two relevant international standards are the Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204) and the Employment and Decent Work for Peace and Resilience Recommendation, 2017 (No. 205).<sup>36</sup> These tripartite international labour standards have been agreed upon and adopted globally, providing consensus-based solutions.

**4.2 Strengthen the capacity of governments:** In times of crisis, for a comprehensive policy response, the state has to play a critical role in providing the necessary environment for social dialogue, look at policy alternatives based on international labour standards, and promote and realize the freedom of association and the recognition of the right to collective bargaining. Addressing the economic impact of COVID-19 will also require strong labour administration. Therefore, governments must equip the institutions responsible for labour administration and other relevant agencies with the necessary institutional and knowledge capacity to fulfil their policy functions. The prompt resolution of labour disputes, enabling access to justice, is essential in times of crisis.

**4.3 Strengthen social dialogue, collective bargaining and labour relations institutions and processes:** It is essential to activate and strengthen existing tripartite structures and social dialogue mechanisms that can give both a sustainable and formal approach to response measures. The engagement of the state authorities in tripartite social dialogue with their social partners is needed. Social partners have an in-depth knowledge of companies' and workers' needs and realities. Their active involvement in decision-making facilitates the adoption of well-targeted and effective preventive measures to limit the spread of COVID-19 in workplaces and triggers actions to support jobs and enterprises. Social partners' organizations also play

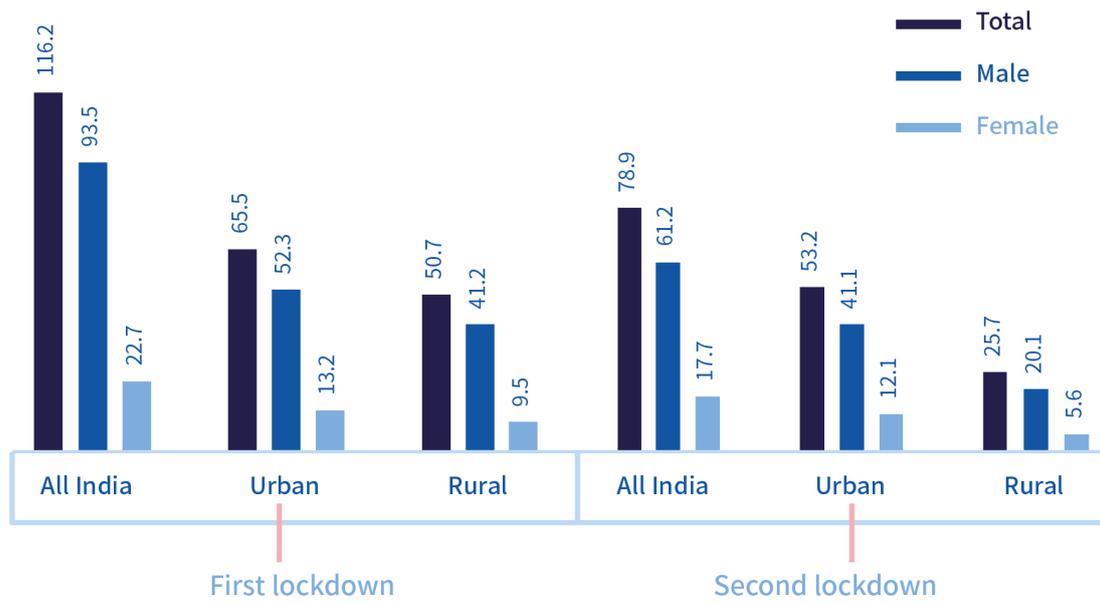
<sup>36</sup> Both tripartite and bipartite social dialogue provides critical tools for building trust and support for the measures that are needed to address the COVID-19 outbreak and its impact. Social dialogue must be underpinned by international labour standards, which should form the basis for policy responses that focus on a recovery that is sustainable and equitable. The Employment and Decent Work for Peace and Resilience Recommendation, 2017 (No. 205) emphasizes, in particular, the importance of social dialogue in responding to crises.

a crucial role in supporting and advising employers and workers on how best to confront and mitigate the crisis's effects.

- 4.4 **Strengthening voices of informal economy actors:** A crucial aspect of identifying the appropriate strategy requires working with workers' and employers' organizations, including those active in the informal economy, local government bodies and social solidarity organizations. Their role is crucial to designing and implementing effective emergency responses and supporting workers' transition to the formal economy. A tailored and gender-responsive approach is needed to reach out to them. The existing legislation may not offer complete protection to informal workers. They need to be recognized as workers, especially those invisible in supply chains; those in home-based economic units; migrant workers who may be in precarious jobs or work as own-account workers; and workers employed by private households (including domestic workers). It is also essential that the voices of these workers are brought into bipartite and tripartite dialogues.

## ► Annexe 1

Figure A1. Number of people region- and gender-wise at risk of losing their jobs (in millions)



Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

► **Table A1. Number of people facing risk of job loss by employment status**

All India	First lockdown		All India	Second lockdown	
	Formal	Informal		Formal	Informal
Own-account workers	330 458	33 914 053	Own-account workers	262 506	24 350 034
Employers	72 039	1 370 666	Employers	44 096	828 982
Contributing family members	N/A	5 636 768	Contributing family members	N/A	3 706 865
Regular and salaried workers	11 595 708	38 186 188	Regular and salaried workers	9 039 025	27 926 420
Casual workers	159 257	24 916 232	Casual workers	109 799	12 665 655
<b>Total</b>	<b>12 157 462</b>	<b>104 023 907</b>	<b>Total</b>	<b>9 455 425</b>	<b>69 477 956</b>
% of total	26.4	24.8	% of total	20.6	16.6
<b>Urban</b>	<b>Formal</b>	<b>Informal</b>	<b>Urban</b>	<b>Formal</b>	<b>Informal</b>
Own-account workers	227 751	17 621 096	Own-account workers	203 794	13 890 640
Employers	56 390	843 275	Employers	43 621	541 598
Contributing family members	N/A	3 525 640	Contributing family members	N/A	2 648 357
Regular and salaried employees	7 985 002	25 606 257	Regular and salaried employees	7 025 234	20 518 609
Casual workers	84 733	9 544 974	Casual workers	84 733	8 258 313
<b>Total</b>	<b>8 353 876</b>	<b>57 141 242</b>	<b>Total</b>	<b>7 357 383</b>	<b>45 857 517</b>
% of total	26.2	46.1	% of total	23.1	37.0
<b>Rural</b>	<b>Formal</b>	<b>Informal</b>	<b>Rural</b>	<b>Formal</b>	<b>Informal</b>
Own-account workers	102 706	16 292 958	Own-account workers	58 711	10 459 394
Employers	15 649	527 391	Employers	474	287 385
Contributing family members	N/A	2 111 128	Contributing family members	N/A	1 058 507
Regular and salaried employees	3 610 706	12 579 931	Regular and salaried employees	2 013 790	7 407 810
Casual workers	74 525	15 371 258	Casual workers	25 066	4 407 343
<b>Total</b>	<b>3 803 585</b>	<b>46 882 665</b>	<b>Total</b>	<b>2 098 042</b>	<b>23 620 439</b>
% of total	27.0	15.9	% of total	14.9	8.0

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

► **Table A2. Number of people facing risk of job loss by main employment categories**

All India	First lockdown		All India	Second lockdown	
	Formal	Informal		Formal	Informal
O-regular+PF	10 713 336	N/A	O-regular+PF	8 369 382	N/A
U-employers	N/A	1 370 666	U-employers	N/A	828 982
O/U-regular workers	N/A	33 832 150	O/U-regular workers	N/A	23 572 382
U-own-account workers	N/A	33 914 053	U-own-account workers	N/A	24 350 034
O/U-casual workers	N/A	24 172 503	O/U-casual workers	N/A	11 921 927
U-unpaid family members	N/A	5 518 792	U-unpaid family members	N/A	3 617 471
Others	1 444 126	5 215 743	Others	1 086 043	5 187 161
<b>Total</b>	<b>12 157 462</b>	<b>104 023 907</b>	<b>Total</b>	<b>9 455 425</b>	<b>69 477 956</b>
% of total	26.4	24.8	% of total	20.6	16.6

Urban	Formal	Informal	Urban	Formal	Informal
O-regular+PF	7 357 576	N/A	O-regular+PF	6 533 921	N/A
U-employers	N/A	843 275	U-employers	N/A	541 598
O/U-regular workers	N/A	22 148 495	O/U-regular workers	N/A	17 060 848
U-own-account workers	N/A	17 621 096	U-own-account workers	N/A	13 890 640
O/U-casual workers	N/A	9 214 331	O/U-casual workers	N/A	7 927 670
U-unpaid family members	N/A	3 412 557	U-unpaid family members	N/A	2 562 007
Others	996 300	3 901 488	Others	823 461	3 874 755
<b>Total</b>	<b>8 353 876</b>	<b>57 141 242</b>	<b>Total</b>	<b>7 357 383</b>	<b>45 857 517</b>
% of total	18.2	13.6	% of total	16.0	10.9

Rural	Formal	Informal	Rural	Formal	Informal
O-regular+PF	3 355 760	N/A	O-regular+PF	1 835 461	N/A
U-employers	N/A	527 391	U-employers	N/A	287 385
O/U-regular workers	N/A	11 683 654	O/U-regular workers	N/A	6 511 534
U-own-account workers	N/A	16 292 958	U-own-account workers	N/A	10 459 394
O/U-casual workers	N/A	14 958 172	O/U-casual workers	N/A	3 994 257
U-unpaid family members	N/A	2 106 235	U-unpaid family members	N/A	1 055 464
Others	447 825	1 314 255	Others	262 582	1 312 405
<b>Total</b>	<b>3 803 585</b>	<b>46 882 665</b>	<b>Total</b>	<b>2 098 042</b>	<b>23 620 439</b>
% of total	8.3	11.2	% of total	4.6	5.6

Note: O: organized sector workers; U: unorganized sector workers.  
Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

► **Table A3. Number of people facing risk of job loss by industries**

All India	First lockdown		Second lockdown	
	Formal	Informal	Formal	Informal
Farm sector	N/A	67 917	N/A	26 657
Mining	7 631	387 841	5 221	80 137
Manufacturing	5 145 927	33 310 096	3 502 805	22 327 665
Electricity	N/A	N/A	N/A	N/A
Water supply	N/A	N/A	N/A	N/A
Construction	538 857	15 240 081	265 421	5 856 488
Wholesale trade	1 018 496	17 901 482	330 320	4 385 567
Transportation	1 589 707	12 096 464	1 497 969	11 806 907
Accommodation	300 589	6 450 340	300 589	6 450 340
Information	315 378	254 951	312 990	242 749
Financial act.	765	13 286	N/A	N/A
Real estate	57 127	309 745	57 127	309 745
Professional act.	342 380	812 251	342 380	812 251
Administrative	634 415	1 678 393	634 415	1 678 393
Public administration	N/A	N/A	N/A	N/A
Education	1 878 464	2 797 865	1 878 464	2 797 865
Human health	N/A	N/A	N/A	N/A
Arts/entertainment	57 243	752 589	57 243	752 589
Other services	164 785	6 850 356	164 785	6 850 356
Act. of household	103 289	5 097 767	103 289	5 097 767
Act. of extra	2 409	2 480	2 409	2 480
<b>Total</b>	<b>12 157 462</b>	<b>104 023 907</b>	<b>9 455 425</b>	<b>69 477 956</b>
% of total	26.4	24.8	20.6	16.6

Urban	Formal	Informal	Formal	Informal
Farm sector	N/A	13 209	N/A	N/A
Mining	5 221	80 137	5 221	80 137
Manufacturing	3 568 277	19 013 962	3 357 620	18 005 298
Electricity	N/A	N/A	N/A	N/A
Water supply	N/A	N/A	N/A	N/A
Construction	393 597	5 111 782	255 689	3 753 820
Wholesale trade	840 352	11 524 356	256 735	2 778 846
Transportation	1 045 271	6 019 448	982 024	5 871 459
Accommodation	231 201	3 747 236	231 201	3 747 236
Information	289 036	151 315	288 738	140 924
Financial act.	765	N/A	N/A	N/A
Real estate	24 111	249 553	24 111	249 553

Urban	Formal	Informal	Formal	Informal
Professional act.	319 400	650 198	319 400	650 198
Administrative	393 439	1 067 878	393 439	1 067 878
Public administration	N/A	N/A	N/A	N/A
Education	999 088	1 247 348	999 088	1 247 348
Human health	N/A	N/A	N/A	N/A
Arts/entertainment	44 286	475 875	44 286	475 875
Other services	117 533	3 999 144	117 533	3 999 144
Act. of households	82 300	3 788 405	82 300	3 788 405
Act. of extra	N/A	1 395	N/A	1 395
<b>Total</b>	<b>8 353 876</b>	<b>57 141 242</b>	<b>7 357 383</b>	<b>45 857 517</b>
% of total	18.2	13.6	16.0	10.9

Rural	Formal	Informal	Formal	Informal
Farm sector	N/A	54 709	N/A	26 657
Mining	2 410	307 704	N/A	N/A
Manufacturing	1 577 649	14 296 134	145 185	4 322 367
Electricity	N/A	N/A	N/A	N/A
Water supply	N/A	N/A	N/A	N/A
Construction	145 260	10 128 299	9 732	2 102 668
Wholesale trade	178 144	6 377 127	73 585	1 606 721
Transportation	544 436	6 077 016	515 945	5 935 448
Accommodation	69 388	2 703 104	69 388	2 703 104
Information	26 342	103 636	24 252	101 825
Financial act.	N/A	13 286	N/A	N/A
Real estate	33 016	60 192	33 016	60 192
Professional act.	22 979	162 053	22 979	162 053
Administrative	240 976	610 515	240 976	610 515
Public administration	N/A	N/A	N/A	N/A
Education	879 376	1 550 517	879 376	1 550 517
Human health	N/A	N/A	N/A	N/A
Arts/entertainment	12 957	276 714	12 957	276 714
Other services	47 253	2 851 212	47 253	2 851 212
Act. of household	20 988	1 309 362	20 988	1 309 362
Act. of extra	2 409	1 085	2 409	1 085
<b>Total</b>	<b>3 803 585</b>	<b>46 882 665</b>	<b>2 098 042</b>	<b>23 620 439</b>
% of total	8.3	11.2	4.6	5.6

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

► **Table A4. Number of people facing risk of job loss by occupation**

	First lockdown		Second lockdown	
	Formal	Informal	Formal	Informal
<b>All India</b>				
Legislators, senior officials and managers	1 034 124	859 200	848 845	617 418
Professionals	938 996	1 673 759	840 025	1 396 589
Technicians and associate professionals	1 275 623	2 040 443	1 170 835	1 794 493
Clerks	730 272	793 782	682 654	631 398
Service workers and shop and market sales workers	1 685 876	23 881 782	1 141 875	12 676 820
Skilled agricultural and fishery workers	22 154	447 558	17 482	265 527
Craft and related trades workers	2 421 768	34 873 744	1 665 742	24 111 565
Plant and machine operators and assemblers	2 404 464	17 000 001	1 903 335	14 787 174
Elementary occupations	1 640 481	22 334 182	1 182 619	13 099 361
Workers not classified by occupations	3 704	119 456	2 013	97 612
<b>Total</b>	<b>12 157 462</b>	<b>104 023 907</b>	<b>9 455 425</b>	<b>69 477 956</b>
% of total	26.4	24.8	20.6	16.6
<b>Urban</b>				
Legislators, senior officials and managers	837 393	667 029	720 849	511 053
Professionals	718 522	1 032 156	653 421	881 417
Technicians and associate professionals	808 794	1 255 732	756 937	1 103 374
Clerks	519 606	553 127	495 959	443 246
Service, shop and market-sales workers	1 186 040	14 650 506	777 245	7 615 636
Skilled agricultural and fishery workers	12 580	148 308	10 999	129 687
Craft and related trades workers	1 674 224	18 675 263	1 511 288	16 710 115
Plant and machine operators and assemblers	1 596 997	9 189 081	1 506 945	8 702 103
Elementary occupations	997 707	10 921 228	921 726	9 718 005
Workers not classified by occupations	2 013	48 811	2 013	42 881
<b>Total</b>	<b>8 353 876</b>	<b>57 141 242</b>	<b>7 357 383</b>	<b>45 857 517</b>
% of total	18.2	13.6	16.0	10.9
<b>Rural</b>				
Legislators, senior officials and managers	196 731	192 171	127 995	106 365
Professionals	220 474	641 603	186 604	515 172
Technicians and associate professionals	466 829	784 711	413 897	691 119
Clerks	210 666	240 655	186 695	188 151
Service workers and shop and market sales workers	499 836	9 231 276	364 630	5 061 184

<b>Rural</b>	<b>Formal</b>	<b>Informal</b>	<b>Formal</b>	<b>Informal</b>
Skilled agricultural and fishery workers	9 574	299 250	6 483	135 840
Craft and related trades workers	747 544	16 198 480	154 454	7 401 450
Plant and machine operators and assemblers	807 467	7 810 920	396 390	6 085 071
Elementary occupations	642 774	11 412 954	260 893	3 381 356
Workers not classified by occupations	1 691	70 644	N/A	54 731
<b>Total</b>	<b>3 803 585</b>	<b>46 882 665</b>	<b>2 098 042</b>	<b>23 620 439</b>
% of total	8.3	11.2	4.6	5.6

Source: Authors' calculations for 2020 based on 2017-18 NSSO data.

► Table A5. Number of people facing risk of job loss by age group and gender

Age group	Non-essential (%)	RLI non-essential (%)	Net impact (%)	Net impact (millions)	Non-essential (%)	RLI non-essential (%)	Net impact (%)	Net impact (millions)	
	First notification lockdown				Second lockdown notification				
All India	15–29	39.8	8.7	31.1	33.0	26.8	6.7	20.1	21.3
	30–49	34.0	9.0	25.1	54.2	23.6	6.5	17.0	36.8
	50–64	25.0	7.1	17.9	14.3	16.7	4.9	11.9	9.5
	65+	22.0	6.8	15.2	2.6	15.2	4.5	10.7	1.8
		<b>33.3</b>	<b>8.5</b>	<b>24.8</b>	<b>104.0</b>	<b>22.7</b>	<b>6.2</b>	<b>16.6</b>	<b>69.5</b>
Urban male	15–29	66.8	14.1	52.8	14.2	51.0	11.2	39.8	10.7
	30–49	62.6	17.6	45.0	23.8	48.2	13.1	35.1	18.6
	50–64	55.4	18.3	37.1	6.5	41.1	12.6	28.5	5.0
	65+	49.9	18.6	31.4	1.1	38.2	13.3	24.9	0.9
		<b>62.1</b>	<b>16.8</b>	<b>45.2</b>	<b>45.6</b>	<b>47.4</b>	<b>12.5</b>	<b>34.9</b>	<b>35.1</b>
Urban female	15–29	76.4	27.5	48.9	2.9	70.2	26.1	44.1	2.6
	30–49	69.0	19.0	50.1	6.9	62.8	17.1	45.7	6.3
	50–64	59.7	12.6	47.1	1.9	55.9	11.0	44.8	1.8
	65+	61.5	10.8	50.7	0.4	57.6	9.7	47.9	0.4
		<b>69.0</b>	<b>19.7</b>	<b>49.3</b>	<b>12.2</b>	<b>63.3</b>	<b>18.1</b>	<b>45.2</b>	<b>11.2</b>
Rural male	15–29	28.0	4.6	23.4	13.5	14.1	2.8	11.3	6.6
	30–49	22.5	5.1	17.4	18.9	11.8	3.2	8.6	9.3
	50–64	14.1	3.7	10.4	4.6	7.0	2.2	4.7	2.1
	65+	10.8	3.1	7.7	0.8	5.3	1.7	3.6	0.4
		<b>21.7</b>	<b>4.6</b>	<b>17.1</b>	<b>37.8</b>	<b>11.1</b>	<b>2.8</b>	<b>8.3</b>	<b>18.4</b>
Rural female	15–29	23.7	7.6	16.0	2.5	16.2	6.2	10.0	1.6
	30–49	16.3	4.7	11.6	4.8	10.3	3.4	6.9	2.8
	50–64	12.6	2.8	9.8	1.4	6.8	2.1	4.7	0.7
	65+	16.3	3.8	12.5	0.2	10.2	2.0	8.2	0.2
		<b>17.2</b>	<b>4.9</b>	<b>12.2</b>	<b>9.0</b>	<b>10.9</b>	<b>3.7</b>	<b>7.1</b>	<b>5.2</b>

Source: Authors' calculations for 2020 based on 2017–18 NSSO data.

## ► Annexe 2

### Methodological framework

The methodological framework for this study has been taken from Estupinan et al. (2020). Some of the sections related to the methodology are reproduced below to facilitate readers' understanding. For a detailed methodological framework, refer to Estupinan et al. (2020).

### Remote Labour Index

The RLI estimates the extent to which work can be performed from home, and it ranges from 0 to 1, where 0 implies that none of the work activities pertaining to an occupation can be performed from home. An RLI score of 1 implies that all the activities pertaining to an occupation can be performed from home.

To map work activities to occupations, we used the 2015 National Classification of Occupations (NCO). This document contains a list of work activities pertaining to occupations. As the PLFS used the NCO-2004 framework, we used the concordance table in NCO-2015 to match NCO-2004 occupations.<sup>37</sup>

After mapping work activities and occupations, we used a subjective rating to assess whether a work activity can be performed from home or not. Two scales were used to rate the work activity, a binary and a Likert scale of three. In the case of a binary rating, 0 implies that the work cannot be performed from home, and 1 implies it can be.<sup>38</sup> For the Likert scale, 0 implies the work activity is very unlikely to be performed from home; 1 implies that it is somewhat likely to be performed from home; 2 implies that it is very much likely to be performed from home. As the Likert scale would allow for more variation and helps capture the close calls better. At the same time, rating work activities, we decided to use an RLI generated using a Likert scale to estimate the labour supply impact in this paper."

### Estimation of the RLI using a three-point Likert scale

The RLI for  $k^{th}$  occupation  $RLI_k$  is defined as follows:

$$RLI_k = \frac{1}{4n_k} \sum_{j=1}^4 \sum_{i_k=1}^{n_k} \left( \frac{L_{i_k,j}}{\max\{\bar{L}_{i_k}\} - \min\{\bar{L}_{i_k}\}} \right)$$

where,  $n_k$  is the total number of work activities for  $k^{th}$  occupation;  $i_k$  is the  $i^{th}$  work activity for  $k^{th}$  occupation;  $L_{i_k,j}$  is the rating given by  $j^{th}$  rater for  $i^{th}$  work activity for  $k^{th}$  occupation; and  $\bar{L}_{i_k}$  is the set of possible ratings for  $i^{th}$  work activity within the  $k^{th}$  occupation.

Four raters give the rating from possible values  $\{0,1,2\}$ . Since the possible ratings do not vary for the raters, the value of  $\max\{\bar{L}_{i_k}\} - \min\{\bar{L}_{i_k}\}$  remains the same across. Besides, the possible set of ratings is uniform for all  $i_k$ , and thus, the value of  $\max\{\bar{L}_{i_k}\} - \min\{\bar{L}_{i_k}\}$  would be 2 for all activities.

Note that the ratio  $\frac{L_{i_k,j}}{\max\{\bar{L}_{i_k}\} - \min\{\bar{L}_{i_k}\}}$  normalizes rating for each rater  $j$  for a given  $i_k$  to scale of  $[0,1]$ .

37 As the PLFS collects data at the NCO three-digit level, the mapping of work activities and occupation is done at that level.

38 For the binary scale, we considered that an activity can be performed from home if three or more raters agreed on it.

The study makes the following assumptions:

- i. The occupation and its related activities are independent of other occupations with similar or different activities.
- ii. All activities carry an equal weightage along with the respective occupational groups.

## Estimation of labour supply impact

To estimate the labour supply shock impact, we need to account for the extent to which the work can be done from home and whether the worker is employed in an essential or non-essential industry. The labour impact or labour loss for an occupation  $k$  within an industry  $q$ ,  $\gamma(k, q)$ , is defined as follows:

$$\gamma(k, q) = \begin{cases} \sum_{p_{k,q}} (1 - RLI_k) \times Z_{p_{k,q}}, & \text{worker } p \text{ working in a non-essential industry} \\ 0, & \text{worker } p \text{ working in an essential industry} \end{cases}$$

For a worker working in an essential industry, the labour impact would be 0, and thus, the labour loss for all occupations within these industries would be zero. However, if a worker  $p$  with occupation  $k$  works in a non-essential industry, then the labour loss would depend on the proportion of work that cannot be done from home, that is,  $(1 - RLI_k)$ .

If an occupation can perfectly be done from home, then the  $RLI_k$  would be 1, and the labour loss would thus be 0. To calculate the labour loss for an industry  $q$  and a particular occupation  $k$ ,  $\gamma(k, q)$ , we must aggregate the labour loss for all workers within the industry adjusted by the weighted representation of a worker in the population  $Z_{pkq}$ . The following expression defines the economy-wide aggregate labour impact:

$$\text{Aggregate labour impact} = \sum_{q=1}^n \sum_{k=1}^{m_q} \gamma(k, q)$$

Here,  $\sum_{k=1}^{m_q} \gamma(k, q)$  is the industry-level labour loss for an industry  $q$  aggregating over all the occupations  $k$  within the industry. Here,  $m_q$  is the total number of occupations within an industry  $q$  and  $n$  is the total number of industries within an economy.

## ► References

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Abraham, R. 2017. "Informality in the Indian Labour Market: An Analysis of Forms and Determinants". *The Indian Journal of Labour Economics* 60 (2): 191–215.

———. 2018. "Informal Workers in Formal and Informal Enterprises in India: A Comparative Analysis".

Adams-Prassl, A., T. Boneva, M. Golin, and C. Rauh. 2020. "Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys". *Journal of Public Economics* 189.

Amaral, P.S., and E. Quintin. 2006. "A Competitive Model of the Informal Sector". *Journal of Monetary Economics* 53 (7): 1541–1553.

Baker, S.R., R.A. Farrokhnia, S. Meyer, M. Pagel, and C. Yannelis. 2020. "How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic". National Bureau of Economic Research Working Paper No. 26949.

Becker, Gary S. 1964. *Human Capital: A Theoretical and Empirical Analysis*. New York: Columbia University Press for the National Bureau of Economic Research.

Berg, Janine, Florence Bonnet, and Sergei Soares. 2020. "Working from Home: Estimating the Worldwide Potential." VoxEU.org, 11 May 2020.

Bhattacharjee, S., V. Hnatkowska, and A. Lahiri. 2015. "The Evolution of Gender Gaps in India". In *India Policy Forum 2014–15*, vol. 11, no. 1, pp. 119–156. National Council of Applied Economic Research.

Bonnet, F., J. Vanek, and M. Chen. 2019. "Women and Men in the Informal Economy: A Statistical Brief". WIEGO and ILO.

Bromley, R. 1978. "Introduction – The Urban Informal Sector: Why Is It Worth Discussing?". *World Development* 6 (9–10): 1033–1039.

Chaudhuri, T.D. 1989. "A Theoretical Analysis of the Informal Sector". *World Development* 17 (3): 351–355.

del Rio-Chanona, R.M., P. Mealy, A. Pichler, F. Lafond, and J.D. Farmer. 2020. "Supply and Demand Shocks in the COVID-19 Pandemic: An Industry and Occupation Perspective". arXiv:2004.06759.

De Soto, H. 1989. *The Other Path: The Invisible Revolution in the Third World*. New York: Harper and Row Publishers.

Dingel, J., and B. Neiman. 2020. "How Many Jobs Can Be Done at Home?". Becker Friedman Institute White Paper.

Duraisamy, M., and P. Duraisamy. 2016. "Gender Wage Gap across the Wage Distribution in Different Segments of the Indian Labour Market, 1983–2012: Exploring the Glass Ceiling or Sticky Floor Phenomenon". *Applied Economics* 48 (43): 4098–4111.

Elldér, E. 2019. "Who Is Eligible for Telework? Exploring the Fast-Growing Acceptance of and Ability to Telework in Sweden, 2005–2006 to 2011–2014". *Social Sciences* 8 (7): 200.

Estupinan, X., Gupta, S., Sharma, M. and Birla, B., 2021. Impact of COVID-19 Pandemic on Labour Supply, Wages and Gross Value Added in India. *The Indian Economic Journal*, p.0019466221999143.

Fields, G.S. 2004. Dualism in the Labor Market: A Perspective on the Lewis Model after Half a Century. *The Manchester School* 72 (6): 724–735.

———. 2003. "Decent Work and Development Policies". *International Labour Review* 142 (2): 239–262.

FORLAC (Programa de Promoción de la Formalización en América Latina y el Caribe), Gobierno de España, and ITC (International Training Centre). 2015. *Transition to the Formal Economy in Latin America and the Caribbean*. Lima: ILO Regional Office for Latin America and the Caribbean. 00001

Gërzhani, K. 2004. "The Informal Sector in Developed and Less Developed Countries: A Literature Survey". *Public Choice* 120 (3–4): 267–300.

GoI (Government of India), Ministry of Home Affairs. 2020. *Circulars for COVID-19: Consolidated Guidelines of MHA on Lockdown measures on containment of COVID-19*. <https://ndma.gov.in/sites/default/files/PDF/covid/MHA-Order-dt-15.04.2020-with-Revised-Consolidated-Guidelines.pdf>.

Accessed 04 Oct 2020.

Günther, I., and A. Launov. 2012. "Informal Employment in Developing Countries: Opportunity or Last Resort?". *Journal of Development Economics* 97 (1): 88–98.

Harris, John, and Michael Todaro. 1970. "Migration, Unemployment, and Development: A Two Sector Analysis". *American Economic Review* 60 (1): 126–142.

Hart, K. 1973. "Informal Income Opportunities and Urban Employment in Ghana". *The Journal of Modern African Studies* 11 (1): 61–89.

Hicks, Michael J., D. Faulk, and S. Devaraj. 2020. "Occupational Exposure to Social Distancing: A Preliminary Analysis Using O\*NET Data". Becker Friedman Institute White Paper.

Husmanns, R. 2004. "Defining and Measuring Informal Employment". International Labour Office.

ILO (International Labour Office). 2012. "International Standard Classification of Occupations: Structure, Group Definitions and Correspondence Tables". *ISCO-08, Vol. 1*.

ILO. 2013. *Measuring Informality: A Statistical Manual on the Informal Sector and Informal Employment*.

———. 2017. *India Labour Market Update, July 2017*.

———. 2018. *India Wage Report: Wage Policies for Decent Work and Inclusive Growth*.

———. 2020a. *Short-term Policy Responses to COVID-19 in the World of Work*.

———. 2020b. "Brief: Impact of Lockdown Measures on the Informal Economy".

———. 2020c. "Brief: COVID-19 Crisis and the Informal Economy: Immediate Responses and Policy Challenges".

———. 2020d. "ILO Monitor: COVID-19 and the World of Work – Third Edition, Updated Estimates and Analysis".

———. 2020e. "Defining and Measuring Remote Work, Telework, Work at Home and Home-Based Work".

International Labour Conference. 2014. "Transitioning from the Informal to the Formal Economy". International Labour Office.

Kannan, K.P., and G. Raveendran. 2009. "Growth Sans Employment: A Quarter Century of Jobless Growth in India's Organised Manufacturing". *Economic and Political Weekly* 44 (10): 80–91.

Khanna, S. 2012. "Gender Wage Discrimination in India: Glass Ceiling or Sticky Floor?". Delhi School of Economics Centre for Development Economics Working Paper No. 214.

Koren, M., and R. Petö. 2020. "Business Disruptions from Social Distancing". arXiv:2003.13983.

Kucera, D., and L. Roncolato. 2008. "Informal Employment: Two Contested Policy Issues". *International Labour Review* 147 (4): 321–348.

- Lewis, W. Arthur. 1954. "Economic Development with Unlimited Supplies of Labour". *The Manchester School* 22 (2): 139–191.
- Losby, J.L., J.F. Else, M.E. Kingslow, E.L. Edgcomb, E.T. Malm, and V. Kao. 2002. *Informal Economy Literature Review*. ISED Consulting and Research and The Aspen Institute, 1–55.
- Madheswaran, S., and B.G. Khasnobis. 2007. "Gender Discrimination in the Labour Market: Evidence from the NSS". WIDER research project on "Gender Wage Gap and Its Impact on Poverty: Evidence from India".
- Maloney, W.F. 1999. "Does Informality Imply Segmentation in Urban Labor Markets? Evidence from Sectoral Transitions in Mexico". *The World Bank Economic Review* 13 (2): 275–302.
- Mazumdar, I. 2011. "Gender Dimensions: Employment Trends in India, 1993–94 to 2009–10". *Economic and Political Weekly* 46 (43).
- Mehrotra, S., A. Kalaiyarasan, N. Kumra, and K.R. Raman. 2015. "Vocational Training in India and the Duality Principle: A Case for Evidence-Based Reform". *Prospects* 45 (2): 259–273.
- Meng, X. 2001. "The Informal Sector and Rural–Urban Migration: A Chinese Case Study". *Asian Economic Journal* 15 (1): 71–89.
- Mincer, Jacob. 1974. *Schooling, Experience, and Earnings*. New York: Columbia University Press for the National Bureau of Economic Research.
- NCEUS (National Commission for Enterprises in the Unorganised Sector). 2008. "Report on Definitional and Statistical Issues Relating to Informal Economy".
- Perry, G.E., W.F. Maloney, O. Arias, P. Fajnzylber, A. Mason, and J. Saavedra-Chanduvi. 2007. *Informality: Exit and Exclusion*. The World Bank.
- Saltiel, F. 2020. "Who Can Work from Home in Developing Countries?". *Covid Economics* 7 (2020): 104–118.
- Schultz, T.W. 1961. "Investment in Human Capital". *The American Economic Review* 51 (1): 1–17.
- Sheikh, R.A., and Gaurav, S. 2020. "Informal Work in India: A Tale of Two Definitions". *The European Journal of Development Research* 32 (4): 1105–1127.
- Swaminathan, M. 1991. "Understanding the 'Informal Sector': A Survey". WIDER Working Paper No. 95/1991.
- Zhang, S.X., Y. Wang, A. Rauch, and F. Wei. 2020. "Health, Distress and Life Satisfaction of People in China One Month into the COVID-19 Outbreak".

## ► Endnotes

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- i. As of 8 May 2020, the number of confirmed COVID-19 infections had exceeded 3.9 million cases worldwide, according to John Hopkins University
- ii. Countries in full lockdown have taken three measures on a mandatory basis: (a) workplace closures, (b) restrictions on the internal movement of citizens; and (c) shutdowns of public transport. Countries in partial lockdown have taken at least one of these three measures on a mandatory basis. See ILO Monitor COVID-19 and the world of work. Third edition
- iii. India has been considered to have taken more stringent measures for a longer period of time compared to other countries. For example, the OxCGRT tracker of the University of Oxford, which has been collecting publicly available information of government responses on 17 different indicators in the context of COVID-19 also came up with the same findings. When India went into complete lockdown on 24 March 2020, several countries had already undertaken a multitude of measures during the initial phases. But as the days passed, while many countries opened up, but India still maintained such measures up to a significant level for a longer period of time.
- iv. Based on a combination of numbers reported by the Ministry of Health and Family Welfare and updates from the states, the total number of confirmed cases in the country on March 24 stood at 564. See “Coronavirus Live Updates | March 24, 2020”, *The Hindu*.
- v. Karishma Mehrotra, “Explained: India enforced one of the strongest lockdowns, here’s how it stacks up against other countries”, *The Indian Express*, 8 May 2020.
- vi. Globally, the informal sector units provide employment to 52 per cent of all people in employment. Informal employment can be in the informal sector, the formal sector or the household sector. The 61.2 per cent of global employment that is informal is comprised of 51.9 per cent in the informal sector, 6.7 per cent in the formal sector, and 2.5 per cent in households. In all regions of the world, employment in the informal sector is the largest of the three components of informal employment.
- vii. ILO, *Women and Men in the Informal Economy: A Statistical Picture*, 2018.
- viii. ILO, *The Informal Economy and Decent Work: A Policy Resource Guide*, 2013
- ix. In the 1950s, Arthur Lewis proposed the dual sector model in development, commonly known as the Lewis model (Lewis 1955). It spoke about the duality of work emerging in the urban centres in the least developed countries. The model stated that with the right policies, the disguised labour in traditional sectors (such as agriculture) would slowly be absorbed into modern capitalist structures.
- x. Based on the 17th ICLS, and on the expanded concept of “job-based” definition, the following categories of work were included:
  - own-account workers (self-employed with no employees) in their own informal sector enterprises;
  - employers (self-employed with employees) in their own informal sector enterprises;
  - contributing family workers, irrespective of the type of enterprise;
  - members of informal producers’ cooperatives (not established as legal entities);
  - employees holding informal jobs as defined according to the employment relationship (in law or in practice, jobs not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits (paid annual or sick leave, and so on); and
  - own-account workers engaged in production of goods exclusively for own final use by their household.

- xi. The Commission separated the unorganized sector from the organized sector, using the following definition: “The unorganised sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers”. All agricultural activities undertaken on agricultural holdings, either individually or in partnership, are considered as being in the unorganized sector. This definition excludes only the plantation sector and other types of organized agriculture (for example, corporate or cooperative farming) and covers a considerable part of agriculture.

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