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Working Paper

Stylized facts on the evolution of the enterprise size distribution in India's manufacturing sector

Working Paper, No. 409

Provided in Cooperation with:

Indian Council for Research on International Economic Relations (ICRIER)

Suggested Citation: Kapoor, Radhicka (2022) : Stylized facts on the evolution of the enterprise size distribution in India's manufacturing sector, Working Paper, No. 409, Indian Council for Research on International Economic Relations (ICRIER), New Delhi

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409

Stylized Facts on the Evolution of the Enterprise Size Distribution in India's Manufacturing Sector

RADHICKA KAPOOR

February 2022

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Acknowledgement

I would like to express my sincere gratitude to Dr Rana Hasan for his support and advice. I am also grateful to Prof Nagaraj, Prof Ramaswamy and Prof Veeramani for their valuable comments and suggestions on the paper.

Abstract

The expansion of enterprise level datasets has led to the emergence of a large body of literature on patterns of employment and job dynamics across different enterprise types. In the context of India, where MSMEs have been traditionally supported and encouraged by different policy initiatives to generate the much needed employment opportunities outside the agriculture sector, two questions merit attention. One, whether it is in fact MSMEs or large firms that have been significant contributors to employment in the manufacturing sector. And two, how their contributions have evolved over time, across states, across industries and across rural and urban areas.

Combining establishment-level data from the registered/formal and informal/unincorporated manufacturing sector in India for the period between 2000-01 and 2015-16, we find that the enterprise landscape has been dominated by micro-enterprises which have accounted for approximately 90% of total enterprises for the entire time period under study. The distribution of employment, on the other hand, has been marked by a bi-modal distribution wherein a large share of employment has been concentrated in micro-enterprises followed by large enterprises. Over time, there has been an improvement in the employment distribution with the share of medium and large enterprises in total employment rising, while that of small and micro-enterprises has been falling. This phenomenon is observed across labour and capital intensive industries, across most states and across rural and urban areas. The overall improvement in the employment distribution towards relatively large enterprises is a positive development as these enterprises offer higher wages compared to micro and small enterprises. Amongst other factors, the shift in the employment distribution over time appears to be a consequence of the fact that there are some MSMEs which are growing and moving up the size distribution. This suggests that for policies designed to support MSMEs to be effective in employment creation, they should seek to identify transformative enterprises which have the potential to grow fast and provide them the necessary support to expand and flourish. The question of how we identify the dynamic transformative enterprises is challenging given the data constraints and requires further research.

Keywords: *Employment, Manufacturing, Size Distribution of Firms, SME Policy*

JEL Classification: *E24, L60, L11, L53*

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Stylized Facts on the Evolution of the Enterprise Size Distribution in India's Manufacturing Sector

Radhicka Kapoor

1. Introduction

The expansion of enterprise level datasets has led to the emergence of a large body of literature on patterns of employment and job dynamics across different enterprise types. Questions pertaining to where people are employed, what are the relative contributions of different enterprise types to employment and how these shares have evolved over time have attracted considerable interest. In this context, the role played by Micro, Small and Medium enterprises (MSMEs) in employment generation and economic growth has been the subject of a large number of global studies (Aga et al, 2015).

Traditionally, India has supported and encouraged MSMEs as it is believed that these enterprises use labour-intensive methods of production, thereby generating the much needed employment opportunities outside the agriculture sector. Over the years, different policy initiatives have attempted to encourage MSMEs by providing subsidized credit, technical assistance, excise tax exemptions, and preference in government procurement (Expert Committee on MSMEs, RBI, 2019). The Small Scale Reservation Policy (1967), which attempted to shield small scale units from competition and boost employment growth, by reserving production of number of items for these units, stands out in this context¹.

In recent times, too, the MSME sector has continued to remain a thrust area for policymakers as it is argued that these enterprises are the engines of job growth (Atma Nirbhar Bharat, 2020). Data from the Annual Report of the MSME Ministry (2018-19) indicates that the sector employed 1,110 lakh persons, contributed to 29% of GDP and more than 40% of India's exports in 2015-16. While these figures are often used to argue that MSMEs are the 'backbone of the Indian industry', there is little systematic data or empirical evidence to understand how this sector has contributed to employment generation over time. In particular, the issue of whether it is in fact MSMEs or large firms that have been significant contributors to employment and how their respective contributions have evolved over time across states, industries and rural-urban areas merits greater attention.

This paper seeks to review the role of MSMEs in employment generation by examining key stylized facts and trends in the evolution of the enterprise size distribution in India for the time period between 2000-01 and 2015-16 using the two main available establishment databases, namely the Annual Survey of Industries and the NSSO's Enterprise Survey of Unincorporated Enterprises. The structure of the paper is as follows. Section 2 describes the enterprise level datasets used in the analysis. Section 3 lays out the definition of MSMEs used in this study.

¹ Between 1997 and 2007, 600 out of more than 1,000 items were de-reserved as it was argued that small enterprises making reserved products resisted growing or upgrading their technology as they would have to stop making those products if their investments grew beyond the permissible limits for small-scale industry.

Section 4 details the key stylized facts and finally Section 5 lays out the policy issues and challenges that emerge from the stylized facts.

Combining establishment-level data from the registered/formal and informal/unincorporated manufacturing sector in India for the period between 2000-01 and 2015-16, we find that the enterprise landscape is dominated by micro-enterprises for the entire time period under study. The distribution of employment, on the other hand, has been marked by a bi-modal distribution wherein a large share of employment has been concentrated in micro-enterprises followed by large enterprises. Over time, there has been an improvement in the employment distribution with the share of medium and large enterprises in total employment rising, while that of small and micro-enterprises has been falling. The rising employment, both in shares and absolute terms, in the medium and large enterprises is a positive development as these enterprises offer higher wages compared to micro and small enterprises. What is more, the improvement in the distribution of employment is seen across both labour and capital intensive industries. At the state level, too, most states have witnessed this phenomenon. It is striking though that the shift in employment shares towards medium and large enterprises is particularly steep in rural areas compared to urban areas. The overall improvement in the employment distribution towards relatively larger enterprises appears to suggest that there are some dynamic MSMEs which are growing and moving up the size distribution. This suggests that for policies designed to support MSMEs to be effective in employment creation, they should seek to identify transformative enterprises which have the potential to grow fast and provide them the necessary support to expand and flourish. Policy support for MSMEs should not incentivize them to remain small and must also be cautious to avoid indefinitely subsidising subsistence entrepreneurs who are unlikely to be engines of productive job growth. The question of how we identify the dynamic transformative enterprises and what sets them apart from other enterprises is challenging given the data constraints and requires further research.

2. Data Sources

Historically, in India, employment estimates have been generated using household and establishment surveys. While the former capture data from households, the latter compile data from worksites and provide a more detailed picture of the industry structure of employment and characteristics of establishments. Given the focus on establishments in this study, we present stylized facts using two key establishment (plant) datasets.

The first is the Annual Survey of Industries (ASI). It is the main source of industrial statistics in India and provides detailed information annually on the growth, composition and structure of the organized manufacturing sector (comprising activities related to manufacturing processes, repair services, gas and water supply and cold storage). The survey gathers information only on “registered” or formal sector enterprises that are covered by Sections 2m(i) and 2m(ii) of the 1948 Factories Act i.e. those enterprises that use electricity and hire more than ten workers, and those that do not use electricity but nevertheless employ twenty or more

workers². The total persons engaged in a factory is defined as production workers (sum of workers hired directly and contract workers), supervisory and managerial staff and all working proprietors and their family members who are actively engaged in the work of the factory even those without any pay, and the unpaid members of the co-operative societies who worked in or for the factory in any direct and productive capacity.

For the purpose of this study, it is important to mention that ASI provides a panel dataset wherein a unique plant identifier is provided for the plant. This should enable us to track the growth and life cycle dynamics of plants over time. However, the sample design of the ASI survey is such that we can track only larger plants each year and not relatively smaller enterprises, which fall into the category of MSMEs (as will be defined section 3). This limitation can be explained as follows. The ASI sample comprises of two parts – Central Sample and State Sample³. The Central Sample, in turn, consists of two schemes: Census and Sample. The Census Scheme is defined as comprising of

- (a) All industrial units belonging to the six less industrially developed states/ UT's of Manipur, Meghalaya, Nagaland, Sikkim, Tripura and Andaman & Nicobar Islands.
- (b) For the rest of the states/ UT's :
 - (i) Units having 100 or more employees and (ii) all factories covered under Joint Returns.
 - (iii) After excluding the Census scheme units, as defined above, all units belonging to the strata (State x District x Sector x 4 digit NIC-2008) having less than or equal to 4 units are also considered under the Census Scheme.

All the remaining units in the frame are considered under the Sample Scheme. The units under the Census Scheme are typically larger units having 100 or more employees and are surveyed each year. However, this is not the case for those units which are in the Sample Scheme. Thus, while survey information is collected for units in the Census scheme each year allowing us to study the enterprise life cycle dynamics, this is not the case for units in the Sample Scheme which cannot be tracked for the entire period⁴.

² The definition of a worker in ASI includes all persons employed directly or through any agency whether for wages or not and engaged in any manufacturing process or in cleaning any part of the machinery or premises used for manufacturing process or in any other kind of work incidental to or connected with the manufacturing process or the subject of the manufacturing process.

³ This discussion is drawn from-
<http://www.icssrdataservice.in/datarepository/index.php/catalog/141/sampling>

⁴ For all the states, each stratum is formed on the basis of State x District x Sector x 4-digit NIC-2008. The units are arranged in descending order of their number of employees. Samples are drawn as per Circular Systematic Sampling technique for this scheme. An even number of units with a minimum of 4 units are selected and distributed in four sub-samples. It may be noted that each of 4 sub-samples from a particular stratum may not have equal number of units. Out of these 4 sub-samples, two pre-assigned sub-samples are given to NSSO and the other two-subsamples are given to State/UT for data collection. The entire census units plus all the units belonging to the two sub-samples given to NSSO are treated as the Central Sample. The entire census units plus all the units belonging to the two sub-samples given to State/UT are treated as the State Sample. Hence, State/UT has to use Census Units (collected by NSSO and processed by CSO (IS Wing)) along with their sub-samples while deriving the district level estimates for their respective State/UT.

The second main enterprise survey is the NSSO's Enterprise Survey of Unincorporated Enterprises. These surveys are conducted quinquennially and have typically covered the manufacturing sector. Since 2010-11, they have expanded their coverage to include trade and other service sectors (excluding construction). The NSSO classifies unregistered enterprises into three categories (a) Own-Account Manufacturing Enterprises (OAMEs) i.e. those that operate without any hired worker employed on a fairly regular basis, (b) Non-Directory Manufacturing Establishments (NDMEs) i.e. those that employ fewer than six workers (household and hired workers taken together), and (c) Directory Manufacturing Establishments (DMEs) i.e. those that employ a total of six or more household members and hired workers⁵. The significance of this survey stems from the fact that it takes into account the self-employed and employment in establishments with less than 10 workers, which most other surveys fail to take into account⁶. In this dataset, the absence of unique identifier does not allow us to track any establishment over time.

The importance of incorporating databases of micro and small enterprises in the informal sector for the purpose of examining the enterprise size distribution in developing countries is well-established in the literature (Aga et al, 2015). Excluding informal establishments can give an inaccurate picture of the enterprise landscape and underestimate the contribution of micro and small enterprises to employment⁷. Hasan and Jandoc (2010) have undertaken an analysis similar to the one in this paper combining ASI and NSS enterprise survey. They find that enterprises with less than 50 workers accounted for about 84% of total employment in manufacturing, while those with 200 or more employees account for only 10% in 2005-06. Ramaswamy's (2014) analysis using these two databases also underscores the importance of including micro and small enterprises in the informal sector while examining the enterprise and employment landscape in India⁸. The distribution of enterprises across the two databases

The entire census units plus all the units belonging to the two sub-samples given to NSSO plus all the units belonging to the two sub-samples given to State/UT are required for pooling of Central Sample and State Sample.

⁵ Paid or unpaid apprentices, paid household member/servant/resident worker in an enterprise are considered as hired workers.

⁶ In this survey, a worker is defined as one who 'participates either full time or part time in the activity of the enterprise in any capacity – primary or supervisory - and may or may not receive wages / salaries in return'. The average number of persons usually working on a working day during the reference month is recorded. A worker refers to a position rather than a person. It includes working owners, hired workers (full time and part time), apprentices (paid/unpaid), other workers / helpers including as persons of the household working without regular salary or wages. In the case of proprietary or partnership enterprises the owner (s) personally working in the enterprise on a fairly regular basis are treated as working owners. Further, a worker need not mean that the same person is working continuously (Kapoor, 2019).

⁷ Ayyagari et al (2014) use cross-sectional data for 104 countries from the World Bank's Enterprise Surveys to show that SMEs are the majority source of private sector employment. The study found that in low income and lower middle-income countries, enterprises with fewer than 100 employees (excluding those with fewer than 5), account for over 50% of total employment. In upper middle-income and high-income countries, they employ less than half the total workforce. With a higher cutoff size of 250 employees, however, SMEs employ well over half of the total workforce. However, these Enterprise Surveys exclude smaller (micro) and informal enterprises.

⁸ Aga et al (2015) highlight the importance of including enterprises with fewer than 10 employees in the case of other developing countries too. They draw attention to a study on Ethiopia where using data from the annual Ethiopian manufacturing census for enterprises with at least 10 employees from 1997 to 2007, Bedi and Shiferaw (2013) report that enterprises employing fewer than 50 account for only 15% of total employment. However, a survey conducted by the country's Central Statistical Agency (CSA) in 2011

reported in Table 1 reinforces the significance of including unincorporated/unorganized enterprises in our analysis. Informal enterprises dominate the enterprise landscape, accounting for about 99% of total enterprises. And within the informal sector, it is OAMEs i.e. those which operate without any hired labour that account for approximately 85% of total enterprises.

Table 1: Total Number of manufacturing enterprises in India (in thousands)

	2000-01	2005-06	2010-11	2015-16
Unincorporated/Unorganised Enterprises (NSS)	17000	17100	16900	19300
<i>OAMEs</i>	14700	14600	14200	16500
<i>Establishments</i>	2363.953	2453.165	2694.176	2792.229
Total Formal Enterprises (ASI)	117.664	124.922	153.916	160.849

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Note: OAMEs are enterprises which run without any hired worker employed on a fairly regular basis. Establishments are enterprises which employ at least one hired worker on a fairly regular basis.

Before proceeding, three key points pertaining to the above-mentioned databases merit attention. First, while we have two separate establishment surveys for the organized and unorganized sector, in practice, the distinction between the two is not so neat. In principle, the organized manufacturing sector should include all units (i) using power and employing more than 10 workers or (ii) not using power and employing more than 20 workers. Nevertheless, it is often noted that many big units with a sufficiently large number of workers are included in the NSS Unincorporated Enterprise Survey. For instance, in 2015-16, over 12,000 of the surveyed enterprises in the NSS 73rd round hired 10 or more workers. In the 2010-11 survey, there were close to 10,000 surveyed units having 10 or more workers (Kapoor, 2017). These units should have in fact been in the frame of the ASI survey. Just as there are several larger units included in the NSS frame, it has been observed that there are several units hiring less than 10 workers which have been reported in the ASI database. This appears to be a consequence of the fact that the live register of factories (maintained in each state by the Chief Inspector of Factories) which forms the frame for conducting the ASI survey is not updated in a timely manner. As a result, several enterprises which were initially listed in the register as they met the criteria for being in the organized sector, but later fell below the threshold, continue to remain a part of the ASI frame.

Second, there is large scale evasion of registration under the Factories Act. Nagaraj (2018) notes that factories simply do not register under the Factories Act and under-report employment. Thus, it is important to include the unorganized/informal sector enterprises, as is done in this study.

showed that this figure was an underestimate as manufacturers with fewer than 10 employees had been excluded from this data. The CSA's studies (CSA, 2012 and 2013) showed that manufacturing enterprises with fewer than 10 workers employed three times the total generated by all manufacturing enterprises with 10 or more employees (CSA, 2012, 2013).

Third, it is important to draw attention to the fact that while the words enterprise/establishment/enterprise are used interchangeably in the discourse, an enterprise can be a multi-unit enterprise owning several plants/establishments. The ASI database provides us with plant/establishment level data and we are unable to identify if multiple plants belong to the same enterprise or entrepreneurial group. The results presented in this paper pertain to establishment/plant level data.

3. Definition of MSMEs

Before examining the stylized facts on the evolution of enterprise size distribution using the above-mentioned databases, it is important to define MSMEs for the purpose of this analysis. This is vital given the sensitivity of results to the definitions employed and the cutoff and method used for defining enterprise-size categories as seen in the international literature on the subject (Davis et al., 1996; Neumark et al., 2011 and Haltiwanger et al., 2013).

There is no universal definition of MSMEs. The definition varies widely across countries depending on factors such as the business culture in the country, the size of its population and industry and the level of its international economic integration. According to the International Finance Corporation (IFC, 2014), among the 267 definitions used by different institutions in 155 economies, the most widely used variable for defining an MSME is the number of employees (92 % of the analysed definitions utilize this variable). Other variables commonly found in MSME definitions are turnover and value of assets (49% and 36%, respectively). In some cases, alternative variables such as loan size, formality, years of experience, type of technology, size of the manufacturing space, and initial investment amount are used (ibid).

Two commonly used definitions internationally are those of the Organisation of Economic Co-operation and Development (OECD) and the IFC. OECD defines MSMEs on the basis of the number of people employed⁹. Small and medium-sized enterprises (SMEs) employ fewer than 250 people. SMEs are further subdivided into micro enterprises (fewer than 10 employees), small enterprises (10 to 49 employees), medium-sized enterprises (50 to 249 employees). Large enterprises employ 250 or more people. According to the IFC, a business is classified as MSME when it meets two of the three criteria viz. employee strength, assets size, or annual sales as reported in Table 2 below¹⁰.

⁹ <https://data.oecd.org/entrepreneur/enterprises-by-business-size.htm>

¹⁰ <http://documents.worldbank.org/curated/en/602291468183841622/pdf/819960BRI0Meas00Box379851B00PUBLIC0.pdf>

Table 2: IFC's Definitions for Micro, Small, and Medium-size Enterprises

Indicator/Size of the enterprise	Micro Enterprise	Small Enterprise	Medium-Size Enterprise
Number of Employees	<10	10<50	50-300
Total Assets	<\$100,000	\$100,000<\$3 million	\$3 million<\$15 million
Annual Sales	<\$100,000	\$100,000<\$3 million	\$3 million<\$15 million

Source: *International Finance Corporation*

In India, the Micro, Small and Medium Enterprises Development (MSMED) Act (2006) has provided the legal framework for categorizing manufacturing and services enterprises into Micro, Small and Medium categories. The definitions according to the MSMED Act based on investment limits in plant and machinery/ equipment (which are relevant for the time period of our analysis) are reported in Table 3. One of the main criticisms of this definition is that the investment limits in plant and machinery/ equipment were set when the Act was formulated in 2006 but they do not reflect the current increase in price index of plant and machinery / equipment (RBI's Expert Committee Report on Micro, Small and Medium Enterprises, 2019).

Table 3: Definition of MSME (as per MSMED Act, 2006)

Classification	Manufacturing Enterprise (Investment in Plant and Machinery)	Service Enterprise (Investment in Equipment)
Micro	Upto Rs 25 lakh	Upto Rs 10 lakh
Small	Above Rs 25 lakh to Rs 5 crore	Above Rs 10 lakh to Rs 2 crore
Medium	Above Rs 5 crore to Rs 10 crore	Above Rs 2 crore to Rs 5 crore

Source: *Micro, Small and Medium Enterprises Development (MSMED) Act, 2006*

Ideally, to obtain relevant stylized facts on the employment distribution across MSMEs, we need to apply the definitions reported in Table 3 to the two enterprise databases and then classify enterprises into MSMEs. However, significant challenges arise in creating this categorization using the two databases. To begin with, the ASI survey reports the variable 'net value of plant and machinery' for the plant. A notification issued by the Ministry of Small Scale Industries in 2006 lays out the detailed method of calculating the investment in plant and machinery for the purpose of classifying industries into MSMEs. The notification notes that the costs of certain items shall be excluded in the computation of investment in plant and machinery¹¹. The ASI schedule, however, does not provide disaggregated information to the extent required in the notification making it difficult to classify plants into MSME. In the case of the NSS Unincorporated Enterprise Survey, the challenge of mapping enterprises into the

¹¹ This includes cost on equipment such as tools, jigs, moulds and spare parts for maintenance and cost of consumable stores; installation of plant and machinery; research and development equipment and pollution control equipment; power generation set and extra transformer installed by enterprises as per regulations of state electricity board (detailed list is available on <https://msme.gov.in/sites/default/files/gazette%201722-E-Hindi-English.pdf>). Additionally, while calculating the investment in plant and machinery, the original price will be applied regardless of whether machines are new or second-hand. In the case of imported machinery, import duty, shipping charges, customs clearance charges and sales tax or value added tax are to be included in calculating the value of investment in plant and machinery.

MSME bins is exacerbated by the fact that MSMEs due to their informal nature and small scale of operations tend not to maintain proper books of accounts. In the 2015-16 round of this survey (73rd NSS round), information is collected on investment (original value) in plant and machinery (I) and enterprises are classified into MSME category. However, this categorization is not available for previous rounds (2000-01, 2005-06 and 2010-11) making an intertemporal analysis based on this definition challenging

Given the difficulties in matching the industrial statistics as reported in the enterprise surveys which are mostly classified in terms of employment and the promotional policies for MSMEs which are carried out in terms of capital investment limits, we have chosen to use an employment-based definition for the purpose of this study. As mentioned above, the number of employees is the most frequently used characteristic in the definitions of national governments and statistical agencies. Data on employment breakdown is most easily available for both formal and informal enterprises from enterprise surveys in India. In this study, we classify enterprises into the following five categories:

- Self-Employment/ Own Account Enterprises (which operate without any hired worker)
- Micro-enterprises: having 1-9 workers
- Small enterprises: having 10 to 49 workers
- Medium-sized enterprises: having 50 to 249 workers
- Large enterprises: employing 250 or more workers

Although our analysis is for the period till 2015-16, it is worth noting that the Government of India has recently revised the definition of MSMEs to one based not just on investment in plant and machinery but also based on annual turnover (Table 4). While, a turnover based definition is an appealing way of defining MSMEs, especially since it would be good tool to assess the contribution of MSMEs to GDP¹², it needs to be noted that it is extremely challenging to obtain data on the annual turnover by MSMEs in countries such as India where informal MSMEs outnumber formal ones. Compared to the definitions reported in Table 3, investment limits have been revised upwards in the new definition. This has been done to account for inflation and to enable enterprises to secure economies of scale in production and discourage them from splitting to continue availing official MSME assistance (Nagaraj, 2020).

¹² Gibson and H. J. van der Vaart (2008)

Table 4: Revised MSME Classification for Manufacturing and Services Enterprises (Atmanirbhar Bharat Programme, 2020)

Classification	Composite Criteria: Investment and Annual Turnover
Micro	Investment < Rs 1 crore and Turnover < Rs 5 crores
Small	Investment < Rs 10 crore and Turnover < Rs 50 crores
Medium	Investment < Rs 20 crore and Turnover < Rs 100 crores

Source: *Atmanirbhar Bharat Part I, Government of India (2020)*

4. Stylized Facts

4.1 Distribution of Enterprises by Size

4.1.1 Examining the distribution including OAMEs

We begin by examining the distribution of enterprises across the ASI (formal) and NSS Unincorporated (informal) enterprise databases. A disaggregated look at the enterprise size distribution in Table 5 combining both datasets shows that an overwhelming majority of enterprises in the manufacturing sector have less than 10 workers. Approximately 95% of all enterprises have one to five workers for all time periods under study. There is a lack of small, mid-sized and large enterprises in the distribution. Significantly, there has been no change in the distribution of enterprises over time¹³. Separately, Table 6 reports the share of formal enterprises (i.e. those in the ASI database) in each size bin for the four time periods. Unsurprisingly, amongst the smaller size bins, it is the informal plants (i.e. those in the NSS Unincorporated Enterprise Surveys) that account for a dominant share of enterprises. Amongst the larger bins, the opposite holds true. In the bin corresponding to 20-49 workers, both formal and informal enterprises account for roughly equal shares.

Table 5: Distribution of all enterprises across NSS and ASI databases by size

Size Bin	2000-01	2005-06	2010-11	2015-16
1 to 5 workers	95.29	94.69	95.07	96.19
6 to 9 workers	3.09	3.17	3.03	2.41
10 to 19 workers	1.17	1.39	1.47	1.05
20 to 49 workers	0.35	0.39	0.44	0.35
50 to 99 workers	0.09	0.11	0.15	0.13
100 to 199 workers	0.05	0.05	0.08	0.07
200 to 249 workers	0.01	0.01	0.01	0.02
250 to 299 workers	0.01	0.01	0.01	0.01
300+ workers	0.02	0.03	0.04	0.04

Source: *Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)*

¹³ According to the sixth Economic Census, 58.5 million establishments were found to be in operation in 2013-14. Of this, 41.97 million (71.74%) were own account enterprises. Establishments operating with at least one hired worker accounted for the remaining 28.26%. Significantly, own account enterprises grew at the rate of 56.02% between the Economic Census of 2005-06 and 2012-13, while the growth of establishments with hired workers was significantly lower at 15.11%.

Table 6: Share of ASI (formal enterprises) in each size bin

Size Bin	2000-01	2005-06	2010-11	2015-16
1 to 5 workers	0.07	0.07	0.08	0.10
6 to 9 workers	3.24	2.97	3.92	4.65
10 to 19 workers	17.48	14.71	15.96	19.28
20 to 49 workers	47.17	47.08	51.50	52.11
50 to 99 workers	80.69	74.75	75.12	76.45
100 to 199 workers	83.26	89.82	83.48	86.49
200 to 249 workers	98.82	98.77	93.48	85.39
250 to 299 workers	98.76	100.00	96.60	99.64
300+ workers	99.46	97.24	99.32	99.11

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

It needs to be pointed that that the statistics reported above in Table 5 and 6 include OAMEs which operate without any hired labour¹⁴. Although OAMEs account for 85% of total enterprises in the enterprise landscape, including these in our analysis can significantly alter results. In this paper, we choose not to include OAMEs while examining the distribution. The reason for this is as follows. In the literature, there are broadly two kinds of entrepreneurs- subsistence and transformational (Schoar, 2010). The former category comprises of those who become entrepreneurs to earn a subsistence income while the latter category consists of those who aspire to create larger businesses that grow to provide jobs and income for others and not just to meet their own subsistence needs. Subsistence entrepreneurs are dominant in developing countries such as India where in the absence of unemployment insurance and other social protection programs, the poor cannot afford to remain unemployed or exit the labor force when they are unable to find a job. So they are compelled to resort to self employment or own account employment as a survival mechanism. They run own account enterprises eking out a subsistence living using primitive, unchanging technology and employing family labour to the fullest extent as their opportunity cost is zero (Nagaraj, 2018). This is evident from their very low Gross Value Added (GVA) per worker (Table 7) compared to those establishments which operate with hired labour (both in the informal and formal sector). In 2010-11, GVA per worker in establishments was 2.6 times higher than in OAMEs, while the ratio of GVA per worker in formal enterprises was over 30 times higher than in OAMEs. In 2015-16, the corresponding ratios were 2.6 and 24.2 respectively. At such low levels of GVA per worker, it may well be argued that OAMEs are nothing more than survival efforts of underemployed labour. Referring to them as entrepreneurs in the traditional sense of the word (i.e. those who undertake a venture, organize it, raise capital to finance it, assume the whole or major part of the risk of business, sell output in the market, pays workers' wages with the sales proceeds, repay the loan with interest, and claim what is left as profit) is in fact not correct¹⁵.

¹⁴ It is important to point out that since OAMEs use unpaid family labour, they sometimes tend to report more than one person as employed. However, there is no hired person engaged in such enterprises. Table A2 in the appendix reports distribution of employment in OAMEs.

¹⁵ It is worth pointing out that the oft cited statistics from the MSME's Ministry Annual Report (2018-19) reported in Section 1 used to highlight the contribution of the sector incorporate all unincorporated

Table 7: Annual GVA per worker by enterprise type in manufacturing sector (nominal in Rs)

	Unincorporated Enterprises				Formal enterprises	
	OAMEs	Establishments	All	Ratio of GVA per worker in Establishments to OAMEs	ASI	Ratio of GVA per worker in formal enterprises to OAMEs
2010-11	26844	70000	44314	2.61	813027	30.29
2015-16	46088	122344	74379	2.65	1117114	24.24

Source: Published statistics from ASI and NSS Unincorporated Enterprise Surveys (2010-11 and 2015-16)

Further, the persistence of a very large share of OAMEs in the distribution over time (Table 5) suggests that subsistence enterprises are not expanding the size of their businesses and that there is not much transition happening from the subsistence to the transformative category. Herrera and Lora (2005) and Schoar (2010) argue that the absence of a more continuous enterprise size distribution in developing countries compared to developed countries suggests a strong discontinuity between subsistence and transformational entrepreneurship with only minimal transition between the two groups. In fact, Schoar (2010) argues that the notion that subsistence entrepreneurship is the first step toward transformational entrepreneurship does not appear to be true and that development policies, which assume otherwise, may be misguided. In this backdrop, we choose not to incorporate subsistence entrepreneurs (i.e. OAMEs) in understanding the evolution of enterprise distribution for the purpose of this study.

4.1.2 Examining the distribution excluding OAMEs

Table 8 reports the distribution of enterprises, dropping OAMEs, from the analysis. Micro-enterprises (i.e. those with 1 to 9 workers) dominate the enterprise landscape. Their share in total enterprises has remained flat at approximately 90% of the total for the entire time period under study. The next highest share is accounted for by small enterprises (i.e. those with 10 to 49 workers) at about 10%. This is followed by medium size enterprises (i.e. those with 50 to 249 workers), which account for 1-2% of total enterprises over all four time periods. Large enterprises (i.e. those with 250 or more workers) account for less than 0.5% of total enterprises. Thus, the enterprise size distribution is decreasing in size with a steep decline after the 1-9 worker category. Combining the distribution of formal and informal enterprises using micro-data for the year 2010-11, Hsieh & Olken (2014) also find similar results wherein the enterprise size distribution is dominated by a large number of very small enterprises and both mid-sized and large enterprises are missing.

enterprises (in the non-agricultural sector) including own account subsistence enterprises. This has created ambiguity in the measurement of what constitutes MSMEs. Nagaraj (2021) also draws attention to this problem.

Table 8: Distribution of enterprises (excluding OAMEs) by size

Size Bin	2000-01	2005-06	2010-11	2015-16
1 to 5 workers	69.30	68.24	70.23	74.03
6 to 9 workers	19.06	18.64	16.82	15.10
10 to 19 workers	7.98	9.11	8.58	6.77
20 to 49 workers	2.43	2.58	2.59	2.33
50 to 99 workers	0.63	0.75	0.88	0.84
100 to 199 workers	0.33	0.36	0.50	0.48
200 to 249 workers	0.06	0.07	0.09	0.10
250 to 299 workers	0.04	0.05	0.06	0.06
300+ workers	0.17	0.20	0.25	0.29

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table 9 and 10 report absolute number of enterprises for unincorporated and formal sector separately. In absolute terms, the total number of enterprises increased by over 470,000 in the period between 2000-01 and 2015-16. Approximately 90% of the increase in number of enterprises came from the unincorporated sector. Within this sector, almost the entire increase came from micro-enterprises. In the formal sector, the total enterprises increased by a little over 43,000 over the fifteen year period. Micro, small and medium enterprises- each accounted for roughly 30% of the total increase in the formal sector. Large enterprises accounted for the remaining 10%.

Table 9: Absolute number of enterprises in unincorporated sector (excluding OAMEs)

Size Bin	2000-01	2005-06	2010-11	2015-16
1 to 5 workers	1708611	1748327	1986532	2165994
6 to 9 workers	455815	464221	458623	423908
10 to 19 workers	163210	199533	204181	160293
20 to 49 workers	31871	35152	34766	32979
50 to 99 workers	3016	4900	6242	5813
100 to 199 workers	1379	768	2325	1932
200 to 249 workers	17	22	165	445
250 to 299 workers	11		56	6
300+ workers	23	145	49	76
Total	2363953	2453068	2692939	2791446

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table 10: Absolute number of enterprises in formal sector

Size Bin	2000-01	2005-06	2010-11	2015-16
1 to 5 workers	11129	10892	12795	19623
6 to 9 workers	17122	16236	20298	21819
10 to 19 workers	34916	35319	40110	39465
20 to 49 workers	28481	31375	38912	35895
50 to 99 workers	12605	14509	18845	18905
100 to 199 workers	6859	8506	11798	12373
200 to 249 workers	1420	1773	2365	2601
250 to 299 workers	879	1196	1590	1683
300+ workers	4253	5116	7203	8485
Total	117664	124922	153916	160849

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

It needs to be pointed out here that often the discourse on SMEs refers to the formal sector. This is particularly true in the developed world. However, this is not the case in India. Table 11 reports the share of MSMEs that are informal in nature. Unsurprisingly, all microenterprises are informal in nature. In the small category, the share of informal enterprises has remained over 70%, although it has declined over time. The medium category is populated largely by formal enterprises and the share of informal enterprises has hovered around 17%- 19% for the time period. In the large category, the share of informal enterprises is miniscule. Understanding and recognizing the dualistic structure of the enterprise distribution in the MSME category is important from a policy perspective, especially when we are trying to design instruments to support these enterprises. The institutional and legal characteristics of these enterprises needs to be borne in mind while conceptualising the nature of support they should be provided.

Table 11: Share of informal enterprises (i.e. those in NSS Unincorporated Enterprise Survey) in each size bin

	2000-01	2005-06	2010-11	2015-16
Micro	98.71	98.79	98.66	98.43
Small	75.47	77.87	75.15	71.95
Medium	17.44	18.67	20.92	19.47
Large	0.66	2.25	1.18	0.80

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

4.2 Distribution of Employment by Size

Next, we examine the distribution of employment by enterprise size over the four time periods under study. Table 12 reports the employment distribution across formal and informal enterprises dropping OAMEs.¹⁶ Here we find that micro enterprises (i.e. those with 1 to 9 workers) accounted for the largest share of total employment. Over time, their share in total

¹⁶ The distribution of employment with OAMEs is presented in Table A1 in the appendix for reference.

employment has declined from 44.8% (2000-01) to 36.3% (2015-16). Despite this decline, they remain the largest contributor to total stock of employment. The next highest share of employment is accounted for by large enterprises (i.e. those with 250 or more workers). Importantly, their share in total employment has increased from 20.5% in 2000-01 to 30.3% in 2015-16. Small enterprises (10-49 workers) and medium sized enterprises (50-249 workers) accounted for a lower share in stock of employment compared to micro and large enterprises. Importantly, while the share of small enterprises in total employment has fallen from 21.6% to 17.2% over the fifteen year period, that of medium sized enterprises has risen from 12.7% to 16%.

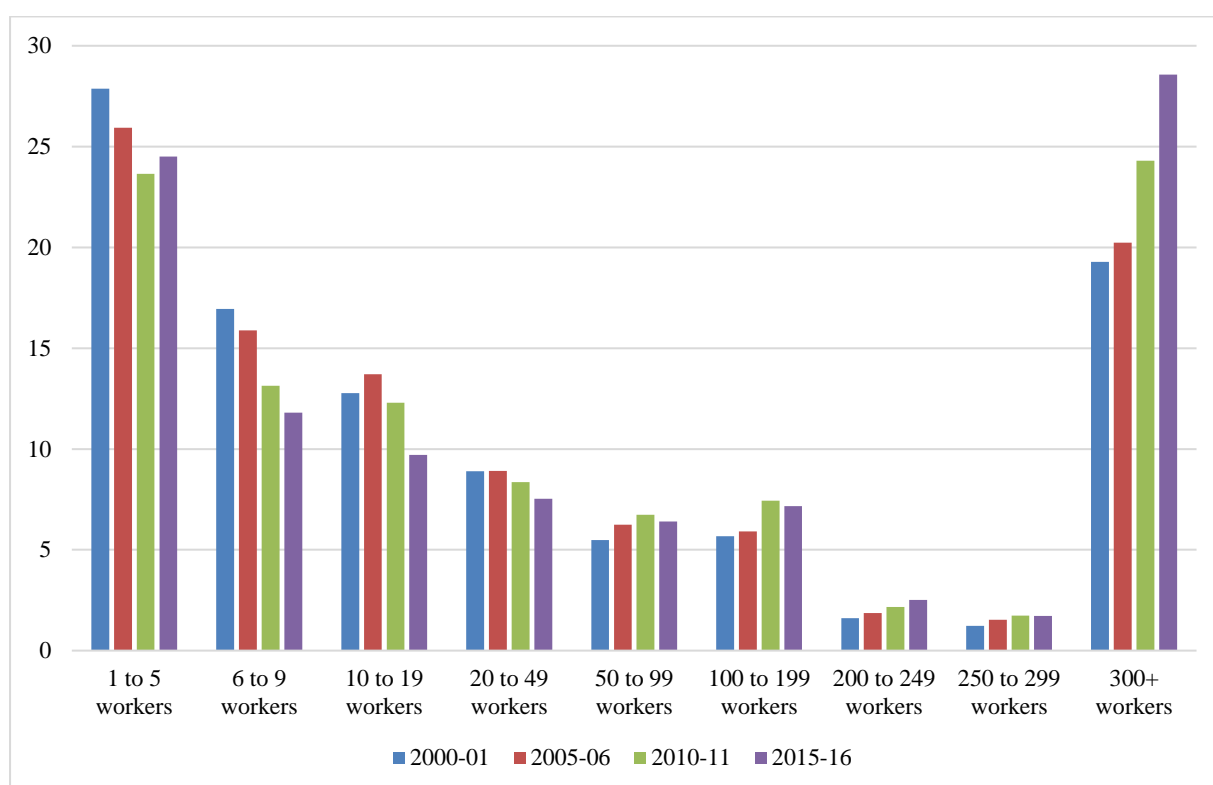
Table 12: Distribution of Employment by Enterprise Size (without OAMEs)

Size Bin	2000-01	2005-06	2010-11	2015-16
1 to 5 workers	27.87	25.93	23.65	24.51
6 to 9 workers	16.94	15.88	13.13	11.81
10 to 19 workers	12.77	13.70	12.29	9.70
20 to 49 workers	8.89	8.92	8.35	7.53
50 to 99 workers	5.49	6.25	6.74	6.40
100 to 199 workers	5.67	5.91	7.43	7.17
200 to 249 workers	1.61	1.86	2.16	2.52
250 to 299 workers	1.22	1.53	1.73	1.72
300+ workers	19.28	20.23	24.30	28.57

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

The “U” shaped (or bi-modal) distribution of manufacturing employment by size of establishment or enterprise depicted in Figure 3 is commonly referred to as the “missing middle” in the literature. The term was originally coined by Little (1987). He used it to refer to a bimodal distribution of factory (or organised manufacturing) employment in India, wherein factories with 200 to 499 workers accounted for a smaller employment share compared to factories employing less than 50 workers and those employing more than 1000 workers. In mid-1970s, the latter group (i.e. those employing more than 1000 workers) accounted for over half of factory employment. Nagaraj (2018) notes that Little attributed the bi-modal distribution to the state-led heavy industrialisation strategy, resulting in large-sized (vertically integrated) factories on the one hand, and the dominance of consumer goods production in very small-sized cottage or traditional industries on the other. Later Anne Kruger (2013) used the term the “missing middle” as a metaphor for distortions caused by India’s business and labour regulations that constrained the expansion of labour intensive manufacturing. Krueger’s hypothesis finds empirical support in Mazumdar (2003), Mazumdar and Sarkar (2008) and Hasan & Jandoc (2010). These papers find the distribution of employment to be characterized by a heavy preponderance of very small enterprises and a “missing middle” even with data as recent as 2005. While these studies attempt to analyse factors such as labour market regulations in explaining this pattern of employment distribution, we do not attempt to deconstruct the factors responsible for this phenomenon in this study. Our focus is an intertemporal analysis of the employment distribution.

Figure 1: Distribution of Employment (Excluding OAMEs)



Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

A key takeaway in this context (from Table 12 and Figure 1) is that the distribution of employment has improved over time with the share of micro and small enterprises falling and that of medium and large enterprises rising (Table A3 in Appendix also reports the employment distribution in absolute terms). The rising employment share in large enterprises (of almost 10 percentage points over 15 years) is a positive development and merits attention as these enterprises offer more productive and better paying jobs compared to smaller enterprises (Table A4).

The increasing share of large establishments in total employment merits attention. It could be a consequence of (i) entry of new large factories and/or, (ii) increase in size of factories that were already in the large category and/or (iii) expansion of small and medium factories that have graduated into large size group. Identifying the drivers of the changes in the employment distribution is important from a policy perspective. If the expansion of previously small and medium enterprises is largely responsible for the increase in the share of large enterprises in total employment, then there is a strong case for supporting small and medium enterprises through special support programmes which provide small industry finance, extension and advisory services, infrastructure, and training programs for managers and workers.

To explore which of the three channels is driving the change in the distribution, we examine employment distribution by age cohort for each of the size bins. These results are presented in

Table 13¹⁷. We find that within the category of large plants, the share of young plants (defined as those between 0 and 5 years) in employment has remained below 10%, except in 2010-11, when the share of employment of young plants in the large category stood at almost 15%. On the other hand, old plants (defined as those over 10 years) have accounted for the dominant share (over 70%) of total employment in the large sized category. From these statistics, it appears that the doubling in total employment in the large bin cannot be attributed to the entry of large new/young entrants alone.

Table 13: Distribution of employment by age and plant size

2000-01				
	Micro	Small	Medium	Large
0 to 5 years	16.17	23.40	20.46	7.34
6 to 10 years	18.72	22.15	21.94	11.36
11 years and above	65.11	54.45	57.60	81.30
Total	100.00	100.00	100.00	100.00
2005-06				
	Micro	Small	Medium	Large
0 to 5 years	17.22	22.48	22.07	9.72
6 to 10 years	18.37	22.57	20.46	15.23
11 years and above	64.42	54.95	57.47	75.05
Total	100.00	100.00	100.00	100.00
2010-11				
	Micro	Small	Medium	Large
0 to 5 years	19.27	22.87	25.80	14.76
6 to 10 years	17.77	21.21	20.86	12.76
11 years and above	62.96	55.92	53.35	72.48
Total	100.00	100.00	100.00	100.00
2015-16				
	Micro	Small	Medium	Large
0 to 5 years	16.21	16.75	16.13	7.87
6 to 10 years	17.02	22.44	23.96	16.30
11 years and above	66.77	60.81	59.92	75.83
Total	100.00	100.00	100.00	100.00

Source: Author's calculations from plant level data of ASI Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Additionally, we also look at the size distribution of young plants (i.e. those that are 5 years and below) in Table 14. We find that most new entrants are in the small category and the share of new entrants that are large remains below 5% for the entire time period under study. While the average employment size in large young plants has typically hovered around 600 employees, the average size of young plants has fluctuated between 45-70 employees (Table 15). From these statistics, it appears unlikely that a few large young plants can alone explain the substantial increase (of over 10 percentage points) in both the share and absolute

¹⁷ Since the NSS Unincorporated Enterprise Survey does not provide details on age of the enterprises for the periods 2000-01 and 2005-06, the analysis reported in Table 14 to 17 is based on the ASI dataset which provides age details of enterprise in all rounds of the survey. This, however, does not change the inference from the analysis as the large enterprises we are interested in are almost entirely in the formal sector (Table 11).

employment of large plants in the distribution over time. This suggests that enterprises are moving up the size distribution and expanding as they age i.e. possibilities (ii) and (iii) described above.

Table 14: Distribution of Young Plants by Employment Size Bins

	Micro	Small	Medium	Large	Total
2000-01	18.32	61.31	17.99	2.38	100.0
2005-06	17.11	57.96	21.60	3.33	100.0
2010-11	18.28	52.16	24.63	4.93	100.0
2015-16	24.54	49.49	21.86	4.11	100.0

Source: Author's calculations from plant level data of ASI Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table 15: Average Employment in Young Plants (0 to 5 years)

	Micro	Small	Medium	Large	All
2000-01	6.05	21.72	99.04	516.99	44.5
2005-06	6.32	22.28	101.18	521.20	53.4
2010-11	6.09	22.84	105.88	605.09	68.1
2015-16	5.73	22.05	102.42	613.02	59

Source: Author's calculations from plant level data of ASI Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Next, we compute the average employment in the large size plants in Table 16 and find that the average employment of factories classified in the large bin does not change very much over time. At first glance, this may appear to suggest that the existing large factories are not expanding and therefore, the average size in this category is not changing very much. However, it may well be the case that existing large factories are indeed expanding, but concomitantly there are some other mid-sized factories that are moving up the distribution from the medium category into the lower slots of the large category. This may keep average employment in this bin roughly unchanged¹⁸.

Table 16: Average Employment in each Size Bin

	2000-01	2005-06	2010-11	2015-16
Micro	5.9	5.9	6.0	5.4
Small	21.5	22.0	22.5	22.2
Medium	102.3	103.9	104.7	106.0
Large	783.7	727.6	764.9	796.6

Source: Author's calculations from plant level data of ASI Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

¹⁸ It could be argued that there are some large enterprises that are also exiting. But the literature seems to suggest that there is an inverse relationship between size and exit and small enterprises are more likely to exit than large ones.

The above suggests that amongst other factors, the overall improvement in the employment distribution towards relatively large enterprises appears to be driven by the fact that there are some dynamic MSMEs which are expanding and moving up the size distribution. While we cannot track the life cycle dynamics of MSMEs due to data limitations described in Section 2, an important implication of the above observation is that for policies designed to support MSMEs to be effective in employment generation, they should seek to identify transformative enterprises, which have the potential to grow fast and provide them the necessary support to expand and flourish. Policy support for MSMEs should not incentivize them to remain small and should be cautious to avoid indefinitely subsidizing subsistence entrepreneurs, who are unlikely to be engines of productive job growth. The question of how one identifies dynamic transformative enterprises, also referred to as ‘gazelles’ in the literature (Li and Rama, 2012), and what sets them apart from other enterprises is challenging given data constraints and requires further research.

4.3 Heterogeneities in employment distribution across labour and capital intensive industries

The discussion on employment and enterprise size distribution, thus far, has examined the manufacturing sector at an aggregate level. However, as noted by Hasan & Jandoc (2010) there are significant heterogeneities in the distributions across industries. Table 17 reports the employment distribution across select labour and capital intensive industries. For capital intensive industries such as auto and electronics, the share of employment in large enterprises (with more than 250 workers) is much higher than it is in labour intensive industries. In the latter category of industries, micro and small enterprises account for over 50% of total employment. In fact, labour intensive industries are marked by dominance of micro enterprises. These findings are in line with the findings of Hasan & Jandoc (2010). They too note that if technology in an industry is characterized by economies of scale (i.e. the average cost of producing each unit of product falls as total output increases), we can expect larger plant size. In general, the more capital (machines) required in a production process, the greater will be the scope for reaping scale economies, and thus the larger the optimum size of enterprises.

Significantly, across all industries, the share of employment in large enterprises has increased over time. In the case of capital intensive industries, however, the increase in the share of large enterprises has been very steep. By 2015-16, over 70% of employment in auto industry was in large enterprises, while in the electronics industry it was over 60%. Micro-enterprises accounted for less than 10% of employment in these two industries. This was in sharp contrast to labour intensive industries where an overwhelmingly large share has continued to be employed in micro-enterprises. The rapid pace at which the size structure has evolved towards large enterprises in capital intensive industries is striking. This may have been a consequence of not just the nature of production in these industries but also the fact that the pace of technological change and automation in these industries has been so rapid that it has rendered production in smaller units unviable.

Table 17: Employment distribution across select two digit industries

(a)Employment Distribution for Textiles industry				
	2000-01	2005-06	2010-11	2015-16
1 to 9 workers	41.05	41.62	40.18	33.77
10 to 49 workers	24.52	26.31	20.04	15.36
50 to 249 workers	9.97	10.55	12.09	13.54
250+ workers	24.46	21.52	27.68	37.34

(b) Employment Distribution for Apparel industry				
	2000-01	2005-06	2010-11	2015-16
1 to 9 workers	70.81	62.69	59.81	56.98
10 to 49 workers	12.70	10.71	16.13	15.96
50 to 249 workers	5.91	6.64	6.00	6.33
250+ workers	10.58	19.95	18.07	20.73

(c)Employment Distribution for Auto industry				
	2000-01	2005-06	2010-11	2015-16
1 to 9 workers	23.11	13.55	7.40	8.01
10 to 49 workers	14.32	14.31	9.64	5.12
50 to 249 workers	16.79	19.16	17.07	14.57
250+ workers	45.78	52.98	65.89	72.29

(d)Employment Distribution for Electronics industry				
	2000-01	2005-06	2010-11	2015-16
1 to 9 workers	16.64	10.06	10.34	6.43
10 to 49 workers	17.56	14.06	15.66	9.74
50 to 249 workers	24.96	25.92	24.30	21.92
250+ workers	40.84	49.96	49.71	61.91

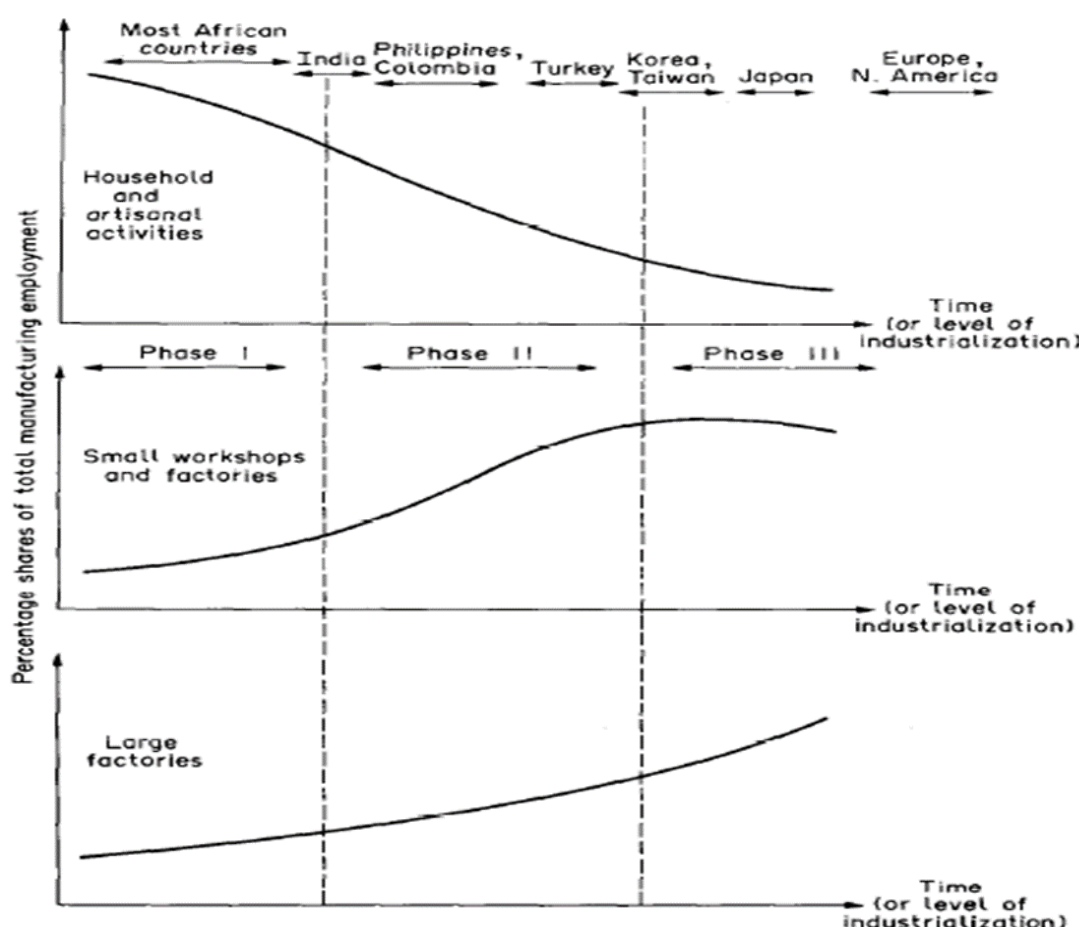
Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

4.4 Heterogeneities in distribution of employment across states

We now turn to examine how the distribution of employment varies across states of India which are at different levels of development and industrialization. This is an important exercise given that various theories predict that the role of enterprise size depends to a large extent on the economy's stage of economic development and that the size composition of enterprises evolves with the process of structural transformation. Anderson (1982) shows that in the course of industrial growth, the composition of manufacturing activities, when classified according to scale, appears to pass through three phases: (1) a phase in which household manufacturing is predominant, accounting for one-half to three-quarters or more of total manufacturing employment; (2) a phase in which small workshops and factories emerge at a comparatively rapid rate and act to displace household manufacturing in several sectors; and (3) a phase in which large-scale production becomes predominant, displacing the remaining household manufacturing activities and a large share -though not the whole - of workshop and small

factory production¹⁹. The growth of output and employment in large-scale manufacturing can be divided into: (a) the growth of once small enterprises through the size structure, and (b) the expansion of already large domestic and foreign concerns. The broad pattern as shown in Figure 2 is that as GDP per capita rises, over time household enterprises are displaced first by small factories and later by large factories. Several factors like market size expansion and specialization, transportation costs, changing demand structure play a role in this process of change. Further, Anderson (1982) argues that none of the above-mentioned phases are distinct, and there is overlap between the three. Moreover, the changes differ greatly between sectors, and even between regions within the same country²⁰.

Figure 2: Change in Size Structure of industry over time



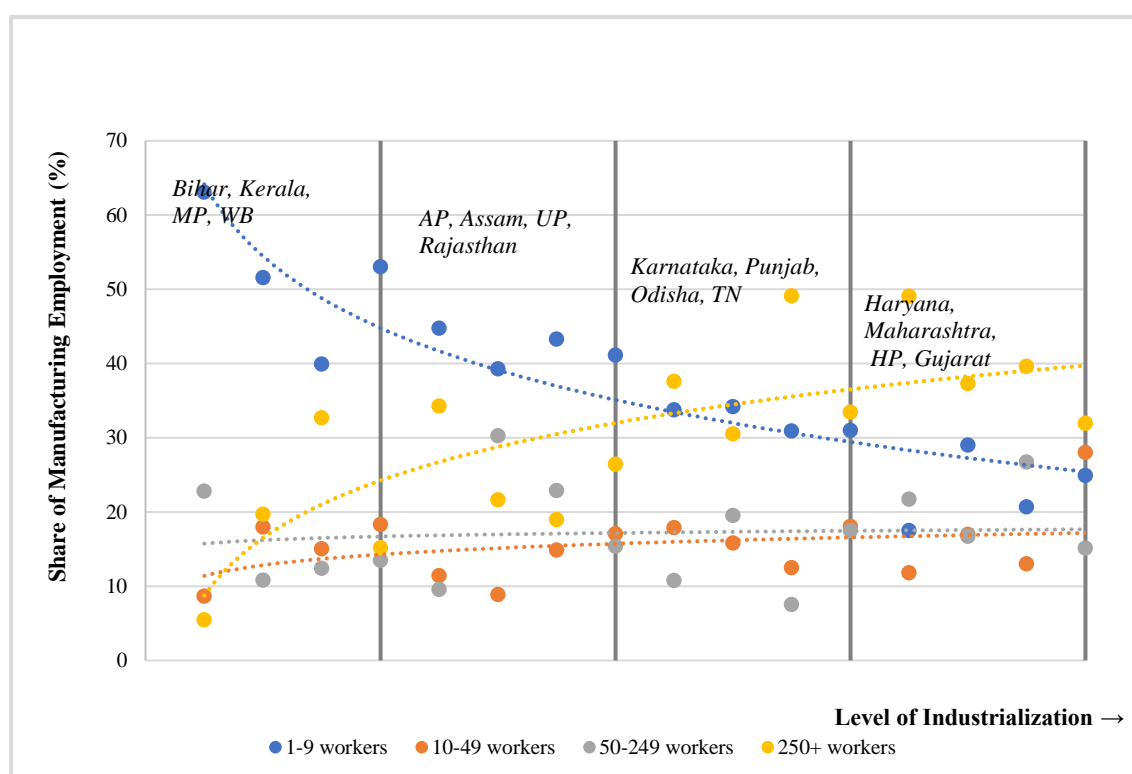
Source: Anderson (1982)

¹⁹ Anderson's definition of Household-Enterprises includes artisans working at home, artisans with workshops and industrial home-work paid for in wages or by piece rate under the subcontracting or 'putting out system' that include shoemakers, carpenters, handloom-workers, embroidery workers, tailors, food processing, tobacco-beedi making, handi-crafts etc.

²⁰ Snodgrass and Bigs (1996) point out that rates of transition from household to non-household (factory-based) manufacturing also differ between countries.

Drawing from this literature, Figure 3 presents the employment distribution (for the year 2015-16) across states of India²¹. States are ranked in order of their levels of industrialization which is measured by the share of the states' Gross Value Added in the manufacturing sector. In line with Anderson's (1982) findings in Figure 2, we too find a predominance of manufacturing activity in micro-enterprises in states which are in the earlier stages of industrialization process. On the other hand, states which are in the advanced stages of the industrialization process, report a substantially higher share of employment in large enterprises compared to others suggesting that large-scale industry is likely to predominate as industrialization proceeds. The share of employment in small and medium enterprises does not appear to vary significantly across states at different levels of industrialization. However, given that this is a cross section analysis examining states at different levels of industrialization, this finding should not be interpreted to imply that once small enterprises do not move up the size distribution as industrialization advances.

Figure 3: Differences in Employment Distribution by Enterprise Size in Manufacturing Sector Across States (2015-16)



Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2015-16) and RBI's Handbook of Statistics on Indian Economy

²¹ Although Anderson's analysis included household enterprises, we do not include these in our analysis. Ramaswamy (2014) has also drawn attention to this literature in the Indian context. He examines employment growth in household and small enterprises in the manufacturing sector over 2000-01 and 2010-11 and finds that employment in household enterprises have declined across industry groups and states in India. However, employment growth in small enterprises defined as those with less than fifty workers in the non-household segment, has been insufficient to offset the decline of household employment.

Table 18 presents the evolution of the employment distribution over time across states of India for the period between 2000-01 and 2015-16. All states barring five have seen an improvement in employment distribution with an increase in the share of medium and large enterprises and a concomitant decline in the share of micro and small enterprises. The more industrialized states not only have a higher share of employment in large enterprises, but they have also witnessed a more substantial increase in the share of employment in large enterprises over time compared to less industrialized ones. The state of Haryana has seen a big jump in share of employment in large enterprises. Gujarat, Madhya Pradesh, Himachal Pradesh, Maharashtra, Odisha and Tamil Nadu have witnessed over a 10 percentage point increase in the share of large enterprises. On the other hand, in the states of West Bengal and Bihar, the share of employment in microenterprises has remained very high (above 50%) for the entire time period under study. While a detailed analysis of the differential pattern of evolution of the distribution at the state level is not the focus of our attention here, it needs to be noted that this is a function of number of factors such as labour regulations, product market regulations, industrial policy regimes and the quality of physical and financial infrastructure and importantly the sectoral composition of manufacturing activity in the state.

Table 18: Distribution of employment across states

	2000-01				2015-16			
	1-9 workers	10-49 workers	50-249 workers	250+ workers	1-9 workers	10-49 workers	50-249 workers	250+ workers
Andhra Pradesh	38.92	18.15	9.38	33.55	44.76	11.4	9.56	34.27
Assam	29.51	6.88	19.43	44.18	39.25	8.86	30.26	21.62
Bihar	62.23	13.72	14.6	9.45	63.06	8.67	22.81	5.46
Gujarat	37.04	24.46	17.16	21.34	24.93	28.03	15.11	31.93
Haryana	31.76	19.48	18.77	30	17.47	11.78	21.71	49.04
Himachal Pradesh	39.96	20.51	14.07	25.46	20.66	13.02	26.72	39.6
Karnataka	45.23	23.68	10.94	20.15	33.77	17.89	10.76	37.58
Kerala	49.25	20.41	10.32	20.03	51.56	17.94	10.8	19.69
Madhya Pradesh	40.11	20.55	10.1	29.23	39.91	15.05	12.39	32.65
Maharashtra	42.25	22.16	11.11	24.48	29.02	16.96	16.74	37.28
Odisha	42.99	17.13	9.44	30.44	30.89	12.48	7.51	49.11
Punjab	42.86	18.67	15.64	22.83	34.18	15.82	19.5	30.5
Rajasthan	46.69	21.24	10.99	21.08	41.12	17.07	15.37	26.43
Tamil Nadu	40.51	26.03	16.11	17.36	31	18.07	17.48	33.46
Uttar Pradesh	47.95	24.62	17.29	10.14	43.3	14.86	22.87	18.97
West Bengal	54.07	20.13	6.4	19.41	53.04	18.3	13.48	15.18

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

4.5 Rural-Urban Differences

We now examine the distribution of enterprises and employment separately for rural and urban areas. The enterprise size distribution in Table 19 shows that both in rural and urban areas, over 80% of enterprises are micro-enterprises and these have continued to dominate the enterprise landscape over the time period under consideration. Although the distributions are largely similar, it is important to point out that most micro-enterprises are largely concentrated in urban areas. Table 20 reports how MSMEs are distributed spatially between rural and urban areas. It is striking that only about 5% of all micro-enterprises are in rural areas. This is in sharp contrast to small, medium and large enterprises which are distributed roughly equally between the two regions.

Table 19: Distribution of enterprises in rural and urban areas (excluding OAMEs)

Rural				
Size Bin	2000-01	2005-06	2010-11	2015-16
1-9 workers	85.84	85.13	84.93	88.19
10-49 workers	12.48	13.13	12.50	8.98
50-249 workers	1.43	1.46	2.15	2.31
250+ workers	0.25	0.28	0.42	0.52
Urban				
1-9 workers	89.84	88.11	88.22	89.59
10-49 workers	9.20	10.67	10.44	9.16
50-249 workers	0.78	0.99	1.09	0.99
250+ workers	0.19	0.23	0.25	0.26

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table 20: Share of MSMEs in rural areas

Size Bin	2000-01	2005-06	2010-11	2015-16
Micro	4.70	5.40	5.14	4.43
Small	44.19	45.74	38.71	31.68
Medium	52.04	50.79	52.04	53.02
Large	43.75	45.73	47.89	48.82

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table 21 reports the employment distribution in rural and urban areas. In both regions, it is the micro and large enterprises that account for a much larger share of employment compared to small and medium enterprises. However, it is worth pointing out that the share of employment in micro-enterprises at any given point in time is higher in urban areas compared to rural areas. This shows that micro-enterprises are a more important source of employment in urban areas. The share of small and medium enterprises in total employment is higher in rural areas than urban areas. Cumulatively, their share in total employment has fluctuated around 40% in rural areas, while in urban areas it has hovered around 30%.

Table 21: Distribution of employment in rural and urban areas (excluding OAMEs)

Rural				
Size Bin	2000-01	2005-06	2010-11	2015-16
1-9 workers	39.19	37.96	29.85	28.06
10-49 workers	25.92	25.36	21.41	15.54
50-249 workers	16.93	16.88	21.29	21.98
250+ workers	17.96	19.80	27.45	34.43
Urban				
1-9 workers	48.64	44.48	41.53	41.65
10-49 workers	18.99	20.53	20.21	18.33
50-249 workers	10.12	11.88	13.15	12.34
250+ workers	22.24	23.11	25.12	27.68

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

The evolution of the employment distribution (presented in Table 21) has also differed across urban and rural areas. In the latter, we find a sharp decline in the share of micro and small enterprises in employment accompanied by a steep increase in share of medium and large enterprises. By 2015-16, large enterprises accounted for 34% of total employment in rural areas, up from 18% in 2000-01, suggesting that some enterprises in rural areas are expanding and moving up the distribution. Micro enterprises saw a decline of 11 percentage points in share of employment from 39% to 28% for this period in rural areas. Although, urban areas also witness an increasing employment share of medium and large enterprises and declining share of micro and small enterprises, the changes in the distribution are relatively small compared to rural areas. The share of employment in large enterprises in urban areas increased from 22% to 28%, while that of micro-enterprises remained substantial (at over 40%).

Table 22 and 23 report absolute employment across the different firm size bins in rural and urban areas respectively. Total employment in the manufacturing sector increased by 2.71 million in rural areas and 4.38 million in urban areas. In rural areas, the increase was driven predominantly by large enterprises- they accounted for 80% of the increase. In urban areas, the increase was driven by large enterprises to a lesser extent- they accounted for 40% of the change. It is also worth noting while micro and small enterprises have seen a decline even in absolute numbers in rural areas, in urban areas they have seen an increase in absolute employment.

The shift we observe in the distribution of employment towards relatively larger plants in rural areas appears to be broadly in line with Ghani et al's (2012) findings on the spatial distribution of the Indian manufacturing sector. For the period between 1994 and 2005, they find that plants in the formal sector are moving away from urban and into rural locations, while the informal sector is moving from rural to urban locations. More recently, the authors (Ghani et al, 2016) have used sample data for the formal manufacturing sector, the informal manufacturing sector, and some parts of the informal service sector and observed that, over the 2000s, formal manufacturing has become less urbanized.

Table 22: Total employment of MSMEs in rural areas (excluding OAMEs)

	2000-01	2005-06	2010-11	2015-16
Micro	3046291	3437618	3094247	2943213
Small	2014943	2296457	2219287	1630357
Medium	1316292	1528302	2206450	2305463
Large	1395786	1793265	2845037	3611441

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table 23: Total employment of MSMEs in urban areas (excluding OAMEs)

	2000-01	2005-06	2010-11	2015-16
Micro	5837839	5515301	6468231	6826473
Small	2279353	2545881	3147901	3003288
Medium	1214816	1472683	2048005	2021973
Large	2668905	2865718	3912512	4536446

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

5. Conclusions

Both the enterprise and employment landscape in the Indian manufacturing sector have largely been dominated by microenterprises. An intertemporal examination of the employment and enterprise distribution shows that while the enterprise distribution has not altered over time with the distribution continuing to be dominated by microenterprises, the distribution of employment has improved. The share of medium and large enterprises in total employment has increased over the time period between 2000-01 and 2015-16, while that micro and small enterprises has fallen. This is the case not just at an aggregate level, but also at a more disaggregated state and industry level. The shift in distribution of employment towards relatively larger enterprises appears to be driven, amongst other factors, by the fact that some smaller enterprises are expanding and moving up the enterprise size distribution. Identifying these high growth MSMEs and designing interventions that address the bottlenecks faced by them is critical to the success of MSME policy support. Ex-ante identification of these high growth enterprises from the factory level data available in India is indeed difficult. Nevertheless, it is an important exercise as it is these transformational entrepreneurs that will build larger businesses which will achieve rapid growth if given the right conditions and support. Moreover, through their expansion process they will create jobs for others and emerge as true engines of growth in the economy. Identification of these transformative entrepreneurs warrants creative research. For instance, Grimm et al (2012) have developed an innovative approach to identify what they refer to as ‘constrained gazelles’ i.e. those enterprises next to the well-known survivalists in the lower tier and growth-oriented top-performers in the upper

tier²² in West African countries. Jayachandran (2020) notes that these ‘constrained gazelles’ are perhaps held back by policy-fixable constraints, such as imperfect capital markets.

While we are still far from understanding what are the most effective policy levers to stimulate transformational entrepreneurship and creative destruction, supporting MSMEs in existing industrial clusters is one way of identifying and promoting such transformative entrepreneurship. The role of clusters in addressing the bottlenecks faced by MSMEs and fostering their growth is well-established in the literature (Schmitz, 1995). Clustering embraces both geographical and sectoral concentration and opens efficiency gains which individual producers can rarely attain. There is also greater scope for joint action. In the literature, the competitive advantage which clustering enterprises derive from local external economies and joint action is captured in the concept of collective efficiency. A group of producers making the same or similar things in close vicinity brings several benefits- division of labour and specialisation amongst the small producers; the provision of their specialised products at short notice and at great speed; the emergence of suppliers who provide raw materials or components, new and second-hand machinery, and spare parts; the emergence of agents who sell to distant national and international markets; the emergence of specialised producer services in technical, financial, and accounting matters; the emergence of a pool of wage workers with sector specific skills; the formation of consortia for specific tasks and of associations providing services and lobbying for its members (ibid). The more of these elements present, the more real the notion of collective efficiency becomes. Importantly, collective efficiency is the outcome of an internal process in which some enterprises grow and others decline (thereby sorting out the size distribution). An important question, therefore, is what role MSME policies can play in enhancing collective efficiency and in transforming dormant/stagnant clusters into a growing cluster.

Finally, it is important to mention that MSMEs are a very heterogenous group ranging from village handicraft makers to small machine shops to mid-size garment units and all policy interventions must factor this diverseness in their analysis. Enterprises at different points in their lifecycle have different needs. The constraints faced by them vary depending on the industrial sector they operate in and the region in which they are located. There is no ‘one size fits all’ approach to address the needs of the MSMEs. Further, for policy support to MSMEs to be effective, there needs to be greater decentralization. This will not only help reduce complex bureaucratic procedures and increase government officials' sensitivity to local conditions and needs, but also lead to more creative, innovative and responsive programs by allowing local experimentation.

²² Grimm et al (2012) define a category of ‘top performers’ based on used physical capital and generated value added. Then, they identify a set of owner and enterprise characteristics that are correlated with these performance measures. Using these correlations they predict the empirical probability of being a ‘top-performer’. Based on the actual status of being a top performer and the predicted probability of being one (although the entrepreneur is not), we then classify entrepreneurs into three groups: ‘top performers’, ‘constrained gazelles’ and ‘survivalists’. ‘Constrained gazelles’ are those entrepreneurs who have a high empirical probability of being a ‘top-performer’ given their observable characteristics.

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Appendix

Table A1: Distribution of employment by firm size (with OAMEs)

	2000-01	2005-06	2010-11	2015-16
Size Bin				
1 to 5	67.46	63.70	56.66	58.45
6 to 9	8.29	8.45	7.88	6.76
10 to 19	5.69	6.65	7.05	5.42
20 to 49	3.93	4.24	4.76	4.12
50 to 99	2.43	2.97	3.77	3.50
100 to 199	2.51	2.87	4.16	3.92
200 to 249	0.71	0.88	1.21	1.38
250 to 299	0.54	0.72	0.97	0.94
300+	8.53	9.60	13.59	15.62

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table A2: Distribution of employment in OAME category by size bin

	2000-01	2005-06	2010-11	2015-16
1 worker	28.72	33.46	46.11	54.26
2-5 workers	69.72	64.14	51.94	44.84
6-9 workers	1.43	1.74	1.22	0.67
10-19 workers	0.07	0.28	0.40	0.26
20 or more workers	0.00	0.13	0.21	0.00

Source: Author's calculations from plant level data of NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16)

Table A3: Total employment by firm size (in millions)

	2000-01	2005-06	2010-11	2015-16
Size Bin				
1 to 9 workers	8.88 (44.5)	8.95 (41.7)	9.56 (36.8)	9.77 (36.3)
10-49 workers	4.29 (21.7)	4.84 (22.6)	5.37 (20.7)	4.63 (17.2)
50-249 workers	2.53 (12.8)	3 (13.9)	4.25 (16.4)	4.33 (16.1)
250+ workers	4.06 (20.5)	4.66 (21.7)	6.77 (26.1)	8.15 (30.3)
Total	19.76 (100.0)	21.45 (100.0)	25.95 (100.0)	26.88 (100.0)

Source: Author's calculations from plant level data of ASI and NSS Unincorporated Enterprise Surveys (2000-01, 2005-06, 2010-11 and 2015-16); Figures in parenthesis are percentage shares

Table A4: Ratio of average worker wages in each size bin to average wages in microenterprises (in the formal sector)

	2000-01	2005-06	2010-11	2015-16
Micro	1.00	1.00	1.00	1.00
Small	1.20	1.23	1.16	1.26
Medium	1.47	1.42	1.33	1.40
Large	2.71	2.43	2.04	1.98

Source: Author's calculations from plant level data of ASI (2000-01, 2005-06, 2010-11 and 2015-16)

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