



Economic Growth and Employment Elasticity: A Case Study of Informal Sector in India

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(Abstract)

Employment is an important constituent of economic development. For any developing countries like India, the issue of employment can-not be understood without referring to informal sector, which contributes significantly in GDP and employment (more than 90 percent). Informal sector attracts low productivity due to 'vicious circle of low skill formation'. Neo-liberalism, which affected informal sector in variety of ways, has not done much good to it, rather led to its further expansion. A close examination of data also shows that 'informalization of formal sector' is also on the rise. NCEUS Report (2009) says more than half of employment in formal sector is informal in nature (with no social securities). Employment elasticity (EE), a parameter to understand the changing dynamics of labour market, is found to be low. During the period, 2011-16, against a total of 6 million new enterprises (5 million in OAEs and 1 million in establishments) came up, nearly 3.3 million jobs lost in OAEs. No doubt, 2.3 million employments gained in establishment, still *a net loss of employment of the tune 1 million*. What led this to happen? Is it the new technology (i.e. Information and Communication Technology led to automation) or the set of government policies or both, are some the other research questions to ponder over. In the paper, an attempt is made to evaluate the employment impact of technological change (measured by change in capital labour ratio). It is found that demand for labour per Rs.1 Crore of output has declined steeply by 100 workers in case of OAEs and by 65 workers in establishment during 2011-16. It resulted in low employment elasticity (EE) during the reference period. The same analysis is carried at the state level.

Key Words: Economic Growth, Employment, Employment-Elasticity, Informal Sector.



Introduction

Employment is important for growth and development of any country. For quite some, India is facing the daunting problem of low employment. No doubts, since independence, numerous attempts have been made to identify and solve it, but the problem still stands, though in different form. It has gone beyond the simple dichotomy of organized and unorganized sector employment. Earlier, formalization of employment was the ultimate objective. For the past couple of decades, the origin of problem lies not only in informal sector, but rather in the form of growing 'in-formalization of formal employment'. According to the latest estimates, more than 90 percent of workforce is engaged in 'unorganized sector'. The share of formal sector is on the constant decline since 1996 (Bhattacharyya and Sakthivel, 2003). Therefore, we need to understand the theoretical aspect of the informal sector, there is no universally accepted definition of informal sector, and then the issue of 'vicious circle of low skill formation' in informal sector. It seems, the ultimate burden of additional employment generation falls entirely on informal sector. No analysis of employment issues is complete without making reference to and understanding the changing dynamics of the employment situation in informal sector, both at micro and at macro levels. For instance, at micro level, it is found that nearly 80 percent of households do not have any wage/salary earner, i.e. they are being casual, contractual or self-employed; and more than half of the total households have only one working member (GOI, 2015-16). A macro level, it seems the problem is global, i.e. globally, nearly 60 percentage of wage and salaried workers are either part-time or contractual (World Employment Report, 2015).

In India, there is no unique definition of informal sector. For quite some times, it was believed that the two terms, 'informal sector' and 'unorganized sector' are inter-changeable. Until recently, the term 'Informal sector' did not exist in India; it was the 'unorganized sector' used for all official purposes, and all statistics were available in this name only. The term, informal sector, was evolved to bring international parity in the definition and to bring wider coverage of the sector. In order to define it, it is therefore pre-requisite to define the 'unorganized sector', which in turn has its origin in the definition of the 'organized sector'. According to GOI (2015-16), the 'organized sector' includes units covered under Annual Survey of Industries (ASI); this largely comprised the manufacturing units registered under section 2m(i) and 2m(ii) of the Factories Act, 1948 employing 10 or more workers using power (electricity); and those employing 20 or more workers without power. Besides this, this also covers Bidi and Cigar manufacturing establishments registered under the Bidi & Cigar Workers (Conditions of Employment) Act, 1966 with coverage as above. All electricity undertakings engaged in generation, transmission and distribution of electricity registered with the Central Electricity Authority (CEA) are covered under ASI irrespective of their **employment size**. In addition, certain units under the service sector such as water supply, cold storage, repairing of motor vehicles and other consumer durables like watches etc. are covered under the survey. Defense establishments, oil storage and distribution depots, restaurants, hotels, café and computer services and the technical training institutes, etc. are however not covered. In other words, in the services sector, there are variations in the coverage of organized sector in the compilation of national accounts (NCEUS, 2009).



Units not covered under the ASI, are termed as ‘unorganized sector’ in respect of manufacturing activities. Similarly, the units under the trade, hotels and restaurants and other services are treated as unorganized sector except those in the public and private corporate sector and co-operatives covered in the NSSO 57th Round. Overtime, three definitions, propounded by CSO, by Kohli and Hazara and by NCEUS were evolved; the last two are significantly different from the first one. As mentioned above, there is thus no unique definition of informal sector per se in India. In terms of size, informal sector is a sub-set of ‘unorganized sector’.

Towards analyzing the employment situation of informal sector in India, sectors are broadly categorized as, manufacturing, trade and other services for 2011-16, with their further division into own account enterprise (involving no hired labour) and establishment (number of hired labour less than 10). It was found that during 2011-16, of the total enterprises (nearly 6 million) come up, 80 percent were in rural areas; nearly equally distributed among manufacturing, trade and others services. In sharp contrast to this, nearly 1 million level of employment is lost in the informal sector enterprises as a whole, mostly in OAEs. However, in establishment, an additional 2.3 million employment is generated during 2011-16.

Similarly, demand of labour per enterprise has declined sharply overtime since 2010-11, owing to technological change, among others. For instance, the number of labour demanded per Rs. 1 Crore. GVA has declined sharply from 530 in 2010-11 to 410 in 2015-16. Among the three types of institutions taken into account, the extent of decline was more in case of manufacturing and other services categories.

Further, it is imperative to study the employment behavior to a change in GVA over time, a phenomenon captured by the level of employment elasticity (EE), defined as the ratio of employment growth rate to output growth rate. For the economy as a whole, a negative EE is recorded in informal sector during 2011-16.

The paper is structured as follows. It begins with the data source and research methodology, followed by the trends of labour force, work force; and level of unemployment in India. Thereafter, an analysis is made two important aspects of informal sector, skill formation and sub-contracting. And finally, employment growth, output growth and the level of EE; and the source of the change in EE is discussed.

1.1 Data Source and the Research Methodology

Towards analyzing the issue of employment situation in the informal sector, the secondary data source, collected and published by the Central Statistical Organization (CSO) and Planning Commission (PC) is used. This includes Reports of Annual Survey of Industries (ASI), National Account Statistics (NAS), NSSO (National Sample Survey Office), Economic Surveys, and 11th and 12th Plan documents, among others. Information about the total employment and its various categories is collected from 55th, 61st and 64th, 67th and 73rd Rounds of NSSO. Various reports of ASI is used to extract information about output, employment, wage bill and gross fixed capital formation for the organized manufacturing sector (at 2-digit level); whereas information for the informal manufacturing and services sectors is collected from various NSSO Rounds are used. Capital intensity, measured by the capital labour ratio, is assumed to indicate technological



development. All values are real, deflated with WPI with base year 2004-05. The study is made for the period, 2010-11 to 2015-16.

The concept of employment Elasticity (EE), defined as the ratio of employment growth rate to output growth rate (GVA), is used to analyze the employment and unemployment situation in informal sector. Evidently, as we know, higher EE signifies higher demand for labour per unit of the output produced and vice versa. Besides this, it also indicates labour productivity, i.e. lower EE means higher labour productivity and higher EE means lower labour productivity. Given, the data constraints, EE for the informal sector is calculated using 67th and 73rd NSSO Reports. Analysis of the EE at state level will help us to know the states with higher growth rates are doing in terms of employment growth and change in capital labour ratio. The analysis will also help us to understand the states contributing significantly in average employment growth at aggregated level, and hence in GVA per enterprise.

Theoretically, employment elasticity is defined by the formula,

$$EE = (dL/L) / (dY/Y)$$

Where, L stands for employment level while Y denotes the level of output. The numerator is the employment growth rate, while the denominator refers to rate measured in terms of GVA (deflated at 2004-05 prices). Thus, the level of EE shows the degree of responsiveness of employment (or labour demand) to the change in GDP.

2.1. Evolution and Definition of Informal Sector in India

It is well documented that the Indian economy accounts for a large presence of informal sector. The importance of informal sector can be gauged by the fact that it contributes more than half in GDP and nearly 92 percent of employment is shared by it (GOI, 2015-16). It is important to know whether it is a recent phenomenon, or there has been a secular trend in this regard. Hence, it becomes imperative to understand the evolution of informal sector in India, both from the theoretical and practical perspective.

The term, Informal sector, has never been used in India until recently; the term 'unorganized sector' has been used for all official purposes, and all statistics were made available in this name only. By definition, the 'organized sector' includes units covered under Annual Survey of Industries (ASI), largely comprised of the manufacturing units registered under section 2m(i) and 2m(ii) of the Factories Act, 1948 employing 10 or more workers using power; and those employing 20 (or more) workers without using power. Besides this, this also covers Bidi and Cigar manufacturing establishments registered under the Bidi & Cigar Workers (Conditions of Employment) Act, 1966 with coverage as above. All electricity undertakings engaged in generation, transmission and distribution of electricity registered with the Central Electricity Authority (CEA) were covered under ASI irrespective of their **employment size**. In addition to this, certain units under the service sector such as water supply, cold storage, repairing of motor vehicles and other consumer durables like watches etc. are covered under the survey. Defense establishments, oil storage and distribution depots, restaurants, hotels, café and computer services and the technical training institutes, etc. are excluded from the purview of the survey (REF).

Units not covered under the ASI, are treated as 'unorganized sector' in respect of manufacturing activities. Similarly, the units under the trade, hotels and restaurants and other services are treated as unorganized sector except those in the public and private corporate sector and co-operatives.

In India, the concept of 'informal sector' started with the first comprehensive survey of 'Informal Sector', using the criteria laid down by the Delhi Group, by the NSS 55th Round, 1999-2000 (NCEUS,



2009). During the survey two schedules, Employment-Unemployment Schedule (EU); and Enterprise Survey (ES) Schedule were covered. The first schedule was a household schedule and the second an enterprise based. The latter comprised Proprietary (Male, female), Partnership (same and different household numbers), Public Sector, Semi-Public Sector and Others (Co-operative Society, Public and Private limited company). Whereas, the former defined employment based on the 'status of employment', which comprised Own Account Worker, Employer, Unpaid Family Worker, Regular salaried/wage employee, Casual wage labourer in public works and Casual wage labourer in other types of work.

Given no unique definition of informal sector India, based on the methodology used, there are three different methods known as CSO Estimation Method, Ramesh Kolli and Hazra Method and the NCEUS Method. The CSO method is already explained above, i.e. the definition of unorganized sector is derived from the definition of organized, and i.e. any institution which is not organized falls in the category of 'unorganized sector', which in turn is called as 'informal sector'. The definition of 'unorganized sector' or 'informal sector' is only in terms of the number of workers i.e. up to 10 workers with electricity and up to 20 without electricity. Practically, the definition is deficient on various counts. For instance, it is silent on the scale of capital (or technology) used. It does not say anything about the social security provided to the employees. The definition covers the whole country except the state J&K. The GDP estimate of 'unorganized sector' in each industrial group is calculated initially for the benchmark year by using the principle of *labour input method*. In the method, as suggested by OECD (2002), the estimated labour input is multiplied by the corresponding GVA per unit of labour. The feasibility of the method therefore depends on the availability of data on the total employment and GVA per unit of labour for all major constituents (sub-sectors) of the 'unorganized sector'. This initially was prepared for the year 1999-2000. Thus total GVA of unorganized sector is calculated after duly accounting for the price change. For all subsequent years, the estimates of benchmark year are extrapolated to get estimates of GDP (NCEUS, 2009).

2.1.1. Kolli and Hazra Method

The methodology proposed and used by Ramesh Kolli and Hazra Method is based on the *Method of Apportioning (MA)*. They estimate the share of informal sector (as distinguished from un-organized sector) in the Net Domestic Product (NDP) by apportioning the estimated unorganized sector NDP put out by the CSO in their NAS estimates by using a method of apportioning (MA). This is based on the following assumptions:

- i. All own account enterprises, and those with at least one hired worker (up to five workers) or those having **five or less workers** are considered as informal sector enterprises.
- ii. Among the enterprises identified above, the following are excluded:
 - a. Registered under the Companies Act (1956).
 - b. Employing processes requiring high degree of technical know-how or high capital base (technology)
 - c. *Franchises of formal sector units*
 - d. Not covered under the production boundary
 - e. Non- profit institutions (NPIs)

In order to define the informal sector, under MA, apportioning of unorganized sector is based on the following assumptions.

- (a) In the case of 'agriculture, forestry and fishing', 'mining', electricity, gas and water supply' and 'construction' sectors, the entire NDP of unorganized sector is assumed to be in the informal sector.
- (b) The GDP shares of informal sector enterprises as revealed by the **NSS 56th Round Survey** on unorganized manufacturing were considered to remain the same, and unchanged over the years.



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- (c) In the case of ‘trade, hotels and restaurants sector, the estimates of GDP shares of informal sector as revealed by **NSS 55th Round Survey** on ‘Informal Sector’ were assumed to be valid for all successive years.
- (d) Similarly, for ‘transport and communication’ sector, the GDP shares as estimated from **NSS 57th Round Survey**, on Unorganized Services, after netting out NPIHs and establishments out of production boundary, were also considered unchanged. The same assumption is followed in the case of ‘real estate, financial, ownership of dwellings and business services’. In the case of financial services, however the ‘private money lenders’, etc. which should have been considered as informal sector, were not covered by any survey and as such not taken in the Indian System of National Accounting.

From the above analysis it appears that the said method attempted to plug the gaps in the CSO methodology, making it closer to the international standards followed by ILO in this regard. *By using this methodology, Kohli and Hazra estimated the contribution of informal sector to net domestic product (NDP) as 47.7 percent for the year 2001-02, as opposed to the conventional estimates (CSO) of the unorganized sector (58.5 percent). Thus for them ‘informal sector’ is a subset of the ‘conventional unorganized sector’ i.e. every unit under informal sector is a part of ‘unorganized sector, but the vice versa is not true.*

2.2.2. NCEUS Methodology:

A Committee under the NCEUS was formed to review all the existing literature pertaining to the definition of informal sector. Towards this, the Committee reviewed the methodology adopted and used by OECD, CSO and Kohli and Hazara. *Based on the study, it recommended a modified apportioning method for the estimation of the contribution of unorganized sector to total GDP.* Following the OECD method, Labour Input Method (LIM) is used to find GVA per labour using the various rounds of NSSO Reports. However, the problem was that not all enterprises are covered in the enterprises based surveys of NSSO; this includes agriculture, mining and quarrying and water supply. The other limitation of NSSO estimates is that they are not available for all enterprises for all years, because the surveys are conducted on different years and hence having different coverage. Some categories of employment such as maid servant, home tutor and head-load workers, etc. are not covered under enterprise based survey. Also, there is also a problem of under-reporting of GVA per labour, hence leading to different estimates of GVA in un-organized sector. In this method, employment shares and productivity differences, as revealed by various surveys, are used for apportioning of GDP estimates of different industries under manufacturing and services. Using the NAS and NSSO Rounds (55th and 61st), and Population Census estimates and projections are used towards modified apportioning method under NCEUS. This was done only for the ‘unorganized sector’ component of the GDP. The estimates used towards apportioning in different sectors are based on the following assumptions.

- i. The entire GDP outside the ‘organized sector’ of agriculture can by approximation be regarded as the contribution of ‘Informal sector’.
- ii. In the manufacturing sector, labour force, was divided into ASI and non ASI. The enterprise characteristics like number of workers employed, use of electricity etc. were used to differentiate between the two.
- iii. The non ASI labour force, was further categorized into those belonging to informal sector and outside of it, based on the types of enterprise and employment size.



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- iv. **The NSSO 56th Round covered all non ASI enterprises.** Within these, the establishments were classified as those belonging to informal sector and others, again based on the criteria mentioned above. The average GVA per labour was calculated for these enterprises.
 - v. The given average (GVA per enterprises as calculated in NSSO 56th Round) was then multiplied with the employment estimates of different enterprises of NSSO 55th and 61st Rounds.
 - vi. The ratio for apportioning the unorganized sector GDP is then computed by dividing the notional GVA of informal sector to GVA of unorganized sector for each category of industries.
 - vii. The ratio then is used to measure the contribution of informal sector in total GDP.

The method of apportion thus involved the following steps.

1. The workforce employed in non-public and non-corporate sector is then categorized into informal sector and others.
2. For proprietary and partnership enterprises, using the NSSO 55th Round, GVA per workers is calculated.
3. As mentioned above, the GVA per workers is multiplied with the employment of different industries to get the total GVA of informal sector.
4. The rest is mentioned above.

Thus the informal sector as per the Task Force definition was a sub-set of the unorganized sector as identified in the national accounts. Therefore, apportioning was to be done only for the unorganized component of the GDP.

In order to measure the services component of informal sector, the following rules are followed. The 57th NSSO Round on Unorganized Services (excluding trade and finance) is used to calculate GVA per employee, which then is multiplied by total number of employees measured by NSSO 55th and 61st Round to reach to the virtual estimate of total GDP of the un-organized sector. There are some sectors like mining, electricity, gas and water supply, etc. data is not available. In order to measure the GVA for these sectors, the productivity difference (or ratio) with corresponding sector of 'organized sector' is used. This is done under the assumption that there is no productivity difference of GVA per employee of been public sector and corporate and co-operative segments. The total GVA of these sectors is apportioned towards calculating the size of these informal sectors.

3.1. The 'Vicious Circle of Low Skill Formation' in Informal Sector

In any country, advance in technology is pre-requisite for growth and development. In production process, skill formation and technology go hand in hand. High skill level results in high labour productivity, high wages, higher output growth, and eventually higher level of skill; and vice versa in case of low skill formation. The latter always results in 'vicious cycle of low skill formation'. Informal sector in most developing countries, including India, is trapped in 'vicious circle of low skill formation'. The present global order, based on global market integration and the rise of ICT has further accentuated this 'vicious circle'. In other words, foreign trade and foreign capital, riding on the development and diffusion of ICT, and central to the process of globalization in most developing countries including India is leading to the expansion of informal sector in order to reap the benefit of the given socio-economic and political set up. 'Vicious cycle of low skill formation' is thus becoming a binding constraint in productivity, and hence in the demand for labour. Global market integration means any event in any part of the world have global implications. Tremors of the recent US Crisis 2008-09 or EURO crisis of 2015, for instance, were felt all across the world including India.



For quite sometimes, Indian economy is also suffering from the menace of this ‘vicious circle of low skill formation’, which sooner or later has to be broken in order to sustain growth and development. In order to put thing in perspective, it is imperative to understand the theoretical and practical aspect of skill formation in India. According to Global Employment Trend (2014), the term ‘skill’ refers to an acquired and practiced ability or a qualification required for doing a particular job or a certain task competently. Theoretically, there is no clear definition of ‘skill formation’ in India. Skill formation is a multi-dimensional concept. In order to perform a task, a combination of physical, cognitive or inter-personal skills is required. Similarly, marketable skill is the skill having market value or has the potential to be used to earn income. This can be acquired through formal or informal means. Skill formation includes initial skill (acquired prior to join the labour market), re-skilling (to re-fresh the existing skill formation) and up-skilling.

In India, a large proportion of labour force lives in rural areas, which in turn have numerous structural constraints including poor base of infrastructure, health or education. This leads to low skill formation of labour force. It is well documented; India on the peak of ‘demographic dividend’ will surely lose the opportunity if the labour market faces hiatus in matching skill. Situation is however not better in urban areas. For instance, according to the 4th Employment-Unemployment Survey Report (2013-14), only 6.8 percent of labour force is taking vocational training, 6.2 percent in rural and 8.2 percent in urban areas. Alarming fact is, out of the 6.2 percent, only 2.2 percent received formal training and the remaining 4 percent informal training. As evident in Table 01, in case of formal training, the situation is marginally better in urban areas (4.4), compared to rural areas (2.2). This reflects the sorry state of affairs of government initiatives in this regard. Any labour surplus country, devoid of matching skill will surely lose to other competing countries in the present global order based on increasing competition and fast changing technology, say ICT. As far as developed countries are concerned, it is found that nearly 68 percent in UK, 75 percent in Germany, 52 percent in USA, 80 percent in Japan and 96 percent in South Korea took vocational training (GOI, 2015-16). In case of India in 2013-14, nearly 76 percent of the people who took training got employment.

The problem of ‘vicious cycle of low skill formation’ seems embedded in socio-economic structure. For instance, as evident in Table 02, nearly 40 percent of females (15 years and above) who took vocational training did not join the labour force. The problem is found to be more with females in the OBC, where it is 46 percent. Another dimension of the problem is the demand for labour with particular skill or education. It is also well documented that unemployment rate (UR) rises with the rise in education. UR among educated youth (graduate and above) is 14 percent against only 2 percent among labour with education less than or equal to primary. No doubts, aspirations built on education, hence any mismatch of demand and supply is not a healthy signs for the smooth functioning of labour market of any country, particularly India, which is labour endowed. Further, it is found that among those taking vocational training only 30 percent joins as wage/salary earner and 45 percent as self-employed. *This dimension of labour market needs intensive study, i.e. what forces them to join informal sector with low level of productivity is an important question to ponder over.*



Towards this, the government has set up a ministry, Skill Development and Entrepreneurship for coordinating the efforts of all stakeholders. The National Skill Development Mission (NSDM) is a welcome step in this regard, by 2022 an estimated 40 crore workers will be provided with some form of skill (GOI, 2014-15).

4.1. Sub-Contracting and Informal Sector in India

As mentioned above, informal sector constitute a sizable share in total GDP (more than half) and total employment (93 percent) in India. This is pertinent to understand, what led to this situation, i.e. is it a strategic policy move by the government or a part of present global order governed by the principles of neo-liberal policies? We will try to discuss it in terms of the relation between formal and informal sectors based on sub-contracting?

Studies have found that the increasing level of 'sub-contracting' in informal sector gained prominence in the last two decades (GOI, 2013-14). The growth of informal sector is closely dependent on the formal sector. For instance, in the developing world, as high as 80-90% of the workforce in informal sector (manufacturing) has direct or indirect linkages with the formal sector (Maiti and Marjit, 2011). A widely held view is that growing tendency of globalization in the form of liberal trade and investment policies have led the expansion of informal sector through contractual employment and output with formal sector (Goldberg and Pavnick, 2003) and (World Employment Social Outlook, 2015).

It would thus not be wrong to say, "Expansion of informal sector (both in terms of output and employment) thrives on the formal sector". In order to avoid 'labour regulations' like issues pertaining to labour union or other provisions seemed working against them (firms) etc., firms in the formal sector resort to 'sub-contracting' many of the operations (production or distribution) to the units in informal sector. Eventually, a variety of 'simple' goods requiring low level of technical know-how are allowed to be produced in the informal sector that includes goods like textile, sports, leather, etc. Also, at times, it seems a part of a bigger development strategy that deliberately allows flourishing of informal sector to tackle the problem of growing poverty and unemployment (Maiti and Marjit, 2009). One of the economic implications of this tendency, among many, this led to lesser investment in R&D (or technology) in formal sector, lesser factor productivity, and hence lower demand for labour. The new dynamics in labour market became prominent in the last two decades (starting from early 1990s). ***In other words, lower wage rate in informal sector results in lower productivity growth in formal sector, and hence lower employment growth.*** Excess supply of labour in informal sector means lower level of wages. So the wage gap between the two sectors, say in case of manufacturing, it is found that the wage is 2 to 6 times lower in the informal sector compared to in formal sector. Some studies (Global Employment Trend, 2014) found that sub-contracting is positively related to employment growth in most modern segment of the informal sector.

Next, it is important to know the sub-sectors of 'informal sector' that gained more than others out of 'sub-contracting'; there are mainly two views in this regard (Maiti and Marjit(2009)). The first view, termed as 'stagnant view' says that firms within the formal sector, following the principle of 'race to the bottom, go to most traditional types of enterprises in informal sector, ready to work on the least possible cost, hence garnering the advantage of maximum profit out of the final sale of the product. These units in informal sector thus remain in



the state of perpetual stagnation, be it the scale of production or technological up-gradation. In nut shell, the view says that sub-contracting helps the traditional sector more than the modern sector. The second view, known as modernization view, believes that in the present global order of production (and distribution), the relationship between formal and informal sector through sub-contracting, helps the modern sector more than the traditional sector, apposite to the 'stagnant view' (Ranis and Stewart, 1999). There are three bases for this argument, **first**, the cost of production should be as low as possible so that it could be sold at the lowest possible price and hence could gain from 'competition'. **Second**, quality is the second consideration of sub-contracting. Along lowest price, quality of the product is the second criteria of 'competition'. **Third**, it is the timely delivery of the product from the unit in informal sector to the formal sector unit, hence reducing vertical integration, which otherwise adds to the transaction cost, and hence lowers profitability. The view thus emphasizes that 'sub-contracting' leads to the modernization of informal sector, both in terms of scale expansion and technology. Marjit (2003) further emphasized that since most industries in the formal sector are capital intensive in nature, thus 'sub-contracting' for any products also involves larger capital than labour. Thus 'sub-contracting' helps growth moderns units in informal sector than traditional ones.

As far as India is concerned, we see that informal sector is growing fast, be its share in total GDP or in employment. The results about the nature of relationship between formal and informal sector mentioned above do not seemed to be valid in India, given low scale of production or the others operational characteristics of informal sector, particularly in case of the manufacturing. There is, however, no study conducted in this regard. Ramaswami (1999) documented about the role of sub-contracting in formal sector between 1970 to mid-1990s, where he found that sub-contracting was mostly used in labour intensive industries, i.e. using lesser capital per unit of labour.

5.1 Employment-unemployment Situation in India

For any country, employment is both a cause and consequence of growth and development. As mentioned above, Indian economy is broadly categorized between formal and informal sector. In order to understand the employment situation of informal sector, it is imperative to study the behavior of labour force, work force and person unemployed (PU) and unemployment rate (UR) among four categories, rural male, rural female, urban male and urban female.

From Table 03, it is evident that in both rural and urban areas, behavior the labour force participation rate, the number of people in the age group of 15-59 years entering the labour force (people who of are willing to work), indicates a huge gap between males and females. The gap is even pronounced for work force participation rate (the percentage of population in 15-59 who are able to get work). For both labour force participation rate (LFPR) or work-force participation rate (WFPR), is less than halves in case of females than their male counterparts; no doubt over the years in the last decade the gap has reduced but still high by any standard. Table 03 further indicates unemployment rate (UR) in 2015-16 for both male and female and in rural and urban



areas. It is distressing to know that UR among females in urban areas is around 11 percent, in other words, already with lower LFPR and WFPR, higher UR among them is not a healthy sign to sustain growth and development. Even for the country as a whole, UR for them is almost double (5.8 percent) than what is among males (3.0 percent), and higher than the average 3.7 percent (i.e. males and females taken together for the country as whole). Taming nearly 4 percent UR is a huge policy challenge for any country including India. This is a general outlook of labour market in India.

A closer examination of the employment outlook reveals some more interesting facts. For instance, at the household level, as indicated in Table 04, more than half of households (53.5 percent) have no or one working person, the situation seems worse in rural areas. However, in case of the households having two or more working persons, it is found higher in rural areas. It may be due to the lower average wage rate in rural areas and primary or (allied nature) of most economic activities being labour intensive, and other social set up like joint family system.

Another important dimension of labour market is the quality of employment, measured by the percentage of household having wage earners. Interestingly, as evident in Table 05, for the country as a whole, in 2015-16, nearly 80 percent of households have no wage (or salaried) persons; the percentage is higher in rural areas (84 percent) than urban areas (62 percent). Only 18.2 percent of households have one wage (or salaried) person. Given this, since most workers in rural areas are self-employed or casual hence their average monthly income is also found lower. For instance, in rural areas nearly 78 percent of household have monthly income less than (or equal) to Rs. 10, 000, the said figure in urban areas is 46 percent, as shown in Table 06. In urban areas nearly half of households have monthly income between Rs.10, 000-Rs.50, 000, the corresponding figure in the rural area is only 22 percent. So, as far as the quality of employment is concerned, rural areas are in a perpetual state of disadvantage. The area, rural, which constitute larger share in total labour force in the country, will not be able to contribute much in growth and development if not provided with adequate skill in terms of education, or wage.

Table 07, gives a clearer picture of the quality of employment at state level. It is found that in some states like Bihar, Odisha, UP, MP, and Andhra Pradesh, Gujarat, Rajasthan and Chhattisgarh more than 80 percent of households have no wage earner, they are either contractual or casual or self-employed. In sharp contrast to this, in some states like Kerala, Haryana, Maharashtra, Uttaranchal, J&K, Delhi at least 20 percent households have one or more wage earner. Among all, Delhi has the highest percentage of households having one wage earner (34 percent), followed by Himachal Pradesh (28 percent), Uttarakhand (25 percent) and Haryana (24 percent); against the national average of 19 percent.

This needs to be pondered over, what the reasons are for this, and what has been the pattern in this regard. Has it anything to do with the change in economic policy of India, or the change in global order of production or something else? These are some of the questions that need answer. The take home point is that, informalisation of employment in the formal sector is on the rise. The issue will be taken up for further discussion later on. In nut-shell, the given trend needs to be either reversed in favor of providing a policy setup ensuring larger coverage of social security and safety to workforce in the informal sector.



5.2. Employment Situation, Employment Elasticity in Informal Sector in India

Given the above background, no analysis of labour market is complete without making reference to the changing dynamics in informal sector. Based on the two NSSO Reports (67th and 73rd), a detailed analysis of the informal sector is made, using important some characteristics in terms of total number of enterprises, their sectoral distribution, labour demand per enterprises, GVA per enterprises. Thereafter, employment elasticity (EE), an important concept to capture the nature of relationship between labour demand and output produced. In order to present a comprehensive picture, it is first calculated at the aggregated and then at sectoral level for various states. Based on the results, some important references are made about the changing labourmarket dynamics of informal sector during 2011-16.

To begin with, as indicated in Table 09, nearly 64 million enterprises (excluding construction) are operating in informal sector in India; these are found to be nearly equally distributed among three sectors, manufacturing, trading and other services sectors. Using NSSO definition of informal sector, and sub-sectors, i.e. OAEs and Establishment, as in the former, no hired labour is employed, whereas in the latter labour hired in the range from one to 9. An enterprise, therefore, using 10 or more workers will cease to be a part of informal sector, i.e. it will constitute formal sector. Given this, it is recorded that out of the total (64 million) enterprises, 53 million are OAEs, so nearly 84 percent enterprises use no hired labour. Thus only 16 percent of enterprise in informal sector use hired labour that too up to 9 workers.

Also, across the broad categories of informal sector, out of the total 6 million enterprises that came up during 2011-16, 3 million were recorded in manufacturing, 2 million and 1 million in trade and other services respectively. In OAEs and establishment, the respective distribution is 4 million and 2 million. So, at least 4 million new employment generated in informal sector, assuming an OAE giving rise to at least one worker (not hired). The point worth noting is, what has been the total employment generated during the said period, and how has the demand for labour per enterprise and capital changed over the years. This will guiding principle to comment, how changing international order and new technology, say ICT, has affected the prospect of employment in these various sub-sectors of informal sector.

Towards this, Table 10 gives an account of the total employment, employment per enterprise and employment per Rs. 1 Crore of GVA in enterprises belonging to informal sector. To begin with, a total of 106 million workers are employed in 63 million enterprises, hence giving rise to 1.8 workers per enterprise. Of the total employment (105.6 million in 2015-16), 60 percent is in OAEs and the remaining (40 percent) in establishments. As far as the demand for labour per OAEs is concerned, it recorded 1.4 in 2010-11 declined to 1.3 in 2015-16; and so is the case in establishment, i.e. from 4.3 in 2011-12 to 4.2 in 2015-16. Since, there is no labour market exists, it is hence difficult to comment anything concrete on the reason behind the decline on the employment level per enterprises in the former type i.e. OAEs). It may be partly be due to decline in family size or due to adoption of better technology equipment that require lesser number of labour to produce a given level of output or both. It may also be due to prevalence of recessionary tendencies in the economy that has adversely affected output level and so the demand for labour in a given OAE. Within economic activities of OAEs, it is found that in 'other services' category no additional units came up during 2011-16 rather a 2 percentage point decline



in the number of enterprises. In the latter (establishment), decline in demand for labour per enterprises is also due factors mentioned above.

Similarly, in Table 10, it is evident, the demand for labour per Rs. One Crore GVA produced has declined significantly over the years since 2010-11. For instance, at the aggregated level or for the informal sector as a whole, a loss of 65 workers per GVA of Rs one Crore is recorded (from 247 to 182). A phenomenon seems prevalent in both types of enterprises in all types of enterprises, i.e. in OAEs and in establishment, and across all the three categories of activities, manufacturing, trade and other services, where the highest decline recorded in 'other services' (by 86) followed by 'manufacturing' (by 71). The reasons outlined above stand valid here also. It is however beyond the scope of the paper to establish the link (if any) between automation (say ICT) and decline in demand for labour by enterprises particularly in 'establishments'.

At state level, as evident in Table 10, the distribution of enterprises shows that nearly 70 percent of total enterprises is accounted by 8 states viz. UP, West Bengal, Andhra Pradesh, Maharashtra, Karnataka, Tamil Nadu, Bihar and Gujarat. Within that, nearly 30 percent is accounted by UP and WB alone, nearly 15 percent each. Similarly, from Table 11, as far as the distribution of total employment at state level is concerned, many important results are found. Of the total employment found in the informal sector, as high as 73 percent is accounted by the 8 states, mentioned above in case of the number of enterprises. However, among these 8 states, 3 states (Andhra Pradesh, Maharashtra and Gujarat) recorded a decline in the total employment of the tune of 8.8 million; whereas other states recorded employment gain over the years since 2011; because the increase is smaller than the decline, hence it eventually resulted in net employment loss in these 8 states taken together. The given trend of employment loss happened in case of the OAEs also for these states. Three states Gujarat, WB and Andhra Pradesh also recorded declined employment in 'establishment'. Among many, technological change, as reflected by the growing capital ratio a crucial factor resulting in these employment decline per unit of output produced.

Table 12 reflects on the demand for labour per unit of output produced. It is found that for all states taken together have recorded lower demand for labour per unit of GVA in 2015-16 compared to 2010-11. Something, found true in case of both types of enterprises, OAEs and establishment. On an average, a decline of 65 labour demanded per Rs. Crore GVA during 2011-16, partly owing to changing technology and also due to increased competition. It is worth noting that in these 8 states, accounting nearly 70 percent of total enterprises and 70 percent of the total employment in informal sector, have recorded the steeper than other states. What led this to happen will be taken up below in greater detail?

In any country, as mentioned above, employment elasticity measures the employment intensity of output produced, or in a way is also a measure of labour productivity. Higher EE means more demand for labour (and hence employment) per unit of the output produced, and lower is the EE lower means lower demand for labour. It however does not mean that total employment will decline with lower or declined EE, it may not if the rate of growth of output is higher than the rate of decline in EE. For example, if say EE declined from 1 to 0.5 means every 100 units of output will now demand for 50 units of labour than 100 earlier thus resulting in an



employment loss of 50 units per 100 units of output. But if, because of new technology, say due to ICT, productivity goes up, and hence given cost of production results in 250 units of output, thus even with 0.50 level of EE, the given level of output will result in demand for labour more than 100. Thus lower EE is feasible option as long as higher output growth is accompanied by increased factor productivity (labour and capital), if not then it will result into massive unemployment or jobless growth.

In the Table 13 below, EE is calculated for various types of enterprises, OAEs and establishments under manufacturing, trade and other services. Among these broad activities, only in OAEs under *other services* the EE is recorded to be negative, for the rest two (manufacturing and trade), EE is found positive. Given the data constraint, however, it can-not be commented on what led this to happen until the pattern of EE over the years is known, i.e. whether it has gone up, down or remained the same. Among the three sectors taken into account, trade and then manufacturing is found to have generated more employment per unit of the output produced. Whereas, in case of establishments, the manufacturing sector does not seem to have done well on the employment front, i.e. negative EE is recorded during 2011-16. In sharp contrast to this, in case of the services, establishment positive EE is recorded, but negative in case of the OAEs; and eventually negative EE at the aggregated level.

An analysis of EE at state level will help us to understand the picture of employment situation in a broader way. As evident in Table 14, not all states exhibit the same level of EE, i.e. it varies across states both in terms of size and sign. In other words, out of 21 states taken into consideration, 6 states exhibit negative EE, with increased output growth total employment in 2015-16 has not only declined but became lesser than its level in 2010-11. In some of these states like Odisha, negative employment growth rate was recorded (-7.6 percent), -4.0 each in Delhi and Uttaranchal. It must also be worth mentioning that some states have though recorded positive EE, does not always mean positive employment growth; negative employment growth accompanied by negative output growth also results in positive EE. The state Delhi falls in this category, where negative output growth (-0.5 percent) and employment growth (-4.0) resulted in positive EE (7); Andhra Pradesh also falls in this category. Whereas the rest of states have recorded positive EE during 2010-11, based on positive output and employment growth. At the aggregated level, however, negative EE (-0.3) is recorded for the country as a whole.

As mentioned above, in any analysis of employment situation in any country, technology plays an important role as it influences both output and employment through changing productivity. There are multiple ways to define technology, it may be embodied or dis-embodied in nature, The former, for instance, means when new form of factors of production are introduced or the existing are renovated through skill and development. New form of machines is an example of it, and so if skill level of existing labour is enhanced through R&D. The latter on the other hand is not embodied in factors of production, and is rather outside it. It is introduced through better management and administration through new ideas or innovation. It helps indirectly in enhancing factor productivity by making the existing factors preproduction more efficient through reducing wastage, if any. The former is further classified as capital or labour intensive, based on the capital labour ratio, i.e. higher it is more capital intensive the technology



is and labour intensive if vice versa. It is well documented, informal sector per has lesser capital labour ratio than the formal sector, so technologically it is at disadvantage. Thus, while analyzing the employment behavior of informal sector it is pertinent to understand how much has the capital labour changed over the years in informal sector?

From the analysis of capital labour ratio at the state level, many interesting facts emerged, these are discussed as follows. Starting at the aggregated level, as evident in Table 15, it is found that capital labour ratio has risen significantly over the years since 2010-11. For instance, for all enterprises, it was recorded Rs. 1,09,000 in 2010-11 it went up to Rs. 1,34,000 in 2015-16; an increase of Rs. 25,000. The respective figures for has been Rs. 70,000 and Rs. 91,000 in case of OAEs and Rs. 1,80,000 and Rs. 2,04,000 in establishments. In other words, the capital labour ratio is found to be almost double in establishment thanin OAEs. In other words, in both types of enterprises, capital labour ratio has increased though by a little higher margin in case of establishment. In some states like Maharashtra and Gujarat, the capital labour ratio for all enterprises has gone up by Rs. 1, 13,000 and Rs. 1, 26,000 respectively. In sum states like Delhi and Himachal Pradesh, capital labour ratio has rather declined. It is interesting to examine what led this to happen. One theory can be that, over the years since 2010-1, some enterprises under establishment may have grown up in their scale of production, hence entered the categories of formal sector, be definition; and got replaced by larger number of establishment but with lower base of capital labour ratio. Further, form the analysis at the disaggregated level, i.e. for OAEs and establishment; it is found that capital ratio has gone up for both of these enterprises for all states barring a few. In case of the former, expect some states like Punjab, Haryana and Delhi that recorded negative change in capital labour ratio, rest of others have in fact recorded absolute rise in their respective capital labour ratio over the years since 2010-11. In the latter, i.e. establishments, 9 states have recorded declined capital labour ratio in 2015-16 over 2010-11; the list includes, Karnatka, TN, Kerala, Odisha, Punjab, Haryana, Delhi, Uttarakhand andHP. But at the aggregated level, a net gain of Rs. 24,000 recorded in capital labour ratio.

Conclusion:

Unemployment is one of the most daunting problems India is facing today. It is worse among youth, particularly among the educated ones. In the past couple of decades both form and nature of employment problem has significantly changed. The dream of getting jobs in the organized sector is still a dream for many; rather ‘informalization of formal sector’ is on the rise. Attempts have been made in the past to identify and solve the problem of unemployment. The gap between productivity and wage is on the rise. According to World Employment and Social Outlook (2015), there is a loss of GDP of around \$3.7 trillion on account of unemployment though its impact on labour income, consumption, and investment and government revenue.

A close examination of the trends and pattern of growing unemployment rates reveals many interesting facts. The issue of employment can-not be understood without understanding the informal sector, which came on the fore only recently. Until then, ‘unorganized sector’ was used interchangeably with ‘informal sector’. In order to bring international parity and to identify the source of employment problem, a detailed definition of informal sector is evolved. However, the debate is still on. Attempts are also being made by government officials to provide all



possible statistics in this regard to gauge the changing labour market dynamics. It is unanimous that informal sector is a subset of the conventional ‘unorganized sector’, nearly 80-85 percent.

The two important aspects of informal sectors are discussed threadbare in the paper; one pertains to the ‘vicious circle of low skill formation’ and second to the issue of ‘sub-contracting’, a phenomenon integrated to the present global order based on the thesis of ‘neo-liberal policy framework’ as the engine of economic growth. It is evident that informal sector suffers from the problem of low skill formation, i.e. for quite long no perceptible rise has been recorded in technological up-gradation, given a low level of capital labour ratio, low productivity, low wages and eventually low skill. It is therefore strongly required to break this vicious circle to gain from intra-country and inter-country competition. Only then the objective of generating 40 million skilled labour can be met. Similarly, ‘sub-contracting’, recent phenomenon integrated to the changing dynamics of labour market in informal sector. No doubts firms within informal sector are gaining out of it, but which particular industries, i.e. conventional or modern, is still debated. Studies have also concluded that ‘sub-contracting is positively related to the gap between the average wage rate between the formal and informal sector, which in turn have negative impact on labour productivity in the formal sector due to lesser investment in R&D. Besides this, firms in the formal sector also resort to informal sector to gain from comparative cost advantage.

In the analysis of employment and unemployment situation in the country in general and informal sector in particular many interesting facts became evident. In the informal sector, which is categorized as manufacturing, trade and other services for 2011-16, with its further division into own account enterprise and establishment, it was found that nearly 6 million enterprises came up, majority of them (80 percent) in rural areas. These were found to be widely dispersed across all sectors. Against this, nearly 1 million employment jobs were lost in the informal sector enterprises as a whole, mostly in OAEs. However, in establishment, an additional 2.3 million employment generation took place during 2011-16.

Technology plays an important role in enhancing productivity, and hence in the demand for labour. However, in case of informal sector, demand for labour per enterprise has declined sharply overtime since 2010-11. For instance, the number of labour demanded per Rs. 1 Crore. GVA (in real terms) has declined sharply from 530 in 2010-11 to 410 in 2015-16, a loss of 120 labour per Rs. 1 Crore GVA. The extent of decline is recorded more in manufacturing and ‘other services categories’ categories of informal sector. Differently, the inherent tendency can also be captured by EE, which measure the change in demand for labour for a change in the level of GVA. From the study conducted, it is found that EE declined not only for the economy as a whole but recorded to be negative in case of informal sector. In the latter, it may be due to growing competition; quite a good number of OWEs has declined overtime in the reference period. It can be substantiated by the **NCEUS Report (2009), which says among many factors that led to the declined in EE in the informal sector includes intense competition, lack of market, lack of credit, lack of skilled labour, etc.**



Table 01: Distribution of Persons aged 15 years & above who received Vocational Training (in %)

	Rural	Urban	Rural+Urban
Male	8.5	11.3	9.3
Female	3.4	4.8	3.8
Person	6.2	8.2	6.8

Source: Education, Skill, Development and Labour Force, GOI, Ministry of Labour and Employment, Labour Bureau, Chandigarh, 2013-14.

Table 02: Distribution of Persons aged 15 years & above Who Received Vocational Training by Broad Activity Status (in %)

	Employed			Unemployed			Not in LF		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
Rural	85.2	53	77.6	4.9	10.5	6.2	9.9	36.5	16.2
Urban	84.2	47.8	74	4.5	9.5	5.9	11.3	42.7	20.1
Rural+Urban	84.9	51	76.3	4.8	10.1	6.1	10.4	39	17.6

Source: Same as Table 01

Table 03: LFPR for different areas on the UPSS basis 2015-16

Sector	Male	Female	Person
LPR			
Rural	78	31.7	55.8
Urban	69.1	16.6	43.7
Rural+Urban	77.5	27.4	52.4
WPR			
Rural	75.7	30.2	51.9
Urban	67.1	14.8	41.8
Rural+Urban	73.3	25.8	50.8
UR			
Rural	2.9	4.7	3.4
Urban	3.0	10.9	4.4
Rural+Urban	3.0	5.8	3.7

Source: Report on Employment-Unemployment Survey, 2013-14, GOI, Ministry of Labour, Labour Bureau



Table 04: Distribution of Households by Number of Employed Persons aged 15 years and above (in %) 2015-16

Particular	None	1 Person	2 Person	3 Person	4 Person and Above
Rural	4.0	44.1	32.9	12.4	6.5
Urban	7.5	58.7	25	6.7	2.1
Rural+Urban	5.1	48.4	30.6	10.7	6.1

Source: Same as Table 03

Table 05: Percentage Distribution of Households by Number of Wage/Salaried Persons aged 15 year

Particular	None	1 Person	2 Person	3 Person
Rural	83.6	13.5	2.5	0.5
urban	62.1	29.8	6.8	1.3
Rural+Urban	77.3	18.2	3.8	0.7

Source: Same as Table 03

Table 07: Percentage distribution of Households by Average Monthly Earnings (Rs.)

Particular	up-5000	5001-7500	7501-10000	10001-20000	20001-50000	50001-100000	More than 100000
Rural	27.3	29.6	20	16	6.3	0.7	0.1
urban	9.3	15.3	20.3	28.5	21.7	4.4	0.6
Rural+Urban	22.1	25.4	20.1	19.6	10.8	1.8	0.2

Source: Same as Table 03

Table 08: Per 1000 Distribution of Households by Number of Wage/Salaried Persons aged 15 years & above for each State/UT

	None	1 person	2 persons	3 persons & More
Uttar Pradesh	82	15	3	1
West Bengal	84	13	2	0
Andhra Pradesh	82	15	3	0
Maharashtra	71	22	6	1
Karnatka	74	19	6	1
Tamil Nadu	66	25	8	2
Bihar	91	8	1	0
Gujarat	80	15	4	1
MP	86	12	2	1
Rajasthan	81	16	3	1
Kerla	72	21	7	1
Odisha	79	17	4	1
Jharkhand	79	17	4	1
Punjab	74	21	4	2
Assam	71	22	6	2
Chhattisgarh	82	14	3	1
Haryana	69	24	5	1
Delhi	57	34	8	2
Jammu & Kashmir	72	20	7	2
Uttarakhand	67	25	6	1
Himachal Pradesh	66	28	6	1
Total	75	19	5	1

Source: Same as Table 03

Table 09: Estimated number of enterprises (in Millions) and percentage share by enterprise types and sector between 2010-11 and 2015-16

	2010-11			2015-16			Change (2011-16)		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Number (Mn)									
Manufacturing	14	3	17	17	3	20	2	0	2
Trade	18	3	21	19	4	23	2	1	3
Other Services	17	3	20	17	4	21	1	0	1
All	49	9	58	53	10	63	5	1	6
% Distribution of enterprises									
Manufacturing	30	31	30	32	28	31	2	-3	1
Trade	37	33	36	36	36	36	0	3	0
Other Services	34	36	34	32	36	33	-2	0	-2
All	100	100	100	100	100	100	0	0	0

Source: Computed using the 67th and 73rd NSSO Reports

Table 10: Total Employment, Employment per Enterprise and Employment per Rupees One 01Croreof GVA (fixed at 2004-05 prices) by Enterprise Types and Sector

	2010-11			2015-16			Absolute Change in Employment (2011-16)		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Manufacturing	20.8	14.0	34.9	22.7	13.4	36.0	1.8	-0.7	1.2
Trade	24.5	9.6	34.1	26.9	11.8	38.7	2.4	2.2	4.6
Other Services	24.4	14.5	39.0	19.5	17.0	36.5	-4.9	2.4	-2.5
All	68.8	37.7	106.5	65.5	40.1	105.6	-3.3	2.3	-0.9
Employment Per Enterprise									
Manufacturing	1.4	5.1	2.0	1.3	4.7	1.8	-0.1	-0.4	-0.2
Trade	1.4	3.3	1.6	1.4	3.3	1.7	0.0	0.0	0.0
Other Services	1.5	4.6	2.0	1.1	4.7	1.8	-0.3	0.1	-0.2
All	1.4	4.3	1.9	1.3	4.2	1.8	-0.1	-0.1	-0.1
Employment Per 1 Crore of GVA (Rs)									
Manufacturing	530	206	325	410	154	254	-120	-52	-71
Trade	272	122	202	216	105	163	-56	-17	-39
Other Services	366	157	244	216	121	158	-150	-35	-86
All	356	159	247	256	124	182	-100	-35	-65

Source: Same as Table 09

Table 11: Estimated Number of Enterprise (in Million) in Different States in 2010-11 and 2015-16

States	2010-11			2015-16			Absolute Change (2011-16)		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All



Uttar Pradesh	7.4	0.9	8.4	7.9	1.1	9.0	0.4	0.2	0.6
West Bengal	6.4	0.9	7.3	8.0	0.9	8.9	1.6	0.0	1.6
Andhra Pradesh	4.9	0.7	5.6	3.0	0.4	3.4	-1.9	-0.3	-2.2
Maharashtra	4.2	0.9	5.2	3.8	1.0	4.8	-0.4	0.1	-0.4
Karnatka	2.3	0.5	2.8	3.1	0.8	3.8	0.8	0.2	1.0
Tamil Nadu	3.5	1.0	4.5	3.9	1.1	4.9	0.3	0.1	0.5
Biha	2.1	0.2	2.3	3.0	0.4	3.4	0.9	0.2	1.1
Gujarat	3.1	0.6	3.6	2.8	0.5	3.3	-0.3	-0.1	-0.3
MP	2.3	0.3	2.6	2.3	0.4	2.7	0.0	0.1	0.1
Rajasthan	1.8	0.3	2.1	2.3	0.4	2.7	0.5	0.1	0.5
Kerala	1.4	0.4	1.9	1.8	0.6	2.4	0.4	0.1	0.5
Odisha	2.2	0.2	2.4	1.8	0.2	2.0	-0.5	0.0	-0.5
Jharkhand	1.1	0.1	1.2	1.4	0.2	1.6	0.4	0.0	0.4
Punjab	1.1	0.3	1.4	1.2	0.3	1.5	0.0	0.0	0.0
Assam	0.9	0.2	1.2	1.0	0.2	1.2	0.0	0.0	0.1
Chhattisgarh	0.6	0.1	0.7	0.7	0.1	0.8	0.2	0.0	0.2
Haryana	0.9	0.2	1.1	0.7	0.2	1.0	-0.1	0.0	-0.1
Delhi	0.6	0.5	1.1	0.5	0.4	0.9	-0.1	-0.1	-0.2
Jammu & Kashmir	0.5	0.1	0.6	0.6	0.1	0.7	0.1	0.0	0.1
Uttarakhand	0.4	0.1	0.5	0.3	0.1	0.4	0.0	0.0	0.0
Himachal Pradesh	0.3	0.1	0.4	0.3	0.1	0.4	0.0	0.0	0.0
Total	48.0	8.7	56.8	50.4	9.5	59.8	2.3	0.8	3.1

Source: Same as Table 09

Table 12: Estimated Number of Workers in Different States (Million)

	2010-11			2015-16			Absolute Change (2011-16)		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Uttar Pradesh	11.1	4.7	15.8	11.4	5.2	16.5	0.3	0.5	0.8
West Bengal	8.1	3.8	11.9	10.0	3.6	13.6	1.9	-0.2	1.7
Andhra Pradesh	8.9	3.3	12.2	3.7	1.9	5.6	-5.2	-1.4	-6.6
Maharashtra	6.0	4.1	10.1	4.9	4.2	9.1	-1.1	0.1	-1.0
Karnatka	3.1	2.3	5.4	3.9	3.2	7.1	0.8	0.9	1.8
Tamil Nadu	4.7	4.4	9.1	5.0	4.7	9.7	0.3	0.3	0.6
Bihar	2.8	0.6	3.4	3.9	1.4	5.3	1.1	0.8	1.9
Gujarat	4.0	2.9	7.0	3.5	2.6	6.1	-0.5	-0.3	-0.9
MP	3.3	1.2	4.4	3.2	1.7	4.9	-0.1	0.6	0.5
Rajasthan	2.4	1.4	3.8	2.9	1.8	4.7	0.5	0.4	0.9
Kerla	2.0	1.8	3.8	2.1	2.4	4.5	0.1	0.5	0.7
Odisha	4.1	0.8	4.9	2.5	0.8	3.3	-1.6	0.0	-1.6
Jharkhand	1.4	0.4	1.8	1.9	0.6	2.5	0.5	0.2	0.7
Punjab	1.4	1.2	2.5	1.3	1.1	2.5	0.0	0.0	-0.1
Assam	1.2	0.6	1.8	1.1	0.7	1.8	-0.1	0.1	0.0
Chhattisgarh	0.9	0.4	1.4	1.2	0.5	1.7	0.3	0.1	0.3
Haryana	1.1	0.8	1.9	0.9	1.0	1.9	-0.2	0.2	0.0
Delhi	0.8	2.1	2.8	0.7	1.6	2.3	-0.1	-0.4	-0.5
J& K	0.6	0.4	1.0	0.6	0.4	1.1	0.0	0.0	0.1
Uttarakhand	0.5	0.3	0.8	0.4	0.2	0.7	0.0	-0.1	-0.1
H P	0.4	0.2	0.6	0.4	0.3	0.6	0.0	0.1	0.0
Total	68.8	37.7	106.5	65.5	40.1	105.6	-3.3	2.3	-0.9

Source: Same as Table 09

Table 13: Estimated Demand for per 1 Crore of Real GVA Produced (at 2004-05 Prices) Across Different States during 2011-16

	2010-11			2015-16			Absolute Change (2011-16)		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Uttar Pradesh	497	151	296	308	172	247	-189	21	-49
West Bengal	456	233	350	386	184	299	-69	-49	-50
Andhra Pradesh	492	167	322	319	157	237	-173	-9	-85
Maharashtra	271	132	190	189	92	127	-82	-40	-63
Karnatka	297	125	188	201	109	146	-96	-16	-42



Tamil Nadu	299	147	199	238	133	173	-61	-14	-27
Bihar	299	212	278	218	149	195	-81	-62	-84
Gujarat	318	173	236	217	98	143	-100	-76	-93
MP	440	201	335	332	154	237	-108	-47	-98
Rajasthan	406	203	299	212	111	157	-194	-92	-141
Kerla	262	114	162	194	100	129	-68	-15	-33
Odisha	725	217	526	435	167	310	-290	-50	-216
Jharkhand	376	246	335	354	162	276	-21	-83	-60
Punjab	231	174	201	187	124	151	-44	-51	-50
Assam	283	208	253	217	182	202	-65	-27	-51
Chhattisgarh	500	183	322	426	163	289	-74	-19	-33
Haryana	207	121	159	160	97	118	-48	-24	-40
Delhi	143	103	112	100	91	93	-43	-13	-18
J&K	205	124	163	166	106	136	-38	-18	-27
Uttarakhand	284	177	225	190	140	167	-95	-37	-58
Himachal Pradesh	315	147	222	205	104	144	-110	-43	-79
Total	348	170	256	250	133	189	-98	-36	-66

Source: Same as Table 09

Table 14: GVA Growth, Employment Growth and Employment Elasticity (EE) of Different Enterprise and in Different Sectors

	Real GVA			Employment			EE		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Manufacturing	7.05	4.90	5.71	1.69	-0.98	0.65	0.24	-0.20	0.11
Trade	6.71	7.35	7.01	1.89	4.21	2.57	0.28	0.57	0.37
Other Services	6.21	8.56	7.60	-4.40	3.15	1.30	-0.71	0.37	-0.17
All	6.61	7.17	6.92	-0.97	1.21	0.18	-0.15	0.17	-0.03

Source: Same as Table 09

Table 15 Employment, GVA (at 2004-05 Prices) and Employment Elasticity during 2011-16

	GVA			Emp.			EE		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Uttar Pradesh	10.6	-0.6	4.6	0.5	1.9	0.9	0.05	-3.01	0.20
West Bengal	7.7	3.8	5.9	4.3	-1.0	2.7	0.55	-0.25	0.45



Andhra Pradesh	-8.5	-9.4	-8.9	-16.1	-10.4	-14.4	1.89	1.11	1.61
Maharashtra	3.3	7.9	6.1	-4.0	0.4	-2.1	-1.21	0.05	-0.34
Karnatka	13.3	10.1	11.3	4.8	7.2	5.8	0.36	0.71	0.51
Tamil Nadu	6.1	3.3	4.3	1.4	1.3	1.3	0.22	0.39	0.31
Bihar	13.8	26.0	17.2	6.8	17.5	9.1	0.50	0.67	0.53
Gujarat	4.9	9.7	7.7	-2.8	-2.2	-2.6	-0.58	-0.23	-0.33
MP	5.3	14.0	9.4	-0.5	8.1	2.1	-0.09	0.58	0.22
Rajasthan	18.1	18.9	18.5	3.6	5.3	4.2	0.20	0.28	0.23
Kerla	7.7	8.4	8.2	1.4	5.4	3.4	0.18	0.65	0.42
Odisha	0.0	6.4	2.7	-9.7	1.0	-7.6	-0.32	0.16	-0.79
Jharkhand	7.3	17.1	10.8	6.1	7.8	6.5	0.83	0.45	0.60
Punjab	3.9	6.5	5.3	-0.4	-0.6	-0.5	-0.11	-0.09	-0.10
Assam	3.4	5.5	4.3	-1.9	2.6	-0.3	-0.57	0.48	-0.08
Chhattisgarh	8.4	5.3	6.7	5.0	3.0	4.4	0.59	0.56	0.66
Haryana	0.7	9.8	6.2	-4.4	5.0	0.1	-6.08	0.51	0.02
Delhi	5.0	-2.2	-0.5	-2.2	-4.7	-4.0	-0.45	2.17	8.69
J & K	5.4	5.4	5.4	1.1	2.2	1.6	0.20	0.40	0.30
Uttarakhand	6.2	-2.1	1.9	-2.1	-6.5	-3.9	-0.34	3.18	-2.02
HP	8.5	12.6	10.8	-0.4	5.1	1.5	-0.05	0.41	0.14
Total	6.4	5.5	5.9	-1.0	1.2	-0.2	-0.15	0.22	-0.03

Source: Same as Table 09

Table 16: Capital Labour Ratio (Rs. 000) Across Different States in India

states	2010-11			2015-16			Absolute increase in K/L ratio		
	OAEs	Est.	All	OAEs	Est.	All	OAEs	Est.	All
Uttar Pradesh	62	154	89	80	205	120	19	51	30
West Bengal	40	65	48	43	78	52	2	14	4
Andhra Pradesh	39	127	62	60	130	83	21	3	21



Maharashtra	110	219	154	173	377	267	63	158	113
Karnatka	69	194	121	92	171	128	23	-22	6
Tamil Nadu	69	205	135	101	156	128	32	-49	-7
Biha	38	84	46	62	119	77	24	35	31
Gujarat	101	157	124	152	383	250	51	226	126
MP	59	132	78	95	203	133	36	71	55
Rajasthan	115	199	145	142	238	179	27	39	33
Kerla	79	205	140	109	191	152	30	-14	13
Odisha	23	151	44	37	117	57	14	-34	13
Jharkhand	38	107	54	52	154	76	14	47	23
Punjab	161	249	201	124	194	156	-37	-55	-44
Assam	38	50	43	56	69	61	17	18	19
Chhattisgarh	48	160	84	68	204	108	20	44	24
Haryana	160	277	210	141	213	180	-18	-64	-30
Delhi	294	328	319	181	186	185	-113	-141	-134
J&K	200	234	214	126	242	173	-73	8	-41
Uttarakhand	114	431	253	147	194	166	33	-238	-88
Himachal Pradesh	145	651	331	178	292	230	34	-359	-101
Total	70	180	109	91	204	134	21	24	25

Source: Same as Table 09

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