Growing Prevalence of Subcontracting in West Bengal
– an Impediment to Industrial Growth or a Consequence of its Absence?

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Poor industrial performance of West Bengal no doubt owes much to the presence of large proportion of small and micro, mostly own-account, unregistered units engaged in 'low productivity' manufacturing activities. A more significant feature that helps understand the state's poor performance is the profusion of 'manufacturing services providing' units during the first decade of the present millennium. In particular, ubiquitous presence of 'job work units'(JWUs) in the state's unregistered manufacturing sector not only explains its low industrial productivity but also indicate that in absence of decent job opportunities elsewhere, the surplus labour has turned to job work out of their sheer distress conditions. The study attempts to measure the prevalence of and changes in subcontracting activities carried out in the state, in terms of their shares in total number of units, workforce and contribution to domestic product. The estimates for the combined registered and unregistered segments of the manufacturing sector, used for this purpose, are derived from the data drawn from the Annual Survey of Industries (ASI) and the Enterprise Survey (ES) of the NSSO. The study traces the changing composition of employment in manufacturing sector, particularly the rising share of less-remunerative activities of JWUs in the state. It also makes an attempt to identify the inter-state flow of 'goods for processing' and 'manufacturing services' between the principals (outsourcing units) and JWUs, leading to detection of outsourcing and subcontracting across state borders. It also briefly dwells on the possible underlying factors leading to profusion of JWUs in the state and seeks an answer to the question set out in the title of the paper.

I. Introduction

During the first decade of the present millennium, performance of the manufacturing sector of West Bengal continued to remain poorer than that of the country as a whole, both in terms of employment creation as well as growth in its contribution to domestic product. That its relative position as one of the industrially-developed states at the wake of independence has progressively worsened over the years is fairly well established. The trend of relative decline that had set in from the mid-sixties continued unabated till the end of 1990s. As a consequence, the state's shares in the country's net value added and employment in registered manufacturing and number of factories have gone down drastically during this period [Chattopadhyay, 2004].

Manufacturing Services – Special Relevance for West Bengal

Poor industrial performance of West Bengal no doubt owes much to the presence of the large proportion of small and micro, mostly own-account, unregistered units engaged in 'low productivity' manufacturing activities. A more significant feature that helps understand the state's poor performance is the profusion of *manufacturing services providing* units particularly during the first decade of the present millennium. Indian manufacturing is

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characterised by presence of a very large unorganised segment. What is even more significant is that over a third of the manufacturing sector workforce in India was exclusively engaged in providing *manufacturing services* throughout the first decade of the present millennium [Kar et. al. 2014]. In West Bengal, the dominance of *manufacturing services providing* units was even more pronounced. About 56% of the state's manufacturing workforce was employed in such units in 2010-11.

Manufacturing services comprise output of those manufacturing activities that transform physical inputs owned by entities other than the units providing the service. Some *manufacturing service providers* (*MSP*s) such as those carrying out custom tailoring and flour milling cater directly to the needs of consumer households. Most of the other activities, such as *bidi* making, manufacture of all types of textile garments and clothing accessories, weaving, manufacture of cotton and cotton mixture fabrics, of the *MSP*s are carried out for other businesses. Such services of transforming supplied materials, if provided on contract by other enterprises, typically represent a major form of outsourcing manufacturing processes. These *MSP*s carry out job work for other manufacturing units. In this form of outsourcing, a unit (*principal*) provides '*goods for processing*'[2] to a *MSP* who transforms the supplied material and gives back the transformed material to the *principal*, and in exchange earns manufacturing service charges.

Table 1: **Indicators Relating to Non-repairing Job Work Units (JWUs) - Changes during 2000-01 to 2010-11**

	Indicator	year	West Bengal	All India
1.	***Share of unorganised segment*** in total 'job-count' *employment* of manufacturing sector (%)	2000-01	91.3	82.7
		2005-06	91.7	80.5
		2010-11	89.1	73.5
2.	Share of ***MSPs*** in total 'job-count' employment in manufacturing sector (%)	2000-01	36.9	33.6
		2005-06	39.0	34.5
		2010-11	55.8	36.4
3.	Share of ***JWUs*** in total 'job-count' employment in manufacturing sector (%)	2000-01	32.0	17.9
		2005-06	31.3	17.7
		2010-11	41.4	12.5
4.	Share of *JWU*s in *GVA* of manufacturing sector (%)	2000-01	15.6	6.3
		2005-06	5.9	2.5
		2010-11	8.7	1.8
5.	Service charges receipts to VGO ratio (%)	2000-01	12.5	9.5
		2005-06	8.9	8.5
		2010-11	7.9	6.3
6.	Share of *principals*, *agents* and *JWU*s in *GVA* of manufacturing sector (%)	2000-01	38.7	40.3
		2005-06	35.4	44.3
		2010-11	41.5	45.9

[2] The physical inputs owned by a unit when given to another unit for processing is termed '*goods for processing*' in the 2008 SNA (UN 2009).

Henceforth, we will call the units carrying out transformation of 'goods for processing' supplied by another unit (*principal*) as *job work units* (*JWU*s) [3]. Furthermore, the intermediaries receiving physical inputs and finished products respectively from *principals* and *JWU*s and in turn delivering them respectively to *JWU*s and *principals* are called 'agents' in this study.

The estimates of indicators and ratios presented in *Table 1* reflect the changing status of outsourcing of manufacturing processes for West Bengal and the country as a whole. All the estimates presented in the table are derived from the unit-level data of three Enterprise Surveys of National Sample Survey Office (NSSO) conducted in 2000-01, 2004-05 and 2010-11 and the Annual Survey of Industries (ASI) of the corresponding years.[4] The survey estimates presented in the table relate only to the non-repair manufacturing activities, for reasons discussed later.

The estimates presented in the table not only indicate greater share of the unregistered segment in the manufacturing sector employment in the state, but also a distinctly rising share of *MSP*s and *JWU*s in it during the first decade of the millennium. What is of significance in the context of outsourcing is that the share of *JWU*s in manufacturing sector employment of the state grew sharply – from 31% to 41% – during the second half of the decade, while that at the national level declined from 18% to 12%. Furthermore, the share of job work units (*JWU*s) in the *gross value added* (*GVA*) of manufacturing sector (excluding repairing services) show sharp decline, both at the national and state level, during the period 2000-01 to 2005-06, despite its largely unchanged share in employment. Possibly, this owes mainly to a shift towards relatively less remunerative *MSP* activities of the unregistered units, possibly accompanied by a decline in real earnings of the *MSP*s across the board.

The ratio of receipts of manufacturing service charges to value of goods output (VGO) reflects the extent of outsourcing of manufacturing process[5]. For all non-repairing manufacturing activities in the country, this ratio declined from 9.5% in 2000-01 to 6.3% in 2010-11. For the state as well, there was a decline in the ratio, but stood at a higher level (8%) by the end of the decade.

[3] We use the term *JWU*s as distinguished from 'contract manufacturers', who undertake manufacturing activities under contract with another firm, whether or not the raw materials are supplied by the other firm. This is discussed in some more detail in Section II.

[4] Throughout this paper, the results of ASI and Enterprise Surveys of NSSO are combined to obtain estimates of the manufacturing sector as a whole, notwithstanding the slight mismatch between the reference periods of the two surveys. While the data in ASI are collected with financial year (April to March) as the reference period, the ESs are always conducted with a moving reference of one month during survey period extending over agricultural year (July to June).

[5] Olsen (2006) cites a number of commonly used measures of offshore outsourcing. Of these, a 'narrow' measure of outsourcing developed by Feenstra and Hanson restricts the base to only those inputs – both goods and services - that are purchased from the same industry as that in which the good is being produced. A narrower measure of offshore outsourcing that is also used is restricted to outward processing. This measure includes only the intermediate exports for processing that are re-imported. The ratio used here is a measure of outsourcing (within and outside the domestic economy) of the second kind, which includes only the value of job work, i.e. the receipts for manufacturing (processing) services provided to other enterprises, as a component of the value of goods produced by the same industry as that of the service provider.

An overwhelming proportion (over 90%) of the *JWU*s are own-account enterprises who, as we will see later, are paid low remuneration, often lower than casual workers, for their services, while a large part of the value added generated in the process gets included in the value of production of the *principals*. Labour productivity, measured as *GVA* per worker, of the *principals* thus gets overstated as compared to the 'own-accord' manufacturers, who do not indulge in any kind of outsourcing and employ its own workers for the entire production process. Thus, with the high prevalence of *JWU*s, the GVA per worker would consequently be low in the unorganised manufacturing sector, as a *JWU*'s GVA virtually represents only the component of compensation of labour among the factor payments.

As a measure of relative importance of outsourcing activities, the share of only the *JWU*s in the *GVA* of manufacturing sector, therefore, does not capture the dependence on outsourcing in its entirety. Instead, using the share of all those involved in outsourcing activities, viz. *principals*, *agents* and *JWU*s, in the manufacturing sector GVA as a more representative measure, we observe (Item 6, *Table 1*) a growing dependence of the entire manufacturing sector on outsourcing of manufacturing process in the country as a whole. While 40% of the manufacturing GVA was shared between the *principals*, *agents* and *JWU*s, in 2000-01, their combined share in 2010-11 was 46% for the country as a whole. Similar level of dependence on outsourcing is evident from the table for West Bengal as well.

Objective and Content

Recent studies characterise the unregistered manufacturing sector by inferior and outdated technology which results in low productivity, low levels of earnings and stagnation, as well as suggest that the low level of its productivity owes to its composition, in terms of types of enterprises and industry mix [NCESU (2007), Dutta (2002)]. But, little attention has so far been paid to prevalence of *MSP*s in general, and *JWU*s in particular, within the unorganised segment as a factor determining its productivity.

There is a limited number of studies on production of manufacturing services in the Indian context. Banga and Goldar (2004) investigate the impact of services inputs on output growth, but it relates to only the organised segment of the manufacturing sector (registered factories) and is severely constrained by absence of data on manufacturing services input. Sahu (2007, 2008, 2011) provides estimates of incidence and explores the problems and prospects of the firms working under subcontracts among small and micro manufacturing enterprises, based on primary data collected through field survey and secondary data of Unorganised Manufacturing Enterprises Survey conducted in the 56th (2000-01) and 62nd (2005-06) rounds of NSSO. Vishnu Kumar *et. al.* (2007), Chaudhury *et. al.* (2008) and Bhosle (2014) have identified substantial presence of *MSP*s or subcontracting in the unregistered segment of the manufacturing sector, based on respectively 56th round and 62nd round surveys of the NSSO. While Sahu, Bhosle and Sashidharan *et. al.* (2013) adopt 'working on contract' as the criterion for identifying the subcontracting firms in all his studies, Vishnu Kumar *et. al.* (2007) and Chaudhury *et. al.* (2008) use a set of criteria involving receipts of service charges and absence of physical output, in addition to 'working on contract', for identifying such manufacturing service producing units, which also comprise a large proportion (over 80% in 2010-11) of subcontracting firms.

The domain of all the studies cited above is confined to either the organised or unorganised segment of the manufacturing sector. The studies based on the unorganised segment deal only with *MSP*s, subcontracting units (units working under subcontracts) and *JWU*s. The *principals* and *agents* are not identified in these studies. The present study, on the other hand, attempts to gauge the prevalence of outsourcing activities, based on estimates of number of units, employment, *GVA* and other related indicators for each category of units involved in outsourcing activities, viz. *principals* – units outsourcing manufacturing process, *agents* – intermediaries and *JWU*s – subcontractors working on supplied materials. It provides a comprehensive account of the level and trend of manufacturing services production and seeks to explore the nature of change undergone during the first decade of 21st century in the size and composition of outsourcing activities in West Bengal, as compared to those for a few other selected states and the national level.

The study traces the changing composition of employment in manufacturing sector of the state, particularly the rising share of less-remunerative activities of *JWU*s and *MSP*s. It also provides evidence of inter-state flow of goods for processing and manufacturing services between the *principals* and *JWU*s, leading to detection of outsourcing and subcontracting across state borders. It also briefly dwells on the possible underlying factors leading to profusion of *JWU*s in the state and seeks to examine whether it is brought about by industrial stagnation in the state.

The basic data used for this purpose are drawn from the Annual Survey of Industries (ASI) and the Enterprise Surveys (ES) of the NSSO covering manufacturing sector for 2000-01, 2005-06 and 2010-11. The pooled data from these two sources virtually represents the Indian manufacturing in its entirety[6].

The rest of the paper is organized as follows. Section II provides a discussion on different forms of outsourcing and defines the terms used in the paper for different kinds of players involved in outsourcing activities. It also specifies the exact scope of the present study. Section III lays down the exact procedure of identifying the manufacturing units providing, receiving and mediating manufacturing services, while clearly indicating the data from ASI and ES used for this purpose. Section IV provides a brief outline of the manufacturing sector's descent in the state during 1980s and 1990s, as a backdrop for examining the growing of subcontracting activities and its significance in the first decade of 21st century - the period under study. Next two sections present the main findings of the present study. Section V traces the recent trends of outsourcing and subcontracting in West Bengal and other selected seven states. It also consists of an attempt at detecting possible outsourcing and subcontracting across state borders, and gauging their effects on manufacturing income of the state. Section VI is mainly a comparative study of productivity of the *JWU*s in the unregistered manufacturing sector of the state with those of the selected

[6] The ES of the 67th Round of NSSO, conducted in 2010-11, in fact excluded the manufacturing establishments belonging to the corporate sector. However, according to the Fourth All-India Census of Micro, Small and Medium Enterprises (2006-07) only a negligibly few (just about a thousand) unregistered manufacturing units belonged to private companies. (Ministry of Micro, Small and Medium Enterprises, 2008)

other states. The concluding section summarizes some of the key findings of the study and reiterates the need for collecting additional data to carry out further studies.

II. Outsourcing – Different Forms and Scope of the Study

In the context of outsourcing, a number of terms, such as "commercial outsourcing", "industrial outsourcing", "offshoring", "subcontracting", "contract manufacturing", "job production", etc. are used, quite often in varying connotations, in the literature. Usually the term "outsourcing" refers to service or manufacturing activities that are contracted out to unrelated (i.e., unaffiliated) parties in either the domestic economy or a foreign economy and is generally meant to apply to activities that were once internal functions [UNECE-SD 2013]. The definition given in International Standard Industrial Classification of All Economic Activities, Revision 4 (ISIC Rev.4) [UNSD 2008] does not restrict the use of the term to "unrelated parties" or to "activities that were once internal functions". Instead, it excludes from manufacturing activities the outsourcing of complete production process where the main raw materials are procured by the subcontractor. Ramaswamy (1999) refers to this form as 'commercial outsourcing', as against 'industrial outsourcing', where the products received from the subcontractor are used as inputs for further production.

The subcontractors are called 'contract manufacturers' when the contracts are for component or products for further use in its production by the outsourcing firm. Nagraj (1984) categorises all 'contract manufacturing' as 'subcontracting', which is a type of inter-firm relationship. Under subcontracting, typically, a large firm procure manufactured products, on contract, from one or more small firms. *Job production* is a kind of contract manufacturing where a part or the whole of the production process is outsourced by the outsourcing firm. Often, the parent firm provides necessary raw materials to the sub-contracted firm. In the present study, only the subcontracting with the necessary (main) raw materials supplied by the parent firm is treated as *job production*.

The ISIC, Rev.4, identifies three forms of 'outsourcing', namely (a) outsourcing of support functions, (b) outsourcing of parts of the production process and (c) outsourcing of the complete production process. In form (a), the *principal* carries out the core production process (of a good or a service) but outsources certain support functions, such as accounting or computer services, to the *contractor*. In such cases, we do not treat the contractor as a *MSP*. In case of both the forms (b) and (c), the *contractor* is invariably treated as a *MSP*, more specifically, a *JWU*, while the *principal* outsourcing the manufacturing activity is also treated as a manufacturer, if it owns the material inputs and thereby has economic ownership of the outputs.[7]

In this study, we use the term 'outsourcing', as used in the ISIC, to mean the act of getting goods and services produced by other firms for further use in production or for sale. Further, we use the term 'subcontracting' for economic activities of the counterparts, i.e. those who undertake production of goods and services under contract with a *principal*.

[7] The *principal* is treated as a wholesaler if the material inputs are owned by the contractors and not by the *principal*.

The present study also uses two other distinct terms, viz. 'manufacturing services' and 'job work'. It is important to note that the ownership of the physical raw materials does not lie with the *manufacturing service provider* (*MSP*) but with the one receiving the service. Characteristically, the *MSP* establishments are small, and are most often run without hired workers. Mostly the *MSP*s carry out their activities on materials supplied by their clients and derive their principal income in the form of commissions and service charges. They are predominantly engaged in certain specific activities of the manufacturing industry and the clients are either (i) the households using their services for their final consumption, or (ii) other enterprises using their services for capital formation or (iii) other enterprises using their services as intermediate inputs.

A *MSP* pursuing an activity of the third kind carries out job works for its client. The activities of providing manufacturing services for intermediate use of the *principal* is called *job work* and the unit carrying out the job work is called a *job work unit* (*JWU*). Typically, a *JWU* delivers the required manufacturing services to its client – *principal* – possibly under the terms dictated by the latter. Evidently, the category of contracts falling under *job work* is a subset of manufacturing service where the material transformed by the *JWU* is used for further production by the outsourcing firm, i.e. the *principal*. In this study, the term 'job work' is used for all kinds of *manufacturing service providing* activities carried out for a *principal*, outsourcing whole or part of its production processes. The self-employed individuals designated as 'homeworkers' by the ILO (1996) are in fact *contractors*. Besides the self-employed 'homeworkers', there are small establishments who work for *principals* under putting out system. All such units are treated as *JWU*s in this study.

The term *principal* used in this study is for only those units that outsources manufacturing process and supplies the main raw material – goods for processing – to the *contractors*. A *principal* may also be carrying out manufacturing activities on its own accord.

There is another category of players involved in outsourcing activities, who play the role of middlemen between the *principals* and *JWU*s. These units take delivery of raw materials from a *principal* and engage *JWU*s to get the job done. Such intermediary units are referred to as 'agents' in the present study. According ISIC, Rev.4, like the *principals*, all *agents* engaged in intermediation of outsourcing manufacturing process are treated as manufacturers. The principal's payment of manufacturing service charges gets distributed to the *JWU*s through the *agents*, who in turn retain a margin. This is called agents' margin in the rest of the study.

Lastly, a manufacturing unit that is neither a *principal* nor an *agent* nor a *JWU* is called an 'own accord' manufacturing unit in this study.

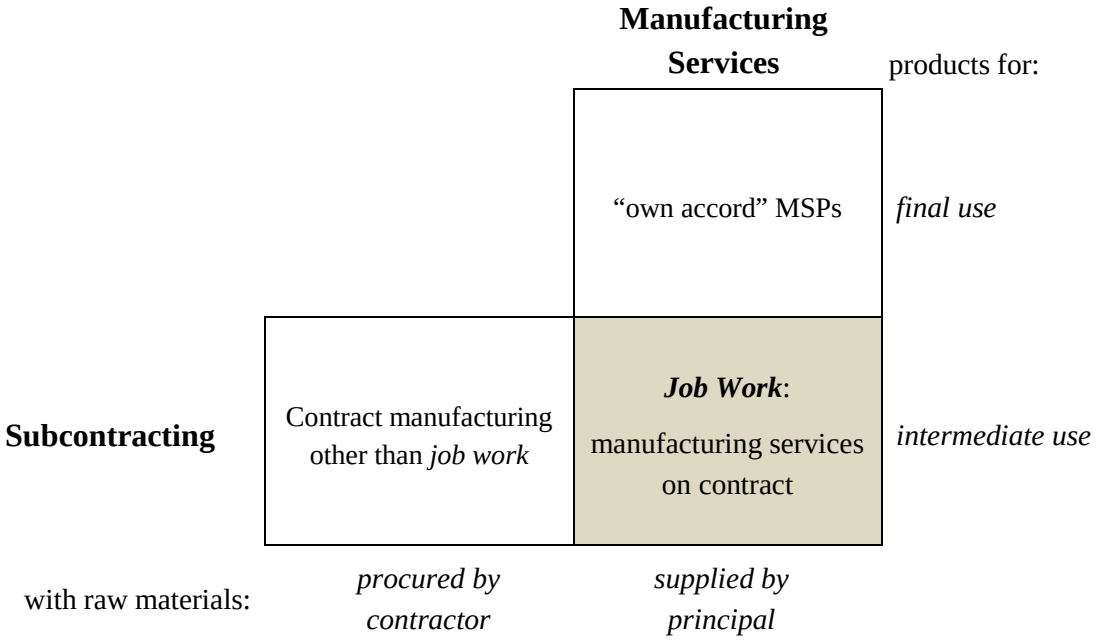
Scope of the Study

Present study deals with prevalence of and changes in outsourcing activities in different non-repairing manufacturing activities, in terms of their shares in total number of units, workforce and contribution to domestic product. Repairing services, though included in the manufacturing sector according to the NIC, is excluded[i] from the purview of the present study, since these by their very nature are manufacturing services that are typically

executed on machinery owned by the client, with the repairer providing whatsoever physical inputs necessary for the operation. The rest of the discussion in this paper therefore concerns only the non-repair manufacturing activities.

As stated, manufacturing services are of two main kinds: (i) those for final use and (ii) those carried out as job work for other enterprises. Similarly, subcontracting, which is in fact a between-firm arrangement of organising production, can also be classified into two kinds depending upon who among the outsourcing unit and the contract manufacturer procures the main raw materials.

In the rest of the study, 'outsourcing' covers only the activities relating to *job work*. As indicated by the shaded area in the figure below, the scope of the present study is restricted to only those outsourcing activities that provide manufacturing services (to *principals*) on contract.



With outsourcing as the main focus, the scope of the study mainly consists of examination of estimates of number of units, employment, *GVA* and other related indicators for each category of units involved in outsourcing activities, viz. *principals*, *agents* and *JWU*s. The 'own accord' *MSP*s, i.e. *MSP*s which are not *JWU*s, provide services for final use and thus are not of much relevance in the context of the present study on outsourcing. Subcontracting units that do not carry out *job work* are not studied in detail in the study, since most of the unregistered units working on contract are in fact *JWU*s (*Table 3*). In 2010-11, 87% of the unregistered units working on contract were *JWU*s, accounting for 82% workers in "on contract" units. In West Bengal, the corresponding shares of *JWU*s were much higher - 91% and 87% respectively.

Table 3: **Number of Units and Workers Engaged in *Job Work* of those *Working on Contract***

Subcontracting type	number of units (000)		number of workers (000)	
	West Bengal	All India	West Bengal	All India
2000-01				
working on contract	1553	5125	2534	9751
doing job work	1186	3715	2047	7668
	(76.4)	(72.5)	(80.8)	(78.6)
2005-06				
working on contract	1480	5313	2624	10668
doing job work	1171	4067	1864	7565
	(79.1)	(76.5)	(71.0)	(70.9)
2010-11				
working on contract	1544	3498	2640	6554
doing job work	1402	3029	2302	5340
	(90.8)	(86.6)	(87.2)	(81.5)

III. Data for Identification of Outsourcing Manufacturing Activities

The data used for the study are drawn from the Annual Survey of Industries (ASI) and the Enterprise Surveys (ES) of the NSSO covering manufacturing sector conducted during the first decade of 21st century. It is based mainly on data available from secondary sources of two kinds, namely unit-level data of

a. Annual Survey of Industry (ASI) 2000-01, 2005-06 and 2010-11; and
b. Unorganised (non-factory) sector Enterprise Surveys (ESs) of the National Sample Survey Organisation (NSSO), 56th Round (2000-01), 62nd Round (2005-06) and 67th Round (2010-11);

The pooled data from these two sources virtually represents the Indian manufacturing in its entirety[8]. The data on registered factories are collected through the ASI, and ESs cover the unregistered manufacturing units. Thus, for the entire manufacturing sector, estimates are obtained by pooling the estimates from the corresponding ASI and ES, notwithstanding the slight mismatch in the reference periods of the two surveys.

The data on payment and receipts of manufacturing service charges and expenditure on main raw material (goods) and value of goods output are required for measuring outsourcing activities. Both in the ASI and ES, these are regularly collected, but payment and receipts of manufacturing service charges cannot always be separated from payments and receipts of other service charges. Payment of exclusively manufacturing service charges are collected separately in the ASI. The item for recording receipts of manufacturing service charges, however, also includes charges for non-industrial services, such as business, computer-related and legal services. These are not expected to be of significant proportion in

[8] The ES of the 67th Round of NSSO, conducted in 2010-11, in fact excluded the manufacturing establishments belonging to the corporate sector. However, according to the Fourth All-India Census of Micro, Small and Medium Enterprises (2006-07) only a negligibly few (just about a thousand) unregistered manufacturing units belonged to private companies. (Ministry of Micro, Small and Medium Enterprises, 2008)

most cases. Thus, in general, the entire amount of receipts for services is assumed to be manufacturing services.

In the ES, however, data on manufacturing service charges are not available separately. The data collected on receipts and payments are inclusive of all kinds of service charges. Thus, the estimates of manufacturing services obtained from the ES are based on assumptions, which are expected to be largely valid.

Since the payment and receipt of manufacturing services are strictly speaking not always separable from payment and receipt for other services, the criteria adopted for the present study are set under a few assumptions that are expected to hold good in most cases. The criteria adopted for identification of units engaged in outsourcing and subcontracting are set keeping the basic definitions and the data collected in the surveys in mind. These are stated below.

Identification of Principals

First, it is necessary to specify the basic characteristics of the *principals, MSP*s, *JWU*s and *agents* that follow from the definitions laid down in Section II. The *principals*, whether outsourcing the entire or part of the production process, must report positive intermediate consumption of main raw materials (goods) and material output. In addition, it should be paying manufacturing service charges for work done by other enterprises on materials supplied by the unit.

Thus, in the ASI dataset, the establishments reporting positive material (goods) output, positive material input, and positive payment of manufacturing service charges are identified as *principals*. The exact criteria adopted for identification of *principal* units in the ASI datasets are as follows:

- positive goods output, i.e. VGO > 0,
- positive intermediate consumption of main raw materials or goods, i.e. $IC_{goods} > 0$,
- positive payment of manufacturing service charges or intermediate consumption of manufacturing services provided by a *JWU*, i.e. $IC_{JW} > 0$ and

In the ES datasets, *principals* are identified using similar conditions. But, as service charges paid includes payment for all kinds of services, a more restrictive additional condition on intermediate consumption of manufacturing services (expenses on job work) is included for identification. In the ES dataset, the criteria adopted for identifying the *principals* are thus as follows:

- VGO > 0,
- $IC_{goods} > 0$,
- IC_{JW} > 50% of the expenses other than on raw materials. and
- nil receipts of manufacturing service charges, i.e. $GVO_{MS} = 0$.

In fact, the cut off 50% is arbitrarily set, in absence of any other auxiliary information about the kind of services actually purchased. Further, a small *principal* unit that gets job work done by others is not expected to carry out job work for other units in most cases.

Identification of Manufacturing Services Producing Units (*MSP*s)

The *MSP*s are characterised by positive receipts of income for manufacturing services provided to others and nil material output and input. Typically, they should not be paying any manufacturing service charges. The *JWU*s should have the same features and, in addition, the receipts of service charges should be from other enterprises and not households. The criteria used by Vishnu Kumar *et. al.* (2007) for identification of *MSP* establishments from the data set of the ES'56 are also used for the present study in a slightly modified form. Those reporting no material (goods) output, no material input, positive receipts of service charges and no payment of service charges are taken as the establishments engaged solely in production of manufacturing services. In the ES dataset, the criteria adopted for identifying the *MSP*s are thus as follows:

- VGO = 0,
- $IC_{goods} = 0$,
- $IC_{JW} < 50\%$ of the expenses other than on raw materials, and
- $GVO_{MS} > 0$.

Clearly, the estimates based on these criteria would be conservative ones, as there would be other units carrying out 'own accord' manufacturing activities who also provide manufacturing services.

Identification of JWUs

Registered factories covered in the ASI are not expected to provide manufacturing services directly to the households. Thus, all units providing manufacturing services are assumed to be *JWU*s. In the ASI datasets, the *JWU*s are identified simply by

- VGO = 0,
- $IC_{goods} = 0$,
- $IC_{JW} = 0$,
- $GVO_{MS} > 0$

On the other hand, many of the *MSP*s covered in the ES directly serve the households. Identifying the *JWU*s consists of distinguishing the *MSP*s serving other businesses. The criteria used for identification of *JWU*s in the ES dataset are as follows:

- VGO = 0,
- $IC_{goods} = 0$,
- $IC_{JW} < 50\%$ of the expenses other than on raw materials,
- $GVO_{MS} > 0$
- having prior marketing agreement or on contract with other units
- other units provide raw material and
- the unit has no secondary activity.

The last three conditions are used for identifying the job work units from among those providing manufacturing services, whether to households or businesses. The units receiving raw materials from other units, with whom it has prior marketing agreement in most cases

would be job work units. To ensure that they do not provide any services other than manufacturing services, the condition of 'no secondary activity' is included.

Identification of Agents

Like the *MSP*s, the agents are characterised by positive receipts of income for manufacturing services provided to others and nil material output and input. In addition, they should also have positive payment of manufacturing service charges for work done by other enterprises on supplied materials. *Agents* have the distinguishing feature of both provider and recipient of manufacturing services. Thus, for both ASI and ES datasets, the criteria used for identification of *JWU*s are as follows:

- VGO = 0,
- $IC_{goods} = 0$,
- IC_{JW} > 50% of the expenses other than on raw materials,
- $GVO_{MS} > 0$.

IV. Changing Aspects of Manufacturing Activities in West Bengal

The Employment and Unemployment Surveys (EUS) of National Sample Survey Organisation (NSSO) indicate a stagnating manufacturing sector in the state during the post-liberalisation closing years of the last millennium (1993-94 to 1999-2000), with a meagre average annual growth rate of 0.09 % manufacturing workforce, following a decade (1983 to 1993-94) of growth at a moderate average rate of 4 % [Bhaumik, 2002]. This, however, was neither unique to West Bengal nor manufacturing sector. The EUSs reveal a sharp deceleration in (head-count[9]) employment growth, in general, in the country as a whole during the latter part of the 1990s.

The performance of Indian registered (factory) manufacturing sector during pre-liberalisation 1980s experienced a "jobless growth", characterised by slow growth of employment (0.53%), despite high industrial growth [Goldar (2000), Nagaraj (2000)]. The following years, 1989-90 to 1994-95, saw a distinct improvement in employment growth (2.1%), but in the next five years, 1994-95 to 1999-2000, was faced with stagnation as severe as in the 1980s [Unni 2004]. In West Bengal, the growth of (job-count[10]) employment in the organised manufacturing sector was much poorer as compared to the country as a whole, all through the last two decades of the 20th century. During the pre-liberalisation decade of 1980-81 to 1991-92, while the annual growth rate of employment in the country's organised manufacturing sector was a meagre 0.6%, that in the State was actually negative (- 3%). The

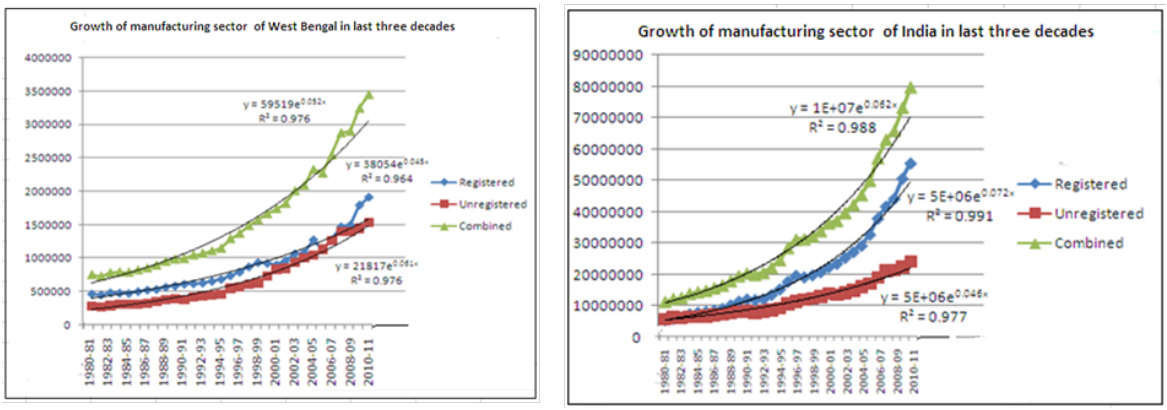
[9] EUSs provide estimates of number of persons employed under principal and subsidiary status. Estimates quoted here, henceforth called "head-count employment", represent the number of persons employed in usual status in manufacturing activities *plus* those not employed in usual status but employed in manufacturing in subsidiary status.

[10] As against "head-count employment", the term "job-count employment" represents estimate of number of jobs obtained from establishment surveys that enumerate the number of jobs, regardless of multiple employment of the job-holders. The estimates of workers or employees from the Annual Survey of Industries (ASI), in particular, represent full-time equivalent person-days of labour input. On the other hand, the estimates of workers obtained from the Unorganised Enterprise Surveys of the NSSO are in fact the average number of full- and part-time workers employed per day.

following years saw a reversal of the declining trend in the State. The signs of the all-around improvement in Indian industry were reflected in the performance of registered manufacturing of West Bengal as well. Its employment in registered manufacturing grew, though at a much slower rate than the national-level rate [Burange 2001].

For job creation, the unorganised manufacturing sector plays a much more important role than the organised sector. The former accounts for about 80% of total manufacturing (job-count) employment in India. During the 1980s and first half of 1990s, employment in this sector actually fell at more than 1% per annum [Unni 2004]. The states of eastern region have a high concentration of unregistered manufacturing units, in terms of number of enterprises and employment. Among these, West Bengal alone accounts for about 15% of the units and its share has been on the rise over the years [Saikia 2011].

But, the unorganised manufacturing in West Bengal has been plagued with very low labour productivity as compared to other states. In fact, labour productivity, measured as gross value added (GVA) per worker, has been distinctly lower in West Bengal for both organised and unorganised manufacturing sectors. So much so, the average labour productivity in unorganised manufacturing of West Bengal was just about half of that at the national-level during 1994 to 2005 [Kathuria et. al., 2010].



The GVA estimates (Rs. 000) in the Y-axes are at contant (2004-05) prices.

As a consequence, with relative decline in the share of registered sector, West Bengal fell far behind other states in terms of manufacturing sector growth during the last two decades of the 20th century. The average annual growth rate in GVA of the manufacturing sector in West Bengal during 1980s was 3%, while that for the country as a whole was over 6%. During 1990s, however, performance of the State's manufacturing sector improved significantly (*Table 4*). Yet, the growth rate of GVA for the registered manufacturing, though closer, was lower than that at the national level. In fact, the growth in the State's unregistered segment pulled up the overall manufacturing growth rate closer to that at the national level.

***Table 4*: Annual Real (exponential) Growth Rate of GVA of Manufacturing Sector for Selected States**

India / State	1980-81 to 1990-91			1990-91 to 2000-01		
	Registered	Un-registered	Total	Registered	Un-registered	Total
India	8.0	3.4	5.9	7.3	6.1	6.8
West Bengal	3.0	3.8	3.3	5.1	7.7	6.2
Uttar Pradesh (divided)	13.0	5.7	9.1	5.3	4.8	5.1
Gujarat	8.8	7.3	8.4	9.6	9.1	9.5
Tamil Nadu	6.8	0.8	3.9	5.4	4.5	5.0
Maharashtra	7.5	5.0	6.9	4.8	9.5	6.0
Andhra Pradesh	10.6	5.6	9.0	5.5	7.7	6.1
Madhya Pradesh (divided)	7.7	4.7	6.5	9.1	6.2	8.0
Rajasthan	9.3	4.1	6.2	11.4	6.4	8.9

In sum, the pace of industrialisation was slower in West Bengal than in the rest of the country during the entire post-independence period of the 20th century. Its registered manufacturing sector has not only undergone a prolonged stagnation but also a decline in both relative and absolute terms. The changes in its manufacturing sector as a whole during the last two decades of the last century can be characterised as follows:

i. a generally decelerating registered sector with a semblance of turn around during the latter half of 1990s,
ii. growing share of unregistered sector in country's manufacturing employment,
iii. very low labour productivity as compared to national level, with widening gap between productivity estimates of the state and the country as a whole .

Set against this backdrop, the present study seeks to understand the changing aspects of organised and unorganised manufacturing sector of West Bengal in recent times. By way of an introduction, we first present an overview of the changes and its features that are unique to the state in this context, based on our observations drawn from the unit-level data of three Enterprise Surveys of NSSO conducted in 2000-01, 2005-06 and 2010-11 and the ASI of the corresponding years. *Table 5* consists of estimates compiled from these surveys as well as the state and national income sources.

The national-level estimates of employment in *Table 5* lend support to the conjectured "turn around" in registered manufacturing from some time point during the first half of the decade [Goldar 2011]. But, it is not borne out by the estimates for the state. There was actually a fall in the registered manufacturing employment in the state during the first half of the decade, followed by a fair growth in the latter half. What appears to be more significant is the falling *job-count* employment in unregistered manufacturing during the entire decade – in West Bengal as well as in country as a whole – while the GVA continued to grow at fair to moderate rates. The refrain of "jobless growth" appears to be a characterisation more appropriate for the unregistered manufacturing sector of the first decade of the 21st century [Behera, 2012].

Table 5: **Indicators Relating to Non-repairing Manufacturing Sector - Changes during 2000-01 to 2010-11**

	Indicator	year / period	West Bengal	All India
1.0	Average annual growth rate of ***employment*** in - manufacturing sector (%)♦	2000-01 to 2005-06	-1.4	0.2
		2005-06 to 2010-11	-1.4	0.6
1.1	- Registered (%)♦	2000-01 to 2005-06	-2.2	2.6
		2005-06 to 2010-11	4.2	6.7
1.2	- Unregistered (%)♦	2000-01 to 2005-06	-1.3	-0.3
		2005-06 to 2010-11	-2.0	-1.2
2.0	Average annual growth rate of ***GVA*** in - manufacturing sector (%)*	2000-01 to 2005-06	6.2	6.6
		2005-06 to 2010-11	8.4	9.3
2.1	- Registered (%)*	2000-01 to 2005-06	5.9	7.8
		2005-06 to 2010-11	11.0	10.7
2.2	- Unregistered (%)*	2000-01 to 2005-06	6.6	4.6
		2005-06 to 2010-11	5.6	6.4
3.	***Share of unorganised segment*** in total *employment* of manufacturing sector (%)♦	2000-01	91.3	82.7
		2005-06	91.7	80.5
		2010-11	89.1	73.5
4.	***GVA per worker*** of manufacturing sector (Rs. 000)♦	2000-01	20.8	47.8
		2005-06	50.0	156.2
		2010-11	91.2	266.8

* : Based on estimates of *national accounts statistics* at the national and state levels.
♦ : Based on analysis of unit-level data of ES and ASI.

The estimates of EUSs also indicate a discernible deceleration in manufacturing employment, which is predominantly composed of workers in the unregistered units. At the national level, the latter half of the first decade of the millennium saw a sharp deceleration in *head-count* employment in general and a distinct fall in manufacturing workforce in particular. From an average annual growth rate of 1.6% during 1993-94 to 1999-2000 [Bhaumik, 2002], it fell to 0.02% during 2004-05 to 2009-10, with the manufacturing sector recording a negative contribution to employment growth [Kumar, 2012].

The National Accounts Statistics (NAS) indicate a significant improvement in industrial performance in West Bengal, during the latter half of the decade. During the first, the momentum picked up in the 1990s continued, with the registered segment showing signs of improvement. During the latter half of the decade, the improving trend continued, though its growth rate fell short of that at the national level. This was evidently brought about by a moderate, but effectual, expansion of the registered (factory) segment of the manufacturing sector of the state during the latter half of the decade. The early-in-the-decade "turn around" in registered manufacturing at the national level in terms of GVA growth [Nagaraj 2011], as the substantially higher growth rates in both the five-year period indicate, is observed for West Bengal too. The fairly improved growth rates recorded for the state, however, were much lower than national-level growth rates.

In sharp contrast, the GVA of the unregistered segment of manufacturing in the state grew at a faster pace than the nation as a whole during the first half of the decade, followed by a deceleration in the latter half of the decade, falling again below the national-level growth rate. This is a significant point, as it appears to be a direct consequence of

(a) falling share of unregistered segment in manufacturing employment at the national level while that for the state remaining largely unchanged, and
(b) progressively falling labour productivity (GVA per worker) in the state as compared to that at the national level

given that the labour productivity in registered manufacturing is over four times of that in the unregistered manufacturing [Kathuria 2010].

The extant literature attributes the poorer industrial performance of the state to the presence of a disproportionately large unorganised segment of the manufacturing sector. The unorganised segment occupies a dominant position in India's manufacturing sector in terms of its contribution to employment. At the national level, the share of unorganised segment in manufacturing 'job-count' employment was as high as 83 per cent in 2000-01. With the rapid growth in the number of factories and thus in employment in organised manufacturing during the decade, there were clear signs of sharp decline in the share of unorganised segment. By the end of the decade, in 2010-11, it was just about 74 per cent. As against this, the unorganised manufacturing units accounted for about 90 per cent of the 'job count' employment in manufacturing sector of West Bengal and there was no significant change in this respect during the decade. As the survey results indicate, the state's share in the country's GVA of manufacturing sector was as low as 4 per cent, while that in its employment was close to 12 per cent in 2010-11. Clearly, what ails manufacturing sector of West Bengal is its low productivity.

V. Outsourcing and Subcontracting – Recent Trends in West Bengal and Other Selected States

The *MSP*s have special significance in the Indian context, as a large number of establishments classified under manufacturing are, in fact, engaged in providing services of transforming materials on contract. In India, about a third of the manufacturing sector workforce was engaged in providing manufacturing services to others throughout the decade.

This section traces the changes undergone in the composition of units categorised by the contractual arrangement (or absence of it) under which they provide or procure manufacturing services for final and intermediate use. These categories are henceforth referred to as 'contract categories'. The categories 'principal', 'agent', 'JWU', and 'own accord', as defined in Section II, constitute the manufacturing sector. In addition, the category 'MSP' for the unregistered manufacturing units is also included in the tables contains survey results used in the study. Besides the estimates of number of units, this and the following sections include observations made on those of workers and *GVA* for 2000-01, 2005-06 and 2010-11. The estimates for West Bengal are compared with the national-level

estimates and those of seven other selected states, viz. Uttar Pradesh, Gujarat, Tamil Nadu, Maharashtra, Andhra Pradesh, Madhya Pradesh and Rajasthan. As *Table 6* shows, the states selected for comparison between them account for substantial proportion of units, workers and GVA of the contract categories.

***Table 6*: Percentage Share of Eight States in National Aggregates Relating to Manufacturing Sector – 2010-11**

Estimates	Registered	Unregistered	all
Units	67.7	73.9	73.9
Workers	66.1	74.8	72.5
JWUs	70.9	88.8	88.7
JWU workers	69.0	90.6	88.9
Principal units	70.8	82.4	79.4
Principal units workers	66.7	83.0	67.8
Agent units	76.2	94.6	94.0
Agent units workers	71.2	96.4	85.4
GVA	65.6	70.9	66.2
GVA of principals, agents and JWUs	66.4	69.0	66.9

Growth of Registered Manufacturing

As a consequence of the "turn around" in registered manufacturing observed from some time point during the first half of the decade [Goldar 2011], the shares of registered segment grew significantly during the decade. In *Table 7*, the effect of the "turn around" is reflected in higher shares of registered segment in the number of units, workers and GVA in 2010-11 in most of the selected states, including West Bengal. Only in Gujarat, the number of units and workers in the registered segment seem to have grown at a slower rate than those in the unregistered segment. Also, the percentage of registered units fell marginally in Maharashtra during the second half of the decade. Yet, in both these states, the share of the registered segment was much higher in 2010-11 than 2005-06[11]. This is a significant point, since, as revealed by observations made later, it might have been caused by growing incidence of outsourcing by the registered units of these two states.

The position of West Bengal, however, did not change in respect of share of registered segment even after the all-round growth in the registered manufacturing in the second half of the decade. In 2010-11, only 11% of the manufacturing workforce in West Bengal was employed in the registered units, as against the corresponding figure of 26% at the national level. Of the selected states, only Uttar Pradesh and Madhya Pradesh had similar low percentage of workers in registered manufacturing. In sum, the manufacturing sector of the West Bengal continued to feature a starker predominance of the unregistered units than the other selected states.

[11] For Maharashtra, the share of registered segment in GVA is inexplicably low. This is because of a very few units with very high GVA in the sample of Enterprise Survey of 62nd round.

***Table 7*: Percentage Share of Registered Segment in Number of Manufacturing Units, Workers and GVA**

State / All India	Estimate	2000-01	2005-06	2010-11
All India	No. of units	0.69	0.73	0.90
	workers	17.3	19.5	26.2
	GVA	71.9	72.4	88.5
West Bengal	No. of units	0.20	0.20	0.24
	workers	8.7	8.3	10.9
	GVA	45.1	59.8	74.0
Uttar Pradesh	No. of units	0.38	0.39	0.43
	workers	8.9	10.6	13.2
	GVA	61.2	61.8	83.9
Gujarat	No. of units	2.35	1.94	1.10
	workers	32.7	31.2	28.1
	GVA	81.7	84.4	90.2
Tamil Nadu	No. of units	1.19	1.23	1.41
	workers	24.4	28.3	35.2
	GVA	76.2	83.4	86.1
Maharashtra	No. of units	1.34	1.47	1.40
	workers	27.6	29.3	34.1
	GVA	80.1	59.0	91.7
Andhra Pradesh	No. of units	0.77	0.90	1.21
	workers	20.9	23.9	28.3
	GVA	65.8	86.8	86.7
Madhya Pradesh	No. of units	0.35	0.27	0.35
	workers	13.9	10.4	16.4
	GVA	82.1	77.3	89.8
Rajasthan	No. of units	0.75	0.88	1.15
	workers	16.5	18.0	25.9
	GVA	76.0	76.1	85.3

Changes in Outsourcing

The estimates of percentage share of *principals*, i.e. outsourcing units, in number of units, workers and GVA, reveal a growing concentration of outsourcing in larger manufacturing units, particularly during the second half of the decade (*Table 8*). At the national level, though the percentage of *principals* declined from 1.8% to 1.3%, that of workers increased from 11% to 14% during the second half of the decade. This was accompanied by growing percentage of outsourcing units in the registered segment and a fall in that in the unregistered segment of the manufacturing sector. What is most important to note is that the share of *principals* in GVA indicate an increasing trend throughout the decade, despite the fall in percentage of units during the second half of the decade.

In West Bengal, unlike the other selected states, the percentage share of *principals* fell, both in terms of number of units and workers. The percentage of *principal* units in the state

was higher than that in the country as whole in 2000-01. But by the end of the decade, the percentage of *principal* units in the state became at par with that national level estimate, while that of the number of workers in *principal* units fell much below the national level percentage. As it appears, outsourcing tended to get concentrated in larger units.

***Table 8*: Percentage Share of Principals in Number of Units, Workers and GVA**

State / All-India	Estimate	2000-01			2005-06			2010-11		
		Regis-tered	Unreg-istered	*all*	Regis-tered	Unreg-istered	*all*	Regis-tered	Unreg-istered	all
All India	unit	34.3	1.4	*1.6*	34.0	1.6	*1.8*	36.3	0.9	*1.3*
	workers	45.8	1.9	*9.5*	47.9	2.4	*11.2*	50.7	1.4	*14.3*
	GVA	44.7	2.7	*32.9*	54.2	5.5	*40.7*	48.8	2.1	*43.4*
West Bengal	unit	37.8	3.6	*3.6*	37.2	2.6	*2.6*	38.6	1.3	*1.3*
	workers	51.1	4.6	*8.7*	44.0	4.1	*7.4*	47.2	1.8	*6.8*
	GVA	41.7	5.3	*21.7*	42.2	9.5	*29.1*	42.3	3.2	*32.2*
Uttar Pradesh	unit	31.3	0.9	*1.0*	33.2	0.4	*0.5*	34.8	0.3	*0.4*
	workers	36.4	1.0	*4.1*	44.6	0.7	*5.4*	45.8	0.9	*6.8*
	GVA	29.0	2.0	*18.5*	50.3	4.4	*32.8*	37.2	1.5	*31.4*
Gujarat	unit	36.8	0.1	*1.0*	38.8	0.4	*1.1*	43.1	0.7	*1.2*
	workers	47.2	0.3	*15.6*	52.3	0.9	*16.9*	52.3	1.2	*15.5*
	GVA	45.4	0.4	*37.2*	66.1	14.7	*58.0*	40.9	2.3	*37.1*
Tamil Nadu	unit	34.2	1.1	*1.5*	33.1	1.3	*1.7*	38.0	1.3	*1.8*
	workers	52.3	2.5	*14.7*	54.7	2.6	*17.3*	54.2	1.8	*20.2*
	GVA	47.5	3.7	*37.1*	51.9	6.1	*44.3*	53.9	2.7	*46.8*
Maharashtra	unit	45.9	1.9	*2.5*	46.6	0.7	*1.4*	48.9	2.1	*2.7*
	workers	56.7	2.4	*17.4*	58.1	1.6	*18.2*	60.9	1.9	*22.1*
	GVA	54.6	3.8	*44.5*	56.6	5.1	*35.5*	56.8	1.1	*52.2*
Andhra Pradesh	unit	17.5	1.4	*1.5*	17.8	6.2	*6.3*	24.1	1.3	*1.6*
	workers	27.6	2.1	*7.4*	26.2	8.1	*12.4*	37.6	2.1	*12.1*
	GVA	26.3	2.6	*18.2*	33.9	10.9	*30.9*	46.3	3.0	*40.6*
Madhya Pradesh	unit	33.3	0.3	*0.4*	35.1	0.3	*0.4*	38.3	0.1	*0.2*
	workers	53.5	0.6	*7.9*	48.4	0.4	*5.4*	51.0	0.1	*8.4*
	GVA	45.3	1.3	*37.4*	40.8	1.8	*31.9*	46.1	0.3	*41.4*
Rajasthan	unit	30.8	0.5	*0.7*	35.9	0.8	*1.1*	39.3	1.7	*2.1*
	workers	40.1	0.6	*7.1*	50.6	1.9	*10.7*	51.2	3.1	*15.6*
	GVA	33.4	1.0	*25.6*	57.3	4.8	*44.7*	41.2	2.9	*35.5*

The annual compound growth rates (AGCR) of *principal* units in the registered and unregistered segments, given in *Table 9*, reveal contrasting patterns for the selected states. As observed at the national level, the number of unregistered *principal* units grew at relatively faster rate during the first half of the decade. In sharp contrast, while registered *principal* units grew at a faster pace, there was a steep fall in the percentage of unregistered units in the second half of the decade. In West Bengal, there was an overall fall in percentage of *principals* throughout the decade, with only registered *principals* recording a faster growth in the second half.

Table 9 indicates that the "turn around" in the latter part of the decade was generally accompanied with a distinct growth of outsourcing in registered manufacturing sector. At the same time, there was a drastic fall in the number of unregistered *principal* units in most of the states, indicating a clear shift of outsourcing practice towards bigger units. Contrastingly, however, the states of Gujarat, Maharashtra and Rajasthan recorded very fast growth in number of unregistered principal units during the second half of the decade.

***Table 9*: Annual Compound Growth Rate (AGCR) of Manufacturing Units and Principal Units**

State / All India	Unit type	2000-01 to 2005-06			2005-06 to 2010-11		
		Regis-tered	Unregis-tered	all	Regis-tered	Unregis-tered	all
All India	Principal	0.8	2.2	2.0	5.7	-9.8	-7.0
	All units	1.0	0.1	0.1	4.3	-0.2	-0.1
West Bengal	Principal	-1.2	-6.5	-6.4	4.5	-13.2	-12.5
	All units	-0.9	-0.1	-0.1	3.7	0.0	0.0
Uttar Pradesh	Principal	2.6	-16.8	-13.6	2.3	-5.1	-2.9
(UP)	All units	1.5	0.6	0.6	1.3	-0.5	-0.5
Gujarat	Principal	0.8	31.2	6.7	5.8	30.9	16.8
	All units	-0.2	3.8	3.7	3.6	16.3	16.1
Tamil Nadu	Principal	-0.5	2.7	1.9	7.8	1.1	2.9
	All units	0.2	-0.6	-0.6	4.9	2.0	2.1
Maharashtra	Principal	0.2	-19.5	-12.8	3.7	28.6	18.8
	All units	-0.1	-1.9	-1.9	2.7	3.6	3.6
Andhra Pradesh	Principal	2.7	33.5	31.7	13.8	-26.0	-23.3
(AP)	All units	2.3	-0.9	-0.9	7.2	0.9	1.0
Madhya Pradesh	Principal	-1.3	4.5	2.9	7.6	-23.0	-11.2
(MP)	All units	-2.3	2.9	2.9	5.8	0.2	0.3
Rajasthan	Principal	7.0	11.5	10.1	6.5	15.2	12.9
	All units	3.7	0.4	0.5	4.6	-0.8	-0.8

In sum, the changes observed in outsourcing practices during the decade can be summarised as follows:

i. Increasing trend in share of *principals* in GVA, despite a fall in percentage of *principals* units during the second half of the decade – in West Bengal as well as at the national level;

ii. A growing outsourcing practice in registered manufacturing sector – in West Bengal as well as at the national level – and a drastic fall in the number of unregistered *principal* units in West Bengal and in UP, AP & MP, indicating a clear shift of outsourcing practice towards bigger units;

iii. In Tamil Nadu, rapid growth of registered *principal* units was accompanied by slow growth of unregistered *principal* units; and

iv. Gujarat, Maharashtra and Rajasthan recorded a very fast growth in number of unregistered principal units during the second half of the decade.

Changing Prevalence of Subcontracting

Besides the *JWU*s, who are themselves engaged in subcontracting activities, the *agents*, who mediate between the *principals* and *JWU*s, play an indispensable role in establishing contractual arrangements between the outsourcer and subcontractor. Thus, the percentage of those working in *JWU*s and *agent* units reflects how dependent is the manufacturing workforce of a state on subcontracting. *Table 10* provides these estimates for comparison of prevalence of and changes in subcontracting in West Bengal with the selected other seven states as well as the country as a whole.

As expected, the table reveals that *JWU*s and *agents* are much more common in the unregistered manufacturing sector. In registered manufacturing of the country as a whole, the percentage of those employed in *JWU*s and *agents* units remained largely unchanged at 6%-7% during the decade. In comparison, the share of *JWU*s and *agents* in manufacturing employment was much higher in the unregistered segment, despite a perceptible declining trend during the second half of the decade.

***Table 10*: Percentage Share of JWUs and Agents in Manufacturing Workforce**

State / All-India	2000-01			2005-06			2010-11		
	Regis-tered	Unreg-istered	all	Regis-tered	Unreg-istered	all	Regis-tered	Unreg-istered	all
All India	**6.0**	**22.3**	***19.5***	**6.9**	**22.0**	***19.1***	**5.9**	**16.6**	***13.8***
West Bengal	1.8	37.6	*34.5*	2.8	34.8	*32.2*	2.7	47.3	*42.5*
Uttar Pradesh	2.8	21.0	*19.3*	2.3	26.2	*23.7*	2.8	22.8	*20.1*
Gujarat	5.0	28.4	*20.7*	5.2	15.4	*12.2*	5.6	2.0	*3.0*
Tamil Nadu	13.6	36.7	*31.1*	14.1	40.7	*33.2*	12.7	27.3	*22.2*
Maharashtra	4.5	16.1	*12.9*	4.6	17.3	*13.6*	3.7	2.5	*3.0*
Andhra Pradesh	5.3	15.7	*13.6*	6.6	14.1	*12.3*	6.0	6.2	*6.1*
Madhya Pradesh	4.4	25.5	*22.6*	4.4	5.7	*5.7*	2.9	22.0	*18.8*
Rajasthan	5.2	9.4	*8.8*	5.2	10.2	*9.3*	4.0	2.9	*3.2*

During the first half of the decade, about a third of the total manufacturing sector employment in West Bengal and Tamil Nadu was engaged in *JWU*s or *agents* units, as against 19% at the national level. In all the other selected states, the percentage share was much lower and, except for Gujarat and Madhya Pradesh, no noticeable change in this respect during the first half of the decade.

The most significant of what is revealed by the table relates to the second half of the decade. While the percentage share in the country as a whole fell from 19% to 14%, that in West Bengal shot up from 32% to 42%. This is a feature unique to West Bengal. In Madhya Pradesh, the share of the *JWU*s and *agents* in total manufacturing employment also jumped up from 6% to 19% during the second half of the decade, but that was preceded by a fall from 23% during the first half. All the other selected states recorded a noticeable decline in the share of the *JWU*s and *agents* during the latter half of the decade.

The decline in the share of *JWU*s and *agents* in manufacturing employment was the sharpest in Maharashtra and Gujarat. In both these states, the share fell from about 13% to 3%. The fall in the share was also sharp in Rajasthan and Andhra Pradesh, reaching noticeably low percentages of 3% and 6% respectively by the end of the decade. Tamil Nadu too recorded a sharp fall in the share, yet it was pretty high (22%) at the end of the decade.

Extent of Inter-firm Transaction of Manufacturing Services

The contribution of units involved in inter-firm transaction of manufacturing services in the *GVA* of manufacturing sector broadly reflects its dependence on outsourcing of manufacturing processes. The *JWU*s, as defined for the study, are solely engaged in production of manufacturing services. Similarly, the *agents* are also defined as being solely engaged in mediation between outsourcing units and subcontractors. But, the *principals* are defined as those who purchase manufacturing services from the *JWU*s, irrespective of whether or not they undertake manufacturing activities on their "own accord". Thus, the GVA of the *principals* includes contribution of their "own accord" activities. However, if the vertical subcontracting of the small by the big firms be the more prevalent form of inter-firm arrangement of manufacturing process, much of the "own accord" production activities of the *principals* are expected to be directly dependent on the manufacturing services provided by the *JWU*s. The estimates of this simple, though crude, indicator of dependence on outsourcing, viz. combined percentage share of units involved in outsourcing and subcontracting in manufacturing GVA, are presented in *Table 11* for all-India and the selected states.

***Table 11*: Percentage Share of Units Involved in Outsourcing and Subcontracting in Manufacturing GVA**

State	2000-01	2005-06	2010-11
All India	40.3	44.3	45.9
West Bengal	38.7	35.5	41.6
Uttar Pradesh	26.7	36.5	34.3
Gujarat	44.9	59.6	38.4
Tamil Nadu	47.7	51.3	53.4
Maharashtra	50.2	40.3	53.4
Andhra Pradesh	24.7	34.6	43.2
Madhya Pradesh	41.4	33.3	43.1
Rajasthan	30.7	48.5	37.5

Notwithstanding the crudity of the indicator, *Table 11* reveals an extremely high dependence of Indian manufacturing on subcontracting. At the national level, the share underwent a gradual rise during the decade. Largely similar trends are seen for most the selected states, except Gujarat. What is most striking of the observations made from *Tables 10* & *11* is that while the percentage share of subcontracting-based manufacturing in manufacturing GVA by far exceeded that of the *JWU*s and *agents* in manufacturing

workforce for all the other selected states as well as at the national level, in West Bengal both were high and the estimates of the shares were of the same, if not reverse, order.

Though the combined percentage share of *principals*, *agents* and *JWU*s may be considered to serve fairly well as an indicator of dependence on outsourcing activities, it undeniably shrouds the contribution of subcontractors of the respective states. For example, the subcontracting-based manufacturing accounted for more than half of the manufacturing GVA of both Maharashtra and Tamil Nadu, but their combined percentage shares of *agents* and *JWU*s in the manufacturing workforce were 3% and 22% respectively (*Table 10*).

Gauging by the market prices (of manufacturing services), the contribution of *JWU*s was just about 2% of the manufacturing GVA in 2010-11, while the share of subcontracting-based manufacturing was as high as 46% (*Table 12*). The shares presented in *Table 12* reveals that, as compared to 'own accord' units, the *principals* could appropriate a relatively high share of manufacturing GVA with a much smaller share in manufacturing workforce. While 72% of the manufacturing workforce, who were engaged in 'own accord' manufacturing, could secure just 54% of the manufacturing GVA, the share of the *principals* in the workforce was only 14% but that in GVA was as high as 43%. Evidently, much of the GVA of the *principals* are derived from the value generated by activities of the subcontractors.

Table 12*: Percentage Share of Units Involved in Outsourcing and Subcontracting in Manufacturing *GVA in 2010-11

All-India

'contract' category	***GVA***	**Workers**
Principal	43.4	14.3
Agent	0.7	1.3
JWU	1.8	12.5
Own accord	54.1	71.9
All	100.0	100.0

The *JWU*s, on the other hand, are mostly self-employed individuals, typically 'homeworkers' or small establishments working on piece rates. The remunerations they receive are virtually compensation of the labour input, while rest of the value added generated through the process flows to the *principals*. At every stage of this kind of inter-firm arrangement, the ownership rights on both the raw materials and finished products lies with the *principals*. Complete control over the supply chain of raw materials and finished products vests the *principals* with the ability of appropriating a much greater share of the value added generated in the whole process.

West Bengal's high percentage of workforce in *JWU*s and a low share in the GVA of the units involved in outsourcing of manufacturing process, in relative terms, suggest that much of the fruits of the processing services provided by the *JWU*s of the state get included in the domestic product of the state to which the *principals* belong. The following discussion is an attempt to detect incidence of outsourcing and subcontracting across state borders, based on estimates of number of *principal* units and number of workers in *JWU*s.

Cross-State-Border Outsourcing and Subcontracting

In absence of data on inter-firm transactions across state boundaries, evidence of inter-state flow of manufacturing services is sought from the state-wise estimates of number of *principal* units and number of workers in *JWU*s. The *Index of Relative Prevalence* (*IRP*) used for this purpose is similar to Balassa's (1965) Revealed Comparative Advantage (RCA), except that instead of the value of goods traded used for constructing Balassa's index, *IRP* is based on estimated number of receivers (number of *principal* units) and providers (workers in *JWU*s) of manufacturing services. The IRP is defined as follows:

$$IRP = \frac{P_{nk}/P_k}{P_{nI}/P_I}$$

where P_{nk}: number of *principal* units / workers in JWUs in the kth state

P_k : number of units / workers in the kth state

P_{nI} : number of *principal* units / workers in JWUs in India

P_I : number of units / workers in India.

A similar index, Production Advantage index (*PAI*) used by Roy Chouwdhury *et. al.* (2012), is based on value of production of a specific product. Taking the manufacturing services providing workforce as a close proxy of value of production, under an assumption of homogeneity of value added per worker, *IRP* is equivalent to *PAI* for manufacturing services. With similar assumptions, *IRP* for *principal* units – the receivers of manufacturing services – represents revealed advantage of the states in intermediate use of manufacturing services. What is important to note, however, is that while the entire volume of trade, used in Balassa's *RCA* Index, represents transactions of goods between economic territories, the transactions represented in the *PAI* and *IRP* are not entirely between-state transactions.

***Table 13*: *IRP*s of Principal and *JWU* Workers**

State	*Principals*			*JWU* workers		
	2000-01	2005-06	2010-11	2000-01	2005-06	2010-11
West Bengal	2.3	1.4	1.0	2.0	1.8	2.9
Uttar Pradesh	0.6	0.3	0.3	1.0	1.1	1.3
Gujarat	0.6	0.6	0.9	0.9	0.8	0.1
Tamil Nadu	0.9	0.9	1.4	1.5	1.8	1.4
Maharashtra	1.6	0.8	2.1	0.5	0.6	0.2
Andhra Pradesh	0.9	3.5	1.2	0.5	0.6	0.2
Madhya Pradesh	0.3	0.2	0.2	1.2	0.3	1.5
Rajasthan	0.4	0.6	1.6	0.3	0.3	0.1

An *IRP* greater than one indicates greater advantage of the receivers / providers of manufacturing services for the state. Construed accordingly, West Bengal had greater advantage both as receivers and providers during the decade (*Table 13*). But, there has been a noticeable shift in advantage towards the *JWU*s in the state. At the beginning of the decade, the *RPI* for *principals* was the highest in the state, owing to relatively high presence of

principals in the unregistered manufacturing sector (*Table 8*). By the end of the decade, the *RPI* for the *principals* declined to one and the *RPI* for the *JWU*s rose to a level much higher than all the other selected states. In fact, the rise in the *RPI* for the *JWU*s occurred only in the second half of the decade. In sum, both outsourcing and subcontracting had relative advantage in West Bengal, except at the end of the decade when *RPI* for *principals* declined to 1 and the prevalence of subcontracting growing sharply during the decade.

Among the other selected sates, the *RPI*s display varying trends. Maharashtra and Andhra Pradesh had high *RPI* for the *principals* and low *RPI* for *JWU*s almost all through the decade. In contrast, Uttar Pradesh and Madhya Pradesh had low the *RPI* for *principals* and high RPI for *JWU*s, throughout the decade, except in the middle when the *RPI* for *JWU*s for Madhya Pradesh is found to be low. In Gujarat and Rajasthan, both subcontracting and outsourcing were generally low, with a sharp fall in the *RPI* for the *JWU*s. In general, except for West Bengal, the *RPI*s indicate that the states with a fair level of outsourcing of manufacturing process had relative advantage either as receiver or providers of manufacturing services.

Index of Net Subcontracting

Comparison between RPIs for the *principals* and *JWU*s does help categorise the states as having advantage as providers and receivers of manufacturing services in most cases. Next is an attempt at identifying the states that are 'net subcontractors' using two indices defined as follows:

First, an index, henceforth called *Index of Net Subcontracting* (*INS*), defined as the ratio of number of workers in *JWU*s per *principal* unit in the state to the same for the country as a whole, i.e.

$$INS = \frac{number\ of\ workers\ in\ JWUs\ per\ principal\ unit\ in\ the\ state}{number\ of\ workers\ in\ JWUs\ per\ principal\ unit\ in\ India}$$

Second, another index, henceforth called *Size-Adjusted Index of Net Subcontracting* (*SAINS*), is defined as *INS* adjusted by a factor representing relative size of units in the state. *INS* assumes homogeneity of average employment size of the units across the states, which obviously varies over the states owing to varying proportion of registered units. The adjustment factor is simply the ratio between the average size of units of the state and that for the country as a whole. Interestingly, *SAINS* reduces to the ratio of *IRP* for the *JWU* workers to *IRP* for the *principal* units.

$$SAINS = \frac{number\ of\ workers\ in\ JWUs\ per\ principal\ unit\ in\ the\ state}{number\ of\ workers\ in\ JWUs\ per\ principal\ unit\ in\ India} \Big/ \frac{average\ size\ of\ units\ in\ the\ state}{average\ size\ of\ units\ in\ India}$$

This reduces to

$$SAINS = (IRP\ for\ JWU\ workers\ of\ the\ state) \Big/ (IRP\ for\ principal\ units\ of\ the\ state)$$

The indices of net subcontracting, in *Table 14*, help identify the states that have been 'net subcontractor' and 'net outsourcer' in different years of the decade. For both the indices, a value greater than 1 indicates that the state has been a 'net subcontractor', while a value less than 1 indicates that it has been 'net outsourcer'. As can be seen from the table, there is little to choose between the two indices, as they do not lead to varying conclusions. Only the *SAINS* seems to be more discriminating than *INS*.

***Table 14*: Index of *Net Subcontracting* by the States**

State	*INS*			*SAINS*		
	2000-01	2005-06	2010-11	2000-01	2005-06	2010-11
West Bengal	0.77	1.09	2.15	0.87	1.29	2.90
Uttar Pradesh	1.67	3.53	4.17	1.67	3.67	4.33
Gujarat	2.31	2.05	0.13	1.50	1.33	0.11
Tamil Nadu	1.86	2.38	1.19	1.67	2.00	1.00
Maharashtra	0.40	1.04	0.12	0.31	0.75	0.10
Andhra Pradesh	0.56	0.16	0.16	0.56	0.17	0.17
Madhya Pradesh	3.54	1.33	5.83	4.00	1.50	7.50
Rajasthan	0.63	0.48	0.06	0.75	0.50	0.06

As both the indices suggest, West Bengal shifted its position from being 'net outsourcer' to 'net subcontractor' during the decade. Only Gujarat among the other selected states show a shift in position, but in the reverse direction. It has been a 'net subcontractor' during the first half of the decade, and made a sharp 'turn around' to become a 'net outsourcer' at the end of the decade.

No other selected state displays such a shift in position during the decade. Uttar Pradesh, Madhya Pradesh and Tamil Nadu have throughout been 'net subcontractors', with Tamil Nadu showing distinct signs of shifting towards outsourcing in the future. On the other hand, the indices clearly identify Maharashtra, Rajasthan and Andhra Pradesh as having been 'net outsourcers' throughout the decade.

Disparate Distribution of Earnings from Subcontracting-Based Manufacturing over States

The GVA of all units involved in outsourcing, mediation and subcontracting, i.e. *principals*, *agents* and *JWU*s, represents the earnings from subcontracting-based manufacturing. We have seen from *Table 12* that GVA per worker of the *principal* units are much higher than that of *JWU*s and the *agent* units. Thus, the states with high *SAINS* value are expected to have lower *GVA* per worker than those with low *SAINS* value. The high variation observed in the *SAINS* value in *Table 14* leads one to expect severe disparity in earnings from subcontracting-based manufacturing over the states.

To examine the disparity over states in this respect, we have used the percentage shares of the selected states in workers and GVA of the units engaged in subcontracting-based manufacturing (henceforth referred to as SBM) of the country as a whole. These are given in *Table 15* for all the selected states.

***Table 15*: Percentage Share of West Bengal and the Selected Other States in Workers and GVA of subcontracting-based manufacturing Units**

State	Estimate	2000-01	2005-06	2010-11
West Bengal	Workers	21.3	17.3	21.0
	GVA	6.0	3.4	3.7
Uttar Pradesh	Workers	10.7	12.6	12.2
	GVA	5.5	5.9	5.2
Gujarat	Workers	6.2	5.7	6.2
	GVA	11.8	17.8	11.3
Tamil Nadu	Workers	16.0	17.4	17.4
	GVA	14.0	9.7	12.3
Maharashtra	Workers	9.6	9.5	9.1
	GVA	22.2	23.2	21.0
Andhra Pradesh	Workers	6.7	7.0	6.0
	GVA	3.3	3.9	6.4
Madhya Pradesh	Workers	3.9	1.6	3.8
	GVA	4.3	1.8	2.5
Rajasthan	Workers	1.7	2.3	2.3
	GVA	3.4	3.3	2.9

The observation of utmost significance revealed by the table is that West Bengal had the highest participation in terms of SBM workforce throughout the decade, yet its percentage share in the GVA of SBM units was among the lowest ones. Even at the beginning of the decade, when it was a 'net outsourcer', its share in GVA of SBM units was much lower than that in SBM workforce. The state's *principal* units in the early part of the decade were obviously plagued with low returns, which possibly saw many of them to their extinction, thus bringing about the shift of its position from 'net outsourcer' to 'net subcontractor'.

Two other selected states, viz. Uttar Pradesh and Tamil Nadu, also had disproportionately low share in GVA of SBM units as compared to their shares in SBM workforce throughout the decade. Both these were 'net subcontractors' all through the decade. In Madhya Pradesh and Rajasthan, which had relatively low level of SBM activities, the shares in GVA and workforce were both low but largely proportionate. Only Gujarat and Maharashtra had proportionately much higher share in GVA of SBM units than that in SBM workforce throughout the decade. Proportionately high share in GVA of SBM units in Gujarat, even when it was a 'net subcontractor' at the beginning of the decade, implies good returns for the manufacturing services it provided. Possibly the *JWU* units of the state were engaged in activities that yielded high returns, such as 'diamond cutting', which subsequently enabled them to convert themselves to 'own accord' or *principal* units during the decade, and bringing about a change in its position from a 'net subcontractor' to a 'net outsourcer' state. Since activity-wise analysis is beyond the scope of this paper, no further attempt is made here to seek for underlying changes in activity-wise composition of the SBM units.

VI. Subcontracting in Unregistered Manufacturing - Composition and Productivity in West Bengal and Other Selected States

Since most of the *JWU*s are in the unregistered manufacturing sector, we propose to take a closer look at the gender and rural-urban composition of its workforce and their productivity, for isolating the main factors underlying the growth of *JWU*s in West Bengal, especially during the second half of the first decade of the 21st century. The main purpose of the analysis here is to investigate whether the workers get engaged in *JWU*s for better economic prospects or under conditions of distress.

***Table 16*: Percentage Distribution of Workers in *JWU*s by Gender and Rural-Urban Location**

States	Year	Rural			Urban			All
		Female	Male	persons	Female	Male	persons	
All India	2000-01	31.8	26.6	*58.4*	13.9	27.8	*41.6*	100
	2005-06	42.8	21.3	*64.2*	14.3	21.5	*35.8*	100
	2010-11	44.5	19.8	*64.3*	16.6	19.1	*35.7*	100
West Bengal	2000-01	37.8	32.2	*70.0*	13.6	16.4	*30.0*	100
	2005-06	57.1	19.3	*76.4*	12.6	11.0	*23.6*	100
	2010-11	56.9	24.6	*81.5*	7.9	10.7	*18.5*	100
Uttar Pradesh	2000-01	23.3	31.2	*54.6*	17.2	28.3	*45.4*	100
	2005-06	38.8	31.1	*69.9*	10.5	19.5	*30.1*	100
	2010-11	36.2	17.1	*53.3*	20.3	26.3	*46.7*	100
Gujarat	2000-01	7.0	22.6	*29.6*	7.7	62.7	*70.4*	100
	2005-06	9.1	15.4	*24.4*	26.8	48.7	*75.6*	100
	2010-11	0.0	11.8	*11.8*	49.0	39.2	*88.2*	100
Tamil Nadu	2000-01	34.3	22.5	*56.8*	18.9	24.3	*43.2*	100
	2005-06	41.3	15.5	*56.9*	21.1	22.1	*43.1*	100
	2010-11	25.2	12.9	*38.1*	28.9	33.0	*61.9*	100
Maharashtra	2000-01	3.8	8.8	*12.7*	15.3	72.0	*87.3*	100
	2005-06	9.3	23.3	*32.6*	12.4	55.0	*67.4*	100
	2010-11	31.7	13.3	*45.0*	28.8	26.2	*55.0*	100
Andhra Pradesh	2000-01	39.2	25.3	*64.4*	16.4	19.2	*35.6*	100
	2005-06	44.2	10.3	*54.5*	23.4	22.2	*45.5*	100
	2010-11	23.4	13.6	*36.9*	37.6	25.5	*63.1*	100
Madhya Pradesh	2000-01	36.2	34.0	*70.2*	13.9	16.0	*29.8*	100
	2005-06	12.8	12.8	*25.7*	49.9	24.4	*74.3*	100
	2010-11	43.3	27.2	*70.6*	20.9	8.5	*29.4*	100
Rajasthan	2000-01	18.2	19.3	*37.6*	27.1	35.3	*62.4*	100
	2005-06	19.7	15.0	*34.7*	17.7	47.6	*65.3*	100
	2010-11	0.5	3.6	*4.1*	39.0	56.9	*95.9*	100

Composition of Workforce Engaged in Subcontracting

The percentage distribution of *JWU*s workers given, in *Table 16*, clearly indicates a sizable presence of subcontractors in the rural areas of all the selected states during the entire decade, except for Gujarat and Rajasthan in 2010-11. Moreover, it reveals a rising trend, particularly during the first half of the decade, in share of rural areas in *JWU* employment.

What is even more revealing is that female workers constituted two-thirds of the rural *JWU* workforce at the national level and the rise in the rural employment was mainly brought about by growth in female employment.

West Bengal stands out from the other states for preponderance of rural female workers in its *JWU*s. Participation of female workforce in rural *JWU*s has been highest in West Bengal throughout the decade and has progressively grown during the period. In 2010-11, over 80% of the *JWU* workforce in the state was working in rural areas, of which about 70% were female workers. In fact, during the decade the percentage share of rural female workers in *JWU* workforce of the state has grown from 38% to 57%.

In sharp contrast, Gujarat had a very high percentage of urban workers in the *JWU* workforce, which moreover have been on the rise, throughout the decade. Much of the rise in the share of urban workers in the state owes to rising percentage of female workers. A few more observations of interest revealed by the table are as follows:

(a) Uttar Pradesh, Andhra Pradesh and Tamil Nadu have relatively high share of rural female workers in their *JWU* workforce, but there were distinct signs of decline during the latter half of the decade.

(b) In Maharashtra, about 72% of the *JWU* workforce was urban male workers in 2000-01. By the end of the decade, the share of urban male workers fell to just 26%, while the shares of both rural and urban female workers grew to 32% and 29% respectively.

(c) Distinct rising trend in the share of rural workers in *JWU* workforce was evident in Maharashtra and West Bengal. In rest of the states, except Madhya Pradesh with low level of SBM , the trend was in the reverse direction.

(d) In all the selected states, except Gujarat and Rajasthan, there was a distinct shift towards female workers in the composition of *JWU* workforce.

Labour Productivity of JWUs and Wage Earnings of Casual Workers

Recent literature on labour market dynamics abounds with evidences of distress-driven employment in non-farm sector, especially in the rural areas [Jatav et. al. (2013), Abraham (2011), Chowdhury (2011)]. To investigate whether this applies to employment in subcontracting units of the unregistered manufacturing sector as well, the changing composition of the *JWU* workforce observed above is set against estimates of labour productivity of the *JWU*s and prevailing average wage earnings of casual workers in the following discussion.

Table 17 provides estimates of labour productivity, measured as GVA per worker from the Enterprise Surveys (ESs) of NSSO conducted in 2000-01, 2005-06 and 2010-11, and the average daily wage earnings of casual labourers obtained from Employment and Unemployment Surveys (EUSs) of NSSO conducted in 1999-2000, 2004-05, 2009-10 and 2011-12. For comparison, all the figures presented in the table are deflated to 2004-05 prices, using the implicit price index derived from national accounts statistics.

Table 17: Labour Productivity of JWUs and Wage earnings of Casual Workers

States	Reference Year	Average Daily Wage Earnings at 2004-05 prices		Female-Male wage ratio		Reference Year	Average daily GVAPW of JWUs at 2004-05 prices	
		Rural	Urban	Rural	Urban		Rural	Urban
All India	1999-2000	42.5	63.5	0.65	0.61	2000-01	39.6	90.8
	2004-05	41.6	62.6	0.63	0.58	2005-06	47.2	92.7
	2010-11	69.0	89.8	0.69	0.60	2010-11	42.9	82.3
West Bengal	1999-2000	46.6	51.0	0.80	0.53	2000-01	36.0	60.0
	2004-05	42.5	47.4	0.80	0.51	2005-06	21.9	63.2
	2010-11	63.3	72.5	0.78	0.72	2010-11	39.7	74.6
Uttar Pradesh	1999-2000	44.3	53.9	0.69	0.73	2000-01	37.3	69.9
	2004-05	45.7	55.1	0.74	0.60	2005-06	35.1	71.5
	2010-11	65.7	79.5	0.70	0.74	2010-11	38.9	49.5
Gujarat	1999-2000	48.9	75.3	0.78	0.60	2000-01	100.4	211.7
	2004-05	49.2	70.3	0.82	0.56	2005-06	48.2	127.2
	2010-11	71.5	74.1	0.86	0.55	2010-11	568.2	110.3
Tamil Nadu	1999-2000	49.8	71.8	0.51	0.65	2000-01	37.3	61.7
	2004-05	45.8	65.7	0.52	0.57	2005-06	37.7	62.6
	2010-11	81.7	105.0	0.56	0.53	2010-11	67.8	113.4
Maharashtra	1999-2000	42.8	65.7	0.61	0.47	2000-01	83.8	182.9
	2004-05	41.9	72.1	0.59	0.49	2005-06	694.3	324.5
	2010-11	60.1	77.6	0.69	0.52	2010-11	36.1	109.6
Andhra	1999-2000	37.6	57.2	0.65	0.69	2000-01	32.9	59.2
Pradesh	2004-05	34.6	50.1	0.61	0.56	2005-06	36.1	42.1
	2010-11	78.1	95.8	0.66	0.63	2010-11	44.7	57.2
Madhya	1999-2000	32.2	43.7	0.83	0.67	2000-01	23.3	51.3
Pradesh	2004-05	34.6	45.1	0.79	0.82	2005-06	25.2	35.6
	2010-11	58.2	65.7	0.85	0.80	2010-11	22.3	29.8
Rajasthan	1999-2000	54.4	67.7	0.67	0.68	2000-01	72.0	76.1
	2004-05	57.3	63.5	0.81	0.70	2005-06	51.0	111.0
	2010-11	102.0	101.6	0.71	0.71	2010-11	43.1	74.7

The EUSs provide estimates of average daily wage earnings of casual as well as regular employees, separately for male and female workers of rural and urban areas. But, since the estimates of GVA per worker cannot in general be worked out separately for male and female workers of an enterprise, for comparison only the rural and urban average daily wage of casual workers are presented in the table. Further, since the gender composition of the *JWU* workforce is likely to differ from the gender composition of casual workers in the entire unregistered manufacturing sector, we have used weighted average of the daily wage earnings of the female and male casual workers obtained for the EUSs. The weights taken for this purpose are the proportions of female and male workers in *JWU*s derived from the ES with the closest reference period to that of the respective EUS. The estimates of average daily wage earnings for 2010-11 are derived as the simple average of the estimates thus obtained from the EUSs of 2009-10 and 2011-12, after having converted them to 2004-05 prices.

The ESs provide the data only on GVA of the last 30 days preceding the date of survey. To obtain estimates of average daily GVA per worker (GVAPW) of the *JWU*s, we have used a norm of 300 working days a year and eight hours of work per day. The data on number of months the unit was under operation and the average number of hours worked per day are collected in the ESs. These were used to derive the average daily GVAPW from the ESs and deflated by the implicit price index based on national accounts statistics to make them comparable with the estimates of average wage earnings of the casual workers in rural and urban areas.

Before taking up the comparison of the estimates presented in the table, it is necessary to note that the reference years for the estimates on wage earnings and GVAPW are not exactly the same, except for the closing year of the decade. Nonetheless, the observations made on relative levels of wages and GVAPW with reference periods unmatched by just one year should be sufficiently indicative to draw valid conclusions regarding how rewarding is the employment in JWUs of different states.

What emerges from comparison of the average daily GVAPW of *JWU*s and average daily earnings of casual workers are as follows:

(a) At the national level, the average daily GVAPW was of similar order as the average daily earnings in rural areas during the first half of the decade, but by the end of the decade the former stood considerably below the latter. In the urban areas, the average daily GVAPW was higher than or at par with the average daily wage earnings of the casual workers.

(b) In West Bengal, Uttar Pradesh and Tamil Nadu – all three 'net subcontractor' states in 2010-11 – the average daily GVAPW was much less than the average daily wage earnings of casual workers in rural areas, while the order was reverse in urban areas.

(c) Only in the states of Maharashtra and Gujarat – both 'net outsourcer' states – the average GVAPW was much higher than the average wage earnings of the casual workers in both rural and urban areas throughout the decade, except that GVAPW in rural areas on Maharashtra fell to a level much below the wage earnings in 2010-11.

(d) In contrast, casual wage earnings in Madhya Pradesh – a 'net subcontractor' state – were much higher than the average GVAPW towards the latter half of the decade.

The changing composition of the *JWU* workforce read together with the observations on diverse order wage earnings and GVAPW clearly indicate the *principals* have the choice of outsourcing manufacturing processes to *JWU*s located anywhere in the country. They are in a position to take advantage of availability of cheap labour across state borders, while the *JWU*s are obliged to work under terms of contract set by the *principals* even when the earnings fall below the daily wage earnings.

In the two major 'net outsourcer' states of Maharashtra and Gujarat, the *principals* who were required to pay remunerations to the *JWU*s higher than the local casual wage rates might have shifted their attention beyond their state boundaries, or to rural areas of the

Maharashtra, in search of *JWU*s ready to work at cheaper rates. This, as it appears, brought about a decline in the subcontracting in these two states, except in rural Maharashtra, where the female workers were available at cheaper rates towards the end of the decade.

At the other end, in the 'net subcontracting' states like West Bengal and Uttar Pradesh, the GVAPW of the rural *JWU*s were even less than daily wage earnings of rural casual workers, which themselves were among the lowest in the country. Thus, the *principals* were required to pay less than even the casual wage rates to engage the *JWU*s in the rural areas of these two states. The rising number of *JWU*s and greater participation of women in *JWU* workforce in rural West Bengal has perhaps been brought about by the growing interest of *principals* from other states in utilising the available cheap female labour.

Distress conditions of the rural poor have been held as an important underlying factor for growth of non-farm employment. This 'distress hypothesis' [Vaidyanathan 1986] applies equally appropriately to the growth of *JWU*s in rural West Bengal during the first decade of 21st century. The growth of *JWU*s in rural West Bengal and high female employment in them provide evidence of distress-led non-farm employment. During this decade, the rural non-farm employment has seen increase in share of casual labour [Jatav *et. al.* 2013]. Most of the *JWU*s are own-account enterprises of self-employed 'home workers'. As it appears, self-employment of this kind is not an option superior to casual wage employment, but a distress-led last resort employment option. With the diminishing labour absorption capacity of agriculture, stagnation in organised manufacturing and absence of decent job opportunities elsewhere, the female workforce of rural West Bengal were obliged to seek employment for remunerations that were even below casual wage earnings.

VII. Concluding Remarks

What surfaces from the cursory analysis of recent survey data is that the manufacturing sector of West Bengal has undergone a change of far-reaching consequence during the first decade of the present millennium. At the beginning of the decade, owing to the prolonged stagnation and decline in registered manufacturing during the entire post-independence 20th century, the manufacturing sector of the state came to be characterised by a disproportionately high percentage of workers engaged in unregistered units and thus by a very low labour productivity. What is of greater significance is that it already had a third of its manufacturing employment engaged in *JWU*s at the turn of the millennium.

West Bengal had relative advantage both in outsourcing and subcontracting at the beginning of the decade. But during the course of the decade, it lost much of the relative advantage of outsourcing, while the subcontracting units became more and more numerous. Particularly, during the second half of the decade, while the percentage share of *JWU*s in manufacturing workforce of the country as a whole fell from 19% to 14%, that in West Bengal shot up from 32% to 42%. Moreover, with the outsourcing practice in the country tending to shift towards bigger units, there was a drastic fall in the number of unregistered

principal units in the state. As a result, from its position of a 'net outsourcer' in the beginning of the decade, West Bengal became a 'net subcontractor' by the end of the decade.

An overwhelming proportion of the *JWU*s are own-account enterprises, which are paid low remuneration, often lower than casual workers, for their services, while a large part of the value added generated in the process gets included in the value of production of the *principals*. But even the state's principal units in the early part of the decade were plagued with low returns, which possibly saw many of them to their extinction, thus bringing about the shift of its position from 'net outsourcer' to 'net subcontractor'.

During the decade, there was a sharp rise in the percentage share of rural female workers in *JWU* workforce of the state. In the 'net subcontracting' states like West Bengal and Uttar Pradesh, the GVAPW of the rural *JWU*s were less than even the daily wage earnings of rural casual workers, which themselves were among the lowest in the country. The rising number of *JWU*s and the greater participation of women in *JWU* workforce in rural West Bengal appear to have been brought about by the growing interest of *principals* from other states in utilising the cheap female labour available in rural areas of the state, which was deprived of decent employment opportunities elsewhere.

The receipts of *JWU*s are essentially factor compensation for labour. Construed accordingly, West Bengal's high share in *JWU* workforce and very low share in the GVA of subcontracting-based manufacturing in India indicate that much of the fruits of the processing services provided by the state's *JWU*s get included in the domestic product of the state to which the *principals* belong.

In sum, West Bengal patently lacks the entrepreneurship to mobilise its 'distressed' workforce in contributing towards its own state domestic product. The entrepreneurs of other states, particularly those who require low-skill and low-paid workers for their manufacturing activities, should naturally be content with outsourcing, for the advantages cited the literature, to the state's *JWU*s rather than investing in the state. Thus, the very high prevalence of subcontracting not only is a consequence of industrial stagnation in the state but also an impediment to its industrial growth.

References

Abraham, Vinoj (2011). *Agrarian distress and rural non-farm sector employment in India*, Online at http://mpra.ub.uni-muenchen.de/35275/MPRA Paper No. 35275, posted 8 December 2011 18:38 UTC

Bagchi, Amiya Kumar and Panchanan Das (2005). Changing Pattern of Employment Under Neo-Liberal Reforms: A Comparative Study of West Bengal And Gujarat, *Indian Journal of Labour Economics*, Vol. 48, No. 4, 2005.

Banga, R and Goldar, B. (2004). *Contribution of Services to Output Growth and Productivity in Indian Manufacturing: Pre and Post Reforms*, Working Paper No. 139, Indian Council For Research On International Economic Relations.

Behera, Deepak Kumar (2012). Economic Growth and Employment Trends in India, 1983-2010: What Does the Latest Employment Data Reveal? *Indian Journal of labour Economics*, Volume 55, No. 2, April-June 2012.

Bela Balassa (1965): *Trade Liberalisation and Revealed Comparative Advantage*, The Manchester School of Economic and Social Studies, 33.

Bhaumik, S.K. (2002). Emerging Employment and Unemployment Scenarios in West Bengal, *Journal of Indian School of Political Economy*, Vol. 14, No. 3, 2002

Basole, Amit, Deepankar Basu and Rajesh Bhattacharya (2014). Determinants and Impact of Subcontracting: Evidence from India's Informal Manufacturing Sector, Working Paper 2014-04, Department of Economics, University of Massachusetts, Amherst.

Burange L. G. (2001). Liberalisation and Employment in the Organised Manufacturing Sector of India: An Inter-Regional Analysis, *Journal of the Indian School of Political Economy*, Vo. 13, Nos. 2 and 3.

Chattopadhyay, Sadhan Kumar (2004). Trends in Total Factor Productivity of Manufacturing Sector in West Bengal: A Sectoral and Temporal Analysis, *Reserve Bank of India Occasional Papers* Vol. 25, No. 1, 2 and 3, Summer, Monsoon and Winter 2004.

Chaudhuri Siladitya and Supriya Mukherjee (2008). Participation of Micro Manufacturing units in Manufacturing Services, presented in National Seminar on 62nd Round Survey Results, NSSO, MoSPI, Sept. 2008.

Chowdhury, Subhanil (2011). Employment in India: What does the latest data show? *Economic and Political Weekly*, Vol. 46, No. 32, August 6, 2011.

Costinot, A., D. Donaldson and I. Kornunjer (2012). What goods do countries trade? A quantitative exploration of Ricardo's Ideas, *Review of Economic Studies*, 79, pp. 581-608.

CSO (2005). *National Accounts Statistics 2005*. Central Statistical Organisation, Government of India.

CSO (2006). *Brochure on New Series on National Accounts Statistics (Base Year 1999-2000)*. Central Statistical Organisation, Government of India.

CSO (2008). National Industrial Classification (all economic activities). Central Statistical Organisation, Government of India.

CSO (2012). National Accounts Statistics – Sources and Methods. Central Statistical Organisation, Government of India.

Damodaran, Sumangala and Pallavi Mansingh (2008). Leather Industry in India, CEC Working Paper.

Dutta, S., "Urbanization and Development of Rural Small Enterprises: Studying the Linkages with Focus on West Bengal", *Economic and Political Weekly*, Vol. 37, No. 30, July 27, 2002.

Goldar, B. (2000). Employment Growth in Organised Manufacturing in India, *Economic and Political Weekly*, Vol. 35, No. 14 (Apr. 1-7, 2000), pp. 1191-1195.

Goldar, B. (2011). Growth in Organised Manufacturing Employment in Recent Years, *Economic and Political Weekly*, Vol. 46, No. 6, 12 Feb. 2011.

International Labour Organisation (1996). *C177 - Home Work Convention, 1996 (No. 177)*, 83rd ILC session (20 Jun 1996), Geneva.

Kar, Aloke and Mrinal Bhaumik (2014). Measuring Outsourced Manufacturing Process in India – its Relevance in National Accounts Compilation, presented in the *5th National Seminar on Industrial Statistics*, Kolkata, Oct. 2014.

Kathuria, Vinish, S. N. Rajesh Raj and Kunal Sen (2010). Organised versus Unorganised Manufacturing Performance in the Post-Reform Period, *Economic and Political Weekly*, June 12, 2010 vol. 45, No. 24.

Kumar, Deepak and Vivek Bhatt (2012). Economic Growth and Employment Trends in India, 1983-2010: What Does the Latest Employment Data Reveal? *Voice of Research*, Vol. 1 No. 1, Jan.-March 2012.

Jatav, Manoj and Suchitra Sen (2013). Drivers of Non-Farm Employment in Rural India, *Economic and Political Weekly*, Vol. 48, No. 26-27, June 29, 2013.

Ministry of Micro, Small and Medium Enterprises (MSME) (2008). *Fourth All-India Census of Micro, Small and Medium Enterprises – 2006-07*. Development Commissioner, Government of India.

Nagraj, R. (1984). Sub-contracting in Indian Manufacturing Industries Analysis, Evidence and Issues, *Economic and Political Weekly*, Vol. XIX, Nos. 31, 32 & 33, August 1984.

Nagaraj, R (2000). Organised Manufacturing Employment, *Economic and Political Weekly*, 35(38): 3445-48.

Nagaraj, R. (2011). Growth in Organised Manufacturing Employment: A Comment. *Economic and Political Weekly*, June 12, 2011 vol xlvi no. 12.

National Commission for Enterprises in the Unorganised Sector (NCESU) (2007). Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector, 2007, Government of India.

National Sample Survey Organisation (2001). Employment and Unemployment Situation in India1999-2000 (Part – I), NSS 55th ROUND (July 1999 – June 2000), Report No. 458(55/10/2).

National Sample Survey Organisation (2006). Employment and Unemployment Situation in India 2004-05 (Part– I), NSS 61st ROUND (July 2004 – June 2005), Report No. 515(61/10/1).

National Sample Survey Organisation (2011). Employment and Unemployment Situation in India 2009-10, NSS 66th ROUND (July 2009 – June 2010), NSS Report No. 537(66/10/1).

National Sample Survey Organisation (2014). Employment and Unemployment Situation in India NSS 68th Round (July 2011 - June 2012), NSS Report No. 554(68/10/1).

National Statistical Commission (2012). *Report of the Committee on Unorganised Sector Statistics*, Government of India, February 2012.

Olsen, Karsten Bjerring (2006). *Productivity Impacts of Offshoring and Outsourcing: a Review*, STI Working Paper 2006/1 Statistical Analysis of Science, Technology and Industry. OECD.

Ramaswamy, K.V. (1999). The search for flexibility in Indian Manufacturing: New Evidence on Indian Outsourcing Activities, *Economic and Political Weekly*, Vol. 34, No. 6, Feb. 6 1999.

Roy Chowdhury, Abhishikta and Bibek Ray Chaudhuri (2012). Manufacturing Sector in West Bengal: Advantages & Potential, *The Journal of Industrial Statistics* (2012), 1 (2).

Sahu, Partha P. (2007). *Subcontracting in India's Small Manufacturing Enterprises - Problems and Prospects*, ISID Working Paper 2007/01, Institute for Studies in Industrial Development, New Delhi.

Sahu Partha Pratim (2008). Subcontracting in Unorganised Manufacturing Sector in India Recent Trends and Dimensions, presented in National Seminar on 62nd Round Survey Results, NSSO, MoSPI, Sept. 2008.

Sahu, Partha P. (2011). "Subcontracting in India's Micro and Small Manufacturing Enterprises: An Exploratory Analysis", in Keshab Das (ed.) *Micro and Small Enterprises in India – The Era of Reforms*

Saikia, Dilip: 'Unorganised manufacturing industries in India: A regional perspective', *African Journal of Marketing Management*, Vol. 3(8), pp. 195-206, August 2011.

Sasidharan, Subash and Rajesh Raj S N (2013). Barriers to Growth among Informal Sector Enterprises in India, *Working Paper 14-010*, Asian Institute of Management.

Thomas, B. Vaithegi (2007). Decentralised Production Systems and Labour Market Flexibility: A Study of the Leather Footwear Industry in South India, *IDEAs Working Paper* 10 March 2007.

UNCTAD (2012). Implications of the Global Economic Crisis on India's Services Sector, United Nations, 2012.

United Nations Economic Commission for Europe Statistical Division (UNECE-SD) (2013). Task Force on Global Production, May 2013.

United Nations (2008). *A System of National Accounts*, Studies in Methods, Rev.5, United Nations Publications ST/ESA/STAT/SER.F/2/Rev.5

Unni, Jeemol, N Lalitha and Uma Rani (2001): 'Economic Reforms and Productivity Trends in Indian Manufacturing', *Economic and Political Weekly*, 36(41): 3915-22.

Unni, Jeemol (2004), Unorganised and Organised Manufacturing in India Potential for Employment Generating Growth, *Economic and Political Weekly*, Oct. 9 2004.

Vaidyanathan, A. (1986). Labour Use in Rural India: A Study of Spatial and Temporal Variations, *Economic and Political Weekly*, Vol. 21, No. 52, December 27 1986.

Vishnu Kumar, Kar. A, Sanjay (2007). Prevalence of Service-Producing Manufacturing Units and its Impact on Sectoral GDP, *Economic and Political Weekly*, 15 September 2007.

[i] *Exclusion of Repairing Services from the Datasets*: The NIC 2008, used both in the ASI 2010-11 and ES'67, provides for a separate 2-digit code (33) for repairing services. Thus, the units with repairing services as their main activity could easily be detected and excluded from the datasets of ASI 2010-11 and ES'67. But, it was difficult to remove such units from the datasets of ASI 2000-01 and ES'56,

since in the NIC 1998 used for these surveys, the activity of repairing services was included in a few of 5-digit level codes for manufacturing activities, namely 35111, 35112, 35113, 35121 and 35122. Thus, the identification and elimination of the repairing units from the data sets of ASI 2000-01 and ES'56 are based on an assumption that units reporting the above NIC codes and value of sale of products less than 10 per cent of the income received from services were repairing units. Though the cut-off of 10 per cent is rather arbitrary it ensures that the main activity of the units thus identified would be repairing services.