

# **Employment Scenario in Food Processing Trends and Patterns**

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# **Employment Scenario in Food Processing Trends and Patterns<sup>1</sup>**

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## **Executive Summary**

Food value chains have been undergoing rapid transformation in India as elsewhere. This transformation has the effect of spurring share of the midstream and downstream actors resulting in dwindled share of upstream actors viz., the farming community (Rao, Sutradhar and Reardon, 2017). Though precise estimates are not available for our country, the global estimates by Reardon et al., (2018) suggest activities in the midstream (processing, logistics, wholesale) and downstream (retail) account for 60% of the total value. This ongoing transformation has positive implications for creation of employment opportunities in the rural side, apart from smoothening consumption and production as well as affording remunerative prices to farming community. This creation of rural non-farm employment (RNFE) by the sector is the major benefit of growth of food processing sector. Further, it is employment intensive with low capital requirements (Rao and Dasgupta, 2009). Against this background, this study is undertaken to understand the structure of food processing industry and its employment in the organized and unorganized segments. It also examines the nature of entrepreneurial activity by analyzing case studies from Haryana. The study mainly based on data from Annual Survey of Industries for the organized segment and NSSO for the unorganized segment. Field surveys are conducted for the case studies of Haryana.

The sector has large number of small-scale factories forming 16.7% of the organized manufacturing that contributes 12.1% of total output and only 7.5% of the gross value added (GVA). Notwithstanding this relatively lower share of GVA, the growth rate during 1998-99 to 2014-15 at 7% per annum is much higher than that in the number of factories (3.21%). This period also witnessed slower growth in GVA in food processing (6.91%) vis-à-vis manufacturing (8.81%). Grain mill products is the leading activity within food processing followed by vegetable animals and fats, sugars, other food products and dairy products. While growth seems to have been slowed down in the latest period (TE 2014-15) in food processing a whole, notable exceptions with high growth include meat products (48%), prepared meals (35%), fish products (31%), dairy products (29%), alcohol (24%) and malt liquors (18%). Analysis of structure throws up another interesting fact viz., the share of working capital in food processing (11.5%) is much higher than its share in fixed capital of total manufacturing. In other words, working capital requirements of this sector are relatively higher and so is the credit need. Sugar industries (26%), grain milling (11.4%) and vegetable oils and fats (11.2%) form the major fixed capital within food processing.

Nearly 1.8 million persons are employed in the organized segment of food processing and it is the leading sector (12.9%) in the manufacturing for job creation with textiles coming next with 14.81%. However, textiles and apparel create 2.5 million jobs out of the total employment of 13.5 million in manufacturing. The growth in jobs in the sector at 2% per annum is half of that in manufacturing average with an employment elasticity of 0.32. A ten percent growth in food processing GVA can increase employment by 3.2% in food processing, relative to 4.7% jobs in manufacturing as a whole. Therefore, food processing has been less employment elastic during the past few years. What explains this lower employment elasticity in this labour intensive sector? A possible explanation from this analysis is that factories in food processing

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<sup>1</sup> Dr.Brajesh Jha contributed by presenting the case studies of food processing in Section 5. Dr.Chandra Sekhara Rao wrote the entire report except Section 5.

are acquiring fixed capital at a higher rate than many others in the manufacturing. Consequentially, the GVA per worker will be higher and emoluments per workers as shown later in the report. As the sector is riddled with low level of technology and productivity<sup>2</sup>, this in fact is a positive development for technological upgradation and decent work through productive employment. Other food products (24%), grain mill products (18%), sugar products (15%) and dairy (8%) are the major employment creators within food processing during the period.

The low-wage employment nature of jobs in food processing sector can be seen from the fact that wages and salaries to these employees forming 12.9% of total manufacturing take home only 8.6% of their total wages and salaries. This can be understood if we look the lower share of the sector (7.5%) in manufacturing total gross value added of manufacturing. This also underlines growth in gross value added in food processing as the pathway for productive employment in the sector. Within food processing, many sectors possessed lower share of wages and salaries than their shares in employment. Very few sectors had higher share of wages and salaries than their share in employment. Sugars (17.6% of wages and salaries vs. 14.8% share of employment) and dairy products (12.6% of wages and salaries as against 8.3% of employment). Leading sectors like grain milling employees got only 11.5% of wages and salaries of the sector, though they formed 18.1% of its total workforce. Also, employees of other food processing industries forming 24.2% of the sector's employment received only 15.3% of its wages and salaries. These are, without any doubt, at the bottom of the pyramid and needs to be moved up with substantial improvements in their living.

The capital intensity of the food processing is significantly lower compared to manufacturing average forming just 43% of it. The low fixed capital per factory stems mainly for the low capital intensity in the leading sub-sectors viz., grain milling and other products which operate with 9% and 25% capital intensity of manufacturing average. Further analysis shows that one person can be employed in food processing with half the fixed capital investment compared to manufacturing average. It requires just 17% and 33% of fixed capital of manufacturing average to create a job in other food products and grain milling within food processing during 1998-99 to 2014-15.

The emoluments per worker in food processing are just 65% of the manufacturing average and this has been growing at a rate (3.95%) that is 7% lower than those in the manufacturing average. And much lower in some of the food processing industries like other food products (23% of manufacturing average), grain milling (28%), meat products (50%), macaroni and noodles (58%), fruits and vegetables (59%) and fish processing (60%). High performers in terms of better per worker emoluments within food processing are cocoa and sugar confectionery (206%), wines (178%), prepared meals and dishes (167%) and dairy products (165%). Better growth of wages were seen in start products (10.4%), wines (7.61%) and soft drinks and mineral waters (4.99%). On the other hand, wages have been declining in dairy products and prepared meals and dishes, while they are stagnant in fish products and fruit and vegetables.

The unorganized segment of food processing contributed significantly to unorganized manufacturing too with 13% share in the number of enterprises and almost similar share in the gross value added in 2015-16. Apparel (20%) and textiles (12%) are ahead and close behind, respectively in terms of GVA. This sector however accounts for a slightly higher share (14%) of total unorganized manufacturing employment with 52.83 lakh jobs following apparel (80.12 lakh jobs) and textiles (53.12 lakh jobs). However, the annual emoluments in unorganized food processing are only 83% of the unorganized manufacturing average and forms part of the problem. Among the unorganized food processing industries, the highest GVA share is contributed by flour milling (20.19%) followed by biscuits, cakes and pastry (6.67%) and mutton slaughtering and preparation (6.48%).

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<sup>2</sup> Rao and Dasgupta showed the residual nature of employment through the field studies in various food processing activities.

Over the last four rounds of data, the unorganized segment of food processing employed 67.92 lakhs in 2000-01, 63.72 lakhs in 2005-06, 47.70 lakhs in 2010-11 and 52.83 lakhs in 2015-16. This presents a declining trend and is a matter of serious concern. Of which 13.28 lakh numbers of workers are in flour milling which represents highest percentage share (28.66%) of workers. The second highest share in food industry is in poultry and other slaughtering (5.39 lakh workers with 11.63% share) followed by sweetmeats including dairy based sweet (7.72%), followed by breakfast cereals (6.88%), rice milling (6.32%), *gur* from sugarcane (5.66%) and *papads*, *appalam* and products (4.98%). The shares of workers in the rest of the food processing industries are below 3 per cent. The share and jobs in the flour milling sector are on the increase over the period. However, the real growth was witnessed in the poultry and other slaughtering that has grown in 2.70 lakhs jobs in 2010-11 to 5.39 lakhs in 2015-16.

Over the past 15 years, the share of women in unorganized food processing employment declined from 27.36% in 2000-01 to 24.75% in 2010-11 to 20.1% in 2015-16. As the sector moves up with primitive technology to relative modernizing, women might be losing jobs as argued in several studies (Rao and Dasgupta, 2009; Baud, 1992). The reasons for this dwindling role of women warrants rigorous analysis. Among the broad categories of food industries, flour milling (20.45%) engage most number of female workers in unorganized food processing followed by breakfast cereals (17.03%), *papads*, *appalam* and similar products (10.33%) and 'gur' from sugarcane (9.61%), country liquor (7.19%), edible nuts (6.59%). The number of women employed in rice milling plummeted from 2.72 lakhs in 2000-01 to 0.38 lakhs in 2015-16 and vice versa in flour milling (went up from 1.47 lakhs to 2.17 lakhs).

Among the industries in food manufacturing sector, highest average emoluments paid to the hired workers are in artificial dehydration of fish and sea food industry (Rs. 99052) which is about 337 per cent (Table 33). Besides, preserving in sugar of fruit, nuts, fruit peels and other parts of plants (Rs. 73160) which is about 249 per cent and artificial dehydration of fruit and vegetables (Rs. 68076) which is about 232 per cent respectively reported the second highest and third highest annual emoluments per hired worker in the in the unorganized food manufacturing sector during the period 2015-16. The estimation also reports that most of the industries in the unorganized food manufacturing sector are paying more than 100 per cent of annual emoluments to the hired workers whereas a few industries pay less than 50 per cent of annual emoluments to the hired workers.

The case studies from self-help groups (SHGs) involved in food processing reveal that formal financing has not reached them. For these groups, marketing issues is the major challenge. Government fares, links with well-connected NGOs and links with established brand (like Lizzat) help in getting better prices. Case studies of other unorganized units in sweet making, pickles and others in Delhi show that they provide higher jobs in relation to investment. However, they do not get institutional credit making their survival and scaling up a difficult proposition. These activities enable supplementary income to women with a negligible level of investment in rural areas, while the unorganized units in urban sprawl provide much needed jobs at a low cost. Therefore, the state needs to encourage these activities through appropriate policy measures.

For a sector that is employing 70 lakh persons directly and indirectly employing at least another 70 lakhs<sup>3</sup> covering a total employment of 140 million, food processing receives raw treatment from the policy makers. The formation of a separate ministry in 1988 has definitely marked a shift in the food policy that conventionally focused exclusively on sorting out production shortages and distribution rather than processing of any kind. It rather surprises to hear that the Ministry of Food Processing receives just Rs.1400

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<sup>3</sup> The usual assumption between direct and indirect employment is 3.5. However, all the two lakh and odd unorganised enterprises may not be able to create similar level of indirect employment, though we are aware that own account manufacturing enterprises (OAMEs) employ all the family members. Despite this, we present here a conservative estimate of employment by just considering the organised food processing industries.

crores in 2017-18 to improve the sector and does not even constitute 5% of the expenditure for department of agriculture. It does not have necessary skill development centres, apex bodies or necessary funds. The two main schemes of the ministry viz., mega food parks as well as cold chain creation fall short of the hype around them. While 175 mega food parks are designated by giving approval, only 27% of them are functioning. Assuming that each mega food park creates an investment of 500 crores, it can create around 5000 jobs directly and 17500 indirect jobs totaling to 22500 as the lead author of this report assessed from his visit to a MFP in Chittoor of Andhra Pradesh. In that sense, the Ministry's claim that 30000 jobs can be created out of each mega food park are too optimistic. While the sector forms 7% of GVA in the organized and 13.30% in the unorganized segment of manufacturing, the total off-take of credit to this does not go beyond three percent. This lack of level playing stifles the growth of this sector as shown in recent period.

On the other hand, the ministry has been successful in campaigning for policy framework at the federal and provincial levels. Food processing policies are being brought out in the centre as well as some of the state governments. 2013-14 marked an upward shift in the inflow of FDI into the sector from the three average of 253 million dollars to 3982 million in 2013-14. Most importantly, it has been consistently at a higher level since then, apart from exporting 30 billion worth of processed foods in 2016-17. The ministry's efforts have also been bearing fruit in terms of cold chain creation, though there is a long way to go. The GST framework did not completely do justice the food processing and there is a threat of losing all the benefits of hard work done over a period of time to change the attitude towards processing in the country.

There is a tremendous potential in this sector for labour intensive manufacturing which the country wants to pursue through 'Make-in India' and other schemes. It is also proven from this analysis as elsewhere this sector employs more women than others in manufacturing. Therefore, the poverty reduction impact if any in the manufacturing sector can be harnessing this particular. The government needs to change its expenditure priorities by investing more in the sector and also credit provision<sup>4</sup>. The development from here also calls for higher research engagement with various aspects by commissioning more micro studies as well as economy-wide impacts by independent researchers from reputed institutions and universities.

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<sup>4</sup> The recent refinancing fund with NABARD is a good beginning and needs to be ramped up.

## **Employment Scenario in Food Processing Trends and Patterns<sup>5</sup>**

**Chandra Sekhara Rao Nuthalapati  
Brajesh Jha**

Food value chains have been undergoing rapid transformation in India as elsewhere (Barrett et al., 2012). This transformation has the effect of spurring share of the midstream and downstream actors resulting in dwindled share of upstream actors viz., the farming community (Rao, Sutradhar and Reardon, 2017). Though precise estimates are not available for our country, the global estimates by Reardon et al., (2018) suggest activities in the midstream (processing, logistics, wholesale) and downstream (retail) account for 60% of the total value. This ongoing transformation has positive implications for creation of employment opportunities in the rural side, apart from smoothening consumption and production as well as affording remunerative prices to farming community. The downside of the emerging body of literature on agri-food system transformation is the missing focus on midstream of the food value chain where processing and logistics play bigger role (Reardon, 2015).

The growth of food processing and increasing exports from this segment of value chain have been increasing its interactions with other segments like farmer-producers for sourcing of raw materials either directly through contract farming or through wholesalers and other means. Large number of studies found higher incomes and inclusiveness with contract farming in the country (Dev and Rao, 2005; Kumar, 2006; Ramaswami *et al*, 2009; Swain, 2011; Sharma, 2016a). Few studies however show exclusion of small farmers (Swain, 2011; Sharma, 2016b). On the question of state intermediation in contract farming between agri-business firms and farming community, Kumar (2006) in his study found that state mediation in contract farming might help only powerful larger farmers, while direct links between agribusiness firms and farmers help in the contract farming to be more inclusive and beneficial to the latter. In a study on fishery value chains in Kerala, Somasekharan *et al.*, (2015) found that concentration and consolidation are taking place at the processing node of the chain, wherein the number of exporters has come down and professional players are upgrading their positions in the value chains. The pre-processing node of the chain is getting integrated to the processing sector, causing a major transformation of the existing value chain.

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<sup>5</sup> Authors contributions: Dr.Brajesh Jha contributed by presenting the case studies of food processing activities in Section 5. Dr.Chandra Sekhara Rao wrote the entire report except Section 5.

As already stated, proportion of midstream is moving up in food value chains in India too (Reardon, 2005; Reardon et al., 2018). The industrialization of farming and agro-food processes has, in effect, shifted the locus of much of the work from the field to the factory or the packaging plant. The seasonal rhythms of agricultural work have been displaced for many by the rhythms of food processing assembly lines. To this extent, many workers in the agro-food industries are more like workers in automobile or electronics production than farmers (ILO, 2007). The average extent of food processing covering all items in 2010-11 is 5.42% if a simple average is used and 6.76% if a value weighted average is used (Ghosh, 2014).

There has been diversification of Indian diets away from foodgrains to high value products like milk, meat products, vegetables and fruits (Rao 2000; Dev 2003a; Deshingkar et al 2003). Factors such as the increasing number of middleclass people due to rapid urbanisation, rising per capita income, strengthening participation of women in urban jobs and impact of globalisation have been largely responsible for the diet diversification in India (Pingali and Khwaja 2004). High-value products have caught the fancy of the expanding middle class and the result is visible in the growing demand for high-value processed products. With the increase in the number of working women, especially in the cities, ready to cook and ready to eat meals have gained popularity. Food processing industry has been registering good growth since the past few decades and particularly since the early 1990s. The annual rate of growth of net value added of agro-industries at constant prices increased from 4.12 per cent during the pre-reform period to 6.62 per cent during the post-reform period (Singh 2003).

The value addition of food fortification is only 7 per cent in the country compared to as much as 23 per cent in China, 45 per cent in the Philippines and 188 per cent in the UK. Only 2 per cent of the fruits and vegetables are processed in India. This is against a processing of 30 per cent in Thailand, 70 per cent in Brazil, 78 per cent in the Philippines and 80 per cent in Malaysia (Patnaik 1997). The government of India targets to bring it to 10 per cent by 2010 and 25 per cent by 2025. The 10 per cent target would call for an investment of Rs 1,40,000 crore. This is supposed to create employment for 77 lakh persons directly and another three crores of people indirectly in the country (Padmanabhan 2001). The post-harvest losses in fruits and vegetables are estimated to be Rs 50,000 crore at the national level (EPW 2002) and Rs 2,500 crore in the state. Food processing

industries have a crucial role to play in reduction of post-harvest losses. The most important point in the food industry is that a substantial portion being rural based it has a very high employment potential with significantly lower investment. The fruits and vegetables farming for processing is not only employment intensive, but also enhances the gross as well as net returns of the farmers (Rao 1994; Acharya 1997; Dileep et al 2002). Further, agro-industry generates new demand on the farm sector for more and different agricultural output, which are more suitable for processing (Srivastava 1989). On the other hand, the development of these industries would relax wage goods constraint to economic growth by enhancing the supply of their products (Desai and Nambodiri 1992).

There has been some optimism about the growth potential and possibilities of employment creation in the food processing sector in India. The Eleventh Five Year Plan notes that food processing is a sunrise sector and is highly labour intensive, and proposes policies and programmes to encourage the growth of Food Processing along with other sectors such as leather products, footwear, textiles, tourism and construction to create additional employment opportunities to the tune of 65 million during the 11<sup>th</sup> plan period (GoI 2006, p 74). Since the share of women in this sector is traditionally large, the growth of this sector is expected to contribute towards women's employment.

One of the reasons for promoting the food processing sector is its assumed income elasticity – as income rises, the share of processed food in all food consumption rises, even though the share of food in all consumption falls. The food system moves towards one which is an increased value added production (Hamann 2001). In developed countries, the proportion of processed food in total food consumption is very high. As per capita incomes rise in India<sup>1</sup>, the consumption of processed food in the country increases steadily and is likely to accelerate further in the near future<sup>2</sup>. Furthermore, as family structures change, and joint families give way to small nuclear families, while at the same time women's participation in the labour force goes up leading to higher opportunity cost of time and higher average wages in general, patterns and composition of diets in urban areas change and there is an increasing shift towards consumption of easy to cook processed foods (Stamoulis et al 2004)

On the supply side, the development of organised food retail in the country, as well as rise in national and global value chains for the processed food industry, contributes to this shift<sup>3</sup>. Economies of scale are easier to realise in the processed foods than in fresh foods. International

food processing companies are increasingly finding it profitable to tap developing country markets, faced with the declining population, the stabilizing urbanization in developed countries and the falling growth rates (Wilkinson and Rocha 2006). Another development has been the rise of buyer-driven value chains in place of producer-driven value chains and the moving of the centre of gravity for the production and export of many manufactures to an expanding array of newly industrializing economies (Gereffi 2001; Wilkinson and Rocha 2006). The share of processed food from developing countries in international trade in processed food, as a result, increased from 24 percent in 1970 to 52 percent in 1999 (Athukorala and Jayasuriya 2005).

However, the evolution of this sector has varied across countries and proper planning based on information about both the demand and supply aspects that affect its growth, in particular, the nature of employment and the workforce, are required (ILO 1998). Past studies indicate that while being a high employment generating sector, there are concerns about the quality of work in food processing, especially in developing countries. In spite of huge untapped potential for growth and known labour intensive character of this production, there are very few systematic studies on the food processing sector in India, especially in the vast informal segment. The wages and conditions of work in the sector are largely undocumented compared to workers in other sectors like garments etc. The main objective of this paper is to track the employment potential of this sector while examining the nature and quality of work of women and men.

The widely reported rural distress has roots in the scarcity of productive employment for rural people in the country. Food processing industry (FPI) provides an opportunity as employment per unit of investment is better than the most of employment intensive industry. In FPI, the employment opportunities for unskilled workers is one of the maximum among the different manufacturing division. Interestingly many of workers in FPI are female. Besides employment the FPI has other benefits; the FPI can be a solution for many problems of rural livelihood. In India FPI has other both supply and demand impetus for growth, yet employment in the processing sector has decreased in the last decade. Therefore, it is imperative to understand that, what are the main reasons for declining employment in FPI? The quality of employment in FPI is also concern as bulk of FPI is in unorganized segment and employees in this segment are often bereft of safety net related facilities of employers. The FPI in unorganized segment is often capital starved with low levels of technology. In this backdrop, the present study will be focused on examining trends

in the structure and pattern of employment, wages, and associated policy framework. It also documents case studies from unorganized segment with special focus on SHGs involved in processing activities to bring out policy implications.

To fulfill second and third objectives of employment of manufacturing at two and three digit levels will be collected for the year from 2000-01 to 2014-15. Though Survey report of Unorganized Manufacturing is also available for the year 1994-95, but this year will be ignored in the present study in dearth of suitable concordance table. The fourth objective will be fulfilled by assessing information at the two digit level for NIC-15 (FPI). The secondary information for the study will include all states of country while primary information will be taken for the state of Haryana and Bihar. For organized sector state-wise information are available at three digit level whereas for unorganized industry state-wise information are available at two digit level. Therefore, it appears that state-wise information will be collated for manufacturing industries at the level of two digits only<sup>6</sup>.

**1.1. Wholesale Price Index:** We collected wholesale price index (WPI) at two digit level for manufacturing industries and four digit levels (total 18) for food manufacturing sector from Office of the Economic Adviser, Government of India, and Ministry of Commerce and Industry, Department of Industrial Policy & Promotion (DIPP). However, for some industry actual WPI are not available so we used nearest WPI for these industries according to NIC -2008 for deflating the current values.

**Two digit level:** The two digit level indices are collected from the following:

1. Manufacturing of wearing apparel (14) for this industry we used nearest WPI of textiles industry.
2. Manufacturing of coke and refined petroleum products (19) for this industry we used nearest WPI of fuel and power industry.
3. Manufacturing of pharmaceuticals medicinal chemical and botanical products (21) for this industry we used nearest WPI of drugs and medicine industry.
4. Manufacturing of fabricated metal products except machinery and equipment (25) for this sector actual WPI from 1998-99 to 2013-14 is not available; however, from 2005-06 to 2013-14 actual WPI of fabricated metal products except machinery and equipment is available and second option is that we can use nearest WPI of basic metals alloys & metals products industry from 1998-99 to 2013-14.

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<sup>6</sup> Industry classifications are based on NIC-1998, NIC-2004 and NIC-2008, suitable concordance tables are available for these years.

5. Repair and installation of machinery and equipment (33) for this industry we used nearest WPI of machinery & machine tools industry.
6. Wastage collection treatment and disposal (38) and other sector for these industries we used WPI of all manufacturing sector.

**Four digit level:** The four-digit level indices are collected from the following:

1. Production processing and preserving of meat and meat products (1010) for this sector actual WPI from 1998-99 to 2013-14 is not available; however, from 2005-06 to 2013-14 actual WPI of Production processing and preserving of meat and meat products is available, second option is that we can use nearest WPI of processing and preserving of fish and fish products WPI from 1998-99 to 2013-14.
2. Manufacturing of vegetables and animal oils and fats (1040) for this industry, we used nearest WPI of edible oils industry.
3. Manufacturing of macaroni, noodles, conscious and similar farinaceous products (1074) for this industry we used nearest WPI of grain mill products.
4. Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials this class excludes: - manufacture of ethyl alcohol (1101) for this industry we used nearest WPI of wine industry.
5. Manufacture of starches and starch products (1062), Manufacture of prepared meals and dishes (1075) and Manufacture of prepared animal's feeds (1080) for these three industries, we used nearest WPI of grain mill products because at three digit level industry all these industries are the part grain mill products.

The report is presented as follows. The second Section analyses the organized segment of the section, while the third Section examines productivity of output and employment in the organized segment. The fourth Section analyses structure and employment as well as remuneration in the unorganized segment. The case studies from Haryana and Delhi focusing on unorganized food processing activities are present in the fifth Section. The sixth Section examines the policy framework critically to move forward to achieve the potential of this sector.

## **2. Organized food processing industry**

The organized segment contributes lion's share of output and value added to the sector, while the unorganized segment provides livelihoods to large number of people. However, the quality of employment is much better in the organized segment. This section analyses the factories, output, value added, growth in value added, fixed capital, working capital, number of workers and persons, wages and salaries, productivity of output and employment, capital intensity, and emoluments per worker.

**2.1. Number of factories:** The number of factories in this sector are the largest in the organized manufacturing in the country, signifying its importance from a macro-perspective (Table 1).

Table: 1. Number of factories in (2 digit) organized manufacturing industries and share of all industry in total manufacturing sector of India.

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	22853	17.4	24414	17.4	35610	15.8	3.21
11. Beverages	1075	0.8	1201	0.9	2133	1.0	4.97
12 Tobacco	2565	2.0	3257	2.3	3342	1.5	2.32
13 Textiles	13548	10.3	14122	10.1	18619	8.3	2.40
14 Wearing apparel	3316	2.5	3569	2.5	9552	4.2	8.43
15 Leather & related products	2341	1.8	2379	1.7	4207	1.9	4.28
16. Wood products	3281	2.5	3053	2.2	4312	1.9	2.02
17 Paper & paper products	3341	2.5	3793	2.7	6688	3.0	5.22
18. Printing & recorded media	2574	2.0	2636	1.9	4571	2.0	4.58
19 Coke & refined petroleum products	843	0.6	997	0.7	1579	0.7	4.44
20. Chemicals & chemical products	10537	8.0	10936	7.8	11535	5.1	0.19
21. Pharmaceuticals & botanical products	1039	0.8	1001	0.7	4925	2.2	13.24
22. Rubber & plastics products	6659	5.1	7459	5.3	13124	5.8	4.83
23. Other non-metallic mineral products	11864	9.0	14102	10.0	26019	11.5	5.92
24. Basic metals	7098	5.4	7253	5.2	11761	5.2	4.17
25 Fabricated metal except machinery & Eqp	8069	6.1	8564	6.1	16506	7.3	5.39
26. Computer, electronic & optical products	1511	1.1	1189	0.8	2479	1.1	4.76
27. Electrical equipment.	4023	3.1	4013	2.9	7559	3.4	4.91
28. Machinery & equipment n.e.c	9580	7.3	9497	6.8	11963	5.3	1.57
29. Motor vehicles, trailers & semi-trailers	2776	2.1	3141	2.2	5671	2.5	5.37
30. Other transport equipment	1505	1.1	1394	1.0	2339	1.0	3.62
31. Furniture	733	0.6	826	0.6	1464	0.7	5.41
32. Other manufacturing	1451	1.1	1807	1.3	3243	1.4	6.01
33. Repair & installation of machinery & Eqp	520	0.4	489	0.3	753	0.3	3.39
38. Wastage collection, treatment & disposal	13	0.0	101	0.1	310	0.1	21.76
58. Publishing activities	685	0.5	654	0.5	260	0.1	-8.27
Others	4187	3.2	5451	3.9	11315	5.0	6.85
All Food Manufacturing	23928	18.2	25615	18.2	37744	16.7	3.29
All Manufacturing	131511	100.0	140408	100.0	225710	100.0	4.05

Food processing sector has the largest number of industries in the organized segment with 37744 units of all the 225710 units in the Triennium Ending (TE) 2011-12 to 2014-15 and constitutes 17% of all the organized segment factories in total manufacturing (Table 1). Though the share has been going down slightly in recent years, it still forms significant number. The scattered nature of factories in this segment can be seen from this, as share of output or gross value added of this sector is relatively low to its share of factories. Textiles and wearing apparel (12.6%) and other non-metallic mineral products (11.5%) follow food processing sector in terms of the share of number of factories in total manufacturing.

Table: 2. Number of factories (4-digit) in organized FPIs in India.

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2011-12 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	40	0.2	68	0.3	145	0.4	9.39
1020. Fish & fish products	297	1.2	323	1.3	439	1.2	3.17
1030. Fruit & vegetables.	427	1.8	612	2.4	1096	2.9	7.65
1040. Vegetable & animal oils & fats.	3159	13.2	2494	9.7	3335	9.0	0.51
1050. Dairy products	751	3.1	997	3.9	1700	4.6	6.02
1061. Grain mill products	11145	46.6	12670	49.5	18216	49.0	3.68
1062. Starches & starch products	731	3.1	605	2.4	744	2.0	0.04
1071. Bakery products	942	3.9	960	3.7	1472	4.0	3.34
1072. Sugar products	1153	4.8	821	3.2	852	2.3	-2.33
1073. Cocoa & sugar confectionary	257	1.1	339	1.3	535	1.4	6.45
1074. Macaroni, noodles & products	37	0.2	38	0.1	103	0.3	8.55
1075. Prepared meals & dishes	0	0.0	0	0.0	355	1.0	35.52
1079. Other food products	3427	14.3	3957	15.4	5299	14.3	3.32
1080. Prepared animals feeds	454	1.9	529	2.1	816	2.2	4.31
1101. Alcohol productions	260	1.1	250	1.0	371	1.0	2.77
1102. Wines	77	0.3	73	0.3	75	0.2	0.31
1103. Malt liquors & malt	103	0.4	115	0.4	146	0.4	2.39
1104. Soft drinks& mineral waters	660	2.8	763	3.0	1468	3.9	6.18
All Food Manufacturing	23922	100.0	25615	100.0	37168	100.0	3.35
Total manufacturing	131511		140408		221417		4.05

Growth rate of factories during 1998-99 to 2013-14 was lower (3.29%) than that in total manufacturing (4.05%). Among the food products, the growth rate is 54% higher. Among other sectors of manufacturing, pharmaceutical sector with a growth rate of 13.24% and wearing apparel (8.43%) are doing better.

**Relative importance among food processing industries:** Looking at the food processing sector, grain milling continues to be the largest single activity with 49% of the total factories in the Triennium 2011-12 to 2014-15. What is noteworthy however is that this share has been increasing overtime as could be seen from Table 2. The next big activity with higher number of factories is vegetable and animal fats with 9% factories and other food products constitute 14.3% of factories. Factories under sugar forming 5% of total food processing factories plummeted to 2% in the latest period. Dairy products is another activity with rising share of factories from 3.1% to 4.6% during the corresponding period. The number of factories in soft drinks and mineral waters category has also been increasing rapidly. Growth rate within the food processing sector was higher in prepared meals and dishes (35.5%), meat and products (9.39%), macaroni, noodles and products (8.55%), fruit and vegetables (7.65%) and soft drinks and mineral waters (6.18%).

## 2.2. Food Processing in Output in Total Manufacturing:

The food processing sector produced 12.1% of the total manufacturing output in real terms in the Triennium 2010-11 to 2013-14 at a relatively lower growth rate of 7.99% compared to 11.1% growth in total manufacturing (Table 3). To put it in perspective relative to the number of units, this sector does contribute less as the share in output at 12.1% is significantly lower compared to its share in factories of 17% in the TE 1998-99 to 2000-01. Despite this lower output per unit, food processing is still the second highest behind coke and refined petroleum products (13.3%) and produces on par with basic metals. The growth rate in this sector was lower by 39% relative to total manufacturing. Fast growing sectors in manufacturing were pharmaceuticals (26%), chemicals and chemical compounds (16.29%), motor vehicles (15.26%), electrical equipment (14%).

Table: 3. Estimated output of organised manufacturing industries (2 digit) and share of all industries in total manufacturing sector of India, (Rs Crore) at Real Prices, (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G R
10 Food Products and Beverages	173759	16.5	232307	12.1	518593	12.1	7.99
12 Tobacco	13068	1.2	12902	0.7	19246	0.5	3.02
13 Textiles	95565	9.1	135910	7.1	231532	5.4	7.91
14 Wearing apparel	17233	1.6	27602	1.4	76722	1.8	12.22
15 Leather & related products.	10060	1.0	14103	0.7	33257	0.8	8.72
16. Wood products	2317	0.2	4654	0.2	12281	0.3	12.32
17 Paper & paper products	18976	1.8	24078	1.3	52781	1.2	8.54
18. Printing & recorded media	12676	1.2	6711	0.3	23697	0.6	9.37
19 Coke & refined petroleum products.	124790	11.9	268658	14.0	568976	13.3	12.03
20. Chemicals & chemical products.	115236	11.0	232142	12.1	316122	7.4	16.29
21. Pharmaceuticals & botanical products.	7097	0.7	10763	0.6	158029	3.7	26.04
22. Rubber & plastics products.	32588	3.1	55156	2.9	157853	3.7	11.90
23. Other non-metallic mineral products.	37045	3.5	56340	2.9	129992	3.0	9.66
24. Basic metals.	136343	13.0	269505	14.0	492345	11.5	10.47
25 Fabricated metal except machinery & Eqp	31594	3.0	51078	2.7	102536	2.4	10.33
26. Computer, electronic & optical products	26501	2.5	40598	2.1	83923	2.0	9.91
27. Electrical equipment.	30825	2.9	65716	3.4	173626	4.1	14.17
28. Machinery & equipment n.e.c.	46094	4.4	88402	4.6	191447	4.5	11.91
29. Motor vehicles, trailers & semi-trailers.	44031	4.2	131733	6.9	316126	7.4	15.26
30. Other transport equipment	19108	1.8	41744	2.2	97033	2.3	11.83
31. Furniture	2397	0.2	3946	0.2	8996	0.2	7.05
32. Other manufacturing	17055	1.6	32920	1.7	61859	1.4	8.33
33. Repair & installation of machinery & Eqp	4721	0.4	6223	0.3	4918	0.1	1.91
38. Wastage collection, treatment & disposal.	8275	0.8	494	0.0	5470	0.1	19.08
58. Publishing activities	8447	0.8	8722	0.5	4503	0.1	-5.26
Others	21391	2.0	56672	3.0	191893	4.5	17.61
All Manufacturing	1050605	100.0	1920476	100.0	4287795	100.0	11.11

**Output in Food Processing at Disaggregated Level:** Grain mill products that constitute 49% of all food processing industries produce only 22% of the sector's output, while vegetable oils and

animal fats produce 25% of its output with only 9% share of its factories in Triennium 201011 to 2013-14 (Table 4). This clearly shows the lower productivity per unit of the leading food processing subsector viz., grain milling. This is analysed in much more detail in the subsequent pages. Sugar products with 2.3% share of factories produce 11% of the sector's output, while dairy products with 5% share of factories produces similar share of its output (Tables 2 & 4).

Table: 4. Estimated output of (4-digit) organised FPIs (Rs in Crore) in Real Prices (2004-05)

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2011-12 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	1595	0.9	2553	1.10	11864	2.47	15.85
1020. Fish & fish products.	6927	4.1	5957	2.56	12995	2.71	4.81
1030. Fruit & vegetables.	1478	0.9	2842	1.22	7240	1.51	13.15
1040. Vegetable & animal oils &	41598	24.6	59078	25.43	121318	25.29	8.55
1050. Dairy products	19068	11.3	26651	11.47	52963	11.04	7.78
1061. Grain mill products	33710	19.9	43883	18.89	106267	22.15	8.90
1062. Starches & starch products	1924	1.1	1905	0.82	5707	1.19	9.93
1071. Bakery products	3506	2.1	6289	2.71	14774	3.08	11.60
1072. Sugar products	25523	15.1	33048	14.23	50873	10.60	5.35
1073. Cocoa, chocolate & sugar	1495	0.9	2683	1.16	10625	2.21	15.33
1074. Macaroni, noodles, conscious	470	0.3	239	0.10	1800	0.38	16.39
1075. Prepared meals & dishes	0	0.0	0	0.00	1376	0.29	19.27
1079. Other food products	16609	9.8	20708	8.91	40306	8.40	7.37
1080. Prepared animals feeds	4346	2.6	7232	3.11	18590	3.88	10.47
1101. Alcohol productions	5506	3.3	6464	2.78	17490	3.65	9.66
1102. Wines	1198	0.7	1564	0.67	2068	0.43	3.92
1103. Malt liquors & malt	1644	1.0	4089	1.76	7709	1.61	11.31
1104. Soft drinks & mineral waters .	3444	2.0	4845	2.09	11517	2.40	10.52
Total Food manufacturing	169340	100.0	232307	100.00	479721	100.00	8.20
All Manufacturing	1050605		1920476		4171337		11.11

The large proportion (70%) of this sector's output came from vegetable oils and animal fats, grain milling, dairy products and sugars. All other activities produce relatively lower share of output. Within the sector, growth rate of output was higher in prepared meals and dishes (19%), followed by macaroni, noodles and products (16.39%), meat and meat products (15.85%), cocoa, chocolate and sugar confectionery (15.33%), and fruit and vegetables (13.15%) (Table 4).

**2.3. Gross Value Added in Food Processing vs. Total Manufacturing:** The share of food processing in total manufacturing goes down further from its share in output when consider gross value added (GVA). While this sector contributes 12.1% of its output (Table 3), its share in GVA was only 7.5% in the Triennium 2010-11 to 2013-14 (Table 5). Basic metals (10.3%), chemicals and products (8%), textiles and apparel (8%), petroleum products (9.8%), and pharmaceuticals (7.5%) are the leading sectors in manufacturing in terms of GVA (Table 5). The negative difference between its contribution to output and GVA indicates that this sector has lower level of

value addition compared to manufacturing average. Even with this low value addition, this sector contributes the fourth highest share in total manufacturing. If value addition in this sector increases as projected by the policy makers, it could be the leading sector in the manufacturing as a whole.

Table: 5. Estimated GVA of organised manufacturing industries (2 digit) and share of FPIs in total manufacturing sector (Rs Crore) at Real Prices, (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	22390	10.3	28935	8.0	53139	7.5	6.91
12 Tobacco	4746	2.2	5459	1.5	7282	1.0	2.91
13 Textiles	18183	8.3	24511	6.7	38638	5.4	6.78
14 Wearing apparel	3932	1.8	6212	1.7	16441	2.3	11.62
15 Leather & related products.	1539	0.7	2080	0.6	5723	0.8	9.78
16. Wood products	360	0.2	641	0.2	1899	0.3	10.95
17 Paper & paper products	4237	1.9	5070	1.4	8602	1.2	6.50
18. Printing & recorded media	2882	1.3	1658	0.5	6200	0.9	9.78
19 Coke & refined petroleum products.	15055	6.9	41248	11.3	70137	9.8	10.71
20. Chemicals & chemical products.	44400	20.4	55227	15.2	57219	8.0	2.90
21. Pharmaceuticals & botanical products.	2107	1.0	3093	0.9	53178	7.5	27.42
22. Rubber & plastics products.	6742	3.1	8979	2.5	29030	4.1	11.07
23. Other non-metallic mineral products.	10957	5.0	17410	4.8	34222	4.8	9.86
24. Basic metals.	28428	13.0	57549	15.8	73412	10.3	7.91
25 Fabricated metal except machinery & Equip	6901	3.2	10148	2.8	21660	3.0	10.27
26. Computer, electronic & optical products	4781	2.2	7478	2.1	16474	2.3	10.98
27. Electrical equipment.	7116	3.3	13326	3.7	31164	4.4	12.52
28. Machinery & equipment n.e.c.	11261	5.2	19094	5.3	47027	6.6	12.11
29. Motor vehicles, trailers & semi-trailers.	10107	4.6	24076	6.6	55105	7.7	13.07
30. Other transport equipment	9553	4.4	8882	2.4	18220	2.6	7.79
31. Furniture	1522	0.7	723	0.2	1769	0.3	2.22
32. Other manufacturing	3092	1.4	3567	1.0	5525	0.8	1.95
33. Repair & installation of machinery & Equip	2419	1.1	1539	0.4	1435	0.2	0.68
38. Wastage collection, treatment & disposal.	8	0.0	36	0.0	435	0.1	31.43
58. Publishing activities	2457	1.1	2812	0.8	2028	0.3	-1.93
Others	3324	1.5	8114	2.2	36600	5.1	19.13
All Manufacturing	218044	100.0	363642	100.0	713005	100.00	8.81

However, the growth rates shown in the last column of Table 5 shows that GVA in this sector has been growing slower at 6.91% per annum relative to 8.81% of total manufacturing. On the other hand, pharmaceuticals (27%), motor vehicles (13.07%), electric equipment (12.52%), wearing apparel (11.62%), and computer hardware (10.98%) are the faster growing sectors in manufacturing (Table 5).

**GVA among Food Processing Industries:** Interestingly, grain mill products that produces lower share of output than vegetable animals and fats has a higher share of GVA at 18.6% compared to

12.8% by the vegetable oils and animal fats. The next higher share was by sugars (11%), and dairy products (8.9%) (Table 6). These were distantly followed by alcohol products (7.5%), malt liquors and malt (5.2%), and soft drinks and mineral waters (5.1%). Again, growth rate of GVA was impressive in macaroni, noodles and products (16.8%), cocoa, chocolate and confectionery (13.15%), bakery products (12.2%), and grain mill products (11.2%). On the other hand, GVA growth in sugars, dairy products and vegetable oils and fats was slower than even the food processing average (Table 6).

Table: 6. Estimated GVA (4-digit) FPIs of organised sector at 2004-05 (Rs.Crores)

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2011-12 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	269	1.2	313	1.1	1147	2.2	12.03
1020. Fish & fish products.	786	3.5	445	1.5	1045	2.0	2.92
1030. Fruit & vegetables.	329	1.5	625	2.2	1449	2.8	11.13
1040. Vegetable & animal oils & fats.	2772	12.4	3412	11.8	6588	12.8	6.78
1050. Dairy products	2179	9.7	2706	9.4	4574	8.9	4.90
1061. Grain mill products	2381	10.6	3441	11.9	9549	18.6	11.18
1062. Starches & starch products	332	1.5	298	1.0	845	1.6	9.40
1071. Bakery products	697	3.1	994	3.4	2638	5.1	12.23
1072. Sugar products	5273	23.5	6530	22.6	5596	10.9	2.69
1073. Cocoa & sugar confectionary	406	1.8	849	2.9	2189	4.3	13.15
1074. Macaroni, noodles & products	156	0.7	113	0.4	572	1.1	16.77
1075. Prepared meals & dishes	0	0.0	0	0.0	338	0.7	11.77
1079. Other food products	3000	13.4	3454	11.9	5149	10.0	5.72
1080. Prepared animals feeds	344	1.5	643	2.2	1960	3.8	13.71
1101. Alcohol productions	1439	6.4	1522	5.3	3854	7.5	9.35
1102. Wines	302	1.4	456	1.6	461	0.9	4.07
1103. Malt liquors & malt	397	1.8	1103	3.8	2664	5.2	13.84
1104. Soft drinks & mineral waters	877	3.9	1475	5.1	2629	5.1	10.78
Total Food manufacturing	22390	100.0	28935	100.0	51405	100.0	6.91
All Manufacturing	218044		363642		679008		9.58

**2.4. Growth of Gross Value Added in Organised food processing:** The trends in growth of food processing industries was further analysed in the three Trienniums from 1998-99 to 2013-14 and presented in Table 7. The food processing sector growth has moving broadly in line with the manufacturing sector with some differences in its extent. During the period 1998-99 to 2013-14, there has been a spike in the growth during the Triennium 2004-05 to 2006-07 growing at a rate of 22% per annum. The manufacturing sector as a whole grew at 17.34% per annum during the corresponding period. This growth has petered down to 4.0% in the latest period in food processing much like the manufacturing average. If we look at the disaggregated level, meat products (47.9%), fish products (31%), dairy products (28.7%), alcohol productions (23.5%) and malt liquors (17.9%) have been growing at higher rates in the Triennium 2011-12 to 2013-14. On the other

hand, sugars (-10%), macaroni and noodles (-15.5%), starch products (-4.8%), other food products (-1.0%), animal feeds (-1.0%) recorded negative growth in the latest period for which data are available. After a period of exuberant growth during 2004 to 2011 in the country's economy, growth witnessed slide across all sectors. However, there were also industry specific factors in this decline. For example, sugar industries faced difficult situation with plummeting prices and imports during this period. The same can be said of the animal feeds.

Table: 7. Annual growth rate of GVA at 4 digit level of Food Processing Industries in organized segment (Prices-2004-05)

NIC-08	1998-99 to 2000-01 (T.E)	2004-05 to 2006-07(T.E)	2011-12 to 2014-15 (T.E)
1010. Meat & meat products	7.9	24.2	47.9
1020. Fish & fish products	-6.6	1.9	30.8
1030. Fruit & vegetables	28.1	28.7	10.1
1040. Vegetable & animal oils & fats.	-2.1	31.1	20.5
1050. Dairy products	14.5	-1.2	28.7
1061. Grain mill products	2.8	31.5	10.8
1062. Starches & starch products	30.03	22.5	-4.8
1071. Bakery products	-0.54	17.9	7.5
1072. Sugar products	7.21	23.1	-10.0
1073. Cocoa & sugar confectionary	22.42	14.8	8.4
1074. Macaroni, noodles & products	57.78	49.5	-15.5
1075. Prepared meals & dishes			34.7
1079. Other food products	-7.09	28.9	-1.0
1080. Prepared animals feeds	100.60	10.0	-1.0
1101. Alcohol productions	-7.87	34.7	23.5
1102. Wines	6.72	11.4	15.7
1103. Malt liquors & malt	13.20	37.5	17.9
1104. Soft drinks & mineral waters.	14.73	93.0	11.7
10 Food Products	2.58	22.32	4.04
All Manufacturing	-0.61	17.34	3.50

**2.5. Fixed Capital of Food Processing vis-a-vis Manufacturing:** A possible explanation for the lower contribution to GVA and output of food processing sector could be found in this sector possessing a very lowly 6.6% of the total fixed capital of manufacturing total (Table 8), despite having 17% of the total factories in manufacturing (Table 1). Basic metals (21%), textiles (6.4%), chemical products (6.4%), petroleum products (6.8%), non-metallic minerals (7.1%), and motor vehicles (6.7%) were the major contributors to fixed capital in total manufacturing. Serious matter of concern is the fact this already lower share of fixed capital by the food processing sector has been decelerating since 1998-99.

Table: 8. Fixed capital in organised manufacturing industries (2 digit) & share of all industries in total manufacturing sector (In Crore) at real price (2004-05)

NIC-08	1998-99 to 2000-1 (T.E)	% share	2004-05 to 2006-07 (T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G R
10 Food Products	37370	7.8	46715	7.9	102668	6.6	7.58
12 Tobacco	1630	0.3	1797	0.3	3084	0.2	2.78
13 Textiles	49198	10.2	61282	10.4	99506	6.4	6.92
14 Wearing apparel	3315	0.7	6139	1.0	15494	1.0	13.56
15 Leather & related products	1972	0.4	2550	0.4	5799	0.4	8.43
16. Wood products	681	0.1	1193	0.2	3066	0.2	10.78
17 Paper & paper products	13707	2.8	14502	2.5	29998	1.9	7.55
18. Printing & reproduction of recorded	2850	0.6	2708	0.5	9728	0.6	12.80
19 Coke & refined petroleum products.	47580	9.9	56148	9.5	105718	6.8	6.81
20. Chemicals & chemical products.	91766	19.1	98540	16.7	98824	6.4	0.19
21. Pharmaceuticals, medicinal chemical &	2004	0.4	2397	0.4	59408	3.8	26.24
22. Rubber & plastics products	14550	3.0	18512	3.1	50645	3.3	9.24
23. Other non-metallic mineral products	38573	8.0	37784	6.4	110029	7.1	7.55
24. Basic metals	116212	24.2	112654	19.1	315110	20.4	8.53
25 Fabricated metal products except	8959	1.9	47304	8.0	30187	1.9	10.37
26. Computer, electronic & optical products	9364	1.9	13724	2.3	20038	1.3	6.83
27. Electrical equipment	10577	2.2	10581	1.8	36361	2.3	11.06
28. Machinery & equipment n.e.c.	15516	3.2	15477	2.6	50902	3.3	9.46
29. Motor vehicles, trailers & semi-trailers.	25981	5.4	23593	4.0	104393	6.7	11.13
30. Other transport equipment	4549	0.9	13530	2.3	27652	1.8	13.45
31. Furniture	532	0.1	3579	0.6	2495	0.2	10.27
32. Other manufacturing	2001	0.4	1977	0.3	4474	0.3	1.87
33. Repair & installation of machinery &	1383	0.3	2060	0.3	2106	0.1	4.30
38. Wastage collection, treatment & disposal	3	0.0	652	0.1	1486	0.1	43.86
58. Publishing activities	2538	0.5	2022	0.3	2242	0.1	-0.29
Others	5526	1.1	16813	2.9	194652	12.6	26.59
All Manufacturing	480989	100.0	588827	100.0	1548326	100.0	9.08

Further concretizing this lower share was the slow growth of fixed capital in the food processing sector at only 7.6% compared to 9% in the total manufacturing. Here again, pharmaceuticals have been growing their fixed capital at the fastest pace at 26% followed by wearing apparel (from a low base) (13.56%), other transport equipment (13.45%) (Table 8).

**Fixed Capital among Food Processing Industries:** Among the food processing industries, sugar products that has just 2% (as shown in Table 2) of all the food processing factories accounted for 26% of fixed capital in food processing sector during the Triennium 2011-12 to 2013-14 (Table 9). On the other hand, grain mill products with 49% share of food processing factories had only 11% of the fixed capital in food processing sector. On the whole this clearly shows the lower capital intensity in grain milling and higher requirements in sugar industry. In fact, the sugar industry after decontrol has been undergoing consolidation and higher investments. The upside of this is that grain milling industry has been improving its share of food processing fixed capital from just 7% during the Triennium 1998-99 to 2000-01 to 11.43% in the latest period. This could be due to the changing upgraded technologies to reduce broken rice grains in the country.

Likewise, alcohol production with only 1% share of total food processing factories consisted of 7% of the sector's total fixed capital.

Table: 9. Fixed capital in (4-digit) FPIs of organised sector (Rs Crore) at real price (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2011-12 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	1051	2.84	755	1.63	1226	1.26	1.31
1020. Fish & fish products	1473	3.98	1049	2.26	1516	1.55	-0.21
1030. Fruit & vegetables.	939	2.54	1417	3.06	3436	3.52	10.78
1040. Vegetable & animal oils & fats	4833	13.07	5363	11.58	10961	11.23	7.03
1050. Dairy products	2566	6.94	2783	6.01	6311	6.46	7.58
1061. Grain mill products	2,653	7.17	3961	8.55	11156	11.43	12.12
1062. Starches & starch products	905	2.45	663	1.43	2010	2.06	8.55
1071. Bakery products	632	1.71	1099	2.37	3532	3.62	13.73
1072. Sugar products	9,976	26.98	15069	32.53	25237	25.85	7.25
1073. Cocoa & sugar confectionary	2,353	6.36	704	1.52	4302	4.41	8.67
1074. Macaroni, noodles & products	94	0.25	88	0.19	794	0.81	16.82
1075. Prepared meals & dishes	-	0.00	0	0.00	753	0.77	20.37
1079. Other food products	3,301	8.93	4287	9.25	8855	9.07	8.16
1080. Prepared animals feeds	584	1.58	744	1.61	2052	2.10	9.59
1101. Alcohol productions	1,931	5.22	2215	4.78	7060	7.23	10.60
1102. Wines	299	0.81	392	0.85	572	0.59	4.03
1103. Malt liquors & malt	678	1.83	1489	3.22	3359	3.44	11.98
1104. Soft drinks & mineral waters	2,070	5.60	3388	7.31	6059	6.21	8.66
Total Food manufacturing	36980	100.00	46319	100.00	97622	100.00	7.74
All Manufacturing	480,989		588827		1482406		9.08

As already noted, the growth rate of fixed capital in this sector was lower by 19% than that of total manufacturing. Within the sector, growth rates were higher in prepared meals and dishes (20%), macaroni, noodles and products (17%) bakery products (14%), grain mill products (12%), and fruits and vegetables (11%). Fixed investments in fish processing and meat processing seem to have completely stalled during the latest period (Table 9).

**2.6. Working Capital for Food Processing in Total Manufacturing:** Analyzing working capital requirements in various sectors of manufacturing gives a different picture about food processing. While this sector used only 6.6% of total fixed capital of manufacturing sector (as shown in Table 8), it used up 11.5% of the total working capital in manufacturing (Table 10). This share did not change much during the study period viz., 1998-99 to 2013-14. This indicates that the working capital requirements are relatively more and therefore short-term credit availability or lack of it makes huge difference to the growth of this sector. The same dualism in capital requirements can be seen in case of pharmaceuticals with 9.1% of total working capital compared to its use of only 3.8% of total fixed capital. On the other hand, basic metals that consumed 20.4% of total fixed

capital of manufacturing required only 13.9% of its working capital as could be seen from the same table (Table 8 &10).

Table: 10: Working capital in organised manufacturing industries (2 digit) & share of FPIs in total manufacturing sector of India (Rs Crore) at real price (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	GR
10 Food Products	13763	10.95	19684	9.73	48154	11.5	9.72
12 Tobacco	1667	1.33	1903	0.94	3872	0.9	6.43
13 Textiles	5913	4.70	15193	7.51	26118	6.2	13.87
14 Wearing apparel	3914	3.11	3508	1.73	10598	2.5	9.42
15 Leather & related products	1550	1.23	1892	0.93	5654	1.3	5.46
16. Wood products	324	0.26	789	0.39	2162	0.5	14.26
17 Paper & paper products	2157	1.72	2840	1.40	5238	1.2	7.77
18. Printing & recorded media	699	0.56	1013	0.50	3697	0.9	12.02
19 Coke & refined petroleum products.	10525	8.37	12321	6.09	-2451	-0.6	0.14
20. Chemicals & chemical products.	24892	19.80	29530	14.59	37760	9.0	3.96
21. Pharmaceuticals & botanical products.	1066	0.85	2232	1.10	38295	9.1	30.05
22. Rubber & plastics products	4359	3.47	6307	3.12	24951	5.9	11.92
23. Other non-metallic mineral products	5368	4.27	7604	3.76	22792	5.4	11.03
24. Basic metals	11998	9.54	32640	16.13	58492	13.9	17.56
25 Fabricated metal except machinery & Equip	5126	4.08	21427	10.59	15599	3.7	9.71
26. Computer, electronic & optical products	4739	3.77	8147	4.03	19795	4.7	12.79
27. Electrical equipment	6481	5.15	8937	4.42	29906	7.1	14.15
28. Machinery & equipment n.e.c.	9261	7.37	13157	6.50	37225	8.9	11.06
29. Motor vehicles, trailers & semi-trailers.	4972	3.96	8047	3.98	3356	0.8	-8.73
30. Other transport equipment	1562	1.24	3792	1.87	5093	1.2	7.26
31. Furniture	239	0.19	1704	0.84	3646	0.9	15.73
32. Other manufacturing	5061	4.03	3684	1.82	12462	3.0	1.47
33. Repair & installation of machinery & Equip	43	0.03	3245	1.60	1087	0.3	45.19
38. Wastage collection, treatment & disposal	4	0.00	476	0.24	735	0.2	35.95
58. Publishing activities	1380	1.10	1035	0.51	3023	0.7	0.60
Others	1431	1.14	2566	1.27	7679	1.8	7.78
All Manufacturing	125719	100.00	202405	100.00	420325	100.0	10.73

Looking at the growth rates, the working capital requirements grew 30% more than the fixed capital. The gap in working capital growth in this sector was nearer to total manufacturing and lower by just 9% compared to 17% lower growth in case of fixed capital utilization.

**Working Capital among Food Processing Industries:** The various activities in food processing display this higher requirement of working capital vis-à-vis fixed capital (Table 11). Grain mill products that accounted for just 11.43% of food processing fixed capital accounted for 23.6% of its working capital. Vegetable oils and fats using up similar share of fixed capital as grain products utilized 21% of the food processing working capital. Similar is the case with several other industries in food processing sector most notably malt liquors and malt, meat products, fish products, On the other hand, sugar industries using up 26% of the sector's fixed capital consumed

only 4.75% of its working capital. Same is the case of lower working capital requirements in soft drinks and mineral waters.

Table 11: Working capital in (4-digit) FPIs of organised sector ( Rs Crore) at 2004-05 Prices

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	447	3.25	367	1.94	1911	3.85	9.67
1020. Fish & fish products.	669	4.87	554	2.93	1056	2.13	3.62
1030. Fruit & vegetables.	189	1.37	488	2.58	753	1.52	14.68
1040. Vegetable & animal oils & fats.	2296	16.72	3614	19.12	10358	20.88	13.65
1050. Dairy products	915	6.66	772	4.08	4299	8.67	13.66
1061. Grain mill products	3496	25.45	5168	27.34	11707	23.60	8.83
1062. Starches & starch products	140	1.02	176	0.93	814	1.64	12.26
1071. Bakery products	131	0.96	525	2.78	1136	2.29	17.13
1072. Sugar products	2077	15.12	1384	7.32	2358	4.75	1.64
1073. Cocoa & sugar confectionary	41	0.30	112	0.59	1030	2.08	30.03
1074. Macaroni, noodles, conscious & similar farinaceous products	5	0.04	10	0.05	111	0.22	19.61
1075. Prepared meals & dishes	0	0.00	0	0.00	177	0.36	27.02
1079. Other food products	1418	10.32	2284	12.08	4929	9.94	10.54
1080. Prepared animals feeds	390	2.84	766	4.05	1308	2.64	9.14
1101. Alcohol productions	904	6.58	561	2.97	2330	4.70	8.64
1102. Wines	154	1.12	590	3.12	433	0.87	6.60
1103. Malt liquors & malt	220	1.60	720	3.81	5001	10.08	20.97
1104. Soft drinks & mineral waters	333	2.43	477	2.52	1678	3.38	<b>-30.50</b>
All Food	13738	100.00	18903	100.00	49607	100.00	10.37
Total manufacturing	125719		200304		423843		10.73

**2.7. Workers in Food Processing in Total Manufacturing:** With a meagre share of 7.5% of GVA (as shown in Table 2), food processing sector could provide employment to 12.9% of total manufacturing employment for workers (Tables 5 and 12). In terms of absolute numbers, it employed 13.48 lakh workers out of a total of 104.17 lakhs in total manufacturing. Between the Trienniums Ending 2006-07 and 2013-14, employment in this sector grew by 2.09 lakhs. This shows the employment intensity of this sector and this has to be put in perspective by the fact that much of this happens in rural areas creating what development theorists call rural non-farm employment. The next important sectors were textiles (12%), apparels (7.9%), basic metals (7.4%) and other non-metallic products (7.5%). Share of employment of apparels, motor vehicles, electrical equipment and fabricated metal products was going up, while that of chemical products, textiles and food processing was receding (Table 12).

Over time, the share of food processing in employment seems to be shrinking as could be seen from Table 11. While it provided employment to 15.5% of total workers in manufacturing in the Triennium 1998-99 to 2000-01, it has been declining ever since forming 14.2% in Triennium

20004-05 to 2006-07 and to 11.8% in the latest Triennium. This has to be seen in the background of contracting share of food processing sector in total manufacturing GVA from 10.3% in the first period to 8.0% in the second and 7.57% in the latest period. Given the employment intensity of the sector, a 1% reduction in GVA of food processing reduces proportionately higher share of employment. Therefore, there is higher welfare enhancing function of growth in the sector relatively to other sectors of manufacturing.

Growth rates shown in the last column of Table 12 also endorses the declining employment in food processing. Its growth during 1998-99 to 2013-14 was only 2.09% as against a 4.31% growth in total manufacturing. This shows a 52% lower growth in food processing employment to workers compared to 22% lower growth in GVA relative to manufacturing total. In other words, a 1% reduction in food processing GVA pulls down employment in the sector as a share of total manufacturing employment by 2.36%.

Table: 12. Number of workers in (2 digit) organized manufacturing industries and share of FPIs in total manufacturing sector of India (in Lakhs).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	9.72	15.5	10.22	14.2	12.29	11.8	2.09
11.Beverages	0.56	0.9	0.75	1.0	1.19	1.1	5.70
12 Tobacco	4.45	7.1	4.39	6.1	4.17	4.0	-0.81
13 Textiles	11.04	17.6	11.79	16.4	12.55	12.0	1.28
14 Wearing apparel	2.58	4.1	4.50	6.2	8.20	7.9	9.57
15 Leather & related products.	1.05	1.7	1.41	2.0	2.63	2.5	7.38
16. Wood products	0.38	0.6	0.42	0.6	0.61	0.6	3.92
17 Paper & paper products	1.36	2.2	1.42	2.0	1.89	1.8	3.20
18. Printing & recorded media	0.50	0.8	0.57	0.8	1.04	1.0	6.55
19 Coke & refined petroleum products.	0.50	0.8	0.65	0.9	0.82	0.8	4.35
20. Chemicals & chemical products.	5.39	8.6	5.63	7.8	4.92	4.7	-0.92
21. Pharmaceuticals & botanical products.	0.46	0.7	0.48	0.7	3.60	3.5	17.49
22. Rubber & plastics products.	1.96	3.1	2.45	3.4	4.50	4.3	6.65
23. Other non-metallic mineral products.	3.53	5.6	4.80	6.7	7.77	7.5	6.12
24. Basic metals.	4.56	7.3	5.03	7.0	7.75	7.4	5.09
25 Fabricated metal except machinery & Eqp	2.08	3.3	2.94	4.1	5.00	4.8	7.97
26. Computer, electronic & optical products	0.92	1.5	0.89	1.2	1.48	1.4	5.53
27. Electrical equipment.	1.68	2.7	1.95	2.7	3.73	3.6	7.11
28. Machinery & equipment n.e.c.	3.15	5.0	3.25	4.5	4.60	4.4	3.66
29. Motor vehicles, trailers & semi-trailers.	1.98	3.2	2.82	3.9	6.29	6.0	9.40
30. Other transport equipment	1.23	2.0	1.24	1.7	2.33	2.2	5.95
31. Furniture	0.18	0.3	0.24	0.3	0.44	0.4	7.63
32. Other manufacturing	0.76	1.2	1.29	1.8	2.17	2.1	8.13
33. Repair & installation of machinery & Eqp	0.43	0.7	0.40	0.6	0.26	0.3	-3.73
38. Wastage collection, treatment & disposal	0.00	0.0	0.02	0.0	0.10	0.1	25.52
58. Publishing activities	0.27	0.4	0.25	0.3	0.12	0.1	-7.49
Others	0.76	1.2	1.18	1.6	2.90	2.8	9.78
All Food Manufacturing	10.28	16.4	10.97	15.2	13.48	12.9	2.34
All Manufacturing	62.60	100.0	72.05	100.0	104.17	100.0	4.31

**Employment to Workers among Food Processing industries:** Within food processing, other food products continues to be the leading employer with 27.1% share of its employment and employing 3.68 lakh workers during the Triennium 2011-12 to 2014-15 (Table 13). This is the duality in the sector in that this sub-sector with only 10% share of GVA (as can be seen from Table 6) employs 27.1% of its workers. Other food products include many of the small-scale activities like *papads*, *appalam* and similar products, spice grinding, *sambar* powder, apart from processing of coffee, tea, edible nuts. It also consists of malted foods, instant foods, and other new products.

Other leading sub-sectors in terms of employment are grain milling (17.3%), sugar products (13.2%), dairy products (7.6%), vegetable oils (6.4%), and bakery products (5.4%). The contribution of sugar industry to employment has been declining during the study period from 21.3% during the Triennium 1998-99 to 2000-01 to 13.2% in the latest period. Same is the case with grain mill products, while employment in dairy industry has been on the rise.

Growth rate in the sub-sectors in case of employment has not been encouraging with very few of them growing higher than the sector's average of 2.35%. Malt liquors and malt (7.28%), bakery products (6.8%), prepared animal feeds (5.95%), and dairy products (5.5%) are those relatively faster growing ones. Very high growth rates were recorded in some minor activities like macaroni, noodles and products (17.02%), and prepared meals and dishes (13.8%).

Table: 13. Number of workers in organized FPIs (4 digit) of India.

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07 (T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products	5686	0.6	9837	0.9	18199	1.3	8.88
1020. Fish & fish products	23932	2.3	29466	2.7	34183	2.5	2.66
1030. Fruit & vegetables.	19523	1.9	33687	3.1	46715	3.4	7.27
1040. Vegetable & animal oils & fats	69619	6.8	66896	6.1	87121	6.4	2.60
1050. Dairy products	49096	4.8	60814	5.5	103046	7.6	5.48
1061. Grain mill products	209113	20.3	227929	20.8	234707	17.3	1.23
1062. Starches & starch products	16292	1.6	13520	1.2	16954	1.3	0.46
1071. Bakery products	30590	3.0	37050	3.4	73649	5.4	6.81
1072. Sugar products	218892	21.3	182948	16.7	178248	13.2	-1.38
1073. Cocoa & sugar confectionary	10142	1.0	13086	1.2	27768	2.0	8.78
1074. Macaroni & similar products	904	0.1	1042	0.1	7606	0.6	17.02
1075. Prepared meals & dishes	0	0.0	0	0.0	11421	0.8	13.80
1079. Other food products	300428	29.2	326666	29.8	367798	27.1	1.73
1080. Prepared animals feeds	14693	1.4	19426	1.8	30995	2.3	5.95
1101. Alcohol productions	25903	2.5	25001	2.3	42797	3.2	4.31
1102. Wines	5002	0.5	5386	0.5	6090	0.4	0.70
1103. Malt liquors & malt	9015	0.9	17604	1.6	23765	1.8	7.28
1104. Soft drinks& mineral waters	18875	1.8	26804	2.4	43875	3.2	6.71
All Food	1027703	100.0	1097164	100.0	1354936	100.0	2.35
Total manufacturing	6260120		7205310		10311395		4.31

**Total Food Processing Employment vis-à-vis others in Manufacturing:** Food processing is the largest employer in the manufacturing sector with 17.35 lakh persons in the Triennium 2011-12 to 2013-14 (Table 14). This sector creates 13% of total employment in manufacturing followed by textiles (11%), basic metals (7.4%), apparels (7.2%) and other non-metallic products (7.1%). Total employment (Persons) is a sum of workers in the production process and supervisory staff in different levels of production, marketing and storage. The previous table (Table 11) showed employment of workers and this Table 13 gives total persons. Both tables show, food processing tops employment creation for both workers and all persons.

Table: 14. Number of persons employed in industries (2 digit) and share of FPIs in total organized manufacturing sector of India (in Lakhs).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	12.62	15.3	13.05	14.1	15.81	11.7	1.97
11.Beverages	0.79	1.0	0.98	1.1	1.54	1.1	5.05
12 Tobacco	4.68	5.7	4.64	5.0	4.37	3.3	-0.83
13 Textiles	13.05	15.8	14.72	15.9	14.81	11.0	-5.51
14 Wearing apparel	3.02	3.7	5.21	5.6	9.63	7.2	9.62
15 Leather & related products.	1.32	1.6	1.66	1.8	3.08	2.3	6.81
16. Wood products	0.78	0.9	0.56	0.6	0.81	0.6	1.72
17 Paper & paper products	1.74	2.1	1.82	2.0	2.42	1.8	2.96
18. Printing & recorded media	0.46	0.6	0.77	0.8	1.65	1.2	12.56
19 Coke & refined petroleum products	0.70	0.8	0.85	0.9	1.11	0.8	4.13
20. Chemicals & chemical products.	8.35	10.1	8.29	9.0	6.85	5.1	-1.88
21. Pharmaceuticals& botanical products	0.69	0.8	0.70	0.8	5.87	4.4	18.17
22. Rubber & plastics products	2.32	2.8	3.22	3.5	5.76	4.3	7.23
23. Other non-metallic mineral products	4.43	5.4	5.90	6.4	9.53	7.1	6.03
24. Basic metals	6.05	7.3	6.63	7.2	9.99	7.4	4.89
25 Fabricated metal except machinery & Equip	3.44	4.2	4.70	5.1	6.48	4.8	6.45
26. Computer, electronic & optical products	1.40	1.7	1.32	1.4	2.18	1.6	5.31
27. Electrical equipment.	2.42	2.9	2.71	2.9	5.07	3.8	6.63
28. Machinery & equipment n.e.c.	5.48	6.6	3.44	3.7	6.77	5.0	2.99
29. Motor vehicles, trailers & semi-trailers	2.68	3.2	3.68	4.0	8.17	6.1	9.00
30. Other transport equipment	1.61	2.0	1.57	1.7	2.93	2.2	5.53
31. Furniture	0.25	0.3	0.85	0.9	0.61	0.5	6.96
32. Other manufacturing	0.94	1.1	1.70	1.8	2.77	2.1	8.31
33. Repair & installation of machinery &	0.42	0.5	0.52	0.6	0.38	0.3	-0.10
38. Wastage collection, treatment & disposal	0.21	0.3	0.03	0.0	0.13	0.1	14.27
58. Publishing activities	0.52	0.6	0.55	0.6	0.25	0.2	-7.03
Others	0.82	1.0	1.26	1.4	4.54	3.4	16.96
All Food Manufacturing	13.41	16.3	14.04	15.2	17.35	12.9	2.19
All Manufacturing	82.50	100.0	92.55	100.0	134.57	100.0	4.16

While the share of food processing in total workers of manufacturing has been slipping (from 16.4% in 1998-99 to 2000-01 to 12.9% in the latest period (as shown in Table 12), its share in total employment (Persons) also declined from 16.3% to 13% in the corresponding period (Table 14). It needs to be understood here that this share of food processing decline did not mean employment in this sector declined. But, it happened because employment in other sectors of manufacturing increased at faster pace. Noteworthy is the increased shares of apparel (from 3.7% to 7.2%), pharmaceuticals (0.8% to 4.4%), motor vehicles (3.2% to 6.1%), and electrical equipment (2.9% to 3.8%). On the other hand, some of the traditional employment creators in manufacturing have been witnessing reduced shares. These are textiles (from 15.8% to 11%), chemical products (10.1% to 5.1%) (Table 14).

**Total Employment in Food Processing Activities:** The sub-sectors employing large number of persons (Table15) continue to be the same as that for workers (Table 13). However, relative shares

vary slightly implying differences in their employment of supervisory staff. First, we can see lower share of 24.2% of total persons in other food products as against 27.1% of workers of the food processing sector. This can be interpreted as lower supervisory staff in this activity, as this is mainly low capital intensive and includes household units with low value added activities like *papads*, *appalams* and so on. The reverse was true in case of grain milling (18.1% of persons compared to 17.3% of workers), sugar industries (14.8% of total food processing persons versus 13.2% share of its workers), dairy products (8.3% of persons as against 7.6% of workers). These sectors palpably engage more supervisory staff in both production and marketing of products.

Table:15. Number of Persons Employed of (4-digit) organized FPIs in India.

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2013-14 (T.E)	% share	G.R.
1010. Meat & meat products	6753	0.5	12031	0.9	22786	1.3	9.29
1020. Fish & fish products	34349	2.6	34950	2.5	41011	2.4	1.66
1030. Fruit & vegetables	25090	1.9	41758	3.0	58623	3.4	7.09
1040. Vegetable & animal oils & fats	96045	7.1	93528	6.7	113358	6.5	2.07
1050. Dairy products	78606	5.9	88428	6.3	143495	8.3	4.44
1061. Grain mill products	265885	19.8	296449	21.1	314967	18.1	1.59
1062. Starches & starch products	19882	1.5	16780	1.2	21369	1.2	0.69
1071. Bakery products	40336	3.0	47901	3.4	91960	5.3	6.38
1072. Sugar products	315978	23.5	259882	18.5	256513	14.8	-1.41
1073. Cocoa & sugar confectionary	12292	0.9	17674	1.3	35361	2.0	9.00
1074. Macaroni& similar products	4681	0.3	1261	0.1	8736	0.5	11.76
1075. Prepared meals & dishes	0	0.0	0	0.0	15697	0.9	15.46
1079. Other food products	341060	25.4	367675	26.2	419757	24.2	1.75
1080. Prepared animals feeds	21329	1.6	27123	1.9	42659	2.5	5.43
1101. Alcohol productions	33787	2.5	31403	2.2	51823	3.0	3.82
1102. Wines	7104	0.5	7317	0.5	7641	0.4	-0.02
1103. Malt liquors & malt	12117	0.9	22035	1.6	28875	1.7	6.40
1104. Soft drinks & mineral waters.	28166	2.1	37435	2.7	60989	3.5	6.26
All Food Manufacturing	1343458	100.0	1403630	100.0	1735618	100.0	2.18
Total manufacturing	8249732		9297913		13306207		4.16

**Food Processing Wages and Salaries in Total Manufacturing:** The share of food processing in the wages and salaries of total manufacturing was substantially lower than its share of total employment. As can be seen from Table 16, persons employed in this sector received just 8.6% of the total wages and salaries of manufacturing, despite employing 12.9% of the total employment of manufacturing (as shown in Table 14). This low share roughly corresponds to the sector's share of manufacturing GVA as shown in Table 5. This however shows that this sector provides jobs at lower wages and salaries and the quality of jobs is much to be desired in that sense. There are few other low paying sectors in manufacturing as can be seen from the Table 16. Some of these low

paying sectors are- apparel (4.8% share of wages and salaries as against employing 7.2% of manufacturing workforce), other non-metallic products (4.8% of wages as against 7.2% employment), fabricated metal products (4.28% of wages vs.5% employment). On the other hand, there are many sectors that claimed higher share of wages and salaries than their respective shares in employment. They are- basic metals (9.4% of wages vs. 7.4% of employment), motor vehicles (9.8% of wages as against 6.1% employment), electrical equipment (5.8% of wages vs. 3.8% of employment), and computer hardware (3.15% of wages vs.1.6% of employment). Employees in these sectors might be better paid than those working in food processing sector (Table 16 & 14).

Table: 16. Wages and Salaries Including Employers' Contribution (2 digit) and share of FPIs in total organized manufacturing sector of India (in Crore) at real price (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	7174	10.1	8246	9.40	17833	8.6	6.07
12 Tobacco	1148	1.6	1245	1.42	1363	0.7	-1.27
13 Textiles	8534	12.1	9644	10.99	14529	7.0	4.62
14 Wearing apparel	1423	2.0	3280	3.74	9838	4.8	15.09
15 Leather & related products.	664	0.9	912	1.04	3083	1.5	11.05
16. Wood products	149	0.2	258	0.29	694	0.3	10.43
17 Paper & paper products	1411	2.0	1670	1.90	3233	1.6	6.33
18. Printing & recorded media	548	0.8	597	0.68	2894	1.4	13.59
19 Coke & refined petroleum products.	2067	2.9	2062	2.35	4134	2.0	5.66
20. Chemicals & chemical products.	10222	14.5	11943	13.62	13150	6.4	2.03
21. Pharmaceuticals & botanical products.	1077	1.5	979	1.12	14713	7.1	13.20
22. Rubber & plastics products.	1579	2.2	2815	3.21	8945	4.3	12.57
23. Other non-metallic mineral products.	3022	4.3	3786	4.32	9837	4.8	7.91
24. Basic metals.	9635	13.6	10050	11.46	19509	9.4	5.08
25 Fabricated metal except machinery & Eqp	5308	7.5	3465	3.95	8518	4.1	-3.53
26. Computer, electronic & optical products	1740	2.5	2090	2.38	7289	3.5	11.31
27. Electrical equipment.	2735	3.9	3699	4.22	12012	5.8	10.99
28. Machinery & equipment n.e.c.	5622	8.0	5015	5.72	18449	8.9	9.51
29. Motor vehicles, trailers & semi-trailers.	3681	5.2	6218	7.09	20242	9.8	12.67
30. Other transport equipment	1441	2.0	2006	2.29	5741	2.8	9.44
31. Furniture	235	0.3	383	0.44	872	0.4	9.41
32. Other manufacturing	814	1.2	1251	1.43	1947	0.9	12.20
33. Repair & installation of machinery & Eqp	679	1.0	702	0.80	783	0.4	3.30
38. Wastage collection, treatment & disposal	41	0.1	17	0.02	135	0.1	20.39
58. Publishing activities	3648	5.2	1092	1.25	725	0.4	-6.26
Others	800	1.1	1616	1.84	6483	3.1	15.79
All Food Manufacturing	70690	100.0	87713	100.00	206633	100.0	7.97

Growth in wages and salaries of food processing sector was 6.07% per annum during 1998-99 to 2013-14 and lower than the manufacturing sector as a whole that grew at 7.97%. However, the low paying sector like apparel had the fastest growing salaries at 15.09% per annum. Wages were

also growing faster in sectors like motor vehicles (12.67%), computer hardware (11.31%), rubber products (12.57%), and electrical equipment (10.99%) (Table 16).

Table: 17. Wages and Salaries Including Employers' Contribution (in Core), (4-digit) of organized FPIs in India at real price (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G R
1010. Meat & meat products	76	1.1	91	1.12	260	1.6	10.81
1020. Fish & fish products	201	2.8	157	1.94	367	2.3	3.31
1030. Fruit & vegetables	112	1.5	193	2.38	496	3.1	7.80
1040. Vegetable & animal oils & fats	506	7.0	493	6.07	1075	6.8	3.71
1050. Dairy products	862	12.0	990	12.20	1993	12.6	3.29
1061. Grain mill products	707	9.8	846	10.42	1825	11.5	5.46
1062. Starches & starch products	84	1.2	82	1.01	210	1.3	10.88
1071. Bakery products	238	3.3	354	4.36	1107	7.0	11.75
1072. Sugar products	2237	31.1	2195	27.04	2791	17.6	0.79
1073. Cocoa & sugar confectionary	106	1.5	191	2.36	668	4.2	13.64
1074. Macaroni, noodles & Products	35	0.5	7	0.08	80	0.5	17.22
1075. Prepared meals & dishes	0	0.0	0	0.00	223	1.4	12.01
1079. Other food products	990	13.8	1293	15.92	2430	15.3	4.55
1080. Prepared animals feeds	132	1.8	206	2.54	495	3.1	7.00
1101. Alcohol productions	324	4.5	263	3.24	769	4.8	5.69
1102. Wines	60	0.8	77	0.95	126	0.8	8.31
1103. Malt liquors & malt	99	1.4	207	2.55	346	2.2	8.93
1104. Soft drinks & mineral waters	173	2.4	329	4.06	843	5.3	11.71
All Food	7197	100.0	8119	100.00	15871	100.0	6.01
Total manufacturing	70690		87803		190388		7.97

**Wages and Salaries among Food Processing Industries:** Within food processing, many sectors possessed lower share of wages and salaries than their shares in employment. Very few sectors had higher share of wages and salaries than their share in employment (Table 17). Sugars (17.6% of wages and salaries vs. 14.8% share of employment) and dairy products (12.6% of wages and salaries as against 8.3% of employment). Leading sectors like grain milling employees got only 11.5% of wages and salaries of the sector, though they formed 18.1% of its total workforce. Also, employees of other food processing industries forming 24.2% of the sector's employment received only 15.3% of its wages and salaries. These are, without any doubt, at the bottom of the pyramid and needs to be moved up with substantial improvements in their living (Table 15 & 17).

### 3. Productivity of Output and Employment in Food Processing

**3.1. Output per Factory in Food Processing Relative to Manufacturing:** That food processing industries in India on the whole operate at lower capacity and capacity utilization is rather well-known. The point then- how small is their operation in relation to the manufacturing sector as a

whole. The data from Annual Survey of Industries are analysed to throw light on this by working out this ratio after accounting for inflation using wholesale price indices of the respective product group (Table 18). As could be seen from the table, the per factory output in food processing was just 68.5% of the manufacturing average in the country in the Triennium 2011-12 to 2013-14. Over the study period, this witnessed significant deceleration from 91% share in the Triennium 1998-99 to 2000-01 to 68.5% in the latest period.

Table: 18. Output per factory in (2 digit) industries of organized manufacturing sector at 2004-05 prices (in Crore)

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	7.26	90.9	9.06	66.4	12.91	68.5	4.69
12 Tobacco	5.10	63.9	3.96	29.0	5.36	28.5	0.70
13 Textiles	7.05	88.3	9.57	70.1	13.12	69.7	5.50
14 Wearing apparel	5.19	65.0	7.72	56.5	7.83	41.5	3.79
15 leather & related products.	4.31	54.0	5.92	43.4	7.43	39.4	4.45
16. Wood products	0.70	8.8	1.52	11.2	2.57	13.6	10.29
17 Paper & paper products	5.68	71.1	6.35	46.5	8.11	43.1	3.32
18. Printing & recorded media	4.86	60.9	2.53	18.6	4.84	25.7	4.80
19 Coke & refined petroleum products.	148.17	1854.7	270.12	1979.4	354.65	1882.7	7.58
20. Chemicals & chemical products.	11.01	137.8	21.21	155.4	29.50	156.6	16.10
21. Pharmaceuticals & botanical products.	6.87	86.0	10.73	78.6	32.22	171.1	12.80
22. Rubber & plastics products.	4.90	61.3	7.38	54.1	11.11	59.0	7.07
23. Other non-metallic mineral products.	3.13	39.1	3.99	29.2	4.70	25.0	3.74
24. Basic metals.	19.21	240.5	37.06	271.6	41.98	222.8	6.30
25 Fabricated metal except machinery & Eqp	3.92	49.0	5.92	43.4	6.58	34.9	4.94
26. Computer, electronic & optical products	17.57	219.9	34.20	250.6	33.56	178.1	5.16
27. Electrical equipment.	7.65	95.7	16.32	119.6	21.75	115.5	9.26
28. Machinery & equipment n.e.c.	4.80	60.1	9.30	68.1	16.50	87.6	10.34
29. Motor vehicles, trailers & semi-trailers.	15.90	199.0	41.94	307.4	55.16	292.8	9.89
30. Other transport equipment	12.74	159.5	30.23	221.5	38.10	202.3	8.22
31. Furniture	3.33	41.7	4.79	35.1	5.37	28.5	1.64
32. Other manufacturing	11.77	147.3	18.25	133.7	10.93	58.0	2.32
33. Repair & installation of machinery & Eqp	9.05	113.3	12.75	93.5	8.36	44.4	-1.48
38. Wastage collection, treatment & disposal.	490.30	6137.1	4.76	34.9	17.86	94.8	-2.68
58. Publishing activities	12.23	153.1	13.31	97.5	16.27	86.3	3.01
Others	5.12	64.0	10.30	75.5	18.99	100.8	10.76
All manufacturing	7.99	100.0	13.65	100.0	18.84	100.0	7.06

To make thing worse, this productivity was growing at 34% slower than the manufacturing average. While manufacturing output per factory had been moving up at a rate of 7.06% that in food processing sector was increasing only by 4.69% per annum. This means the divergence can only deepen in years to come, if the same trend growth rate persists.

**3.2. Per Factory Output in Food Processing Industries:** The leading sub-sectors in terms of factories viz., grain milling and other food products operate at only 45% and 59% output per factory compared to the sector's average (Table 19). To put this in perspective, these sub-sectors operate at 31% and 40% of the manufacturing average. Sub-sectors like fruit and vegetables (51.2%), prepared meals and dishes (31.1%), bakery products (77.5%), and starch products (59.4%) had also operated at lower output per factory than the sector's average.

Table 19. Output per factory in (4 digit) organized FPIs in India (in Crore) at 2004-05 prices

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	40.30	569.33	38.94	429.62	81.89	634.5	6.45
1020. Fish & fish products.	23.49	331.82	18.39	202.84	29.48	228.4	1.64
1030. Fruit & vegetables.	3.49	49.27	4.63	51.03	6.60	51.2	5.50
1040. Vegetable & animal oils & fats.	13.29	187.81	23.81	262.65	36.32	281.4	8.04
1050. Dairy products	25.39	358.70	26.71	294.68	31.10	241.0	1.76
1061. Grain mill products	3.02	42.72	3.46	38.21	5.83	45.2	5.21
1062. Starches & starch products	2.68	37.89	3.17	35.00	7.67	59.4	9.88
1071. Bakery products	3.72	52.52	6.60	72.83	10.01	77.5	8.26
1072. Sugar products	22.37	316.10	40.51	446.97	59.75	462.9	7.68
1073. Cocoa & sugar confectionary	5.77	81.56	7.91	87.32	19.92	154.4	8.88
1074. Macaroni & similar products	10.73	151.56	6.47	71.40	17.86	138.4	7.84
1075. Prepared meals & dishes				0.00	4.01	31.1	-16.25
1079. Other food products	4.88	68.90	5.21	57.50	7.58	58.7	4.05
1080. Prepared animals feeds	9.54	134.78	13.69	151.04	22.93	177.6	6.16
1101. Alcohol productions	21.20	299.57	26.22	289.33	47.17	365.5	6.89
1102. Wines	15.67	221.36	21.31	235.07	27.58	213.7	3.61
1103. Malt liquors & malt	15.94	225.18	35.33	389.77	52.76	408.7	8.92
1104. Soft drinks & mineral waters	5.16	72.85	6.38	70.39	7.84	60.7	4.34
Food Manufacturing	7.08	100.00	9.06	100.00	12.91	100.0	4.84
All Manufacturing	7.99		13.65		18.84		7.06

On the other side of the spectrum are few sub-sectors with high output per factory. They are- meat products (634%), sugars (462.9%), malt liquors (408.7%), vegetable oils and fats (282%), dairy products (241%) and fish products (228%). Fast growing sub-sectors in this are- starch products (9.88%), malt liquors (8.92%), cocoa and sugar confectionery (8.88%), bakery products (8.26%), vegetable oils and fats (8.04%), and sugar products (7.68%). Slow growing sectors in terms of per factory output are- fish products (1.64%), and dairy products (1.76%) (Table 19).

**3.3. GVA per Worker in food processing relative to Manufacturing Average:** After having analysed the fixed capital per workers, we look at the productivity of workers in the food processing sector in relation to the manufacturing first and then compare different food processing industries with the sectoral average (Table 20).

Table: 20. GVA per worker in (2 digit) industries of organized manufacturing sector in India (in Lakhs) at real Price (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)		2012-13 to 2014-15 (T.E)	% share	G R
10 Food Products	2.18	62.5	2.62	52.2	3.79	57.6	4.56
12 Tobacco	1.06	30.6	1.25	24.8	1.63	24.7	3.72
13 Textiles	1.65	47.3	2.07	41.1	3.22	48.9	5.51
14 Wearing apparel	1.53	43.8	1.37	27.3	1.88	28.6	2.05
15 Leather & related products.	1.48	42.4	1.47	29.3	2.04	30.9	2.40
16. Wood products	0.94	26.9	1.51	30.0	2.64	40.1	7.03
17 Paper & paper products	3.10	89.0	3.55	70.7	4.59	69.6	3.30
18. Printing & reproduction of recorded media	5.74	164.9	2.89	57.4	5.46	82.8	3.22
19 Coke & refined petroleum products.	29.91	858.8	63.37	1260.9	69.95	1061.7	6.37
20. Chemicals & chemical products.	8.25	237.0	9.79	194.8	12.91	196.0	3.82
21. Pharmaceuticals & botanical products.	4.55	130.5	6.38	126.9	15.48	235.0	9.93
22. Rubber & plastics products.	3.44	98.6	3.67	73.0	5.69	86.4	4.42
23. Other non-metallic mineral products.	3.10	89.1	3.60	71.7	4.30	65.3	3.74
24. Basic metals.	6.24	179.2	11.53	229.5	9.24	140.3	2.82
25 Fabricated metal except machinery & Equip	3.33	95.6	3.39	67.4	4.22	64.1	2.29
26. Computer, electronic & optical products#	5.15	147.7	8.37	166.5	10.95	166.3	5.44
27. Electrical equipment.	4.21	120.8	6.72	133.8	8.04	122.0	5.41
28. Machinery & equipment n.e.c.	3.55	101.8	5.83	116.1	10.31	156.5	8.45
29. Motor vehicles, trailers & semi-trailers.	5.13	147.3	8.53	169.8	8.34	126.7	3.67
30. Other transport equipment	6.55	188.0	7.19	143.2	7.24	109.9	1.84
31. Furniture	8.54	245.1	3.07	61.1	3.04	46.2	-5.41
32. Other manufacturing	4.02	115.5	2.79	55.6	1.44	21.9	-6.18
33. Repair & installation machinery & Equip	5.54	159.0	3.86	76.7	7.86	119.2	4.41
38. Wastage collection, treatment & disposal.	2.24	64.5	1.64	32.7	3.68	55.9	5.91
58. Publishing activities	9.22	264.6	11.06	220.1	16.64	252.5	5.56
Others	4.35	124.9	6.78	134.9	14.73	223.6	10.12
All Manufacturing	3.48	100.0	5.03	100.0	6.59	100.0	5.27

The gross value added (GVA) per worker or worker productivity in food processing during the latest period viz., Triennium 2011-12 to 2013-14 was 58% of the manufacturing average and almost nearer to its share of fixed capital per worker (as shown in Table 24). Also, worker productivity in this sector has been declining compared to manufacturing average during the period of study. This worker productivity was very high relative to manufacturing average in petroleum products (9.6 times higher), pharmaceuticals (1.35 times higher), and basic metals (0.4 times higher). Apparel (28.6% of manufacturing average), leather products (31%), textiles (48.9) are some of the other sectors with lower worker productivity.

This low productivity of the sector in terms of gross value added is the crux of the problems of this sector and has been well-documented in literature (Chadha and Sahu, 2003; Rao and Dasgupta, 2009). Since earnings are a function of productivity, there is no surprise that the worker remuneration is one of the lowest in this sector, given the abysmal productivity. This lower

productivity has also been growing slower (4.56% per annum) than the manufacturing average of 5.27 by 14%. Here also, pharmaceutical sector productivity of workers had grown faster (9.93%), machinery and equipment n.e.c (8.4%), and refined petroleum products (6.37%) (Table 20).

Table: 21. Estimated GVA per worker (4-digit) organized FPIs India, (Rs in lakhs) at real prices (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products	5.03	235.7	3.17	120.9	6.16	162.4	3.15
1020. Fish & fish products	3.29	154.2	1.51	57.6	3.08	81.2	0.26
1030. Fruit & vegetables	1.68	78.7	1.86	71.1	3.14	82.8	3.86
1040. Vegetable & animal oils & fats	4.04	189.2	5.05	192.5	7.48	197.3	4.18
1050. Dairy products	4.44	207.9	4.46	170.3	4.42	116.7	-0.59
1061. Grain mill products	1.14	53.3	1.50	57.4	4.07	107.4	9.95
1062. Starches & starch products	1.99	93.0	2.31	88.2	5.02	132.3	8.94
1071. Bakery products	2.28	106.8	2.67	102.0	3.55	93.7	5.42
1072. Sugar products	2.41	112.9	3.54	135.0	3.13	82.6	4.07
1073. Cocoa & sugar confectionary	4.07	190.5	6.51	248.2	8.02	211.3	4.38
1074. Macaroni, noodles, & products	13.01	609.3	11.09	422.9	7.65	201.7	-0.25
1075. Prepared meals & dishes					2.97	78.3	-2.03
1079. Other food products	1.00	46.9	1.05	40.2	1.40	36.9	3.99
1080. Prepared animals feeds	2.33	109.2	3.39	129.3	6.25	164.8	7.76
1101. Alcohol productions	5.55	259.8	6.03	230.1	9.00	237.4	5.04
1102. Wines	6.38	299.0	8.72	332.7	7.58	199.8	3.37
1103. Malt liquors & malt	4.51	211.4	6.18	235.9	11.16	294.4	6.56
1104. Soft drinks & mineral waters	4.73	221.5	5.44	207.5	5.96	157.1	4.07
All Food Manufacturing	2.13	100.0	2.62	100.0	3.79	100.0	5.31
All Manufacturing	3.48	163.1	5.07	193.6	6.59	173.7	5.07

**Per Worker GVA among Food Processing Industries:** Several food processing industries were operating at lower per worker GVA than the already lower sectoral average and were also growing slower (Table 21). Those having lower productivity per worker compared to sectoral average include other food products (37% of sectoral average), prepared meals and dishes (78.3%), sugar industries (82.6%), fruit and vegetables (83%), and fish products (81%). It is rather surprising that sugar industries also has a very low per worker productivity, despite having double the fixed capital per worker compared to food processing average and needs to be studied further for the underlying causes.

On the other hand, higher worker productivity was observed during the study period in malt liquors (294% of food processing average), alcohol products (237%), cocoa and sugar confectionery (211%), macaroni, noodles and products (202%), wines (200%), dairy products (116.7%), and prepared animal feeds (165%). Coming to the growth of worker productivity in regard to GVA,

zero or negative growth was observed in dairy products, macaroni and products, fish products, and prepared meals. High growth noticed in case of grain mill products (9.95%), starch products (8.94%), animal feeds (7.76%), and malt liquors (6.56%) (Table 21).

**3.4. Fixed Capital per factory in Food Processing in Total Manufacturing:** Both quantity and efficiency of capital determine production and value addition in any sector in general and manufacturing sectors like food processing in particular. Factories in food processing sector continue to be operating at a very low level of fixed capital and in the Triennium 2011-12 to 2013-14 had only 39% of the level of fixed capital in manufacturing average (Table 22). Further, this has been declining during the study period viz., 1998-99 to 2013-14 from 43% of manufacturing average in the first period to 39% of manufacturing average in the latest period.

Table: 22. Estimated fixed capital per factory in organised manufacturing (2-digit) industry India, (in Lakhs).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	156	42.7	182	43.1	263	39.2	4.37
12 Tobacco	63	17.3	55	13.1	82	12.3	1.39
13 Textiles	363	99.3	430	101.8	583	87.0	4.63
14 Wearing apparel	99	27.2	171	40.5	162	24.2	4.79
15 leather & related products.	84	23.0	107	25.3	137	20.5	4.37
16. Wood products	21	5.7	39	9.2	66	9.9	9.46
17 Paper & paper products	411	112.3	382	90.4	468	70.0	1.88
18. Printing & recorded media	111	30.3	102	24.1	213	31.9	7.57
19 Coke & refined petroleum products.	5766	1576.6	5633	1332.6	6213	928.4	0.91
20. Chemicals & chemical products.	871	238.2	900	212.9	907	135.6	1.02
21. Pharmaceuticals, & botanical products.	193	52.7	239	56.6	1229	183.7	15.81
22. Rubber & plastics products.	219	59.8	249	58.8	362	54.0	4.17
23. Other non-metallic mineral products.	325	88.9	269	63.6	391	58.5	1.31
24. Basic metals.	1636	447.3	1549	366.5	2621	391.7	3.72
25 Fabricated metal except machinery & Eq	111	30.4	530	125.3	188	28.1	5.44
26. Computer, electronic & optical products	621	169.8	1155	273.3	830	124.0	1.81
27. Electrical equipment.	262	71.6	263	62.3	453	67.7	5.20
28. Machinery & equipment n.e.c	162	44.2	163	38.6	404	60.3	7.65
29. Motor vehicles, trailers & semi-trailers.	937	256.1	753	178.3	1745	260.8	6.10
30. Other transport equipment	305	83.3	1017	240.6	1045	156.1	9.51
31. Furniture	74	20.3	435	103.0	159	23.8	4.72
32. Other manufacturing	138	37.8	110	26.0	73	10.9	-6.08
33. Repair & installation of machinery & Eq	264	72.2	419	99.1	324	48.4	2.09
38. Waste collection, treatment & disposal	26	7.1	464	109.9	355	53.0	21.34
58. Publishing activities	367	100.3	310	73.2	898	134.2	7.83
Others	132	36.1	315	74.6	1834	274.0	19.74
All Manufacturing	366	100.0	423	100.0	669	100.0	5.03

Among the manufacturing industries, coke and refined petroleum products operates at a high rate of 928% of fixed capital per factory compared to manufacturing average. The next highest were basic metals (392%), motor vehicles (261%), and pharmaceuticals (184%). Like food processing sector, many sectors of manufacturing were operating at a lower fixed capital per factory. Some of them were- wood products (9.9%), tobacco products (12.3%), leather products (20.5%), furniture (23.8%), apparel (24%), fabricated metals (28.1%), printing and media (32%), repair and installation of machinery and equipment (48.4%), rubber products (54%), and other non-metallic products (58.5%). Looking at this, it is fair to assume that most of the manufacturing industries are operating at a low level of fixed capital per factory. And food processing industries are no exception and need to build from here for efficient technology and higher productivity (Table 22).

Growth rate of fixed capital per factory in food processing was 13% lower (4.37%) than that in the manufacturing average of 5.03%. Faster growing capital intensity was observed in pharmaceuticals (at 15.81% per annum), and other transport equipment (9.51%) (Table 22).

**Capital Intensity among Food Processing Industries:** The low fixed capital per factory observed in the sector stems mainly from the low capital intensity in its leading sub-sectors viz., grain milling and other food products (Table 23). These two industries operate at 23% and 63% of even the food processing sector's average fixed capital per factory, which itself was only 39% of manufacturing average. In other words, grain milling and factories under other food products operate with 9% and 25% capital intensity compared to the average capital intensity of all industries. Many of the grain mills utilised very basic machinery across the country and process grain like rice and wheat with very low efficiency leading to 'brokens'. The efforts to upgrade these machinery has been making slow progress, despite the Ministry of Food Processing's efforts to modernise technology.

Table: 23. Fixed capital per factory in (4 digit) organized FPIs (in Lakhs) at real price (2004-05)

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products	2648	1713.0	1180	653.1	848	323.0	9.39
1020. Fish & fish products.	496	320.7	327	180.7	348	132.4	3.17
1030. Fruit & vegetables	220	142.2	230	127.5	313	119.4	7.65
1040. Vegetable & animal oils & fats	154	99.9	216	119.4	328	124.9	0.51
1050. Dairy products	339	219.5	279	154.3	371	141.3	6.02
1061. Grain mill products	24	15.4	31	17.3	61	23.3	3.68
1062. Starches & starch products	127	82.4	110	61.1	271	103.1	0.04
1071. Bakery products	67	43.3	115	63.8	239	91.2	3.34
1072. Sugar products	875	565.9	1845	1020.8	2973	1131.9	-2.33
1073 Cocoa, chocolate, confectionary	971	627.9	208	115.2	805	306.4	6.45
1074. Macaroni, noodles& products	237	153.4	232	128.4	756	287.8	8.55
1075. Prepared meals & dishes					216	82.4	35.52
1079. Other food products	97	63.0	108	59.7	166	63.4	3.32
1080. Prepared animals feeds	127	82.4	141	77.9	252	96.0	4.31
1101. Alcohol productions	748	483.6	904	500.3	1904	724.8	2.77
1102. Wines	391	252.9	533	295.2	760	289.2	0.31
1103. Malt liquors & malt	662	428.1	1292	715.1	2295	873.9	2.39
1104. Soft drinks & mineral waters	312	201.8	444	245.6	412	157.0	6.18
Food Manufacturing	155	100.0	181	100.0	263	100.0	3.35
All Manufacturing	366		419		669		4.05

The picture will not be complete if we do not mention the fact that several sub-sectors in food processing did operate at a high capital intensity. Sugar industries utilised as high eleven times the sector's average capital intensity. Malt liquors (8.8 times), alcohol production (7.3 times), meat products (3.2 times), cocoa and sugar confectionery (3.1 times), wines (2.9 times) and macaroni and noodles (2.8 times). Therefore, modernisation of few sub-sectors can alter the picture of food processing in years to come.

### 3.5. Fixed Capital per Worker in Food Processing Relative to Manufacturing Average:

Contrary to fixed capital per workers that gives capital intensity, fixed capital per worker indicates employment intensity by showing how much capital is required to employ one person. As can be seen from Table 24, one person can be employed in food processing with half the fixed capital investment compared to manufacturing sector average. Very few decent manufacturing jobs were available with lower than this capital as that was possible only low value adding tobacco industries (5% of manufacturing average), apparel (13.1%), leather products (15%), wood products (33%), furniture (34.6%), and fabricated metal products (41.1%). On the other side of the spectrum are industries that require higher investment than manufacturing average to create employment. They were petroleum products (7.62 times higher capital requirement), basic metals (1.74 times), and chemical products (0.5 times).

Table: 24. Estimated fixed capital per worker in organised manufacturing (2-digit) sector India, (in Lakhs).

NIC-08	1998-99 to 2000- 01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2012-13 to 2014- 15 (T.E)	% share	G.R.
10 Food Products	3.63	47.3	4.25	52.1	7.21	50.1	5.32
12 Tobacco	0.37	4.8	0.41	5.0	0.66	4.6	4.52
13 Textiles	4.46	58.1	5.13	63.0	8.76	60.9	5.75
14 Wearing apparel	1.27	16.6	1.35	16.6	1.89	13.1	3.66
15 Leather & related products.	1.88	24.4	1.81	22.2	2.20	15.3	1.27
16. Wood products	1.79	23.2	2.79	34.2	4.76	33.1	7.56
17 Paper & paper products	10.06	130.9	10.16	124.6	16.07	111.7	3.90
18. Printing & recorded media	5.74	74.8	4.69	57.5	9.03	62.8	5.60
19 Coke & refined petroleum	95.60	1244.2	86.85	1065.1	123.99	862.2	1.00
20. Chemicals & products	17.02	221.5	17.44	213.9	21.23	147.6	2.12
21. Pharmaceuticals & botanical products.	4.34	56.5	5.01	61.4	17.48	121.6	11.56
22. Rubber & plastics products.	7.43	96.7	7.58	93.0	10.47	72.8	2.34
23. Other non-metallic mineral products.	10.92	142.1	7.95	97.5	13.01	90.5	1.12
24. Basic metals.	25.45	331.3	22.48	275.6	39.40	274.0	2.80
25 Fabricated metal except machinery & Equip	4.33	56.3	14.08	172.6	5.91	41.1	2.85
26. Computer, electronic & Optical	10.22	133.0	15.40	188.9	13.69	95.2	1.03
27. Electrical equipment.	6.31	82.2	5.40	66.2	9.12	63.4	3.00
28. Machinery & equipment n.e.c.	4.95	64.5	4.84	59.4	10.30	71.6	5.56
29. Motor vehicles, trailers & semi-trailers.	13.12	170.8	8.47	103.9	15.85	110.2	2.07
30. Other transport equipment	4.30	55.9	10.06	123.4	10.71	74.5	7.18
31. Furniture	2.95	38.4	14.39	176.4	4.98	34.6	2.50
32. Other manufacturing	2.65	34.5	1.62	19.8	1.10	7.7	-8.20
33. Repair & installation- machinery & Equip	3.19	41.6	5.13	62.9	10.37	72.1	9.21
38. Wastage collection, treatment & disposal.	0.92	12.0	22.05	270.4	9.72	67.6	17.58
58. Publishing activities	9.44	122.9	8.17	100.1	20.69	143.8	7.05
Others	7.34	95.6	15.38	188.6	70.98	493.5	16.81
All Manufacturing	7.68	100.0	8.15	100.0	14.38	100.0	4.77

While growth rate of food processing in regard to many outcomes of interest were lower than the manufacturing average, the fixed capital per worker has been growing faster than manufacturing average. While the former was 5.32% per annum, the latter was 4.77%, implying a 12% higher growth. It is still very low requirement of investment to employ workers in food processing, this might go up in years to come going by the past trend.

Table: 25. Fixed capital per worker in (4 digit) organized FPIs (in Lakhs) at real price (2004-05)

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	18.79	536.7	7.72	187.8	6.71	91.6	-7.57
1020. Fish & fish products.	6.17	176.1	3.57	86.7	4.47	61.0	-2.87
1030. Fruit & vegetables.	4.80	137.0	4.22	102.6	7.37	100.6	3.51
1040. Vegetable oils & fats	7.11	203.1	7.99	194.2	12.52	170.9	4.43
1050. Dairy products	5.23	149.2	4.59	111.5	6.14	83.8	2.09
1061. Grain mill products	1.21	34.5	1.71	41.6	4.79	65.4	10.89
1062. Starches & starch products	5.01	143.1	5.02	122.1	11.89	162.3	8.09
1071. Bakery products	2.05	58.5	2.96	72.0	4.80	65.5	6.92
1072. Sugar products	4.59	131.1	8.21	199.7	14.17	193.5	8.62
1073. Cocoa, & sugar confectionary	22.34	637.8	5.48	133.3	15.38	209.9	-0.11
1074. Macaroni, noodles, & products	9.57	273.4	8.24	200.4	10.44	142.5	-0.20
1075. Prepared meals & dishes					6.48	88.4	6.57
1079. Other food products	1.01	29.0	1.28	31.0	2.41	32.9	6.43
1080. Prepared animals feeds	3.79	108.2	3.83	93.2	6.62	90.4	3.64
1101. alcohol productions	7.83	223.6	9.02	219.3	16.45	224.6	6.30
1102. Wines	6.36	181.6	7.48	182.0	9.28	126.7	3.33
1103. Malt liquors & malt	7.10	202.8	8.31	202.1	14.15	193.1	4.70
1104. Soft drinks; production of mineral waters.	10.27	293.3	12.30	299.1	13.85	189.0	1.94
All Food Manufacturing	3.50	100.0	4.11	100.0	7.33	100.0	5.40
All Manufacturing	7.73		8.17		14.38		4.71

**Fixed Capital per Worker among Food Processing Industries:** It required only 17% and 33% fixed capital of manufacturing average to create a job in largest food processing industries viz., other food products and grain milling during 1998-99 to 2014-15 (Calculated from Table 24 and 25). As can be seen from Table 25, industries under other food products and grain milling had 33% and 65% of the food processing average fixed capital requirements per worker. On the other hand, alcohol products, malt liquor, cocoa and sugar confectionery and sugar industries required nearly double the fixed capital per worker compared to food processing average. The grain mills had been increasing their fixed capital per worker faster at 10.9% followed by sugar industries (8.6%), bakery products (6.9%), and other food products (6.5%). This fixed capital per worker had been declining in several industries like meat products (-7.6%), fish products (-2.57%), cocoa and sugar confectionery (-0.11), and macaroni, noodles and products (-0.20) (Table 25).

**3.6. Emoluments in Food Processing Relative to Total Manufacturing:** In line with the GVA per worker, the emoluments per worker in food processing are 65% of the manufacturing average (Table 26). It may be recollected from Table 23 that the GVA per worker in the sector was 58% of the manufacturing average. It is clear from this analysis that these jobs in this sector have been

less remunerative than the manufacturing average. There have been micro studies that attributed this low paying nature of this to residual nature, implying that those who do not get regular employment in agriculture resort to this work even at a lower wage. The upside of this employment is that this happens in the rural areas and the workers chose to do this even at this low wage because of these jobs' regular availability. In other words, there is a pull factor in this job (Rao and Dasgupta, 2009).

Table: 26. Emoluments per hired worker (2-digit) industries of organized manufacturing sector in India (In Thousands) at real price (2004-05).

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006-07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
10 Food Products	60	65.2	65	64.7	104	64.7	3.95
12 Tobacco	22	24.3	23	22.8	27	17.1	3.82
13 Textiles	64	69.6	69	68.6	107	66.8	4.30
14 Wearing apparel	46	50.1	63	62.3	99	61.7	6.36
15 Leather & related products.	57	61.5	56	55.2	94	58.6	3.49
16. Wood products	68	73.7	54	53.1	87	54.1	3.19
17 Paper & paper products	86	93.1	98	97.0	150	93.7	4.91
18. Printing & recorded media	92	100.0	90	89.5	225	140.3	8.14
19 Coke & refined petroleum products.	333	360.7	245	243.1	367	229.0	1.56
20. Chemicals & chemical products.	149	161.7	173	171.3	233	145.0	3.76
21. Pharmaceuticals & botanical products.	159	172.5	169	167.2	363	226.6	-4.79
22. Rubber & plastics products.	67	73.0	97	96.5	151	93.9	4.23
23. Other non-metallic mineral products.	70	75.5	66	65.8	95	59.2	2.21
24. Basic metals.	176	190.9	161	159.6	201	125.5	0.04
25 Fabricated metal except machinery & Equip	179	193.7	159	157.5	141	88.2	-1.19
26. Computer, electronic & optical products	152	164.7	152	150.1	394	245.9	9.99
27. Electrical equipment.	470	510.2	153	152.0	250	155.7	0.28
28. Machinery & equipment n.e.c.	103	111.2	122	121.2	320	199.9	11.17
29. Motor vehicles, trailers & semi-trailers.	148	160.9	175	172.9	254	158.2	3.81
30. Other transport equipment	104	112.8	134	132.3	186	115.8	4.22
31. Furniture	104	113.2	92	90.7	150	93.7	4.17
32. Other manufacturing	93	100.5	55	54.8	49	30.5	-5.36
33. Repair & installation of machinery & Equip	133	144.4	150	148.7	369	230.2	7.35
38. Wastage collection, treatment & disposal.	13012	14111.1	65	64.5	101	62.9	-9.39
58. Publishing activities	279	302.9	359	355.1	539	336.4	5.96
Others	90	97.3	116	114.6	197	123.1	6.41
All Manufacturing	92	100.0	101	100.0	160	100.0	4.24

Table 26 also reveals few other low remunerative sectors in manufacturing like tobacco products (17.1%), wood products (54%), textiles (66.8%), apparel (62%), leather products (58.6%), other non-metallic products (59%), fabricated metals (88.2%) and rubber products (94%). High remunerative manufacturing sectors include- computer hardware (246% of manufacturing average), petroleum products (229%), pharmaceuticals (227%), repair and installation of machinery (230%), machinery and equipment n.e.c (200%). The growth rate of emoluments for

hired workers was 7% lower and 3.95% per annum as against a growth of 4.25% in the manufacturing average emoluments.

Table: 27. Per worker wages and salaries including employers' contribution (in thousands), (4-digit) of organised FPIs at real 2004-05 prices

NIC-08	1998-99 to 2000-01 (T.E)	% share	2004-05 to 2006- 07(T.E)	% share	2012-13 to 2014-15 (T.E)	% share	G.R.
1010. Meat & meat products.	134	191.9	92	124.5	142	76.8	1.93
1020. Fish & fish products.	84	120.4	53	72.1	108	91.9	0.65
1030. Fruit & vegetables.	57	80.7	58	77.9	106	90.8	0.53
1040. Vegetable & animal oils & fats	75	107.7	73	99.4	124	105.5	1.11
1050. Dairy products	176	251.5	163	220.7	193	164.8	-2.20
1061. Grain mill products	34	48.3	37	50.2	78	66.4	4.23
1062. Starches & starch products	51	72.2	63	84.7	124	105.6	10.42
1071. Bakery products	78	111.0	95	128.8	149	127.3	4.94
1072. Sugar products	102	145.9	120	162.2	157	133.7	2.17
1073. Cocoa & sugar confectionary	107	153.3	145	196.5	241	205.7	4.87
1074. Macaroni, noodles & products	275	393.2	64	86.4	104	89.0	0.20
1075. Prepared meals & dishes					196	167.0	-1.79
1079. Other food products	33	47.1	39	53.4	66	56.4	2.81
1080. Prepared animals feeds	90	128.7	109	146.9	160	136.2	1.06
1101. Alcohol productions	125	177.9	105	142.3	179	153.0	1.38
1102. Wines	125	177.9	145	195.8	209	178.1	7.61
1103. Malt liquors & malt	110	156.3	118	159.3	146	124.5	1.65
1104. Soft drinks& mineral waters	92	131.0	123	166.3	191	163.1	4.99
All Food Manufacturing	70	100.0	74	100.0	117	100.0	3.67
All Manufacturing	113		122		185		3.66

**Wages and Salaries among Food Processing Industries:** As analysis from Table 26 above shows clearly that the jobs in this sector are less remunerative than manufacturing average, we analyse further to see which among the food processing industries have been doing better or worse to understand the gravity of poor quality of these jobs. Calculating from both Table 26 and Table 27, it could be concluded that the leading employers of food processing viz., grain milling and ‘other food products’ paid 43% and 36% of the manufacturing sector’s average wage to its workforce during the Triennium 2011-12 to 2013-14. The upside of this was that wages in both these sub-sectors have been moving up during the study period viz., 1998-99 to 2013-14. Some of the other low paying sectors relative to manufacturing average were- meat products (77% of manufacturing average wage), macaroni and noodles (89%) fruit and vegetables (91%), and fish products (92%). High performers in terms of better per worker emoluments relative to manufacturing average were- cocoa and sugar confectionery (206%), wines (178%), prepared meals and dishes (167%), and dairy products (165%). Better growth of wages were seen in starch products (10.4%), wines (7.61%), and soft drinks and mineral waters (4.99%). The wages had been declining in dairy

products and prepared meals and dishes, while they were stagnant in fish products and fruit and vegetables.

#### 4. Unorganised Food Processing Segment

The importance of food processing to the manufacturing as a whole seems to be higher in case of the unorganized segment (Table 28). It contributes to 12.54% and 13.32% to the number of enterprises and gross value added in the unorganized manufacturing, respectively.

Table 28. Estimated number of manufacturing enterprises and GVA in unorganized food processing (2-digit)

Name of industries	Enterprises (No.)		GVA (Rs.crores in 2004-05 prices)	
	2015-16	% Share	2015-16	% Share
10 Food products	2343861	11.57	22286.82	12.72
11 Beverages	196592	0.97	1058.37	0.60
12 Tobacco	3559684	17.57	4581.11	2.61
13 Textiles	2789263	13.77	20833.33	11.89
14 Wearing apparel	5516805	27.23	35031.39	19.99
15 Leather & related products.	163380	0.81	2409.22	1.37
16. Wood products	1242883	6.14	6541.29	3.73
17 Paper & paper products	144507	0.71	1339.46	0.76
18. Printing & recorded media	176013	0.87	6051.73	3.45
19 Coke & refined petroleum products.	3111	0.02	73.94	0.04
20. Chemicals & chemical products.	169383	0.84	1773.85	1.01
21. Pharmaceuticals & botanical products.	8286	0.04	199.09	0.11
22. Rubber & plastics products.	145068	0.72	3498.88	2.00
23. Other non-metallic mineral products.	583264	2.88	9868.05	5.63
24. Basic metals.	44055	0.22	1468.50	0.84
25 Fabricated metal except machinery & Equip	713318	3.52	13550.64	7.73
26. Computer, electronic & optical products	21051	0.10	879.65	0.50
27. Electrical equipment.	38270	0.19	1896.62	1.08
28. Machinery & equipment n.e.c.	130953	0.65	19175.11	10.94
29. Motor vehicles, trailers & semi-trailers.	26058	0.13	1548.25	0.88
30. Other transport equipment	9338	0.05	288.82	0.16
31. Furniture	851171	4.20	9821.66	5.60
32. Other manufacturing	1065541	5.26	7221.54	4.12
33. Repair & installation of machinery & Equip	315458	1.56	3871.20	2.21
All Manufacturing	20257313	100	175268.52	100

In terms of the number of enterprises in the total manufacturing, food processing comes fourth after apparel (27.23%), tobacco (17.57%), and textiles (13.77%). Food processing enterprises contributes almost the same proportion of gross value added viz., 13.32% to the total unorganized manufacturing and compares well with apparel that contributes only 20% to the GVA that is lower than its share in the number of enterprises. Food processing also has the distinction of being the second highest contributor to manufacturing GVA after apparel. Textiles with 11.89% GVA follows closely the food processing enterprises.

Table: 29.Total workers and annual emoluments in unorganized (2-digit) food manufacturing Industries

Name of Industries	Total workers		Annual emoluments in Rs.	
	2015-16	% share	2015-16	% share
10 Manufacture of food products	4890867	13.00	62563	82.51
11 Manufacture of beverages	392206	1.04	61488	81.09
12 Tobacco	4421857	11.75	46164	60.88
13 Textiles	5311683	14.11	64800	85.46
14 Wearing apparel	8012578	21.29	66462	87.65
15 Leather & related products	442436	1.18	62223	82.06
16. Wood products	2188713	5.82	74394	98.12
17 Paper & paper products	306576	0.81	66468	87.66
18. Printing & recorded media	490116	1.30	76628	101.06
19 Coke & refined petroleum products	17917	0.05	44815	59.10
20. Chemicals & chemical products	407360	1.08	58144	76.68
21. Pharmaceuticals & botanical products	24506	0.07	54111	71.37
22. Rubber & plastics products	436043	1.16	79948	105.44
23. Other non-metallic mineral products	2897576	7.70	62316	82.19
24. Basic metals	175388	0.47	66704	87.97
25 Fabricated metal except machinery & Equip	1877285	4.99	86166	113.64
26. Computer, electronic & optical products	46734	0.12	110729	146.04
27. Electrical equipment	151196	0.40	98690	130.16
28. Machinery & equipment n.e.c	948360	2.52	106659	140.67
29. Motor vehicles, trailers & semi-trailers	118127	0.31	113022	149.06
30. Other transport equipment	26291	0.07	135464	178.66
31. Furniture	1591019	4.23	73381	96.78
32. Other manufacturing	1936614	5.15	74937	98.83
33. Repair & installation of machinery & Equip	523330	1.39	73474	96.90
All Manufacturing	37634778	100	75823	100.00

The total number of workers in food processing industries of unorganized nature was 52.83 lakhs in 2015-16 and formed 14.04% of all the workers in the unorganized manufacturing (Table 29). Only apparel (21.29%) and textiles (14.11%) are ahead of food processing in creating jobs in the unorganized manufacturing. The annual emoluments in the food processing sector are lower than the manufacturing average in 2015-16 by 17.49% as can be seen from the table. This is a matter of concern that the emoluments compares poorly with the manufacturing average and much worse compared to transport equipment and machinery.

We look at the disaggregated picture in unorganized food processing from earlier rounds of NSSO data at five digit level. An effort was made in the tables below (Tables 30 to 34) to do the same using three rounds of data in 2000-01, 2005-06 and 2010-11 and 2015-16.

Table 30. Estimated number of manufacturing enterprises in food processing (5-digit)

Name of industries	2000-01	% Share	2005-06	% Share	2010-11	% Share	2015-16	% Share
All Food	2992915	100	2596145	100	2207969	100	2205711	100
10611 Flour milling	836706	27.96	788083	30.36	588043	26.63	843676	38.3
10612 Rice milling	401936	13.43	328178	12.64	170601	7.73	133836	6.07
10616 Cereal breakfast foods obtained by roasting or swelling cereal grains	257417	8.6	146374	5.64	298734	13.53	157607	7.15
10734 Sweetmeats including dairy based sweets	159540	5.33	141551	5.45	71564	3.24	109477	4.96
11012 Country liquor	139668	4.67	126438	4.87	78617	3.56	119244	5.41
10504 Cream, butter, cheese, curd, ghee, khoya etc.	135572	4.53	88706	3.42	27450	1.24	62771	2.85
10722 'gur' from sugarcane	100699	3.36	78347	3.02	41848	1.9	36825	1.67
10201 Sun-drying of fish	82822	2.77	5861	0.23	3653	0.17	14006	0.63
10797 Vitaminised high protein flour, frying of dal and other cereals	82545	2.76	33726	1.3	4605	0.21	10667	0.48
10799 Other semi-processed, processed or instant foods n.e.c. except farinaceous	77505	2.59	32826	1.26	11163	0.51	23906	1.08
10101 Mutton-slaughtering, preparation	69910	2.34	47938	1.85	70686	3.2	82658	3.75
10614 Grain milling other than wheat, rice and dal	64681	2.16	40921	1.58	22617	1.02	19445	0.88
11041 Aerated drinks	58619	1.96	25029	0.96	15250	0.69	6975	0.32
10619 Other grain milling and processing n.e.c.	54941	1.84	135551	5.22	7754	0.35	24881	1.13
10796 Papads, appalam and similar food products	52426	1.75	64132	2.47	98192	4.45	118842	5.39
10104 Poultry and other slaughtering, preparation	39287	1.31	56333	2.17	163137	7.39	353629	16.00
10402 Vegetable oils and fats excluding corn oil	38945	1.3	19708	0.76	21465	0.97	19032	0.86
10505 Ice-cream, kulfi etc.	38050	1.27	18438	0.71	13996	0.63	11911	0.54
10793 Processing of edible nuts	23778	0.79	59268	2.28	35353	1.6	32205	1.46
11039 Malt liquors and malt n.			51666	1.99	30346	1.37	2551	0.12
10711 Bread	20354	0.68	30192	1.16	24984	1.13	21567	0.98

The estimated numbers of manufacturing enterprises in food processing having categorized by broad activity or sector at all India level during 2000-01, 2005-06, 2010-11 and 2015-16 are given in Table 30. The table shows that a total of 22.06 lakh enterprises are in food processing industry in the latest period. Of which about 38.3 per cent in flour milling, 16% in poultry and other slaughtering, 7.15 per cent in cereal breakfast foods obtained by roasting or swelling cereal grains, 6.07% in rice milling, respectively reporting highest number of manufacturing enterprises among the broad categories of manufacturing enterprises in food processing. Over the years, the proportion of enterprises in rice milling, sweetmeats, and 'gur' from sugarcane and few others have declined, while those in flour milling and poultry and other showed upward trend as can be seen from Table 29.

Table 31: Estimated annual aggregate GVA (Rs. Crore) in unorganized food manufacturing industries (5-digit) in India at 2004-05 Prices

Name of industries	2000-01	Share	2005-06	Share	2010-11	Share	2015-16	Share
All food	12377.5	100	18480.21	100	14656.56	100	19992.86	100
10611 Flour milling	2318.92	18.73	2565.79	13.88	2369.11	16.16	4036.97	20.19
10612 Rice milling	1658.78	13.4	1366.43	7.39	1100.44	7.51	904.571	4.52
10734 Sweetmeats including dairy based sweetmeats	1282.11	10.36	1283.98	6.95	899.92	6.14	1538.91	7.7
10101 Mutton-slaughtering, preparation	623.32	5.04	371.56	2.01	934.68	6.38	1296.03	6.48
10616 Cereal breakfast foods obtained by roasting or swelling cereal grains	536.91	4.34	213.43	1.15	918.68	6.27	458.488	2.29
10722 'gur' from sugarcane	525.27	4.24	532.71	2.88	317.72	2.17	303.219	1.52
10504 Cream, butter, cheese, curd, ghee, khoya etc.	496.33	4.01	469.68	2.54	228.85	1.56	304.301	1.52
10104 Poultry and other slaughtering, preparation	419.28	3.39	395.38	2.14	1547.61	10.56	3209.79	16.05
10712 Biscuits, cakes, pastries, rusks etc.	363.79	2.94	534.89	2.89	251.71	1.72	1333.54	6.67
10799 Other semi-processed, processed or instant foods n.e.c. except farinaceous	342.56	2.77	241.43	1.31	82.85	0.57	156.635	0.78
11012 Country liquor	330.86	2.67	333.66	1.81	198.59	1.35	496.414	2.48
10402 Vegetable oils and fats excluding corn oil	289.79	2.34	191.56	1.04	253.29	1.73	145.248	0.73
10719 Other bakery products n.e.c.	269.95	2.18	279.06	1.51	114.42	0.78	1100.35	5.5
10711 Bread	233.26	1.88	662.15	3.58	402.72	2.75	683.528	3.42
10614 Grain milling other than wheat, rice and dal	194.76	1.57	84.25	0.46	219.55	1.5	132.843	0.66
10797 Vitaminised high protein flour, frying of dal and other cereals	190.62	1.54	39.57	0.21	47.85	0.33	21.9682	0.11
10796 Papads, appalam and similar food products	190.05	1.54	172.2	0.93	683.12	4.66	560.462	2.8
10793 Processing of edible nuts	167.7	1.35	364.17	1.97	218.75	1.49	655.126	3.28
10102 Beef-slaughtering, preparation	165.27	1.34	125.6	0.68	310.35	2.12	416.667	2.08
10505 Ice-cream, kulfi etc.	149.54	1.21	97.15	0.53	76.04	0.52	117.461	0.59
10201 Sun-drying of fish	139.75	1.13	9.73	0.05	38.96	0.27	72.6744	0.36
10613 Dal (pulses) milling	137.15	1.11	5102.13	27.61	393.07	2.68	238.29	1.19
11041 Aerated drinks	134.66	1.09	150.32	0.81	53.17	0.363	51.0451	0.26
10619 Other grain milling and processing n.e.c.	118.16	0.95	318.23	1.72	60.46	0.413	127.674	0.64
10795 Grinding and processing of spices	114.66	0.93	90.65	0.49	152.34	1.039	75.8662	0.38
11043 Mineral water	5.30	0.04	533.95	2.89	69.8	0.476	614.803	3.08
10618 Other readymade mixed powders like idli, gulabjamun etc.	0	0.00	532.28	2.88	29.03	0.198	40.9098	0.2
10509 Other dairy products n.e.c.	91.16	0.74	198.85	1.08	21.43	0.146	217.729	1.09
11044 Ice	95.04	0.77	191.42	1.04	55.23	0.377	231.467	1.16
10791 Processing and blending of tea including manufacture of instant tea	12.61	0.10	173.31	0.94	64.88	0.443	55.1103	0.28
10733 Sugar confectionery (except sweetmeats)	65.74	0.53	119.24	0.65	305.3	2.08	327.453	1.64
10712 Biscuits, cakes, pastries, rusks etc.	363.79	2.94	534.89	2.89	251.71	1.72		
10722 'gur' from sugarcane	525.27	4.24	532.71	2.88	230.3	1.57		
11011 Distilled, potable, alcoholic beverages such as whisky, brandy, gin, "mixed drinks" etc.	2.56	0.02	14.95	0.08	229.43	1.57	1.97409	0.01
10793 Processing of edible nuts	167.70	1.35	364.17	1.97	218.75	1.49		
10732 Chocolate and chocolate confectionery	0.00	0.00		0.00	198.6	1.36	8.4807	0.04
11031 Beer	5.60	0.05	33.16	0.18	187.67	1.28	17.0171	0.09
10795 Grinding and processing of spices	114.66	0.93	90.65	0.49	152.34	1.04		
10617 Flour mixes and prepared blended flour and dough for bread, cakes, biscuits	7.83	0.06	42.06	0.23	137.7	0.94	39.8603	0.2

The important economic indicator to measure the contribution of a particular sector to the economy is Gross Value Added (GVA). Table 31 presents estimated annual aggregate GVA in unorganized food manufacturing industries at all India level by deflating with 2004-05 Prices, at the five digit level food processing activities. At all India level, a total of Rs.19993 crores of GVA was reported during 2015-16. Among the unorganized food manufacturing industries, the highest GVA share was contributed by flour milling (20.19%) followed by poultry and other slaughtering (16.05%).

Sweetmeats (7.7%); biscuits, cakes and pastry (6.67%); and mutton slaughtering and preparation (6.48%) are the other food processing activities with higher proportion of contribution to sector's GVA during the same period.

Table 32. Number of workers in unorganized (5-digit) food manufacturing industries in India.

Name of Industries	2000-01	% share	2005-06	% share	2010-11	% share	2015-16	% share
All food	6791790	100	6372259	100	4770244	100	5283073	100
10611 Flour milling	1340089	19.73	1254116	19.68	1175862	24.65	1328021	28.66
10612 Rice milling	939720	13.84	788247	12.37	388046	8.13	292987	6.32
10616 Cereal breakfast foods obtained by roasting or swelling cereal grains	559147	8.23	273660	4.29	287665	6.03	319003	6.88
10722 `gur' from sugarcane	555068	8.17	596747	9.36	316381	6.63	261453	5.64
10734 Sweetmeats including dairy based sweets	472676	6.96	400757	6.29	403298	8.45	357873	7.72
10504 Cream, butter, cheese, curd, ghee, khoya etc.	315644	4.65	220327	3.46	88241	1.85	123734	2.67
11012 Country liquor	278936	4.11	225500	3.54	130890	2.74	194382	4.19
10201 Sun-drying of fish	197704	2.91	5033	0.08	10480	0.21	36672	0.79
10799 Other semi-processed, processed or instant foods except farinaceous	181060	2.67	94987	1.49	62742	1.32	54577	1.18
10797 Vitaminised high protein flour, frying of dal and other cereals	170927	2.52	66416	1.04	22387	0.47	17655	0.38
10614 Grain milling other than wheat, rice and dal	133353	1.96	93054	1.46	6100	0.12	35925	0.78
10796 Papads, appalam and similar food products	123015	1.81	146274	2.3	140060	2.94	230896	4.98
10101 Mutton-slaughtering, preparation	119975	1.77	85099	1.34	131159	2.75	147917	3.19
11041 Aerated drinks	116046	1.71	74192	1.16	34448	0.72	12936	0.28
10619 Other grain milling and processing n.e.c.	103712	1.53	362428	5.69	39004	0.82	57660	1.24
10712 Biscuits, cakes, pastries, rusks etc.	98270	1.45	122290	1.92	130908	2.74	151533	3.27
10719 Other bakery products n.e.c.	88142	1.3	89336	1.4	92743	1.94	142258	3.07
10303 Radiation preservation of fruit and vegetables	85202	1.25	30	%				0
10402 Vegetable oils and fats excluding corn oil	80220	1.18	109727	1.72	56290	1.18	31558	0.68
10505 Ice-cream, kulfi etc.	77691	1.14	17362	0.27	56113	1.18	34454	0.74
10711 Bread	77633	1.14	129644	2.03	85438	1.79	86078	1.86
10104 Poultry and other slaughtering, preparation	72612	1.07	97959	1.54	269565	5.65	538850	11.63
10793 Processing of edible nuts	71017	1.05	359294	5.64	112614	2.36	114582	2.47
10795 Grinding and processing of spices	58510	0.86	23838	0.37	77734	1.63	40888	0.88
11039 Malt liquors and malt n.e.c.			114363	1.79	17590	0.37	3147	0.07
11032 Malt liquors other than beer	9588		69877	1.1	15481	0.32	11959	0.26
11031 Beer	5395		26574		72511	1.52	7383	0.16

Workers engaged in unorganized food manufacturing industries in India during 2000-2016 are presented in Table 32. The total workers engaged in food manufacturing sector at all India level were estimated to be 52.83 lakhs. Over the last four rounds of data, the unorganized segment of food processing employed 67.92 lakhs in 2000-01, 63.72 lakhs in 2005-06, 47.70 lakhs in 2010-11 and 52.83 lakhs in 2015-16. This presents a declining trend and is a matter of serious concern. Of which 13.28 lakh numbers of workers are in flour milling which represents highest percentage share (28.66%) of workers. The second highest share in food industry is in poultry and other slaughtering (5.39 lakh workers with 11.63% share) followed by sweetmeats including dairy based sweet (7.72%), followed by breakfast cereals (6.88%) rice milling (6.32%), *gur* from sugarcane (5.66%) and papads, appalam and products (4.98%). The shares of workers in the rest of the food

processing industries are below 3 per cent. The share and jobs in the flour milling sector are on the increase over the period. However, the real growth was witnessed in the poultry and other slaughtering that has grown in 2.70 lakhs jobs in 2010-11 to 5.39 lakhs in 2015-16.

Table 33: Number of Female workers in unorganized (5-digit) food manufacturing industries

Name of Industries	2000-01	% share	2005-06	% share	2010-11	% share	2015-16	% share
All Food	1858275	100	1853099	100	1181368	100	1061278	100
10616 cereal breakfast foods obtained by roasting or swelling cereal grains	299998	16.14	163238	8.81	138285	11.71	180754	17.03
10612 Rice milling	271566	14.61	169492	9.15	41744	3.53	38255	3.60
10611 Flour milling	146499	7.88	130062	7.02	166571	14.1	216986	20.45
11012 Country liquor	124194	6.68	120695	6.51	61726	5.22	76343	7.19
10722 'gur' from sugarcane	118590	6.38	201088	10.85	103746	8.78	102015	9.61
10504 Cream, butter, cheese, curd, ghee, khoya etc	112810	6.07	50666	2.73	16864	1.43	30430	2.87
10201 Sun-drying of fish	86523	4.66	7751	0.42	4945	0.41	30288	2.85
10797 Vitaminised high protein flour, frying of dal and other cereals	80600	4.34	42161	2.28	8756	0.74	2233	0.21
10734 Sweetmeats including dairy-based sweets	80300	4.32	42429	2.29	44451	3.76	42260	3.98
10799 Other semi-processed, processed or instant foods n.e.c. except farinaceous	78992	4.25	36836	1.99	28621	2.42	22195	2.09
10796 Papads, appalam and similar food products	75101	4.04	95118	5.13	84361	7.14	109611	10.33
10614 Grain milling other than wheat, rice and dal	45687	2.46	39598	2.14	3928	0.33	6120	0.58
11039 Malt liquors and malt n.e.c.	37962	2.04	47991	2.59	10396	0.88	2307	0.22
10619 Other grain milling and processing n.e.c.	36781	1.98	192242	10.37	16849	1.43	23504	2.21
10795 Grinding and processing of spices	25297	1.36	23710	1.28	51081	4.32	18434	1.74
10793 Processing of edible nuts	24186	1.3	175683	9.48	73463	6.22	69946	6.59
10101 Mutton-slaughtering, preparation	21380	1.15	5780	0.31	5226	0.44	9720	0.92
10306 Manufacture of pickles, chutney etc.	14719	0.79	14544	0.78	11613	0.98	15608	1.47
10719 other bakery products n.e.c.	12742	0.69	30114	1.63	22060	1.87	30431	2.87
10711 Bread	9757	0.53	32533	1.76	16658	1.41	15162	1.43
10509 other dairy products n.e.c.	5974	0.32	23219	1.25	4048	0.34	1088	0.10
11041 Aerated drinks	738	0.04	21821	1.18	9439	0.8	3038	0.29
11031 Beer	4099	0.22	21113	1.14	40599	3.44	2543	0.24
10617 Flour mixes and prepared blended flour and dough for bread, cakes, biscuits	1002	0.05	18607	1	7438	0.63	4026	0.38
11032 Malt liquors other than beer	4649	0.25	39667	2.14	5210	0.44	7982	0.75

Table 33 gives the total number of female workers working in food manufacturing industries during the period 2000-01 to 2015-16. Out of total workers engaged in food manufacturing industries, only 10.61 lakhs (20.1%) are the female workers estimated to be in food manufacturing industries. Over the past 15 years, the share of women in unorganized food processing employment declined from 27.36% in 2000-01 to 24.75% in 2010-11 to 20.1% in 2015-16. As the sector moves up with primitive technology to relative modernizing, women might be losing jobs as argued in several studies (Rao and Dasgupta, 2009; Baud, 1992). The reasons for this dwindling role of women warrants rigorous analysis. Among the broad categories of food industries, flour milling (20.45%) engage most number of female workers in unorganized food processing followed by breakfast cereals (17.03%), *papads*, *appalam* and similar products (10.33%) and 'gur' from sugarcane (9.61%), country liquor (7.19%), edible nuts (6.59%). The number of women employed

in rice milling plummeted from 2.72 lakhs in 2000-01 to 0.38 lakhs in 2015-16 and vice versa in flour milling (went up from 1.47 lakhs to 2.17 lakhs).

Table: 34. Estimated annual emoluments per hired workers (in Rs.) in unorganized food manufacturing Industries (5-digit) at 2004-05 Prices

Name of Industries	2000-01	% Share	2005-06	% Share	2010-11	% Share	2015-16	% Share
All food	18.22	100	28.91	100	30.72	100	29406	100
10202 Artificial dehydration of fish and sea food	507.33	2783.83	0	0	25470	%	99052	336.84
10203 Radiation preservation of fish and similar food	116.53	639.42						0
10802 Poultry feed	75.4	413.73	79.11	273.62	192.82	67.00764	34250	116.47
10803 Prepared feeds for pets, including dogs, cats, birds, fish etc.	64.87	355.97	43.51	150.48	411.43	20.00811	25414	86.42
10613 Dal (pulses) milling	59.33	325.53	1925.98	6661.32	179.18	97.8143	31388	106.74
10104 Poultry and other slaughtering, preparation	57.74	316.84	40.36	139.6	57.41	98.94616	31315	106.49
10105 Preservation, Processing and canning of meat	55.07	302.2					14953	50.85
10207 Production of fish meal for human consumption or animal feed	53.26	292.24			2056.34	71.10006		0
10101 Mutton-slaughtering, preparation	51.95	285.08	43.66	151.01	71.26	90.47654	14843	50.48
10102 Beef-slaughtering, preparation	49.33	270.66	52.62	181.99	78.76	95.09751	30102	102.37
10801 Cattle feed	48.19	264.45	32.34	111.85	27.78	97.95223	12737	43.31
10106 Production of hides&skins from slaughterhouses	46.87	257.16	46.7	161.5	43.94	97.65702	7267	24.71
10735 Chewing gum	43.61	239.28			36.17	97.60598		0
10309 Preservation of fruit and vegetables n.e.c.	40.5	222.25					4351	14.8
10103 Pork-slaughtering, preparation	39.64	217.49	45.8	158.41			46996	159.82
10204 Processing and preserving of fish crustacean and similar foods	39.39	216.17			90.25	95.09614	50173	170.62
10712 Biscuits, cakes, pastries, rusks etc.	37.02	203.13	43.74	151.28	19.23	98.98697	34061	115.83
11044 Ice	36.26	198.99	68.56	237.11			39082	132.9
10402 Vegetable oils and fats excluding corn oil	36.12	198.22			45	95.46305	19273	65.54
10626 Corn oil	35.7	195.91	67.82	234.57	116.32	86.44048	28615	97.31
10721 Sugar (sucrose) from sugarcane	35.53	194.97						0
10302 Artificial dehydration of fruit and vegetables	35.05	192.31	18.65	64.49	94.9	87.17899	68076	231.5
10791 Processing & blending of tea incl. instant tea	34.69	190.36	535.72	1852.88	134.57	90.29422	47527	161.62
10792 Coffee curing, roasting, grinding blending etc. and manufacturing of coffee products	34.14	187.31	102.58	354.78			19465	66.19
10205 Processing and canning of fish	33.62	184.45			37.82	95.70589	45626	155.15
10501 Pasteurised milk whether or not in bottles/polythene packs etc. (plain or flavoured)	33.43	183.43	14.66	50.71			26616	90.51
10509 Other dairy products n.e.c.	31.56	173.16	41.12	142.23			20819	70.8
10719 Other bakery products n.e.c.	30.63	168.06	31.24	108.04			29897	101.67
10711 Bread	30.05	164.87	51.07	176.65	47.14	96.64168	25699	87.39
11011 Distilled, potable, alcoholic beverages such as whisky, brandy, gin, "mixed drinks" etc.	29.38	161.19	14.23	49.23	4606.99	20.88051	6546	22.26
10305 Manufacture of sauces, jams, jellies and marmalades	29.06	159.48	26.02	89.99	67.95	95.35294	13778	46.85
11045 Soft drinks	29.02	159.24	30.5	105.48			12699	43.18
10304 Manufacture of fruit or vegetable juices and their concentrates, squashes and powder	28.91	158.61	24.33	84.16			10649	36.21
10734 Sweetmeats including dairy based sweetmeats	27.12	148.84					19594	66.63
10401 Hydrogenated oil and vanaspati ghee	26.29	144.27	23.08	79.82	20.27	95.64033	34959	118.88
10308 Potato flour & meals and prepared meals of vegetables	25.83	141.74					18811	63.97
10793 Processing of edible nuts	23.61	129.58	23.84	82.44			23712	80.64
10736 Preserving in sugar of fruit, nuts, fruit peels and other parts of plants	22.63	124.18	28.89	99.91	39.52	90.24544	73160	248.79
10726 'Boora' and candy from sugarcane	22.49	123.4					7260	24.69
10733 Sugar confectionery (except sweetmeats)	20.99	115.19	36.09	124.81	108.86	93.5803	29867	101.56

Among the industries in food manufacturing sector, highest average emoluments paid to the hired workers are in artificial dehydration of fish and sea food industry (Rs. 99052) which is about 337 per cent (Table 34). Besides, preserving in sugar of fruit, nuts, fruit peels and other parts of plants (Rs. 73160) which is about 249 per cent and artificial dehydration of fruit and vegetables (Rs. 68076) which is about 232 per cent respectively reported the second highest and third highest annual emoluments per hired worker in the in the unorganized food manufacturing sector during the period 2015-16. The estimation also reports that most of the industries in the unorganized food manufacturing sector are paying more than 100 per cent of annual emoluments to the hired workers whereas a few industries pay less than 50 per cent of annual emoluments to the hired workers.

## **5. Lessons from the Case Studies**

Some important points from the case studies of self-help group (SHGs) of women engaged in agricultural processing activities are followings:

The SHGs of female engaged in agri-processing activities are important for adding remuneration to the existing household income. Their continuance often requires help of literate men with perseverance to interact with larger group outside their production premises. Sometimes spouse of a SHG member also find time for these activities. Often a non-government organisation (NGO) networks with different SHGs and share the responsibility of interacting with the outside world.

The SHGs of females engaged in agro-processing activities often requires some kind of government assistance for their continuance. Financial assistance at low rate is one, though many of the SHGs visited for case studies did not report to have received such assistance from institutional banks. Government also organizes fare for promotion of rural crafts in places across India and invite SHGs of related producers to sale their product. In such fares rural producers receive better price of their produce. Therefore they (rural producers) like to attend such fares though they have to pay substantially to transport their produce to fare and maintain their daily spending at distant place.

The SHGs of producers linked with a better and bigger brand often get higher payment for their effort (labour).<sup>7</sup>Such branded producer of commodities should more often contract with female SHGs for labour intensive work and pay them in piece of work completed. It was observed that many SHGs were linked with particular NGOs and the SHGs are unaware of political affiliation of an NGO. The NGOs association with a political party is at times inimical to the growth of SHGs.

The SHGs of women is an organization of females available for work after attending family activities in a household. The SHG members engaged in processing activities add / complement the primary source of income of the household. They are often engaged in an activity where investment is the minimum. They (SHGs members) have limited ability to interact and the female SHGs in agro-processing are involved in the labour intensive part of a product cycle.

**5.1. Case studies of SHGs of females employed in Agriculture processing activities:** The purpose of case studies was to assess the role of self-help groups (SHGs) in creating employment for females in processing activities. The case studies of agriculture-based processing activities were conducted in the selected part of Delhi and Haryana. Some of the case studies of SHGs engaged in agriculture processing activities are presented below in the first subsection, the next subsection presents few cases of small scale agro-processing activities involvement with women workers.

**Case1.** A Self Help Group (SHGs) of 30 women named **Balaji Women Self Help Group** is working in village Gad Sarnai, in Panipat, Haryana. They are involved in different kind of agriculture based manufacturing activities. In this group five members are preparing pickle, 10 are preparing flowers (Decorated items) and five are engaged in making sludge based (mitti) toys, seven are preparing carpet (Dari) and three are preparing broom for the use of households. They purchase most of the raw material except flower from the same villages or nearby ones. The inputs for flowers are bought from Panipat and similar distant places. Each member contributes some amount periodically. The capital (Rs 75000) of SHGs for purchase of raw materials etc. were arranged by the members; though one of pickle manufacturer separately told us that Rs 5000 loan

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<sup>7</sup> As compared to the local brand of papad, women connected with the production of 'Lizzat' papad gets substantially higher for their effort in making papad.

was given to every member of group by the National Rural Livelihood Mission NRLM, of Haryana.

A female respondent preparing broom (Jhadu) told that her husband gather inputs for broom manufacturing from the forest. Again, her husband sale broom in villages; she sells in the same village. The sale price of broom is Rs 10 per piece and they can prepare around 50-60 pieces in a month depending on the demand for broom. The broom manufacture is an additional sources of remuneration while animal husbandry remains the primary.

One of female respondent engaged in carpet manufacture told us that they use old clothes and thread for manufacture of carpet. They collect old clothes from the village, and thread from the nearest city of Panipat. The carpets within village are often exchanged in barter (in lieu of certain material), milk is often exchanged with carpet. The carpets are sold in town at Rs 350-400 per piece. They can prepare around three pieces of carpet in a month. The marketing of products is a problem since people are demanding fancy and branded carpet. Her husband is a casual agriculture labor, she often joins him in the peak agriculture season. This is just an additional remuneration.

The ten members are preparing flowers for decoration and five are preparing sludge (mitti) based toys. The inputs for flowers are bought from Panipat and similar other places; while the input for sludge (mitti) based toys are gathered from the village. The cost of raw material is 40 % of total output. The group members are selling their products in village and fairs, fair provides them very good price.

The pickle manufacture told that the cost on pickle is 40 % of total output. The group members are selling pickle in village and fairs. However, they want to sell in fairs as they get high prices for their products. They prepare around 60-70 Kg per year and the price of pickle was Rs 150 per Kg. About problems, they narrated about shortage of finances. They are not in a position to purchase extra raw material during its harvest season.

The Balaji SHG sell their products in fair organized at local and country levels. Information about the fairs is provided by the National Rural Livelihood Mission. There are around 23 fairs across India about which they were informed last year, the balaji SHGs could attend only some of these

(8). Their attendance depends on cost of attending the fair (transport and livelihood expenditures) and opportunity in fair. Distance not necessarily determines the cost of attending the fair. Some of fairs were organized at Kashmir Haat in Srinagar, (Jammu & Kashmir, in July 2016), Sangrur and Amritsar in Punjab (August, 2016) Gita Jyanti festival in Kurukshetra, Haryana (September, 2017) and Surakund International Craft Mela, in Faridabad, Haryana (February, 2017).

**Case 2:** Ten female are working in **Bharti Samuh Achaar** Self Help Groups was established in 2002 in the Guda village, Block Kanina, district Mahendergarh, in Haryana. The head of SHGs (Mamta Yadav) informed us that there are ten female members in the SHGs out of which five are Illiterate. They prepare pickle in their village throughout the year and sell in Rewari, Mahendragarh and Narnaul. They depend on Mahendergarh's subji mandi for inputs. Mahendragarh as compared to Rewari and Narnaul is preferred for low prices and distance. The initial capital (Rs 5000) to start the business was manage by the group's members. The did not inform us about any government assistance.

**Case 3:** Some females prepare Papad **for the Lijjat Papad Company** in their house. The company provides raw material to the members (Shukantala Devi, S Block H. N. 8531, Mangol Puri in New Delhi) and provided wage of Rs 35 per kg for making papad for Lijjat Papad Company. Every day, she and her daughter use 5 kg of the raw material. She has been making papad for the last 25 years. Besides wage, the company provided them yearly bonus of Rs 8000 in the last year. She is training other women free of cost. Her husband is working in a small private company in Nangloi and her work for Lizzat papad is an additional remuneration over her husband's income.

In the same neighborhood another female named Bhagwan Dai (T Block H. N. 435, Gali no.5, Mangol Puri in New Delhi) is making papad. She received her training from her neighbor. They are making papad on the wage of Rs 19 per kg for a local company. Every day, she and her daughter use 5-6 kg raw material per day. She has been making papad for the last 25 years. She doesn't know the name of company.

**Case 4:** A corporate like ITC is producing and marketing its incense sticks (agarbatti) as 'mangaldeep'. Production of incense sticks is labour intensive proposition and ITC involves

thousands of households around its production centers. ITC provides training to rural women. It supplies standardized raw material to households interested in producing incense sticks, and arranges to collect the same before providing fragrance to the sticks made by women. This improves livelihood of women engaged in rolling activities and supplement their household income. We found the above case in Gaya, but besides Gaya, Mangaldeep agarbattis are manufactured at various centres in India. Most of these (producing centres) are certified with ISO 9000, thus it improves quality of raw incense sticks. The making of incense sticks present case of a big diversified corporate (ITC) enhancing competitiveness of small scale and cottage units. This provides example of integrating training with production and sale of the branded product. Agarbatti (incensed stick) manufacture of ITC presents a good case of sub-contract in production involving disguised unemployed females busy in their household activities. Such cases must be replicated for many product lines in country. This must be prioritized in addition to corporate responsibility.

**Case 5:** The study found that some SHGs linked with NGOs were working under the Gender Resource Centers (GRCs) by Women and Child Development Department of Delhi government. These SHGs were run by the Gender Resource Centers (GRCs) under the Mission Convergence Program, launched by the Sheila Dikshit government in 2008. One of such SHGs visited was “Kalawati educational welfare society” in Nihal Vihar, Nangoli linked with an NGO owned by the wife of Ex-MLA (Dr. Vijendra Singh) of Congress Party. The GRCs essentially worked to improve the reach of the pro-poor services and benefits. It used to train poor women in different trades such as stitching, sewing, preparation of food items (papad, Jam, Pickle, etc.) and in running computers. Some SHG members complained that their activity has come to end with the Aam Aadmi Party (AAP) government in Delhi.

**5.2. Case studies of small-scale food processing units:** The above was examples of small entrepreneurs engaged in agriculture processing activities and organized in the umbrella of Self-help group. The study also visited some small scale agro-processing based manufacturing enterprises to assess their connection to SHGs and women’s employment.

**Case 6.** A small bakery enterprise in Roshna Road, Sabzi Mandi named Shri Kaila Devi Sweets Corner, Delhi was visited to assess some of the above issues. The registration of the bakery was under the Register of Company (ROC) from Food Safety & Standard Authority of India (FSSAI). They also register for individual license from FSSAI for the delivery boy or vehicle. Another papers work for the bakery unit such as clearance certificate from pollution control board, health certificate from Municipal Corporation of Delhi (MCD). The entrepreneur started his business with 9 lakh rupees (machine and Raw materials), the initial investment was from past savings and arranged from different non-institutional sources (borrowings from relatives). There are eight workers including the owner of the enterprise, two skilled and six semi-skilled workers, none were females. Another small bakery enterprise in Malka Gunj, New Delhi, was also visited to know involvement of SHGs. However, information provided by him was similar to the above.

**Case 7:** One prickle manufactures named Pawan Achar Factory, A 44-45, Hari Enclave, Aman Vihar, Nangloi, New Delhi was visited. This factory is running for the last ten year. The owner has started this business with initial capital of 7-8 lakh. This was self financed, arranged by non-institutional sources. The raw material was purchased by Aazad Pur Subji Mandi, New Delhi. Five persons (one skilled and two semi-skilled) including two family members were employed, but none of them was female. The daily sell of prickle was around 300 to 400 Kg and are sold in whole sale market in khari baoli, Delhi and local street food traders. They reported to have not received any financial and technical assistance from government or similar sources. With finance they can purchase big machine, extra raw material during the season, and avail cold storage facilities. In this context another factory named Rajesh Achar Factory, A 54-55, Hari Enclave, Aman Vihar, Nangloi, New Delhi was also visited. Most of information was similar except the scale of business.

## **6. Policy Framework- A critique**

The decision to start a ministry for food processing in 1988 formed the beginning of a change in the conventional approach of the Indian government to food. Endemic shortages during the post-war situation kept the government totally engaged in fighting shortages initially. Then followed the notorious ship-to-mouth existence of the sixties that drove the move the Green Revolution. In all this food processing or supply chain development took a back seat. Even after the formation of the Ministry, only the full-fledged reforms in the nineties started formulation of a favourable policy

framework that hitherto looked at processed food as the food of the rich. The policy has been evolving since then.

The changes in the government policy in the area of food processing products began with liberalisation in India. To be precise, the winds of change were seen first in the formation of a separate ministry for the sector in 1988. It is worth mentioning here that the process of economic liberalisation started precisely from that time in the country. This sector got a major boost with full-scale liberalisation in 1991 and the policy framework has undergone continuous change since then to encourage food processing to cater to the rising demands of emerging middle classes on the one hand and export markets on the other hand.

Let us examine the direction of policy in the recent period concurrent with the eleventh five year plan before we analyse the policies critically. These measures vary from direct infrastructural support for credit, cold chain development, to excise and customs duty concessions. On the other hand, skill upgradation measures, general infrastructure development efforts and raw material supply augmentation measures help the sector indirectly. Apart from these, different social security initiatives in the eleventh five year plan can be said to be a good beginning for the well-being of those working in unorganised segments of food processing sector and many times for those working in the organised segment too. We mention these measures in brief here. The food processing sector, apart from cotton textiles, textile products including apparel, paper and transport equipment, faced a difficult situation with the rising interest rates and appreciation of rupee making exports difficult (GoI, 2011d). Therefore, the government has proposed fiscal help through several measures, which include excise duty concessions, import tariff deductions, and other supportive measures.

A risk capital fund in the Small Industries and Development Bank of India (SIDBI) is created to increase credit availability to the food processing sector. SIDBI will reduce the guarantee fee from 1.5 per cent to 1 per cent and the annual service fee from 0.75 per cent to 0.5 per cent for loans up to Rs.5 lakh. As a part of the farm to market initiative, External Commercial Borrowings are made available for cold storage or cold room facility, including for farm level pre-cooling, for preservation or storage of agricultural and allied produce, marine products and meat. Changes in the definition of infrastructure under the ECB policy are made. An interest subvention of 2 per

cent on pre-shipment credit for marine products along with six other such sectors and small and medium exporters is introduced in 2007-08 and continued since then. Investment in cold storage projects is now gaining momentum. To attract investment in this sector, capital investment in the creation of modern storage capacity is made eligible for **viability gap funding** scheme of the Finance Ministry. The central government accepted to exempt certain services, such as packing, cargo handling and warehousing, provided to good transport agents en route, from service tax.

Apart from the above tax deductions, general infrastructure development measures likely to help food processing sector are- formation of India Infrastructure Finance Company Limited (IIFCL) to refinance bank lending to infrastructure projects; providing a special fund of Rs. 4000 crore-out of Rural Infrastructure Development Fund (RIDF) is provided to Small Industries Development Bank (SIDBI) to incentivise Banks and State Finance Corporations (SFCs) to lend to Micro and Small Enterprises (MSEs); reducing the general CENVAT from 16 per cent to 14 per cent; providing a weighted deduction of 200 per cent on any payment made to companies engaged in research and development; allocating an amount of Rs.200 crores from National Clean Energy Fund as Centre's contribution in 2011-12 for launching environmental remediation programmes. The central government has also started a National Skill Development Corporation under public private partnership route to impart training to the workers in both organised and unorganised segments.

The biggest problem hindering the development of this sector has been lack of access to formal credit institutions due to small and unorganised nature of the production. It was shown by the National Commission for the Enterprises in the Unorganised Sector that less than three per cent of total industrial credit to this sector contributing to more than 17 per cent of output in the manufacturing. However, things are changing slightly and the credit offtake to these activities increased to reach 6.2 per cent in 2010-11, though it is still very small compared to the its share of 17% to the manufacturing sector's output.

The sector has performed well in terms of growth and exports after liberalisation. While we dissect the growth pattern in Table 4, the performance in exports is examined in Table 3<sup>8</sup>. The growth

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<sup>8</sup>In the calculation of growth rates, exports of cashew kernels or fresh fruits and vegetables are not included. Cashew kernels are exported to the tune of Rs.2728 crores in the triennium ending 2009-10. Also, fresh fruits and vegetables are exported to a tune of

rates have picked up since 1993 to reach more than 100% in the recent period. While the marine products constituted nearly 70% of exports in 1993, its importance has gone down over the years with the rising export share of animal products and other products. This shows that the processed food exports have been diversified over time.

**6.1.The role of FDI:** The central government has identified food processing as a priority sector and completely liberalised the sector to allow hundred percent foreign direct investment in 1991. However, the flow of FDI is not upto the expected level with only Rs.1800 crores of investment during 1991-1999 and Rs.3500 crores from 2000-2005. Apart from being very sluggish flow, another concern relates to the fact that these investments are not in the core activities of food processing and concentrated in alcoholic beverages, soft drinks, and mineral waters. However, the situation started changing after 2005.The creation of enabling environment and potential for production and demand in the country has resulted in flow of investments from abroad in the form of foreign direct investments (FDI). These investments picked up in recent period reaching 2620 million till 2010-11 and since then moved onto higher level resulting in an inflow of 6978 millions till 2017.

These accelerated investments are mainly in the beverages and sugar confectionery sub-sectors and other sub-sectors started attracting investments recently. This trend is expected to pick up in the coming years as the markets in developed countries for processed foods have saturated. The permission for multi brand retail can accelerate investments into processing sector too as they are required to fulfil minimum investment in back end operations. This will increase investments in cold chains and related things. However, the infrastructure in terms of power, water, roads, cold chain, processable varieties/breeds, and packaging material are hindering the progress of the sector.

**6.2.Tardy progress with lack of investments:** The ministry of food processing has come out with a vision statement for ten years starting from 2005 to 2015 to achieve the potential of the sector in terms of growth, employment and benefits to farmer. The statement did a detailed analysis of the

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Rs. 2500 crores in 2009-10, which are not counted under processed fruits and vegetables. However, they need to be counted since they would need some cleaning and preservation treatment before exporting, which comes under food processing despite the physical form not being altered.

constraints faced by this so-called ‘sun-rise’ industry. An effort was made for the first time to spell out the size of the organised and unorganised segments of food market and ways and means to develop different sub-sectors of food processing by solving the existing problems.

The government has clearly shown necessary interest in implementing many of the measures given in the vision statement. Some of those measures approved by the government are- bringing in the comprehensive food safety and standards bill and making it an authority; moving towards zero tax regime including those items used in food processing like packaging and cold storage materials; completing amendments to APMC acts in various states; establishing food technology training institute and food processing research centre under the ministry; relatively increasing the expenditure on food processing in the eleventh plan; establishment of several boards like fisheries board, meat and poultry board, cashew board, soya board etc; starting a separate refinancing window for food processing sector; and several import duty concessions to inputs and machinery used in processed food production. In fact, the government has taken several steps in line with its stated objective of encouraging the sector.

The changing policy framework with a clear vision coupled with the changing demographics and growing income patterns have brought about positive changes in the sector. The sector has clearly shown higher growth rates after 2004 to reach nearly 13% growth rate per annum compared to only 6% during the earlier two decades. The market size has grown at a very encouraging rate after 2005 in line with the manufacturing sector as a whole at more than 12% growth rate per annum. But, the employment potential is not realised as expected. Despite this, the food processing industries generated the highest employment in 2015-16. However, the unorganized segment languishes with the same problems as before without any major relief or efforts to sort out the bottlenecks.

**6.3.Outlook for future:** The food processing sector growth depends on the growth of per capita income, infrastructure, policy environment and growth in agriculture. However, some recent studies have shown that the growth of this sector has become independent of the growth of the performance of agriculture, because of the changing preferences in the background of changing forward and backward linkages (See for e.g. Chadha 2008). Our earlier study (Rao, 2017) has

shown that one per cent growth in per capita NNP and investments can stimulate growth of food processing by one and 1.86 per cent respectively.

The growth rate in the economy shifted to higher level after 2004-05 and there is two percent increase in the overall growth since then. The investments have also increased in the sector from the public, domestic private and foreign direct investments. The present growth deceleration in food processing comes after a robust growth of 12% in food processing is the recent past on the strength of demand side factors. The supply side issues like credit, technology and related infrastructure has to be sorted out quickly to regain the earlier momentum.

However, further sharp hikes in per capita NNP seem very unlikely<sup>9</sup>, though there is definitely going to be some growth as envisaged by NITI Ayog. Therefore, regaining the momentum in food processing hinges on higher investments in food processing specific infrastructure and also general infrastructure. If the government through its agencies can spend Rs.15000 crores on infrastructure to lead to a matching investment of Rs. 15000 from private sector, it can lead to a total investment of Rs. 75000 crores in 12<sup>th</sup> plan period, which could create 7.5 lakh jobs in the organised segment and more than a million in the unorganised segment. Assuming a ratio of 3.5 indirect jobs to each direct job created, there could be a six million new jobs created in the sector. However, this did not happen as the Ministry of Food Processing had been short of budget allotments as well as the economic crisis that engulfed the country. This is partly responsible for the stagnating employment at around 17 lakhs in the recent years. We will conclude this by saying that investing more to look after the economic, technological, human resource problems of unorganized sector can increase the employment disproportionately higher to its investment. It is needless to say, better policies with political will might enable the potential to be reached or thwarted.

However, several measures recommended in the vision statement remain unattended. Most prominent among them are- developing coordination among different agencies working to develop the sector; inadequate spending as compared to the recommendation of the vision statement; making separate investment of Rs.10000 crores for the unorganised segment; developing

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<sup>9</sup> Arvind Virmani in his 2009 book 'The Sudoku of India's Growth' explains that double digit growth in the Indian economy may not be sustainable in the medium term and 9-10% is sustainable, though the policy makers talked of overtaking China by achieving a target growth of 12%. However, the government has scaled down this to 9% in the approach paper to the twelfth five year plan.

processable varieties and breeds; establishing separate centres of excellence for research in frontier areas to develop world class products, processes, equipment and packaging; and modernisation of abattoirs. The process of bringing amendments to the Agricultural Produce Marketing Act and notifying the contract farming rules has not been taken to its logical conclusions so far, though the acts have been amended in several states. The Vision statement does not recognise the foremost significance of the unorganised segment in creation of employment. In fact, the vision statement is mainly an effort in shifting the sector to higher growth path without any concern for employment. The levels of processing and related things need reassessment. Also, the entry of organised retail has been changing the landscape of processing sector and this changing dynamic is not internalised in the vision statement. Despite these lacunae, the vision statement is a move in the right direction and the government has to go ahead to implement the remaining interventions. For example, the vision statement recommended to pump in Rs. 10000 crores to revitalise the unorganised segment. Several recommended measures so far have not been considered.

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