

Organized Food Processing Industries in Haryana- Growth, Status and its Prospects

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Abstract:

Haryana is predominantly an agrarian state. Haryana produces a variety of food crops like rice, wheat, grams and fruits & vegetables. These agriculture commodities have great potential for supporting food processing industries in the state. However the processing level is very low in fruits & vegetables it is 1%, milk is 28%, meat and Fish 1% and poultry is 2% only. This is an indication of the weak food processing Industrial base in the state. But huge production points out that there is a great scope for the growth of food processing industries in the state. As food processing has enormous potential in the state, the government of Haryana takes FPI as a thrust area in their policies and provide so much assistance and subsidies for their establishment and development. In order to evolve a strategy to promote this sector in right direction this paper provides a detailed analysis of food processing industries in Haryana .Growth and status of Food processing industries examined with total manufacture sector of Haryana and food processing sector of India . Some basic characteristics measured like compound growth rate, Raw material intensity, Capital intensity, labour intensity, net value added per unit of invested capital and profit per unit of invested capital and Cobb Douglas production Function also used to estimate the parameters of production function. Employment status of food processing industries in Haryana also examined. This paper has three sections.

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Introduction

Food processing is the set of methods and techniques used to transform raw Ingredients in the food or to transform food into other food for consumption by human beings or animals in the home or by the food processing industries.

In other words Food Processing encompasses all the steps that food goes through from the time it is harvested to the time it arrives to the consumer's plate as stated by Food & Agriculture Organization (FAO).

Processed foods can be classified into three types

Primary processing:- Primary processing would encompass cleaning, powdering and refining of agricultural produce as in the case of the transformation of wheat to wheat flour.

Secondary processing:- Secondary processing would include the modification of a basic product to a stage where it requires some value addition to the kitchen. Tomato puree, cleaning and processing of meat products, are all processed to a secondary stage.

Tertiary processing:- There are high value branded products like jam, sauces, biscuits and other bakery products. It includes all food items that have been through the final of the tertiary stage of processing and are ready for consumption at the point of sale.

Segmentation of different sector in food processing industries

Table No- 1:Segmentation of different sector in FPI

products	Segments
Diary	Whole milk-powder, Skimmed milk powder, condensed milk, ice-cream, butter and ghee, cheese.
Fruits & vegetables	Beverages, juices, concentrates, pulp, slices, frozen and dehydrated products, potato Wafers/chips etc.
Grains & Cereals	Flour, Bakeries, Starch Glucose, Cornflakes, Malted food, Grain based alcohol.
Fisheries	Frozen and canned products mainly in fresh form.
Meat and Poultry	Frozen and packed mainly in fresh form, egg powder.
Consumer foods	Snack food, Namkeen, Biscuits, Ready to eat food, Alcoholic and non-Alcoholic beverages.

Source: MOFPI

Food processing sector plays a very crucial role in Indian economy. This sector is now regarded as the sunrise sector of the Indian economy. The Indian food industry is dominated by unorganized sector. The organized sector consisting of large companies, accounts for only 25% of the market, thus 75% of the market is divided between the small scale and the unorganized sector. The unorganized sector accounted for more than 70% of production in terms of volume and 50% in term of value. Food processing industry is the 5th biggest industry in India. The Indian food processing industry is one of the largest industry in the world in terms of production, consumption, export and growth prospects. The food processing sector grew at a rate of 13.1% in 2006-07. Food processing contributes around 6% of the Indian GDP and about 14% of manufacturing GDP.

The multiplier effect of investment in food processing industries on employment generation is 2.5 times than in other industrial sectors. At present the food processing sector employs about 13 million people directly and about 35 million people indirectly. It is estimated that for every Rs 10 billion worth of investment in the food sector, an additional 54000 people get jobs compared to a figure of 48000 for the textile industry and 25000 for the paper industry.

Profile of Haryana

Haryana is one of the smaller States in India with 4.4 million hectares of land, forming 1.34 percent of the total geographical area of the country. Despite this, Haryana is one of the largest contributor of food grains to India's central pool with a share of around 15.6%. The State has accorded high priority to agriculture & allied sectors since its creation in 1966. Strong infrastructure facilities coupled with support for agriculture research and efficient network to disseminate the information related to improved farm practices to farmers have yielded tangible results. The State has been converted from a food deficient to a food surplus State. The main agricultural crops produced in the state are rice, wheat, sugarcane, cotton, oilseeds, pearl millet, gram, and barley. More than 60% export of Basmati Rice from India is taking place from Haryana alone. During 2015-16, the gross sown area in the State was 64.71 lakh hectare. The contribution of area under wheat and paddy crops to the total gross sown area in the State was 60.73% during 2015-16. The area under wheat crop was 25.76 lakh hectare while that under paddy crop was 13.54 lakh hectare in 2015-16. The area under commercial crops i.e. sugarcane, cotton and oilseeds has shown fluctuating trends. The total food grain production in the State was 163.33 lakh tons in 2015-16. The production of rice was 41.45 lakh tons, wheat was 113.52 lakh tons, while those of oilseeds and

sugarcane was 8.67 lakh tons and 69.92 lakh tons respectively during 2015-2016. Haryana is a fast emerging and one of the leading States in the field of horticulture in India. Almost all type of fruits, vegetables, spices, mushroom & flowers are being grown here. Out of total area under horticulture, around 85% area is under Vegetables & rest is under fruits, spices, flowers etc. Horticulture produce covers an area of 4.90 lakh hectare, which is 7.58% of the gross cropped area of the State. Production of horticultural crops in the State was 70.50 lakh MT during the year 2015-16. Haryana is one of the major pea growing states in India and second largest producer of green peas. The state is 3rd largest producer of button mushrooms in India. More than 13 vegetables are grown in Haryana throughout the year. Cucurbits, cauliflower, potato and onion occupy highest area under cultivation along with leafy vegetables and radish. As per production, cucurbit, cauliflower and potato top the list followed by onion, tomato and radish. Haryana's climatic conditions favour the conducive growth of citrus fruits. Kinnow is the most prominent citrus fruit having maximum production followed by mango and guava. Dairy Farming is an essential part of Haryana's rural economy. Haryana Known for its "Murrah" Buffaloes and desi cattle, the state contributes 5% to the national dairy production. The per capita milk availability in Haryana is the second highest in the country; i.e. 805 gm per capita per day against the national average of 309 gm per capita per day. Livestock sector contributes 30% to Haryana's agriculture GDP. In egg production, the State occupies 4th position with an annual production of 45,790 lakh eggs. In meat production, the State stands 8th with an annual production of 381 thousand tons. The agriculture and allied sector has thrown open tremendous opportunities for the successful establishment of vibrant and potentially profitable agro-processing units in Haryana. Being the major producer of various agri-produce, Haryana offers vast potential in processing of high value added product.

Potential as a Food Processing Hub in Haryana

Agriculture is one of the biggest employment generators providing employment to more than 50% people in State. Even in case of industrial employment, share of agriculture based industries is more than 31%. The state occupies a premier position in the country's agribusiness industrial scenario with significant contribution in agriculture, horticulture, dairy, poultry and fisheries. Agriculture sector in Haryana contributed around 17.3% to state's GSDP (constant prices) in 2015-16. Food processing sector has been identified as a focus sector in the Haryana Enterprise Promotion Policy 2015 (EPP 2015). Now Haryana has more than 7953 operative food processing units in the year of 2015-16. The state is equipped with 4 food parks with 2 fully functional food parks at Rai and Saha. Mega Food Parks at Barhi and Rohtak are being set-up with the state of the art common infrastructure facilities under Ministry of Food Processing scheme of Mega Food Parks and 9 cold chain projects are currently being implemented under MOFPI assistance. Out of these, 4 projects have already been completed and 5 are on-going.

Objectives of the Study

- To find out the growth rate and features of food processing industries in Haryana.
- To examine the role of food processing industries in employment generation in Haryana.

Methodology

Annual Survey of Industries (ASI) is the principle source of industrial statistics in India published by the central statistical organization. It covers information on organized manufacturing sector only those industries are registered under Section 2m (I) and 2m (II) of the factories Act, 1948 i.e. those factories employing 10 or more workers using power and those employing 20 or more workers without using power. Secondary data at the two digit and three digit level of ASI has been used for studying the growth rate of food processing industries. The data given in ASI reports is on current prices but for proper analysis, the values are deflated with suitable deflator and expressed in 1998-1999 prices. The compound

growth rate of FPI have been calculated for the period from 1998-1999 to 2016-17 using the following formulae;

$$\text{CAGR} = \left(\frac{\text{Value of Current year}}{\text{Value of past year}} \right)^{1/T} - 1$$

Various characteristics such as raw material intensity, Working capital intensity, labour intensity, net value added per unit of invested capital and profit per unit of invested capital were analysed with help of various statistical techniques which included percentages, averages, Simple divide etc.

Cobb Douglas production Function also used to estimate the parameters of production function by applying OLS.

Cobb Douglas production function is as

$$Q = A \cdot L^\alpha \cdot K^\beta$$

Tabular analysis and graphical representation has been intensively used; wherever required

To see employment generation in Haryana by food Processing Industry's same data source is used. This study has done in three sections. In first section compound growth rate of different identities are

measured like Output, number of units of FPI's, Invested capital and net value added, in second section feature of food processing industries is examined. In the third section compound growth rate of employment and nature of direct or indirect employment have been checked.

Limitations of the study:-There are limitations of this study.

1. The study, based on secondary data, ASI data is used at the two digit level and three digit level only.

2. The study covers only organized Food Processing Industries that accounts only 25% of the food processing industry. while unorganized sector and small scale industries accounts 75% of it.

3. The study period of this study is 19 years only.

Sectoin:1

1.1 Comparison of Compound Growth Rate between India's and Haryana's FPI During 1998-99 to 2016-17: Comparison of Compound Growth Rate between India's and Haryana's FPI shows in table 1.1.

Table: -1.1:Comparison of Compound Growth Rate between India's and Haryana's FPI During 1998-99 to 2016-17 on the price of 1998-99

Basic Characteristic	CAGR of India's FPI (In Percentage)	CAGR of Haryana's FPI (In Percentage)
Number of Units	2.72	2.62
Output	5.97	9.25
Invested capital	5.88	9.21
Net value Added	4.49	6.83

Source: Estimated from Annual Survey of Industries - Factory sector, Central Statistical Organization, Planning Commission, New Delhi,

It is evident in **table 1.1** that in terms of the number of unit compound growth rates of India's FPI was 2.72 percent, on the other side in Haryana; it was 2.62 percent growth rate in terms of number of units was almost equal in Haryana as compared to India. In terms of output compound growth rates of India's FPI was 5.97 percent, on the other side in Haryana, it is

9.25 percent, here the compound growth was higher as compared to India. It shows a good progressive picture in output. In terms of invested capital compound growth rates of India's FPI was 5.88 percent, on the other side in Haryana, it was 9.21 percent, here the compound growth was higher as

compared to India. It shows a good progressive picture in invested capital in Haryana's FPI.

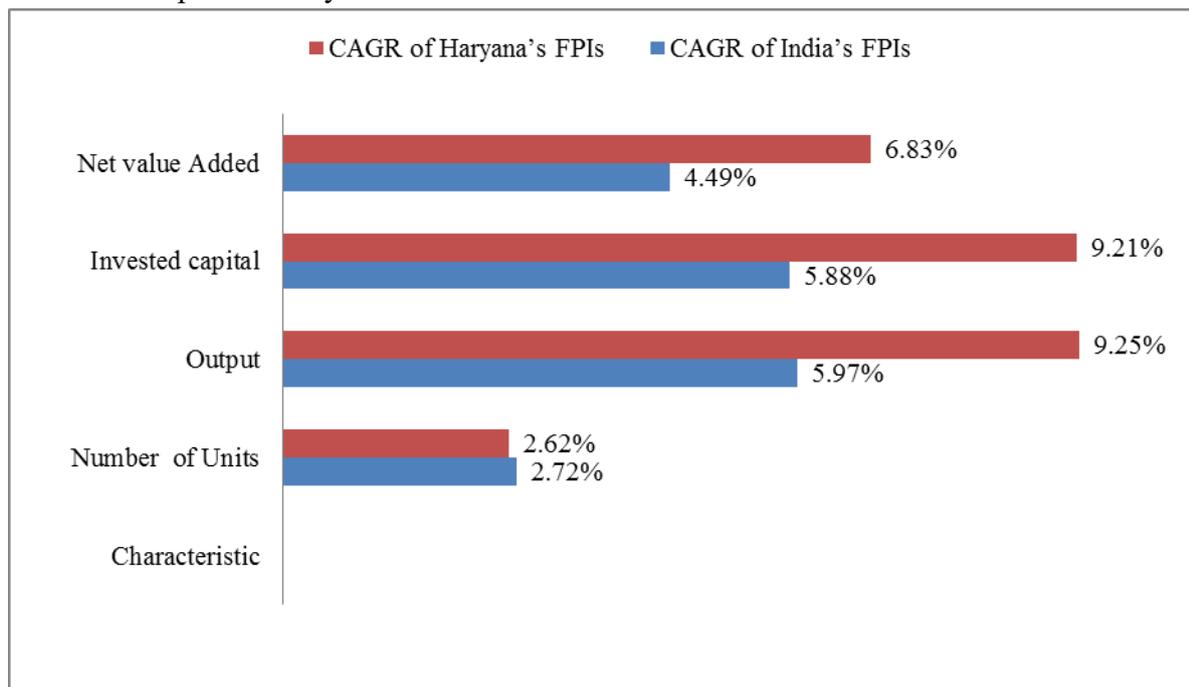


Figure No. 1.1: Trends in Compound Growth Rate between India's and Haryana's FPI During 1998-99 to 2016-17 on the price of 1998-99 (Source: from the table no 1.1)

The fourth component is net value added in this India's FPI was 4.49 percent, on the other side in components we got that of compound growth rate of Haryana's FPI, it was 6.83 percent.

Table 1.2 : Comparison of Compound Growth Rate between manufacturing of Haryana and its FPI During 1998-99 to 2016-17 (CAGR is calculated on the price of 1998-99 price)

Basic Characteristic	CAGR of Haryana's manufacturing (In Percentage)	CAGR of Haryana's FPI (In Percentage)
Number of Units	4.35	2.62
Output	9.43	9.25
Invested capital	7.39	9.21
Net value Added	8.35	6.83

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi,

It is observed from table 1.2 that in terms of number of physical units compound growth rates of Haryana's total manufacturing was 4.35 percent, on the other side in Haryana's FPI, it was 2.62 percent. Growth rate in terms of number of unit was poor in Haryana FPI as compared to Haryana's total manufacturing sector. In terms of output compound growth rates of

Haryana's total manufacturing was 9.43 percent, on the other side in Haryana's FPI, it was 9.25 percent. In terms of invested capital compound growth rates of Haryana's total manufacturing sector was 7.39 percent, on the other side in Haryana's FPI, it was 9.21 percent, here the compound growth rate of FPI of Haryana was high as compared to Haryana's total

manufacturing sector, it shows a good progressive picture in invested capital in Haryana's FPI.

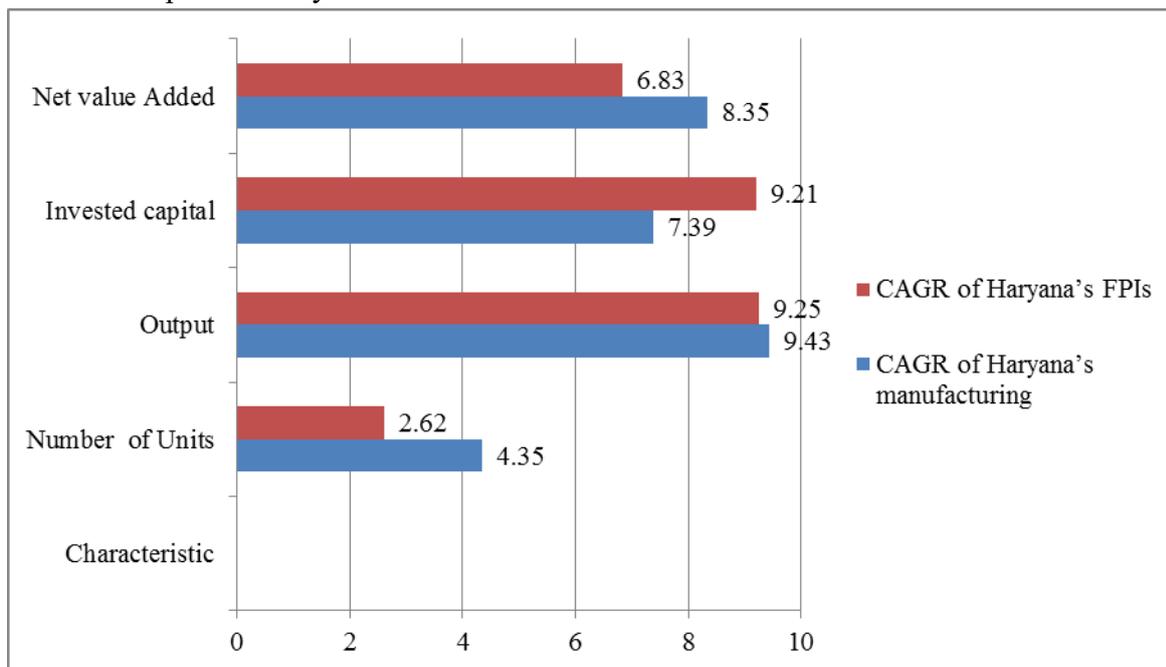


Figure No-1.2: Trends in Compound Growth Rate between manufacturing of Haryana and its FPI During 1998-99 to 2016-17 (CAGR is calculated on the price of 1998-99 price)(Source: From the table no 1.2)

The fourth component is net value added in this components we got that of compound growth rate of Haryana's total manufacturing was 8.35 percent, on the other side in Haryana's FPI, it was 6.83 percent.

Haryana's FPI had a good trend in net value added per unit of invested capital growth rate as compared to total manufacturing sector of Haryana.

Table 1.3: Trends in Compound Growth Rate between different segments of FPI'S of Haryana During 1999-2000 to 2016-17 (CAGR is calculated on the price of 1998-99 price): ASI three digit level data is used at (nic 1998).

INDUSTRY CODES	(151– Production, Processing and Preservation of Meat, Fish, Vegetable, Oils and Fats)	(152) Manufacture of Dairy Products	(153) Manufacture of Grain mill product, Starch products and prepared animal feeds	(154– Manufacture of other food products (Bakery)	(155) – Manufacture of Beverage
CAGR	5.35	8.8	7.06	4.07	8.77

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi,

Industry 151 – Production, Processing and Preservation of Meat, Fish, Vegetable, Oils and Fats, has fourth rank its CAGR is 5.35 percent.

Industry 152 - Manufacture of Dairy Products, has highest CAGR 8.8 percent

Industry 153 – Manufacture of Grain mill product, Starch products and prepared animal feeds, has third rank in CAGR 7.06 percent.

Industry 154 – Manufacture of other food products (Bakery), has the lowest 4.07 percent.
Industry 155 – Manufacture of Beverage, has second highest CAGR 8.77 percent.

Section 2

Features FPI in Haryana

In this section an attempt is made to identify some feature of food-processing industries in Haryana in terms of raw material intensity, working capital intensity, labour intensity and Profit and Net value Added per unit of Invested Capital. It is carried out for the entire period of study from 1998-99 to 2016-17. Cobb Douglas production function also use to estimate input output relations of FPI in Haryana.

Raw Material Intensity, working capital intensity, labour intensity and Profit and Net value Added per unit of Invested Capital in FPI of Haryana all shows in table 2.1.

2 (A)Raw material intensity: is measured as material cost as a percentage of total cost. Raw material Intensity = Material cost / Total cost x100

2(B) Working capital intensity: In FPI of Haryana there are different measures of working capital intensity. Some of them are gross working capital as percentage of total productive capital, ratio of working capital to emoluments, to output, to gross value added, to net value added. In the present study,

the ratio of working capital to net value added is used for measuring working capital intensity in FPI in Haryana.

Working capital intensity = Working capital / Net value added x 100

2(C) Labour Intensity: A ratio of number of employees to fixed capital is considered as a measure of labour intensity. A higher ratio for an industry implies that labour content in it is high.

Labour Intensity = Fixed Capital / Number of Employees

2(D) Profit per unit of Invested Capital in Haryana

FPI Profit and Net value Added per unit of Invested Capital in Haryana’s FPI is measured by this formula. Profit per unit of invested capital = Profit / Invested Capital

2(E) Net value Added per unit of Invested Capital in Haryana’s FPI:

Net value Added per unit of Invested Capital is calculated by this following formula

Net value Added per unit of Invested Capital = Net value Added / Invested Capital

Table No. 2.1: Raw Material Intensity, working capital intensity, labour intensity, Profit per unit of Invested Capital and Net Value Added per unit of Invested Capital in FPI of Haryana (In percentage)

Years	Raw material intensity in FPI of Haryana	Working capital Intensity in FPI of Haryana	Labour Intensity in Haryana FPI on investing per one crore rupee	Profit per unit of Invested Capital In Haryana’s FPI.	Net Value Added per unit of Invested Capital In Haryana’s FPI.
1998-1999	83.80	95.19	46.40	0.09	0.25
1999-2000	84.85	76.19	38.42	0.19	0.32
2000-2001	77.33	98.20	50.17	0.14	0.31
2001-2002	82.87	75.38	47.57	0.03	0.22
2002-2003	76.12	112.73	39.22	0.04	0.20

2003-2004	76.25	92.31	35.07	0.07	0.21
2004-2005	74.19	81.18	37.77	0.05	0.20
2005-2006	75.49	90.86	36.07	0.08	0.22
2006-2007	74.32	84.94	29.83	0.12	0.26
2007-2008	69.81	212.57	22.08	0.06	0.18
2008-2009	76.44	220.66	21.20	0.07	0.20
2009-2010	73.77	98.29	18.02	0.05	0.19
2010-2011	69.67	222.43	13.81	0.06	0.16
2011-2012	81.52	126.34	10.37	0.09	0.21
2012-2013	83.61	115.15	7.95	0.11	0.22
2013-2014	84.41	153.42	11.47	0.06	0.18
2014-2015	76.63	112.81	11.83	-0.10	0.03
2015-2016	83.04	52.38	12.08	-0.01	0.11
2016-2017	81.54	136.48	13.54	0.04	0.17
AVERAGE	78.19	118.82	26.47	0.065	0.202

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi,

It is observed from table 2.1 that FPI in Haryana in the present analysis are highly raw material intensive. So far as the raw material intensity is concerned it's average share 78.19 percent for the entire period. High raw material intensity of food processing industry suggests that these industries can give boost to the production of agricultural raw materials in the state especially food grain, spices, Fruits & vegetables, livestock's, milk production etc. Promotion of these industries creates an increased demand for these agricultural raw materials. This would enable farmers of Haryana to get a reasonable price for their agricultural produce. It does boost the farmers to produce more raw material in the state. In case of working capital intensity was as high as above 75.38 percent in FPI of Haryana for the entire period of the study. Its average was 118.82 percent for the entire period of the study. High capital intensity of food processing industry suggests that these industries can give boost to the production of industrial sector and create forward linkages and

promote industrial sector to produce more equipment's develop more technique in the field of food processing. It is also observed that labour intensity for FPI in Haryana is decreasing in the entire period of the study. As regards individual year, labour intensity ratio is highest in the year 2000-01 for with 50.17 person per one crore rupee. After the year 2000-01 the labour intensity continuously decreased, in the year 2012-13 it is mere 7.95 person per one crore rupee only. That was the minimum labour intensity in the study period. This may be attributed to the technique advancement and adoption of labour saving techniques in FPI. But now it continues to decrease from the year 2000-01 to 2012-13, after this it slightly increase. In the year 2016-17 labour intensity remain only 13.54 person only per one crore rupee. It indicate a poor scenario of labour in FPI of Haryana. In terms of profit per unit of invested capital and net value added per unit of invested capital in FPI of Haryana is respectively 0.09 per unit of invested capital and 0.25 per unit of invested capital in the year

1998-99. It increase in (1999-2000) the next year 0.19 per unit of invested capital in profit and 0.32 per unit of invested capital in net value added both of the figure are highest in the study period. After 1999-2000 profit and net value added per unit of invested capital slightly decreased up to the year 2005-06. But in 2006-07 both of the value slightly increased it is 0.12 is profit per unit of invested capital and 0.26 is the Net value added per unit of invested capital. After the year 2006-07 profit and net value added per unit of invested capital again slightly decreased up to the year 2010-11. In the last year of the study in (2011-12) both of the values, profit per unit of invested capital and net value added per unit of invested capital is also slightly increase the value is respectively 0.09 per unit of invested capital and 0.21 per unit of invested capital. Last five years it fluctuate and in the year 2016-17 profit was 0.4 per unit of invested capital and 0.17 net value added per unit of invested capital.

2.2 FPI of Haryana and Cobb Douglas production function

To estimate the input output relationship in this industry, we are using Cobb Douglas Production function as we know it is a well renowned production function which has lot of properties almost universally; it is used to estimate parameters in different industries. In agricultural industries it is also used since last 50 years. I have used ASI's data at two digit level for the estimation of the parameters. It has been shown in table 2.2 and figures 2.1 and 2.2 ASI two digit level data is used for its computation for the period 1998-99 to 2016-17 on the price of 1998 – 99.

The form of Cobb Douglas production function is as

$$Q=A. L^{\alpha} .K^{\beta}$$

Thought it is not used in direct estimation due to non - linear in parameters. We have to convert it into the log form

$$\text{Log } Q ==\text{Log } A + \alpha \text{ Log } L +\beta \text{ Log } K$$

Now we can apply O L S to estimate the parameter on revised form of Cobb Douglas production function.

Table 2.2:Estimation of Cobb Douglas production function

. reg logq logl

Source	SS	df	MS			
Model	2.59023226	1	2.59023226	Number of obs =	19	
Residual	4.46635837	17	.262726963	F(1, 17) =	9.86	
Total	7.05659064	18	.392032813	Prob > F =	0.0060	
				R-squared =	0.3671	
				Adj R-squared =	0.3298	
				Root MSE =	.51257	

logq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
logl	2.696661	.8588343	3.14	0.006	.8846794	4.508644
_cons	-15.16088	9.169111	-1.65	0.117	-34.50601	4.184254

. reg logq logk

Source	SS	df	MS			
Model	6.92031689	1	6.92031689	Number of obs =	19	
Residual	.136273748	17	.008016103	F(1, 17) =	863.30	
Total	7.05659064	18	.392032813	Prob > F =	0.0000	
				R-squared =	0.9807	
				Adj R-squared =	0.9796	
				Root MSE =	.08953	

logq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
logk	.9513861	.0323799	29.38	0.000	.8830705	1.019702
_cons	1.327244	.4191164	3.17	0.006	.4429855	2.211502

. reg logq logl logk

Source	SS	df	MS			
Model	6.93182256	2	3.46591128	Number of obs =	19	
Residual	.124768071	16	.007798004	F(2, 16) =	444.46	
Total	7.05659064	18	.392032813	Prob > F =	0.0000	
				R-squared =	0.9823	
				Adj R-squared =	0.9801	
				Root MSE =	.08831	

logq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
logl	.2203465	.1814019	1.21	0.242	-.1642083	.6049014
logk	.9238708	.0391542	23.60	0.000	.8408676	1.006874
_cons	-.6693096	1.694861	-0.39	0.698	-4.262255	2.923636

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi,

The result is as such. We also found by applying Cobb Douglas production function that the parameter α 's value is 0.07 and the parameter β 's value is 0.83 invested capital has significant role in output

generation in this production function. Labour has not been found significant role in output generation.

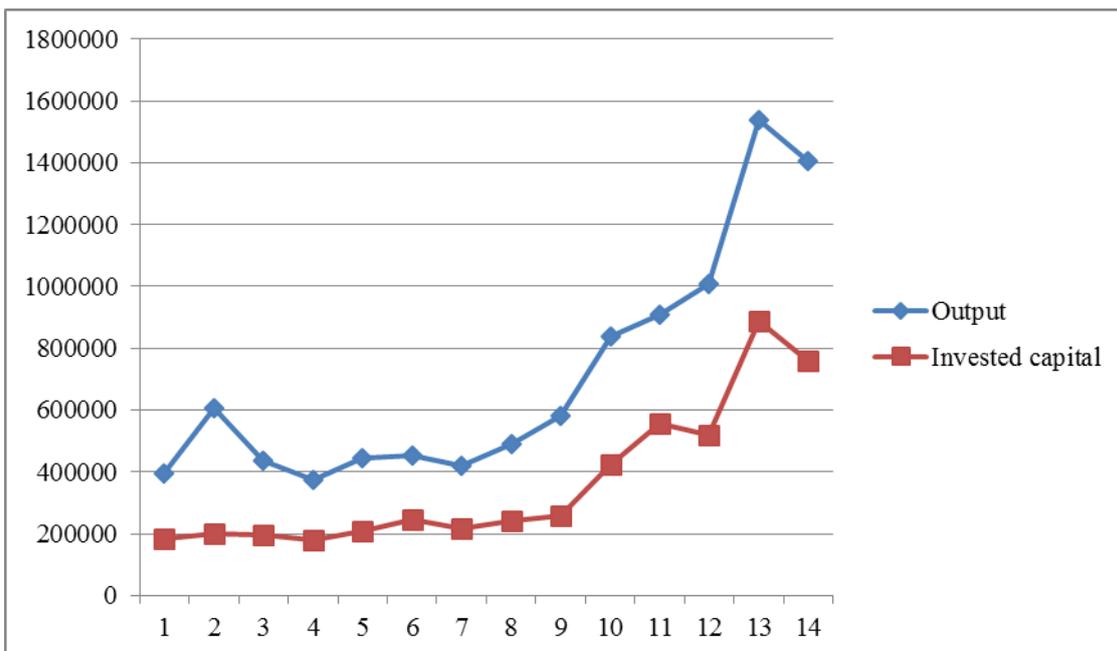


Figure No- 2.1: Trends in output and Capital in FPI of Haryana (Source: From table no. 2.2)

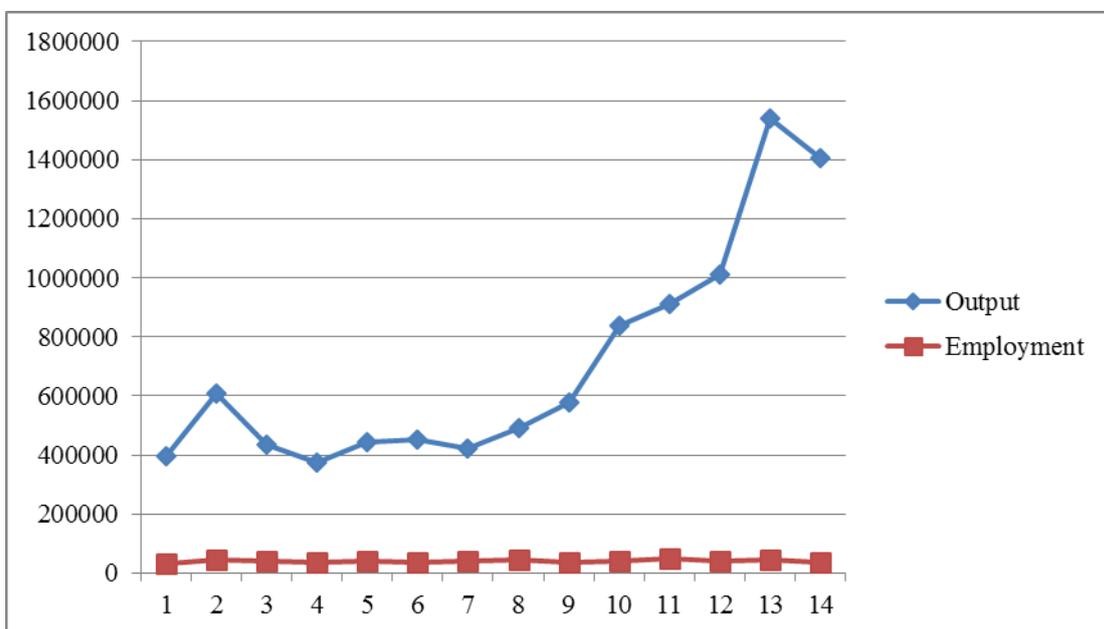


Figure No- 2.2: Trends in output and number of labour in FPI of Haryana (Source: From table no. 2.2)

Trends show that output increased as increase in capital however labour and output shows no relation, here labour almost constant, while output is increasing. There is a growth in output without employment.

Section:3

3.1 Comparison between compound growth rates of India’s FPI and Haryana’s FPI during 1998-99 to 2016-17. It shows in table 3.1.

Table 3.1: Comparison between compound growth rates of India’s FPI and Haryana’s FPI during 1998-99 to 2016-17

Basic Characteristic	CAGR of India’s FPI (In Percent)	CAGR of Haryana’s FPI (In Percent)
Employment	1.7	3.47

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi

It is observed from the **table 3.1** that in terms of employment, compound growth rates of India's FPI is 1.7 percent, in Haryana compound growth rate of FPI is 3.47 percent this was very good as compared to India.

3.2 Comparisons between Compound Growth Rates of Total manufacturing sector of Haryana and Haryana's FPI during 1998-99 to 2016-17. It shows in table 3.2.

Table-3.2: Comparisons between Compound Growth Rates of Total manufacturing sector of Haryana and Haryana's FPI during 1998-99 to 2016-17

Basic Characteristic	CAGR of Haryana's manufacturing (In Percent)	CAGR of Haryana's FPI (In Percent)
Employment	4.23	3.47

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi

It is evident in the **table 3.2** that in terms of employment, compound growth rates of Haryana's manufacturing sector is 4.23 percent, in Haryana compound growth rate of FPI is 3.47 percent this was less as compared to Haryana's manufacturing sector and otherwise CAGR is good.

3.3 Persons Engaged in FPI of Haryana Directly and Indirectly: In this section Persons Engaged in FPI of Haryana Directly and Indirectly are analysed, in table 3.3 and figures 3.1

Table -3.3: Persons Engaged in FPI of Haryana Directly and Indirectly

Years	Percentage share of	Percentage share of
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	Direct employed person	Indirect employed person
1998 – 99	74.90	25.09
1999-00	75.07	24.92
2000-01	77.62	22.37
2001-02	75.07	24.92
2002-03	77.74	22.25
2003-04	75.41	24.58
2004-05	77.74	22.25
2005-06	76.27	23.72
2006-07	76.60	23.39
2007-08	74.94	25.05
2008-09	77.35	22.69
2009-10	76.05	23.94
2010-11	75.90	24.09
2011-12	73.72	26.27
2012-13	63.37	36.63
2013-14	69.42	30.58
2014-15	76.12	23.88
2015-16	74.91	25.08
2016-17	75.77	24.23

Source: Estimated from Annual Survey of Industries-Factory sector, Central Statistical Organization, Planning Commission, New Delhi

By the table 3.3 we try to examine the percentage share of directly and indirectly employed persons in Haryana's FPI, but first we have to know its definition, that's what ASI considered in direct or indirect workers.

According to ASI total persons engaged is the sum of workers and employees, ASI define these terms in a different way the definitions are given below.

Workers are defined to include all persons employed directly or through any agency, whether for wages or not and engaged in any manufacturing process or in cleaning any part of the machinery or premises used for manufacturing process or in any other kind of work incidental to or connected with the manufacturing process or the subject of the manufacturing process. Labour engaged in the repair & maintenance, or production of fixed assets for

factory's own use, or employed for generating electricity, or producing coal, gas etc. are included.

Employees include all workers as defined above and persons receiving wages and holding clerical or supervisory or management positions engaged in the administrative office, store keeping section and welfare section, sales department as also those engaged in the purchase of raw materials etc. or purchase of fixed assets of the factory as well as watch and ward staff.

Total Persons Engaged include the employees as defined above and all working proprietors and their family members who are actively engaged in the work of the factory even without any pay, and the unpaid members of the co-operative societies who worked in or for the factory in any direct and productive capacity.

According to this table, we have found that the percentage share in direct employed persons is 74.90 percent in

the year 1998-99 and it slightly up 77.62 to percent in the year 2000-01. On the other side indirect employed person's share come down and it is 25.09 percent in the year 1998-99 and 22.37 percent in the year 2000-01. Percentage share of direct employed persons has slightly decreased in the year 2001-02 on the other hand, indirect share of employed persons slightly has increased. Next year direct employment share increased on the other hand, indirect employment share has decreased. In the total study period, it is observed that the share of direct employment moves between 63.37 percent to 77.74 percent and the share of indirect employment is moving between 22.69 percent to 36.63 percent. During the study periods. It is found that the share of direct employment and indirect employment of FPI of Haryana is almost constant.

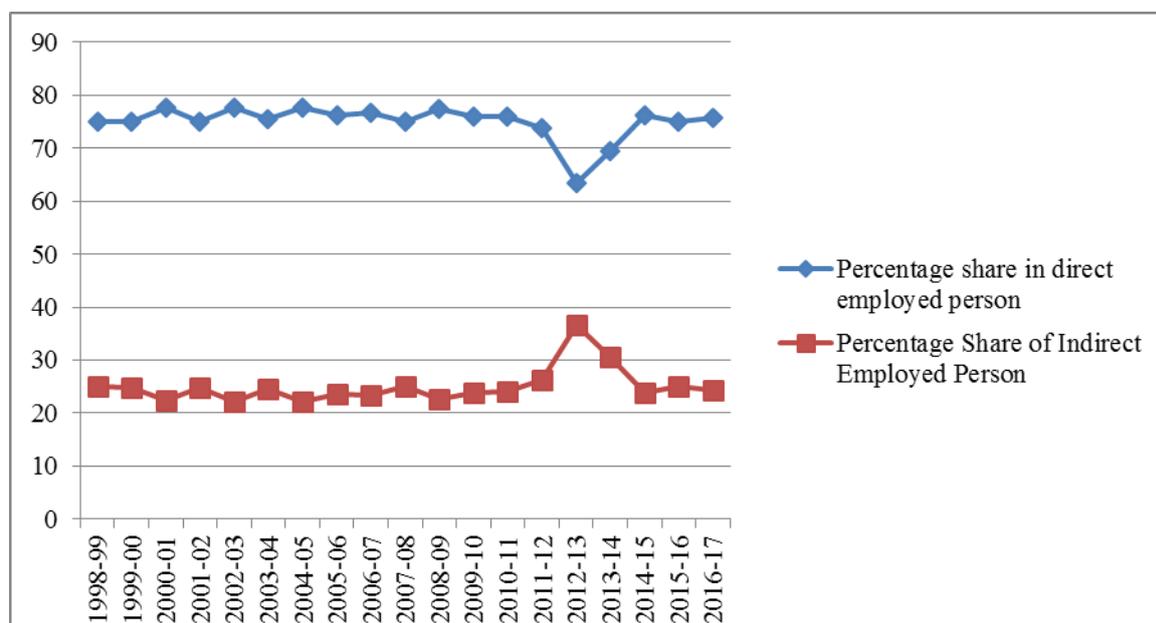


Figure No- 3.1: Trends in Percentage share of Direct and Indirect employed persons in FPI of Haryana (Source: From the table no. 3.3)

It is observed from the **table 3.1** that FPI direct employment share and indirect employment share of Haryana presents a stagnant picture. It is found in the table that the shares of the FPI direct employment and indirect employment of Haryana in total FPI employment is moving between the same ranges

(limits). Direct employment is dominant in FPI indicating that the position of the direct employment is more significant. While the average share of direct employment of FPI Haryana is 76.02 percent and indirect employment of FPI of Haryana is 23.96

percent. Direct employment seems to be more significant in the study period.

Conclusion

Food-processing sector brings immense benefits to the people, to the economy and can speed up industrialization process in Haryana. However it has a significant place in India's FPI as well in total manufacturing sector of Haryana also. In terms of output Haryana FPI has huge potential due to a strong agricultural produce base of the state. FPI's output CAGR 9.25 percent ,that was quite good as compared to india's FPI CAGR that was 5.97 only during this study period. These industries found capital intensive and raw material intensive as compared to labour intensive. Capital play a significant role in output generation as compared to labour, here I found growth in output without growth in employment. Direct employment is more significant in this study .On the basis of the all aspects of the study we can say that Food processing industries has great scope for development in the state. Hence, it must be promoted extensively.

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