Growth &Productivity of Food Processing Industriesin India

Rajiv Khosla

Policy makers are continuously emphasizing upon devising a strategy that can offload the burden on farm sector by reducing disguised unemployment and also ensure sustained increased earnings of the remaining farmers. Agro-industries in general and food processing industries in particular are expected to play a catalytic role at this juncture. This study is an attempt to find out the dominance, factor productivity growth and convergence of food processing industries using three-digit level data collected from Annual Survey of Industries for years 1980-81 to 2015-16.Results indicate that an increase in output in the food processing sector has taken place at the cost of labor and high growth is achieved by replacing labor with technology.

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Introduction

Indian agricultural sector is continuously getting gripped under economic crisis. On the one hand, the peasantry faces problems related to decreasing productivity, exploitation in the hands of middlemen and traders, high cost of inputs and inadequate knowledge with respect to farming on commercial lines etc.At the same time, declining public expenditure on agriculture or failure to establish a link between rising cost of production and remunerative prices by the government is increasingly making farming an unviable proposition. In order to amicably sort out the problems on this front, a strategy is required to be devised which can offload the burden on the farm sector by reducing the disguised unemployment and also ensure sustained increased earnings for the farmers, besides increasing the real allocations towards the agriculture sector.

Fan (2018) has proposed a “move up, move out” strategy for the Indian farmers so as to create better economic opportunities for them. The stratagem aims at moving the farmers out from rural areas in order to make them work in urban areas. Remaining farmers in rural areas are also required to shift towards the production of high-value food products. Similarly, agricultural entrepreneurs are sought to move from urban areas to rural areas in order to produce healthy food with the latest technology. China broke the shackles of poverty in agriculture sector by adopting this approach.

Food processing industries facilitate both the backward and forward linkages.

Food processing industries are expected to play a catalytic role at this juncture. With an increase in prosperity in urban areas alongwith consciousness about healthy foods, demand for nutritious foods is further expected to shift towards fruits, dairy products and meat products. Food processing industries facilitate both the backward and forward linkages. In terms of backward linkages, food processing industries source their raw material from the farm as well as non-farm sector (Khosla et al,2010). Similarly, in the context of forward linkages, output from the food processing industries is used as input to process foods, milk, beverages, and juices etc. Thus, a developed food processing industry can help reduce wastages, ensure value addition and generate additional employment opportunities thereby offering better socio-economic conditions to millions of farm families.The present study attempts to find out the growth and productivity of food processing industries in India. Specifically, objectives of the study are:

1. To find out the dominant and fastest growing food processing industries in India since 1980-81
2. To analyze the total factor productivity growth and pattern of labor in food processing sector in India

Data Base & Methodology

For the purpose of study, secondary data from various issues of Annual Survey of Industries (ASI) published by the Central Statistical Organization for the years 1980-81, 1990-91, 2001-02, 2010-11 and 2015-16 is used. Broad classification of industries listed in the group of food-processing have undergone drastic regrouping from 1980-81 to 2015-16. In order to arrive at comparable and meaningful results a concordance is developed by clubbing the similar industries classified under different codes in National Industrial Classification - 2008 (Annexure I). To examine the dominance of different food-processing industries in the state, we have assessed the share of food processing industries in total food processing group and overall manufacturing sector over a period of time. The comparison is undertaken in terms of six variables i.e. number of factories, number of workers, invested capital, total output, net value added and profits. Further, to study the growth of food-processing industries, compound growth rate of each of the selected indicators have been calculated for different time periods. Trends in growth are studied by computing the compound growth rate through principle of least squares, using the following formula

$$\text{Log } Y = \text{Log } a + (\text{Log } b)t$$

The data given in ASI reports is at current prices but for proper comparison, values are deflated with the help of suitable deflator (1993-94 = 100).

For finding out the productivity, we have used the non-parametric method of Data Envelopment Analysis (DEA) primarily on the assumption that all food processing industries in India share common production practice. We have taken gross value added as output and labor and capital as two inputs in the production function. The Malmquist indices are computed on the basis of annual time series data for the time-period 1980-81 to 2015-16. Further, it is decomposed into pre (1980-81 to 1990-91) and post (1990-91 to 2015-16) liberalization regimes. Using DEA, Malmquist indices of productivity change is decomposed into components of change in pure technical efficiency, technical progress, and scale efficiency. It helps to identify the sources of productivity growth so as to make efforts to transform the lagging industries into the leading ones. We assume that all the industries are operating at an optimal scale.The Malmquist input oriented Total Factor Productivity (TFP) change index between the base period t and the following period t+1 is defined as:

$$M(y_t, x_t, y_{t+1}, x_{t+1}) = \left[\frac{d_{t+1}(Y_{t+1}, X_{t+1})}{d_t(Y_t, X_t)} X \frac{d_t(Y_{t+1}, X_{t+1})}{d_{t+1}(Y_{t+1}, X_{t+1})} \right]^{1/2}$$

A value of M greater than unity implies a positive TFP growth from period t to period t+1 whereas a value of M less than one indicates a TFP decline. Equation above is the geometric mean of two TFP indices. The first index is calculated with respect to period t technology, while the second index is evaluated with respect to period t+1 technology.The advantage of Malmquist index is that it allows us to distinguish between shifts in the production frontier i.e. Technological Change (TC) and movement of firms towards the frontier Technical Efficiency Change (TEC). The measure of technical efficiency must be between 0 and 1.

Total Factor Productivity Change Index =

$$\frac{D^t(y^t, x^t)}{D^{t+1}(y^{t+1}, x^{t+1})} \times \left[\frac{D^{t+1}(y_{t+1}, x_{t+1})}{D^t(y^{t+1}, x^{t+1})} \times \frac{D^{t+1}(y^t, x^t)}{D^t(y^t, x^t)} \right]^{1/2}$$

Technological Change Index =

$$\left[\frac{D^{t+1}(y_{t+1}, x_{t+1})}{D^t(y^{t+1}, x^{t+1})} \times \frac{D^{t+1}(y^t, x^t)}{D^t(y^t, x^t)} \right]^{1/2}$$

Technical Efficiency Change Index =

$$\left[\frac{D^{t+1}(CRS)(y_{t+1}, x_{t+1})}{D^t(CRS)(y^t, x^t)} \right]$$

Pure Technical Efficiency Change Index =

$$\left[\frac{D^{t+1}(VRS)(y_{t+1}, x_{t+1})}{D^t(VRS)(y^t, x^t)} \right]$$

Scale Efficiency Change Index =

$$\left[\frac{D^{t+1}(CRS)(y_{t+1}, x_{t+1})}{D^t(CRS)(y^t, x^t)} \right] / \left[\frac{D^{t+1}(VRS)(y_{t+1}, x_{t+1})}{D^t(VRS)(y^t, x^t)} \right]$$

The use of Malmquist Index gives a fair idea about the Total Factor Productivity growth and the components ushering in that growth. However, in order to understand the role of labor in food processing industries in different time periods, we have tested the labor productivity convergence. Estimates are carried out for four sub-periods i.e. 1980-81 to

1990-91, 1991-92 to 2000-01, 2001-02 to 2015-16. We have made use of Barro-regressions (1991) wherein the model is estimated as

$$\frac{1}{T} In \left(\frac{\overline{y}iT}{\overline{y}_{i0}} \right) = \alpha + \beta \; In \; \overline{y}_{i0} + \varepsilon_i$$

Average labor productivity growth over a time period is the dependent variable and logarithm of initial labor productivity is the independent variable or regressor. Left hand side of the equation shows average labor productivity growth rate, á and â highlight the parameters to be estimated, and $\mathring{a}_i$ is an error term. The results so arrived are discussed in the following sections.

Dominance & Growth

Table 1 clearly shows that in case of number of factories manufacture of grain mill products, starches and starch products and prepared animal feeds alongwith manufacture of other food products remained the two industries that have performed well in the post liberalization period. Contrary, it appears that manufacture of dairy products and manufacture of beverages have failed to reap the benefits of globalization.In the case of number of workers, manufacture of other food products and manufacture of grain mill products, starches and starch products and prepared animal feeds industries have improved employment opportunities for the masses over a period. However, manufacture of beverages and slaughtering, preparation and preservation of meat industries have ostensibly failed in terms of providing employment in the food processing group. Again, with respect to the invested capital, two industries that remained on the top consisted of manufacture of other food products and slaughtering, preparation and preservation of meat industries. The industries that got lowest capital invested over a period of time turned out to be manufacture of tobacco and manufacture of dairy products. Other food products and preparation and preservation of meat industries succeeded in yielding maximum output in the food processing sector whereas manufacture of beverages and manufacture of tobacco registered lowest output over a period of time. Value addition remained highest in manufacture of other food products industry. Interestingly, the share of manufacture of tobacco industry doubled in the given time period and industry competed well by clinching the second slot among food processing group. Manufacture of beverages and manufacture of dairy products remained diminutive in terms of value addition. Profitability amongst the food processing industries remained high for the manufacture of tobacco and slaughtering, preparation and preservation of meat industries. However, dairy products and manufacture of grain mill products, starches and starch products and prepared animal feeds industries could not perform well in terms of profitability.

Manufacture of dairy products and manufacture of beverages have failed to reap the benefits of globalization.

Table 1 Dominance of Food Processing Industries (All-India) (percent)

Industry	Year	Number of Factories	Number of Workers	Invested Capital	Total Output	Gross Value Added	Profit	Share of the industry in manufacturing in All - India
Slaughtering,	1980 – 81	16.29 (4)	18.09 (3)	24.84 (2)	35.82 (1)	31.25 (2)	56.86 (1)	4.69 (2)
preparation	1990 – 91	12.64 (4)	9.59 (4)	14.41 (2)	24.69 (2)	14.03 (3)	17.53 (3)	3.81 (3)
and preservation	2000 – 01	13.71 (3)	10.56 (4)	13.91 (2)	23.39 (2)	6.38 (3)	14.96 (3)	3.78 (3)
of Meat	2015 – 16	11.64 (3)	6.40 (5)	13.98 (3)	22.75 (3)	15.37 (3)	19.62 (2)	3.27 (4)
Manufacture	1980 – 81	0.99 (6)	1.71 (6)	6.32 (5)	8.17 (4)	8.02 (5)	2.10 (5)	1.07 (5)
of dairy	1990 – 91	1.51 (6)	2.67 (6)	5.15 (6)	8.20 (4)	6.12 (6)	2.58 (5)	1.27 (5)
products	2000 – 01	2.71 (6)	5.79 (5)	4.72 (6)	11.52 (4)	5.30 (5)	16.02 (2)	1.86 (5)
	2015 – 16	4.50 (6)	13.09 (4)	8.51 (5)	14.21 (4)	8.89 (6)	6.71 (6)	2.04 (5)
Manufacture of grain	1980 – 81	28.72 (2)	10.78 (4)	11.76 (3)	21.30 (3)	10.28 (3)	7.74 (4)	2.79 (4)
mill products, starches	1990 – 91	33.63 (1)	13.55 (3)	13.18 (3)	18.82 (3)	9.95 (4)	7.37 (4)	2.90 (3)
and starch products, and	2000 – 01	47.43 (1)	21.99 (2)	12.53 (3)	22.21 (3)	6.23 (4)	12.81 (4)	3.59 (4)
prepared animal feeds	2015 – 16	48.05 (1)	24.73 (2)	20.79 (2)	26.29 (1)	14.60 (5)	7.71 (5)	3.78 (2)
Manufacture of	1980 – 81	19.51 (3)	43.27 (1)	43.68 (1)	22.75 (2)	36.13 (1)	1.06 (6)	2.98 (3)
other food products	1990 – 91	21.22 (3)	41.07 (1)	54.54 (1)	35.59 (1)	46.72 (1)	46.00 (1)	5.49 (2)
	2000 – 01	21.94 (2)	42.35 (1)	54.50 (1)	29.82 (1)	68.46 (1)	8.37 (5)	4.82 (2)
	2015 – 16	21.80 (2)	37.65 (1)	43.72 (1)	24.74 (2)	30.91 (1)	15.82 (4)	3.55 (3)
Manufacture of	1980 – 81	1.66 (5)	1.86 (5)	5.28 (6)	3.86 (6)	5.49 (6)	14.95 (3)	0.50 (6)
beverages	1990 – 91	2.97 (5)	3.00 (5)	6.15 (5)	4.43 (6)	8.37 (5)	2.11 (6)	0.68 (6)
	2000 – 01	3.88 (5)	4.15 (6)	9.50 (3)	6.24 (6)	5.20 (6)	8.03 (6)	1.01 (6)
	2015 – 16	5.15 (5)	4.44 (6)	9.72 (4)	7.20 (5)	14.65 (4)	18.84 (3)	1.03 (6)
Manufacture of	1980 – 81	32.83 (1)	24.30 (2)	8.13 (4)	8.10 (5)	8.84 (4)	17.29 (2)	8.10 (1)
tobacco	1990 – 91	28.02 (2)	30.12 (2)	6.57 (4)	8.27 (4)	14.80 (2)	24.41 (2)	8.27 (1)
	2000 – 01	10.32 (4)	15.16 (3)	4.84 (5)	6.82 (5)	8.43 (2)	39.81 (1)	6.82 (1)
	2015 – 16	8.87 (4)	13.68 (3)	3.27 (6)	4.81 (6)	15.58 (2)	31.30 (1)	4.81 (1)
Share of all Food	1980 – 81							13.09
Processing	1990 – 91							15.43
Industries	2000 – 01							16.17
	2015 – 16							14.36

Note; Figures in parentheses indicate the rank of the industry in that year
Source: Supplement to Annual Survey of Industries, various years

By and large, the share of food processing sector in overall manufacturing sector in India which was increasing till the year 2000-01 (16.17 percent) started receding thereafter (14.36 percent in 2015-16). However, it may also be concluded that manufacture of other food products including bakery products, sugar and cocoa etc. and manufacture of grain mill products, starches and starch products and prepared animal feed industries have performed well in all the indicators taken up for this study except value addition and profitability. Use of primitive processing techniques owing to the fear of taxes on the premix of ingredients seems to be the most plausible reason hindering the value addition of international standards thereby resulting in low profitability. Surprisingly, India being one of the largest milk and fruits and vegetables producing economies of the world, dairy products and beverages industries figured as the poorly performing food processing industries in India. In case of milk, possibly the low level of processing by the organized sector can be the reason for the poor performance of this industry. Similarly, for the beverages industry (particularly the non-alcoholic), the reasons that can be attributed to pitiable appearance can be the availability of inadequate and poor quality of surface water which stands as an important component for the beverages sector, alongwith inadequate cold storage and warehousing facilities with inconsistent supply and poor quality of agricultural raw material besides high rising raw material prices. An industry performing low in one of the indicators does not signify its poor performance in all other indicators. Hence in the next paragraphs, we have analyzed the performance of different food processing industries in terms of growth over a period of time.

All other variables (except number of factories) indicates dismal growth of all the food processing industries in the post liberalization period.

It is evident from the table that efforts of the Indian government have fructified and the number of factories working under the ambit of food processing sector has increased since the year 2000-01. Efforts like the classification of loan to food and agro - processing units as Priority Sector Lending (PSL) by Reserve bank of India alongwith the setting up of a “Food Processing Fund” of approximately USD 300 million for building up food parks has certainly helped reviving the factories in all food processing industries in this sector. However, a cursory look at all other variables (except number of factories) indicates dismal growth of all the food processing industries in the post liberalization period. In terms of number of workers, except manufacture of other food products and tobacco industries, all other industries have witnessed a fall in employment in the post liberalization period. Similarly, for the invested capital too, except manufacture of dairy products and manufacture of grain mill products, starches and starch products and prepared animal feeds industries all food processing industries have experienced a decline in the post liberalization period. Invariably, all the food processing industries have seen a fall (real values taken) in invested capital since 1980-81. Fate of food

Table 2 Growth of Food Processing Industries in Different Time Periods

(in percent)

Charac-teristics / Year	Growth from 1980 – 81 to 1990 – 91							Growth from 1990 – 91 to 2000 – 01							Growth from 2000-01 to 2015 – 16						
Industry Group	G-I	G-II	G-III	G-IV	G-V	G-VI	FPI as a whole	G-I	G-II	G-III	G-IV	G-V	G-VI	FPI as a whole	G-I	G-II	G-III	G-IV	G-V	G-VI	FPI as a whole
Number of Factories	-1.31	5.62	2.84	2.08	7.27	-0.36	2.69	-0.25	4.89	2.40	-0.73	1.62	-10.47	-0.42	2.35	6.73	3.49	3.361	5.24	2.43	3.93
Number of Workers	-4.62	6.23	3.97	1.09	6.63	3.83	2.86	1.13	8.23	5.13	0.47	3.47	-6.48	1.99	-0.90	7.60	3.00	1.501	2.67	1.59	2.58
Invested Capital	12.25	16.13	19.89	21.19	20.35	16.03	17.64	15.56	14.97	15.39	15.96	21.12	12.49	15.92	11.65	15.80	15.20	10.088	11.78	8.91	12.24
Total Output	13.62	17.97	16.47	23.33	19.56	18.17	18.19	13.02	17.56	15.54	11.65	17.60	11.46	14.47	12.30	13.98	13.68	11.187	13.51	10.06	12.45
Profit	12.54	29.22	25.97	84.51	4.08	31.04	31.23	8.74	32.61	19.79	-4.22	8.05	16.01	13.50	17.20	9.13	11.64	19.912	21.54	13.51	15.49

Source: Supplement to Annual Survey of Industries, various years

Note G- I is Slaughtering, preparation and preservation of meat; G- II is Manufacture of dairy products; G- III is Manufacture of grain mill products, starches and prepared animal feeds; G- IV is Manufacture of other food products; G- V is Manufacture of beverages, G- VI is Manufacture of tobacco and other tobacco products

processing industries is not different in the case of profitability too, wherein only three industries i.e. slaughtering, preparation and preservation of meat, manufacture of other food products and manufacture of beverages have showcased positive profitability growth in the post liberalization period. Two industries i.e. manufacture of other food products and Manufacture of grain mill products, starches and prepared animal feeds have performed well in terms of dominance and growth.

On the whole, it can be inferred that government push towards the setting up of food processing units has worked upto a limited extent only. Of course, the growth in terms of number of workers has been experienced but it did not remain uniform in all the industries. In the same fashion, growth in profitability too, remained restricted to a few food processing industries only. In order to further understand the sources of growth and their relation with trends in productivity across food processing industries alongwith the potential to gain from the reforms (if any), in accelerating productivity growth, the total factor productivity analysis is carried out in the following paras.

Productivity Analysis

Malmquist Productivity Index (MPI) is used to estimate the Total Factor Productivity Growth by means of Data Envelopment Analysis (DEA) method as it does not require the exact specifications of any functional form for the underlying production function. The results of mean estimates (geometric means) of Malmquist Indices and their decomposition into technical change and efficiency change for different food-processing industries of India in the pre (1980-81 to 1990-91) and post-liberalization regime (1990-91 to 2015-16) are highlighted in Table 3.

It is evident from the table that in the pre-liberalization period, food processing industries had experienced a fall in productivity.Although four out of six industries witnessed positive changes in technology (technical progress), yet the scale efficiencies (managed costs) performed miserably in majority of the in-

During the post liberalization period, total factor productivity change experienced an upward growth to the extent of 51.2 percent owing to the adoption of technology.

Table 3 Efficiency Change across Different Food Processing Industries

	Pre-Liberalization Period (1980-81 to 1990-91)					Post-Liberalization Period (1990-91 to 2015-16)				
Industry	TEC	TC	PTEC	SEC	TFPCh	TEC	TC	PTEC	SEC	TFPCh
Slaughtering, preparation and preservation of meat	0.701	0.578	0.939	0.747	0.406	1.023	3.452	1.024	1.000	3.533
Manufacture of dairy products	0.869	0.568	1.000	0.869	0.493	0.700	2.87	0.731	0.957	2.009
Manufacture of grain mill products, starches and prepared animal feeds	0.741	0.501	0.952	0.778	0.371	0.800	2.441	0.998	0.802	1.954
Manufacture of other food products	0.926	0.582	1.000	0.926	0.539	0.793	2.585	1.000	0.793	2.051
Manufacture of beverages	1.220	0.599	1.000	1.22	0.731	1.000	4.115	1.000	1.000	4.115
Manufacture of tobacco and other tobacco products	1.166	0.567	1.164	1.002	0.661	1.000	2.147	1.000	1.000	2.147
Mean	0.917	0.565	1.007	0.911	0.518	0.877	2.865	0.953	0.921	2.512

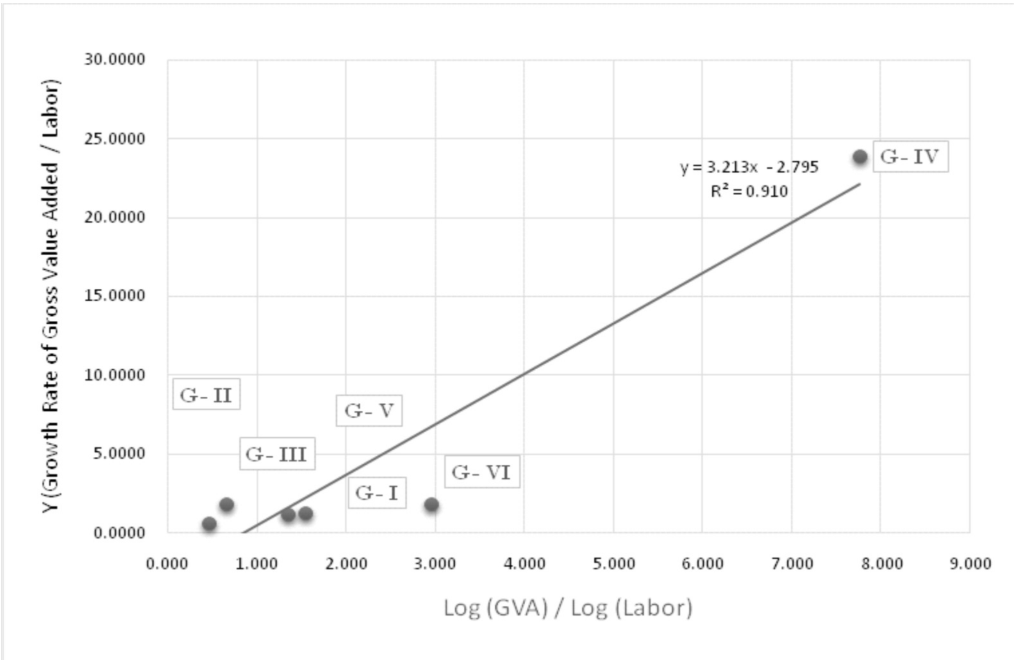
Source: Authors' computations from supplement to Annual Survey of Industries for various years

Note: TEC is Technical Efficiency Change; TC is Technology Change; PTEC is Pure Technical EfficiencyChange; SEC is Scale Efficiency Change, TFPCh is Total Factor Productivity Change dustries to keep the total factor productivity low. In contrast, during the post liberalization period, total factor productivity change experienced an upward growth to the extent of 51.2 percent owing to the adoption of technology which is reflected by the values greater than one in context of technology change. Also, the mean total factor productivity showed a high growth in the food processing industries during the post–liberalization period primarily due to an improvement in technological efficiency.

Convergence of Labor Productivity

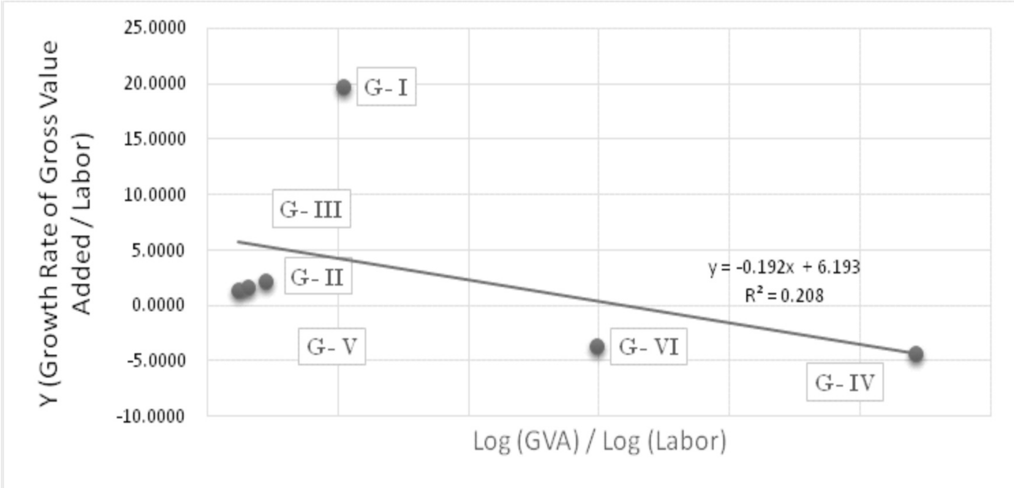
The protagonists of liberalization and increasing privatization advocated that investment climate in the country in the post liberalization regime will improve automatically when all the states of the union will try to woo investment to catch up with the developed countries of the world. Once the economy was liberalized in the year 1990-91, buzzword labor market reforms started picking up. Scholars like Ray (2002), Kar and Sakthivel, (2004) Ark et al (2009) tried to measure the labor productivity convergence and found that across Indian states, labor productivity has not shown any inclination towards convergence. However, very few scholars have attempted to find out the labor productivity convergence in the food processing industries in India.We tested for the labor productivity convergence across food processing industries in figures 1, 2 and 3.

Fig. 1 Convergence in Food Processing Industries of All - India from 1980 - 81 to 1990 - 91



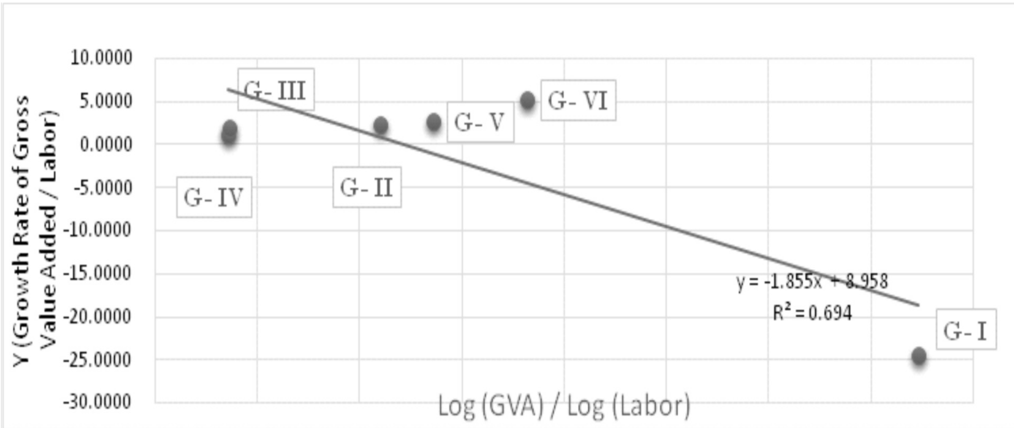
Source: Supplement to Annual Survey of Industries for various years

Fig. 2 Convergence of Food Processing Industries of All - India from 1991 - 92 to 2000 - 01



Source: Supplement to Annual Survey of Industries for various years

Fig. 3 Convergence of Food Processing Industries of All - India from 2001 - 02 to 2015 - 16



Source: Supplement to Annual Survey of Industries for various years

The results indicate that the pre-liberalization era experienced low productivity and low growth which supports the neo-classical notion of convergence which states that in emerging economies lower initial values of output per worker generate higher transitional growth rates. However, manufacture of other food products industry remained an exception here and exhibited a high growth rate despite its labor intensive nature. But the post-liberalization period has witnessed a tendency towards divergence of labor productivity across food processing industries which further accentuated in the post-2000 period. Abrupt fast growth and decrease in the slaughtering, preparation and preservation of meat industry in the years 1991-92 to 2000-01 and 2001-02 to 2015-16 respectively needs a special mention in this case. Collating evidence about the same, it came to light that years in the decade immediately after the introduction of economic reforms (1990-91 to 2000-01) saw the monetary contribution of livestock at par with the food grains, although policy makers ignored it by citing that due to repeated droughts income from agriculture has decreased. Even in 2009, due to the growing incomes from livestock economy, agriculture sector survived severe droughts. However, haphazardly made 'beef' policy and the rising intolerance towards meat eating led to the fall in the growth of this sector.

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When the results are compared with the growth of output, invested capital and number of workers for the pre and post liberalization periods (Table 2), it can be seen that there is no sizeable increase in these variables which indicates that increase in output is being achieved by using more of technology at the cost of workers besides experiencing the divergence in the post-liberalization period. The route to labor market reforms in this fashion needs a fresh look particularly when we know that there is mass unemployment in the economy.

Conclusions

Indian agriculture is facing serious problems and its sustenance is becoming questionable. Policymakers are of the view that by offloading the burden of population dependent on agriculture and gainfully employing them into other productive sectors, intensity of the problem can be slowed down. Even the remaining farmers in rural areas are required to shift to the production of high-value food products. Food processing sector at this juncture can provide a viable alternative as processing industries have both the backward and forward linkages. Where as this sector can source the raw material from the agrarian sector at the same time processed foods can become a source of nutritious diet for the health conscious consumers. This study has attempted to find out the growth and productivity of food processing in India. The results indicate that two industries i.e. manufacture of other food products and manufacture of grain mill products, starches and prepared animal feeds have performed well in terms of dominance and growth. In the context of total factor productivity growth, in the post liberalization period food processing industries have experienced growth owing to the adoption of capital-intensive technology. This indicates that increase in output has taken place at the cost of labor. Also, the results demonstrated that food processing industries have experienced divergence in terms of high growth and productivity of labor. On the basis of observations, following recommendations are being extended for the successful development of food processing industries:

- At the outset, besides customary infrastructural and logistics arrangements by the government, there is a need to pay rigorous attention towards research and development activities which are catalytic in improving the yield and quality of the product. Usage of world class devices in the processing industry not only helps to increase their standard domestically but also render them export worthy.

- There is an emergent need to invigorate an entrepreneurial spirit for the food processing sector. Reports have highlighted that joblessness in India has assumed dangerous dimensions and the demographic dividend due to joblessness may turn into demographic disaster. In order to avoid the same, District Industries Centers and Industrial Training Institutes should be entrusted with the responsibility to conduct entrepreneurship development programs for the educated and unemployed youth.

- In addition to this, government should encourage educated youth to create and operate food-processing units by offering tax exemptions, easier access to loans, access to information and network and providing training in enterprise management, production and technical skills. This training can be organized jointly by Small Industries Service Institutes and District Industries Centers.

- Though the government is promoting the setting up of the new and small start-ups, yet these are finding it difficult to raise necessary funds for their growth and development. It is reported that 90 percent of the Indian start ups fail within first five years of their operation either due to lack of innovation or inappropriate financing. It is recommended that the government should create such an ecosystem where the successful industrial entrepreneurs come forward for the hand holding of viable start ups and the fund crunched feasible projects are provided funds through SETU (Self Employment and Talent Utilization).

- It has been observed that majority of the states have carried food processing policy in their industrial policy. But keeping in mind the momentous growth of sub segments of this sector in the recent past, big states having surplus food production should set up their own department or ministry of food processing.

- Further, the existing firms should take suitable steps to make their products reach the consumers through online platforms or e-commerce medium. Digital India initiative of the government offers an excellent opportunity to make the processed food products reach the consumers in time. State governments should be made accountable for sensitizing the consumers about the quality and hygiene aspect of processed foods by organizing the fairs, exhibitions and other promotional campaigns.

Only rigorous efforts at all fronts can ultimately lead to proper development of the food processing industries in India.

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ANNEXURE – I

Concordance of food processing industries

	NIC 1987	NIC 1998	NIC 2004	NIC 2008
Group I	200+202+203+210+ 211+212	200+202+203+210+ 211+212	151	101+102+103+104
Group II	201	201	152	105
Group III	204+217	204+217	153	106+108
Group IV	205+206+207+208+ 209+213+214+215+ 218+219	205+206+207+208+ 209+213+214+215+ 218+219	154	107
Group V	216+220+221+222 +223+224	216+220+221+222+ 223+224	155	110
Group VI	225+226+227+228+229	225+226+227+228+229	160	120