

Towards Employment Augmenting Manufacturing Growth

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TOWARDS EMPLOYMENT AUGMENTING MANUFACTURING GROWTH

Satyaki Roy^{*}

[Abstract: Declining growth and stagnating employment share of manufacturing in a high growth regime in India is a disconcerting fact given the pride of place assumed by manufacturing as the 'engine of growth'. Sustainability of high growth is intrinsically linked to a trajectory that creates gainful employment. This paper argues that manufacturing sector that recorded declining employment elasticity in the organized segment would not be able to mend the gap between growth and employment. Rather the goal of rejuvenating manufacturing sector has to be contextualized in a larger strategy of full employment with multi-layered interventions involving issues related to demand structures, technology, size structure of firms as well as calibrating engagement with the global market. In other words India needs a comprehensive industrial strategy put in place instead of abandoning it.]

1. Introduction

Premature de-industrialization has been a major cause of concern in the context of sustainability and diffusion of high growth in India. In the past two decades there had been a sharp decline of agriculture's share in GDP together with a near stagnation of industry in terms of sectoral share of output while the share of services shows a marked rise. This industrial stagnation has been accompanied by a decline in gainful employment which affects the growth process by way of reproducing a perpetual demand constraint. Growth in that case would be less inclusive and hardly sustainable in the longer run. The slowing down of manufacturing growth has been addressed in the Twelfth plan approach paper acknowledging the fact that the actual growth of manufacturing during the Eleventh Plan was only around 7.7 per cent, far less than the targeted growth rate of 10-11 per cent. It is expected that in the coming 15 years about 250 million persons would join the labour force and manufacturing sector should at least provide 100 million decent jobs. In this view the manufacturing sector needs to grow by 12-14 per cent as stated in the National Manufacturing Policy¹. This will enable to increase its contribution to GDP at the level of 25

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¹ National manufacturing Policy (2011), Ministry of Commerce & Industry Department of Industrial Policy & Promotion (Manufacturing Policy Section)

per cent which is at present stuck at the level of 16 per cent. The initiatives to increase the growth of manufacturing also include policies to raise the performance of the sector in external markets. Imports of manufactured goods and intermediate goods have increased sharply while the share of exports in global markets remained almost stagnant.

Besides setting targets the question of re-invigorating manufacturing growth involves deeper issues related to policy choices at various levels. It involves the larger question of the growth trajectory itself meaning how the distributed gains condition the composition of demand that affect manufacturing growth. The conflict between growth of output and growth of employment entails the age old question of choice of techniques which has become even more constricted in the context of open economies. On the other hand the option of manoeuvring output composition in favour of abundant factors has increased because of greater integration to global demand. But the moot point is does manufacturing still hold the pride of place of the 'engine of growth' and how far the assumed linearity of relative weights of agriculture, industry and services in subsequent phases of income levels holds true in the contemporary world. In other words if services are enough labour intensive capable of employing unskilled labour and manufacturing growth demands higher productivities involving capital intensive technologies, especially in the context of global competition, do we have enough reason to bother about stagnation in manufacturing in the first place. In countries such as India labour intensive production has to be qualified as a production process that involves mostly unskilled labour given the fact that both capital and skilled labour are scarce factors. The assumption of homogeneous output and static notions of factor intensities related to product groups need to be revisited. Moreover the structure of demand is undergoing change at various levels. Product life cycles are shortened and as a result flexibility involving greater autonomy of decision making at decentralized levels becomes important for adequate response. The structural composition of industries should be capable of optimizing the dual objectives of reducing price and responding to differentiated demand. Sometimes these changes are referred to as post-Fordist developments signifying a shift from standardized demand on the one hand and also a breakdown of the social contract between labour and capital that managed the balance between production and consumption during the Golden Age of capitalism. Therefore the problematic is a complex ensemble of interrelated questions and this paper would aim to focus on these issues from the entry point of employment generation and diffusion of development.

The following section discusses the major trends of manufacturing growth and what could be the plausible explanations for the stagnation. In the next section we revisit the debate on the role of manufacturing in both accelerating and diffusing growth and see the contours of choices available in conceiving an output and employment augmenting growth path. In the fourth section the paper critically reviews the advantages of post-Fordist production organizations but at the same time identifies the problems related to the balance between production and consumption especially in the context of the denial of the social contract.

The final section draws some concluding remarks in view of an employment augmenting industrialization.

2. Manufacturing Sector: Stylized Facts

The performance of the manufacturing sector in India has not been satisfactory during the recent past despite the fact that overall growth of the economy had been quite impressive. During the period 2000/01 to 2009-10 the growth of manufacturing GDP was 7.79 per cent while the growth in GDP in the same reference period was 7.2 per cent. Moreover the average share of employment in manufacturing was close to 15.5 per cent in the current decade which is a marginal increase from 14.6 per cent recorded during the period 80/81 to 89/90. The share of agriculture in GDP declined from 31.4 per cent in 1990-2001 to 17 per cent in 2008-09. During the same period the share of industry fell from 19.8 per cent to 18.5 per cent while the share of services increased sharply from 48.8 per cent to 64.5 per cent. During the global downturn the services sector's contribution in GDP increased from 63 per cent in 2007-08 to 64.5 per cent in 2008-09. In 2008-09 the economy grew at a rate of 6.7 per cent of which 5.9 percentage points were contributed by the service sector and manufacturing and agriculture contributed 0.5 and 0.3 percentage points respectively (Das *et al*, 2013)². The stagnation in the share of employment in manufacturing continued despite the fact during the past two decades the employment share of agriculture declined roughly by 17 percentage points and the released workers were mainly absorbed in services (Roy, 2008)³.

Table 1 shows the trends in organized manufacturing sector divided into five periods for analyses: 80/81-89/90 (I); 90/91-94/95 (II); 95/96-99/00 (III); 00/01-04/05 (IV) and 05/06-10/11 (V) of which the third, fourth and fifth can be considered as clearly the periods of reforms in India. The average trends of some of the parameters computed from ASI data allows us to comprehend the dynamics of growth in India's manufacturing. The growth of gross value added increased sharply in the fifth period and the rise took place along with high growth in employment and gross fixed capital formation. In the third and fourth period the growth of GVA was relatively less. The growth in employment might be explained by increase in the allowance of contract workers in the factory segment and this is primarily because of relaxing the labour laws in some states. The growth of labour productivity was highest in the eighties it declined thereafter but again increased during the period 2005/06 to 2011/12 although could not touch the level it was in the eighties.

Despite high growth in labour productivity during the second half of 2000s at about 6.4 per cent, the growth in real wages was only by 1.4 per cent on an average. The average real wage during since 2000/01 is less than what it was in the nineties. The other important fact

² Das, Abhijit, Rashmi Banga and Dinesh Kumar (2013), "Global Economic Crisis: Implications and Restructuring of Services Sector in India"

³ Roy, Satyaki (2008), 'Structural Change in Employment in India Since 1980s: How Lewisian Is It?'

is that capital intensity increased by an average rate of 9.29 per cent during the later phase of the current decade but it did not result in a similar growth of labour productivity. This is indicative of the fact that rise in capital intensity might be reflective of increase in capacities

Table 1. Growth of value addition, productivity, employment, investment, real wages and capital intensity in different phases in the manufacturing sector

| | | GVA | NW | GFCF | RW | GVAPW | PC/NW |
|----------------|-----|-------|-------|-------|-------|-------|-------|
| 1980/81-89/90 | I | 8.45 | 0.55 | 7.25 | 3.18 | 7.98 | 6.16 |
| 1990/91-094/95 | II | 9.13 | 2.00 | 19.77 | 0.99 | 6.97 | 9.17 |
| 95/96- 99/00 | III | 3.40 | -1.68 | -7.28 | -2.45 | 5.20 | 8.25 |
| 00/01-04/05 | IV | 5.89 | 1.08 | 8.11 | 0.10 | 4.59 | -1.99 |
| 05/06-11/12 | V | 13.62 | 6.79 | 21.04 | 1.40 | 6.42 | 9.29 |

Notes: GVA= Gross Value Added; NW= Number of Workers; GFCF= Gross Fixed Capital Formation; RW= Real Wage; GVAPW= Gross Value Added per Worker; PC/NW= Productive Capital per Worker

Source: Computed from ASI data, various years

but have not resulted in the growth of labour productivity. Moreover the growth of gross fixed capital formation was very high in the fifth period and also we find that there had been a sharp decline in the share of interest payment in gross value added. All these facts taken together might suggest that the cost of capital has declined in the reference period that has triggered capital investment but did not result in higher productivity.

The share of wages in gross value added declined throughout the past three decades but it declined more sharply during the period 05/06-11/12 while the share of profit to gross value added increased from 15.6 per cent in the first period to 49.6 per cent in the last reference period (*Table 2*). NSS data however shows a negative employment growth in manufacturing during the period 2004/05 to 09/10. The absolute increase during the period 99/00-04/05 was about 11.72 million followed by an absolute decline of 5.03 million during the period 04/05 to 09/10. Comparing with figures derived from ASI data it appears that there had been a considerable amount of job loss in the unorganized manufacturing a part of which is absorbed in the ASI segment as contract worker. The decline in employment took place in the rural segment (-2.74%) while in the urban segment there was a positive growth of 0.45 per cent during the period 04/05-09/10 (Papola and Sahu 2012)⁴. The other issue related to the difference between observations from ASI and NSS data accounts for the difference in the definition of organized workers used in these two surveys. In ASI the figures capture the number of workers in units employing more than ten workers and registered under the Factories Act while NSS adheres to a broader definition of units run by government, cooperatives, trust and other private organizations employing more than 10 workers.

⁴ Papola T.S. and Partha Pratim Sahu (2012), "Growth and structure of employment in India: Long-Term and Post-Reform Performance and the Emerging Challenge"

The growth of manufacturing has to be discussed in relation to the patterns of demand and supply scenarios that emerge in the recent past. This also has important bearing on the size structure of firms. The cleavage between organized and unorganized manufacturing sharpened and the subcontracting relations between these two segments didn't turn out to be significant. On the contrary linkages to global markets demand skill specificities and led

Table 2. Share of wages, profit and interest in value added over the years

| | | W/GVA | PR/GVA | IP/GVA |
|----------------|-----|-------|--------|--------|
| 1980/81-89/90 | I | 25.9 | 15.6 | 21.9 |
| 1990/91-094/95 | II | 19.1 | 21.4 | 24.5 |
| 95/96- 99/00 | III | 15.8 | 25.3 | 23.3 |
| 00/01-04/05 | IV | 13.5 | 30.4 | 17.7 |
| 05/06-11/12 | V | 9.9 | 49.6 | 10.3 |

Notes: W=Wages; PR=Profit; IP=Interest payments; GVA= Gross Value Added

Source: Same as Table 1

to greater vertical integration and internalization in most of the labour intensive sectors. The organized manufacturing produces about 77 per cent of the gross value added but with a share of only 30 per cent of employment in that sector. The unorganized manufacturing can be characterized as a low productivity low wage segment. The relative productivity of labour in 500+ units is pegged to 100 the productivity of units employing less than 10 workers comes to 15⁵. The low productivity unorganized manufacturing primarily caters to the low end of the vast mass market. The predominance of small enterprises and conspicuous absence of firms employing workers of 50-400 in India implies the existence of multi-layered nature of the mass market.

The sharp rise in the share of profits in GVA results in a slow rise in consumption demand. The average agricultural labour productivity which is a combined effect of land productivity and land-labour ratio almost collapsed in the past two decades which had a significant impact on mass market. The average annual growth of per capita income at constant 2004-05 prices was 6.14 per cent during the period 1980-81 to 2011-12 and that of per capita private final consumption expenditure was only 3.38 per cent during the same period (*Chart 1*). It precisely shows that income distribution is increasingly shifted towards classes that have relatively low propensity to consume.

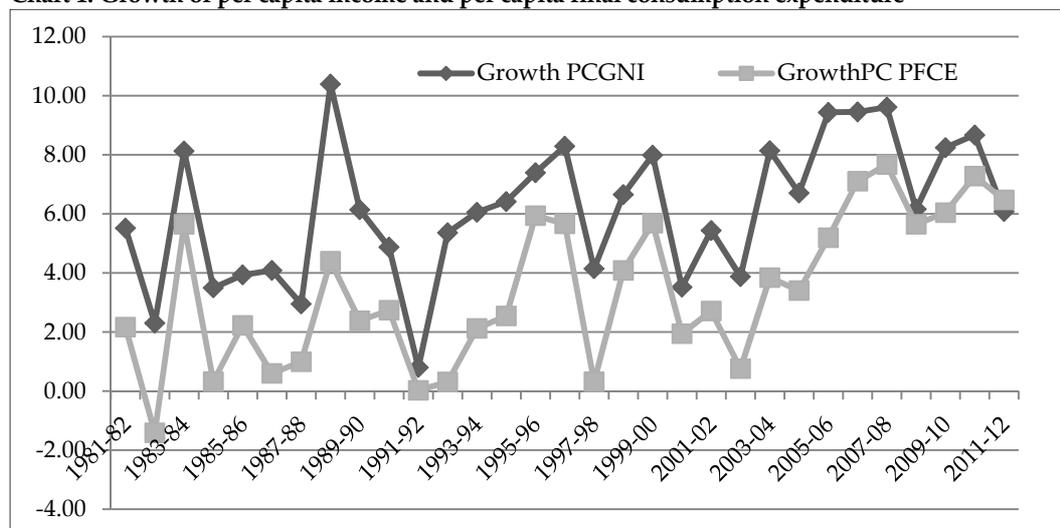
The middle class, which is assumed to have grown considerably in the recent period and has contributed to the demand for consumer goods comprises of far less than the population share in China. Defining middle class by 2-13\$/day the absolute number of middle class increased from 17.3 million in 1990 to 24.1 million in 2005 and during the same reference years the absolute number of people belonging to the middle class in China went up to 15.3 million to 61.8 million (Ravallion,2009)⁶. Using a broad measure of 2-20\$/day as

⁵ Mazumdar and Sarkar (2013), *Manufacturing Enterprise in Asia: Size Structure and Economic Growth*

⁶ Ravallion, M (2009), " the Developing Worlds' Bulging (but Vulnerable) 'Middle Class'"

used by ADB people having more than 4\$/day increased from 12 per cent in 93/94 to 18 per cent in 04/05 in the case of India while the share increased from 18 per cent to 70 per cent during the same reference period in the case of China (ADB, 2010)⁷.

Chart 1. Growth of per capita income and per capita final consumption expenditure



Source: Computed from National Accounts Statistics

There had been some turnaround in the manufacturing sector in the later part of the current decade. A closer look at the 2-digit level brings to the fore the dynamics of sectors and the relative movements of parameters at a disaggregated level (*Table 3*). During the period 2005-07 the growth of value added was highest in manufacture of electric machinery and apparatus. The other relatively higher growth rates were found in manufacture of non-metallic mineral products, basic metals and fabricated metal products. The growth rate was lowest in the case of rubber and plastic products and the other sector which recorded very low growth was radio television and communication equipment apparatus. The growth of employment during the same reference period was highest in manufacture of fabricated metal products, except machinery and equipment and manufacture of tobacco products recorded the lowest in fact negative growth of employment. Sectors that recorded relatively high growth in employment are manufacture of wearing apparel, manufacture of other non-metallic mineral products and manufacture of office, accounting and computing machinery.

Employment elasticity with respect to GDP was highest in the case of manufacture of rubber and plastic products although this is because of a very low growth in gross value added in this sector during this period. Higher employment elasticities are recorded in

⁷ ADB (2010), *The Growth of the Middle Class*

manufacture of office, accounting and computing machinery, manufacture of radio, television and communication equipment and apparatus, manufacture of medical, precision and optical instruments, watches and clocks, manufacture of motor vehicles, trailers and semi-trailers. The labour productivity was recorded highest within manufacturing sector in the case of manufacture of electrical machinery and apparatus. The growth had been relatively higher in cases of manufacture of non-metallic mineral products, basic metals and fabricated metal products. The growth of labour productivity declined in manufacture of rubber and plastic products and manufacture of radio,

Table 3. Growth of Certain Parameters Related to Manufacturing at 2-digit levels.

| | <i>GR. GVA</i> | <i>Gr. Emp</i> | <i>EmpE</i> | <i>Gr.LP</i> | <i>Gr. RW</i> | <i>Gr CI</i> | <i>Gr ULC</i> |
|------------|----------------|----------------|-------------|--------------|---------------|--------------|---------------|
| 15 | 21.43 | 4.36 | 0.20 | 16.38 | 1.35 | 5.45 | -8.25 |
| 16 | 3.52 | -2.54 | -0.72 | 6.37 | 0.93 | 5.64 | -0.71 |
| 17 | 14.55 | 8.76 | 0.60 | 5.32 | -2.26 | 4.92 | -3.00 |
| 18 | 21.19 | 14.81 | 0.70 | 6.08 | 4.46 | 7.49 | 3.42 |
| 19 | 14.08 | 8.10 | 0.58 | 5.29 | 2.51 | 7.17 | 2.84 |
| 20 | 11.20 | 7.15 | 0.64 | 2.91 | 2.44 | 7.48 | 14.37 |
| 21 | 7.38 | 3.35 | 0.45 | 4.06 | -0.94 | 6.69 | -0.04 |
| 22 | 13.85 | 8.92 | 0.64 | 3.69 | -1.27 | 6.91 | 0.19 |
| 23 | 20.74 | 7.87 | 0.38 | 11.89 | 0.43 | 7.81 | -5.75 |
| 24 | 9.27 | 6.05 | 0.65 | 3.07 | -0.76 | 7.75 | 0.53 |
| 25 | 2.46 | 7.89 | 3.21 | -5.07 | 0.33 | 8.44 | 10.40 |
| 26 | 28.69 | 14.82 | 0.52 | 11.83 | -2.18 | 7.49 | -6.89 |
| 27 | 26.63 | 13.94 | 0.52 | 11.64 | -7.03 | 6.66 | -6.47 |
| 28 | 32.07 | 17.87 | 0.56 | 11.83 | -1.32 | 8.89 | -7.09 |
| 29 | 20.28 | 11.31 | 0.56 | 8.28 | -1.32 | 9.23 | -4.60 |
| 30 | 11.21 | 15.94 | 1.42 | 4.32 | -4.25 | 8.58 | 29.11 |
| 31 | 33.01 | 12.79 | 0.39 | 17.90 | -2.72 | 9.43 | -12.79 |
| 32 | 2.91 | 4.40 | 1.51 | -1.58 | 1.38 | 11.13 | 7.77 |
| 33 | 10.00 | 8.57 | 0.86 | 1.67 | 0.76 | 11.25 | 3.52 |
| 34 | 17.51 | 14.19 | 0.81 | 3.12 | -1.49 | 10.84 | 2.16 |
| 35 | 19.71 | 13.72 | 0.70 | 5.49 | -0.88 | 11.38 | -1.83 |
| 36 | 21.06 | 14.82 | 0.70 | 5.23 | 1.68 | 12.56 | 0.97 |
| Avg | 16.49 | 9.87 | 0.72 | 6.35 | -0.46 | 8.33 | 0.81 |

Notes: Gr.GVA=Growth of GVA; Gr.Emp=Growth of Employment;EmpE=Employment Elasticity;Gr.LP =Growth of Labour Productivity; Gr.RW= Growth of Real Wages; Gr.CI= Growth of Capital Intensity; Gr.ULC= Growth of Unit Labour Cost

Source: Same as Table 1

television and communication equipment and apparatus. Despite high growth in labour productivity in almost all the sectors the growth of real wage declined in 12 out of 22 industry groups. The sector that recorded highest growth in real wage during the period 2005 to 2007 is manufacture of wearing apparel dressing and dyeing of fur. The industries related to non-metallic mineral products, basic metals and fabricated metal products that recorded higher growth in labour productivity are the sectors where we find relatively greater decline in the growth of real wages.

Capital intensity increased in all the sectors and highest growth in capital intensity is recorded in manufacture of furniture. Unit labour cost is defined as the ratio of nominal wage rate to labour productivity and labour productivity is measured as some quantity of output produced per worker. At the level of aggregation and in the context of comparing varied output it is difficult to arrive at a comparable quantity and as proxy deflated value added is used. The measure tells us the amount of money to be paid to a worker for producing a comparable unit of output and so as the argument goes more the economy becomes competitive the less should be the unit labour cost. The unit labour cost declined during this period in 11 out of 22 industry groups. A high growth in unit labour cost is recorded in sectors such as manufacture of wood and products of wood and cork, manufacture of rubber and plastic products, manufacture of office, accounting and computing machinery.

The growth of manufacturing sector in the organized segment depends on the growth of intermediate goods, durable goods and exports. The share of manufacturing product to total exports in India declined from 80.7 per cent in 1999-00 to 61.4 per cent in 2013-14. The composition of manufactured exports also didn't change much in case of India. The resource based products continue to be the most important group in India's export basket, although some shift has taken place in terms of share from textiles to engineering goods and chemical products. The share of engineering goods and chemicals increased from 17.3 per cent to 36.2 per cent and 15.8 to 21.5 per cent respectively and share of textiles fell from 33.3 to 16.4 per cent during the period 1999/00 to 2011/14⁸. On the other hand the share durable goods in the consumption expenditure remained slightly higher than 3 per cent on an average during the period 2000/01 to 2009/10 (Table 4).

Table 4. Growth and Composition of Private Final Consumption Expenditure by Goods

| | 2000- 01 | 2001- 02 | 2002- 03 | 2003- 04 | 2004- 05 | 2005- 06 | 2006- 07 | 2007- 08 | 2008- 09 | 2009- 10 | Avg |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| Growth of Consumption Expenditure by Goods Type | | | | | | | | | | | |
| DG | 8.6 | 4.0 | -2.3 | 10.9 | 34.9 | 4.4 | 14.3 | 7.6 | 5.5 | 11.3 | 9.9 |
| SDG | 13.7 | -4.4 | 0.0 | 5.2 | 27.9 | 13.0 | 20.1 | 4.7 | 2.4 | 0.3 | 8.3 |
| NDG | -2.9 | 4.4 | -2.7 | 4.7 | 3.0 | 6.5 | 6.2 | 5.1 | 2.2 | 0.7 | 2.7 |
| SVC | 10.5 | 9.3 | 7.8 | 6.8 | 11.5 | 8.1 | 11.5 | 11.5 | 10.6 | 9.5 | 9.7 |
| Share of Consumption Expenditure by Goods Type | | | | | | | | | | | |
| DG | 2.8 | 2.7 | 2.7 | 2.7 | 3.4 | 3.3 | 3.5 | 3.5 | 3.4 | 3.9 | 3.2 |
| SDG | 6.5 | 5.8 | 6.1 | 6.1 | 8.6 | 9.0 | 9.9 | 9.6 | 9.3 | 9.6 | 8.1 |
| NDG | 63.4 | 63.9 | 61.9 | 61.4 | 49.1 | 48.5 | 47.0 | 45.8 | 44.8 | 43.7 | 52.9 |
| SVC | 27.3 | 27.6 | 29.3 | 29.8 | 38.9 | 39.1 | 39.7 | 41.1 | 42.5 | 42.7 | 35.8 |

Notes: DG= Durable Goods; SDG= Semi Durable Goods; NDG= Non Durable Goods; SVC= Services

Source: National Accounts Statistics, various years

⁸ Figures computed from RBI Handbook "Database on Indian Economy"

The growth of consumption of durable goods during the ten year period of 2001-2010 was 9.9 per cent on an average. This was somewhere close to 9.7 per cent growth recorded for services consumption that accounted for 35.8 per cent of the consumption basket during the reference period. Semi-durable and non-durable goods recorded an average annual growth of 8.3 per cent and 2.7 per cent respectively although their share in consumption expenditure were roughly 8 per cent and 53 per cent on an average respectively. Therefore despite higher growth in the consumption of durable goods their share in total consumption basket is very low while non-durable goods that accounts for the largest share in the consumption basket record a relatively low average growth.

Household expenditure surveys show that demand for consumer durables only increases very sharply at the top 5 per cent of the average private consumption expenditure distribution. Since the growth of the middle class market is not large enough as it is often talked about the demand for consumer durables did not grow much. What is evident from these facts is dwindling of growth in manufacture, declining share in domestic output and export volume and declining share of labour in gross value added in manufacturing in spite of the sharp rise in labour productivities. Moreover one can identify certain sectors that have recorded relatively higher growth of employment although generally capital intensity increased across industries and that did not always result in a commensurate growth in labour productivity.

3. Concerns for Labour Intensive Production

Kaldor's first law states that the faster the rate of growth in manufacturing the faster will be the growth of GDP (Kaldor, 1966, 1967)⁹. He didn't limit the relation to correlation but established causality by saying that more the difference between the rates of growth of manufacturing GDP to overall GDP the faster will be the growth of GDP. In the case of India at least in the recent episode high growth in GDP cannot be explained by the little difference in growth rate between manufacturing GDP and overall GDP and therefore manufacturing possibly didn't assume the role of an engine in the growth process. The Clerk-Fischer-Kuznets hypothesis states how income elasticity of demand of services increases over that of manufacturing beyond a certain income level and hence the growth of manufacturing demand is generally followed by and not preceded by a spurt in the demand for services. The gap between the growth of per capita income and that of consumption and also the composition of consumption expenditure hardly explains a service driven growth. In fact the rising share of profit income in gross value added partly explains the growth of services. The question of sustainability of a service-led growth relates to the growth of domestic demand for services. Indian services export grew at a compound annual growth rate of 17 per cent in 1993-2000 and at a much faster pace at 24

⁹ Kaldor, N. (1966): *Causes of the Slow Rate of Economic Growth of the United Kingdom*

Kaldor, N. (1967): *Strategic Factors in Economic Development*

per cent in 2001-08. Studies show India's exports of aggregate services are more responsive to income changes than price changes and 1 per cent decline in world GDP growth leads to a 3.22 per cent decline in India's services exports. However it is not the growth in exports of services that drives growth in the services sector instead the growth in domestic demand actually assumes the leading role. The contribution of the growth of services export to the growth of overall services sector was only 22 per cent (Das *et al*, 2013)¹⁰. This growth in domestic demand however is highly dependent on the exclusionary growth trajectory that depends upon higher shares of profits compared to wage income. The other reason might be increased financialization of the economy that has created scope for finance related activities. But intermediate service demand also depends on the growth of non-tertiary segment of the economy and the interdependence between services and manufacturing is highly asymmetric. In other words services require far more manufactured inputs compared to service inputs required by manufacturing (Park, 1989)¹¹. Now given the fact that manufacturing and construction generally has higher multiplier effects than that of services and services enter as inputs to the growth of manufacturing at less than proportion to the growth of the latter there can hardly be any doubt that manufacturing growth could be a better engine than the services. Kaldor argued that the income elasticity of demand for manufacturing products are quite similar to that of services beyond a threshold income but the potential for productivity growth of manufacturing is supposed to be higher than that of services. This is because, although for the rich income elasticity of demand for services might be greater than that for manufactures but again this effect is counterbalanced by the fact that prices of manufactures rise much more slowly or actually fall compared with those for a wide range of services and the precise reason being the differential in the growth of productivity (Howes and Singh, 2000)¹². Since prices rise faster in case of services the growing demand for services require a faster growth in per capita income and it is always difficult to have such a growth based on rising inequality together with narrowing down of the base.

The other side of the debate is of course related to the employment potential of the manufacturing sector itself. Assuming a neoclassical production function producing a single homogeneous product with two factors, there seems to be no reason for decline in output with addition of employment. This is precisely because output is maximized at a point where the productivity of the scarce factor, capital is maximum and as long as marginal productivity of labour is positive every increment in labour inputs causes a rise in output. However this does not ensure that with the rise in labour intensity output-capital ratio would also be increasing. In other words labour intensity might be accompanied by more use of scarce factors per unit of output. Furthermore neither the inputs nor the output

¹⁰ Das, Abhijit, Rashmi Banga and Dinesh Kumar (2013), "Global Economic Crisis: Implications and Restructuring of Services in India"

¹¹ Park (1989), "Linkages between Industry and Services and their Implications for Urban Employment Generation in Developing Countries"

¹² Howes, C. and A. Singh (2000), "Competitiveness matters"

is homogeneous and hence capital and labour should be weighted according to their shadow prices in the process of aggregation.¹³ Measuring factor intensities in that case implies the relative cost of the specific factor with respect to total cost of production. And the relevance of the question of employment in that case finally boils down to utilizing the only abundant factor that is unskilled labour. Now given the fact of global nature of the competition where producers have to compete with goods produced by technologies that suit the factor endowments of developed countries, the issue of technical efficiency gets mingled with the tastes and preferences that developed countries usher on the market. And it hardly leaves a choice to producers of the developing countries to employ a labour intensive technology.

The choice of adopting labour intensive technology is often closely related to changes in the product mix. If the demand be shifted more towards labour intensive goods employment of unused labour could be easier. In case of a closed economy shift in demand structure on those lines invokes radical changes that cause redistribution in favour of the wage earners but in an open economy there are chances of product specialization in course of labour intensive exports. And it is assumed that exporting industries have relatively larger backward linkages compared to that for import substituting firms. The global process of production has also undergone changes since 1940s. It is not only footwear and garments, that provides opportunities to developing countries to enter into the global production chain, rather in cases of products which would otherwise be considered capital intensive but involves labour intensive components or 'tasks' could be the export channel for labour abundant countries (Hudson, 1988; Roy, 2013)¹⁴. Policies have to be more focused at disaggregated levels. Sectors which could be considered as having low labour intensity at the aggregate level can have segments that are high labour intensive. In the following *table 5* such segments at the 4-digit level are identified as high labour intensive although the corresponding groups in the aggregate level show low or medium labour intensities.

Given the fact that a profit led growth reduces the consumption demand which otherwise could be the plausible source for demand for manufactured goods, a redistribution of income in favour of wage earners might increase the demand for labour intensive goods but on the other hand it might reduce the demand for labour intensive services. Most of the services demands are related to a threshold level of per capita income as well as financial transactions that largely emanate from the growth of profit earnings. Hence the net effect of redistribution on employment has to be looked at a more disaggregated level. Furthermore

¹³ See Morawetz, David (1974), "Employment Implications of Industrialisation in Developing Countries: A Survey" for a detailed discussion.

¹⁴Hudson, Ray (1988), "Uneven Development in Capitalist Societies: Changing Spatial Divisions of Labour, Forms of Spatial Organization of Production and Service Provision, and their Impacts on Localities,"

Roy, Satyaki (2013), *Small and medium Enterprises in India: Infirmities and Asymmetries in Industrial Clusters*

Table 5: Labour Intensity at 2-digit and 4-digit Levels

| 2-digit | Industry | 2-digit Labour Intensity | High Labour Intensity |
|---------|--|--------------------------|-----------------------|
| 10 | Food Products | Low | 1020, 1079,1061 |
| 13 | Textiles | Low | 1394 |
| 16 | Wood and Products of Wood and Cork | Medium | 1610, 1622 1623, 1629 |
| 23 | Other Non-metallic Mineral Products | Low | 2392 |
| 26 | Computer Electronic and Optical Products | Very Low | 2652 |
| 30 | Other Transport Equipment | Low | 3012, 3040, 3092 |
| 32 | Other Manufacturing | Medium | 3211, 3212,3230 |
| 38 | Waste Collection treatment and Disposal | Medium | 3830 |

Source: Computed from ASI EPWRF online database.

it is the share of income that has to be redistributed and not mere increase in the number of people employed. In countries such as India we find a growth of informal activities that employs the larger segment of the work force. Most of this growth is attributed to growing outsourcing and subcontracting which is associated to accepting a lower wage rate as well as worsening of working conditions. This relates to the issue of factor substitution because lower price for factors might increase the use of that factor but that does not necessarily mean rise in the share of expenditure on that factor. In other words reduction in wages might result in a growth of employment but since in developing countries the elasticity of substitution of factors is close to zero, a rise in employment might not lead to higher share of wage earners. Therefore attaining higher employment through wage flexibility would not be the desired route to an employment augmenting growth process. The labour intensity of manufacturing industries at 2-digit and 4-digit levels shows us that those industries which record a high labour intensity have higher shares in the number of workers which is obvious but their share in output, wages and gross value added is less compared to industries having low labour intensity (Table 6). This simply shows that labour intensive industries account for relatively low share in total output and wages.

Table 6: Share of Labour Intensive Industries in GVA, Output and Wages

| Labour Intensity | Share in workers | Share in GVA | Share in Output | Share in Wages |
|------------------|------------------|--------------|-----------------|----------------|
| High | 14.63 | 3.84 | 2.99 | 9.04 |
| Medium | 2.32 | 1.39 | 3.09 | 2.47 |
| Low | 53.03 | 39.96 | 38.61 | 49.08 |
| Very Low | 32.41 | 57.94 | 57.38 | 42.46 |

Source: Computed from ASI EPWRF online database.

The sharp rise in capital intensity in the manufacturing sector in India can be attributed to the following. First, the response to scarcity of skills would be increased use of capital per worker or rising capital intensity while saving skills which is the scarce factor. Second the rise in capital intensity might be reflective of the fact of factor price distortion in view of subsidizing capital costs. One of the implications of scarcity of skills is to install skill saving machines in the sense that those machines require narrow levels of skill. In other words the

abundance of unskilled labour and the opportunity to reduce unit labour costs would be availed by using skill saving machines while employing unskilled labour. This process of de-skilling of the production process is accompanied by rising capital intensity which might not lead to a proportionate increase in labour productivity. The second aspect is primarily related to the distortion between private and social costs of factors. The decline in the rate of interest as well as the share of interests in value added in the manufacturing sector implies a relative decline in the cost of capital given the general declining trend of wage share in value added since the nineties (Roy, 2012)¹⁵. Besides the macroeconomic trends it has been argued in several studies on small firms that cost of capital is much higher for the smaller firms while bigger firms enjoy capital subsidies in various ways. And the implication can be further extended by arguing that the reason why small in India are more labour intensive has little to do with their size rather it is because small faces less price distortions and hence resort to higher use of the abundant factor. Therefore one immediate conclusion that follows from this argument is if the price distortions can be removed and factors ideally reflect their relative scarcities then the labour intensity of production might increase.

Therefore the simple point that this section makes is that growth of manufacturing by itself does not ensure growth of employment. The production process in a milieu of global competition is increasingly dependent on technology imports that are largely labour displacing. On the other hand a redistribution in favour of wage income might increase the demand for consumer durables but at the same time might reduce the demand for services that arise from profit earnings. One can of course safely argue that a control over the choice of technology together with a process of redistribution might increase net employment. It can also be argued that with a calibrated engagement with the global market our manufacturing sector can take the advantage of supplying labour intensive goods and services to the global market and in the way can exhaust its excess supply of labour very much similar to what China has been doing over the years and reached a phase where additional unit of labour could not be supplied without rising real wages. However these issues are also very much linked with the size distribution of firms, their capabilities in terms of flexibility to respond to changing demand conditions and also to move upwards in the value ladder by increased skills and capabilities instead of getting locked into the 'race to the bottom'.

4. Flexibility and Industrial Clusters

Rising gap between growth of productivity and that of real wages gives rise to realization crisis that wrecked capitalist counties in the thirties. The response however was a social contract instituted between capital and labour embedded in large scale production

¹⁵ Roy, Satyaki (2012), "Changing Factor Incomes in Industries and Occupations: Review of Long Term Trends"

organization coupled with Keynesian welfare policies. The rise of Fordism as a combination of Taylorist division of labour and mechanization was primarily to institute the balance between changes in conditions of production and that of the process of final consumption. It was the rarest phase of capitalist growth when rising profitability was accompanied by increasing real wages and that was secured by an institutional mechanism of passing on a share of the gains attained by rising productivity. This was of course a result of working class gaining greater bargaining power vis-à-vis capital that led to institutionalize certain rights and entitlements. And the growth of mass production was not merely a technical response to increase productivity through Taylorist detailed division of labour but also a part of a social process that ensured mass consumption. The crisis of Fordism at the end of seventies was primarily because of the alienation created by Taylorist separation between decision making and execution that increased productivity for a fairly long period but eventually lost its steam. And consequently we come across a post-Fordist phase with rising gap between growth of productivity and that of real wages and the denial of the 'social contract' in the name of flexibilization.

The post-Fordist regime had been characterized by a perceivable shift in the demand pattern towards customized goods with multiple styles produced in smaller batches using flexible technologies. As a response, flexible specialization emerged as the new paradigm of industrial organization that involves flexible machines, flexible labor process and flexible production organizations (Piore and Sabel ,1984; Gertler, 1988)¹⁶. Fixed costs were drastically reduced by increasing use of malleable technologies, particularly machines capable of doing multiple tasks. As a result the functional durability of machines increased – thereby, reducing average costs to a large extent. In a Fordist structure average costs could be reduced only by mass production, however by increasing use of flexible technologies average costs could be brought down even at a much lower scale of operation. The moments of competition also changed – producing only at a lower cost did not work much, what became important is responding to the customized needs of consumers at the lowest possible price. Larger scales no longer remained an imperative to reduce average costs rather smaller scales with flexible machines could meet the double requirement of producing differentiated products and also at lower costs. Developments in information technology reduced entry barriers to a large extent in the production of niche goods. The response was both ways: the large industrial structures were disaggregated to create subsidiaries and satellites while smaller enterprises increasingly agglomerated to reap the benefits of collective indivisible inputs. As a result the spatial organization of production undergoes a change with agglomerations, clusters, industrial estates increasingly becoming important sites of industrial development. Attributes of cumulative competitiveness in an industrial cluster do not depend much upon strict homogeneity in size. Organisational synergies and interdependence of firms in vertical and horizontal linkages are more

¹⁶ J.M. Piore & Sabel, C.F. (1984). *The Second Industrial Divide: Possibilities for Prosperity*
Gertler, Meric S. (1988), "Comments on the Post-Fordist Version of Production and its Geography"

important issues than strict notions of size and scale of firms. Agglomeration of firms defined by an organic interaction, deriving benefits from positive externalities created through localization and contained in a dense network of formal and informal institutions defined the new order of industrial organization- the industrial cluster. The key point is that successes of clusters cannot be analyzed investigating individual firms, their strength lies in clustering and cooperative competition that opens up efficiency and flexibility gains which individual producers can rarely attain in isolation. Marshall (1920)¹⁷ first coined the term 'industrial district' identifying the major causes of agglomeration of industries that generates economic gains through positive externalities. However, in mainstream theory external economies can never be a deliberate creation of an individual firm but is always incidental and involuntary because in these situations economic agents cannot capture in the price of their product, all the benefits of their investment. Schmitz (1999)¹⁸ goes beyond the conventional perception of external economies and recognizes an element of consciously pursued joint action as the sufficient condition for a growing cluster. This opens up the study of interlinked enterprises in a dynamic way and recognizes the fact that clustering enterprises are both recipients and providers of external economies and underinvestment ceases to be the necessary or dominant outcome. Thus collective efficiency, that characterizes successful clusters is the outcome of both the incidental external effects of individual action and consciously pursued joint action. This kind of industrial organisation is believed to be appropriate in the context of rapidly changing pattern of demand. It distributes risks of investment, stabilises labor redundancies tied to business cycle, and is resilient to external shocks (Brusco 1982)¹⁹. Remaining competitive is never a static attribute, but a continuous process of responding to changing and emerging markets. In the context of industrial cluster this implies a cumulative progress of joint action and cooperative endeavour. Large hierarchical firms are found to be less responsive in appropriating knowledge flows, particularly tacit knowledge, that cannot be traded in explicit form and markets no longer remained the appropriate mechanism to allocate knowledge, a public good, in a socially optimal way. Since tacit knowledge spills over a definite location, there happens to be a geography of intense industrial activity, sprouting of skills and efficiency derived from continuous interaction between economic agents that declines with increasing distance. Hence, it is actually the accumulation of tacit contextual knowledge that characterizes an industrial district or cluster. Belussi and Pilotti (2002)²⁰ defines an industrial district in a more societal sense. It is viewed as a cognitive system, a socio-productive system in which knowledge, social experiences, mental models and collective beliefs are accumulated in a specific space through time.

¹⁷ Marshall, A. (1920) *Principles of Economics*

¹⁸ Schmitz, Hubert (1999) 'Collective Efficiency and Increasing Return''

¹⁹ Brusco, Sebastiano (1982) "The Emilian Model: Productive Decentralization and Social integration"

²⁰ Belussi, F and Pilotti, L. (2002) 'Knowledge Creation, Learning and Innovation in Italian Industrial Districts''

De-centered production structures are supposed to provide greater autonomy at various stages of production and by that way can escape the monotony of Taylorist alienation. But this is only the technological dimension of post-Fordism and since it hardly provides institutions that could reinstate the needed balance between production and consumption, the scope of de-centered decision making often remains unutilized especially in countries where there is a labour surplus. The result most of the time being a different kind of Fordism coupled with a denial of a social contract. Therefore addressing the problem of employment through growth in manufacturing is intrinsically linked to the question of conceiving a production structure which is flexible— meaning allows autonomy of decision making at various stages within the production structure but at the same time has to be embedded within an institutional framework that ensures sharing of productivity gains to the workers. The state instead of withdrawing should remain liable to evolve a social contract by ensuring income protection at the minimum and play a more proactive role in instituting a social bargain that makes the distribution of productivity gains more equitable. In other words distribution by this process could be made and thought of as endogenous to productivity growth. However this requires enabling institutions that would mediate the contract at regional levels and also redefine the transactions that could take care of the problems of semi-formal and informal exchanges. A holistic regional planning is needed that involves certain minimum levels of codifying standards of inputs and outputs, research and development more grounded to industry specific needs and strategic role as well as iterative planning of the government in creating capabilities and generating dynamic comparative advantages.

5. Concluding Remarks

The current policy regime assumes primacy of an incentive structure based on market. It entails a minimalist approach regarding the role of the state in industrial growth and reduces it to a mere facilitator of competition between private enterprises. This is of course nothing new and similar arguments assuming different doses of laissez faire have appeared at different points in the history of economic policies. Keynes while discussing the remedies for structural unemployment in Britain in the 1920s demolished the theoretical edifice of orthodoxy by critiquing the intellectual dominance of Darwin's theory of evolution²¹. Keynes argued that free market theorists largely focus on equilibrium situations that are hardly permanent and in that way ignores the destructive passage of disequilibrium that destroys losers. It often causes enormous waste of resources and bothers about the welfare of the winners. According to Keynes the structure of argument that relies on efficient allocation of resources through market heavily depends on simplistic assumptions that hardly resemble the real world. He argued that atomistic competition has to be replaced by private sector industrial self-regulation under state guidance. Instead of

²¹ Keynes, J.M. 1981. *The Collected Writings of John Maynard Keynes. Volume 19. Activities 1922-1929: The Return to Gold and Industrial Policy, Part II*

relying on 'animal spirits' of investment and profit motives there has to be a process of public accumulation that would increase the trend growth rate of the economy for the longer run. In other words what is relevant to the present conjuncture in India is to reinstitute industrial policies that would enable the state for a strategic guidance to industrialization. Strategic intervention does not imply targeting growth rates and coefficients alone. It is more of an iterative process of mutual learning and building incentive structures based on rewards and punishments to discipline the industrial class. In other words it is a detailed structure of mutual responsibilities in performing a defined goal and at the same time strategizing investments that create dynamic comparative advantages.

The growing share of profit incomes has to be altered in order to increase the domestic demand and also to influence the composition of demand. Redistribution in favour of wage income would of course increase the demand for durable consumer goods that contributes to manufacturing growth but does not necessarily lead to higher employment. In the context of an economy where technological frontiers are largely determined by choices suitable for labour scarce economies there is hardly any chance of market forces instilling some self-regulation in regard to use of such technologies.²² Therefore there has to be some control on the diffusion of labour displacing technologies. The issue is however related to the larger question of degree of engagement with external markets and setting up of incentive structures that favour a calibrated process. This allows graduating capabilities and building dynamic comparative advantages for the longer run. On the other hand there has to be a concerted effort in identifying areas for labour intensive exports that have large backward linkages. But this does not necessarily imply focusing on producing traditional labour intensive goods but also exploring possibilities of trading into tasks that are labour intensive components of an otherwise high-tech value chain. The redistribution favouring the middle class affects the demand structure in a way that increases demand for goods produced by modern small scale industries. This is a process to reduce demand for luxury imports on the one hand and also discouraging the sustenance of low-productivity-low wage segment on the other. Therefore policies related to demand management for both domestic and external markets are essential elements for conceiving strategies for employment augmenting manufacturing growth.

Flexibility in production process is of course a necessity when demand for customized goods is on the rise. Large scale rigid structures run by detailed centralized instructions are unable to respond to this higher frequency of change in demand pattern. As a result decentralized structures like clusters, networks, other forms of agglomerations and synergies become important since such structures allow greater autonomy of decision making at various levels and hence assumed to be more resilient to external shocks. But flexibility in production process neither necessarily implies reliance on atomistic competition nor wage flexibility. In fact moving away from rigid structure does not

²² Patnaik (2003), "On the Need for Regulating Technological Change"

necessarily mean denial of the social contract that remained an effective mechanism of balancing production and consumption during post-War capitalism. Rather appropriate institutions should be put in place that ensures de-centered contestations between labour and capital. Furthermore the possibilities of engaging more labour through substitution need to be tried through a detailed study of the production process for specific industries. In other words de-centered planning creating a regional ecosystem of organic growth under a defined central coordination is what is required. In sum a creative mechanism designed to execute the agenda of full employment with strategic tools is the larger context in which the goal of rejuvenating manufacturing sector has to be contextualized.

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