National Journal of Multidisciplinary Research and Development
ISSN: 2455-9040
Impact Factor: RJIF 5.22
www.nationaljournals.com
Volume 3; Issue 2; May 2018; Page No. 37-40

Deindustrialization spurred by liberalization in developing countries (A case study of transport industry in India during 1994-95 to 2004-05)

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Abstract
This paper examines Transport Industry during 1994-95 to 2008-09 for indications of deindustrialization effect that is seen to be spurred by liberalization. Such evidences are found in the Compound Annual Growth Rate of principal characteristics at factory level in which 'Number of Factories' and 'Total Persons Employed' have the least growth rate. Productivity ratios are analyzed to decipher the existing trends in the Transport Industry. Causes of deindustrialization effects are explored and suggestions are put forth. Secondary data has been used in the paper sourced from the Annual Survey of Industries and website of Central Statistical Organization.

Keywords: deindustrialization spurred, liberalization, developing countries, transport industry

Introduction

The first few economically developed nations were ones that had embarked upon industrialization earlier than the other nations, that were still more agrarian. Industrialization leads to more economic development since industries have much higher productivity (a much higher labour productivity) than agriculture; higher export potential with better terms of trade than the primary products; wages are higher for labour absorbed in Industries, all these factors lead to a better standard of living for the citizens and better economic development for a nation. This is not all, industrialization heralds social changes in form of urbanization and with urbanization grows the service sector. However, developed nations after a certain point have gone through deindustrialization. With the aim to make the nation more industrialized, when a developing country goes for financial and trade liberalization, it is surprising to see that instead of expansion of industries, these countries experience shrinking of industrial sector after a certain period of time. In this way, it has been noted that an economic reform like liberalization deforms the sectoral structure and creates anomalies in the economy.

Deindustrialization can be defined in different ways according to the way it is experienced by different countries on the development scale, however, the core problem remains the same which is that share of industries in the GDP shrinks. In developed countries, due to high mechanization, quantity of labour reduces but the output from the manufacturing sector remains high. On the other hand, developing countries experience reduction in both labour and output in the Industrial sector which eventually leads to lessening of manufacturing industries from the economy creating a serious job-crunch or unemployment. Dani Rodrik (2015) [2] writes that, "Manufacturing typically follows a U-shaped path over the course of development. Even though such a pattern can be observed in a developing country as well, the turning point arrives sooner and at much lower levels of incomes today. In most of these countries, manufacturing has begun to shrink at levels of incomes that are a fraction of those at which the advanced economies began to deindustrialize. Developing countries are turning into service economics without having gone through a proper experience of industrialization, I call this 'premature industrialization." There are detrimental effects of deindustrialization in developing economies since it has a negative impact on the following, manufacturing has an unconditional convergence effect on labour productivity, unlike other sectors of economy; it absorbs unskilled labour much more than other high-productivity sectors like mining and finance; manufacturing is a tradable sector and does not face demand constraints of home markets populated by low-income consumers. These factors are strong instruments in taking countries on path of economic growth."

Causes of deindustrialization have not been the same for every country. In the developed nations, it is mostly caused by capital replacing labour due to high level of mechanization and this renders the labour previously absorbed in manufacturing, free. There are a completely different set of events for a developing country that lead to deindustrialization. When a developing country goes for liberalization, it basically leaves its protectionist stance in favour of international trade and entry of foreign finance into one's country. The objectives of these two steps are: greater capital availability for the domestic industries through foreign finance, technology imported from advanced nations to make domestic units more productive and give boost to the exports by increasing accessibility to imported inputs for export-led industries, and in the process also lead to specialization, competitive pricing, better quality, more employment in export-based industries. However, as a developing nation liberalizes, there is still time for its industries to do 'catch-up' in terms of productivity, for its export to find wider market, to develop competitive pricing, to reach a stage with relatively

stable exchange rate, to develop quality and brand for its products. On the other hand, as the developing countries liberalize, developed countries proactively start exporting their already competitively-priced products, which are superior in variety and quality as compared to the local products, thus capturing a large market of the developing nation and this happens during the time when the home-industry especially the smaller units struggle to match up to the productivity levels, variety, quality, and prices of foreign firms. Even the bigger manufacturing units face investment crunch especially during economic slowdowns as they fail to maintain the highly capital-intensive set-up that they develop after liberalization due to low-priced capital and factor distortions. When the cost of capital goes higher, small or weaker industrial units close down and as the number of units reduces, along with it comes down the employment level in manufacturing.

As for India, India was grappling with sluggish economy and a very low industrial productivity when economic reforms were brought about in a phased manner in the early 1990s. Not only did the economy integrate with the world economy through globalization measures but non-performing public units were aimed to be privatized to improve their productivity. A yet more significant move came in form of economic liberalization that happened at the financial and trade level.

The major changes that financial liberalization entailed were: easing the entry of new private and foreign banks; liberalizing interest rate control; enhancing role of market forces and reduce state pre-emption of bank credit through reductions in reserve and statutory liquidity requirement, which together stood at more than 50% of assets in 1992 (Mrs. Poonam Gupta *et al*. (March 2011) [1]. The idea behind financial liberalization was to make credit availability easier to the private firms, thus facilitating capital to them which is believed to be a way to raise productivity. Trade liberalization, on the other hand, can be seen as policies that diminish restriction on the free international movement of goods and services. It is done through measures like bringing down import quotas, lowering of import tariffs, bringing down restrictions to exports, and lowering of export taxes. Trade liberalization brings economic efficiency through different ways: allocative efficiency, productive efficiency, dynamic efficiency and X-effiicency. Allocative efficiency happens when competition from lower cost import sources drives market prices down and in this reduces the supernormal profits in monopoly. Productive efficiency is specializing and selling in larger markets lead to increasing returns to scale lowering long run Average Cost. Dynamic efficiency is when open economies experience more R&D and investment in human capital to raise productivity. X-efficiency will provide discipline in business to keep their unit costs under control to remain competition. In short, financial and trade liberalization help in better resource allocation and utilization.

The focus of this paper is to see whether liberalization actually had a desired effect on boosting manufacturing in the Transport Industry for the period of fifteen years that is between 1994-95 to 2008-09 or were the deindustrialization effects visible in Transport Industry as well.

As for the Transport Industry, this system in a country is compared with the nervous system in humans. Transport spreads like nerves through a network and has linkages with most industries in all sectors and all regions of a country for distribution purpose, travel purpose and so on. It is also one of the biggest employment providers. In fact, faster an economy grows, more is the need for faster and reliable mode for transport for movement of goods and people. High growth of Indian economy is driving the demand for transportation industry.

Transport sector is a consumer durable goods industry which means that the products of this industry provides a stream of services and utility over a period of time and its end users could be private individuals or commercial service providers in form of public or goods transport or carriers. It covers all aspects of manufacturing of a means of transport, be it the auto-component, the automobile, passenger transport such as trains, buses, planes etc. and its ancillary parts such as railway tracks and so on. Though transport vehicle can be used for both personal and occupational purpose or as a means of commutation for public, but since ultimately the consumer utilizes a product which he does not have a buy in shorter span, it is called a consumer durable good.

Here's a brief trivia about this industry's performance in the post-liberalization period: With liberalization in India, about seventy five percent of the total FDI approvals were made in the country in the priority sector which includes energy, communication, electrical equipments, transport equipments, metallurgical equipments etc. Percentage of total FDI inflow in various sectors between 1991 and 2002 show that Transport Industry was one of the highest recipients of actual FDI. The largest recipient was Electrical Equipments Industry that received 13.9% of FDI followed by Telecommunication that received 12.9% of FDI, at the third place was the Transport Industry that received 10.8% FDI, finally Energy sector that received 10.4% FDI. Rest all of the industries received FDI in single digit percent (K.R. Gupta, 2005) [1].

It is clear that Transport Industry has been one of the highest recipients of FDI, the objective of this is therefore to see whether there has been increase in the number of units/factories in the Transport Industries as well as whether employment in the Industry has also increased. The above objective is proposed to be achieved through following two steps:

a. Compound Annual Growth Rate or the CAGR is found for the 'Number of Factories' and 'Total Persons Employed' between 1994-95 and 2008-09. Analyzing these two principal characteristics shall clear whether an expansion or a contraction is indicated.
b. Analysis of productivity ratios and inverse productivity ratios will be carried out for the Transport Industry in the said period to know what could be behind the emerging trends.

Data source and methodology

This paper uses secondary data collected from the publication of Annual Survey of Industries for the period: 1994-95 to 1997-98. Data beyond 1998 has been collected from the website: www.csoisw.gov.in which presents the time series data on the Annual Survey of Industries. Selected characteristics of factory sector at 2-digit level of

disaggregation have been taken which includes No. of Factories, Total Persons Engaged, Fixed Capital, Net Value Added and Net Value of the Output. Net Value-Added indices are used for measuring the output in the paper.

It is clear by Table 1 that the growth rate (CAGR) of the number of factories and the total persons employed has been the least in comparison to the other principal characteristics. CAGR of these two characteristics for a five year sub-period are -8. 5%, -0.47% and 4.31% for three consecutive sub-periods for Number of Factories, while it is -15.12%, -0.24% and 10.91% for the Total Persons Employed in the Industry. It is quite evident that there has been a negative growth/change in the first two sub-periods or the first ten years of the sample period, for the two parameters after which there has been an improvement but more so for the Total Persons Employed rather than the number of Factories which indicates that perhaps there was an increment in the labour-intensity rather than increment in the number of factories, this could be due to deficient capital. Table 2 shall shed more light on the same.

Table 2 shows that labour productivity continues to grow through the three sub-periods and the cause behind this increase seems to be the increasing capital intensity. Rise in capital intensity (which is the cost of capital upon the cost of labour) can be seen as either an increase in the cost of capital (increase in interest rates) or decrease in the number of labour (which the trend of low growth rate of Total Persons Employed in Table 1 also confirm) which is why capital available per labour or the capital-intensity is rising constantly. Capital-Output ratio has increased in the second sub-period and then decrea in the third sub-period. Capital-output ratio is an indication of the efficiency with which capital is utilized. Capital is not productively used in the second sub-period hence, more of it is consumed to produce per unit of output while less of it is required for a unit of output in the third period. However, ICOR is negative throughout the three sub-periods and most so in the third sub-period. Many economic texts confirm that a negative ICOR reflects noninvestment influences. ICOR means a ratio of additional capital required for additional output. A negative ICOR would mean either the additional capital or the additional output or both, are much lower than the capital and output of the previous time period. This would indicate that either the investments have come down or the output or both. This usually happens when profits are not sufficient for capital formation, credit is expensive and outside investments are low owing to low profits. Output is less because more capacity is created than the cyclical nature of capital-intensive industry can support in a set of developing economy.

Salient points emerging from the above two Tables

1. Strong effect of deindustrialization in the first two sub-periods stretching from 1994-95 to 2004-05 wherein low growth rates of 'Number of Factories' and 'Total Persons Employed' are indicated. Signs of resilience noticed in the third sub-period.
2. Clear signs of inefficiency through increased capital-output ratio, is visible.
3. Indications of non-investments.

Suggestions

1. Inability to maintain capacity leads to deindustrialization especially when the credit cost is high and demand is shaky. It is important that factor distortions are completely removed from the market and unwieldy increase in capacity should be avoided.
2. Operational inefficiency may cause rise in capital-output ratio. Most public transport in India suffer from operational inefficiency due to poor services, unpunctuality, discomfort to passengers, high fuel prices and input costs etc. Carriers' efficiency get reduced due to inadequate infrastructure such as lack of connectivity, lack of advanced engines, poor roads etc. Better services especially more professional staff can help situation a great deal.
3. More financial approvals of FDI are made rather than technical. Sustaining efficiency gets difficult if technological progress lags behind. Foreign technology in terms of maintaining safety norms (usually Indian manufactured vehicles do not score high on safety scale) and thorough R&D on domestic front should be promoted for coming up with appropriate production technology.
4. Non-investment problems can be solved to a certain extent, if India has more robust savings and investment ratio. Savings, both domestic and government, has substantially come down due to inflation and nonprofits of PSUs respectively. Private individuals should be encouraged to save more. Investments should also be encouraged and taxes on businesses should be made more balanced according to condition of economy, size of firm, and such factors.

Conclusion

Transport Industry has been found to grapple with effects of 'deindustrialization' between 1994-95 and 2004-05. Liberalization was meant to provide more capital through financial FDIs and better technology through technology import. However, neither was the industry ready to maintain such a large capacity nor was it ready to absorb the new technology. It was so since the output did increase initially but more and more investments were required to keep the output levels high which were not possible amidst increasing interest rates and economic cycles. Industry had turned excessively capital-intensive in the initial days of liberalization after which there was an economic slowdown which made feeding the capital-intensity of the industry unsustainable. Moreover infrastructural inadequacy or its bad quality, inefficient customer support for passenger carriers and fluctuating times of arrivals and departures, lack of skilled staff made it difficult to make optimum use of capital and technology from outside. Given the situation, three possible ways that can be seen as solution are bringing efficiency through dynamic, professional and skilled staff, building excellent R&D support for the domestic transportation, improving exports in automotives, improving saving and investment rates as well as rationalizing taxation in the Transport Industry so that more and more entrepreneurs are motivated to invest.

Table 1: Principal characteristics of transport industries

Year	Number of Factories	Total Persons Engaged	Fixed Capital	Net Value-Added	Net Value of Output
	Number	Number	(Rs. Lakh)	(Rs. Lakh)	(Rs. Lakh)
1994-95	4057	542683	839908	622946	3161682
1995-96	4106	621880	1217915	1073979	4766414
1996-97	4012	605138	1665124	1070249	4781862
1997-98	4011	553585	1531088	991351	4943966
1998-99	2833	281652	2049134	588828	3107513
1999-2000	2810	288485	2437065	734381	4342366
2000-01	2684	257924	2403014	541098	4194408
2001-02	2736	251047	2197408	591883	4236681
2002-03	2902	267864	1930213	763870	5735695
2003-04	2757	285666	1999582	1200166	7024388
2004-05	3093	336820	2448153	1678997	14345878
2005-06	3069	274467	2631737	2347565	12072889
2006-07	3261	408444	3052750	2287265	14084379
2007-08	3310	466667	4574226	2469927	16329633
2008-09	3662	509741	6796621	2126779	17495763
CAGR:	0.22	0.95	17.55	12.91	15.41

***Source*:** Annual survey of industries (Factory sector), CSO, New Delhi

Table 2: Average of productivity and inverse productivity ratios of transport industry on a sub-period basis

Sub-periods:	O/L	O/K	K/L	K/O	ICOR
1994-95 to-1998-99	1.7	0.64	3.26	1.81	-23.53
1999-00 to 2004-05	2.81	0.36	8.14	3.13	-0.52
2005-06 to 2008-09	5.72	0.64	9.49	1.79	-78

References

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2. Rodrik Dany. Premature Deindustrialization, IAS School of Social Sciences, 2015.