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Title of the Thesis: An Economic Analysis of Performance of Engineering Goods Industry in India (1973-2015)

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Abstract

The Mahalanobis Capital Goods Strategy which was adopted since 2nd Five Year Plan onwards was a major watershed in the history of India's economic development. This strategy emphasized priority to capital goods sector for the long run development and dominance public sector in this area. Later import substitution strategy was also adopted as a corollary to this strategy.

The above strategies dominated the policy making in India till 1991, although we embarked on a partial liberalization measures from 1984- 1985 onwards. Followed by a serious macro economic crisis of Balance of Payments and mounting fiscal deficit in 1990-91, India switched over to an outward and private sector oriented policy. The major part of this Structural Adjustment Policy (SAP) or New Economic Policy was industrial liberalization, financial sector liberalization, trade liberalization and so forth. The thrusts of the newly adopted policy were to increase industrial efficiency, intensify economic growth and promote an international orientation of Indian firms.

In this context, present study tries to analyze the performance of an important and leading industrial sector in India namely Engineering Goods Industry during pre (1973-91) and post economic reform (1991-15) periods, thereby it can contribute useful information related to efficiency and effectiveness of the policy reforms implementation and also provide valuable insight towards further policy directions. The performance of the sector is compared with aggregate manufacturing sector as well as within the constituent groups of Engineering Industry such as manufacture of (i) Basic Metals, (ii) Metal Products, (iii) Non-electrical Machinery, (iv) Electrical Machinery, (v) Medical and Communication Equipments and (vi) Motor Vehicles and Transport Equipment.

The major objectives of the study were: to analyze the growth performance, trends in partial and total factor productivity, capacity utilization, export intensity and performance of Engineering Goods Industry vis-a-vis Manufacturing Sector in the pre and post-reform periods. The study is based on statistical and econometric tools such as: Simple Average Growth rate, Semi- log Trend Equation, Tans- log Index of Productivity, Chow Test, Unit Root Test, ARDL (Auto Regressive Distributed Lag) Model, Cobb- Douglass Production Function, Panel Data Estimation, Minimum Capital Output Ratio (COR) Method, Regression Analysis, Revealed Comparative Analysis, Dummy Variable Regression, ANOVA Technique and Ratio Method. The study is based on secondary data available from Annual Survey of Industries (ASI), World Integrated Trade Statistics (WITS), Director General of Commercial Intelligence and Statistics (DGCI&S) and Reserve Bank of India

The analysis reveals that Engineering Industry and Manufacturing Sector has achieved faster growth in terms of Real Output, Real GVA and Real Fixed Capital during the post- reform period as compared to pre- reform period. Chow test indicates a clear structural break after 1991. Engineering Industry has outperformed Manufacturing sector in the growth performance.

However, such growth will be sustainable only if it is accompanied by technological change or Total Factor Productivity growth. But the result shows that this growth has been due to input accumulation rather than technological change. This should be a matter of concern as input growth has limitations and they are subject to decreasing returns. The employment growth obtained from the study during the post-reform period was not at all praiseworthy (although slight improvement in employment has been noticed). In fact, both Engineering Industry and Manufacturing sector experienced a jobless growth (negative growth of employment) during the second half of 1990s.

The productivity puzzle experienced during the first decade after the economic reforms in Indian Engineering Goods Industry & Manufacturing sector and showcased by many earlier studies are also proved in this study. The present study also corroborates Total Factor Productivity Growth (TFPG) deceleration in Indian Engineering and Manufacturing sector in 90s. However, TFPG rebounded and recorded highest growth during 2002-2009. ARDL model has found that Firm Size, GVA growth, Capital Labour Ratio (Technology) are important determinants of TFP growth. Contrary to theoretical expectations, Export intensity and Policy dummy does not find any significance in explaining Total Factor Productivity growth. Estimation of Cobb Douglas Production function through Random Effect Model shows higher share of capital than labour and slightly increasing returns to scale. However, there is much room for improving the returns to scale and economies of scale by efficient utilization of resources.

The empirical findings of the study indicate the existence of excess capacity in Engineering and Manufacturing sector. Contrary to the theoretical expectations Capacity Utilization has declined in post-reform period in Engineering sector while it slightly improved in Manufacturing Sector. The decline has been much pronounced especially during the periods 1996-2002 and 2009-2015. The main reasons for decline in capacity utilization during 1996-2002 were: over investment in manufacturing sector in 1990s and demand decline due to South East Asian Financial Crisis, Tight Monetary Policy since 1996, unstable Central Government, decline in the overall growth rate etc. US financial crisis of 2008, Euro Zone Crisis of 2013 and Chinese Slowdown in 2014 badly affected demand and capacity utilization during 2009-15.

Engineering industry has a strategic importance in the export of products as well as services. There has been increase in the percentage share of Engineering exports in total export as well as manufacturing export and it is observed that average annual growth rate of Engineering exports has always been higher than total Indian exports in all sub periods except during 1986-91. Engineering exports have recorded higher growth during the post-reform period as compared to pre-reform period. Further, Engineering industry has shown higher export intensity during post-reform period implying more openness of Engineering Industry during this period. The study also found marked shift in the commodity composition as well as direction of Engineering exports over the years. Engineering services export (ESO) has also come out in big way and it is promising new directions and opportunities for future growth of Engineering Industry in India.

The major policy suggestions of the study are: Labour laws are to be made more flexible without jeopardizing the interests of labourers. There is urgent need for reforms in the land market. In the "World Bank Ease of Registering Property Report 2014", India is ranked as low as 91 which signal for urgent reforms in land market for the faster growth of manufacturing sector in India. Incurring excess investment and improper utilization of capacity must be completely avoided and more strategic plans should be initiated for improving capacity utilization and capital productivity. Total Factor Productivity must be raised through scientifically designed strategies and incentives. Industry oriented skill are to be imparted through apprentices schemes and internships. Engineering exports are to be strengthened through various exports promotion schemes and sops, setting up of more Engineering export processing zones, tech upgradation etc.