Chapter-VI
CONCLUSIONS AND POLICY IMPLICATIONS

Development of an economy is always associated with structural changes in the economy. Structural change is defined as a change in the relative weight of significant components of the aggregative indicators of the economy, such as national income, product, expenditure, exports, imports, population and labour force. It is a complex phenomenon. The interrelated processes of structural change that accompany economic development are jointly referred to as the structural transformation. The changes take place in the form of sectoral composition as well as occupational structure of the workforce. In addition to labour and capital, the technological change plays an important role in the structural change. The technological change brings about an increase in per capita income, either by reducing the amount of inputs per unit of output or by yielding more output for a given amount of input. Technological change of an economy refers to changes in the input-output relations of production activities. As an economy undergoes a structural change, it is manifested in changes in input-output relations of the economic system. In this context, the work is an attempt to analyze the structural change in the Indian economy using the input-output framework.

The main objective of the study is to delineate the structural change in the Indian economy. The broad hypothesis of the study is that the emerging structure of the Indian economy, characterized by excess growth of tertiary
sector, is leading to a system characterized by mismatch of production and employment structure. In this context the detailed objectives are as follows: (a) to review the theory and empirics on structural change; (b) to analyze the structure of the Indian economy at a disaggregated level; (c) to analyze the technological change which took place in Indian Economy during the study period; and (d) to examine the nature and direction of inter-sectoral linkages and identify the key sectors; (e) to elaborate the policy issues concerning the structural change. On the *methodology* front, study uses the input-output formalism to delineate disaggregate level structural change.

**Main Conclusions**

On the basis of objectives outlined and the methodology followed, following are the main conclusions.

1. Trends in the distribution of Gross Domestic Product (GDP), by industrial origin, show that the Indian economy has undergone a vast structural change over the last few decades. Over a span of past six decades, the share of primary sector related activities, in general and that of agriculture, in particular, in the GDP has come down to one-third of what it has been initially. The steady and significant decline in the share of agriculture in total output, as a result of its much slower growth, has been one of the singular features of the process of structural change in India since independence. The *decline of primary sector share with every increase in the GDP, is indicator of a healthy economic development. It shows that a raw materials producing/supplying
The economy is gradually shifting to a manufacturing and rigorous processing economy that has a higher value added generation.

2. The share of secondary sector, during the decades of 1970s and 1980s remained in the range of 20 to 22 percent of GDP. The decade of 1990s showed that the pace of change in the share of secondary sector in the GDP was very negligible and it was just near to stagnation. Decade of 1990s and the last few years are indicative of the fact that the share of secondary sector as a percentage of GDP has stagnated around 25 percent. The structural change in India during the last half-century is characterized by a shrinking share of agriculture coupled with slow paced industrial development.

3. Regarding tertiary sector, in the initial years, i.e., during the decades of 1950s, 1960s and 1970s, there was an overall rise of not more 5 percent in this share. Most of the change in tertiary sector has been during the last two decades. This implies that the tertiary sector has been the major beneficiary from the change in new policy regime.

4. In the natural course of development, the transition is generally from the primary sector lead economy to secondary; and secondary to tertiary sector lead economy. But the change in the structure in Indian economy does not indicate this sequence. With the reduction of percentage share of agriculture in gross domestic product, the share of tertiary sectors is
consistently improving. The economy dominated by primary sector has transcended towards an economy dominated by services sector.

5. The share of tertiary sector accounts for more than half of the India’s gross domestic product; it is comparable to any developed economy, in terms of this share. It has grown by bypassing secondary sector. The Indian economy is passing through a transition to finally culminate into a service sector growth lead economy. The viability of such a service sector growth lead economy with weak primary and secondary sectors is a million dollar question that needs a thorough research at this juncture of time.

6. Instead of percentage sectoral shares, the growth profile of the three sectors displays the underlying structural dynamics more clearly. The average annual rate of growth of secondary and tertiary sector has been almost double of the primary sector’s share. This implies that tertiary sector has responded positively; the primary sector has responded adversely to the economic reforms process of the nineties and the secondary sector is in its transitional phase of making adjustment in terms of capital, labour and technology.

7. The disaggregated picture of the tertiary sector shows that the percentage share of ‘trade, hotels and restaurants’ in GDP was 8.16 percent in 1950-51 and increased to 15.73 percent in 2008-09. Similarly, in the case of ‘transportation, storage and communication’, it increased from mere 3.38 percent to 12.85 percent,
during the same period. It is interesting to note that the share of ‘communication’ segment of the tertiary sector has grown by more than three times in last ten years. The share of ‘financing and insurance’ has grown from 1.00 percent in 1950-51 to 7.09 percent during the same period. On the whole, the trading and transport activity is picking up and communication segment has shown a massive growth. Banking and insurance segment of the tertiary sector is continuously improving. Real estate and dwelling activity is gradually picking up. In the tradable services category trade (both wholesale and retail), commerce, banking insurance, finance and communication activities are leading the growth path which is a positive sign of growth.

8. Regarding the sub-sectors of tertiary sector, the percentage share of components and the growth profile of the tertiary sector are indicative of the fact that half of the tertiary sector is formed by the financial sector and the government expenditure. The share of tradable services is just the half. If the economy has to achieve the highest level of service economy, i.e., the knowledge economy, it must increase the share of tradable services in the basket of tertiary sector.

9. Analysis of any macro relationship between growth of output and that of employment in any economy, as a whole, is of considerable importance; as it bears a significant implication. In India the service sector has failed to play any significant role in employment generation. The share of the workforce in the primary
sector has remained high. *The tertiary sector’s share in the workforce has increased but it has not been able to displace the primary sector’s position in this regard.* Two important odds are to be noted in this regard. *First,* the premature nature of the transition to a services dominated economy, at an exceptionally low level of per capita income, is without achieving a full-fledged industrialization. *Secondly,* large share of services in output has not been matched by a corresponding one in employment.

10. The share of services sector in total employment is much higher in public sector, in comparison to the private sector. In the public sector services, the share of community, social and personal services is the highest. In the organized private sector employment, the share of manufacturing stands at the top and next to it is the service sector. *Thus, it is obvious that the percentage share of service sector in total organized employment is much higher in public sector as compared to private sector. Further much of the public sector share employment belongs to non-tradable category of services.*

11. To analyze the input-output structure and changes over time, eight input-output transaction tables have been used. In the last quarter of the century, the intermediate input use of the commodity production has increased its dependence on itself and on service sector has increased. The intermediate-use of services in commodity sector has changed marginally in the entire period under consideration. *The overgrowth of service
sector output is going more to the final use than to the intermediate input. This implies that the emerging structure of the economy is characterized by development of sectors that are loosely connected to the production and tightly connected to the consumption. The system is going to be a producer of final consumption goods rather than intermediate inputs. Thus the emerging structure is gradually altering the final use basket by reducing the commodity consumption and increasing the share of services.

12. Commodity input requirement of the service sector is continuously on the decline and service input requirement is on the rise. The service sector has a very high value added component, as compared to the commodities. Further, the service sector has a backward multiplier effect on itself and in the long run it may hamper the growth of commodity sector. In case of primary sectors, own output consumption, as intermediate input, is continuously falling over time. On the other hand the own output consumption, is improving in case of secondary sectors. Hence primary sector is gradually getting integrated with other sectors of the economy but the secondary sector is integrating within itself.

13. The technology aspect of structural change has been further explored using the analysis of coefficients and the linkage patterns. The primary sector has both low backward and low forward linkages with tertiary sector, high linkages with itself and average linkages with
secondary sector. Secondary sector has low linkages with primary sector but has high linkages with tertiary sector. Electricity alone has a very high linkage with all the three sectors. Banking provides better services to primary sector, whereas, hotels and restaurants provides more service to tertiary sector. Other transport services, storage and warehousing takes services from tertiary sector and also provide services to that.

14. On the basis of linkage patterns key sectors have been identified. The study of the structure of the Indian economy reveals that the capital intensive basic industries like iron and steel, electricity, non ferrous basic metals, construction, etc. are supposed to play the role of engine in the process of growth. The development of these basic industries as channels of transmitting the benefits of growth is, no doubt, the consequence of the attempt to diversify the production structure of the Indian economy over the years. The agro based industries like cotton textiles, jute, hemp and mesta textiles, other textiles, paper and paper products and other resource intensive sectors like non-metallic mineral products, coal tar products etc. have shown strong linkage in terms of both forward and backward linkages. Services like trade and transport services and capital-intensive sectors like fertilizers, paints, varnishes and lacquers, synthetic fibre and resin etc. have qualified as key sectors of the Indian economy. The identified key sectors display the structure of the Indian economy which is neither traditional nor a highly modernized one. Investment in these sectors can speed
up the industrialization process; as such sectors will stimulate greater economic activities in other sectors.

15. Productivity growth is crucially affected by technological change. In the standard neo-classical economic model, technology refers to a collection of techniques, or ways of specifying how much of various outputs can be produced, using given quantities of various inputs. Technological change in each of the sectors has been measured by using the measures developed by Chenary, Maria Augustinovics and Leontief. It is clear from the analysis that both communication and insurance sectors are developing at a very high extent on technological fronts.

16. The typology based on the relationship between the magnitude of the two indices ($\alpha_{j}^{b,c}$ and $\gamma_{j}^{b,c}$) of technological change for each of the sectors has been done. The two indices measure technological change with a differential emphasis on the nature of it. Amongst the various primary sectors, animal husbandry has been found with the highest level of technological change. Among all the sub-sectors of secondary sector, beverages have been found with highest degree of technological change and railway transport equipment with the lowest degree of technological change. The analysis shows that that tertiary sector showed the maximum change in terms of technology as compared to primary and secondary sectors as the temporal difference between $\alpha_{j}^{b,c}$ index values and $\gamma_{j}^{b,c}$ index values has been found highest in this sector.
17. Temporal comparison of individual input coefficients and its frequency distribution has also been used to show different degrees of technological change. In frequency distribution, there are three main degrees of change, i.e., low, medium and high. Primary sector shows a low level of technological change in terms of technology. Secondary sector has displayed a medium change. The tertiary sector has registered a high level of technological change. Tertiary sector is the main beneficiary of technological change which has mainly occurred during post-reform period.

18. Demand decomposition is another aspect of structural change. It analyses the change in the output induced by changes in domestic demand, exports, imports and intermediate input use, i.e., technology. A comparative analysis underscores the fact that on the whole, the much needed technological change is missing in the system. Primary sector is banking upon domestic demand and import substitution component and the secondary sector is relying on import substitution alone. The resulting tertiarization of the Indian economy is the outcome of enhanced domestic and international demand and that too in the absence of any major technological change in the system.

The broad conclusion of the work is that emerging structure of the Indian economy is characterized by overgrowth of tertiary sector which has poor linkages with rest of the sectors. Emerging employment structure is not in tune with the emerging output structure. Within tertiary
sector, the share non-tradable service is still significant. Much of the technological change parameters are also identified more by the tertiary sector as compared to secondary sector. This lopsided growth of the system needs an elaborate evaluation as far as the sustainability is concerned.

**Policy Implications**

The emerging economic structure of India, characterized by excessive tertiarization, is basically driven by import substitution demand followed by domestic demand. Export demand has played a significant role in tertiary sector but the other two sectors have lagged behind in this regard. Much needed change in the intermediate input demand component, that signifies technological change, is altogether missing in the system. The very viability of, such an overgrown tertiary sector, is a matter of serious concern. In the light of this observation, following are the policy implications.

1. The fact that employment and growth, as a result of over growth of service sector, are not in consonance with one another. This underscores the need to question the technical and allocation efficiency of different sectors in the emerging structure of economy. *The sustainability of a system characterized by growth of service sector coupled with vast unemployed labour force in primary sector and the informal secondary sector needs to be explored thoroughly.*

2. Tertiary sector growth is driven by domestic and export demand, but the much needed technology driven change is missing in the economy. To keep this change viable,
heavy investment in technological change in tertiary sector is needed. Steps must be taken to improve technological base of the production system. The public and private initiative to invest in research and development is need of the time.

3. To reduce overcrowding in primary sector, more education opportunities and training skills should be provided so that more work-force can be engaged in the service sector.

4. Tertiary sector growth and its translation into higher per capita income growth is a function of human capital. The states with poor human capital need to develop it and improve the efficiency of the labour, if the benefits of the tertiary sector led growth are to be obtained.

5. Percentage share of components and the growth profile of the tertiary sector are indicative of the fact that half of the tertiary sector is formed by the financial sector and the government expenditure. The share of tradable services is just the half. If the economy has to achieve the highest level of service economy, i.e., the knowledge economy, it must increase the share of tradable services in the basket of tertiary sector.

6. An attempt may be made to curb the growth of unproductive services. The tax structure needs to be effectively modified. In case of public administration and other services, the growth of real wage rate should be regulated in relation to the supply of consumer goods.

7. The government needs to shift its thinking to create institutional structures that encourage, private
investment in services and will create for more jobs than public sector investment. Small scale sector needs to be encouraged in the services sector also.

8. It is necessary to focus attention on the capacity of the different sectors to create employment opportunities in other sectors of the economy through its linkages with the rest of the economy.

9. Steps should be taken by the government to develop tertiary sector by adopting sector specific strategies because employment generation through this sector is the least cost option. The results seeks to suggest that though overall growth in this country should be the cumulative result of the growth of all three broad sectors, it is the services sector which will continue to enable the country to attain an 8 per cent plus GDP growth rate. This growth will, through inter sectoral linkages, generate momentum for creation of employment opportunities and help poverty alleviation.

10. Much of the growth of commodity (both primary and secondary) sector is driven by import substitution and domestic demand. Export component of commodity sector is weak. Steps are called for to promote the exports in primary and secondary sector.

11. Tertiary sector growth is driven by domestic and export demand but the much needed technology driven change is missing in the economy. To keep this change viable, heavy investment in technological change in tertiary sector is needed.
12. There is a weak backward linkage between the fast growing tertiary sector and the commodity sector. This is because of the weak resource base and compatible growth of commodity sector. Hence the commodity sector needs to be planned to grow in consonance with the service sector.

To conclude, the above conclusions and policy implications are indicative of the fact that there is an ample scope to improve the growth of output in India. Key to further growth lies in investing in some of the key sectors identified and the technological up-gradation of the system.