CHAPTER 4
ROLE OF SERVICE SECTOR IN
INDIAN ECONOMY: AN ANALYSIS

4.1 Introduction

The Indian economy has been one of the world’s star growth performers in recent decades growing to 9.2 percent in 2006-07 and 9.6 percent in 2005-06. Growth has been supported by market reforms, huge inflows of FDI, rising foreign exchange reserves, both an IT and real estate boom, and a flourishing capital market (Singh & Cortuk, 2010). Economic development has historically been associated with structural changes in the national economies. It has, in fact, most often, been defined as a process combining economic growth with changing share of different sectors in the national product and labour force. As an economy grows it will undergo some structural changes. The composition of its GDP and structure of employment will change. This has been the experience of all the developed and developing economies. Structural changes refer to change in the structure of the economy means production structure. Production structure refers to the composition of output i.e. contribution of the primary, secondary and tertiary sectors of the economy. The most common structural change that had been observed historically, followed a sequence of shift from agriculture to industry and then to services. Thus, a predominant share of agriculture characterizes an underdeveloped economy. With development the share of industry increases and that of agriculture declines, and subsequently after reaching high level of development, the service sector increases in importance, becoming a major component of the economy. This pattern has not only been observed historically, but also holds across the countries with different levels of development (Gangabai, 2011). India greatly lagged behind economically and socially compared to the developed world. Periodic estimates of national income available since mid-nineteenth century indicate that the per capita income virtually stagnated in India till independence when world income grew several fold due to industrial and technological revolution. A large mass of the population was living in abysmal conditions. The national government formed after independence placed priority on ‘economic growth with social justice’. Though the pace of the
structural transformation was more or less slow throughout the pre-reform period, it became rapid after the introduction of new economic reforms in the decade of the nineties. At the time of independence, Indian economy was predominantly rural and agricultural. At the beginning years of the First Five-year Plan, contribution of the primary sector (agriculture, forestry and logging, fishing) in GDP at factor cost was largest followed by tertiary sector and secondary sector. Thereafter, the major drive towards diversification and modernization of the Indian economy in the following plans resulted in increased shares of the secondary and tertiary sectors and declined share of the primary sector in the national product. The share of the primary sector in GDP at factor cost declined from 54.56% in 1950-51 to 27.87% in 1999-00 while share of the secondary sector was 16.11% in 1950-51 and increased to 25.98% in 1999-00. The share of the tertiary sector increased from around 29% to 46% during this period. Indian economy also experienced a major structural change within the industrial sector as a result of the major drive for industrial diversification in the mid-fifties. While the share of the capital goods industries and the basic goods industries in the total industrial value added increased more or less rapidly, the share of the consumer goods in total industrial value added declined considerably over the years.

However, the pace of transition of the Indian economy from an agricultural economy to an industrial one was quite slow since 1951. It was in the decade of the eighties the economy emerged from the phase of slow growth rate and deceleration. Finally, a major shift in the macroeconomic policies in the decade of the nineties accelerated the pace of the structural transformation of the Indian economy and set India on a high growth trajectory. In terms of average growth rate, the performance in the nineties (6.5%) was better than that recorded in the eighties (5.8%). While both the industrial and service sectors registered relatively high growth rates during recent period, agriculture and allied activities experienced a relatively low rate of growth as compared to the eighties. This underlines a major structural shift in the Indian economy in recent years, with economic growth becoming more vulnerable to the performance of industrial and service sectors and less to the performance of the agricultural sector. In order to keep the momentum of the structural transformation of the Indian economy, investment should be concentrated to those sectors which are strongly integrated with
the rest of the economy and have a larger multiplier effect on growth and development. In other words, the key or priority sectors are those which can stimulate greater economic activities in other sectors and investment should be concentrated to these sectors, particularly to achieve the target rate of growth (Dasgupta & Chakraborty, 2006).

4.1.1 Service Sector: Pillar of Economy

Services play a central role in the economies of both developed and developing countries. They account for over half of the gross domestic product of all developed economies and constitute the single largest sector in most developing economies. The service sector comprises Trade, Hotels & Restaurants, Construction, Electricity, Transport, Storage, Communication, Banking, Insurance, Education & Research, Medical & Health, Ownership of Dwellings, Real Estate & Business Services and Other Services (Business Services, Computer & Related Services, Legal Services, Real Estate Activities, Renting of Machinery & Equipments and Social & Personal Services). Main reasons behind the growth of services include rapid urbanization, the expansion of the public sector and increased demand for intermediate and final consumer services. Access to efficient services has become crucial for the productivity and competitiveness of the entire economy. The successful growth of the primary and secondary activities in the economy, to a large extent, is dependent on services offered by banking, insurance, trade, commerce, entertainment, maintenance of machinery and equipment and numerous other services categorized as tertiary activities (Soni & Parashar, 2013).

Today, we live in a service economy, which is the largest of the three constituent sectors in terms of contribution to Gross Domestic Product (GDP). It is a large and most dynamic part of the Indian economy both in terms of employment potential and contribution to national income. With the passage of time, the importance of skill-intensive services has risen and this has coincided with a period of rising relative wages and quantities of high skilled labour (Buera & Kaboski, 2009). With increase in wages or income, people divert more towards services and the share of service sector in Gross Domestic Product (GDP) increases due to the consumption of more services. To provide high skill services to the people, high skilled labourers lead to rise of the service
economy. The most important services in the Indian economy have been health and education. They are one of the largest and most challenging sectors and hold a key to the country's overall progress. A strong and well-defined health care sector helps to build a healthy and productive workforce as well as stabilize population.

The era of economic liberalization has ushered in a rapid change in the service industry. As a result, over the years, India is witnessing a transition from agriculture-based economy to a knowledge-based economy. The knowledge economy creates, disseminates, and uses knowledge to enhance its growth and development. One of the major functional pillars of this economy is Information Technology (IT) and IT-enabled services (ITeS) industry. The 'Department of Information Technology' has been making continuous efforts to make India a front-runner in the age of Information revolution. IT continues to be a dominating sector in the overall growth of the Indian industry. A large number of Indian software companies have acquired international quality certification. Several policies have also been framed on the key issues of IT infrastructure, electronic governance as well as IT education.

4.1.2 Growth and Structural Changes in the Indian Economy

Development theory usually identifies three stages of development, the first stage when the primary sector is the dominant sector in GDP, the second stage in which manufacturing is dominant and the third stage in which the service sector is dominant and is identified with countries in an advanced stage of development. India’s growth experience does not seem to follow this theory of stages as the high growth and high share of service sector which is a feature of a developed economy has been attained by India even before reaching a developed stage as is clear from the table 4.1 below.

At the time of independence, Indian economy was primarily a rural economy, with agriculture contribution for approximately 75 percent of the workforce and 55 percent of GDP. The agriculture growth increased (permanently) during the mid-1960s. This is followed by a take-off in the service sector in the mid 1970s. Finally, manufacturing output growth breaks in 1982-83 (Balakrishnan and Parameswaran, 2007). The shift to a higher growth path during the course of the 1980s is referred to as the Indian growth turnaround. Fast growth in India, since the early 1980s, has placed it
amongst the top nine rapidly growing economies in the world (Ahmed and Varshney, 2009).

Service sector has become important for many economies in the world and very important particularly for India. Among fast growing developing countries, India is distinctive for the role of its service sector. India stands out for the size and dynamism of its service sector (Eichengreen and Gupta, 2010). In line with the global trend, service sector in India has also grown rapidly in the last decade. Its growth has in fact been higher than the growth in agriculture and manufacturing sector. It now contributes around 51 percent of GDP. In the trade mode, services trade has also grown at the same rate as goods trade over the 1990s (i.e., about 6.5 per cent) and its share in total trade has reached around 24 per cent. The unique characteristic of India's service sector growth is the entire decline in the share of agriculture sector in GDP, i.e., from 32 % in 1990 to 22 % in 2003, has been picked up by the service sector while manufacturing sector's share has remained more or less the same. In general, such a trend is mainly experienced by high-income countries and not by developing countries.

Table 4.1 points out the sectoral composition of Gross Domestic Product at constant prices. The share of agriculture and allied activities has declined from 53.30 per cent in GDP in 1950-51 to 13.95 per cent in 2012-13. Its percentage share in GDP declined over the time period from 1950-51 to 2012-13. The overall share of agriculture & allied activities is 22.42 percent of total GDP from the given time period. The share of mining and quarrying has shown a steady increase from 1.89 per cent of GDP in 1950-51 to 1.99 per cent in 2012-13. Its overall share is 2.75 percent which shows less participation in GDP. The share of manufacturing in GDP increased from 9.22 per cent in 1950-51 to 15.39 per cent in 2012-13. It may also be noted that manufacturing industries are grouped under registered and unregistered. The share of manufacturing doubled during the period. Overall share of manufacturing in total GDP is 15.67 percent which is more than mining and quarrying but less than agriculture and allied activities and approximate by one fourth of the service sector. The share of service sector which includes ‘electricity, gas & water supply’, ‘construction’, ‘trade, hotels transport & communication’, ‘financing, insurance, real estate & business services’, ‘community, social & personal services’ improved from 35.59 per cent in 1950-51 to 68.67 per cent
Table 4.1: Sectoral Composition of Gross Domestic Product at Constant Prices  
(at factor cost) (Rs. Crore)

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture &amp; Allied Activities (Rs. Crore)</th>
<th>Mining &amp; Quarrying (Rs. Crore)</th>
<th>Manufacturing (Rs. Crore)</th>
<th>Services (Rs. Crore)</th>
<th>Total (Rs. Crore)</th>
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<tbody>
<tr>
<td>1950-51</td>
<td>1450.52 (53.30)</td>
<td>51.38 (1.89)</td>
<td>250.96 (9.22)</td>
<td>968.42 (35.59)</td>
<td>2721.28 (100)</td>
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<td>1955-56</td>
<td>1669.06 (51.38)</td>
<td>63.48 (1.95)</td>
<td>333.04 (10.25)</td>
<td>1183.01 (36.42)</td>
<td>3248.59 (100)</td>
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<tr>
<td>1960-61</td>
<td>1954.82 (48.91)</td>
<td>88.57 (2.22)</td>
<td>451.34 (11.29)</td>
<td>1501.68 (37.58)</td>
<td>3996.41 (100)</td>
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<tr>
<td>1965-66</td>
<td>1906.75 (41.43)</td>
<td>122.31 (2.66)</td>
<td>620.74 (13.49)</td>
<td>1953.04 (42.43)</td>
<td>4602.84 (100)</td>
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<tr>
<td>1970-71</td>
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<td>129.65 (2.25)</td>
<td>751.18 (13.06)</td>
<td>2412.54 (41.95)</td>
<td>5750.36 (100)</td>
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<td>1975-76</td>
<td>2728.99 (40.97)</td>
<td>167.95 (2.52)</td>
<td>884.82 (13.28)</td>
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<td>1204.75 (14.64)</td>
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<td>Year</td>
<td>Total Sales</td>
<td>Cost of Goods Sold</td>
<td>Operating Expenses</td>
<td>Net Profit</td>
<td>P/L Ratio</td>
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<td>2012-13</td>
<td>54025.17</td>
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<td><strong>Total</strong></td>
<td><strong>765499.05</strong></td>
<td>(100)</td>
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**Note:** Figures in parentheses are their respective percentages.

**Source:** Handbook of Statistics on Indian Economy, Reserve Bank of India, 2013.
in 2012-13. It shows that it has the overall highest percentage of GDP among all other sectors i.e. 59.16 percent followed by agriculture and allied activities then manufacturing and mining & quarrying. In the beginning years i.e. 1950-51, service sector showed less percentage share (35.59 percent) than agriculture and allied activities (53.30 percent) in GDP of Indian economy. Service sector started increasing from 1965-66 but again showed less percentage share in 1970-71. In the years 1975-76 it never saw behind and its growth increased with fast pace and till today it showed the highest percentage share (i.e. 68.67 percent) among all other sectors.

Rather than debating on which growth strategy is ideal, it is important to realize that the constraints in the industrial and agricultural sectors and the natural advantage of India in service sector had led to services led growth of the economy. While the constraints in the other two sectors need to be removed as is being attempted now, there is no need to expect the hare to sleep for the tortoise to overtake it. There is in fact a need to tap our full potential in the service sector.

4.1.3 Factors behind Growth in Service Sector

In the past two decades, India has been making sustained progress on a scale, size and pace that is unprecedented in its own history. A low income country with mass poverty at the time of independence in 1947, India now comes in the ranks of the world’s middle income countries. Over these 66 years, the country has been successful on a number of fronts, it has maintained electoral democracy, reduced absolute poverty by more than half, dramatically improved literacy, vastly improved health conditions, became one of the world’s fastest growing economies and emerged a global player in information technology, business process outsourcing, telecommunication and pharmaceuticals. India was a latecomer to economic liberalization. The economic reform process has been steady but gradual because of a need for wide consultation and broad consensus so necessary in a democratic society. Service sector is growing at very fast pace since last two decades, especially in 1991 – a decade of major trade and industrial reforms in India. During 1981-90, service sector output grew at a rate of 6.6 percent per annum. During 1991-2000, the growth of services, industry and agriculture sector was 7.5 percent, 5.8 percent and 3.1 percent per annum respectively (Banga and Goldar, 2007). India thus seems to be following a growth path, which is not different
from those countries which are developed today and this path is characterized by services-led growth (Papola, 2005).

Services are extensively used by people day by day in all aspects of life. From education to entertainment, finance to fast food, travel to telephone, advertisement to amusement parks, market research to maintenance services, and retailing to recreation and so on. Today services are increasingly being used by corporate as well as household sector and services of increasing quality and sophistication. The tremendous growth of service sector has resulted in its increased importance to the world economies. There are some changing factors of our society which really boost the service sector of Indian economy in one way or the other:

(a) Life expectancy has raised which results in expanding more retired population. Due to increase in retired population demand is increasing for travel and leisure, as well as for healthcare, nursing and life insurance.

(b) The number of working women has increased and led to perform traditional functions outside the home. With this increase in income of the households has created a greater demand for consumer services including retailing, real estate and personal financial services. Living standard has increased due to increase in income which has led to spend more on entertainment, travel and hospitality services.

(c) Due to communication and travel, aspiration level of children and adults has increased. Due to this, they are making new demands for learning new things to grow and learn new skills to compete. This has opened avenues for knowledge and information based services.

(d) Due to Globalization, the demand for communication, travel and information services has increased. Information technology has helped to fulfil this demand. Advertising and marketing services are providing support to all sectors of the economy.

(e) The size of the government has grown creating a huge infrastructure of service departments. With the growth in international trade, the demand on legal and other professional services has increased across national boundaries.
(f) Changing structure of the families in Indian economy has diverted people to service sector. Emergence of nuclear family system in place of traditional joint family system, has generated demand for service like transport, health care, entertainment, telecommunication, education and so on.

There are numerous factors which are responsible for the growth of service sector in Indian economy.

4.2 Growth Trends of Sub-Sectors of Services in India

Global Economic crisis that first hit the U. S. economy spread globally to weaken many developed and emerging economies. Among nations, India was relatively less affected due to its highly resilient domestic economy characterized by high saving and investment rates and a dynamic service sector. Even in 2008-09 when the world financial system was stumbling in the aftermath of the global financial crisis, India’s Gross Domestic Product (GDP) growth was relatively lower at 6.8 percent but supported by service sector that grew at 10.1 percent, contributing 56.4 percent of the country’s GDP. In the same year, service sector’s subcomponents, “finance, insurance, real estate and business services” and “community and personal services” expanded living 12.5 percent and 12.7 percent respectively. The growth rate of service sector in the last few years (2007-2011) has been a robust 10 percent (Saravanan & Chandrasekaran, 2013).

Further, it is found that growth pattern in the service sector has not been uniform across all services in India. Some services have grown fast in terms of their share in GDP and also in terms of their share in trade and FDI (e.g., software and telecommunications services). But there are some services, which have grown fast but have not been able to improve their share in international transactions (e.g., health and education) while there are some services that have in fact witnessed a negative growth and also a low share in international transactions. One of the probable reasons for this lopsided growth in services is the fact that reforms in India at the sectoral level have evolved in an ad-hoc way rather than as part of a coherent overall strategy. Though there exists an overall industrial policy and agricultural policy in India, there is no
integrated service policy. Consequently, the pace of reforms and their impact lacks uniformity across sectors. (Joshi, 2004). The following table 4.2 shows the share of different sub-sectors to the total share in service sector in Indian economy from 1950-51 to 2012-13 at constant prices.

Table 4.2 shows that the share of service sector which includes ‘electricity, gas & water supply’, ‘construction’, ‘trade, hotels transport & communication’, ‘financial, insurance, real estate business services’, ‘community, social & personal services’ in GDP improved from Rs. 976.33 crore, in 1950-51 to Rs. 7270.97 crore in 1991-92, and further increased to about Rs. 38125.58 crore in 2012-13. The share of electricity, gas & water supply had been improving from 0.81 per cent in 1950-51 to 4.30 per cent in 1994-95. Thereafter it started decreasing and went the lowest level of 2.70 per cent in 2012-13. The share of construction had been increasing from 14.60 per cent in 1950-51 to 16.30 per cent in 1981-82. Thereafter; it started declining and reached at the lowest level of 11.49 per cent in 2003-04. After that it had been fluctuating and reached at the level of 11.29 per cent in 2012-13. The share of ‘trade, hotels, transports and communication’ was 31.54 per cent in 1950-51 and reached at a maximum of 36.16 per cent in 1983-84. Thereafter, it started decreasing and reached at 34.92 per cent in 1994-95. After that it started increasing continuously and reached at 40.18 per cent in 2012-13. The share of ‘financial, insurance, real estate and business services’ had been declining from 22.89 per cent in 1950-51 to 22.31 per cent in 1990-91. Thereafter, it started increasing and reached at the highest level of 24.21 per cent in 1994-95. Since then it has been fluctuating and started improving and increased to 27.03 per cent in 2012-13. Similarly, the share of ‘community, social and personal services’ has been declining almost continuously since 1950-51 when it was 29.16 per cent and reached at its lowest level of 18.80 per cent in 2012-13.

From this analysis, we can conclude that trade, hotels, transport, and communication is the only sub-sector of the service sector, whose share has been continuously increasing from 31.54 per cent in 1950-51 to 40.18 per cent in 2012-13.
Table 4.2: Share of Sub Sectors of Service Sector in total at Constant Prices
(at Factor Cost) (Rs. Crore)

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<tbody>
<tr>
<td>1950-51</td>
<td>7.91 (0.81)</td>
<td>142.51 (14.60)</td>
<td>307.92 (31.54)</td>
<td>233.25 (23.89)</td>
<td>284.74 (29.16)</td>
<td>976.33 (100)</td>
</tr>
<tr>
<td>1955-56</td>
<td>12.02 (1.01)</td>
<td>194.56 (16.28)</td>
<td>387 (32.38)</td>
<td>271.9 (22.75)</td>
<td>329.55 (27.58)</td>
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Note: Figures in parentheses are their respective percentages.

Figure 4.1 shows that Services had increased their share in GDP from 36 percent in 1950-51 to 52 percent in 1991-92. As per the Central Statistical Organization, the broad categories of service sector classification include Construction, Electricity, Gas & Water Supply, Railway Transport Services, Other Transport Services, Storage & Warehousing, Communication, Trade, Hotels & Restaurants, Banking, Insurance, Education & Research, Medical & Health, Ownership of Dwellings, Public Administration and Other Services (Business Services, Computer & Related Services, Legal Services, Real Estate Activities, Renting of Machinery & Equipments, Social & Personal Services).

**Figure 4.1:** Share of Service Sector in GDP (Pre-Reform Period).

**Source:** Author’s Calculations

Figure 4.1 shows that overtime the share of services in GDP has increased during pre-reform period. It depicts that there is approximately by 35 percent contribution of this sector in GDP in 1950-51. The share of service sector has surpassed the combined share of agriculture and industry, making it the most important contributor to the country’s output. This growth in service sector has induced the growth in other sectors (Reena, 2011). The planned economic development during the 40 years period (1950-1991) has shown a mixed scenario. Growth in GDP per annum during first fifteen years i.e. 1950-65 was found at 4 percent while during the period 1967-80 it declined marginally and stood at merely 3.45 percent per annum (Joshi,
2004). During 1980s, its growth grew at the rate of 6.6 percent per annum. Above pattern of growth in services brings out an interesting picture. Service sector in India has been the fastest growing sector. Within the service sector, the fastest growing sectors in the 1990s have been trade, communications, financial services, business services and community services like health and education. However, the decade of eighties witnessed improvement in agricultural sector, mining & manufacturing sector. It is significant to observe that the overall growth in GDP during the period 1950-1991 was not very impressive due to constant pulls and pressures. In the early 1991, Indian economy faced several economic crises, like fiscal imbalances, mounting inflationary pressures and severe balance of payments crisis etc (Pandey & Dixit, 2008). During 1990s, the growth rate increased to 7.5 percent per annum. However, out of these sectors, it is only communication services that have witnessed growth in their share in exports and FDI during this period (Banga, 2005). India’s service sector was responsible for over 60 percent of its GDP growth in the 1990s (Singh, 2006).

Figure 4.2 shows that share of service sector in GDP increased from 53.23 percent in 1991-92 to 69.28 percent in 2012-13. In post 1991 period, there were several measures undertaken by the government to develop service sector, especially through deregulation of some sub-sectors of service sector.

![Share of Service Sector in GDP (Post-Reform Period)](image)

**Figure 4.2**: Share of Service Sector in GDP (Post-Reform Period).

**Source**: Author’s Calculations
The tertiary sector emerged as the major sector of the economy both in terms of growth rates as well as its share in GDP in 1990s. It is to be noted here that while agriculture and manufacturing sectors have experienced phases of deceleration, stagnation and growth, the tertiary sector has shown a uniform growth trend during the period 1950-51 to 2007-08 (Joshi, 2008). The share of this sector in GDP further increased to 55.1 percent in 2006-07. This sector accounted for 68.6 percent of the overall average growth in GDP over the time period 2002-03 to 2006-07 (Economic Survey, 2006-07). Nevertheless, the share of services is lower than that of developed countries (the United Kingdom (UK, 78.4%) and the United States (US, 78.2%)), but higher than that of China (41.8%) (Mukherjee, 2012). The contribution of service sector has increased very rapidly in GDP of India, for many foreign consumers have shown interest in the country’s service exports. This is due to the fact that India has a large pool of highly skilled, low cost, and educated workers in the country. This has made sure that the services that are available in the country are of the best quality. The foreign companies seeing this have started outsourcing their work to India especially in the area of business services which includes business process outsourcing and information technology services. This has given a major boost to the service sector in India, which in turn made the sector contribute more to the GDP of India.

Figure 4.3 shows the share of Foreign Direct Investment (FDI) inflows in Service Sector to Total FDI inflows. The economic role of FDI has increasingly become significant in Indian economy with the transition of FDI policy. In service sector it is a tool for economic growth through its strengthening of domestic capital productivity and employment. FDI inflows to service sector have been phenomenal in the past few years. Since the onset of the liberalization of the Indian economy in 1991, the country has experienced a huge increase in the inflow of foreign sector. (Chawla, 2013). Service sector is one of the most important sectors contributing to the sustained economic growth and development by contributing 55% to GDP. There is a continuously increasing trend of FDI inflows in service sector with a steep rise in the inflows from 2005 onwards. Service sector received an investment of US$ 22 billion which is 28% of the total FDI inflows from 1991-2012. Share of FDI inflows in services in 2005-06 was 16.29 percent and in 2006-07 it has increased to 35.46 percent to total FDI inflows. Due to global meltdown FDI inflow in services reduced to 18.03 percent in 2007-08.
The economic and financial crisis of 2008 created uncertainty across the world. Although the maximum impact of the crisis was felt in the western countries, even emerging market economies like India saw a few percentage points being shaved off their growth in the ensuring period. India still does not rank highly as an FDI destination amongst global investors due to infrastructure concerns. FDI still reduced to 17.57 in 2010-11 and showed signs of progress in 2012-13 by contributing 20.78 percent share in service sector.

Figure 4.4 shows the share of total FDI in service sector particularly in Construction, Telecommunication and Hotels & Restaurants to total FDI in India. The construction activities sector shows a rise in FDI inflows from 2006-07 onwards. Construction activities sector includes construction development projects viz. housing, commercial premises, resorts, educational institutions, recreational facilities, city and regional level infrastructure, township. FDI inflows in construction sector shows declining trend because construction could not create enough jobs which are highly productive (Economic Survey, 2013). Telecommunication Sector comprises Cellular Mobile, Basic Telephone Services etc. Telecommunication sector ranks 2nd in the list of sectors in terms of cumulative FDI approved from August 1991 to Dec 2008 (Sagar and Lalitha, 2013). India has been attracting foreign direct investment especially during post reforms period. The sectors like telecommunication, construction activities and
computer software and hardware have been the major sectors for FDI inflows in India. It is fair to expect that India would have a larger share of FDI in the coming decades. The challenge before India is to disentangle the effects of FDI by taking measures to maximize positive spillovers and minimize the negative effects (Madem *et al.*, 2012).

**Figure 4.4:** Share of Total FDI in Service Sectors to Total FDI in India.

**Source:** Author’s Calculations

The Telecommunication industry, especially the equipment part of the industry is the second largest in world (next to China) and therefore has attracted considerable FDI in the manufacture of handsets leading to the employment of skilled manpower (Mani, 2008). FDI share in Telecommunication was highest in 2006-07, it fluctuated up to 2011-12 and showed declined share in 2012-13 as the new projects of both private sector and government had been falling. Policy issues, such as in telecom spectrum allocations have also played a major role in the decline of FDI share (Economic Survey, 2013). In the service sector, the share of Hotels and Restaurants still remained significant. From 2005-06 to 2006-07 it showed decreasing trend and remained stagnant in 2007-08 and 2008-09. It shows tremendous decline in 2009-10 due to global economic crisis. FDI inflows to the service sector (top five sectors including Hotels and Restaurants) have slowed down in 2009-10 (Bhardwaj, 2013). It attracted more share of FDI in 2012-13 due to tremendous increase in hotel and tourism sector increased by a very high 328 per cent over the corresponding period in the previous year (Economic Survey, 2013).
4.3 Structural Changes by A. Holub Technique

According to Holub, if primary, secondary and tertiary sectors are denoted by the letters ‘A’, ‘I’ and ‘S’ respectively and if these sectors are ranked in order of their proportion in percentage share in GDP then the different production structures can be explained as given in Table 4.3. It explains the different production structures of any economy depending upon the share of primary, secondary and tertiary sector in GDP.

Table 4.3: Typology of Production Structure as per A. Holub Technique

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Percentage Share in GDP</th>
<th>Type of Structure</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agriculture &gt; Services &gt; Industry</td>
<td>ASI – Traditional</td>
</tr>
<tr>
<td>2.</td>
<td>Agriculture &gt; Industry &gt; Services</td>
<td>AIS – Traditional</td>
</tr>
<tr>
<td>3.</td>
<td>Industry &gt; Agriculture &gt; Services</td>
<td>IAS – Transitional</td>
</tr>
<tr>
<td>4.</td>
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</tr>
<tr>
<td>5.</td>
<td>Industry &gt; Services &gt; Agriculture</td>
<td>ISA – Modern</td>
</tr>
<tr>
<td>6.</td>
<td>Services &gt; Industry &gt; Agriculture</td>
<td>SIA – Modern</td>
</tr>
</tbody>
</table>

Source: Kaur, 2008

In the present chapter, using Holub’s methodology, typology of India’s production structure has been presented over the study period in Table 4.3.

Table 4.4 points out the sectoral composition of Gross Domestic Product at constant prices. The share of agriculture and allied activities has declined from 53.30 per cent in GDP in 1950-51 to 13.95 per cent in 2012-13. The share of industry in GDP increased from 11.11 per cent in 1950-51 to 17.39 per cent in 2012-13. The share of service sector which includes ‘electricity, gas & water supply’, ‘construction’, ‘trade, hotels transport & communication’, ‘financing, insurance, real estate & business services’, ‘community, social & personal services’ improved from 35.59 per cent in 1950-51 to 68.67 per cent in 2012-13. It shows the overall highest percentage of GDP among all other sectors i.e. 59.16 percent followed by agriculture and allied activities and manufacturing and mining & quarrying. In the beginning years i.e. 1950-51, service
<table>
<thead>
<tr>
<th>Year</th>
<th>Share of Agriculture (A)</th>
<th>Share of Industry (I)</th>
<th>Share of services Sector (S)</th>
<th>Type of Structure</th>
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<tr>
<td>1950-51</td>
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<td>2006-07</td>
<td>17.74</td>
<td>18.99</td>
<td>63.27</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
<tr>
<td>2007-08</td>
<td>17.16</td>
<td>18.99</td>
<td>63.84</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
<tr>
<td>2008-09</td>
<td>16.09</td>
<td>18.51</td>
<td>65.40</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
<tr>
<td>2009-10</td>
<td>14.93</td>
<td>18.84</td>
<td>66.23</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
<tr>
<td>2010-11</td>
<td>14.73</td>
<td>18.79</td>
<td>66.48</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
<tr>
<td>2011-12</td>
<td>14.37</td>
<td>18.10</td>
<td>67.52</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
<tr>
<td>2012-13</td>
<td>13.95</td>
<td>17.39</td>
<td>68.67</td>
<td>S &gt; I &gt; A (Modern)</td>
</tr>
</tbody>
</table>

Source: Author’s Calculations
sector showed less percentage share (35.59 percent) than agriculture and allied activities (53.30 percent) in GDP of Indian economy. Share of service sector started increasing from 1965-66 but again showed lower percentage share in 1970-71. Since the year 1975-76 it never saw behind and its growth increased at a fast pace and till today it showed the highest percentage share (i.e. 68.67 percent) among all other sectors. On the basis of A. Holub Technique, the production structure of India remained traditional till 1970-71 and transitional till 2005-06. It was only after 2005-06, its production structure turned out to be modern.

4.4 Determinants of Service Sector Growth: VAR Analysis

In the present section, an attempt has been made to find out the determinants of increasing service sector in India by using econometric methodology of Vector Autoregressive (VAR) analysis. As already shown in chapter 3, following table (4.5) describes the variables used for VAR analysis of service sector of India since the year 2000.

Table 4.5: Description of Variables Used for VAR Analysis

<table>
<thead>
<tr>
<th>Nature</th>
<th>S. No.</th>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td>1</td>
<td>LNShare</td>
<td>Log of Share of Service Sector in Total GDP</td>
</tr>
<tr>
<td>Independent</td>
<td>2</td>
<td>LNOpen</td>
<td>Log of Openness constructed as follows: (Total Exports + Total Imports) / Total GDP</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>LNGCF</td>
<td>Log of Gross Capital Formation</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>LNFDI</td>
<td>Log of Net Foreign Direct Investment Inflows</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>LNGNPPC</td>
<td>Log of Per-Capita GNP</td>
</tr>
</tbody>
</table>

Source: Author’s Elaboration

Time-series data on five variables have been culled out from Handbook of Statistics on Indian Economy, provided by RBI. All variables have been taken in log terms to neutralise the unit effect and also to make interpretation in proportionate terms. The variable openness has been constructed by using exports, imports and total GDP of
India. Further, the variable, gross capital formation (GCF) represents the level of domestic investment over the years. It is a sum of Gross domestic capital formation (GDCF) and changes in stocks in an economy. GDCF includes all expenses made by household, business people and Government adding new durable goods to the fixed capital stock of a country. These assets are in the form of infrastructure such as buildings, roads, canals, bridges, means of transport, machinery and other equipments. The change in stock means the change in stocks or inventories. The change in stock is the difference between market prices of the stock held by the government at the beginning and end of the period. In addition, the variable Net FDI has been constructed by subtracting repatriation from gross FDI inflows in India. Sample has been taken from the year 2000-01 to 2012-13. The reason of choosing these years is the simultaneous data availability for all the variables for these years. To neutralise the impact of prices, all variables are taken at constant prices with the base year 2004-05.

4.4.1 Vector Autoregressive Analysis

In economics, it is quite common to have models where some variables are not only explanatory variables for a given dependent variable, but they are also explained by the variables that are used to determine the dependent variable. According to Sims (1980), if there is simultaneity among a number of variables, then all these variables should be treated in same way. In other words, there should be no distinction between endogenous and exogenous variables. Therefore, once this distinction is abandoned, all variables are treated as endogenous. This means that in its general reduced form each equation has the same set of regressor which leads to the development of VAR models. When we are not confident that a variable is really exogenous, we have to treat each variable symmetrically.

For analysing the time-series data, VAR is the best suited methodology in the econometrics. Under this one can study the co-integration; known as long-term relationship in between different time-series variables. Due to very short time-series data, the study limits its VAR analysis up to Granger causality test after estimating the VAR at levels. Table 4.5 presents the estimated results of VAR at levels.
Role of Service Sector in Indian Economy: An Analysis

Table 4.6 : VAR Analysis Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>LNSHARE</th>
<th>LNNFDI</th>
<th>LNOPEN</th>
<th>LNGNPPC</th>
<th>LNGCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNSHARE (-1)</td>
<td>0.5094</td>
<td>-13.2369</td>
<td>3.6572</td>
<td>1.3931***</td>
<td>4.2202</td>
</tr>
<tr>
<td></td>
<td>[1.4907]</td>
<td>[-1.3429]</td>
<td>[1.1305]</td>
<td>[4.3493]</td>
<td>[1.4078]</td>
</tr>
<tr>
<td>LNNFDI (-1)</td>
<td>0.0017</td>
<td>0.2550</td>
<td>0.05726</td>
<td>0.0019</td>
<td>-0.0718</td>
</tr>
<tr>
<td></td>
<td>[0.1632]</td>
<td>[0.8596]</td>
<td>[0.5881]</td>
<td>[0.1988]</td>
<td>[-0.7960]</td>
</tr>
<tr>
<td>LNOPEN (-1)</td>
<td>-0.0354</td>
<td>1.4044</td>
<td>-0.3690</td>
<td>0.0322</td>
<td>0.5120</td>
</tr>
<tr>
<td></td>
<td>[-0.5662]</td>
<td>[0.7787]</td>
<td>[-0.6235]</td>
<td>[0.5491]</td>
<td>[0.9335]</td>
</tr>
<tr>
<td>LNGNPPC (-1)</td>
<td>0.1293</td>
<td>-4.6957</td>
<td>1.3319</td>
<td>0.5290***</td>
<td>-1.4539</td>
</tr>
<tr>
<td></td>
<td>[1.1794]</td>
<td>[-1.4851]</td>
<td>[1.2836]</td>
<td>[5.1494]</td>
<td>[-1.5120]</td>
</tr>
<tr>
<td>LNGCF (-1)</td>
<td>0.0153</td>
<td>3.6115***</td>
<td>0.2360</td>
<td>0.0716*</td>
<td>0.8766**</td>
</tr>
<tr>
<td></td>
<td>[0.4107]</td>
<td>[3.3679]</td>
<td>[0.6706]</td>
<td>[2.0543]</td>
<td>[2.6879]</td>
</tr>
<tr>
<td>Constant</td>
<td>0.5175</td>
<td>76.2455</td>
<td>-33.1301*</td>
<td>-1.5097</td>
<td>-0.1471</td>
</tr>
<tr>
<td></td>
<td>[0.3276]</td>
<td>[1.6733]</td>
<td>[-2.2154]</td>
<td>[-1.0196]</td>
<td>[-0.011]</td>
</tr>
<tr>
<td>R²</td>
<td>0.9799</td>
<td>0.9554</td>
<td>0.9826</td>
<td>0.9993</td>
<td>0.9826</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.9632</td>
<td>0.9183</td>
<td>0.9681</td>
<td>0.9987</td>
<td>0.9681</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>58.5606***</td>
<td>25.7201***</td>
<td>67.8374***</td>
<td>1725.004***</td>
<td>67.7853***</td>
</tr>
</tbody>
</table>

Notes: i) Figures in parenthesis of type [ ] are the t-statistic value of the respective coefficient; ii) *, ** and *** represents the value is significant at 10 percent, 5 percent and 1 percent respectively; iii) At 7 (13-6) degrees of freedom, t-statistic values are 1.8946, 2.3646, 3.4995 at 10 percent, 5 percent and 1 percent respectively.

Source: Author’s Calculations
Results in Table 4.6 show that most of the relations are insignificant. Further, significant F-statistic of each individual equation in the whole system of equations shows the overall significance of that equation. In case of the significant parameters, for Indian economy, increasing share of service sector effects positively to the growth of per-capita GDP. However, reverse is also true but the coefficient is insignificant. To confirm these relations, next subsection presents the results of Granger causality on the same number of variables at lag.

4.4.2 Test for Causality

One of the good features of VAR models is that they allow us to test for the direction of causality. Causality in econometrics is somewhat different to the concept in everyday use; it refers more to the ability of one variable to predict (and therefore cause) the other. Table 4.7 presents the results of estimated Granger causality test for our sample data.

Results show that the evidence of positive relation between increasing share of service sector in GDP and GNP per capita is strong (as one of the F-statistic in case of 3rd combination is significant at 1 percent level of significance). Causality runs from share variable to GNP per-capita. But the evidence of other way causality is not so strong, as it is significant at 10 percent level of significance. The regression result confirms the positive relation in between these variables. This relation is already confirmed by VAR results in the previous sub-section.
Table 4.7: Granger Causality Test Results

<table>
<thead>
<tr>
<th>Combination</th>
<th>Null Hypothesis</th>
<th>F-Statistic</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Share-FDI</td>
<td>NFDI does not Granger Cause SHARE</td>
<td>0.7467</td>
<td>0.4100</td>
</tr>
<tr>
<td></td>
<td>SHARE does not Granger Cause NFDI</td>
<td>0.4757</td>
<td>0.5078</td>
</tr>
<tr>
<td>2. Share-GCF</td>
<td>GCF does not Granger Cause SHARE</td>
<td>2.0663</td>
<td>0.1844</td>
</tr>
<tr>
<td></td>
<td>SHARE does not Granger Cause GCF</td>
<td>2.3254</td>
<td>0.1616</td>
</tr>
<tr>
<td>3. Share-GNPPC</td>
<td>GNPCAPITA does not Granger Cause SHARE</td>
<td>3.7539*</td>
<td>0.0846</td>
</tr>
<tr>
<td></td>
<td>SHARE does not Granger Cause GNPCAPITA</td>
<td>23.3549***</td>
<td>0.0009</td>
</tr>
<tr>
<td>4. Share-Open</td>
<td>OPEN does not Granger Cause SHARE</td>
<td>1.1911</td>
<td>0.3035</td>
</tr>
<tr>
<td></td>
<td>LNSHARE does not Granger Cause LNOPEN</td>
<td>4.3168*</td>
<td>0.0675</td>
</tr>
<tr>
<td>5. FDI-GCF</td>
<td>LNNFDI does not Granger Cause LNGCF</td>
<td>0.7341</td>
<td>0.4138</td>
</tr>
<tr>
<td></td>
<td>LNGCF does not Granger Cause LNNFDI</td>
<td>3.7466*</td>
<td>0.0849</td>
</tr>
<tr>
<td>6. FDI-GNPPC</td>
<td>GNPCAPITA does not Granger Cause NFDI</td>
<td>0.5327</td>
<td>0.4840</td>
</tr>
<tr>
<td></td>
<td>NFDI does not Granger Cause GNPCAPITA</td>
<td>0.0198</td>
<td>0.8912</td>
</tr>
<tr>
<td>7. FDI-Open</td>
<td>OPEN does not Granger Cause NFDI</td>
<td>0.8146</td>
<td>0.3903</td>
</tr>
<tr>
<td></td>
<td>NFDI does not Granger Cause OPEN</td>
<td>0.1574</td>
<td>0.7008</td>
</tr>
<tr>
<td>8. GCF-GNPPC</td>
<td>GNPCAPITA does not Granger Cause GCF</td>
<td>0.0959</td>
<td>0.7639</td>
</tr>
<tr>
<td></td>
<td>GCF does not Granger Cause GNPCAPITA</td>
<td>4.9576**</td>
<td>0.0530</td>
</tr>
<tr>
<td>9. GCF-Open</td>
<td>OPEN does not Granger Cause GCF</td>
<td>0.0446</td>
<td>0.8374</td>
</tr>
<tr>
<td></td>
<td>GCF does not Granger Cause OPEN</td>
<td>3.5763*</td>
<td>0.0912</td>
</tr>
<tr>
<td>10. GNPPC-Open</td>
<td>GNPCAPITA does not Granger Cause OPEN</td>
<td>5.4050**</td>
<td>0.0451</td>
</tr>
<tr>
<td></td>
<td>OPEN does not Granger Cause GNPCAPITA</td>
<td>1.2461</td>
<td>0.2932</td>
</tr>
</tbody>
</table>

**Notes**: *, ** and *** represents the value is significant at 10 percent, 5 percent and 1 percent respectively.

**Source**: Author’s Calculations
4.4.3 Regression Analysis

In this section, to know the factors effecting the growth of service sector in India, the following time-series regression equation has been estimated:

$$\text{LnShare}_t = \beta_0 + \beta_1 \text{LnNFDI} + \beta_2 \text{LnOpen} + \beta_3 \text{LnGCF} + \beta_4 \text{LnGNPPC} + U_t$$

Table 4.8 presents the estimated regression results by using EViews 7 software. Results show that all the coefficients of the regression equation are insignificant at a given level of significance. But still, one can infer the effect by looking at the signs of the regression coefficients.

Table 4.8: Determinants of Increasing Share of Service Sector in India

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.1886*</td>
<td>0.0139</td>
</tr>
<tr>
<td>LNNFDI</td>
<td>-0.0116</td>
<td>0.1938</td>
</tr>
<tr>
<td>LNOPEN</td>
<td>0.0494</td>
<td>0.3009</td>
</tr>
<tr>
<td>LNGCF</td>
<td>0.0399</td>
<td>0.2645</td>
</tr>
<tr>
<td>LNGNPPC</td>
<td>0.0704</td>
<td>0.5318</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.9778</td>
<td>--</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.9667</td>
<td>--</td>
</tr>
<tr>
<td>Sample Size (n)</td>
<td>13</td>
<td>--</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>88.2069**</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Notes: * and ** represents the value is significant at 5 percent and 1 percent respectively.

Source: Author’s Calculations

Among the positive coefficients, per-capita GNP has the largest impact on rising share of service sector followed by degree of openness and domestic investment. The coefficient of net FDI inflows is negative but insignificant. Further, the value of $R^2$ shows that the estimated regression is explaining the 97 percent variations in dependent
variable due to included independent variables. Significant value of F-statistics also confirms that the overall regression is significant.

At 5 percent level of significance, domestic investment, measured by GCF, also affects the GNP per-capita (see under 8th combination). Further, GNP per-capita is affecting the degree of openness of the economy (see 10th combination). However, if we consider the 10 percent level of significance, then we got three more causal relations viz, share variable granger cause degree of openness, domestic investment, measured by GCF, affect net FDI inflows and also to openness.

4.5 Conclusion

The present chapter is an attempt to examine in detail the role of service sector in the growth of Indian economy. To explain this, aspects related to service sector had been discussed in the introductory portion of this chapter. Structure of production for Indian economy since independence has also been presented by using A. Holub’s methodology over the study period. VAR methodology has been applied to evaluate the determinants of growth of service sector in India by using time-series data from 2000-01 to 2012-13.

The share of service sector in total GDP is increasing over the years. One of the reasons might be the increasing GNP Per-Capita. In these sectors, FDI inflows are also rising. As shown in this chapter, the main service sectors attracting FDI in India are telecommunications, Construction and Hotels and Restaurants. Share of total FDI inflows in service sectors is rising and now a days we as Indians are also known by our growing service sector. The overall conclusion emerges from the present analysis is that growth of per-capita GNP is major factor behind increasing share of service sector in Indian economy. Domestic investment and openness also effect positively to the share of service sector in GDP. Further, the effect of net FDI inflows is negative and insignificant.