The Enigmatic Services Sector of India

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Abstract

The share of services in India's GDP, at round 60%, is much higher than that in other emerging economies including China. Since the year 1991 Growth of services in the economy has surpassed that of agriculture and manufacturing, a feature that defies received wisdom on the growth pattern of economies. Received wisdom, grounded in the Kuznets paradigm, is that growth in the productivity of agriculture and agricultural incomes provides the manufacturing sector both low cost agricultural raw materials and a demand for its output. In time, the continued growth in incomes promotes the growth of the services sector both through a demand for consumer services and for services as growth promoting inputs into manufacturing and agriculture. India's services sector, though, has grown alongside an agriculture sector that is none too productive, and a manufacturing sector that accounts for a relatively low 20% of the GDP. This paper provides an explanation, grounded in the country's history and economic policies of the pre- liberalization era, for the growth of the services sector and argues that, contrary to popular opinion, it can lead the economy.

1. Introduction

At a recent seminar on services in the Indian economy a commentator observed that the relatively high share of services in India's GDP, at around 60%, is a wonder and cause for dismay. Indeed, the share of services in India's GDP is much above the norm for economies with similar levels of per capita income. The share of services in India's GDP was 8% above the norm in the year 2005, whilst China's share of services in GDP was 6% below the norm (Ghani Ejaz, 2011), and the share of manufacturing in GDP is much lower than that in several other emerging economies.

India's services sector is heterogeneous, with a number of sub sectors from the traditional ones such as transport services to the modern information technology (IT) oriented services. Section 2 of the paper reviews the growth of the sector over time and its share in the national product of the country. There are reasons for the significant share of services in India's GDP, grounded in India's economic history and economic policies in the years soon after independence. Section 3 of the paper analyses the factors that have promoted the

growth of the sector. Section 4 discusses the nature and growth of the sector and its interrelationship with other sectors in some detail, all of which provides the basis for the contention that the sector can lead the Indian economy. Section 5 sums up the main conclusions of the paper.

2. Growth and Size of the Services Sector in the Economy

Services accounted for 55.2 % of the country's Gross Value Added of $2038 billion in the year 2017-18 up from 40 % in the year 1980, exceeding the share of both agriculture and manufacturing (Table 1).

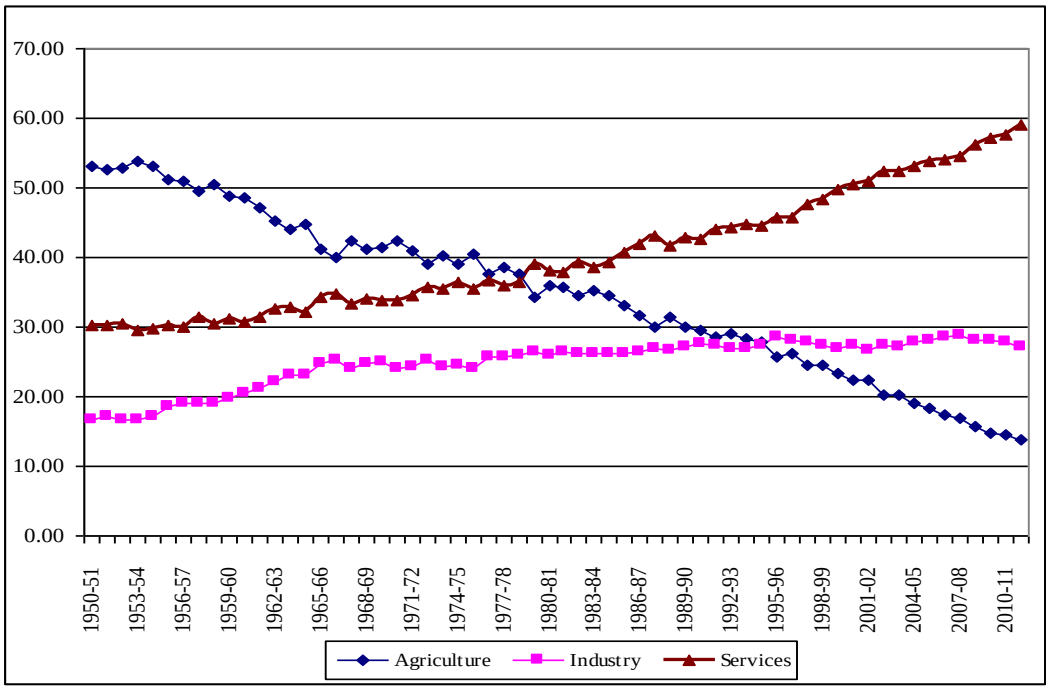
Table 1: Sectoral Shares in Gross Value Added (%)

Year	Agriculture	Manufacturing	Services	Total Value Added (Rest Million
2011-12	21.74	29.28	48.97	810,694,60
2012-13	20.94	28.76	50.83	920,269,20
2013-14	20.65	28.27	51.08	103,631,530
2014-15	19.64	28.21	52.24	114,817,940
2015-16	`18.51	28.38	53.11	124,586,420
2016-17 (estimate)	18.11	28.22	53.68	136,699,140

Source: Economic Survey 2016-17, Volume 2, Ministry of Finance, Government of India

Whilst the share of agriculture in GDP has declined over the years, that of manufacturing has stayed more or less stagnant since the 1990s, whilst that of services has increased steadily from less than 35% in the early years of economic planning to 58% in recent years (Figure 1).

Figure 1: Share of Agriculture. Manufacturing and Services in GDP



Source: Ministry of Statistics and Programme Implementation, Planning Commission, Government of India.

Services also account for a higher proportion of employment of the labour force at around 31% higher than that in manufacturing, agriculture though harbours a high proportion of the labour force (Table 2).

Table 2: Sectoral Shares in Total Employment: 1987-2016

	1991	1993-94	1999-2000	2004-05	2009-10	2016-17
Agriculture	63.59	64.70	59.90	56.40	52.80	47.00
Manufacturing	14.81	14.8	16.3	18.8	10.54	22.00
Services	21.60	20.50	23.90	24.80	26.67	31.00
Total Labour	335.39	351.8	397.70	457.46	469.80	513.7

Force (Millions)						

Source: National Sample Survey Organisation, Surveys on Employment

The rapid growth of the services sector and its relatively high share both in GDP and employment is seen as a wonder. It is also a cause for dismay that services, most of which are human capital intensive, may not generate the high volume of employment and incomes that India, with its high level of poverty and regional economic disparities, requires. Whether the composition of the sector should be a cause for concern is discussed in some detail in section 4 of the paper.

3. Why do Services Dominate the Economic Structure of India?

The well- known Kuznets (1955) paradigm sketches the transition of a growing economy from agriculture to a services oriented economy. The phenomenon, that underlies this transition, is based on the relationship between growth and income distribution depicted in the inverted U shaped curve, with income distribution on the vertical axis and income growth on the horizontal axis. Growth of agriculture increases agricultural incomes as well as inequality of incomes. These income effects generate not only a demand for manufactures, but also a reduction in the price of agricultural inputs required by the manufacturing sector. Both these effects promote the growth of the manufacturing sector, with a further increase in income inequalities in the economy. These income effects in turn promote a demand for services. The growth of the services economy and the accompanying growth of incomes result in a reduction in income inequality. The growth process of most developed countries, including the UK and the USA, seem to conform to the Kuznets paradigm. India though is an exception, with the path of transition that has jumped from agriculture to services with a nod towards manufactures. This phenomenon has an explanation grounded in the country's economic history and economic ideology.

Until recent years, the economy of India hardly experienced the sort of growth in incomes, underlying the Kuznets paradigm. Growth of per capita incomes was virtually stagnant

throughout the colonial years. Growth in income though recognisable was none too significant in the post-independence years until the decade of the nineteen eighties. Even so, the structure of the economy more nearly resembles that of a developed country, with services accounting for a relatively large share of GDP as noted in section 2 of the paper.

The present day economic structure of the economy of India has its roots in India's history and the structure of its society. For long, India has been an elitist society, with a hierarchical caste system dominated by the Brahmins, the ruling class, and the merchant class; all three commanding power and influence over education, trade and top-level administration. As the reputable economic historian, Thirthankar Roy (2011) observes- *"the historical pattern of demand for education at all levels was biased towards certain castes and communities because these people had an inherited association with literate services. Groups that had contact with scribal professions, medicine, teaching, and priesthood, in the pre-colonial times, entered education, medicine and public administration in the colonial times. These classes and castes eagerly used the new schools and colleges, while other classes and castes entered schools on a smaller scale, and dropped out more readily. The correlation between family history of literate services, preference for service professions, and thus, preference for education, was especially close in the three port cities – Madras, Bombay, and Calcutta"*. The city of Bangalore, home to India's major software firms and software engineers, is a twentieth century addition to the three port cities. The software industry is dominated by members of the middle class, mostly upper castes, especially the Brahmins, that were prominent in civil service jobs in the past (Upadhya, 2004).

This sort of a preference for administrative jobs on the part of the upper caste members has its counterpart in the preference for careers in trade and finance on the part of leading business communities, such as the Banias and the Marwaris, in the country. The business houses of these communities financed foreign trade during the British colonial era. Each of the business houses produced a diverse range of products but they all shared risks and drew on a pool of finance and information. They were also traders in their own right. Another group of entrepreneurs were the Parsis who had no religious affiliation with the Hindu community and were on a class of their own. As Damodaran (2013) notes the Parsis had special relationship with the British: *"being part of neither the Hindu nor Muslim*

mainstream, nursing no political ambition and exposed to commercial influences because of their proximity to the ports of Bharuch, Surat, and Daman, the Parsis seemed ideal for recruitment as native brokers, agents and shippers". Again, as Thirthankar Roy writes: *"the factors that have promoted the growth of services sector may differ between the various states of India, but two of them may be significant for all of them. First is the significance of trade and finance in India's economic history through the ages, but especially so from the British colonial days. The ratio of trade to domestic product increased from a low of 1 to 2% in 1800 to 20% by 1914"* (Roy, 2011).

It is thus that history underlies the growth of the present day services sector. The predominance of trade and finance in India's economy over the years has shaped the managerial class, as it exists today. Managers of the day in the private sector are "market managers" rather than "man managers". They are adept at identifying markets for the products their firms produce, locating sources of finance and exploring ways and means of acquiring technology and know- how. They are though not at ease in organising labour and managing the production process. In other words, Indian managers excel in establishing and promoting service oriented firms and the services side of the business, including finance and marketing, but the engineering and production side of the business is not their forte. As Hirschman, the reputable development economist from Yale University put it *"labour-intensive technologies by their very nature require much more intensive organisation and supervision than capital-intensive technologies"* (Hirschman, 1959). Indian entrepreneurs seem not to be very well endowed with the sort of skills required to manage and organize labour intensive production processes. Added to this is the widespread and significant presence of the labour unions in the manufacturing sector. These labour unions of differing hues and political attachments add to the problems posed by the ineptitude of the entrepreneurs in managing labour and thus labour intensive industries. Hence, the absence of a large number of inherently labour intensive firms and the relatively high capital intensity of the production process of most manufacturing firms in the organised manufacturing sector.

Economic policies pursued during the first four decades post- independence seem to have sustained and strengthened the factors inherited from history in shaping the structure of

the economy. The strategy of industrialisation advocated by India is first Prime Minister Jawaharlal Nehru, seems to have inadvertently promoted the service sector in the economy. The Nehruvian strategy, grounded in ideology, had industrialization at its core. In the words of the Prime Minister *"the problems of poverty and unemployment, of national defence and of economic regeneration in general cannot be solved without industrialisation. As a step towards such industrialisation, a comprehensive scheme of national planning should be formulated. This scheme should provide for the development of heavy key industries, medium scale industries and cottage industries"*.

National regeneration was to be achieved through self- sufficiency in investment goods that would in time produce consumer goods. Capital goods production requires technology and expertise. This was to be acquired at home through the promotion of science and engineering education. Towards this end, a number of higher education institutions were set up, and they did yield the sort of human capital that was desired. The Indian Institutes of Management (IIMs) and Institutes of Technology (IITs), that were set up during the decade of the fifties, now number 19 and 17 respectively. According to the data published in the Statistical Abstract of India, there were a total of 15,703 degree awarding institutions of higher education in the country at the end of the year 2001-02. It is noteworthy that the IITs and IIMs stand apart from other institutions in the quality of graduates they produce. Why have not these institutions served to promote the manufacturing sector? How come that the substantial output of human capital failed to promote manufacturing on a scale similar to that achieved by China?

Surprising as it may seem, the number of engineering graduates the country produced was surplus to requirements. The industrial strategy formulated during the decade of the mid-fifties and the sixties was oriented towards capital-intensive large-scale firms and projects that did not require the vast number of engineers and technicians. A substantial proportion of the engineers were surplus to requirements. There were two outlets for the surplus of engineering graduates, both a result of fortuitous circumstances. First, there was a substantial demand for trained technicians generated by space research and defence in the USA during the decade of the sixties and the seventies. The relaxation of immigration regulations and constraints by the USA, during the decade of the seventies and eighties,

referred to as a policy based on 'skills rather than skin', provided a vent for the surplus graduates India' s economic policy had produced. Second, the birth of the information technology industry in the USA and its swift growth absorbed much of India's surplus of engineering graduates. The Indian diaspora in the US are a factor of significance in the growth of the software sector in India. Many of them returned home to establish software firms, some of them to this day are back and forth migrants; they manage investments in India with frequent visits. Most of the graduates that emigrated were products of the Indian Institutes of Technology (IITs); those that stayed home had to seek jobs that were not cut out for engineers. Software though seems to have provided an alternative (Balasubramanyam & Balasubramanyam, 2000). The present day Software industry stands out as a human capital-intensive service industry, developed by Indian engineers, without much assistance from the government or the multinationals.

Apart from the supply side factors that have promoted the growth of the services sector in the country, there are also demand side factors that have contributed to the growth of services. Indeed, much of the analysis of structural changes in the economy incorporates both supply and demand side explanations. In the Kuznets model, for instance, increased inequalities in incomes following growth in productivity of agriculture and manufacturing feeds the demand for services. The structural change the Indian economy has experienced, however, differs from the sort of transformation based on growth of productivity in agriculture suggested by Kuznets. The increased inequalities in incomes since liberalisation are a factor of significance in the growth of expenditures on services. Whilst growth has contributed to increased incomes of the upper and middle income groups, they have also benefitted from the policies of liberalisation initiated in the year 1991. Gaurav Nayyar's (2008) study, based on household survey data on expenditures shows that, as household expenditures increase, the budget share allocated to services in general and to education, health and tourism in particular, increase considerably. The growth of services in the economy is no wonder. It is grounded in historical factors, the socio economic structure of the country in the past and in the post- independence Nehruvian economic policies.

4 Services – The Leading Sector of the Economy.

Whilst there are explanations for the growth of services in the Indian economy, the issue of concern is - "can services lead the economy, both as a sector on its own and as a complement to other sectors?" The criteria for a sector to be a leading sector are several. It should be heterogenous, it should be grounded in the country's factor endowments, it should possess a high level of productivity, it should be a participant in the country's international trade and factor flows, it should possess strong demand and supply links with other sectors in the economy and it should bestow on other sectors externalities in the form of technology and knowhow. India's services sector displays these and other characteristics in good measure. It is worth emphasizing that most services are inputs into the production process of other sectors. The contribution of services as inputs facilitates the growth of productivity in the manufacturing and agriculture sectors.

Heterogeneity

A leading sector should consist of heterogeneous sub- sectors that cater to the needs of a variety of producers and consumers. High tech manufacturing firms may require IT services and sophisticated financial services; semi-skilled manufacturing firms benefit from marketing and trade services and the country, as a whole requires defence, civil service and education services. India's services sector consists of a mix of services that can be broadly grouped into three: First group, termed as public services, consists of education, health and defence, the second group includes trade, transport and hotels, and the third group consists of business services including banking and insurance, IT services such as software and communication and legal services. All three groups have grown in step with the growth of the country's GNP; the fastest growing one is the third group that is much more human capital intensive in the production process than the other two groups (Table 3).It is the third group that has grown faster than the other two. It is this group that caters to the services requirements of high technology oriented manufacturing firms. In general, India's services sector is heterogeneous and is capable of catering to a variety of requirements of a growing economy.

Table 3: Composition of the Services Sector

	Community Social and Personal Services	Trade, Hotels Transport and Communications	Financing, Insurance, Real Estate and Business Services	Total Value of Services (Million Rest)
2011-12	25.84	35.60	38.56	39,700,250
2012-13	24.88C	36.06	39.06	43,008,200
2013-14	24.00	35.67	40.33	46,302,630
2014-15	23.67	35.46	40.87	50,776,110
2015-16	23.68	35.70	40.72	55,722,220
2016-17 (Estimate)	23.80	35.71	40.47	600,359,600

Source: Economic Survey 2016-17, Volume 2, Ministry of Finance, Government of India.

Grounding in the Factor Endowments of the Country

The sector, with all its sub sectors, should draw upon the factor endowments of the country, if it were to achieve high levels of factor productivity and growth over time. The presence and growth of the three groups, referred to earlier, reflects their grounding in the factor endowments of the country. The first group draws upon its endowments of labour with tertiary education, mostly in the social sciences. The second group draws upon semi- skilled labour and business oriented entrepreneurs discussed earlier. The third group draws upon the large number of engineering and science graduates produced by the tertiary education system. The Proportion of people in the relevant age group with tertiary education in India was, until recently, higher than that in China, with the reverse being the case for secondary education (Barro R and Lee J, 2000). The third group, that consists of business services, including software, owes its birth and growth to factors discussed earlier. It is the third group of services, intensive in human capital that has grown substantially in recent years

(Table- 3). The pattern of employment also reflects the growth of human capital and technology intensive services.

Whilst services as a whole account for 28 % of total employment, a share that exceeds that of manufacturing, information and communication technology services (ICT) account for a high proportion of employment in market oriented services (Table 4) India is an economy endowed with labour, but its labour consists of both skilled and semi- skilled labour. As Eichengreen and Gupta (2011) note, the mix of skilled and semi-skilled labour in India's services sector is much the same as in the manufacturing sector. The composition of India's services sector that consists of both a relatively skilled services sector and a semi-skilled one suggests that the sector draws upon the factor endowments of the country. The reasons for the relatively large services sector in the economy as opposed to a manufacturing sector have been discussed in section 2 of the paper.

Table 4: Labour Employment share by Service Industries, 1980-2010

Description	1980	1990	2000	2010
Total services	16.94	20.03	23.69	28.20
Market services	9.12	11.84	15.27	17.99
ICT intensive services	6.43	8.35	10.73	12.42
Trade	5.80	7.35	9.16	9.79
Financial Services	0.31	0.51	0.58	0.90
Post and Telecommunication	0.14	0.18	0.34	0.40
Business Services	0.18	0.30	0.66	1.33
ICT non-intensive services	2.70	3.50	4.54	5.57
Hotels and Restaurants	0.80	0.92	1.18	1.47
Transport and Storage	1.90	2.58	3.37	4.10
Non-market services	7.81	8.18	8.42	10.21

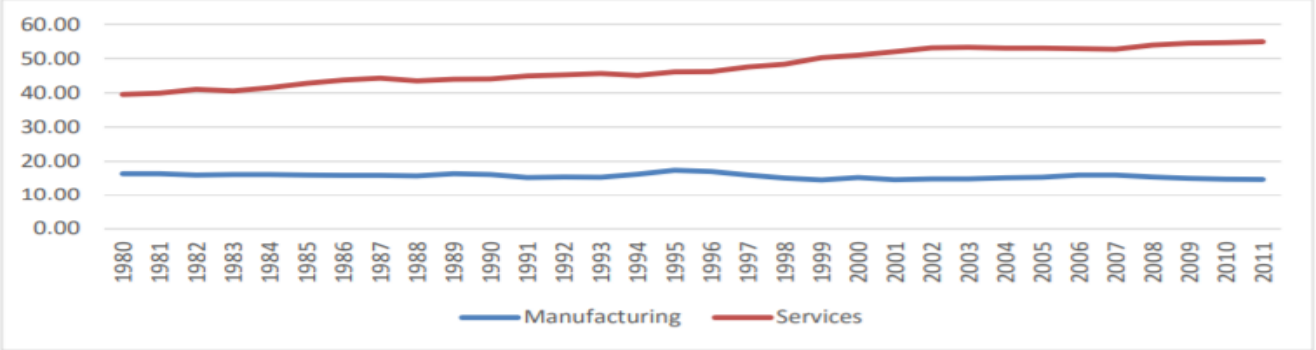
Public Administration and Defence	2.75	2.85	2.49	2.00
Education	1.58	1.63	2.17	2.79
Health and Social Work	0.58	0.56	0.72	0.91
Other services	2.90	3.15	3.04	4.51

Source: Das Debkusum et al. (2016)

Growth in Productivity

The detailed empirical analysis of the growth in the productivity of the sector analysed by Krishna et al. (2016), utilizing KLEMS data base, confirms that the sector as a whole has experienced a substantial growth in productivity, though the extent of the growth differs between groups. First, share of services in gross value added of GNP increased substantially while that of manufacturing was almost flat since the late 1990s (Figure 2)

Figure 2: Share of Services and Manufacturing in Gross Value Added



Source Krishna et al (2016) Working Paper 261, Centre for Development Economics. Delhi School of Economics

The growth rate of value added in services over the period 1980-2011, at 7.37 per annum, exceeded that of manufacturing estimated at 6.49%. Over the same period growth rate of employment in services, at 3.39 % per annum, exceeded that of manufacturing estimated at 1.92%. Second, over the period 1980-2011 labour productivity in the services sector as a

whole increased at 3.98 % per annum, with market services and ICT intensive services registering an annual growth rate of 4.37 and 4.90 percent per annum. In the sub period 2003-2011 growth in labour productivity of the sector was even more impressive; it registered a growth rate of 5.93% per annum with market services and ICT services registering 7.81 and 8.67 percent growth in labour productivity per annum. Non-market services including public administration, health and social work were lower down the table of productivity growth registering a 3.22% growth over the period 1980-2011.

An observation of significance in Krishna et al's (2016) empirical analysis of the growth of the services sector is that the main contribution to labour productivity growth across sectors is to be found in total factor productivity (TFP), not in the increased inputs of labour and capital. The contribution of services especially information technology services to the growth in TFP of the sector as a whole could be substantial. Yet another significant finding of the study is that growth in output of the services sector is mostly due to capital deepening. It is suggested that the liberalization of policies governing imports into the country, implemented in the year 1991, contributed to capital deepening by facilitating the importation capital equipment required by information technology producing and utilising firms.

International Dimensions of the Sector

The contribution of services sector to India's foreign exchange earnings is substantial. The growth of exports of the sector is impressive, from $1 billion in the year 1980 to $154 billion in the year 2016. In the year, 2016 services accounted for 38% of India's total exports of $ 426 billion. Share of India's services exports in world trade in services increased from less than 1% in the 1990s to 3.32% by the year 2016, most of which, around 70%, was accounted for by information technology and business process outsourcing The major markets for India's IT exports include the USA followed by the UK and the EU. Raychaudri and De's (2012) empirical estimates of revealed comparative advantage (RCA) of India's services trade shows that exports of computer and information services RCA increased from 28.19 in the year 2001 to 31.66 by the year 2007, a significant achievement.

A detailed empirical study of India's services exports (Sahoo and Dash 2016) shows that besides demand side factors, supply side factors including telecom density, human capital , financial development , FDI and R and D expenditures have all had a strong impact on exports of services. The study also finds that domestic services content of manufactured exports is substantial.

Gupta and Eichengreen's (2013) detailed empirical analysis of the impact of the real exchange rates on exports of services , based on data for a cross section of 66 countries of differing income levels for the period 1980-2009, finds the impact of real exchange rate variations on exports of services especially modern services to be significant. Modern services include computer services, financial intermediation m business and legal services. The dependence of these services on imported materials is relatively low and the demand for modern services is fairly price elastic. The study by Eichengreen and Gupta also shows that exports have made a significant contribution to the growth of the services sector especially that of the software firms.

Services also attract a substantial volume of FDI inflows into the country. As the Economic survey of India puts it, *"the Indian IT and business process outsourcing is a global powerhouse today and its impact on India and the world has been unprecedented"*. Services also attract a substantial volume of FDI inflows into the country. In recent years inflows of FDI into services has exceeded 50 percent of the total inflows (Table 5).

Table 5: Foreign Direct Investment (FDI) Inflows into the Services sector (Million $ and Percentages)

	2012-13	2013-14	2014-15	2015-16	2016-17
Total FDI Inflows	18,286	16,054	24,748	36,068	36,317
FDI in Manufacturing	6,528	6,381	9,613	8,439	11,972
FDI in Services	9,699	8,365	13,720	25,678	22,482
Services % of Total	54.8	52.1	55.4	71.5	61.9
Share of Business, Computer & Financial Services in total FDI in Services	9.1	34.85	43.06	37.64	50.4

Source: Annual Report, Reserve Bank of India, 2018.

In the year 2016-17 inflows of FDI into the services sector was 61% of a total inflow of $36 billion. It is of significance that the share of human capital- intensive services- financial services, business services in total inflows of FDI into services has exceeded 10% in most years (Table 5). The growing contribution of services to India's exports and the attraction of the services sector to foreign firms is yet another indicator of the ability of the sector to lead the economy.

Interconnections with other sectors

The foremost criterion for a sector to be a leading sector is its interconnections with other sectors and its contribution to their growth. There is adequate empirical evidence to support the proposition that services complement manufactures and the concern that the two are not related is fallacious.

An empirical exercise by Panagariya and Dehejia (2015) shows a link between manufacturing and services. Growth of the manufacturing sector promotes the growth of services through two channels: first through its increased demand for services- the so-called direct effect, second through the demand for services induced by growth in incomes from the growth of manufacturing, the so-called indirect effect. The analysis also suggests that the indirect link is weak whilst the direct link is substantial for the large service firms. Further, Panagariya and Deheija suggest that growth of manufacturing, especially so since the year 1991, has promoted services. Whilst Panagariya and Dehija do not contribute to the notion that services may not be able to lead the economy, they do not analyse the impact of the growth of the services sector on manufacturing.

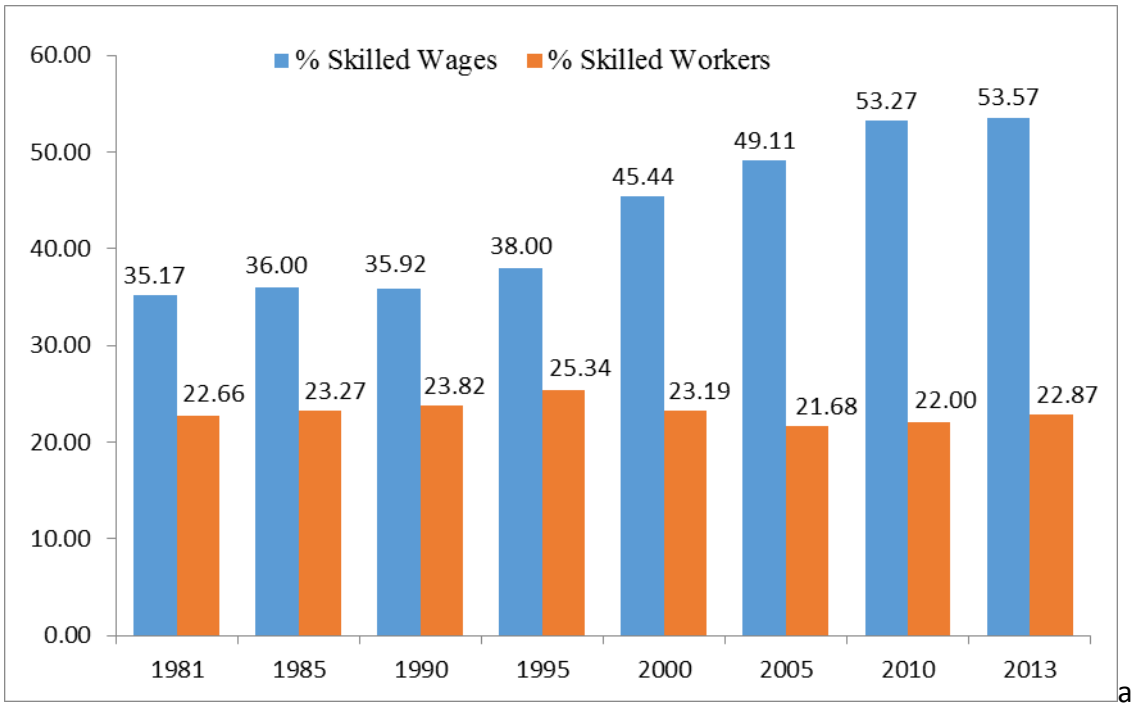
Banga and Goldar's (2004) incisive econometric exercise confirms the contribution of services to growth of output and productivity of the manufacturing sector, especially so since the year 1990. They estimate a production function utilizing the KLEMS methodology (Capital, Labour, Energy, Material and Services) and confirm that the contribution of services

to growth of manufacturing output increased considerably, from about one per cent in the 1980s to about 25 per cent in the 1990s.

Another detailed empirical study, (based on a set of reform indices) finds that India's reforms in the services sector have had a strong and significant impact on the productivity of the manufacturing sector (Arnold et al 2014). Liberalisation of the banking and telecommunications sector is reported to have had the strongest impact on the productivity of the manufacturing sector.

The proximate impact of service inputs, especially the ICT services that analyse, transform and transmit information including production methods to workers, is on the productivity of labour. In this context, it is of significance that the wages paid to skilled workers has increased considerably since the year 1980 whilst the number of skilled workers employed shows little change (Figure3)

Figure 3: Changes in skill intensity and wages of skilled workers over the period 1981-2013 – All Industries



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Source: Authors' calculations using data from Annual Survey of Industries data (2013-14)
Note: (i) Skilled workers= Total persons engaged- total number of workers.
(ii) Skilled Wages= Total Emoluments- Wages to workers

Number of Skilled workers in the year 1981=1788 thousand
Wages to Skilled workers= 23833 Million Rest

This suggests that the composition of the skilled workforce has changed over the years reflecting the growth of IT experts who command relatively high wages. A study (Vashisht and Dubey, 2018) on the composition of the workforce, or occupations as the study refers to, suggests that the combined share of highly skilled occupations (managers, professionals and associate professionals) in total employment was only 4.78 per cent in 1983, this increased to 13.41 per cent in 2011-12. Among highly skilled workers, the most staggering increase has been in the share of managers. The share of managers in total employment went up from just 1.13 per cent in 1983 to 6.76 per cent in 2011- 12, registering a growth of roughly 500 per cent . The authors of this empirical analysis of changes in the nature of occupations note that non-routine cognitive analytical as well as the non-routine cognitive interactive task intensity of jobs has increased in India. Cognitive tasks mostly consist of analysis of information and decision making, both of which utilise information technology skills. These developments on the occupational structure of the labour force have driven up wages of non- production workers relative to that of production workers (Figure 4)

Figure 4

These changes in the structure of occupations are bound to have an impact on the productivity of the production process. Analysis of the impact of services on labour prductivity reported below suggest as much. We estimate the impact of services on the productivity of labour for the years 2001-02 to 2013-14 for a panel of 26 manufacturing

industries. We measure productivity of labour by the standard measure – output per labour (O/L) and the efficiency wage defined as output per unit of total wage bill (O/W). Growth in labour productivity would confer increased wages for the workers, but the measurement of significance to entrepreneurs is the return per unit of wage. The efficiency wage measures both the impact on productivity and associated wage increases of changes in the production process. We use the 'Principal Characteristics by Major Industry Group' data obtained from India's Annual Survey of Industries (ASI). The data is disaggregated at the two digit National Industrial (Activity) Classification (NIC). The estimated equations are:

$$Ln\frac{O}{L} = \alpha + \beta_1 Ln\frac{K}{L} + \beta_2 Ln\frac{S}{W} + \varepsilon$$

$$Ln\frac{O}{W} = \alpha + \beta_1 Ln\frac{K}{L} + \beta_2 Ln\frac{S}{W} + \varepsilon$$

In the above equations, O is the total output, L is total persons engaged (workers and service personnel), W is the total emoluments (wages paid to all employees), S is the input of services measured as the difference between total emoluments and wages to workers,

Table 6: Impact on Labour Productivity (O/L)

	Fixed Effects (with year dummies)
Ln (K/L)	0.2962** (0.1152)
Ln (S/W)	0.7834** (0.3181)
Constant	2.7351*** (0.3231)
R^2 within R^2 between R2 overall	0.8264 0.6340 0.6470
No. of observations	286

Note: (i) *** denotes significance at 1% level; ** denotes significance at 5% level; (ii) Parentheses give standard errors – robust to heteroskedasticity.

Table 7: Impact on Efficiency wage (O/W)

	Fixed Effects (with year dummies)
Ln (K/L)	0.1697 (0.1041)
Ln (S/W)	0.4891*** (0.1520)
Constant	3.0979*** (0.2450)
R^2 within R^2 between R2 overall	0.2595 0.0972 0.1116
No. of observations	286

Note: (i) *** denotes significance at 1% level; (ii) Parentheses give standard errors – robust to heteroskedasticity.

The estimated equations show that service inputs do have a significant impact on labour productivity but a positive but relatively low impact on output per unit of wages. These results suggest that whilst services do contribute to the growth in productivity of the manufacturing sector their growth also increases the wage bill as is to be expected. In general, the services sector satisfies most of the criteria required for it to be a leading sector. However, for it to be effective in promoting employment in both the organised and unorganised sectors, policy makers should facilitate the effective utilisation of services in both manufacturing and agriculture.

It is essential to keep in mind the obvious fact that most, though not all, services are inputs and not final products. This is especially so in the case of business services that includes finance, insurance and the IT services. The effective utilisation of the inputs to produce final goods and services is the central task facing policy makers. The response to the PM's Call "Make in India" requires the utilisation of the services sector inputs to produce final goods that reflect the country's endowments of human capital-intensive services.

It is encouraging to note that the model we advocate, though in its infancy, is gathering momentum. Manufacturers of motor cars in Tamil Nadu are moving the production of parts and components of industries to rural areas. In these cases, the utilisation of computer technology facilitates the training of rural labour. It is of interest that an empirical study of urbanisation of industry, across states in India, finds that there is a movement of plants in formal manufacturing to rural areas, whilst informal sector firms are moving into urban areas (Ghani et al., 2012). Some of these clusters, in Tamil Nadu with its significant industrial sector, are well known: Sivakasi for safety matches, firecrackers and printing; Karur, Erode and Salem for power looms and home textiles; Tirupur for knitted garments. Farming communities in these locations have built these clusters with investments of agricultural surpluses. The contribution of services such as finance and transport in the formation of these clusters is likely to be considerable. The study by Eichengreen and Gupta (2011) cited earlier notes that modern service sector jobs are migrating from urban centres to small towns and rural areas creating employment for semi-skilled workers who are numerate and literate.

5. Conclusion

The structure of the Indian economy, with services as the major sector contributing to national income, are to be traced to India's economic history, its emphasis on tertiary education and the nature of the institutions that have facilitated the growth of services. The paper also argues that services can be effectively utilised to promote both growth and development in the economy. Itis not suggested that India should abandon or accord manufacturing a secondary status. It is just that India is fortunate in possessing a services sector that is capable of promoting efficiency and growth in both manufacturing and agriculture. It is to be noted that the services sector, especially the ICT industry, though

buoyant is yet in its infancy. Its enormous potential for growth should be exploited with appropriate policies including education and trade and FDI. The Historian Ramachandra Guha's observation that the highly diverse country is held together by Cricket, the English language and Lata Mangeshkar (popular background singer from Bollywood), captures the significance of services in India.

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