Rethinking Structural Transformation and Dynamics of Service Led Growth in India

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Abstract:

Economic development is closely associated with structural transformation within the national economy. Conventionally, as countries progress, resources tend to shift from the primary sector to the secondary sector and eventually to the tertiary sector. However, India's developmental trajectory defies from this classical pattern. In India, the services sector grew at a faster rate than both manufacturing and agriculture during the post-2000 period. Since the early 1990s, following the introduction of economic reforms, India has experienced robust economic growth that has been predominantly service-led, despite it as a middle-income economy. Over the past two decades, the service sector has confirmed sustained expansion, with an average growth of 7.8 percent in gross value added (GVA), 32.3 percent in employment and31.1 percent is the contribution of Industry to the total work force. Within this sector, software, information technology-enabled services, and business and financial services have emerged as particularly dynamic contributors. While comparing agriculture and manufacturing industries, these industries not only created employment opportunities but also generated job growth across other sectors via multiplier effects. Against this backdrop, the present study seeks to examine the service-led growth hypothesis in the Indian context, with a particular focus on its role in driving productivity, employment creation, and overall economic growth.

Key words: Gross Output; Total Factor Productivity; Labour Productivity; Services

1. Introduction

For low-income nations like India, it is especially crucial to comprehend the factors that influence economic growth since it is essential to raising the

standard of living for their citizens. India has witnessed a sustained phase of economic growth since the 1980s, with a significant acceleration following the liberalization of the economy in the 1990s. During the 2000s, growth rates often surpassed 8 percent, marking a period of rapid expansion. However, the global financial crisis of 2008 led to a pronounced slowdown, and growth rates moderated thereafter. Despite such disruptions, the economy has maintained an average growth rate of over 6 per cent during the past four decades. More recently, although growth has not returned to the exceptional levels of the 2000s, the post-pandemic period has seen stabilization, with India emerging as one of the fastest-growing major economies globally. Within this broader trajectory, policy reforms in trade, investment, and the overall economic environment have positioned the service sector as a central driver of growth. The sector has become the largest and most dynamic component of the Indian economy, making a substantial contribution to both national income and employment. In terms of workforce absorption, services rank second only to agriculture at the national level and across most states, underscoring their growing role in shaping India's development pathway.

The Indian economy was dominated by the "license-raj" framework, inward-looking trade policies, and a lot of state control in the decades after World War II. These factors combined to limit economic dynamism and keep growth rates low. A comprehensive program of economic liberalisation, characterised by the removal of excessive state regulations, the lowering of tariff barriers, and the deregulation of numerous important industries, progressively replaced this policy framework. Gradually the economy Transferred from an economy from low productivity and labour-intensive economic activities to higher productivity and skill-intensive activities. The structural and institutional underpinnings of the service sector were radically changed by these changes, allowing for increased efficiency, competitiveness, and market integration. A major structural shift has occurred with the emergence of the services sector as the most active part of the Indian economy. The most notable and well-known of its many categories has been the quick growth of software and IT-enabled services, including call centres, software development, and business process outsourcing. This expansion has also strengthened the industry's capacity for innovation, reflecting broader trends towards knowledge-intensive endeavours.

The initiatives like *Make in India, Digital India programme and trade liberalisation policies*, increased the demand for high-value services (like logistics, design, engineering, and professional services) and further integrated the services into domestic value chains by supporting sophisticated manufacturing and technology industries (like electronics, automotive, and semiconductors). Trade liberalisation through bilateral and multilateral agreements has altered India's inclusion into global services markets. By lowering barriers and enhancing market access for Indian service providers abroad, these agreements are progressively covering services, digital trade, and investment. The international aspect of service-led growth is strengthened by such liberalisation, which promotes export expansion, foreign investment inflows, and the integration of Indian businesses into global value chains. In an era where services are crucial to production and employment dynamics, these programs seek to increase the competitiveness and adaptability of Indian enterprises. Further these policies reflect evolving state strategies to address structural change, productivity, employment, and international competitiveness.

1.1. Theoretical importance and Empirical evidences: The service sector has contributed to the overall growth and the aggregate TFPG in India. Research on the services sector in particular indicates that the recent acceleration of its expansion is primarily driven by significant gains in productivity within the sector, despite the literature on structural transformation showing that India's shift in sectoral composition has generally supported economic growth (Rakshit, M 2007).The introduction of the Industrial Policy Statement in July 1991 marked a turning point in India's economic trajectory. During the period 1951–1979, the economy recorded an average annual growth rate of around 3.5 per cent, which rose to 5.0 per cent between 1980 and 1991. Following the liberalization reforms of 1991, growth accelerated further, averaging 6.5 per cent per annum during 1992–2000 and 6.8 percent during 2002–2011 (IDR, 2015). A striking feature of this growth process has been the rising dominance of the service sector. Its contribution to GDP increased significantly from 50 per cent in 1991 to 64 per cent in 2012, reflecting its expanding role in national output and employment generation (Table 1). The sector has also witnessed a sharp rise in export earnings, emerging as a major component of India's global economic engagement. In contrast, the manufacturing sector has exhibited relative stagnation, with its

share of GDP increasing only marginally from 14 per cent in 1991 to 15 per cent in 2009 (Hussaini, 2011).

It is noteworthy that, while agriculture and manufacturing have alternated between phases of growth, stagnation, and deceleration, the tertiary sector maintained a relatively stable and uniform growth trajectory over the period 1950–51 to 1999–2000 (Joshi, 2008). However, this expansion in output was not accompanied by a proportional increase in productive employment opportunities. On the contrary, the growth process has been characterized by declining employment intensity. Between 1999–2000 and 2004–05, employment elasticity improved from 0.15 to 0.51, reflecting a temporary strengthening of the link between growth and job creation. Within the services sector, almost all sub-sectors, with the exception of transport, storage, and communication, recorded rising employment elasticity during this period, contributing to the overall increase (Mitra, 2008). A distinctive feature of India's growth trajectory has been the slow pace of workforce transition from agriculture to non-agricultural sectors between 2000 and 2019. The bulk of labour reallocation has occurred towards construction and services, while manufacturing has remained relatively stagnant, absorbing only 12–14 per cent of the workforce throughout this period. Although the share of agricultural employment has declined, the contraction in its contribution to gross value added has been even sharper, underscoring the persistent productivity gap between agriculture and the rest of the economy.

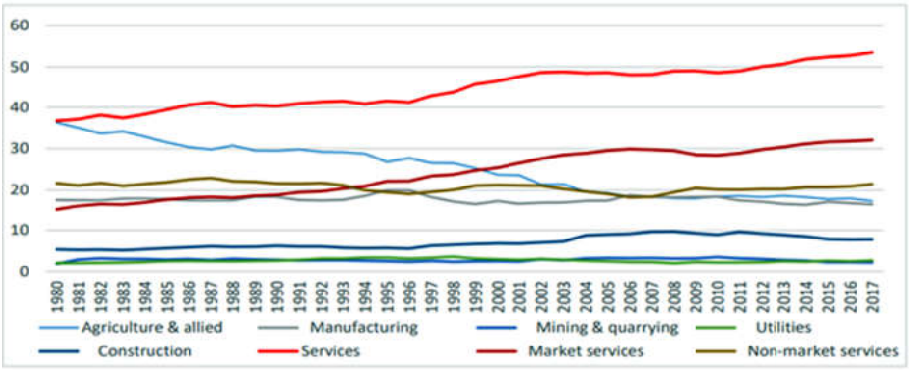
Table 1: Indian Economy Sectoral Shift

Industry Description	Share in GDP (in %)	Share in EMP (in %)
Agriculture sector	14% (70%)	44 % of work force (68%)
Industry sector	22% (18%)	25 % of work force (34%)
Service sector	64% (12%)	31% of work force (8%)

Note: Employment mismatch indicates incomplete structural shift. (Figures in parenthesis shows growth rate in 1950-55)

It is also important that, the share of service sector towards value added in Gross Output increased substantially compared to other sectors. In Figure.1, it can be observed that the value-added share of agriculture & allied activities has steadily declined over the past four decades. Conversely, the share of the services sector has increased from 37 percent in 1980 to 53 percent in 2017. The share of non-market services, encompassing public administration, education, and health services, remained relatively stable at around 20 per cent throughout the entire period, while the share of market services, consisting of trade, transportation, business, and financial services, experienced an increase from 15 per cent to 32 per cent. The increase in the share of market services was reflected in an overall increase in the services sector's share. With the exception of a slight increase during the mid-1990s, the share of the manufacturing sector in the total GDP has remained stagnant since 1980. An improvement was noted in the share of the construction sector, which increased from 5 percent in 1980 to 10 percent in 2008, but then decreased to 8 percent in 2017. The share of the utilities sector (electricity, gas, and water supply) and the mining sector remained stable over the entire period.

Figure 1: Gross Value-Added share (%): Broad Sectors



Source: KLEMS data base version 2019.

1.2. Literature Review: Over the years, there has been a lot of discussion related to the service sector's contribution in terms of value added, especially before the industry could achieve such a position in the context of emerging economies. The rise of service-led growth represents a significant

transformation in India's economic trajectory, one that has been more broad-based and sustained compared to other sectors. The service sector is the engine of India's economic growth, according to a number of empirical research (Balakrishnan and Parameswaran, 2007; Bosworth et al., 2007; Rakhsit, 2007; Bosworth and Maertens, 2010). Some of the research additionally examined whether input accumulation or efficiency of resource utilisation (TFP) drove the observed growth using growth accounting techniques. However, Nayyar (2012) contends that because these studies only look at the overall level, they do not account for any intra-industry group disparities within services. According to Sarkar and Mazumdar (2008), "New Economy has emerged in India as a result of the expansion of the ICT sector. This economy has created new jobs for technical professionals, helped generate foreign exchange through exports, and attracted foreign investment".

A large body of research has examined the evolution of India's service economy (Datta, 2001; Papola, 2007; Mitra, 2008; Aggarwal and Goldar, 2020). Several studies argue that the outsourcing of activities and the consequent expansion of final demand in other sectors have contributed to the rising share of services in GDP. As Gordon and Gupta (2008) note, the increasing use of service inputs by other sectors has been a critical factor behind the recent surge in services growth. Trade liberalization and agricultural reforms have also indirectly enhanced the demand for service inputs. At the same time, the sector has faced limitations in absorbing surplus labour from agriculture and manufacturing, largely due to the technical and skill-specific requirements of many service activities. Das, Erumban and Gupta (2018) highlighted that the expansion of computer software and information technology has given rise to a "new economy" in India, which has generated substantial employment for technically qualified workers, while simultaneously earning foreign exchange through exports and attracting foreign investment. Although the service sector's dynamism is widely acknowledged, concerns have been expressed regarding the sustainability of services expansion (Acharya, 2002; Bosworth, Collins & Virmani, 2007; Panagariya, 2008). According to Singh (2006A), services had the highest stimulating effect in terms of both forward and backward linkages. Given this context, it becomes essential to examine the underlying drivers of service sector growth and assess its broader significance for the Indian economy. Employing a gross output production function and utilizing KLEMS data, the present study seeks to analyse long-

term trends in factor productivity, gross output, and employment across service industries.

According to recent data from NITI Aayog, India's economy is still shifting towards services, with the services sector accounting for more than half of gross value added and continuously increasing between 2011–12 and 2023–2024. This challenges conventional models of structural transformation that emphasise sequential transitions from agriculture to industry to services, reflecting an atypical growth path where services predominate in comparison to manufacturing and agriculture. The same argument has also found an empirical research effort headed by the Institute for Studies in Industrial Development. It demonstrates changes in labour dynamics, income distribution, and consumption patterns, with households spending more on services, all of which contribute to the explanation of why services have expanded earlier and more quickly than anticipated. Basole (2024) evaluates how well India's economic expansion transfers workers from the unorganised sector and agriculture to more productive occupations. It concludes that although employment in agriculture declines with expansion, there is still little shift into formal, non-farm work, particularly in industry. According to Roy & Sarkar's (2024), "capital productivity growth and technical advancements have changed India's structural shift, leading to an excess labour situation in agriculture and increasing the significance of services for producing jobs". The recent research published in *The Indian Journal of Labour Economics*; "India's sectoral mobility continues to avoid manufacturing by shifting labour from agricultural straight into services". Mitra (2025) advocates services play a major role in economic output and TFPG (Total Factor Productivity Growth), the stagnation of the industrial sector may limit overall development advantages like employment and poverty reduction. World Development Report (2004) also highlighted the role service sector towards India's economic growth.

1.3. Objectives: The main objectives of the study are,

- To analyse the dynamics of productivity and output growth in India's services sector during the post-liberalisation period.
- To investigate the main determinants of growth across service-sector industries within the Indian economy.

1.4. Methodology: This study uses a growth-accounting frame work based on the KLEMS production-function approach to investigate the empirical

underpinnings of India's growth record. Growth accounting methodology requires data on value-added, employment, labour quality, capital services and labour and capital income shares to decompose the growth rate of value added or labour productivity (value added per worker) into contributions from factor inputs (employment, labour quality and capital services) and the residual total factor productivity growth. All the relevant data are obtained from India KLEMS data base. An evaluation of the respective contributions of multifactor productivity growth and input accumulation to overall output expansion is made possible by the KLEMS model's gross-output formulation, which views capital, labour, energy, materials, and services as separate inputs. The analysis calculates productivity trends in the services sector using the latest India KLEMS dataset (Version 2019), which covers the years 1980–2019. The sources of labour productivity growth in ten service-sector subsectors are also examined. These subsectors are then divided into market and non-market services for analytical clarity. For elaborated discussion on individual variable construction and methodologies interested readers may also refer to the India KLEMS data manual (Das et al., 2019).

2. Empirical Analysis and Discussions

The view that the acceleration of TFPG in the services sector has been a key driver of India's total economic growth, Total Factor Productivity (TFP) and labour Productivity (LP) are essential to comprehending the causes of economic growth because they differentiate between growth resulting from increased input consumption and growth resulting from increased efficiency and technical advancement. When workers acquire better skills, have access to better technology, or work in more effective organisational and managerial systems, labour productivity—which is expressed as output per worker or per hour-increases. As a result, higher labour productivity raises output, incomes, and living standards. TFP, on the other hand, represents gains from innovation, technological advancement, better resource allocation, institutional improvements, and knowledge spillovers that allow the economy to produce more with the same inputs. It captures the portion of output growth that cannot be explained by additional labour or capital. When combined labour productivity and TFP offer a thorough account of economic growth by demonstrating whether expansion stems from deeper structural transformation based on efficiency and technological advancement or from factor accumulation.

2.1. Service Sector Dynamics in Post-Liberalization India: When economic growth fails to generate adequate employment opportunities that correspond to the skills, aspirations, and basic needs of the labour force, the problem of unemployment intensifies. Such conditions have an adverse impact on both the pace and sustainability of economic growth (Ghose, 2016; IHD, 2014). The reduction in employment within agriculture and manufacturing has largely been offset by a commensurate increase in employment in construction and services. This divergence between GVA shares and employment shares reflects persistent productivity disparities across sectors. Against this backdrop, it becomes essential to examine the inter linkages between sectoral growth, factor productivity, and employment in India. This study therefore seeks to highlight the heterogeneity of the service sector and argues for a disaggregated industry-level perspective to better understand both labour and multifactor productivity, and to assess their role in shaping the overall growth trajectory of services.

Table 2: Relative contribution of service industries to GVA and Employment share

Description	CAGR in value added			CAGR in employment		
	2000-11	2011-19	2000-19	2000-11	2011-19	2000-19
Market services	55.5	51.5	53.8	29.8	18.9	25.9
Computer software	11.9	14.1	12.7	10.2	8.4	9.5
Trade	7.6	10.2	8.5	2.4	1.8	2.2
Banking & Insurance	7.1	6.8	6.9	6	3.8	5.3
Telecoms	12.7	6.6	10.4	2.9	0.1	1.9
Hotel and Tourism	7.8	7.1	7.5	4.9	2	3.8
Transport, Storage & Communication	8.4	6.7	7.8	3.4	2.8	3.2
Non-Market services	29.2	27.3	28.3	8.1	10.2	10.1
Public Administration, Defence & Social Security	5.6	5.7	5.6	-1.8	-0.3	-1.3
Education	9.2	8.5	8.9	4.6	3.8	4.3
Health and Social Work	10.1	8.1	9.3	4.4	4.7	4.5
Other services	4.3	5	4.5	0.8	2.1	2.5

Source: Authors computation based on Reserve Bank of India-KLEMS data.

The data presented in Table 2 shows all the services subsectors experienced a GVA growth rate of roughly 7 percent or higher between 2000 and 2019.The analysis reveals significant inter-sectoral variations, reflecting the structural transformation of the Indian service economy. The service industries that witnessed the fastest expansion in terms of value added include **computer software, telecommunications**, and **health and social work**. Computer software registered a remarkable acceleration, with its CAGR in value added rising from 11.9 per cent in 2000–2011 to 14.1 percent in 2011–2019, averaging 12.7 percent overall. These industries, while not as dynamic as IT or telecom, continue to be crucial for domestic demand and employment creation. The employment side of the analysis shows a contrasting trend compared to value added. **Computer software** maintained the highest employment growth (9.5 per cent overall), although still far below its value- added growth, reflecting its capital- and skill-intensive character. **Banking and insurance** also demonstrated notable employment expansion (5.3 per cent overall), while trade, hotels and tourism, and transport exhibited modest gains (ranging from 2.2 percent to 3.8 percent). Sectors like telecom saw negligible job creation (1.9 per cent overall), despite earlier value - added dynamism.n contrast to agriculture, the employment contribution of services is still minimal and does not correspond with changes in the services' GVA share. Low employment quality may be a result of differences in educational requirements among services.

2.2. Trends in Labour Productivity within Service sector: Labour productivity can provide useful comparisons across industries and for one industry over a long period, is especially important because it determines the real standard of living that country can achieve for its citizens. Table 3 presents the performance of the service sector with respect to labour productivity. The evidence indicates that labour productivity within India's services has recorded substantial growth across the decades under review, with a significant share of these gains attributable to improvements in non-market services.

Table 3: Labour Productivity and Capital Intensity in service Industries

Description	CAGR in Labour Productivity			CAGR in Capital Intensity		
	2000-11	2011-19	2000-19	2000-11	2011-19	2000-19
Computer software	1.6	5.4	3.4	7.9	4.1	5.9
Trade	5.1	8.2	6.2	10.1	18.4	13.1
Banking & Insurance	0.9	2.9	2.6	0.5	0.8	0.9
Telecoms	9.5	7.5	8.4	5.4	17.2	11.6
Hotel and Tourism	2.8	4.9	3.6	7.3	9.1	8.6
Transport, Storage & Communication	4.9	3.7	4.5	2.8	3.4	3.7
Public Administration, Defence & Social Security	7.6	5.9	8.1	8.6	7.6	8.4
Education	4.4	4.6	4.4	4.4	10.3	9.8
Health and Social Work	5.4	3.8	4.7	9.9	7.9	8.2
Other services	1.5	2.8	2.4	3.9	2.8	3.1

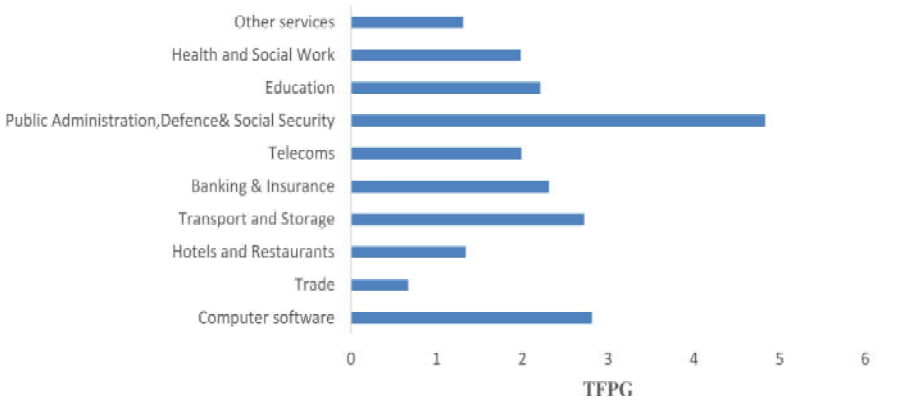
Source: Authors computation based on India-KLEMS data base.

The data indicate that sectors such as telecommunications, trade, and public administration registered the highest compound annual growth rates (CAGR) in labour productivity, with figures of 8.4, 6.2, and 8.1 percent respectively over the full period. In terms of capital intensity, the results point to particularly rapid growth in trade (13.1 percent) and telecommunications (11.6 percent), suggesting a strong investment-driven expansion in these industries. While a few industries demonstrate balanced growth in productivity and capital intensity, the broader pattern underscores divergent sectoral dynamics, with some services being capital-deepening without corresponding productivity improvements, and others achieving productivity growth through efficiency and technological change. Over the years, labour productivity in India's service industry has increased significantly, with market services-based businesses contributing significantly to this growth. This observed increase in market services productivity may point to the contribution of rising capital intensity to the expansion of labour productivity.

2.3. Total Factor Productivity in service industries: The trajectory of growth in TFP is a key determinant of long-run economic growth of an economy. Further, the service-led growth momentum in India has been questioned on the grounds of 'sustainability' against the backdrop labour-

abundance and capital-scarcity. Total Factor Productivity (TFP) is a critical component in understanding economic growth because it captures the portion of output not directly explained by the accumulation of measurable inputs such as labour and capital. In essence, TFP reflects the efficiency with which inputs are transformed into output, encompassing technological progress, innovation, improvements in human capital, better organizational practices, institutional quality, and economies of scale.

Figure 2: TFPG in Service Industries



Source: Authors computation based on Reserve Bank of India-KLEMS data.

Figure 2 on Total Factor Productivity Growth (TFPG) across service industries highlights significant variation in efficiency gains within the sector. Public administration, defence, and social security emerge as the most dynamic subsector, recording the highest TFPG at 4.83 per cent, suggesting substantial improvements in resource utilization and institutional efficiency. Computer software (2.81 percent), transport and storage (2.72 percent), and banking and insurance (2.31 percent) also exhibit relatively strong productivity growth, reflecting the positive effects of technological advancements, digitization, and process innovations. By contrast, industries such as trade (0.67 percent), hotels and restaurants (1.34 percent), and other services (1.31 percent) demonstrate considerably lower productivity growth, indicating structural

rigidities, labour intensity, and limited technological upgrading in these subsectors. Moderate gains are observed in education (2.21 percent) and health and social work (1.98 percent), which, while socially significant, continue to face challenges of scalability and efficiency. TFP estimates based on KLEMS production function for the services sector indicate impressive growth in TFP for market-based services. The nonmarket-based services, on the other hand, indicate a progressive decline in resource use efficiency in the recent decades.

2.4. Contribution of Factor Inputs and TFP to Gross Output Growth in service sector: The decomposition of output growth indicates that capital input, particularly capital services, plays a significant role in driving overall expansion. In sectors such as health, education, financial services, trade (including wholesale and retail), and hotels and restaurants, capital services make a notable contribution to enhancing labour productivity. This pattern suggests that Indian services are becoming increasingly capital-intensive, both through rising capital intensity within individual industries and through the growing share of capital-intensive sub-sectors in the broader service economy.

Figure 3: Contribution of Factor inputs to Gross Output in Service Sector

Source: Authors computation based on Reserve Bank of India-KLEMS data.

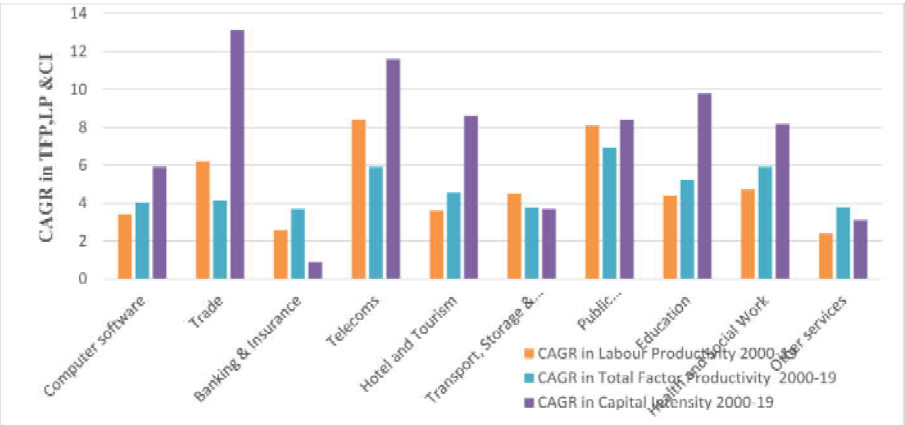


Figure 3 depicts the compound annual growth rate (CAGR) of labour productivity, total factor productivity (TFP), and capital intensity in major service industries during 2000–2019. It reveals wide variations across sectors, with industries such as trade and banking and insurance recording exceptionally high growth in capital intensity, while improvements in labour productivity and TFP remain comparatively modest. By contrast, computer software and telecommunications display stronger growth in labour productivity and TFP, supported by steady increases in capital inputs. Sectors including hotels and tourism, education, and health and social work also show significant capital deepening, highlighting the central role of capital intensity as a key driver of service sector growth. Public administration reflects a more balanced pattern, with labour productivity, TFP, and capital inputs contributing simultaneously. Overall, the evidence suggests that although capital intensity has dominated growth in most services, sectoral differences in productivity performance point to diverse trajectories of structural transformation.

Overall, the data shows that the services sector has contributed significantly to overall economic growth, and the sub-sectoral breakdown of total factor productivity growth (TFPG) shows a clear difference between market and non-market services. While non-market services perform comparatively worse, market-oriented services are the main drivers of productivity growth. At the level of the entire economy, this asymmetry has significant distributional ramifications. The pattern of services-led growth and the type of TFP dynamics uncovered by the sub-sectoral study are intimately linked to the concentration of growth and productivity benefits within a small number of service activities with little diffusion to larger segments of the population.

3. Conclusion

India's service sector has undergone significant changes in the years since economic liberalisation. It is also important to keep in mind that the service sector provides crucial inputs to other sectors and hence generating more efficiency in the services sector via policy reforms could enhance competitiveness in the overall economy. The economy has gradually moved away from an agriculture-focused structure and towards knowledge-driven economy. The importance of services in promoting economic growth and improving societal well-being is highlighted by this shift. By creating numerous job possibilities and supporting steady improvements in per capita income, the service sector has a great deal of potential to spur growth. Among the most

visible dimensions of this shift has been the rapid expansion of software and information technology (IT)-enabled services, including call centres, software development, and business process outsourcing, which have also contributed to enhancing innovation capacities within the sector.

In this study we examined productivity dynamics in India's service sector. Over the past few decades, labour productivity in India's service sector has significantly grown, with market-oriented service industries accounting for a sizable portion of these increases. This transition underscores the critical role of the service sector in accelerating economic growth and enhancing societal welfare. The sector possesses significant potential to generate large-scale employment opportunities and contribute to rising per capita incomes. The services sector's high productivity section is not designed to absorb the unskilled and semi-skilled labour force and has a comparatively limited employment share.

While service-led growth, bolstered by quick TFP gains in market-oriented services, has brought prosperity and development to some segments of the sectors and helped dispel the earlier notion that India was stuck in a period of slow progress or stagnation, it has also been accompanied by growing disparities. A significant portion of the population continues to experience persistent deprivation in access to housing, land, healthcare, and education, highlighting the unequal distribution of the benefits of growth. A structural dualism that continues to be a defining characteristic of the current growth trajectory is highlighted by the coexistence of rapid expansion and improved living standards for a relatively small portion of society alongside a large workforce concentrated in low-productivity activities with few opportunities for upward mobility.

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