

boby thomas

Service Economy_Dr Bobby (1).pdf

 My Files My Files Marian College Kuttikkanam

Document Details

Submission ID

trn:oid:::26696:99266263

Submission Date

Jun 4, 2025, 10:45 AM GMT+5:30

Download Date

Jun 9, 2025, 12:11 PM GMT+5:30

File Name

Service Economy_Dr Bobby (1).pdf

File Size

600.8 KB

47 Pages**8,713 Words****47,321 Characters**

5% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- Bibliography
- Quoted Text
- Small Matches (less than 14 words)

Match Groups

-  **20 Not Cited or Quoted 5%**
Matches with neither in-text citation nor quotation marks
-  **1 Missing Quotations 0%**
Matches that are still very similar to source material
-  **0 Missing Citation 0%**
Matches that have quotation marks, but no in-text citation
-  **0 Cited and Quoted 0%**
Matches with in-text citation present, but no quotation marks

Top Sources

- 2%  Internet sources
- 4%  Publications
- 2%  Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

Match Groups

- 20 Not Cited or Quoted 5%**
Matches with neither in-text citation nor quotation marks
- 1 Missing Quotations 0%**
Matches that are still very similar to source material
- 0 Missing Citation 0%**
Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%**
Matches with in-text citation present, but no quotation marks

Top Sources

- 2% Internet sources
- 4% Publications
- 2% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

- 1

Publication

Jose, Hilda. "A Time Series Analysis on the Movement of the Growth of Civil Aviati..."

1%
- 2

Publication

Benny, Ageetha. "A Comparative Analysis of Foreign Tourist Arrivals on the Curre..."

1%
- 3

Publication

James, Jissa. "The Impact of COVID Pandemic on the FTA – GDP Relationship", Ma...

<1%
- 4

Internet

brightideas.houstontx.gov

<1%
- 5

Submitted works

Higher Education Commission Pakistan on 2023-06-15

<1%
- 6

Submitted works

University of Bolton on 2025-01-11

<1%
- 7

Submitted works

Capella University on 2025-02-02

<1%
- 8

Submitted works

University of Bath on 2010-09-13

<1%
- 9

Internet

ojs.ahss.org.pk

<1%
- 10

Submitted works

Kaplan International Colleges on 2025-02-13

<1%

CHAPTER 1

INTRODUCTION

1.1 Introduction

The service sector has become a dominant force in modern economies, with an increasing share of the workforce employed in various service industries such as finance, healthcare, education, and information technology. As this sector grows, understanding the correlation between employment levels and service productivity becomes crucial for assessing economic development and efficiency. While expanding employment in services can suggest a thriving economy, it does not automatically imply higher productivity. Technological advancements, workforce skills, innovation, and organisational structures within service industries are pivotal in shaping productivity outcomes. This introduction explores how the number of people employed in the service sector influences productivity. It highlights key factors determining service delivery's efficiency and effectiveness in a dynamic economic environment.

The service sector has increasingly become a central pillar of modern economies, with a significant proportion of the workforce now employed in various service industries such as healthcare, finance, education, and information technology. As countries shift from manufacturing-based to service-based economies, understanding the relationship between service employment and the service sector's productivity becomes essential. While a growing service workforce can reflect economic expansion, it does not always correlate directly

with higher productivity. Various factors, including technological innovation, skill levels of the workforce, and industry-specific developments, influence how effectively services are delivered. This topic delves into how employment trends within the service sector impact productivity, examining the challenges and opportunities in an increasingly service-oriented global economy

1.2 Statement of the Problem

The problem under investigation in this study is the ambiguous and context-dependent correlation between employment growth in the service sector and the resulting productivity changes within the same sector. As service-based industries become increasingly dominant in advanced economies, understanding the relationship between employment levels and productivity growth has become crucial for policymakers, business leaders, and economists. While some studies suggest that increasing the number of service workers can lead to enhanced productivity, mainly through new technologies, skilled labour, and process improvements, other research points to diminishing returns, where additional employment may not necessarily result in increased output per worker. The service sector is diverse, with industries such as healthcare, education, finance, and hospitality each facing unique challenges regarding workforce management and technological integration.

This study explores why increased employment in some service industries leads to greater productivity while in others, it does not. Technological innovation, workforce skills, capital investment, and organisational efficiencies likely play a significant role in determining the impact of employment growth on productivity. However, there is limited consensus on how these factors interact across different service sectors. Additionally, the potential impact of

external variables, such as economic conditions or government policies, on this relationship remains underexplored. By delving into these dynamics, the study aims to identify the conditions under which employment growth can lead to sustainable productivity improvements and offer actionable insights for optimising labour use in the service sector to boost overall economic performance.

The problem addressed in this study is the complex and often unclear correlation between employment in the service sector and the productivity of that sector. While employment in services has been growing globally, particularly in high-skilled and knowledge-based industries, it remains uncertain how this increase in workforce size impacts overall productivity. In some cases, the addition of workers may enhance productivity through innovation and improved service delivery, while in others, it may lead to diminishing returns due to inefficiencies or the inability to leverage technological advancements. The challenge lies in understanding the conditions under which increased service employment results in meaningful productivity gains and identifying the factors mediating this relationship, such as technological advancements, human capital development, and process optimisation. This research aims to explore these dynamics and provide insights into how economies can harness service sector employment growth to achieve higher productivity levels.

1.3 Objectives of this study

The following are the objectives of the study

1. To analyse the trend of the Service Sector
2. To analyse the trend of the service Sector as % of the GDP
3. To analyse the trend of employment in services as % of

total employment

4. To find the correlation between the service sector's growth and its contribution to GDP.
5. To determine the correlation between the service sector's growth and service employment.

1.4 Methodology

Research methodology is the systematic plan and process used to collect, analyse, and interpret data to answer a research question.

1.4.1 Sample Selection

The purposive sampling method is used to select India as the sample.

1.4.2 Data collection

The researcher used secondary data collected from published records of the World Bank. We used data from the 31 years, 1991 to 2022, relating to the correlation between service employment and the service sector's productivity. The data relating to the service sector were collected and used for analysis.

1.4.3 Tools for analysis

Statistical averages, including mean, median, standard deviation, coefficient of variation, skewness, Ex-kurtosis, correlation and trend, are the statistical tools used for the data analysis.

1.4.5 Period of study

We used the data from 1991 to 2022 for analysis.

1.5 Hypothesis

H₀₁ There is no correlation between Service sector growth and GDP.

H₀₂ There is no correlation between the Service sector and total employment.

1.6 Chapter scheme

The presentation is divided into four chapters- Introduction, Literature review, data analysis and findings, suggestions, and conclusions.

Chapter 1 – Introduction

This introductory chapter deals with topics such as the correlation between employment in services and the service sector's productivity, the study's objectives, the problem statement, data collection, analysis tools, the period of study, the hypothesis, and the chapter scheme.

Chapter 2-Literature review

This literature review presents a mixed relationship between the growth of the service sector and its effects on employment and productivity in India. There are both positive and negative aspects.

Chapter 3-Data analysis

Introduction of data analysis, nature of data, and summary statistics. Data analysis has two main parts: trend analysis and correlation analysis.

Chapter 4- Findings, suggestions, conclusions

The chapter introduces, finds, suggests, and concludes about the relationship between service sector growth, productivity, and employment in India.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

The relationship between service sector employment and productivity has been a significant area of economics and labour studies research. The service sector has become the dominant contributor to GDP in many economies, yet its productivity growth varies widely across regions and industries. Scholars have explored how technological advancements, labour market dynamics, skill development, and policy frameworks influence this correlation. While some studies suggest that higher service employment leads to increased productivity through economies of scale and specialisation, others highlight potential diminishing returns due to lower capital intensity and skill mismatches. This literature review aims to synthesise existing research on the interplay between employment levels and productivity in the service sector, identifying key trends, theoretical perspectives, and empirical findings that contribute to our understanding of this crucial economic relationship.

2.2 Service sector in India

“The service sector has emerged as a dominant force in modern economies, significantly contributing to GDP growth, employment, and overall economic development. As the global economy transitions from manufacturing to services, understanding the correlation between employment in the service sector and its productivity has become a critical area of research. While increased employment is often associated with economic growth, its direct impact on productivity remains debated among scholars” (World

Bank, 2021).

“The service sector in India is the largest and fastest-growing, with high labour productivity, yet it faces challenges in job creation and inclusive growth. Employment has not kept pace with the sector's GDP contribution, and outdated regulations, uncoordinated governance, and barriers to foreign investment hinder its potential. At the same time, India is a top player in service exports and imports, but its growth and export performance lag behind those of countries like China, with exports concentrated in a few sectors and markets. Many Indians lack access to essential services such as healthcare and education, and weak infrastructure raises service delivery costs. Additionally, the education system does not ensure employability or uniform quality. Policy reforms are needed to promote inclusive growth and improve India's global service competitiveness” (Mukherjee, 2013).

“India's rapid service-sector growth has raised questions about its quality, sustainability, and impact on economic development. While the service sector has grown quickly, it started from a low base 15 years ago and has now converged to international norms, raising doubts about its future growth. Continued expansion of modern services (e.g., business services, banking, and communication) and the integration of modern technology into traditional sectors (e.g., retail, transport, and public administration) are key to future growth. The growth of modern services could have significant macroeconomic effects, but it is more likely to boost output than employment. Additionally, the labour mix in manufacturing and services is becoming more similar, suggesting that modern services can absorb a broader range of workers, not just the highly skilled ones. Labour must be directed into manufacturing and services to

sustain growth and improve living standards” (Hada & Suri, 2019).

“An analysis of developed and some developing nations reveals differing growth patterns. In most industrialised countries, early economic growth was marked by a shift from agriculture to manufacturing, with services becoming more significant only at higher income levels. However, in some low-income industrialising nations, the service sector plays an important role even in the early stages of growth, contributing significantly to both output and employment. As a result, the service sector has become a more prominent driver of growth in these nations from the outset of their development” (Verma, 2010).

2.3 Service sector growth in India

“The health and education sectors in India provide comprehensive services, contributing significantly to the growth of the service sector. Health is defined as overall well-being, including physical, mental, and social health, not just the absence of disease. The expansion of the health and education sectors has spurred the development of India's service sector, including trade, transport, banking, tourism, and more. The service sector currently accounts for more than half of India's GDP. Over time, there have been notable changes in the sectoral contributions to GDP, particularly from 1950-51 to 2010-11, with the service sector's growth rate consistently outpacing others” (C. M & V. Shanmugam, 2014).

“Historically, the service sector was considered less important than agriculture, mining, and manufacturing. However, its significance grew substantially in the 1980s as it became clear that traditional (e.g., government, health, education) and modern (e.g., communications, IT) services are integral to modern economies. The service sector produces intangible goods and requires more human

capital than natural resources, driving demand for more educated workers. This shift has led countries to invest more in education, benefiting their populations. The growth of the service sector also reduces environmental pressure by utilising fewer natural resources. As economies transitioned to market economies, the service sector expanded to meet the needs of the private sector, providing employment for educated workers and preserving human capital essential for development” (Das & Raut, 2014).

“Economic development in India has led to significant structural changes, with the service sector becoming the primary driver of growth, especially in the last decade. This study examines the trends and implications of sectoral growth, mainly focusing on services. It finds that, compared to global trends, India’s service sector growth is less pronounced. While the service sector has grown, it has not created substantial employment opportunities, leading to structural imbalances. Key contributors to GDP growth within the service sector include trade, hotels, transport, and communication. The study highlights the need for India to focus on expanding its share in global services trade while ensuring rapid growth in the industrial and agricultural sectors to address the jobless growth issue in services” (K. & Rao, 2017).

“India's service sector has grown rapidly in recent years, driving economic growth, yet its transformation does not align with traditional structural transformation theories. There is a lack of empirical studies examining the shift in sectoral growth, its impact on economic development, and the factors influencing it. This analysis supports the modern view of structural transformation, showing a decline in agriculture and industry shares, with an increase in the service sector. Despite the service sector's dominance since the

1990s, India's economic growth still relies on agriculture and industry. The study suggests that factors like income elasticity, open policies, and increased communications, banking, insurance, and trade sectors have significantly contributed to service sector expansion. Based on these findings, policy interventions are recommended to sustain growth” (Adriani, 2018).

2.4 Service sector productivity

“This article examines the productivity dynamics of India's service sector at the industry level, focusing on total factor productivity (TFP) growth and factor inputs using the India KLEMS dataset. The analysis highlights capital deepening within services, with lower employment growth. The study finds a feedback effect between service exports and productivity growth by combining the dataset with trade values in the Extended Balance of Payments Services classification. It also emphasises the role of skilled labour in driving growth, as it is better equipped to handle new technologies, contributing to both productivity and Export growth in the service sector” (Goswami & Narayanan, 2023).

“The paper explores the growth of India's services sector, the country's most significant contributor to GDP and exhibits the highest labour productivity. Despite this, the industry has lower employment elasticity than the manufacturing sector, and a substantial portion of employment is in the unorganised sector, which lacks adequate social security. This issue is a key concern for policymakers” (Mukherjee, 2013).

The services sector began to grow in the early decades but saw accelerated growth post-LPG (Liberalisation, Privatisation, and Globalisation) reforms. From 2014 to 2015, approximately 72% of India's GDP growth came from this sector. Unlike other developing

economies, India's economic growth has been primarily driven by the services sector, which now grows at double-digit rates. India's largest foreign direct investment (FDI) recipient is the services sector” (Ministry of Finance, 2016).

“On the trade front, while India is a major exporter of services, its export competitiveness is concentrated in a few sectors and markets. India’s multilateral and bilateral trade agreement strategy includes services to leverage its comparative advantage in this area. The paper identifies measures to enhance India's Services sector's productivity and inclusiveness” (Singh & Srivastava, 2016).

2.5 Employment pattern in the service sector

“This study examines employment growth, structure, and job quality outcomes in urban India's manufacturing and service sectors from 1999-2000 to 2009-10, amid the rapid growth of the service sector since the 1990s. The study addresses whether India’s growth path will bypass the traditional shift from agriculture to manufacturing, with services emerging as the leading sector. Using the NSS surveys of employment and unemployment, the study found no significant acceleration in service-sector employment growth compared to manufacturing in urban India” (Ghani & Mohanan, 2013).

“The positive trend observed was an increase in the share of regular employment among young males in manufacturing and services. However, the study highlights more extraordinary duality in the service sector, characterised by higher informality and wage inequality. Those with more skills in the service sector experienced higher increases in real wages, and the service sector was more skill-demanding than manufacturing. The skill composition in the service sector was notably more skill-biased than manufacturing” (Mehrotra et al. 1, 2013).

“Despite the growth of the service sector, social security conditions were not found to be significantly better in services. The results suggest that the service sector is an unlikely destination for many low-skilled job seekers, emphasising the need for India to focus on the manufacturing sector to provide large-scale employment opportunities” (Ramaswamy & Agrawal, 2012).

“The service sector is a diverse and growing group of activities that has become a key contributor to the national income, trade flows, and foreign direct investment (FDI) in developed and developing countries, including India. In India, the recent growth in the service sector has been driven by increasing tradability, technological advancements, and opportunities arising from the General Agreement on Trade in Services (GATS). However, the industry is marked by an asymmetrical relationship between income generation and employment creation. While services contribute significantly to GDP (54.1%), they generate only a stagnant 24% of employment. This disparity could seriously affect India, where unemployment remains a critical issue. The root cause of this imbalance lies in the pattern of service sector growth, which has not been sufficiently employment-intensive” (Mohan Prakash & Kethan, 2018).

“This paper examines the nature of employment created in various sub-sectors of India's service sector, comparing it to the industrial sector. The focus is on understanding employment quality, including educational requirements, wages, job security, and social protection. Using household survey data from 1993-94 and 2004-05, analysed through different econometric models, the study finds that service sub-sectors generally fall into two categories: 'good' employers and 'bad' employers. It also reveals that sub-sectors with low educational requirements offer lower-quality employment, while those with

higher educational demands offer better job quality. However, employment growth has been more prominent in sub-sectors with low educational requirements and employment quality” (Rodgers & Thomas, 2009).

2.6 Research Gap

Despite the recognised importance of the service sector in driving economic growth and employment, limited empirical research has specifically examined the relationship between the sector's development, its contribution to GDP, and changes in employment patterns over time, particularly in the context of productivity improvements and structural shifts within the economy. Many existing studies treat GDP contribution and employment separately, without integrating these dynamics to evaluate how productivity changes may lead to jobless growth or structural unemployment. Furthermore, the impact of automation, digitisation, and post-pandemic recovery on service sector employment remains underexplored, especially using long-term data spanning multiple decades.

2.7 Conclusion

The literature on the correlation between employment in services and the service sector's productivity reveals a complex interplay between economic growth, employment patterns, and sectoral contributions to GDP. Studies indicate that as economies mature, the service sector tends to experience substantial growth, often outpacing the industrial sector, becoming a larger GDP share. This trend is linked to increased service demand, technological advancements, and a shift towards knowledge-based industries. Employment in the service sector also grows, but its productivity varies significantly across sub-sectors. In many economies, while jobs in services rise,

productivity growth in specific service industries, such as retail and hospitality, lags behind that of high-tech or financial services. Additionally, the relationship between the service sector's contribution to GDP and employment growth is often positive. Yet, it is influenced by factors such as labour market dynamics, wage structures, and the pace of technological innovation. Understanding these correlations is vital for policymakers aiming to foster sustainable growth and high productivity in the service sector. The literature consistently highlights that while a growing service sector can stimulate overall economic development, the impact on employment and productivity is not uniform and requires nuanced analysis.

REFERENCES

A Driani, N. (2018). Electronic copy is available at: *Grou*, 23529(2), 1–45.

C. M, L., & V. Shanmugam, D. (2014). Growth of the Service Sector in India. *IOSR Journal of Humanities and Social Science*, 19(1), 08–12. <https://doi.org/10.9790/0837-19140812>

Das, L., & Raut, R. (2014). Impact of Changes in the Service Sector in India in Shaping the Future of Business & Society. *Procedia Economics and Finance*, 11(14), 795–803. [https://doi.org/10.1016/s2212-5671\(14\)00243-3](https://doi.org/10.1016/s2212-5671(14)00243-3)

Department of Economics Discussion Paper Series: The Nature of Employment in India's Services. (2009). 452.

Ghani, E., & Mohanan, P. C. (2013). Service sector and urban employment in India: Patterns and challenges. In C. Ghate (Ed.), *The Oxford Handbook of the Indian Economy* (pp. 227–

259). Oxford University Press.

Goswami, A., & Narayanan, K. (2023). Productivity and Exports: An Industry-Level Analysis of the Service Sector in India. *Millennial Asia*, 14(3), 379–405. <https://doi.org/10.1177/09763996231177437>

Hada, B. S., & Suri, A. (2019). The Service Sector as India's Road to Economic Growth: An Analysis. *Journal of Commerce and Management Thought*, 10(3), 319. <https://doi.org/10.5958/0976-478x.2019.00022.3>

K., S. G., & Rao, R. P. (2017). An Empirical Analysis of Growth and Threshold Inflation in India. *Indian Journal of Economics and Development*, 13(1), 23. <https://doi.org/10.5958/2322-0430.2017.00004.x>

Mehrotra, S., Gandhi, A., & Sahoo, B. K. (2013). The turnaround in India's employment story: Silver lining amidst joblessness. *Economic and Political Weekly*, 48(35), 87–96.

Ministry of Finance. (2016). Economic Survey 2015–16. Government of India. <https://www.indiabudget.gov.in/es2015-16/echapter-vol2.pdf>

Mohan Prakash, N. R., & Kethan, M. (2018). *Changing Paradigms of Service Sector Employment in India*. 5(1), 79–86.

Mukherjee, A. (2013). *ADB Economics Working Paper Series The Service Sector in India The Service Sector in India*. 352.

Ramaswamy, K. V., & Agrawal, T. (2012). *Services-led Growth, Employment and Job Quality: A Study of Manufacturing and Service-sector in Urban India*. March 2012–2017.

Rodgers, G., & Thomas, J. J. (2009). The nature of employment in

India's services sector (Department of Economics Discussion Paper Series No. 437). University of Oxford. https://www.economics.ox.ac.uk/materials/working_papers/paper437.pdf

Singh, A., & Srivastava, N. (2016). *Overview of Services in India*. 6(2), 190–194. Verma, R. (2010). *India: A Quantitative Analysis*. 84–85.

World Bank (2021). "World Development Report 2021: Data for Better Lives" – <https://www.worldbank.org/en/publication/wdr2021>

Chapter 3

DATA ANALYSIS

3.1 Introduction

In this research, data analysis will focus on understanding the relationship between service employment and the service sector's productivity. The analysis will begin by exploring the trends in the service sector's growth, examining its overall expansion and its increasing share of GDP over time. A key aspect of this study is to track how employment in the service sector has evolved as a percentage of total employment, providing insights into how labour dynamics within the economy are shifting. By analysing these trends, the research will seek to uncover correlations between the growth of the service sector and its contribution to GDP, determining whether a rising service sector leads to greater economic output. Additionally, the study will examine the relationship between service sector growth and employment, aiming to understand if increases in sector size are accompanied by job creation or if automation and other factors influence employment patterns. The research will comprehensively understand how productivity, employment, and sectoral growth are interconnected in the service industry through statistical methods such as correlation and regression analysis. This data-driven approach will offer valuable insights into the evolving role of services in modern economies.

The study was conducted with the following objective:

1. To analyse the trend of the Service Sector
2. To analyse the trend of the service Sector as % of the GDP

3. To analyse the trend of employment in services as % of total employment
4. To find the correlation between the service sector's growth and its contribution to GDP.
5. To determine the correlation between the service sector's growth and service employment.

3.2 Summary statistics

Summary statistics concisely overview a dataset's key characteristics and features. They help understand the data distribution's Trend, Correlation, and shape.

1. The trend of employment in the Service Sector, value added (current US\$)
2. The trend of employment in the service sector (value added % of GDP)
3. The trend of Employment in services (% of total employment) (model ILO Estimate)

Table 3.1

Summary Statistics, using the observations 1991 – 2022

Variable	Mean	Median	SD	CV	Skewness	Ex-kurtosis
Services current US\$	360.17	109.74	481.68	1.3374	1.4842	0.95588

Services % of GDP	40.208	38.004	5.1966	0.1292	0.43994	-1.2843
Employment in services	27.173	27.404	3.6558	0.1345	0.14759	-1.1201

Source: Secondary Data, Gretl Output

Table 3.1 shows summary statistics for the services sector from 1991 to 2022, revealing significant trends in its contribution to the economy. The statistics include the service sector, value added (current US\$), employment in the service sector (value added % of GDP), and Employment in services (% of total employment) (model ILO estimate). This analysis helps to understand the nature of the data.

Mean and Median:

The mean values give us an average level of each variable over the 31 years. The median represents the middle value of the data, indicating the central tendency.

Standard Deviation (Std. Dev.), Coefficient of Variation (C.V.):

This measures the dispersion or spread of the data points around the mean. A higher standard deviation implies more significant variability or fluctuations in the data. The coefficient of variation is the ratio of the standard deviation to the mean. It provides a relative measure of variability, allowing comparison across variables. A higher coefficient of variation indicates higher relative variability.

Skewness and Kurtosis:

Skewness measures the asymmetry of the distribution of data. A

skewness value close to zero suggests a relatively symmetric distribution. Negative skewness indicates that the distribution is skewed to the left (tail on the negative side). Kurtosis measures the tailedness or peakedness of the distribution. A negative kurtosis value suggests a less peaked distribution with thinner tails than a normal distribution.

Interpretation and Significance:

The mean value of services in current US dollars (360.17 billion) is significantly higher than the median (109.74 billion), suggesting rapid growth in recent years. Services contribute an average of 40.21% to GDP, with a median of 38.00%, highlighting their stable and increasing economic significance. Service employment remains steady, with a mean of 27.17% and a median of 27.40%, indicating that about a quarter of the workforce has consistently been engaged in this sector.

The standard deviation of services in current US dollars (481.68) is relatively high compared to its mean (360.17), indicating significant fluctuations over the years. The coefficient of variation (c.v = 1.3374) further suggests a high level of relative variability in the sector's value. For services as a percentage of GDP, the standard Deviation (5.1966) and a lower coefficient of variation (0.1292) indicate more stability in its economic contribution. Employment in services has a standard deviation of 3.6558 and a CV of 0.1345, showing relatively stable employment trends in the sector over time.

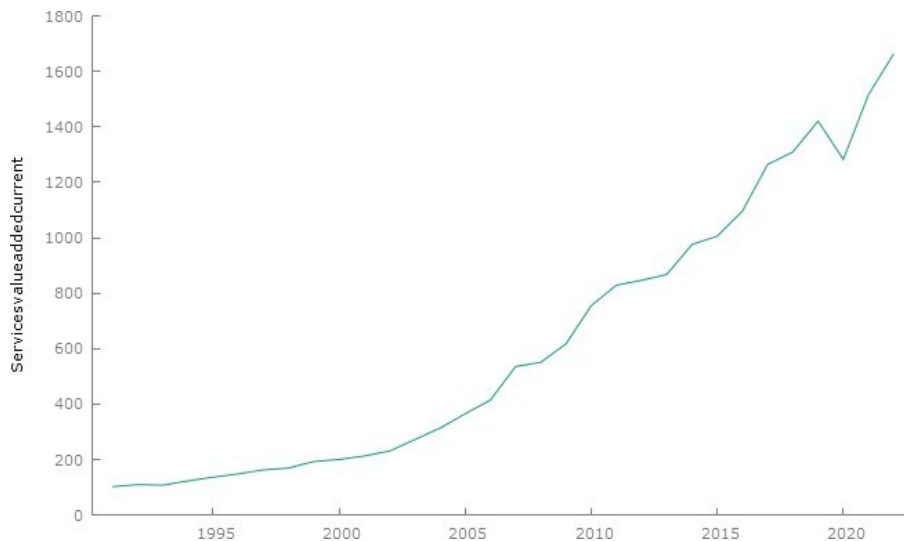
The skewness value of 1.4842 for services in current US dollars indicates a right-skewed distribution, meaning there are lower values with a few extremely high values. The excess kurtosis (0.95588) suggests a distribution with slightly heavier tails than a normal distribution. The skewness (0.43994) is close to zero for services as

a percentage of GDP, indicating a reasonably symmetrical distribution. At the same time, the negative excess kurtosis (-1.2843) suggests a relatively flat distribution with fewer extreme values. Service employment has very low skewness (0.14759), meaning it is nearly symmetric, and a negative excess kurtosis (-1.1201), indicating a flatter distribution with fewer outliers.

The mean value of services in current US dollars is 360.17 billion, with a median of 109.74 billion, indicating a right-skewed distribution due to rapid growth in recent years. The high standard deviation (481.68) and coefficient of variation (1.3374) reflect substantial fluctuations, likely driven by economic reforms, globalisation, and market shifts. The positive skewness (1.4842) suggests that most observations are concentrated on the lower end, with a few very high values pulling the average upward.

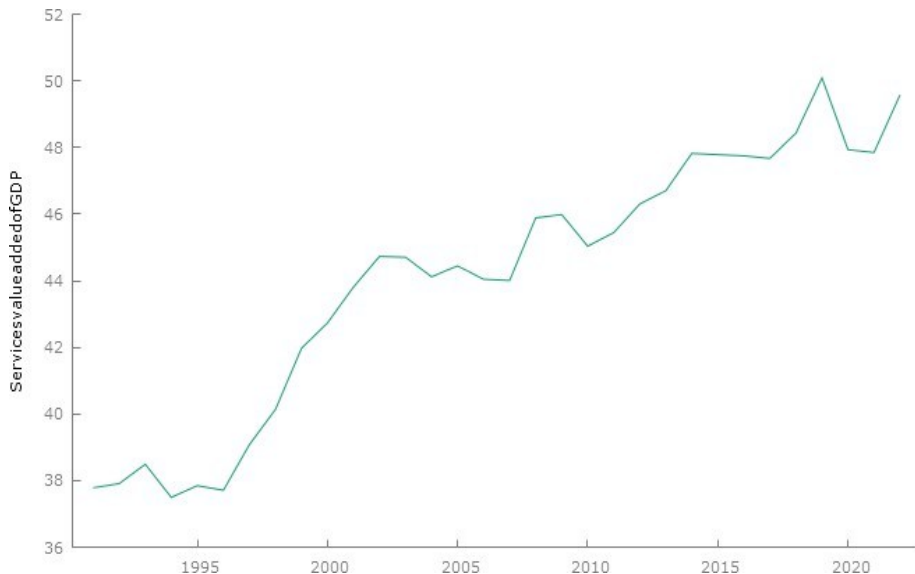
3.3 Trend Analysis

Trend analysis is a method used to examine patterns or trends in data over time. It involves analysing historical data to identify recurring patterns, tendencies, or shifts in behaviour, performance, or other metrics. This analysis can be applied across various fields, including finance, economics, marketing, and science. Trend data guides predictions, decisions, and risk management by revealing patterns in behaviour, performance, and markets over time, aiding in strategic planning and resource allocation. Trend analysis includes limited accuracy, data quality issues, risk of overfitting, assumption of continuity, lack of context, and difficulty identifying causality. Trends can be upward and downward, relating to bullish and bearish markets.

Figure 3.1**Time Series Plot: Services, value added (current US\$)**

Source: Secondary Data, Gretl output

The above figure shows the Trend of employment in the service sector. The X-axis shows the year from 1991 to 2022, and the Y-axis shows the growth of the service sector in (current US\$). The data presents the value added by services (in billions) and the corresponding global rank of a country from 1991 to 2022. Over the three-decade period, there is a clear and consistent upward trend in the value of services, increasing from \$102.06 billion in 1991 to \$1,662.55 billion in 2022. This growth reflects significant expansion and development in the services sector. Correspondingly, the country's global rank improved steadily, moving from the 32nd position in 1991 to the top by 2022. The only notable dip occurred in 2020, likely due to the global impact of the COVID-19 pandemic, where both value and rank temporarily declined. However, the sector quickly rebounded in subsequent years, underscoring its resilience and growing importance in the national economy.

Figure 3.2**Time Series Plot: Services, value added (% of GDP)**

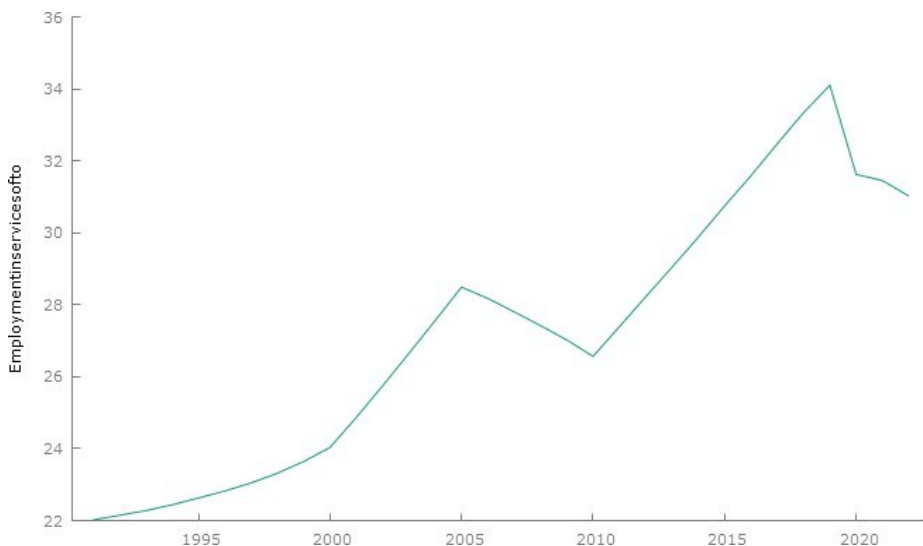
Source: Secondary data, Gretl output

The above figure shows the employment trend in the service sector as a percentage of GDP. The X-axis shows the year from 1991 to 2022, and the Y-axis shows the growth of the service sector as a percentage of GDP. The data presents the percentage of services value added to GDP and its global rank from 1991 to 2022. Over this period, there is a clear upward trend in the contribution of the services sector to GDP, rising from 37.78% in 1991 to over 50% by 2019. Correspondingly, the country's global rank improved significantly, from the 30th position in 1991 to the top in 2019. This indicates a robust and consistent growth in the services sector's role in the economy, especially from the early 2000s onward. Although there were slight dips in 2020 and 2021, likely due to the global pandemic, the sector recovered quickly in 2022, achieving the

second-highest rank. Overall, the data reflect an intense structural transformation toward a service-based economy.

Figure 3.3

Time Series Plot: Employment in services (% of total employment)



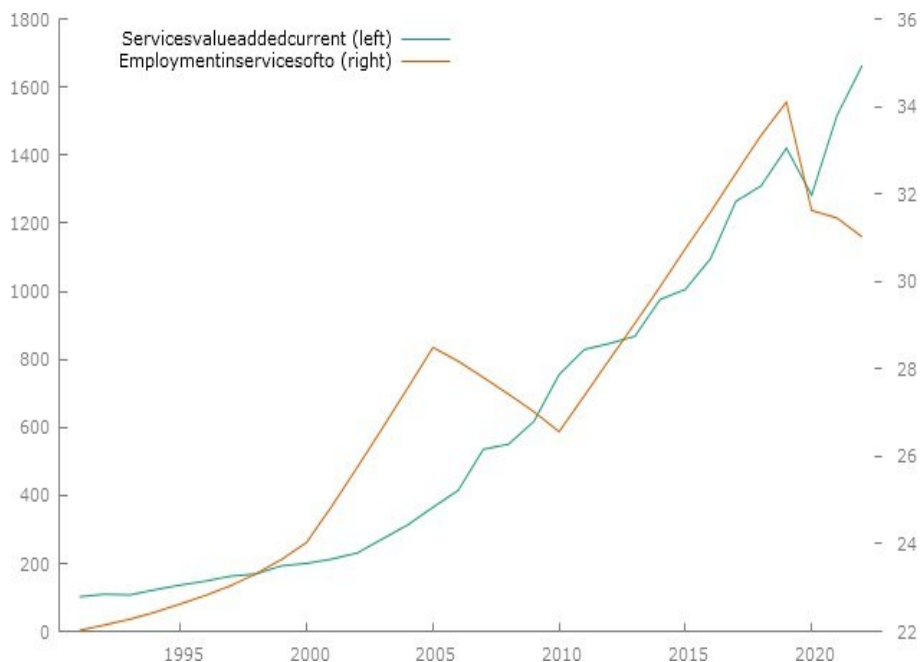
Source: Secondary Data, Gretl output

The above figure shows the employment trend in the service sector as a percentage of GDP. The X-axis shows the year from 1991 to 2022, and the Y-axis shows the growth of the employment service sector (percentage of total employment). This dataset illustrates the employment rate in the services sector from 1991 to 2022, along with its global rank. There is a steady and consistent rise in service sector employment, increasing from 22.02% in 1991 to a peak of 34.10% in 2019. This growth is mirrored by an improvement in rank, moving from 32nd place in 1991 to the top in 2019. The upward trend reflects a structural shift in the labour market toward service-oriented jobs. However, post-2019, there is a noticeable dip in employment

percentage and rank, likely due to disruptions caused by the COVID-19 pandemic. Despite this, the services sector retained a significant share of employment, indicating its resilience and centrality to the economy.

Figure 3.4

Growth Trend of Services value added and employment.



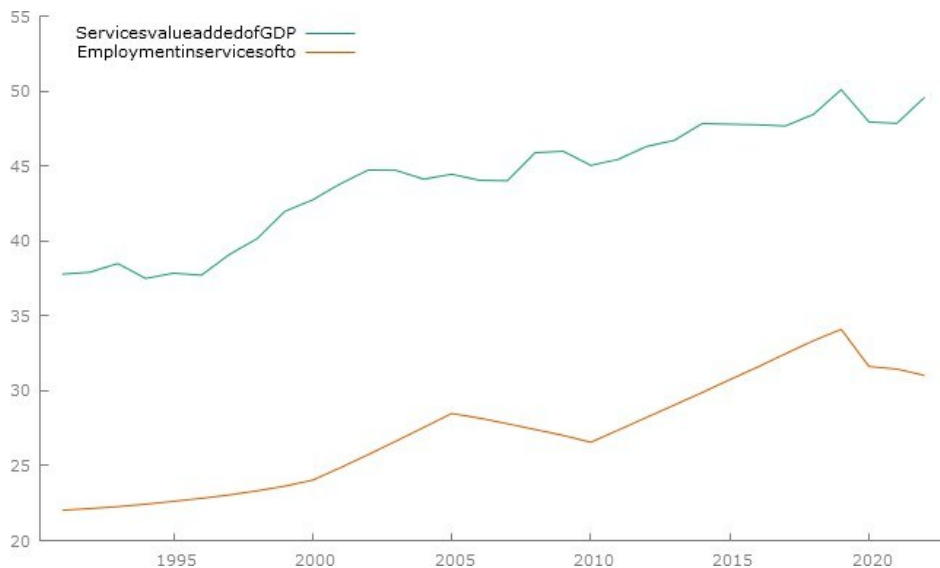
Source: Secondary Data, Gretl output

The above figure shows service value-added (current US\$) employment in the service sector. The X-axis shows the year from 1991 to 2022, and the Y-axis shows service value added (current US\$) and employment in the service sector. This combined dataset highlights the significant growth of the services sector in both economic contribution and employment from 1991 to 2022. Services value added in current terms rose sharply from \$102.06 billion in

1991 to \$1,662.55 billion in 2022, reflecting a structural shift toward a service-driven economy. Correspondingly, its global rank improved from 32nd to 1st over the same period. Employment in the services sector also increased steadily from 22.02% to 34.10% in 2019 before slightly declining post-pandemic to 31.02% in 2022, with the rank fluctuating accordingly. While the sector showed exceptional growth in value and rank, employment gains, though consistent, were more moderate. This indicates rising productivity and efficiency in the services sector, as economic output increased faster than employment. The data underscores the sector's critical role in economic development and resilience amid global challenges.

Figure 3.5

**Growth Trend of Service Value Added (% of GDP) and
Employment as a (% of Total)**



Source: Secondary data, Gretl output

The above figure shows the service value added to GDP and employment in the service sector. The X-axis shows the year from 1991 to 2022, and the Y-axis shows the service value added to GDP

and jobs in the service sector. This dataset highlights the services sector's growth in terms of its contribution to GDP and employment from 1991 to 2022. The service's value added to GDP by services increased steadily from 37.79% in 1991 to 49.58% in 2022, with a significant improvement in its global rank, moving from 30th place in 1991 to 2nd in 2022. Employment in the services sector also rose during this period, from 22.02% of the workforce in 1991 to 31.02% in 2022, reflecting a strong trend toward service-based employment. Its global rank improved from 32nd in 1991 to 7th in 2022, though there was a slight decline in employment share and rank after 2019, likely due to the effects of the COVID-19 pandemic. Overall, the data shows a consistent expansion of the services sector in economic output and employment, with some challenges in the later years, yet maintaining a dominant role in the economy.

3.4 CORRELATION ANALYSIS

Correlation analysis measures the strength and direction of the relationship between two variables. It quantifies how changes in one variable correspond to changes in another. Correlation coefficients range from -1 to +1, indicating negative, no, or positive correlation. It helps in understanding associations between variables in data analysis. The service sector is pivotal in modern economies, contributing significantly to employment and GDP growth. As economies shift from agrarian and industrial bases to service-oriented structures, understanding the dynamics of this sector becomes essential for policymakers, businesses, and economists alike. One of this research's key objectives is to analyse the evolving trends within the service sector, its contribution to GDP, and the relationship between employment in services and productivity within the industry.

Correlation analysis was carried out in the following dimensions:

1. Service sector growth and its contribution to GDP.
2. Service sector growth and employment in services.

3.4.1 Correlation of Service Sector Growth and its Contribution to GDP

Spearman's correlation analysis is carried out to examine the relationship between service sector growth and GDP. The following null hypothesis is formulated to test the statistical significance of the correlation. H_0 There is no correlation between service sector growth and GDP. Spearman's correlation analysis is used to analyse the correlation between the two variables. The initial step in utilising Spearman's rank correlation involves ranking the data. The rank calculation is the first step since we use Spearman's rank correlation.

Table 3.2

Calculation of Rank SSG and GD

Year	Services (US\$)	rank	GDP	rank
1991	102.061	32	37.7857	30
1992	109.267	30	37.9126	28
1993	107.503	31	38.4907	27
1994	122.716	29	37.4963	32
1995	136.366	28	37.8497	29

1996	148.159	27	37.7093	31
1997	162.519	26	39.0796	26
1998	169.099	25	40.1326	25
1999	192.548	24	41.9657	24
2000	200.159	23	42.7329	23
2001	212.666	22	43.8090	22
2002	230.326	21	44.7288	16
2003	271.670	20	44.7046	17
2004	312.842	19	44.1149	19
2005	364.603	18	44.4429	18
2006	414.121	17	44.0432	20
2007	535.463	16	44.0082	21
2008	550.084	15	45.8825	13
2009	617.066	14	45.9849	12
2010	754.592	13	45.0337	15
2011	828.434	12	45.4421	14

2012	846.217	11	46.3011	11
2013	867.065	10	46.6987	10
2014	975.160	9	47.8224	6
2015	1005.17	8	47.7837	7
2016	1095.75	7	47.7494	8
2017	1263.98	6	47.6709	9
2018	1309.07	4	48.4316	3
2019	1420.21	3	50.0850	1
2020	1282.13	5	47.9327	4
2021	1515.45	2	47.8472	5
2022	1662.55	1	49.5769	2

Source: Gretl Output

This table shows the rank correlation analysis between service sector growth and GDP. The first rank of service sector growth is in 2022, and the last rank is in 1991. The first rank of GDP is in 2019, and the last is in 1994. This means that as the value of services increases, the GDP is also likely to increase at a similar rate.

3.4.2 Correlation of the Service Sector and Total Employment

Spearman's Rank Correlation is a non-parametric measure of

correlation that evaluates the strength and direction of the relationship between two variables. It does this by comparing the ranks of the values for both variables rather than their actual numerical values, which makes it worthwhile when the data is not normally distributed or has no linear relationship. The null hypothesis is formulated to test the statistical significance of the following. H_0 There is no correlation between the service sector and Total employment. The rank calculation is the first step since we use Spearman's rank correlation.

Table 3.3

Correlation Analysis –Service Sector Growth and GDP

Variables	Spearman's coefficient of correlation	Two-tailed P-value	Significance	Decision
Service sector growth and GDP	0.968	0.0001	<0.05	Reject H_0

Source: Gretl Output

The test result's p-value is less than 0.05, so the null hypothesis H_0 is rejected. It is concluded that service sector growth is significantly correlated with the growth represented by GDP

Table 3.4

Calculation of Rank: Service Sector Growth and Total Employment

Year	SSG	rank	Total Employment	rank
1991	102.061	32	22.0240	32
1992	109.267	30	22.1472	31
1993	107.503	31	22.2795	30
1994	122.716	29	22.4394	29
1995	136.366	28	22.6287	28
1996	148.159	27	22.8248	27
1997	162.519	26	23.0466	26
1998	169.099	25	23.3189	25
1999	192.548	24	23.6411	24
2000	200.159	23	24.0354	23
2001	212.666	22	24.8657	22
2002	230.326	21	25.7447	21
2003	271.670	20	26.6460	19
2004	312.842	19	27.5613	15
2005	364.603	18	28.4876	11
2006	414.121	17	28.1762	13
2007	535.463	16	27.8024	14
2008	550.084	15	27.4205	16
2009	617.066	14	27.0217	18
2010	754.592	13	26.5660	20

2011	828.434	12	27.3873	17
2012	846.217	11	28.2198	12
2013	867.065	10	29.0416	10
2014	975.160	9	29.8791	9
2015	1005.17	8	30.7466	8
2016	1095.75	7	31.5833	5
2017	1263.98	6	32.4694	3
2018	1309.07	4	33.3391	2
2019	1420.21	3	34.0971	1
2020	1282.13	5	31.6209	4
2021	1515.45	2	31.4503	6
2022	1662.55	1	31.0187	7

Source: Gretl Output

1 This table shows the rank correlation between service sector growth and total employment. The first rank of service sector growth is in 2022, and the last rank is in 1991. The first rank in the service sector was in 2019, and the previous rank was in 1991. This means that as the value of services increases, total employment also increases at a similar rate.

Table 3.5

Correlation analysis of service sector growth and Total Employment

Variables	Spearman's coefficient of correlation	Two-tailed p-value	Significance	Decision
Service sector growth and Total Employment	0.953	0.0001	<0.05	Reject H ₀₂

Source: Gretl Output

The test result's p-value is less than 0.05, so the null hypothesis H₀₂ is rejected. It is concluded that service sector growth is significantly correlated with the growth represented by total employment.

3.5 CONCLUSION

Summary statistics, Trend analysis, and correlation analysis are used to analyse data. The Spearman's correlation coefficient between service sector growth and GDP is 0.968, indicating a strong positive correlation between the two variables. The p-value of 0.0001 is significantly less than 0.05, suggesting the correlation is statistically significant. As a result, we reject the null hypothesis (H₀₁), which implies a strong and meaningful relationship between the growth of the service sector and GDP. This finding suggests that the expansion of the service sector has been a key driver of GDP growth over time. The Spearman's correlation coefficient between service sector growth and GDP is 0.953, indicating a strong positive correlation between the two variables. The p-value of 0.0001 is significantly less

than 0.05, confirming that the correlation is statistically significant. As a result, we reject the null hypothesis (H_0), suggesting that the growth of the service sector has a substantial and significant impact on GDP. This reinforces the idea that the service sector drives economic growth.

CHAPTER 4

FINDINGS, SUGGESTIONS, CONCLUSION

4.1 Introduction

Our research investigates the correlation between service employment and service sector productivity. Our findings reveal a clear correlation between the service sector as a percentage of GDP and the service sector as a percentage of total employment.

The following are the objectives of the study:

1. To analyse the trend of the Service Sector
2. To analyse the trend of the service Sector as % of the GDP
3. To analyse the trend of employment in services as % of total employment
4. To find the correlation between the service sector's growth and its contribution to GDP.
5. To determine the correlation between the service sector's growth and service employment.

4.2 Major Findings of the Study

As per the analysis done in Chapter 3, the following findings are made: Overall, these statistics help understand the typical levels, variations, and shape of the data for employment in the service sector, productivity in the service sector, and the correlation between employment and productivity over the 63 years analysed.

4.2.1 Summary statistics

1. Employment in the service sector, measured by value added in

current US\$, has consistently increased over time, indicating its growing economic contribution.

2. The share of service sector value added as a percentage of GDP has steadily risen, suggesting a structural shift towards a more services-driven economy.
3. The percentage of total employment in the service sector has been rising, reflecting the increasing shift of labour towards service-based roles.
4. A positive correlation between service sector employment growth and overall GDP expansion highlights the sector's role in economic development.
5. Employment in agriculture and manufacturing has gradually declined as the service sector expands.
6. The growth in service sector employment is a long-term trend, signalling a continued transformation in the workforce towards services over the coming years.

4.2.2 The Growth Pattern of the Service Sector and Its Contribution to GDP

7. The value of services in current US\$ has steadily increased from 102.061 billion in 1991 to 1662.55 billion in 2022, demonstrating significant growth.
8. The rank of services based on value-added in the current US\$ improved from 32nd in 1991 to 1st in 2022, indicating a substantial rise in global importance.
9. The GDP grew consistently, reaching 49.5769 billion in 2022 from 37.7857 billion in 1991, reflecting economic expansion.
10. GDP's rank improved from 30th in 1991 to 2nd in 2022,

highlighting the economy's strengthening position on the global stage.

11. Between 1991 and 2022, the gap between the growth rates of services and GDP narrowed, suggesting an increasing correlation.
12. The highest recorded values for services and GDP occurred in 2019, with services reaching 1420.21 billion US\$ and GDP at 50.085 billion US\$, representing the peak of both metrics.

4.2.3 The Growth Pattern of the Service Sector and Its Total Employment

13. The value added by services in the current US\$ consistently increased from 102.061 billion in 1991 to 1662.55 billion in 2022, demonstrating strong growth in the sector.
14. The rank of services value added improved significantly from 32nd in 1991 to 1st in 2022, reflecting the sector's increasing global prominence.
15. Total employment showed steady growth, rising from 22.024 million in 1991 to 31.0187 million in 2022, although the rate of increase was slower compared to the value added.
16. The rank for total employment improved from 32nd in 1991 to 7th in 2022, indicating an enhanced position in terms of global workforce size.
17. The gap between the growth of services' value-added and total employment narrowed, especially in the last two decades, signalling more substantial service sector employment.
18. The highest recorded values for services added and total employment occurred in 2019, with services at 1420.21

billion US\$ and employment at 34.097 million, which peaked in both metrics.

4.3 Suggestions

19. The services value-added (current US\$) steadily increased from 1991 to 2022, with the rank improving from 32nd in 1991 to 1st in 2022.
20. This growth indicates a significant service sector expansion, contributing to overall economic development.
21. GDP also followed a consistent upward trend, reaching the highest rank of 1st in 2019.
22. Employment rates peaked in 2019 but experienced a slight decline in subsequent years.
23. Total employment gradually increased, with the rank improving from 32nd in 1991 to 7th in 2022, reflecting positive job creation trends.
24. The decline in employment in 2020 was likely due to the global pandemic, which significantly impacted various sectors, including services.
25. Diversifying the services sector could help ensure robust and resilient growth, especially against shocks like the COVID-19 pandemic.
26. Policies supporting job creation and investment in technology and innovation within services could enhance employment opportunities and reduce the employment gap.

4.4 Conclusion

The data from 1991 to 2022 highlights the significant growth and development of the services sector, which has become a crucial

driver of the country's economic success. The steady increase in service value-added and improved global rank demonstrates the sector's critical role in shaping economic progress. The country's GDP also experienced consistent growth, reaching its peak in 2019, reflecting the positive relationship between the expansion of the services sector and broader economic performance. Despite fluctuations in employment rates, total employment has generally risen, with a noticeable dip in 2020 likely due to the global COVID-19 pandemic.

The positive employment trend and the country's improving rank in total employment suggest that job creation efforts are progressing well. However, the divergence between the rapid growth of the services sector and employment growth highlights the need for targeted policies to bridge this gap.

The pandemic-induced employment decline in 2020 emphasises the vulnerability of specific sectors and the necessity of developing a resilient and diversified services industry.

To sustain this growth trajectory, focusing on diversifying the services sector and fostering innovation is essential. The sector can become more resilient to future global disruptions by doing so. Furthermore, policies that promote job creation in industries adversely affected by such crises are critical to maintaining a positive employment growth trend. Continued investment in technology and innovation within the services industry will enhance job creation and increase efficiency, which will help mitigate employment gaps and ensure the long-term stability and growth of the economy.

Overall, the findings underscore the importance of strategic planning and policy interventions to capitalise on the ongoing growth in the services sector while addressing challenges related to employment.

With continued efforts to diversify and innovate, the country can build a more resilient, inclusive, and sustainable economy for the future.

BIBLIOGRAPHY

A Driani, N. (2018). Electronic copy is available at: *Grou*, 23529(2), 1–45.

C. M, L., & V. Shanmugam, D. (2014). Growth of the Service Sector in India. *IOSR Journal of Humanities and Social Science*, 19(1), 08–12. <https://doi.org/10.9790/0837-19140812>

Das, L., & Raut, R. (2014). Impact of Changes in the Service Sector in India in Shaping the Future of Business & Society. *Procedia Economics and Finance*, 11(14), 795–803. [https://doi.org/10.1016/s2212-5671\(14\)00243-3](https://doi.org/10.1016/s2212-5671(14)00243-3)

Department of Economics Discussion Paper Series: The Nature of Employment in India's Services. (2009). 452.

Ghani, E., & Mohanan, P. C. (2013). Service sector and urban employment in India: Patterns and challenges. In C. Ghate (Ed.), *The Oxford Handbook of the Indian Economy* (pp. 227–259). Oxford University Press.

Goswami, A., & Narayanan, K. (2023). Productivity and Exports: An Industry-Level Analysis of the Service Sector in India. *Millennial Asia*, 14(3), 379–

405. <https://doi.org/10.1177/09763996231177437>

Hada, B. S., & Suri, A. (2019). The Service Sector as India's Road to Economic Growth: An Analysis. *Journal of Commerce and Management Thought*, 10(3), 319. <https://doi.org/10.5958/0976-478x.2019.00022.3>

K., S. G., & Rao, R. P. (2017). An Empirical Analysis of Growth

and Threshold Inflation in India. *Indian Journal of Economics and Development*, 13(1), 23.
<https://doi.org/10.5958/2322-0430.2017.00004.x>

Mehrotra, S., Gandhi, A., & Sahoo, B. K. (2013). The turnaround in India's employment story: Silver lining amidst joblessness. *Economic and Political Weekly*, 48(35), 87–96.

Ministry of Finance. (2016). *Economic Survey 2015–16. Government of India.*
<https://www.indiabudget.gov.in/es2015-16/echapter-vol2.pdf>

Mohan Prakash, N. R., & Kethan, M. (2018). *Changing Paradigms of Service Sector Employment in India*. 5(1), 79–86.

Mukherjee, A. (2013). *ADB Economics Working Paper Series The Service Sector in India The Service Sector in India*. 352.

Ramaswamy, K. V., & Agrawal, T. (2012). *Services-led Growth, Employment and Job Quality: A Study of Manufacturing and Service-sector in Urban India*. March 2012–2017.

Rodgers, G., & Thomas, J. J. (2009). The nature of employment in India's services sector (Department of Economics Discussion Paper Series No. 437). University of Oxford.
https://www.economics.ox.ac.uk/materials/working_papers/paper437.pdf

Singh, A., & Srivastava, N. (2016). *Overview of Services in India*. 6(2), 190–194. Verma, R. (2010). *India: A Quantitative Analysis*. 84–85.

World Bank (2021). "World Development Report 2021: Data for
Better Lives" —
<https://www.worldbank.org/en/publication/wdr2021>

APPENDIX

Data Collected from The World Bank

Year	Service sector value added (current US\$)	Employment in the service sector (% of total employment)	Services, value added (% of GDP)
1991	102.06	22.02	37.79
1992	109.27	22.15	37.91
1993	107.50	22.28	38.49
1994	122.72	22.44	37.50
1995	136.37	22.63	37.85
1996	148.16	22.82	37.71
1997	162.52	23.05	39.08
1998	169.10	23.32	40.13
1999	192.55	23.64	41.97
2000	200.16	24.04	42.73
2001	212.67	24.87	43.81

2002	230.33	25.74	44.73
2003	271.67	26.65	44.70
2004	312.84	27.56	44.11
2005	364.60	28.49	44.44
2006	414.12	28.18	44.04
2007	535.46	27.80	44.01
2008	550.08	27.42	45.88
2009	617.07	27.02	45.98
2010	754.59	26.57	45.03
2011	828.43	27.39	45.44
2012	846.22	28.22	46.30
2013	867.07	29.04	46.70
2014	975.16	29.88	47.82
2015	1005.17	30.75	47.78
2016	1095.75	31.58	47.75
2017	1263.98	32.47	47.67

2018	1309.07	33.34	48.43
2019	1420.21	34.10	50.08
2020	1282.13	31.62	47.93
2021	1515.45	31.45	47.85
2022	1662.55	31.02	49.58

Sources:

<https://data.worldbank.org/indicator/NV.SRV.TOTL.CD?locations=1W>

<https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS>

<https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS>