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India's Economic Growth: Is it Really Jobless?

Going beyond the obvious with a focus on Women and Youth

A White Paper

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Abstract

India has witnessed remarkable GDP growth in recent years, positioning itself among the world's fastest-growing economies. However, economic growth does not always necessarily lead to employment creation. This paper explores the employment scenario in India, with a special emphasis on women and youth to examine if the economy is indeed undergoing a period of “jobless growth”, as some have argued. It presents a comparative analysis of sectoral share of GDP and employment across major global economies, followed by the trends of workforce participation, employment type, quality of salaried jobs, and employment share of different sectors at the national level. Further, it goes on to analyse and compare the States and select Union Territories in India on their economic performance and quality of employment. It also lays down some actionable strategies and areas of focus to balance economic growth and decent work opportunities for the country's population. Thus, this paper contributes critical insights on challenges against and opportunities for fostering inclusive and sustainable employment generation in India.

Introduction

In a world where global economies are on a path of single-minded pursuit of economic prosperity, where multilateral groupings to accelerate economic cooperation and free trade agreements to expand the volume and benefits of trade between countries regularly make headlines, the importance of achieving resilient economic growth can hardly be overstated. The fruits of this growth not only contribute to a country's global standing and hard power, its citizens experience a raised standard of living, better access to services like education and healthcare, and optimistic futures because of it.

An increase in the size of the Gross Domestic Product (GDP) is often taken as a valued indicator of this progress. However, what use is the increase in the metaphorical pie, if it is inequitably and unfairly distributed? Development economists have long argued that the superstructure of economic growth must be built on the principles of inclusivity and sustainability. Increasing the participation of women in the labour force and a strong youth employment scenario are necessary to rein in the demographic dividend enjoyed by the economies, and to make this growth more participative. Hence, India's stellar performance to become the fourth largest economy in the world in 2025 ranked by nominal GDP, often opens up the debate on its “jobless growth”.

Jobless growth is a pattern of economic growth that, despite an increase in the size of an economy's GDP, does not churn out adequate employment opportunities for its population. Unemployment not only results in valuable human potential lying locked-up, it affects the consumer demand in the markets, and might also lead to a dissatisfied populace that threatens the social capital of the country. While employment is stated in numbers, its scope goes beyond to include the quality of jobs generated. Adequate pay, workforce safety, social-security benefits, decent working hours, all contribute towards the aspects of quality of jobs.

India is already on the course of introspection. A deeper dive into its growth story lays bare some cracks, especially in terms of whether this growth is broad based- whether a sharp rural-urban divide exists, if its female population finds itself participating in its progress, and whether the aspirations of its young and energetic workforce are fulfilled. Targeted interventions backed by evidence-based policy making will guide the way forward.

Literature Review

Overall Outlook and Jobless Growth

Several economic analysts and growth forecasters have prophesied a favourable growth outlook for India's economy. This general optimism is only slightly dimmed by a debate on its employment generation, if it has actually kept pace with the economic performance.

As the Gross Domestic Product (GDP) of India saw a shift from a stagnant economy in 2010-2016 with an average annual growth rate exceeding 6.5%, the employment growth increased by 36% in 2016-17 to 2022-23, creating 170 million additional jobs (Observer Research Foundation et al., 2025). From the long run perspective, developments in the Indian economy have made important strides in structural transformational journey (Centre for Sustainable Employment, Azim Premji University, 2023), characterised by rising job levels, robust consumption growth and high employment elasticity (Observer Research Foundation et al., 2025).

The (Observer Research Foundation et al., 2025), argues that challenges remain in realising the demographic dividend and sectoral imbalance in employment, i.e., the abrupt shift from agriculture to services and limited capacity of the manufacturing sector to absorb the surplus labour. In addition, there are legacy problems such as persistently low female labour force participation rates and high rates of unemployment (Centre for Sustainable Employment, Azim Premji University, 2023). Alongside, the strong impact on the labour market manifested in the form of skewed self-employment and depressed earnings due to slowdown in 2018-2020, followed by pandemic years 2021-22 (Centre for Sustainable Employment, Azim Premji University, 2023).

Women's participation in the Economy

The female labor force participation rate (FLPR) in India has seen a declining trend since the 1990s despite strong economic growth (Klasen et al., 2020). The significant gender disparity was also evident in the report of the Periodic Labour Force Survey 2023-24, where the LFPR combining rural and urban data was 58.2% for males and 31.7% for females.

(Lahoti & Swaminathan, 2013) and (Lahoti & Swaminathan, 2015) illustrated the inconsistency between employment opportunities for women and their skill profiles. They showcased that there is limited skillset with female workforce for the services sector, whereas labour-intensive agriculture and manufacturing has

not driven much growth. The studies of (Sanghi et al., 2015), (Chattopadhyay & Chowdhury, 2022,), (Chattopadhyay et al., 2024) reveal the criteria of income-effect, which indicates, that women belonging to high income group choose to opt out of the paid work opportunities and engage in household and childcare activities, influencing the lack of female workforce participation in the economy. With increasing education levels, women also prefer paid-work but gendered-occupational norms have denied women the ability to re-enter the labor force in the industrial or service sector (Constagliola, 2021).

India should augment women's economic participation by creating new jobs and also offering greater access to existing jobs (Desai & Joshi, 2019). India's FLFPR pattern exhibits a close mix of economic, social, and structural factors determining women's participation in the economic growth.

Youth Employment Scenario

According to the (International Labour Organisation & Institute for Human Development, 2024) India's demographic structure reflects the working-age population as a "window of opportunity" to drive sustainable economic growth and to realize the advantage of demographic dividend in the 2020-2030 decade. However, the Labour Force Participation Rate (LFPR) for youth remains low and shows a declining trend, except a reversal in the years 2019-2022, prompted by the COVID-19 pandemic crisis; there also exists a substantial gender gap in the youth LFPR with the male LFPR being almost three times higher than the female LFPR in 2022.

A sector-wise analysis of youth employment trends points out that agriculture and allied activities is the largest absorber of the youth workforce in 2019-2022; employment in some non-farm sectors like construction, manufacturing, trade, transport, and communication show an increasing trend, whereas, other non-farm sectors like the financial, professional and other services remain unsatisfactory employment generators (MB & Thakur, 2024). This does not reflect positively on the nature and quality of jobs being generated.

Furthermore, educated unemployment has seen an increase in the past 22 years, with graduate unemployment being highest and shows gender disparity against women (International Labour Organisation & Institute for Human Development, 2024). Hence, education, which has always served as a prominent factor for determining employment outcomes, has failed to catch-up with the needs of the job market.

Formalization of the Economy

The Indian economy is witnessing an increasing trend of formalisation of its workforce. As per the Employees' Provident Fund Organisation data, there has been an increase in the registration of workers joining the organisation between September 2017 and July 2024. Data for June 2024 also shows an increase in female workers as well as youth joining the organised workforce (Press Information Bureau,

2024). In fact, the Indian Economy is getting formalised at a faster pace than a growth in the labour force (The Statesman, 2024).

A closer inspection of the process reveals that sectors like the Financial Services and Public Admin and Defence have achieved 100% formalisation, while sectors like Agriculture and Allied Activities, and Construction fall behind severely with just 4% and 24% of formalisation respectively by 2022 (Citi Global Insights (CGI), 2024).

However, the informal sector continues to dominate the organisation structure of the economy at 90.3%; In fact, there has been an increase in the informal jobs in the formal sector, known as the ‘informalisation’ of the formal sector. This is reflective of a rise in the regular employment but not of quality employment generation in the economy (International Labour Organisation & Institute for Human Development, 2024).

This scenario becomes significant because, as pointed out by (Nagaraj & Kapoor, 2022), there is a close relationship between the share of regular formal employment and the level of development in India, with the two being positively correlated for the majority of Indian states. Further, the increasing formalisation indicates employment with job security, social benefits, and higher remuneration, implying the generation of quality jobs (Press Information Bureau, 2024).

In conclusion, a cursory look at the economic growth and employment scenario in India exhibits both opportunities and obstacles. Sectoral diversification is inclined towards the agriculture and services sector, while manufacturing is taking a backseat. Educated unemployment also showcases the grim situation of the economy. Formalization of the workforce demonstrates some quality of jobs for women and youth, however informal workforce is still towering. The high presence of female workforce in agriculture and manufacturing, demonstrates low skill development. Hence, the gender gap and low female participation is quite evident.

The concentrated efforts between government, civil society, and the private sector is essential to realize the potential of demographic dividend and attain job-full growth.

Key Performance Indicators (KPI)

The KPIs mentioned below will help to analyse whether the employment scenario is tilted towards joblessness or inclusivity. These indicators showcase the comprehensive picture of India’s progress towards equitable and inclusive development spread across the emerging demographic dividend of the country. It also unravels the layers of gender parity and uniform employment opportunities in the society. KPIs will signify the prominent sectors which contribute most significantly to economic growth—whether formal or informal—and help assess their potential for future expansion. The rise in skill-based jobs will reflect improvements in education and workforce training. As both quantity and quality of jobs are important for decent work and sustainable economic development, these indicators

throw light on salient features to understand economic health of India, while highlighting areas that require targeted intervention for meaningful and inclusive progress.

KPIs:

- Movement of workforce away from agriculture towards industry and services sector
- Increase in employment opportunities for women and youth
- Increase in regular waged/salaried jobs
- Rise in social security benefits
- Reduction in informal sector employment
- Rise in productivity of labour across different sectors
- Value of employment elasticity

Theory of Change

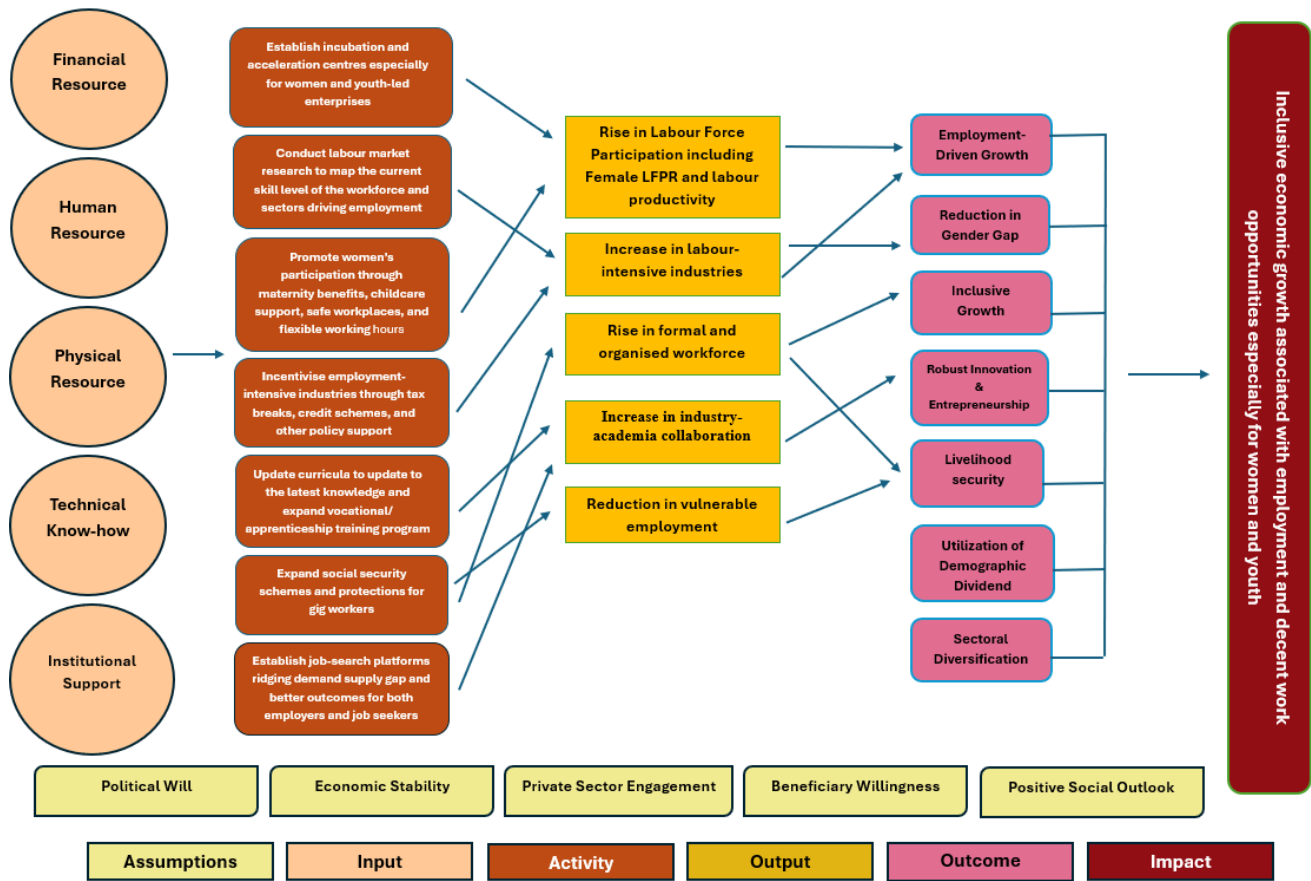


Figure 1: Theory of Change

Data and Variables Used

International

The data for international level analysis was sourced from the World Bank's World Development Indicators database for the year 2022. The year 2022 was chosen for its data availability and relative economic stability for analysis. Data for 217 global economies was analysed. Following indicators have been used:

1. GDP per capita PPP (constant 2021 international \$)
2. Agriculture, Forestry and Fishing, Value added (% of GDP)
3. Industry, Value added (% of GDP)
4. Services, Value added (% of GDP)
5. Employment in Agriculture (% of total employment) (modeled ILO estimate)
6. Employment in Industry (% of total employment) (modeled ILO estimate)
7. Employment in Services (% of total employment) (modeled ILO estimate)

For international level analysis, missing value imputation was performed through univariate and multivariate approaches for countries with missing data.

The data series was capped with minimum and maximum values of 5th percentile and 95th percentile respectively to handle outliers and suitably transformed to further derive insights. The capped data was then represented in box plots and scatter plots to further observe trends and determine country specific positions for further analysis.

National, State, and Union Territories

On the national and state level, key aggregates of National Accounts at constant 2011-12 prices from the Ministry of Statistics and Programme Implementation (MoSPI) have been used for the year 2011-12 to 2023-24. To further understand India's economic trends and headline indicators, Periodic Labour Force survey was used for the years 2017-18 to 2023-24. Following are the indicators used:

1. Gross Domestic Product
2. Sectoral Share of Gross Valued Added (GVA) for Agriculture, Industry, and Services
3. Labour Force Participation Rate in usual status (ps+ss)
4. Workforce Participation Ratio in usual status (ps+ss)
5. Unemployment Rate in usual status (ps+ss)
6. Sectoral distribution of usually working persons (ps+ss) by industry of work (industry sections of NIC-2008)

7. Distribution of workers in usual status (ps+ss) by status in employment
8. Distribution of workers in usual status (ps+ss) by salary quality

The missing values for PLFS data was also calculated for youth data in sectoral share of workers and employment type using the sample population in the PLFS report.

Methodology

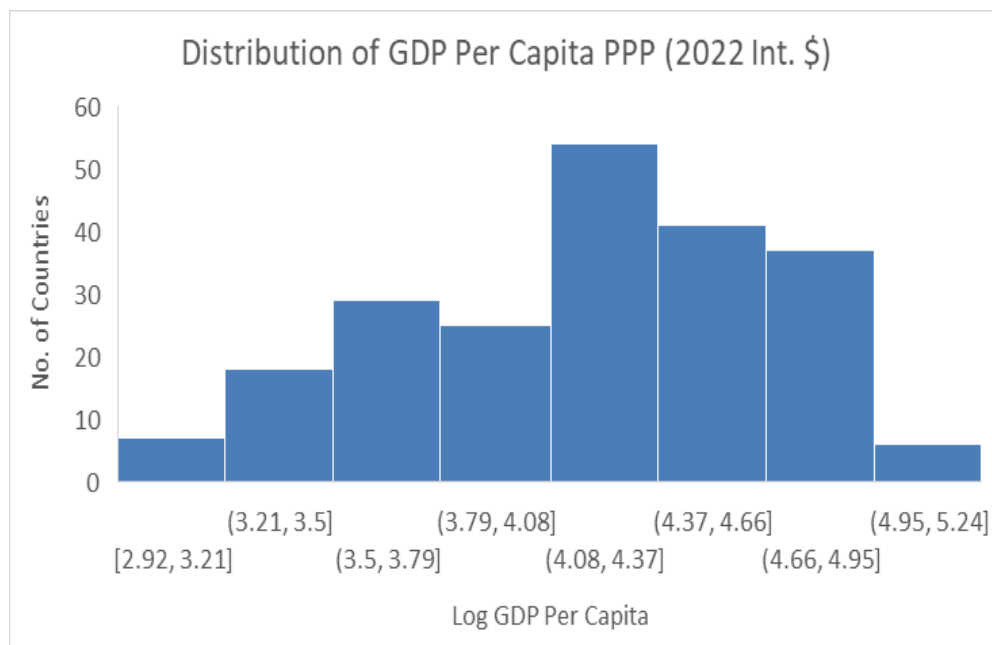
The white paper seeks to analyse India's economic growth with an intent to understand whether this growth is jobless. To understand how this affects India's vulnerable section and the demographic dividend, this paper has also dealt with data focussing on women and youth. The paper covers a multi-level approach with analysis on the international, national, and the state level enabling a holistic understanding of economic trends, nature and quality of economic growth, and differences in international and regional economies and its indicators. We performed exploratory data analysis using scatter plots, histograms, radar charts, spyder diagrams to represent multiple indicators and comprehend complex patterns between different variables.

To delve deeper into the performance of states, a Quality of Growth Index to compare GDP Per Capita PPP and other indicators vis-a-vis unemployment rate, sectoral share, employment type, and social security benefit scores. The detailed methodology for the QoG Index can be found in the appendix. Towards the end, we ran elasticity simulations to gauge economic growth and employment trends and generate policy recommendations.

A Look at the Global Scenario

In order to comprehend India’s performance and analyse its standing in the global economy, we examine the sectoral composition of its GDP and the distribution of employment across these sectors, in comparison with China, Brazil and Indonesia. These countries share several commonalities with India, such as high growth potential, emerging market status, domestic demand-driven growth and export-orientation, along with consequential participation in multilateral groupings like BRICS & G20. They are also notable representatives of the Global South. Thus, it provides a key understanding about India’s growth potential and pitfalls.

Figure 2: Distribution of Global Economies on the basis of GDP Per Capita PPP



Source: World Development Indicators (WDI)

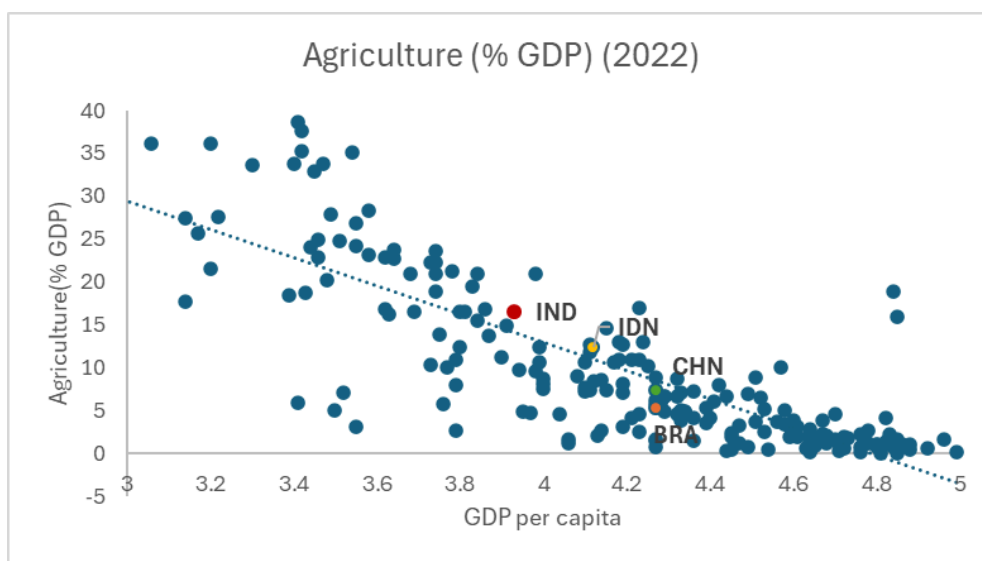
The graph highlights the distribution of GDP per capita (PPP) of the year 2022 among major economies. We can see the unequal nature of global distribution of GDP worldwide. India’s share of GDP, i.e., \$8,594.39, which is less than the global average \$26,470.56. It is also less in comparison with China (\$21,499.38), Brazil (\$18,544.05) and Indonesia (\$13,334.27) which perform significantly well in income distribution.

Sectoral Share of Gross Domestic Product

We can't assess India in a vacuum. A robust analysis demands a balanced comparison with key emerging economies. We must benchmark India against its peers, against nations at similar stages of structural transition, to examine the truth about its growth trajectory.

Brazil is a massive developing economy that has successfully transitioned its economy to the more productive services sector. Both India and China started their modern economic journeys from similar historical starting points. Indonesia, like India, is a major, high-growth South Asian economy. Its industrial path presents a contrast to India's service-heavy model. Hence, these three economies become significant to assess India's performance at the international level.

Figure 3: Global Economies and their Sectoral Share of Agriculture

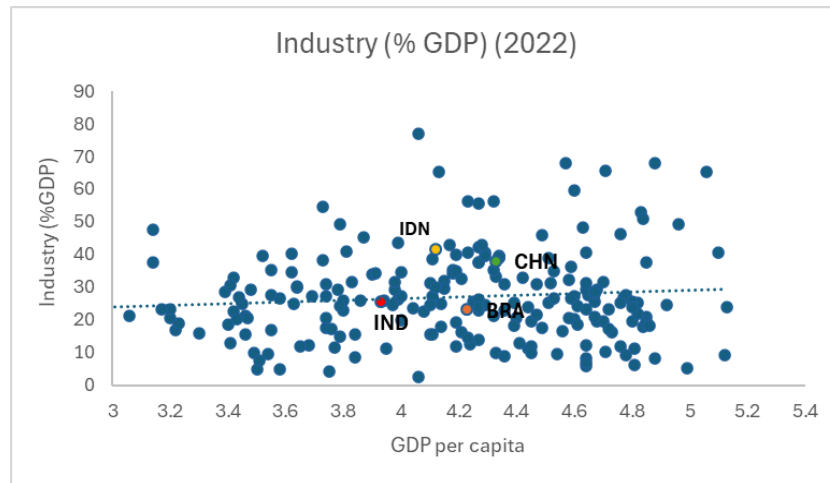


Source: World Development Indicators (WDI)

There is a negative correlation between GDP Per Capita and Agriculture share as a percentage of GDP as seen in the graph above. Usually, this inverse relationship, represented by the data, is a core pattern in global economic development, reflecting a shift as economies grow and mature.

India's sectoral share of agriculture stands at 16.55% which is higher than the global average. In sharp contrast, China's agriculture contributes only 7.15% of GDP while Brazil contributes a meagre 5.77% to GDP despite it being a global leader in crops like soybeans and coffee. Their agricultural sectors are demonstrably more productive and mechanized. Indonesia's share of agriculture to GDP stands at 12.4%. This comparison showcases India's lack in the structural transformation of the economy which is visible in these other developing countries. This trend demands a shift towards economic diversification towards more productive sectors of the economy.

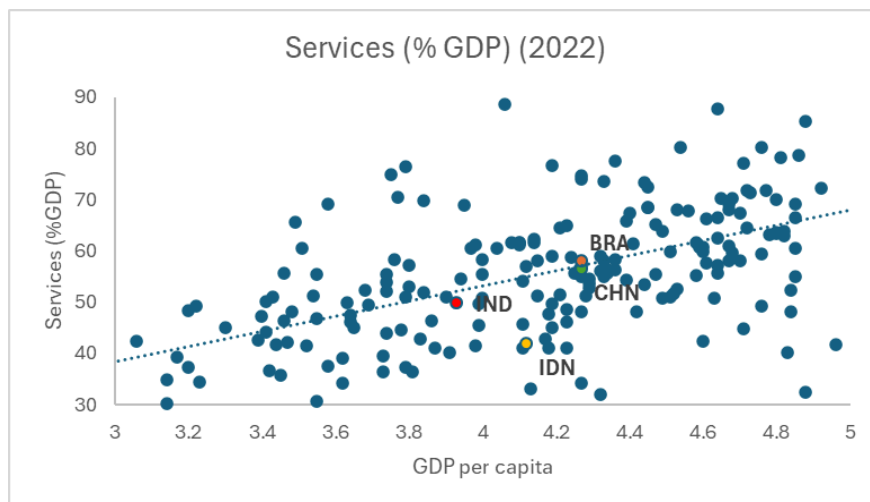
Figure 4: Global Economies and their Sectoral Share of Industry



Source: World Development Indicators (WDI)

As economies develop and average incomes rise, the industry sector typically expands and peaks before giving way to services in high-income countries. In the graph above, a strong correlation between Industry share as a percentage of GDP and GDP Per Capita is not clearly visible. Hence, we can observe that not all global economies have followed this consistent pattern of structural transformation. Indonesia with 41.43% and China with 37.89% of industry shares in GDP dominate—they're global manufacturing powerhouses, reflecting a successful, industry-led growth path. But India's industrial share, 25.38%, is significantly lower. India hasn't achieved the necessary scale or dominance seen in its peers.

Figure 5: Global Economies and their Sectoral Share of Services



Source: World Development Indicators (WDI)

The graph showcases a positive correlation wherein an increase in GDP Per Capita leads to an increase in the share of the service sector of the country. This trend represents a shift towards advanced economic structures and greater demand for services like finance, education, and healthcare which in turn generate high-skilled, quality employment.

India contributes 49.73% to the service sector which is almost half of the total share of GDP but still is below the global average. Thus, despite services being the foremost contributor to GDP, its full growth potential remains to be attained. Brazil is the most service-dominant economy at 58.09% while China is also highly developed at 54.96%. Indonesia balances its shares of industry and services almost equally around 41%. Even though India is said to have leapfrogged from agriculture to services directly, services being an important productive sector, its expansion with long-term equitability and sustainability is important while going forward.

Sectoral share of Total Employment

As economies develop, there is a gradual shift that is seen from the Agriculture sector to the Industry sector, and eventually to the Services sector. Accordingly, the labour force tends to follow the same trend. On an international level, factors like political environment, societal trends and values, economic stabilities influence the move of the labour force thereby driving the change in employment share in different sectors of the economies.

The table below shows overall sectoral share in employment comparing India with Brazil, China, and Indonesia.

Table 1: GDP and Sectoral Share of Employment

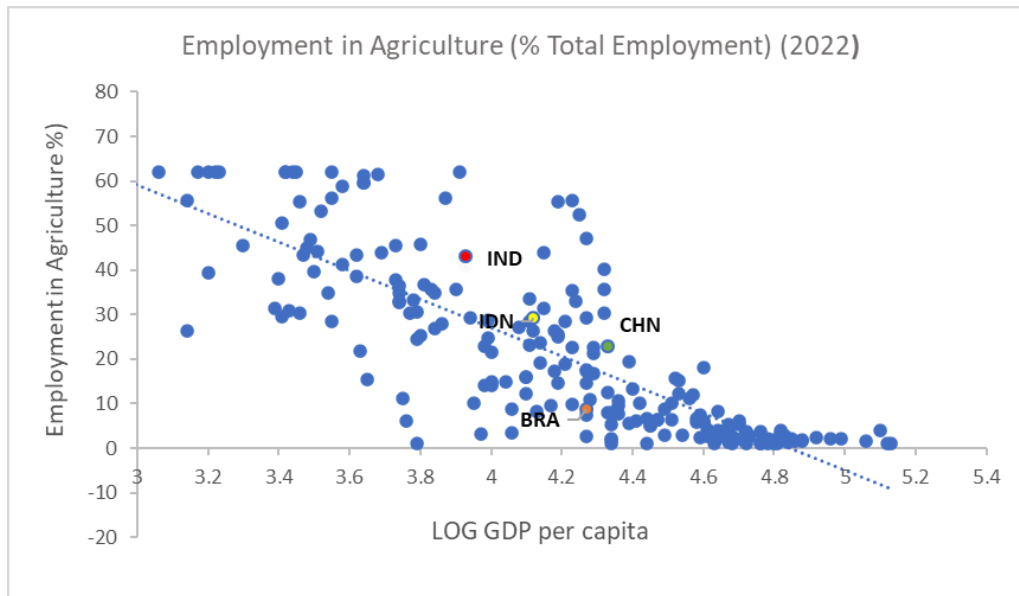
| Country | Log GDP Per Capita PPP (2022) | Employment in Agriculture as a % of Total Employment (2022) | Employment in Industry as a % of Total Employment (2022) | Employment in Services as a % of Total Employment (2022) |
|----------------|--------------------------------------|--|---|---|
| India | 3.93 | 42.86 | 26.12 | 31.02 |
| Brazil | 4.27 | 8.73 | 20.49 | 70.78 |

| Country | Log GDP Per Capita (2022) | Employment in Agriculture as a % of Total Employment (2022) | Employment in Industry as a % of Total Employment (2022) | Employment in Services as a % of Total Employment (2022) |
|-----------|---------------------------|---|--|--|
| China | 4.33 | 22.76 | 31.68 | 45.56 |
| Indonesia | 4.12 | 29.28 | 21.87 | 48.85 |

Source: World Development Indicators (WDI)

Through the graphs below, we have compared Employment in Agriculture, Industry, and Services as a percentage of Total Employment in the year 2022.

Figure 6: Global Economies and their Share of Employment in Agriculture

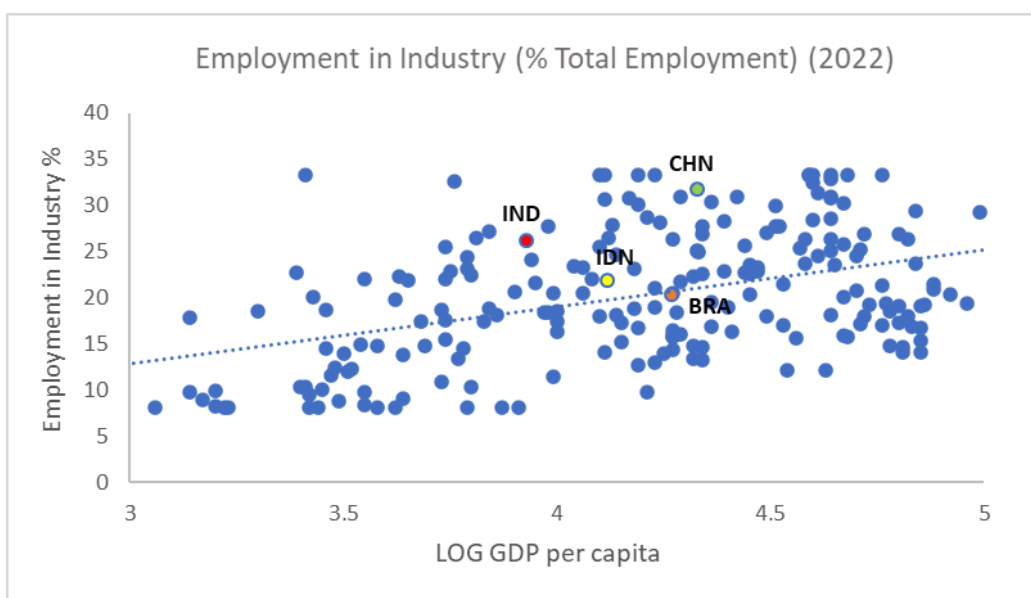


Source: World Development Indicators (WDI)

The scatter plot shows a negative correlation between GDP per capita and Employment in Agriculture meaning, as a country’s GDP per capita increases, the percentage share of its labour force engaged in the agricultural sector declines. Global average for people employed in this sector comes out to 21.2%, however, India despite being in the top 5 largest global economies by GDP PPP, its share of labour force

in the agriculture sector is 42.86% which indicate towards an incomplete structural transformation that might have been a result of prevalence of disguised unemployment in this sector as well as lower productivity and efficiency in this sector. Indonesia, being one of the currently growing economies has shown a clear shift in transitioning towards a service economy with its employment in agriculture share being 29.28% despite its GDP per capita PPP being close to India's at \$4.12K. Similarly, China has also successfully lowered its labour force in agriculture to 22.76%. Brazil, with a higher GDP per capita PPP of \$4.27K has shown remarkable progress with a strong employment share in the service sector of 70.78% and just 8.73% in the agriculture sector.

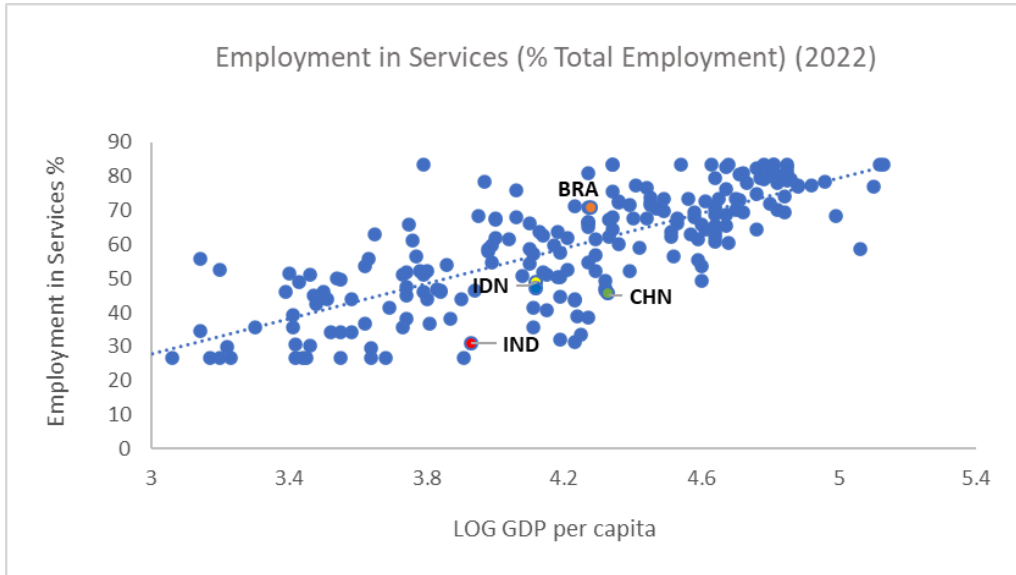
Figure 7: Global Economies and their Share of Employment in Industry



Source: World Development Indicators (WDI)

There is a positive correlation between GDP per capita and Employment in Industry. This trend indicates that as economies grow, there is a gradual shift of labour force from agriculture towards the industry sector. India's industrial employment share is 26.12% which is above the global average. Indonesia's share of employment in industry is 21.87% while Brazil contributes to 20.49% of the labour force, both close to the global average with Indonesia showing a slightly better position. China has been focusing on manufacturing and industry for many years now which is showcased in its share of employment in industry standing at 31.68% remarkably above the global average.

Figure 8: Global Economies and their Share of Employment in Services



Source: World Development Indicators (WDI)

As economies grow, people tend to transition from the agriculture sector towards the service sector for their employment needs which can clearly be seen from the graph above showcasing a positive correlation between GDP per capita PPP and employment share in services. India, with a GDP per capita PPP of \$3.93K and being one of the top largest economies of the world, has not showcased a rapid growth in the transition towards a service economy. Indonesia and China with their share of 48.85% and 45.56% respectively show a gradual and balanced transition towards more formal sectors of the economy but moreover, Brazil with a tremendous share of 70.78%, quite above the global average displays a coherent structural transformation among all the countries.

While Brazil has shifted to a service-based economy, China and Indonesia are seeing contributions both from the industrial as well as service sector. India on the other hand is yet to fully work on the shift in structural transformation as well as on reversing the increase in employment in the agriculture sector instead of the industry and service sectors.

Labour Productivity Across Different Sectors

Having seen the distribution of sectoral share of GDP, it is important to observe the productivity of labour with its sectoral share to understand which sectors lead to efficient utilisation of labour force and improved productivity.

Comparison of Sectoral Shares of GDP and Employment Share among Key Emerging Economies (2022):

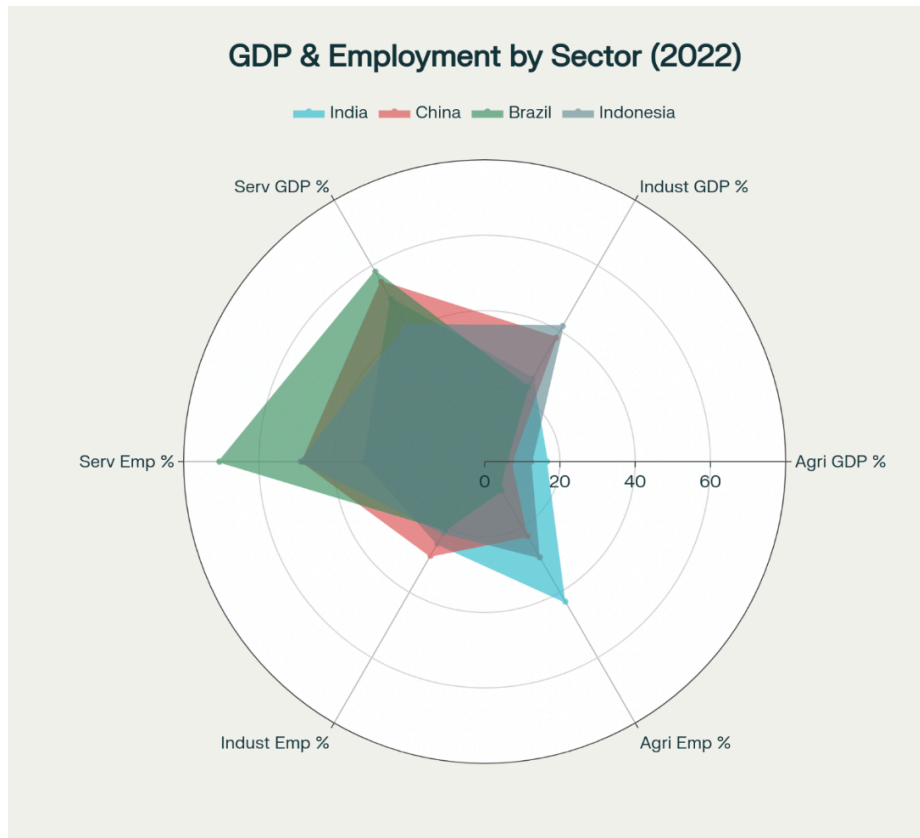
Table 2: Sectoral Shares of GDP and Employment Share

| Country | GDP Per capita (PPP 2022 USD) | Agriculture (% of GDP) 2022 | Industry (% of GDP) 2022 | Services (% of GDP) 2022 | Agri. Employment (% of Total) | Industry Employment (% of Total) | Services Employment (% of Total) |
|-----------|-------------------------------|-----------------------------|--------------------------|--------------------------|-------------------------------|----------------------------------|----------------------------------|
| India | 8,594.39 | 16.55 | 25.38 | 49.73 | 42.86 | 26.12 | 31.02 |
| China | 21,499.38 | 7.15 | 37.89 | 54.96 | 22.76 | 31.68 | 45.56 |
| Brazil | 18,554.05 | 5.77 | 22.82 | 58.09 | 8.73 | 20.49 | 70.78 |
| Indonesia | 13,334.27 | 12.40 | 41.43 | 41.79 | 29.28 | 21.87 | 48.85 |

Source: World Development Indicators (WDI)

India has the highest GDP contribution from agriculture at a significant 16.55% among the four countries. However, as observed from the table and radar chart below, the same sector supports a disproportionate 42.86% of its employment. This disparity underlines low productivity and the prevalence of disguised unemployment in this sector. It showcases that the vulnerable employment problem is concentrated right here. Brazil is the most service dominant economy with its sectoral share of 58.9% in GDP and employment share in services 70.78% highest among all these countries. Similarly, even though Indonesia contributes equally in industry and services sector GDP, its employment share in services accounts to 48.85% supporting the more productive sector. China and Indonesia lead the way in contribution to industry sector however when it comes to share of percentage of employment in the same, China is better placed than Indonesia with a share of 31.68% in industry employment.

Figure 9: GDP and Employment by Sector



Source: World Development Indicators (WDI)

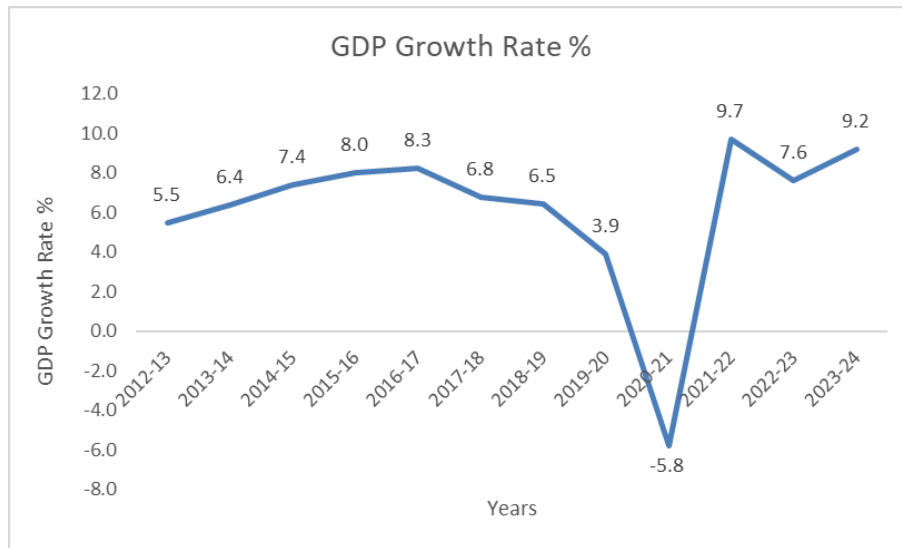
Our economy is a unique hybrid—structurally constrained by a massive, low-productivity agricultural workforce, while our service sector hasn't yet hit the robust scale of our peers. To address jobless growth, we must mature the service economy while simultaneously moving that vulnerable agricultural employment into productive industrial and skilled service roles. It's not one or the other—it's both. This dual mandate is non-negotiable.

India's Economy: A Deep Dive

Here we take a closer look at India's growth trajectory across different sectors and how it has translated into the employment scenario.

The graph below presents India's GDP growth rate from 2012-13 to 2023-24. The data shows robust growth between 2012-13 and 2016-17, peaking at 8.3% in 2016-17. However, there is a clear slowdown from 2017-18 onward, culminating in a sharp contraction of -5.8% in 2020-21, reflecting the economic impact of the COVID-19 pandemic.

Figure 10: GDP Growth Rate

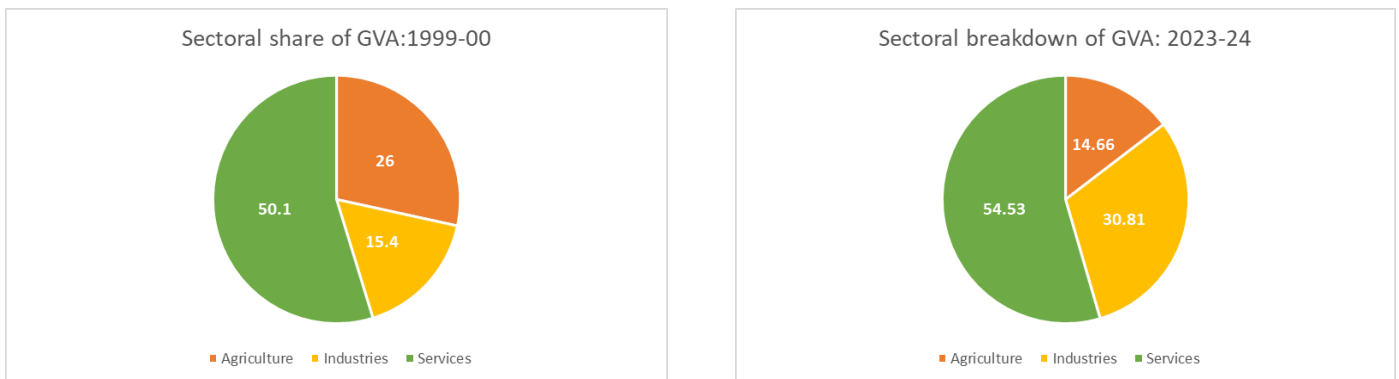


Source: Ministry of Statistics and Programme Implementation

Post-pandemic, the economy rebounded sharply, recording a 9.7% growth in 2021-22, and then stabilizing at 7.6% in 2022-23 and 9.2% in 2023-24. The overall trend indicates strong recovery and resilience after the pandemic shock, with growth rates returning to pre-pandemic levels, signalling positive macroeconomic fundamentals and effective policy support.

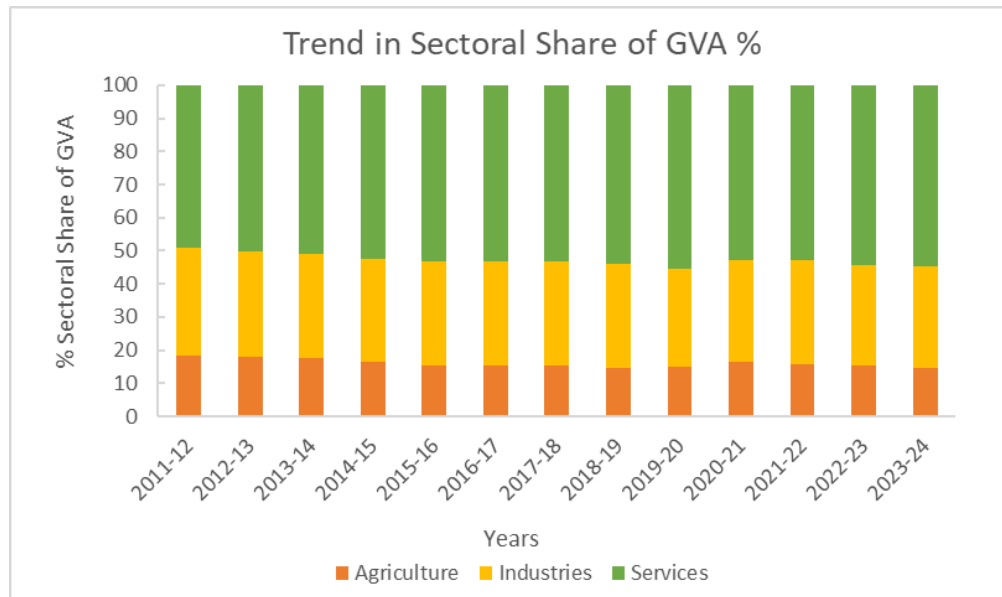
Sectoral Transformation of India’s Economy

Figure 11: Sectoral Share of GVA between 1999 and 2024



Source: Ministry of Statistics and Programme Implementation

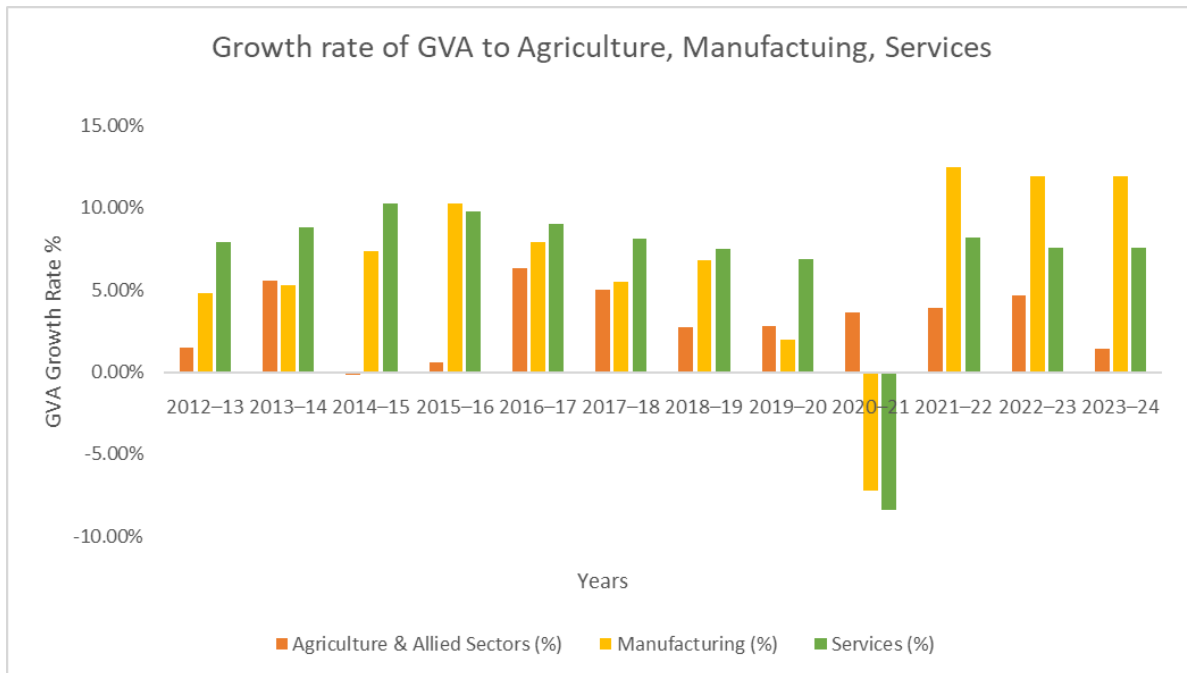
Figure 12: Trend in Sectoral Share of GVA %



Source: Ministry of Statistics and Programme Implementation

The graph illustrates the trend in the sectoral share of Gross Value Added (GVA) in India from 2011-12 to 2023-24, categorized into services, industry, and agriculture. Throughout this period, the services sector consistently dominates the GVA composition, maintaining a stable share of around 54%–55% across most years except for a slight dip to 50% in 2020-21, likely due to disruptions from the pandemic. The industrial sector's share fluctuates modestly, generally hovering between 16% and 19%. Notably, the industry touched a low of 16% in 2020-21 but rebounded in subsequent years. The agriculture sector demonstrates stability, maintaining a steady contribution close to 18% through the entire period, with a temporary increase to 20% in 2020-21, possibly reflecting the sector's resilience during the pandemic when other sectors faced slowdowns. Overall, the graph highlights the sustained primacy of services in India's economic structure, moderate growth and recovery in industry, and the persistent though relatively smaller role of agriculture. This sectoral stability underscores India's ongoing economic transformation and the comparatively limited volatility in the contribution of different sectors to national GVA during recent years.

Figure 13: Trend in Sectoral Share of GVA %



Source: Ministry of Statistics and Programme Implementation

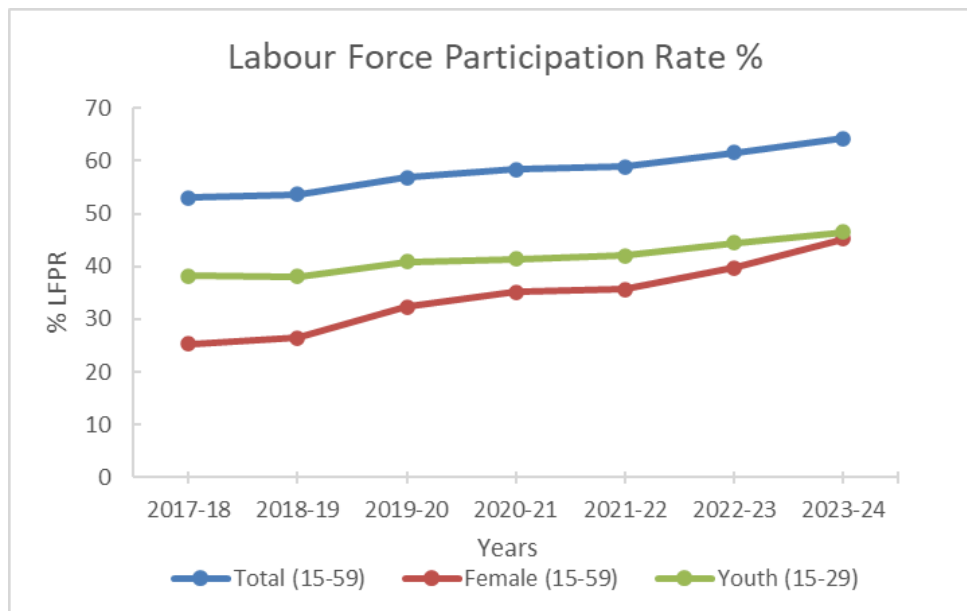
The graph illustrates the annual growth rates of Gross Value Added (GVA) for agriculture & allied sectors, manufacturing, and services from 2012-13 to 2023-24. Throughout this period, the services sector consistently records the highest growth rates, with frequent peaks above 7% and occasional surges surpassing 9-10%. Manufacturing shows greater volatility, marked by robust double-digit growth in recent years (2021-22 to 2023-24), especially as the economy recovered from the pandemic. Meanwhile, the agriculture & allied sectors maintain relatively modest but stable growth, generally remaining around 2-4% except for brief marginal dips or upticks. A significant anomaly is observed in 2020-21, when the pandemic led to negative growth in services and manufacturing, while agriculture managed to retain positive growth, underscoring its resilience during economic disruptions. Subsequently, both manufacturing and services registered strong rebounds in growth, reflecting post-pandemic recovery.

In summary, the graph highlights the dynamism of the services and manufacturing sectors as major drivers of economic growth in India, while agriculture, though less volatile, provides crucial stability during external shocks and remains vital for the overall economy.

Employment Indicators

Labour Force Participation Rate

Figure 14: Labour Force Participation Rate



Source: Periodic Labour Force Survey

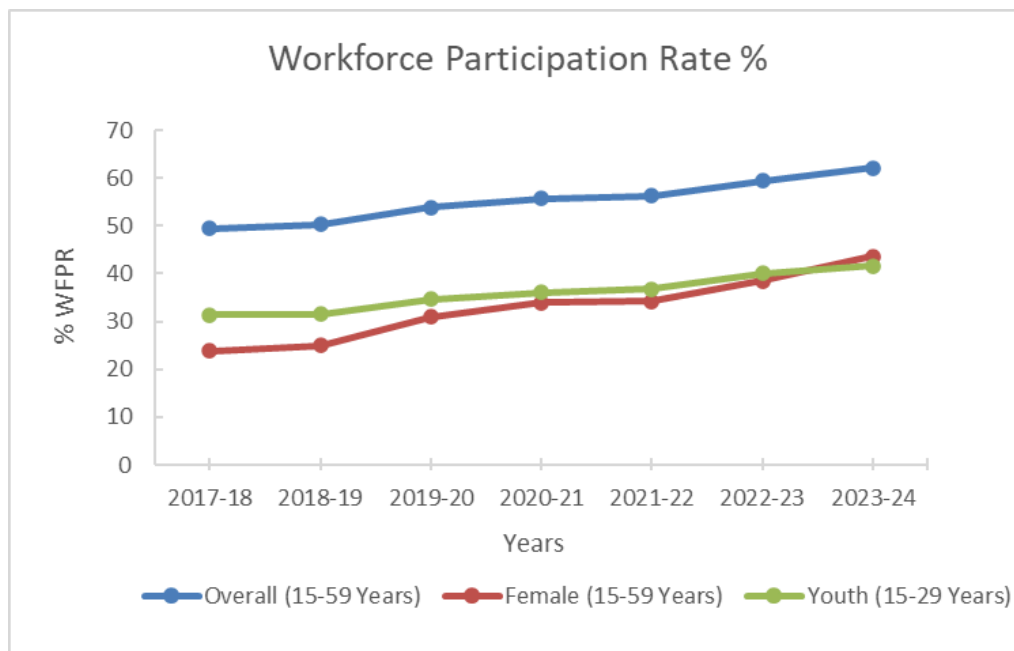
The graph illustrates trends in employment among three key demographics—total population (ages 15-59), females (ages 15-59), and youth (ages 15-29)—across the years 2017-18 to 2023-24. Over this seven-year period, the overall labour force participation rate (LFPR) for the working-age population (15-59 years) increased steadily from 53% in 2017-18 to 64.3% in 2023-24. This positive trajectory highlights a substantial expansion in the proportion of individuals active in the workforce, pointing towards improved employment opportunities. A particularly notable trend is observed in female labour force participation. The rate for females (15-59 years) shows a marked rise from below 30% in 2017-18 to almost matching the youth participation rate by 2023-24, closing the gap and nearing 45%. This sharp growth reflects advancing gender inclusivity and may be indicative of improved social norms, policy incentives, or expansion in sectors employing women. Meanwhile, the youth labour force participation rate (ages 15-29) maintains a gradual upward slope throughout the timeframe, starting just above 40% and approaching 45% by 2023-24. Although the increase is less pronounced compared to females, it signals

marginal improvement in opportunities for younger demographics, possibly attributable to educational shifts, skill development programs, or changing industry demands.

In sum, the graph depicts a robust improvement in overall, female, and youth participation in India's labour force, with the sharpest gains among female workers. This multi-fold increase is likely to have significant implications for economic growth, gender equity, and demographic dividend realization, making it a crucial datapoint for policy formulation and socio-economic planning in contemporary India.

Workforce Participation Rate

Figure 15: Workforce Participation Rate



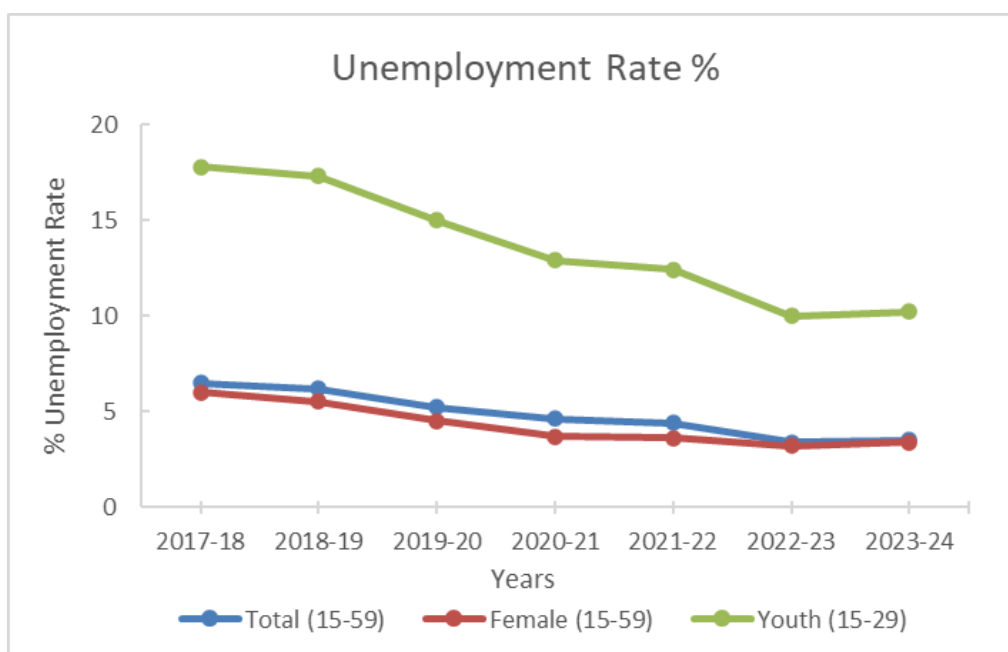
Source: Periodic Labour Force Survey

The graph “Workforce Participation Rate (%)” illustrates key employment trends in India from 2017-18 to 2023-24 for three demographic groups: overall (ages 15-59), females (15-59), and youth (15-29). Firstly, the overall participation rate has shown a robust and persistent increase, climbing from 49.5% in 2017-18 to 62.1% in 2023-24. This suggests a significant expansion in the proportion of the working-age population engaged in the workforce. Such a trend could be attributed to economic growth, expansion of job opportunities in both urban and rural areas, and the impact of policy initiatives aimed at boosting employment. Female participation, historically low in India, shows remarkable progress. Starting below 30% in 2017-18, the female rate has steadily increased, almost matching the youth participation rate by

2023-24, crossing the 40% mark. This convergence signals a transformative shift towards greater gender inclusivity in the labour market. Factors driving this may include improving education access for women, changing social attitudes, and government schemes prioritizing female employment. The youth participation rate (15-29 years) also trends upwards, though more gradually. Beginning at around 35%, it reaches close to 43% by 2023-24. While the growth is less marked compared to the female segment, it indicates incremental improvements in youth engagement, possibly linked to skill development programs, higher education outcomes, and new forms of employment such as gig and digital jobs.

Overall, the graph highlights positive momentum in India’s workforce participation. The narrowing gap between female and youth rates, and the broad rise in total engagement, point towards demographic shifts, socio-economic progress, and effectiveness of targeted interventions.

Figure 15: Unemployment Rate



Source: Periodic Labour Force Survey

The graph shows a clear decline in India’s unemployment rate from 2017-18 to 2023-24 across total (15-59), female (15-59), and youth (15-29) populations. The total unemployment rate (15-59 years) dropped steadily from 6.5% in 2017-18 to 3.5% in 2023-24, signalling an improvement in overall job availability. The female unemployment rate closely follows this trend, declining from approximately 6% to 3.4% over the same period, which reflects improved labour market inclusion for women. Meanwhile, the youth unemployment rate (15-29 years), though much higher at the outset (17.8% in 2017-18), also experienced a significant decrease to 10.2% by 2023-24. The sharper decline in youth unemployment

suggests that job creation and skill development measures have begun yielding positive results for younger job seekers, although the rate still remains much higher than for the general population.

In summary, the chart highlights a sustained reduction in unemployment rates for all segments, with the youth segment seeing the largest absolute fall. This overall downward trend indicates improvements in employment opportunities and effectiveness of policies aimed at reducing joblessness, while also identifying youth employment as an area needing continued focus.

Employment Elasticity

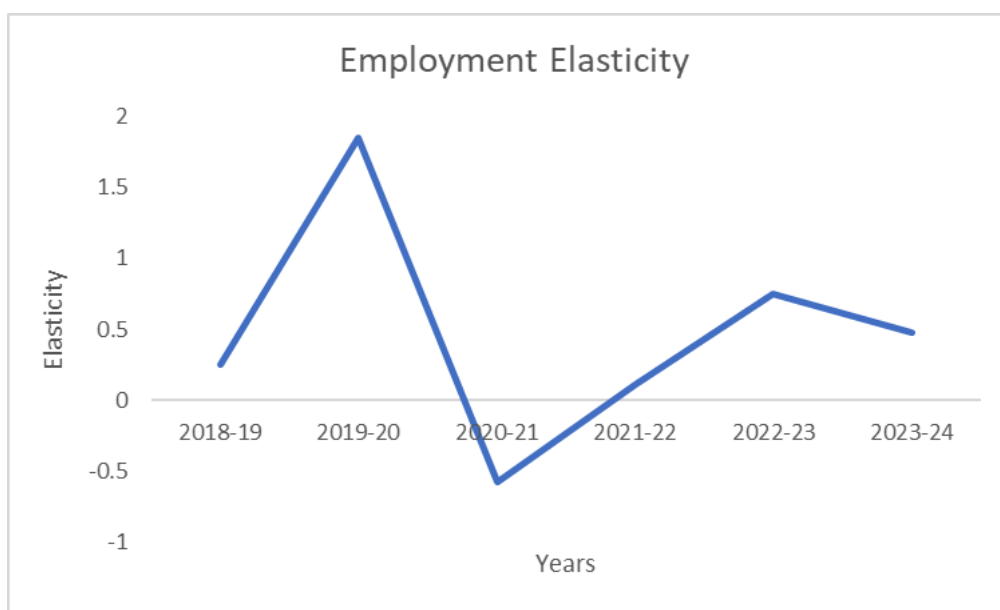


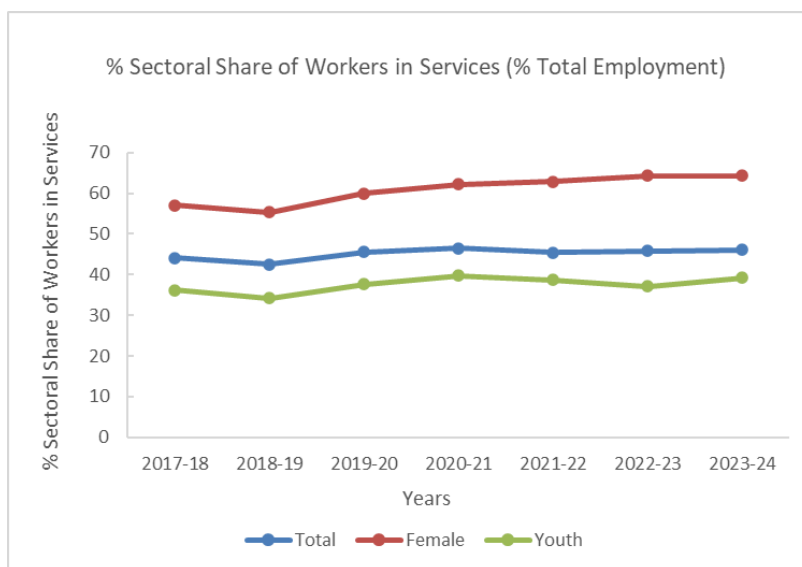
Figure 16: Employment Elasticity

Source: Ministry of Statistics and Programme Implementation

The line graph above is a representation of the employment elasticity of the economy over the period 2018-19 to 2023-24. It goes on to show that employment growth has not kept pace with economic growth with a consistent intensity. A negative elasticity for 2020-21 is a peculiar period marked by a fall in GDP but an increase in employment nevertheless. This could indicate a shift towards less productive or informal employment.

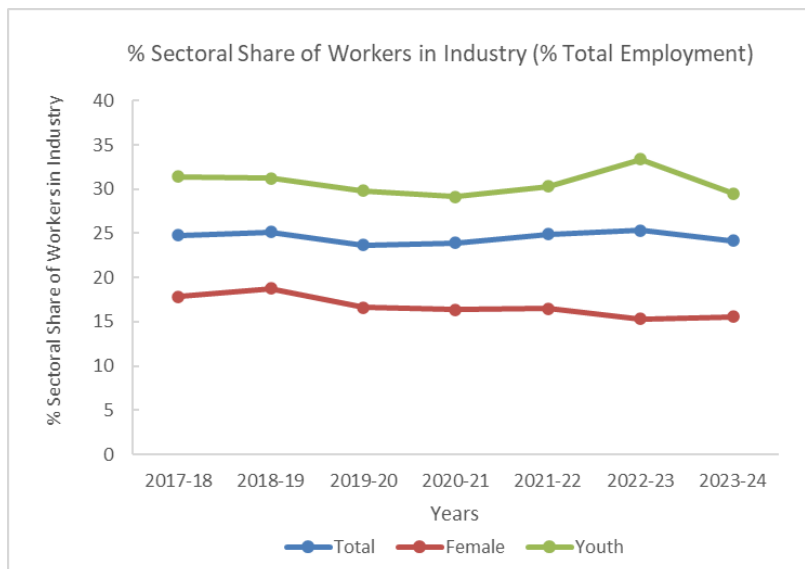
Sectoral Employment in India

Figure 17: Sectoral Share of Employment in Agriculture



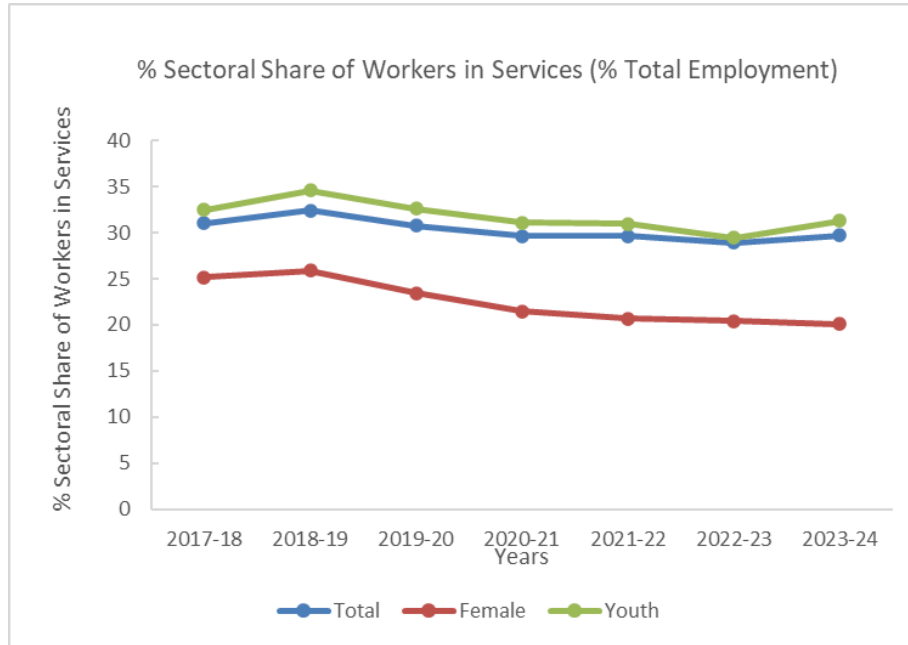
Source: Periodic Labour Force Survey

Figure 18: Sectoral Share of Employment in Industry



Source: Periodic Labour Force Survey

Figure 19: Sectoral Share of Employment in Services



Source: Periodic Labour Force Survey

The Periodic Labour Force Survey data from 2017–2024 reveals the employment trend in the three sectors of the economy. In the graphs above, total agricultural employment remains stubbornly high which reflects a failure to transition the workforce. There is a sharp increase in female employment in agriculture—climbing from 57% to over 64%. This is the ‘feminization of agriculture’ driven by economic distress. This might be a result of a lack of opportunity pushing women into lower-paying, informal work. Youth employment is also high and constant. On top of that, the higher-productivity sectors—industry and services—have been unable to absorb them.

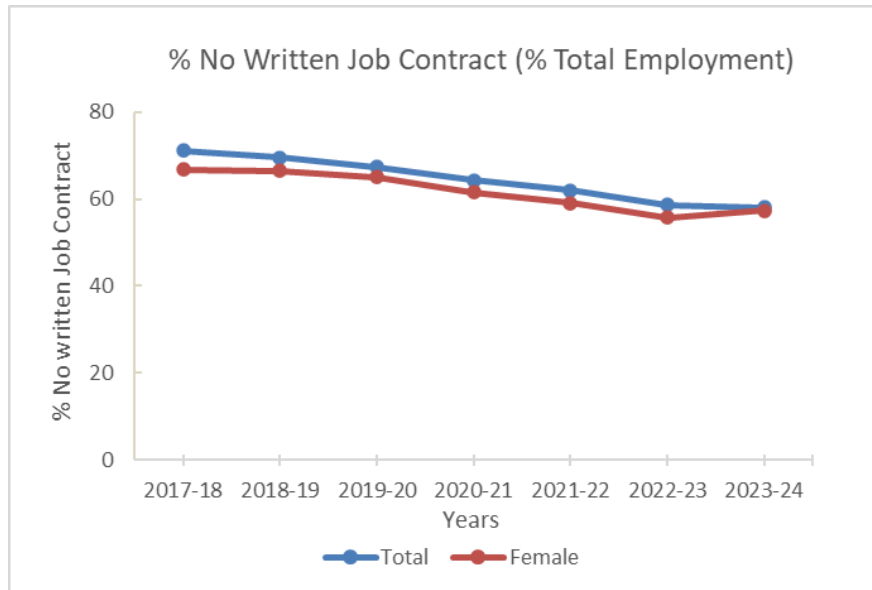
The Industrial Sector has shown stagnant job creation. We see a concerning decline in female employment in industry—a clear withdrawal of women from those jobs.

The Services Sector does not reflect robust employment growth either. Despite its GDP size, its employment share is stagnant. The most concerning trend is the persistent fall in female employment in services—dropping from 25.16% to 20.12%. The higher-productivity sectors are not just failing to absorb female labor; they are actively shedding it.

Hence, India’s growth is structurally weak in providing quality employment, with women disproportionately affected.

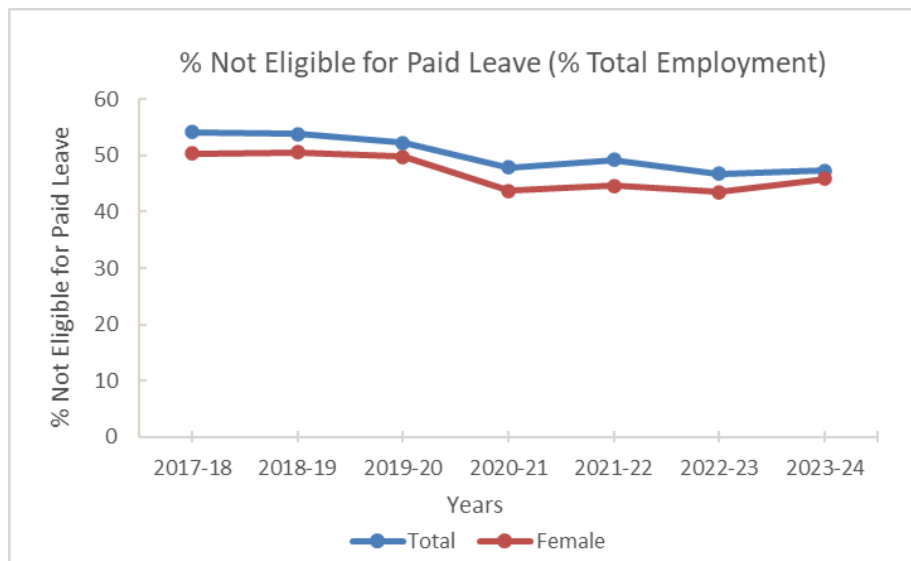
Salaried Job Quality in India

Figure 20: Share of Employment with No Written Job Contract



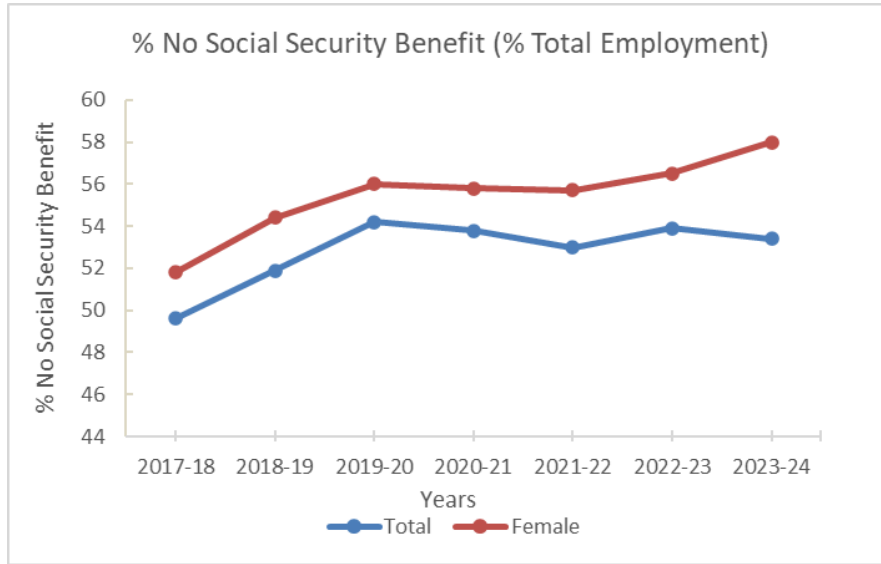
Source: Periodic Labour Force Survey

Figure 21: Share of Employment with No Eligibility for Paid Leave



Source: Periodic Labour Force Survey

Figure 22: Share of Employment with No Social Security Benefit



Source: Periodic Labour Force Survey

Apart from considering the rate of participation levels and type of employment structure, the quality of growth becomes an important parameter to measure the segment of jobless growth. India has witnessed an increase in non-agricultural employment, with services taking a lead. However, the concerns over job security hangs in the corner with the rise in informal economy, contract-based work along with poor wages and inadequate working conditions. In this analysis, we look into the three key factors of measuring quality jobs, i.e., written job contract, paid leave and social security benefits from 2017-18 to 2023-24.

The graph shows the data that no written job contract and no paid leave for total (% of the total workforce) has declined from 71.1% and 54.2% in 2017-18 to 58.0% and 47.3% in 2023-24, respectively, indicating certain improvement over the last six years. On the other hand, the total workforce without social security benefits has increased from 49.6% in 2017-18 to 53.4% in 2023-24, which implies serious challenges for informal workforce and its underlying socio-economic security.

The graph shows similar trends as that of total workforce. The share of women with no written job contract and no paid leave have also decreased from 66.8% and 50.4% in 2017-18 to 57.3% and 45.9% in 2023-24, respectively. Conversely, the percentage of females without social security benefits has increased significantly from 51.8% in 2017-18 to 58.0% in 2023-24, reflecting the structural and social barriers that restrict women's access to secure & remunerative jobs.

Employment Type in India

Figure 23: Share of Self-Employed in Total Employment

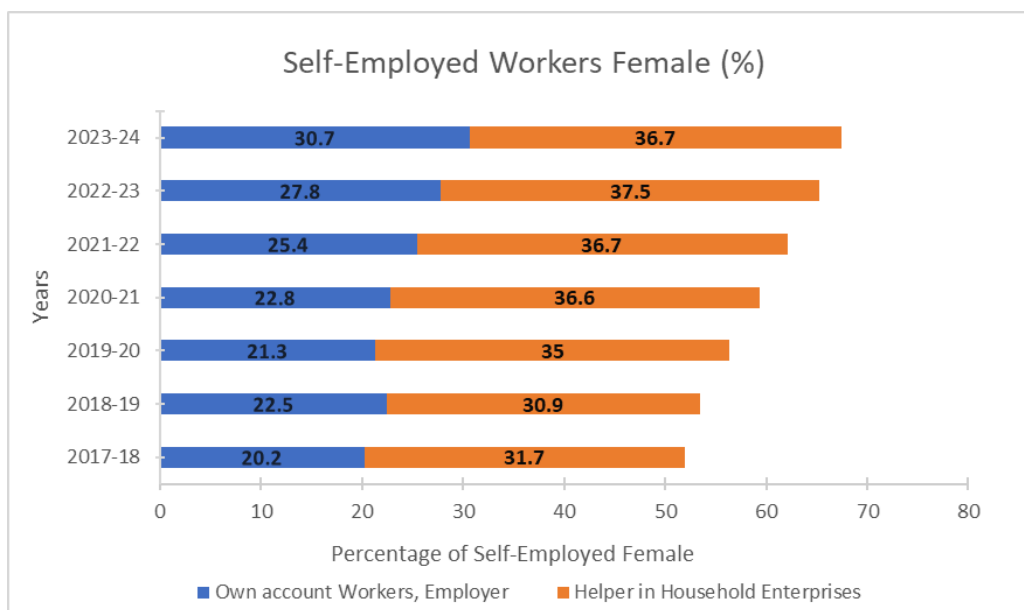


Source: Periodic Labour Force Survey

The line graph shows the trend in self-employment in the economy over a period of 7 years, from 2017-18 to 2023-24. For the overall workforce, self-employment has seen a gradual increase from 52.2% in 2017-18 to 58.4% in 2023-24, the process of increase accelerating in the pandemic years 2020. On the other hand, there is a significant increase in the self-employment numbers for the female workforce, going from 51.9% to 67.4% in the same time frame. While the increase was marginal before 2020, it rose sharply post that period, indicating pandemic related economic stress driving more women to self-employment. The graph also displays an increase in the self-employment for youth over the years, although the process has not been consistent. While there was a slight dip in the percentage share of self-employed youth from 2017-18 to 2018-19, there was an increase in the two years that followed. This was then followed by a fall in 2021-22. The percentage share of youth reached 52.1% in 2023-24, increasing 8.5% in the course of 7 years.

The increase in the self-employment numbers could be due to an increase in timely and affordable credit facilities, favourable savings and investment scenarios, and a general confidence in the state of the economy. However, it could also be a result of the workforce being driven to it for survival due to inadequate regular, salaried employment opportunities. In both the scenarios, since the self-employed depend on their enterprise's profits and lack social security benefits, they remain a vulnerable portion of the workforce.

Figure 24: Self-Employment of Female Workers



Source: Periodic Labour Force Survey

Figure 25: Self-Employment of Youth Workers



Source: Periodic Labour Force Survey

As seen in the previous graph, the percentage share of the labour force in the self-employment category has been increasing gradually. Self-employed workers are divided into two categories; Own-account

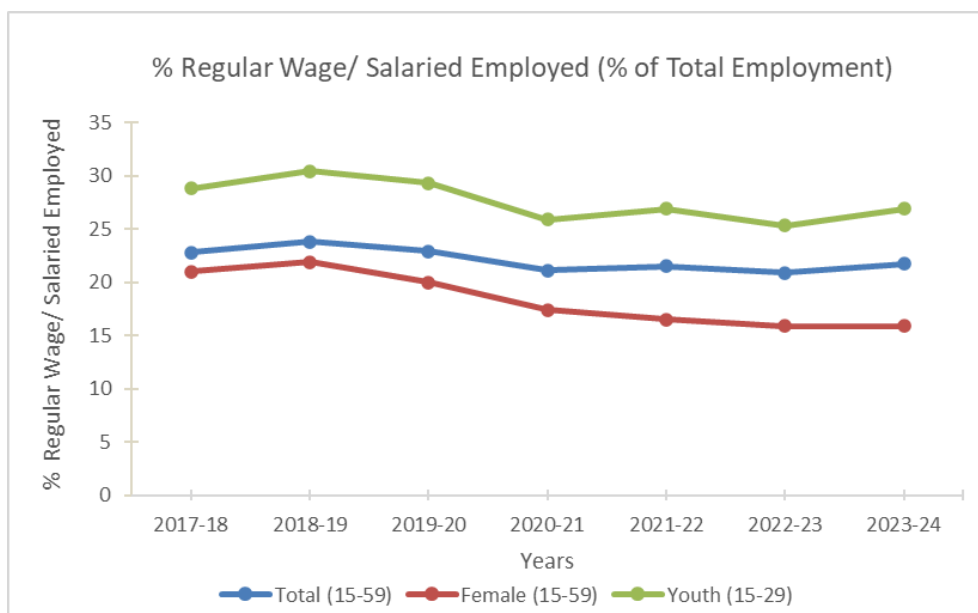
Workers or Employers and workers employed as Helpers in Household enterprises.

The bar graph indicates that the share of workers in the Own-account Worker/ Employer category has seen a jump from 20.2% to 30.7% in the last 7 years for females. For youth it has remained mostly stable from 20.1% in 2017-18 to 20.2% in 2023-24.

When it comes to the Helper in Household Enterprises category, we see female percentage share consistently increasing from 31.7% to 36.7% in the past 7 years, however for youth, the percentage share has increased from 23.5% in 2017-18 to 31.9% in 2023-24.

Both the demographics of Own-account Workers/ Employer numbers could mean either a positive scenario where due to increase in the credit facility and good investment opportunities, the number of enterprises have increased, on the other hand it could also mean more reliability on unstable employment options without social security. Helper in Household Enterprises category show an increasing trend for both women and youth which could be a cause of concern as helper in household enterprises could indicate a disguised employment situation or an informal/ unpaid situation in the enterprise which puts the labour force in a vulnerable position.

Figure 26: Share of Regular Wage/Salaried in Total Employment

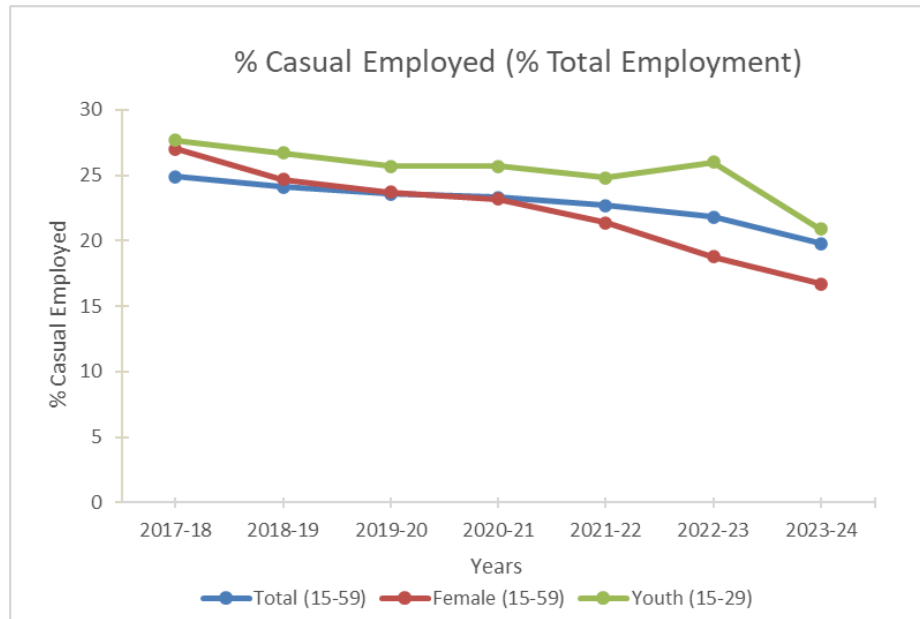


Source: Periodic Labour Force Survey

The line graph shows the change in Regular Wage/Salaried Employment in the economy for the total workforce as well as the female and youth segment of the workforce. In the period between 2017-18 and 2023-24, there has been a decline in the regular wage employment from 22.8% to 21.7%. The percentage share for youth also declined from 28.8% to 26.9%. While the decline has been marginal overall and

slightly higher for youth, it has been disproportionately high for the female workforce, going from 21% to 15.9% in the same time period. The trend highlights a movement of the workforce towards vulnerable employment, women being at a greater risk of losing secure livelihood opportunities.

Figure 27: Share of Casual Employment in Total Employment



Source: Periodic Labour Force Survey

The graph shows a continuous decline in casual employment in all the categories steadily, barring the exception of youth where it slightly increased between 2021-22 to 2022-23 period which could be a consequence of COVID-19’s effect on the economy. However overall, youth’s casual employment has dropped from 27.7% to 20.9%. A decrease in the share of workers in the casual or informal sector from the years 2017-18 to 2023-24 indicates increased interest in moving away from the informal sector. The share of the female labour force has dropped sharply from 27% to 16.7% and the total casual employment has also seen a drop from 24.9% to 19.8% suggesting a large part of the labour force is opting out of casual employment. This could mean either a positive shift towards regular wage/ salaried employment, or could also indicate an increase in self-employment that might or might not be a stable source of employment.

The States and Union Territories: How Do They Fare?

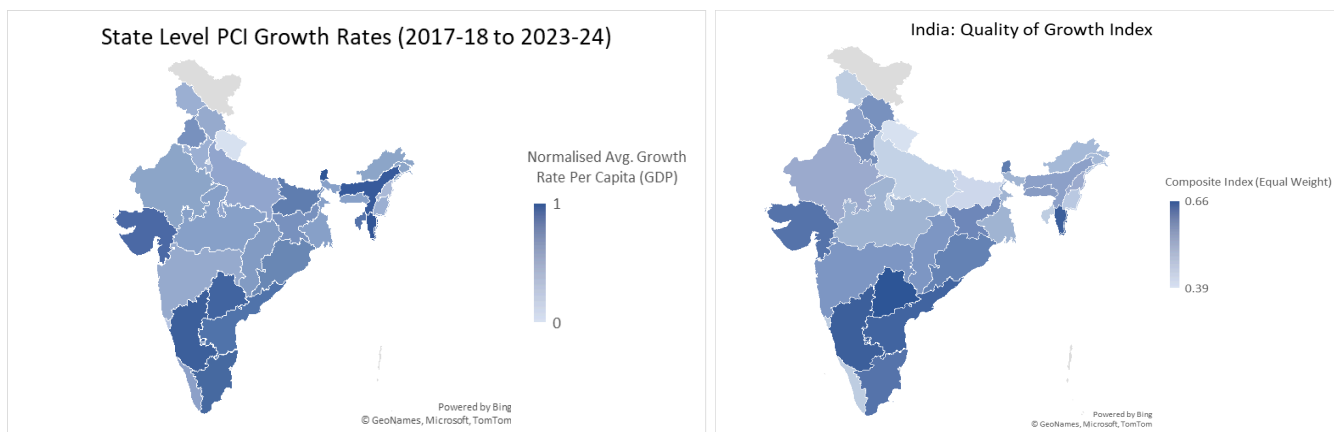
India's growth story is a sum of its parts. The States and Union Territories (UTs) that constitute the geographical bounds of the country, each with its distinct economic model, resource mix, and policy interventions, guide the trajectory of the country's economy.

Here, we attempt to decipher the economic performance of these constituents using their Gross State Domestic Product (GSDP) Per Capita figures and gauge the quality of this growth using a composite indicator- the Quality of Growth Index.

GSDP Per Capita Income represents average economic output per person in the State. It showcases economic productivity of the population but does not reflect on its standard of living or quality of employment and income. Quality of Growth Index is a composite measure which evaluates the quality of economic growth and employment in a state indicated by various metrics like sectoral share of employment, the type of employment-whether casual, salaried, or self-employed, social security benefits in the states, and the overall unemployment rate trends.

Quality of Growth Index when compared with the Per Capita Income GDP gives us an idea as to how the states of India differ between their economic dimension on the one hand and economic dimension inclusive of social dimensions like inclusivity, equity, and expansion of social welfare for all on the other.

Figure 28: Heat Maps Showcasing State's GDP and Quality of Growth Performance



The maps above showcase the performance of the 28 Indian states and 5 union territories w.r.t their economic growth measured in average per capita gross state domestic product growth rate and the quality of growth measured by the composite indicator. As one can see, economic growth and quality employment do not move hand-in-hand for all the states and UTs as desirable. Significant disparities exist in several regions of the country.

The southern Indian states outperform the northern states, both in their per capita average gross domestic state product growth, as well as their quality of growth. Telangana, Andhra Pradesh, Karnataka, and Tamil Nadu rank among the top 10 performers under both the parameters, indicating that economic growth in these states is closely tied to inclusivity and quality of work. A notable exception here is the state of Kerala, which despite its socially progressive policy-making and governance, lags far behind on both aspects. High youth unemployment and lack of adequate social security cover to its working population are major contributors towards its less than desirable outcome on the Quality of Growth Index.

Uttar Pradesh in the north and Bihar in the east show notable divergence in their economic growth and quality of growth, employment in both the economies being agriculturally driven with a weak service sector.

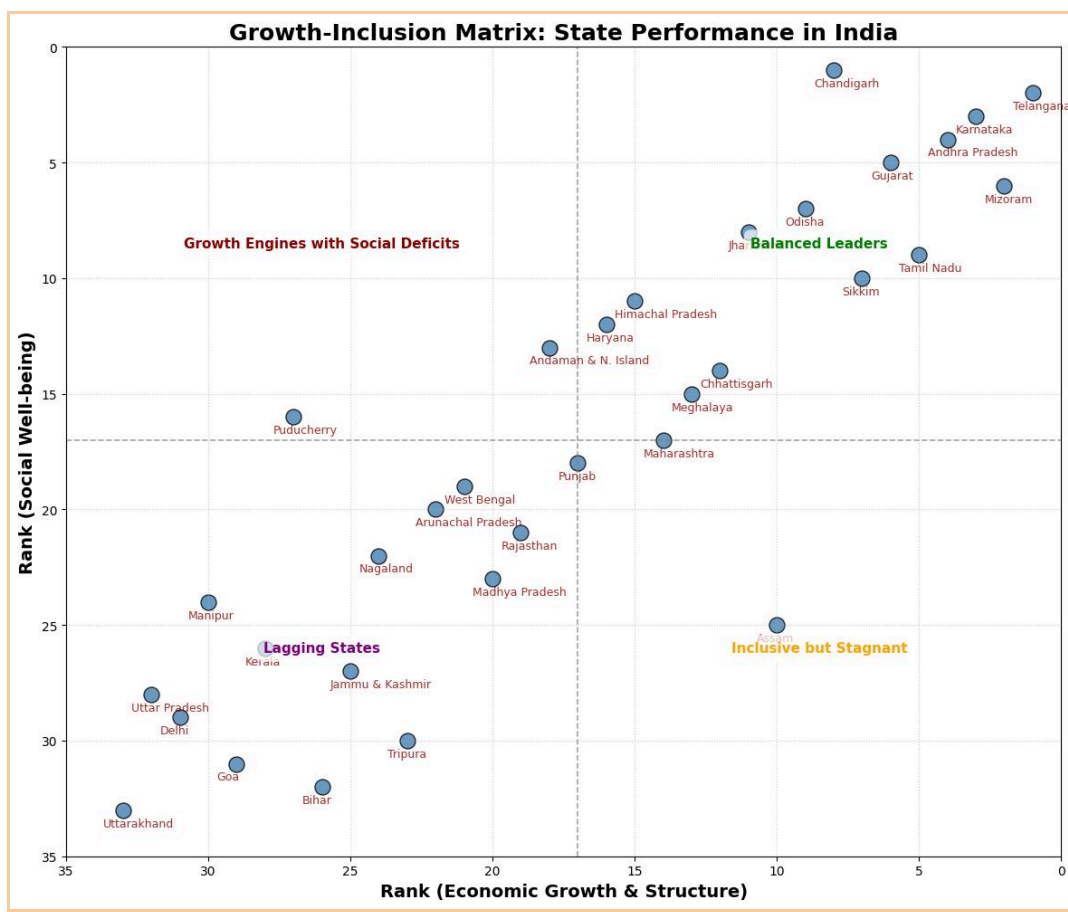


Figure 29: Growth-Inclusion Matrix

The Growth-Inclusion Matrix above, derived from the rankings of the States and UTs, on their economic growth rate and social inclusivity, offers a macro view of the performance of all the units by putting them

under one of the four quadrants of performance- the Inclusive but Stagnant units, the Balanced Leaders, the Growth Engines with Social Deficits, and the Lagging States.

The horizontal axis showcases Economic Growth and Structural Transformation while the vertical axis displays Social and Employment Well-being. Both dimensions are constructed directly from the QoG Index components, but expressed as relative ranks rather than absolute scores. Stronger outcomes move toward the top and right of the matrix. Median ranks serve as the cut-off points.

Hence four distinct growth pathways emerge. States in the top-right quadrant combine economic dynamism with improvements in employment quality and social inclusion. These are balanced performers. In the top-left quadrant growth and structural change coexist with weak labour markets or social outcomes. These are growth engines with social deficits, a pattern consistent with job-poor or uneven development. The bottom-right quadrant captures the reverse imbalance: relatively strong social and employment outcomes without sufficient economic momentum or transformation. The bottom-left quadrant reflects compounded weakness; states where low growth aligns with poor social and employment conditions.

By exposing the alignment or misalignment between economic performance and inclusion, it adds interpretive depth to the QoG Index. More importantly, it shifts the policy question. The issue is no longer whether a state is performing well or poorly in aggregate, but whether its constraint lies in accelerating growth, strengthening inclusion, or correcting an imbalance between the two.

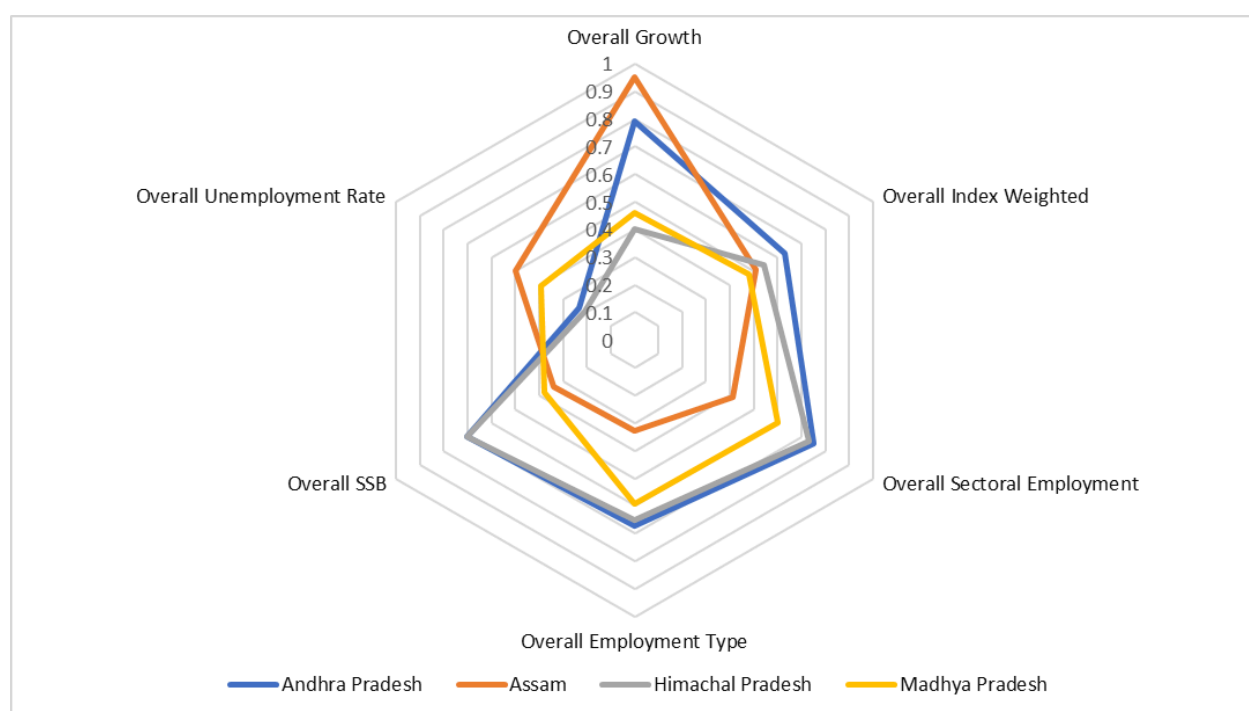
The following table ranks the States and UTs on both the measured parameters and identifies the sharp divergences in the performance where they exist.

Table 3: States' GDP and QoG Ranks

| State/UT | Rank GDP | Rank (Equal Weight) | Rank Difference |
|------------------|----------|---------------------|-----------------|
| Telangana | 5 | 1 | 4 |
| Karnataka | 4 | 3 | 1 |
| Andhra Pradesh | 8 | 5 | 3 |
| Tamil Nadu | 6 | 6 | 0 |
| Himachal Pradesh | 24 | 12 | 12 |

| State/UT | Rank GDP | Rank (Equal Weight) | Rank Difference |
|----------------|----------|---------------------|-----------------|
| Assam | 3 | 18 | 15 |
| Madhya Pradesh | 19 | 22 | 3 |
| Kerala | 20 | 27 | 7 |
| Uttar Pradesh | 23 | 31 | 8 |
| Bihar | 10 | 32 | 22 |

Figure 30: States' Performance on Components of QoG



Here, we take a closer look at 4 Indian States, each presenting a distinct mix of economic performance and quality of growth, to identify the parameters where they excel and others where more targeted intervention might lead to better results.

Himachal Pradesh fares poorly in per capita income growth with a rank of 24 but ranks 12th on the QoG index, indicating that despite its poor economic output, its nature of employment has been socially

rewarding. It has a low unemployment rate, including for women and youth, and an adequate social security cover for its workforce. However, more than 50% of its workforce is engaged in the agricultural sector, and between the years of 2017-18 and 2023-24, there has only been a shift of less than 2% of the workforce to the other sectors. 66.2% of the workforce remains self-employed, followed by regular wage/salaried jobs at just 22.6%, exposing the extent of vulnerable employment, especially for women.

Assam, in the north-east presents a different story. It is one of the top performers in the per capita gross state domestic product growth, ranking 3rd on the list. But its performance on the QoG index betrays a model of economic excellence that is not backed by a sound and inclusive employment scenario. In the years 2017-18 to 2023-24, the economy of Assam underwent a structural transformation that saw a rise in the share of employment in its agricultural sector as well as the industries. For the female workforce, the rise in employment in agriculture was drastic, increasing from 45.75% to 74.73%, their numbers shifting away from services. This indicates a decline of skill-based employment opportunities and a push towards unskilled/semi-skilled labour. The state also saw a significant rise in self-employment over the years, especially for women. Both these factors largely contribute to the social deficit in its quality of employment.

Andhra Pradesh is one of the top 5 states when it comes to the Quality of Growth Index. With that, it also ranks fairly well in terms of its gross state domestic product per capita making it one of the holistically growing states in the country. It has a low unemployment rate which has seen reduction through 2023-24 to 2017-18. The share of the agriculture sector has also reduced from 49.78% to 46.28% with the service sector showing an increase from 29.51% to 31.78%, with industry also showing a gradual increasing trend. When it comes to the type of employment, there has been a reduction in casual labour from 36.9% to 28.7% with an increase in the regular salaried persons category from 18.4% to 22.3%. However, the labour force in the self-employed category has also increased from 44.7% to 49.1% with the female labour force showing a similar increase of 6% indicating an increase in the vulnerable employment.

Madhya Pradesh's Quality of Growth Index rank stands at 22 while its overall gross state domestic product per capita's rank stands at 19 both of which present a grim picture in terms of its economic as well as social growth status. Although the unemployment rates have gone down from 2017-18 to 2023-24, the share in the vulnerable employment sector of agriculture has remained mostly stable over the years and the share of the labour force in services has seen a slight decline from 20.78% to 19.71% with female participation in agriculture increasing by 5% and decreasing by approximately 4% in services. Similarly, the state has seen a rise in self-employment over the years and a decrease in formal regular wage employment for both females and the overall labour force which results in low social security benefits for the labour force that we could gather from the spider chart. High dependency on agriculture, stagnant industrialization, decline in service sector expansion, and the overall inadequate formal employment with little social security are responsible for its Quality of Growth rank being in the bottom 10 states in the country.

Thus, the idea to examine the growth performance of the States and UTs going beyond the income criteria, to include the quality of employment offers significant insights into the holistic development aspirations that must guide policy interventions at various levels.

Conclusion

India's employment scenario is under constant critique with the "jobless growth" hypothesis. As GDP growth rate rises, the analysis of empirical data showcases the challenges in completely optimising the demographic dividend.

The highly agriculture dependent economy of India in comparison to China and Indonesia, demands a lofty shift towards manufacturing and services sector. With manufacturing being moderate, policy interventions need a boost to absorb more workforce and make the industrial sector productive. Meanwhile, the share of services in India's GDP is in line with Brazil, China and Indonesia, exhibiting its strong potential to cater to a skilled workforce. Hence, the sectoral share of all the four countries' GDP is immensely inclined towards the services sector which portrays maturity, skilled, tech-driven and urban-centric growth of the economy.

In India, the economic resilience can be seen through rising growth rate and strong post-pandemic recovery. The data from the period 2017-18 to 2023-24 shows decreased unemployment rate and increased labour force participation rate for both youth and female, indicating job creation and gender inclusivity. On the other hand, the limited structural shift observed in sectoral share of employment shows high employment in the agriculture sector, while manufacturing and services remains stagnant, for both youth and females. As regular wage/salaried and casual employment have decreased, self employment trends have escalated. While job quality remains low due to weak social security benefits, women face disproportionate vulnerability. It highlights 'feminization of agriculture', informal employment with low wages, low skills, and systemic barriers. Hence, employment trends are insufficient to meet rising demands.

The Quality of Growth (QoG) represents the differences between GDP growth and quality of jobs which reveals the disparities for some states in terms of inclusivity, equity, and social welfare. However, few states also showcased inclusive growth with better job quality.

Therefore, to move away from "jobless" to "job-full" growth, concentrated efforts through targeted policy interventions are required. The sectoral reforms demand a shift from informal employment to a formal one, providing job security. Employment elasticity must be strengthened through skill training, credit access, and market linkages. Thus, policy reforms towards structural change is a key to achieve the goal of a developed India by 2047.

Policy Recommendations

1. Promote labour-intensive growth

Elasticity calculations show that India may create more than 50 million new jobs by 2030–31 if job intensity goes up from 0.77 to about 0.92. This implies we need to support industries that create a lot of jobs including textiles, food processing, tourism, construction, retail, logistics, and so on. This can be done through financial incentives like direct credit lines, tax relief, and targeted subsidies.

2. Improved agricultural productivity

Diversify agriculture through support to other branches of farming like horticulture, floriculture, animal husbandry, and fisheries. Implement precision agriculture, land consolidation, and expand artificial irrigation.

3. Reduce vulnerable employment

Promote service sector growth by bridging the skill gap as well as regulatory and policy support.

4. Increase women's participation in the workforce

Projections show that by 2030-31, targeting a female WPR of 62% will bring in 2 million women into the workforce. This can be achieved through shifting women from agriculture to the services sector through skill training and increasing women's participation by reduction in barriers to entry, childcare support, flexible working hours, incentivizing female entrepreneurs, and overall transformation in social outlook towards working women.

5. Harnessing demographic dividend

There are over 242 million people of working age who are between the ages of 15 and 29. But the youth WPR is just 41.7%, and the jobless rate is very high (10.2%) for young people with degrees. Raising the youth WPR to 60% by 2030-31 will lead to a substantial increase in youth employment. To address the skill gap and to link employment seekers to industry needs, better job-matching platforms, internships, apprenticeships, and short skill courses that are in line with what businesses require are needed. Small financing and easy registration might aid people who desire to start their own businesses.

Limitations

- **Missing Data Points**

The PLFS lacks data on the salaried job quality of youth, such as contract type, access to social insurance, job stability, and transitions to formal positions. Without granular data, it is difficult to accurately assess the security, benefits, and long-term prospects of jobs held by young people. This constrains the ability to evaluate the effectiveness of employment policies, understand youth vulnerability in the labor market, and make tailored recommendations for improving job quality and protections for this demographic.

- **Lack of Qualitative Data**

The study primarily relies on quantitative indicators to analyze employment and growth trends, such as numerical data on job rates, sectoral distribution, and income levels. However, it does not incorporate qualitative information about worker experiences, job satisfaction, aspirations, workplace safety, or informal sector dynamics. This omission narrows the perspective of the research, making it difficult to capture nuanced challenges faced by diverse groups, understand barriers to meaningful employment, or identify social factors affecting workforce participation. As a result, policies derived from the study may lack sensitivity to ground realities and worker perspectives, especially in informal and marginalized sectors.

- **Computational Approaches Limitation**

The analysis relied solely on spreadsheet-based tools like Excel, and did not utilize advanced statistical software such as R or Python. This restricts the scope of data modeling and statistical analysis, making it difficult to perform complex tasks such as multivariable regression, robust error diagnostics, or scenario simulations. As a result, potential nonlinear relationships and deeper insights into employment patterns may not have been fully explored, which could limit the accuracy and depth of the study's findings.

- **Usage of theoretical approaches rather than data centric approaches to assign weights to the components of Quality of Growth (QoG) Index**

The weights assigned to different components of the Quality of Growth Index (QGI) were based on theoretical frameworks and expert consensus, rather than being empirically calibrated from data. This approach may introduce researcher bias and affect the sensitivity of the index to actual, observed changes in the labor market. As a result, the QoG Index might not fully reflect real-world dynamics or

appropriately prioritize factors according to their true impact, which could influence the precision and applicability of policy recommendations derived from the index.

- **Does not explore emerging trends in the economy**

The study does not address emerging trends like artificial intelligence and the rise of gig employment. As a result, it overlooks how new technologies impact job types, skill requirements, and income security. This restricts policy relevance for India's evolving workforce and may underestimate the share and challenges of informal, platform-based roles.

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Appendix 1

Methodology of Quality of Growth Index

To accurately assess India's jobless growth, we need to look beyond GDP. It is an insufficient metric. It fails to capture the dimensions of quality and inclusiveness, which are the factors that determine if growth is sustainable, long-term, and broadly shared.

We built the Quality of Growth (QoG) Index to solve this. This comprehensive index is a diagnostic tool, moving beyond mere numerical expansion to rigorously determine if GDP growth reflects tangible improvements in both the inclusiveness and the inherent quality of economic development.

Indicator Selection and Scope

We built the QoG Index from 18 specific indicators. We grouped these into five core themes.

- **Employment Landscape:** We track the overall job market and we also specifically disaggregate data for female and youth unemployment, as these groups experience economic trends very differently.
- **Sectoral Transformation:** This monitors the structural shift of employment (e.g., from agriculture to services), paying close attention to female participation within those shifts.
- **Job Quality and Security:** Here, we contrast data on wage and salaried workers against casual and self-employed workers. The goal is to see if jobs are formalizing—moving away from vulnerability.
- **Social Protection:** This measures the average social security benefits available, using PLFS data to gauge the strength of the safety net.
- **Overall Economic Prosperity:** We map this through average per capita GDP growth over the six-year period (PLFS 2017–18 to 2023-24).

We structured every indicator so that a good outcome—like lower unemployment or more secure jobs—always results in a higher QoG Index score.

Data Processing and Normalization

The indicators used in the index are on different scales. Unemployment rates (percentage) cannot be directly compared with GDP growth (monetary value). This was solved with min-max normalization. This standard, transparent process converts every raw indicator to a common 0-to-1 scale. On this new scale, 1.0 is the best possible outcome (e.g., very low unemployment) and 0.0 is the worst. This is the means to fairly compare and, finally, aggregate all 18 diverse indicators into a single, coherent QoG Index score.

Weighting, Aggregation, and Stress-Testing

Once normalized, the indicators had to be combined. This raised the central question: how much should each of the five themes matter? Several distinct weighting schemes were systematically applied to see if the rankings held firm or fell apart. Initially all the indicators were assigned equal weighting. This foundational model treats all five themes as equally important (20% each), giving a neutral case. The next steps were a series of deliberate, policy-driven stress tests. These were 'what-if' scenarios, "What if a government decided social protection was its absolute top priority?" In that case, the model was rebuilt, assigning bigger weight onto that single theme. This was again done for labor market development pushing employment numbers to the forefront. Comparing the outcomes of these different models keeps the analysis comprehensive. It shows how shifting a policy priority changes a state's ranking, which gives us a much deeper insight into the quality of growth.

Sensitivity Metrics and Stability

After running all the scenarios a rigorous stability assessment was performed. Two primary metrics for every state were calculated across all indicators: the average rank and the standard deviation. These metrics quantify volatility. Standard deviation was used as the primary stability test to separate the solid rankings from the fragile ones. A low standard deviation is good. It means a state's rank is stable. It didn't jump around much, even when the policy weights were changed completely. A high standard deviation is a red flag. It means the state's rank is sensitive. It only looks good under one or two specific, niche scenarios. This stability test is a crucial tool that represents which rankings are real and which are just artifacts of a specific priority, reflecting states that are truly performing well across the board.

Appendix 2

Ranking of States and select Union Territories according to Quality of Growth Index and Gross State Domestic Product

| State/UT | Rank GDP | Rank (Equal Weight) | Rank Difference |
|---------------------|----------|---------------------|-----------------|
| Telangana | 5 | 1 | 4 |
| Chandigarh | 15 | 2 | 13 |
| Karnataka | 4 | 3 | 1 |
| Mizoram | 2 | 4 | 3 |
| Andhra Pradesh | 8 | 5 | 3 |
| Tamil Nadu | 6 | 6 | 0 |
| Gujarat | 7 | 7 | 0 |
| Sikkim | 1 | 8 | 7 |
| Odisha | 12 | 9 | 3 |
| Jharkhand | 13 | 10 | 3 |
| Haryana | 26 | 11 | 15 |
| Himachal Pradesh | 24 | 12 | 12 |
| Chhattisgarh | 16 | 13 | 3 |
| Maharashtra | 25 | 14 | 11 |
| Andaman & N. Island | 11 | 15 | 4 |

| State/UT | Rank GDP | Rank (Equal Weight) | Rank Difference |
|-------------------|----------|---------------------|-----------------|
| Meghalaya | 17 | 16 | 1 |
| Punjab | 14 | 17 | 3 |
| Assam | 3 | 18 | 15 |
| Puducherry | 32 | 19 | 13 |
| Nagaland | 29 | 20 | 9 |
| Rajasthan | 21 | 21 | 0 |
| Madhya Pradesh | 19 | 22 | 3 |
| West Bengal | 18 | 23 | 5 |
| Arunachal Pradesh | 22 | 24 | 2 |
| Delhi | 31 | 25 | 6 |
| Manipur | 28 | 26 | 2 |
| Kerala | 20 | 27 | 7 |
| Goa | 30 | 28 | 2 |
| Jammu & Kashmir | 27 | 29 | 2 |
| Tripura | 9 | 30 | 11 |
| Uttar Pradesh | 23 | 31 | 8 |
| Bihar | 10 | 32 | 22 |
| Uttarakhand | 33 | 33 | 0 |