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Structural Changes and Labour Reallocation in India: Regional Perspective from Odisha

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ABSTRACT

Structural changes in an economy drive labour reallocation across sectors, influencing productivity, employment patterns, and economic growth. In developing regions, this transition often begins with a shift from agriculture to manufacturing and services, followed by a growing dominance of the service sector. This paper examines how structural change has shaped labour reallocation in Odisha's economy over the past three decades (1991–2021) in comparison with India. Using the Michaely index, the study measures the extent of sectoral shifts, while a decomposition analysis explores the relationship between structural transformation, economic growth, and employment. The findings reveal that structural change has been a weak driver of economic growth in both regions, with a similarly sluggish impact on employment conditions. This study seeks to guide policymakers in crafting strategies that not only foster structural change but also enhance economic growth and expand employment opportunities in the region.

Keywords: Structural changes, Economic growth, GDP, Labour reallocation, Employment

JEL Classification Codes: J0

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I. INTRODUCTION

Structural transformation and employment are interconnected dynamics that play a crucial role in the socio-economic development of countries. Structural transformation refers to the process by which a nation's economic base shifts from primarily agriculture and low-productivity activities to more industrialised and service-oriented sectors. This shift not only enhances productivity and economic growth but also inevitably reshapes employment.

In the Kuznets framework , economic growth is driven by the reallocation of labour from agriculture, which has lower productivity, to the non-agricultural sector, which has higher productivity. Kuznets posits that labour productivity grows in both sectors but at a faster rate in non-agriculture. While Lewis's model (1954) describes a low-income economy as comprising two sectors: a traditional sector characterised by low

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productivity and surplus labour and a smaller modern sector with high productivity and a smaller labour force; development entails transferring labour from the traditional to the modern sector via capital accumulation, thereby increasing overall productivity even if the traditional sector's productivity remains unchanged. Thus, substantial economic growth can be achieved by transferring labour from the traditional to the modern sectors until there is no surplus labour. This shift not only improves wages and working conditions for those moving to the modern sector but also reduces underemployment and increases earnings for those remaining in the traditional sector, even though their hourly wage remains constant. Furthermore, this shift not only leads to better jobs for those moving to the non-agricultural sector but also boosts productivity in agriculture, improving employment quality for those who stay behind.

Apart from that, many economists, such as Clark (1940), Kuznets (1966) and Maddison (1980), defined structural changes and economic growth. According to them, structural change linked to economic growth initially involves moving labour from agriculture to both manufacturing and services. At later stages, labour shifts from both agriculture and manufacturing into services. Withal, Kaldor's growth laws (1967) emphasised that labour productivity grows faster in manufacturing compared to agriculture or services. This is primarily due to increasing returns to scale in manufacturing, whereas agriculture experiences diminishing returns, and services typically exhibit constant returns to scale. Thus, higher manufacturing growth boosts productivity in agriculture, construction, and services via technology spillovers, leading to higher overall economic growth.

In addition, manufacturing's key strength lies in its ability to employ low-skilled labour migrating from agriculture and significantly enhance their productivity. Moreover, the growth of manufacturing also stimulates industries such as construction and services, including distributive trade and transport, which similarly employ low-skilled labour at higher productivity levels. Thus, rapid manufacturing growth leads to a swift transfer of labour from low-productivity agriculture to high-productivity non-agricultural sectors, further boosting growth and rapidly improving employment conditions. This suggests that in low-income economies/developing countries, manufacturing-led growth is typically faster and more feasible, whereas in high-income economies, service-led growth tends to accelerate more rapidly.

This classical pattern of structural change, moving labour from agriculture to manufacturing and services, has been observed in East Asia's late-developing economies like Japan, Korea, Malaysia, and Taiwan. Currently, China and Vietnam are also following this established pattern (Ghose, 2019 and 2021). However, evidence also indicates that India's experience contradicts Kaldor's growth laws. Notwithstanding, this study has not been as thoroughly examined at the state level exploring these local dynamics could provide vital insights into the true nature of structural change. Thus, this chapter aims to explore the distinctive growth experience of Odisha, examining how the structural changes in its economy diverge from traditional models and to what extent this unconventional structural change drives progress. In addition, we also analysed the employment type to investigate the job security and quality.

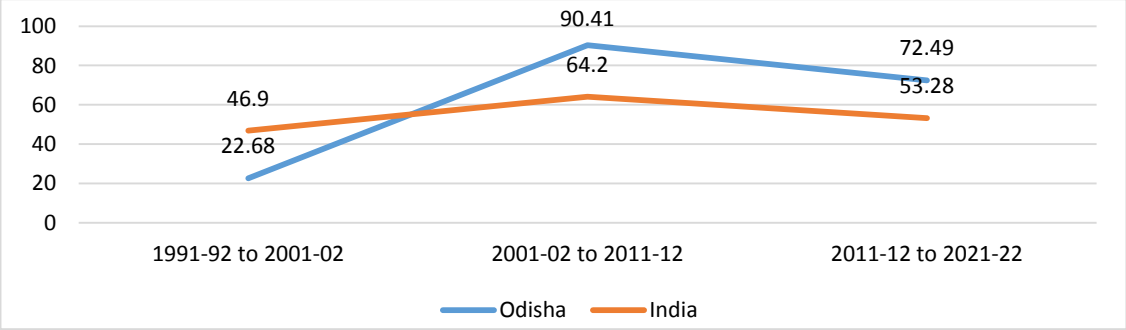
The subsequent sections present the study's uneven gains in a growing economy in Odisha, data and methodology, result and discussion, and conclusion.

II. UNEVEN GAINS IN A GROWING ECONOMY IN ODISHA

Historically, Odisha, with its rich natural resources, has been primarily known for agriculture and mining. In addition, in recent years, there has been a notable shift towards sectors such as industry and services which have contributed to changing the economic landscape of the state (Govt. of Odisha, 2022). Despite that, Odisha's per capita GDP growth has significantly lower than other states such as Bihar, Gujarat, Karnataka, and Tamil Nadu. However, it has been significantly higher than the national average, indicating obscures significant geographical, occupational and social disparities (NITI Aayog, 2021). Does this growth rate represent a continuation of trends observed since the post-reform period? To do this, we have used per capita GDP data from the last three decades (1991–2021).

Figure-1 shows that India's per capita GDP growth (46.9%) outpaced that of Odisha (22.68%) during 1991-92 to 2001-02. Nevertheless, from 2001-02 to 2011-12, Odisha experienced a spectacular per capita GDP growth of 90.41%, well exceeding the national average of 64.2%. Also, in the recent decade, from 2011-12 to 2021-22, both Odisha and India have continued to experience economic growth. Odisha's growth rate of 72.49% remained higher than the national average of 53.28%. This ongoing trend suggests that Odisha has successfully built upon its earlier economic reforms and continued to diversify its economy. Moreover, sectors that need a lot of capital and technology have contributed significantly to GDP growth, with little effect on the creation of jobs in the informal sector (Tejani, 2016; Abraham, 2023). However, in India, more than 90% of workers are engaged in the different informal trough labour transition (Harriss-White, 2020). Thus, we have focused on the labour transition in India with evidence from Odisha through structural changes.

Figure-1: Per Capita GDP in Odisha and India (%)



Source: Author's estimate based on per Capita GDP data listed in Table-A1 in the appendix

III. METHODOLOGY

Data

This paper is mainly based on the secondary data sources. The Gross Value Added (GVA) by major economic avidities and Per Capita Gross Domestic Product (GDP) data

of Odisha and India has been obtained from the Economic and Political Weekly (EPW) Research Foundation (originally published by National Accounts Statistics (NAS), CSO). The GVA data are available in the 2011-12 back series, so there is no need to use the splicing method to convert it to the base year. At the same time, the employment data has been collected from the National Sample Survey Organisation (NSSO) 47th, 50th, 57th, and 68th rounds of EUS (Employment Unemployment Survey) and Periodic Labour Force Survey (PLFS), 2021-22. The analysis covers the period from 1991-92 to 2021-22 and its categories into three decades. Dholakia's (2011) structural break analysis has limitations, particularly when applied across different sectors, as it doesn't provide a consistent analysis period, complicating growth estimation. Thus, this paper uses decadal growth analysis for a more consistent and straightforward evaluation of growth trends and structural changes. Additionally, this study follows the sectoral classification outlined in the National Industrial Classification (NIC) 2008.

Model

For estimating single and multiple structural changes, we have used the Norm of Absolute Value (NAV) index. Because, it is the most widely used indicator for measuring structural change, commonly known as the 'Michaely index' (Michaely, 1962) and the 'Stoikov index' (Stoikov, 1966). The equation used to compute the NAV is:

$$NAV_{s,t} = 0.5 \sum_i |X_{it} - X_{is}| \qquad (1)$$

In the process of calculation, the first thing that is considered are the variations in the sector shares (xi) in the overall output between time points s and t. The calculated values are transformed into their absolute form and totalled together. The resultant amount is now split by two because these discrepancies are counted twice. As a result, the index value is discovered. It is fairly simple to read the NAV, which has a range of zero to unity. Dietrich (2012) states that if the structure doesn't change, the value is zero while if it changes, the value gets closer to unity and indicating significant economic structural transformations.

In addition, to empirically measure the contribution of 'labour reallocation to growth', we apply a decomposition method to analyse the overall growth of output per worker:

$$g(y) = \sum_i l_i^0 .\ g(y_i) + s$$

Where g (y) represents the average annual growth of overall output per worker in the economy,
$g(y_i)$ refers to the average annual growth of output per worker in sector i, l_i^0 is the initial employment share of sector 'i' in total employment within the economy, and s is the residual term capturing other unexplained factors influencing growth.

The first term captures within-sector productivity growth, indicating the level of productivity increase that would have occurred if labour had not been reallocated between sectors. The residual quantifies the contribution of labour reallocation to overall productivity growth in the economy. Total output growth is calculated using the

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formula: g(l) + g(y), where g(l) represents the average annual growth of employment in the economy.
However, moving from agriculture to non-agriculture results in a shift from lower-productivity employment to higher-productivity jobs with greater wages. This rapid mobility reduces excess labour in agriculture, boosting productivity and ameliorating employment conditions. Therefore, structural change not only enhances economic growth but also enhances employment conditions, with greater increases in growth corresponding to significant improvements in employment opportunities. To confirm this, it is necessary to assess the scale and effects of labour reallocation, we are using a simple 'labour reallocation index' that precisely measures the magnitude of labour reallocation to or from a specific sector over a specified time period.

$$(LR)_i = (e_{it} - e_{i0}) \times E_t$$

Where (LR)i is the quantity of labour reallocated from/to sector' i' in a period,
e_{i0} is share of sector i in total employment at the beginning of the period,
e_{it} is share of sector i in total employment at the end of the period, and
Et is total employment in the economy at the end of the period

The concept behind the measure is straightforward. Without labour reallocation across sectors, the employment share of each sector would remain constant from the beginning to the end of a given period, with sectoral employment growth merely reflecting the overall increase in economic employment. Thus, if there were no labour reallocation, the employment for sector i in period t would be calculated as ($e_{i0} \times$ Et), known as "zero-reallocation" employment. When labour is reallocated, the actual employment for sector i in period t is ($e_{it} \times$ Et). The difference between these two figures represents the amount of labour reallocated to or from sector i. If $e_{it} < e_{i0}$, then (LR)i is negative, indicating a net outflow of labour from sector i. Conversely, if $e_{it} > e_{i0}$, then (LR)i is positive, signifying a net inflow of labour into sector i.

However, (LR)i is not directly comparable across countries due to its dependence on Et, which varies from country to country. To standardise this measure, (LR)t can be expressed as a percentage of the "zero-reallocation" employment ($e_{i0} \times$ Et), allowing for a comparable assessment of the scale of labour reallocation from or to sector i across different countries. For this, we used the following formula:

$$S(LR)_i = [\{(e_{it} - e_{i0}) \times E_t]/ (e_{i0} \times \text{Et})\}] \times 100 = [(e_{it} - e_{i0})/e_{i0}] \times 100$$

IV. ANALYSIS AND FINDINGS

Changing Sectoral Share in Output and Employment

This section explores the changing sectoral share in output and employment across various industries from 1993-94 to 2021-22, a pivotal period marked by rapid technological advancement, economic globalisation, and significant policy reforms. These global and local shifts have reshaped industries, influencing how different sectors contribute to economic output and employment patterns. In this backdrop, this study aims to dissect these shifts across various industries, offering a detailed analysis of the trends and transformations that have characterised the past three decades in Odisha as compared to India. This analysis not only enhances our understanding of

past economic and employment patterns but also aids in predicting future trends, thereby guiding strategic planning and development initiatives.

Changing Sectoral Share in Output

Throughout the period of 1993-94 to 2021-22, structural change in Odisha differed from that in India (see Table-1). However, in 2021-22, agriculture's share in output was similar in both the regions, around 15.45 percent in Odisha and 15.64 percent in India. Despite that, Odisha have experienced highest declined share by 20.64 percentage point than in India by 16.71 percentage point from 1993-94 to 2021-22. This dramatically declined of agriculture's contribution to GVA has been reflecting a transition away from agriculturally dependent economic sectors. An anecdotal evidence and regional experience suggested that a decrease in agricultural share is offset by an increase in mining output growth in Odisha (Das and Satyananda, 2016), while by acceleration in manufacturing share in India (Boora and Bishnoi, 2020; and Ghose, 2019 and 2020).

Nevertheless, there is no comparable trend in Odisha's manufacturing sector. It may be noted that Odisha is transitioning from agriculture to industry sectors by passing the service sector. Odisha's economy was clearly more Industry than India's. Particularly striking are the manufacturing and mining and quarrying sectors, which had significantly developed in Odisha, while the services sectors were relatively more developed in India. In 2021-22, manufacturing and mining accounted for 25.84 percent and 11.57 per cent respectively of output in Odisha, while its just 18.46 percent and 2.23 percent in India. On the other hand, services sector accounted for 52.79 percent of output in India but only 35.93 percent in Odisha (see Table-1). This is remarkable since Odisha's growth was Industry-led, while India's growth was services-led. Overall, structural change occurred quickly and adhered to the classical pattern in Odisha, while in India, it was comparatively slow and deviated from the conventional pattern.

In addition, the state's construction and electricity, gas, and water supply sectors portray a dismal picture. These two sectors to fall down over the year and the share of construction in GVA fall down to 7.24 per cent in 2021-22 from 12.11 per cent in 1993-94. Similarly, electricity, gas and water supply had declined from 6.45 per cent to 3.97 per cent.

Notwithstanding, during 1993-94 to 2020-21, structural change index in Odisha has significantly been along the expected line (see Figure 2). The process of structural change, however, went through twists and turns during the period. In Odisha, particularly from 1993-94 to 2001-02, Odisha had lower structural changes than India, there were wild fluctuations in output in sectors caused by the super cyclone in 1999. Despite that, Odisha's economy underwent faster structural change than India's from 1993-94 to 2021-22 and the last two decays (2001-02 to 2011-12 and 2011-12 to 2021-22). The Structural Change Index (SCI) value is 0.28 for Odisha and 0.20 for India in 2021-22 (see Figure-2). This makes it evident that both Odisha's and India's structural changes transpired over the study period.

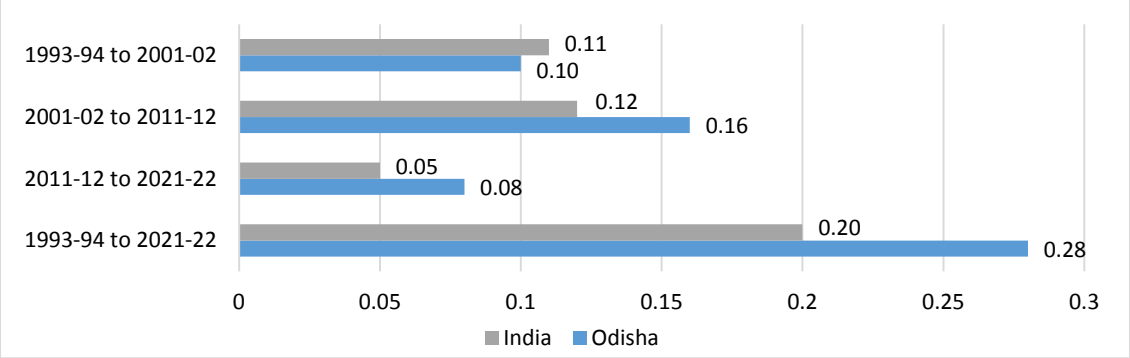
Table-1: Changing Sectoral Share in Output

Share (%) in GVA										
	AA	MQ	Man.	Con.	EGWS	WRTHR	TSC	OS	Industry	Service
Odisha										
1993-94	36.1	6.44	10.14	12.11	6.45	5.39	2.55	20.84	35.13	28.77
2001-02	29	9.82	10.46	10.73	4.6	6.03	3.52	25.83	35.62	35.38
2011-12	17.87	12.03	18.69	9.35	3.52	9.24	6.12	23.18	43.59	38.54
2021-22	15.45	11.57	25.84	7.24	3.97	8.3	5.98	21.65	48.61	35.93
Changes	-20.64	5.13	15.7	-4.87	-2.48	2.91	3.43	0.82	13.48	7.16
India										
1993-94	32.35	5	14.35	6.71	2.32	3.85	7.97	27.45	28.38	39.27
2001-02	26.32	4.5	15.14	2.29	6.77	5.14	9.88	29.95	28.7	44.98
2011-12	18.53	3.22	17.39	9.59	2.3	6.53	10.9	31.54	32.5	48.97
2021-22	15.64	2.23	18.46	8.6	2.29	6.24	11.64	34.91	31.58	52.79
Changes	-16.71	-2.77	4.11	1.89	-0.03	2.38	3.67	7.46	3.2	13.51

Source: Authors' calculations based on GDP (Valued Added) data listed in Table-A2 in the appendix

Note: AA- Agriculture and Allied Activities; MQ- Mining and Quarrying; Man.- Manufacturing; Con.- Construction; EGWS- Electricity, Gas and Water Supply; WRTHR- Wholesale and Retail Trade, Hotel and Restaurants; TSC- Transport, Storage and Communication; OS- Other Services

Figure-2: Trend of Structural Change Index in Output



Source: Authors' calculations based on NAV eqn. and data listed in Table-A3 in the appendix

Changing Sectoral Share in Employment

Structural changes in an economy are reflected not only in output but also in employment. The paper observed that the first and most striking difference between the two experiences is with respect to the time trend, particularly from 1993-94 to 2001-02 in the employment share of agriculture in Odisha surged by 6.72 percentage points, whereas it fell by 4.76 percentage points across India. In contrast, the employment share of industry and service sectors in Odisha declined by 1.03 and 5.69 percentage points respectively, whereas it increased by 2.42 and 1.61 percentage points across India. Apart from that, in both regions, the employment share of agriculture declined, and the employment share of industry and services increased. During the period (1993-94 to 2021-22), the employment share of agriculture declined

by 28.84 percentage points in Odisha, while it declined by 19.38 percentage points in India (see Table-2).

On the other hand, the employment share of industry and services in Odisha surged by 16.15 and 12.69 percentage points, respectively, while in India, it increased by 10.25 and 9.13 percentage points, respectively. But the employment share of manufacturing remained virtually constant in both the regions. Notwithstanding, the employment share of electricity, gas and water supply and manufacturing remained nearly constant in both regions. During the shorter but more pertinent period 2001-11; the period of much faster industry (particularly construction) and services-led growth in Odisha than in India (see Table-2).

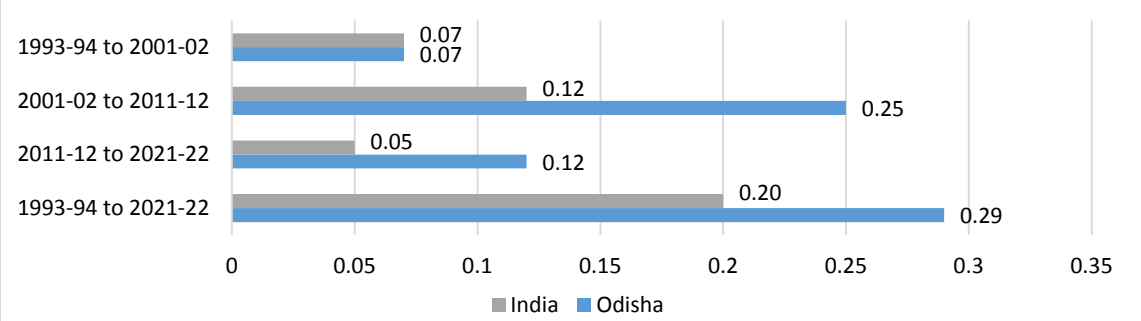
Table-2: Changing Sectoral Share in Employment

Share (%) in employment										
	AA	MQ	Man.	Con.	EGWS	WRTHR	TSC	OS	Industry	Service
Odisha										
1993-94	74.44	1.18	7.45	2.09	0.29	5.61	1.66	7.29	11	14.56
2001-02	81.16	0.25	6.91	2.62	0.19	4.33	1.13	3.4	9.97	8.87
2011-12	55.71	0.55	9.75	12	0.41	9.74	3.37	8.48	22.7	21.59
2021-22	45.6	1.1	7.75	18.01	0.3	12.44	5.2	9.61	27.16	27.25
Changes	-28.84	-0.08	0.3	15.93	0.01	6.82	3.55	2.32	16.15	12.69
India										
1993-94	64.84	0.73	10.41	3.14	0.37	7.39	2.77	10.36	14.64	20.52
2001-02	60.8	0.53	11.91	4.44	0.19	10.7	3.43	8	17.06	22.13
2011-12	48.9	0.54	12.6	10.6	0.52	10.96	4.06	11.82	24.26	26.84
2021-22	45.46	0.33	11.57	12.43	0.56	12.1	4.34	13.21	24.89	29.65
Changes	-19.38	-0.4	1.16	9.29	0.19	4.71	1.57	2.85	10.25	9.13

Source: Authors' calculations based on EU data listed in Table-A3 in the appendix

Note: AA- Agriculture and Allied Activities; MQ- Mining and Quarrying; Man.- Manufacturing; Con.- Construction; EGWS- Electricity, Gas and Water Supply; WRTHR- Wholesale and Retail Trade, Hotel and Restaurants; TSC- Transport, Storage and Communication; OS- Other Services

Figure-3: Trend of Structural Change Index in Employment



Source: Authors' calculations based on NAV eqn. and used data listed in Table-A4 in the appendix

Structural Changes, Labour Reallocation and Growth

Structural change that reallocates labour from lower-productivity to higher-productivity sectors positively impacts economic growth by enhancing overall labour productivity. This increase in productivity gains from the 'labour reallocation' across various sectors and from productivity improvement within sectors, which investments, technological innovations, and skilled workers have driven. As a result, the combination of employment and productivity growth generates overall economic growth. Our study also yields similar results (see Table-3). The study found that Odisha has seen a dramatic turnaround in agriculture, moving from a significant decline (-4.91) in 1991-2001 to substantial growth (7.92) in 2011-2021. India also shifted from near-stagnation (0.91) in 1991-2001 to robust growth (5.39) by 2011-2021. This improvement might reflect better agricultural practices, technology adoption, or policy support.

In the mining sector, it shows minimal growth across the board, with extremely low changes in output per worker. This could indicate a stable but stagnant sector. Conversely, Manufacturing in Odisha reflects recovery and growth, especially in the most recent decade (1.96), aligning with broader trends in India, though India's growth has been more consistent.

However, construction has varied, showing declines and modest growth in different periods. The latest period shows improved growth, possibly indicating recent infrastructure developments. Service sectors (Wholesale, Retail, Trade, Hotels, and Restaurants) generally show an increasing trend, particularly in the latest decade. Notably, 'Other Services' in Odisha and Wholesale, Retail, Trade, Hotels, and Restaurants in India show significant upticks, possibly reflecting urbanisation and increased consumer spending.

Both Industry and Service in Odisha show significant growth in the latest decade, suggesting a major economic shift or successful interventions to boost these sectors. Whereas the service sector in India, showing a high growth (3.18) in the latest period, reflects the country's ongoing shift towards a service-oriented economy. Apart from that, total growth for Odisha and India has an upward trajectory reaching a peak in the latest decade (13.60 and 12.10 respectively), which is significantly higher than the earlier periods. This could be indicative of successful economic policies or external investments. At the same time, employment trends reveal some concerns, especially in the latest period where both Odisha and India experienced declines (-6.83 and -5.87, respectively). This suggests that while economic output is growing, it might not be translating into job creation, potentially due to increased automation or higher productivity demands.

Notwithstanding, total output (GDP) growth [g(l) + g(y)] trends for both Odisha and India show consistent improvement over the decades, aligning with the overall economic expansion and stabilisation post-liberalisation. Overall, the data reflects significant improvements and growth in both Odisha and India across most sectors, particularly in the latest decade. However, the negative employment growth in the most recent years despite rising GDP suggests a deeper dive into employment policies and strategies is needed to ensure that economic gains translate into job creation. This situation underscores the importance of examining not only growth figures but also their implications on the broader economic landscape, including employment and quality of life.

Table-3: Growth of Output per Worker, Employment and GDP

	Odisha			India		
Sector	1991-2001	2001-2011	2011-2021	1991-2001	2001-2011	2011-2021
Agriculture	-4.91	3.71	7.92	0.91	-1.2	5.39
Mining	0.08	0	0.03	0	-0.02	0.07
Manufacturing	-0.27	0.57	1.96	0.12	0.02	1.73
Construction	0.03	-0.27	0.76	-0.36	0.23	0.97
EGWS	0.07	-0.01	0.08	0.15	-0.04	0.06
WRTHR	-0.1	0.07	0.94	0.03	0.01	1.29
TSC	0.09	0	0.29	0.08	0	0.44
Other Services	0.64	-0.15	0.97	1.04	-0.32	1.42
Industry	-0.03	-0.07	2.91	0.11	-0.49	0.49
Service	0.51	-0.22	2.2	0.9	-0.38	3.18
Total Growth	-3.51	5.7	13.6	2.97	-0.65	12.1
Employment	7.05	1.85	-6.83	2.77	7.26	-5.87
GDP	3.54	7.55	6.77	5.74	6.61	6.23

Source: Author's estimates based on data CSO, NSSO and PLFS

Structural Changes, Labour Reallocation and Employment

The labour reallocation from agriculture to non-agriculture is the principal strategy for improving employment situations in countries that are developing (Ghose,2019 and 2021). In contrast, we observed that the reallocation scale was substantial and accelerating from agriculture to non-agricultural sectors in Odisha and India (see Table-4). But the scale was much larger in India than in Odisha during the first and last decades. Between 1991-92 and 2021-02, 6.05 per cent of agricultural workers in India transitioned to non-agricultural sectors, while in Odisha this shift corresponded to a decrease of -13.03 per cent in the non-agricultural workforce as a proportion of total employment. However, during the period from 2001-02 to 2011-12, the movement from agriculture to non-agriculture was more rapid in Odisha than in India as a whole. Specifically, 31.36 per cent of Odisha's agricultural workers shifted to non-agricultural jobs compared to 19.58 per cent in India, indicating a faster rate of transition from lower agricultural to higher non-agricultural productivity sectors in Odisha. Despite Odisha's previously rapid rate of labour reallocation, the state did not sustain this growth pace compared to the national average during the period from 2011-12 to 2021-22. In this decade, about 7.03 per cent of agricultural workers in India moved to non-agricultural sectors, whereas in Odisha, this figure was significantly lower at just 0.18 per cent making the labour reallocation.

Table-4: Labour Reallocation from Agriculture to Non-Agricultural Sector

	Magnitude (number in million)			Scale (percentage)		
	1991-92 to 2001-02	2001-02 to 2011-12	2011-12 to 2021-22	1991-92 to 2001-02	2001-02 to 2011-12	2011-12 to 2021-22
Odisha	-2.45	7.99	1.57	-13.03	31.36	0.18
India	16.34	100.11	15.78	6.05	19.58	7.03

Source: Author's estimates based on data NSSO and PLFS

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The reasons behind the significantly smaller scale of labour reallocation from agriculture in Odisha compared to India, especially during the period from 2011-12 to 2021-22 become evident when examining the distinct patterns of how the reallocated labour was absorbed by various non-agricultural sectors in the two economies, as detailed in Table-5. Firstly, the manufacturing sector played an insignificant role in employing workers transitioning from agriculture in both Odisha and India. However, manufacturing emerged as a significant employer of these workers, while the services sector generally serves as a significant employer for labour migrating from agriculture (Amirapu and Subramanian 2015; and Ghose, 2019 and 2021). In this circumstance, it played a less prominent role in Odisha than its impact across India. On the other hand, Odisha saw a significant shift with mining and construction emerging as major absorbers of this labour force, surpassing the services sector in their capacity to integrate these workers. Remarkably, these sectors didn't just provide employment; they also maintained higher productivity levels than agriculture. Consequently, the reallocation of labour from agriculture to sectors like mining and construction not only boosted economic growth but also significantly improved employment conditions in Odisha, showcasing a robust alternative pathway for labour migration within the state.

Table-5: Labour Reallocation from Agriculture to Non-agriculture

	Magnitude (number in million)			Percentage distribution		
	1991-92 to 2001-02	2001-02 to 2011-12	2011-12 to 2021-22	1991-92 to 2001-02	2001-02 to 2011-12	2011-12 to 2021-22
Odisha						
Mining and Quarrying	-0.09	0.09	0.08	3.67	1.13	5.1
Manufacturing	-0.23	0.89	-0.31	9.39	11.14	-19.75
Construction	-0.48	2.94	0.93	19.59	36.8	59.24
EGWS	-0.16	0.07	-0.02	6.53	0.88	-1.27
WRTHR	-0.03	1.7	0.42	1.22	21.28	26.75
TSC	-0.18	0.7	0.28	7.35	8.76	17.83
Other Services	-1.27	1.59	0.17	1.83	19.9	10.83
Industry	-0.96	4	0.69	39.18	50.06	43.95
Service	-1.48	4	0.88	60.41	50.06	56.05
Total	-2.45	7.99	1.57	100	100	100
India						
Mining	0.19	0.09	-0.98	1.16	0.09	-6.21
Manufacturing	10.29	5.83	-4.74	62.97	5.82	-30.04
Construction	3.74	51.79	8.42	22.89	51.73	53.36
EGWS	-1.42	2.78	0.19	-8.69	2.78	1.2
WRTHR	17.15	2.19	5.25	104.96	2.19	33.27
TSC	3.5	5.31	1.28	21.42	5.3	8.11
Other Services	-17.12	32.11	6.36	-104.77	32.07	40.3
Industry	12.81	60.5	2.89	78.4	60.43	18.31
Service	3.54	39.61	12.89	21.66	39.57	81.69
Total	16.34	100.11	15.78	100	100	100

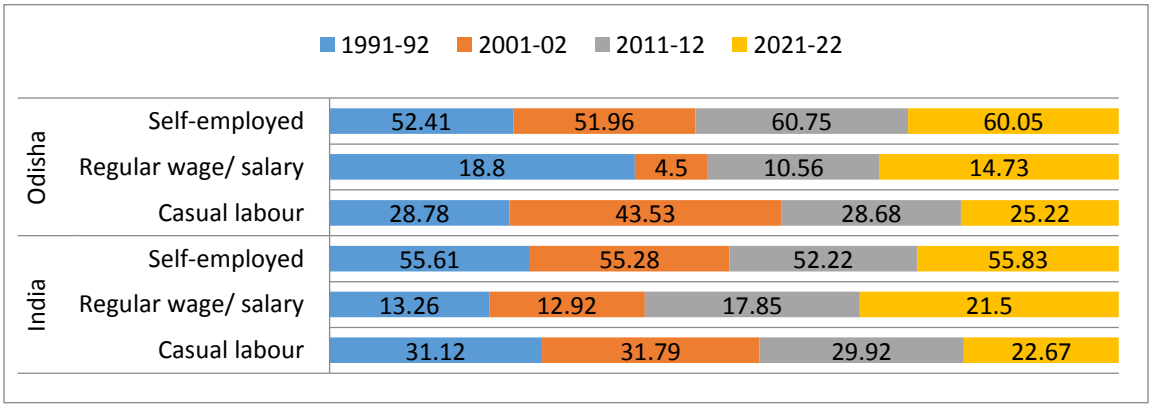
Source: Source: Source: Author's estimates based on data NSSO and PLFS

Then analysing the extent of labour reallocation to various non-agricultural sectors, Table-5, reveals significant differences in absorption patterns between two economies. Initially, from 1991-92 to 2001-02, the manufacturing, construction, and services sectors were key employers of workers moving out of agriculture in India, whereas their role was minimal in Odisha. However, from 2001-02 to 2011-12, the pace of absorption in manufacturing and services significantly accelerated in Odisha compared to India. In the most recent decade, from 2011-12 to 2021-22, Odisha saw the construction sector employing 59.24% and the transport and communication sectors 17.83% of the workforce, both figures surpassing those of India and indicating favourable employment opportunities in Odisha.

Employment Types and Their Effects on Job Security and Quality

The nature of employment patterns serves as an indicator of the structure of the economy and development levels of the regions. According to the International Labour Organization (ILO) employment quality can be determined by the type of employment, such as self-employment, regular wage/salary employment, and casual labour, which indicate varying levels of economic stability, employment and social security (ILO, 2013). Thus, we include this to distinguish the employment structure in the study regions. Figure-4 illustrates the composition of the workforce under usual status (both principal and subsidiary status) during the last three decades. We observed that, initially, from 1991 to 2001, there was a decline in the share of self-employed individuals in both regions. However, the trend diverged afterwards. In Odisha, the proportion of self-employed increased significantly, from 51.96 percent in 2001-02 to 60.75 percent in 2011-12, whereas in India, it decreased to 55.28 percent in 2011-12 from a higher percentage in 2001-02. Interestingly, the trend reversed in the subsequent decade; in India, the share of self-employed rose to 55.83 percent by 2021-22 from 52.22 percent in 2011-12, but in Odisha, it fell to 60.05 percent during the same period. Similarly, the share of regular wage/salary workers declined while the share of casual labour increased in both regions between 1991 and 2001. However, this trend reversed from 2011-12 to 2021-22, with an increase in the share of regular wage/salary earners and a decrease in the share of casual labourers, highlighting changes in the better job market dynamics in this decade.

Figure-4: Percentage distribution of workers in usual status (ps+ss) by broad status in employment



Source: Author's estimates based on data NSSO and PLFS

In the case of rural areas, we also found negative relationship between the shares of self-employed and casual workers. Additionally, the period also saw a rise in the share of regular wage/salary workers in both Odisha and India, suggesting a steady formalisation of the workforce and job security. However, the regular wage/salary increase has been more significant in India than in Odisha, where it remains relatively low (see Table-6). This implies that Odisha is not in a better position to provide formal employment opportunities due to lack of industrial development and service sector expansion.

Table-6: Type of Employment in Rural Area

	Odisha			India		
Year	Self-employed	Regular wage/salary	Casual labour	Self-employed	Regular wage/salary	Casual labour
1991-92	55.65	6.64	33.7	58.64	7.16	34.2
2001-02	52.69	2.17	45.15	58.33	5.25	35.42
2011-12	62.25	6.78	30.97	55.93	8.7	35.38
2021-22	62.57	11.04	26.38	61.54	12.54	25.92

Source: Author's estimates based on data NSSO and PLFS

V. CONCLUSION

In Odisha, the rate of structural change in output and employment surpasses that of India as a whole. This trend, particularly characterised by a services-driven growth trajectory, stands as an anomaly in the broader context. Notably, labour reallocation has predominantly shifted from agriculture to construction and services sectors, with manufacturing playing a minimal role in this transition. This absence of manufacturing in the narrative elucidates the sluggish pace of labour transition away from agriculture. A noteworthy observation by Ghose (2021) highlight that, "the slow pace of structural change meant slow pace of improvement in employment conditions". This stood in sharp closely with the experience of Odisha in the last decades (2011-2021), where the structural change was industry (construction and mining)-led growth, while it was service-led growth in India. In contrast to Odisha, India's job circumstances improved far more quickly.

Furthermore, the experience of Odisha highlights the limitations of services-led growth as a development strategy, particularly for low-income economies needing more skilled labour. While India, with its supply of skilled labour, has achieved premature services-led growth, this model may be different for other low-income economies. Instead, both India and Odisha require a faster pace of structural change to improve employment conditions, a feat achievable through manufacturing-led growth. Even so, transitioning from services-led to manufacturing-led growth is not advisable for India and Odisha at present. Both regions urgently need accelerated structural transformations to improve employment conditions, typically achieved through manufacturing-led growth. This viewpoint finds support in research by Ghose (2019 and 2021) and other scholars.

Over the span from 1991 to 2021, the percentage of regular wage/salary workers in Odisha consistently lagged behind the national average in India, while the proportion of casual workers notably exceeded it. This disparity underscores that Odisha's employment conditions don't markedly outperform the national average. As a result, Odisha has been plagued by a persistently high unemployment rate, particularly in

recent years (PLFS, 2021), signalling a dearth of viable employment opportunities within the state and prompting significant migration. Numerous studies, such as those conducted by Mishra (2016 and 2020), Parida (2015 and 2016), Nayak and Kumar (2018), and Meher (2019), have echoed similar findings, emphasising the prevalence of limited job prospects in Odisha. Thus, it is an important aspect of the policy perspective for better structural reforms and in less developed regions to enhance job opportunities along with ensuring a higher quality of life and economic growth.

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VIII. APPENDIX

Table-A1: Per Capita GDP (In Rupees): 2011-12 Prices

Year	Odisha	India
1991-92	23427	29686.02
2001-02	28741	43610.16
2011-12	54727	71609.25
2021-22	94399	109762

Source: EPW Research Foundation

Table-A2: Sectoral Contribution of GDP (Value Added) by Economic Activities (2011-12 Back Series)

	AA	MQ	Man.	Con.	EGWS	THR	TSC	OS	Industry	Service	Total (AIS)
GSDP (Value Added) by Economic Activities in Odisha (Rs. Lakh)											
1991-92	2776277	365214	889883	909945	488684	412333	186113	1584665	2653726	2183111	7613114
1993-94	2924211	521819	821096	980796	522332	436562	206389	1688092	2846043	2331043	8101297
2001-02	3052559	1033937	1100737	1129324	484543	634641	370035	2718496	3748541	3723172	10524272
2011-12	3934538	2648739	4116405	2059629	775701	2035854	1347538	5104766	9600474	8488158	22023170
2021-22	6004488	4495393	10039911	2812309	1541365	3225175	2322543	8413471	18888978	13961189	38854655
GDP (Value Added) by Economic Activities (Disaggregated) in India (Rs. Crore)											
1991-92	795575	132410	347306	174723	54810	93397	190278	649289	709250	932963	2437788
1993-94	876681	135487	388799	181837	63010	104416	215895	744014	769133	1064324	2710138
2001-02	1129863	193260	650100	98163	290607	220661	424313	1285852	1232130	1930826	4292819
2011-12	1501947	261035	1409986	777335	186668	529534	883582	2556859	2635024	3969975	8106946
2021-22	2170107	309276	2561033	1193532	317966	865601	1614780	4844546	4381808	7324926	13876840

Source: EPW Research Foundation

Note: AA- Agriculture and Allied Activities; MQ- Mining and Quarrying; Man- Manufacturing; Con- Construction; EGWS- Electricity, Gas and Water Supply; THR- Trade, Hotel and Restaurants; TSC- Transport, Storage and Communication; OS- Other Services; AIS- Agriculture, Industry and Service

CC BY NC ND

Table-A3: Number of Employment by Broad Industry

	AA	MQ	Man.	Con.	EGWS	THR	TSC	OS	Industry	Service	Total (AIS)
Odisha											
1991-92	9499548	77801	1030603	590685	107466	588854	239887	1094875	1806556	1923617	13229721
1993-94	51107	808	5114	1432	202	3855	1137	5004	7555	9995	68657
2001-02	21214614	64856	1806217	685101	48965	1132470	295852	889791	2605139	2318112	26137865
2011-12	17495502	172141	3061966	3767583	127557	3059906	1057568	2663136	7129247	6780610	31405359
2021-22	7060047	169782	1199689	2789033	46744	1925667	805555	1487547	4205249	4218769	15484065
India											
1991-92	205482708	1533188	29980038	11242302	1669288	20898568	8234204	38440746	44424816	67573518	317481043
1993-94	1060100	11864	170156	51288	6111	120817	45292	169437	239419	335545	1635064
2001-02	253595421	2205394	49674870	18509997	774214	44607811	14316058	33380145	71164475	92304014	417063910
2011-12	411198866	4540064	105987176	89107484	4345268	92132721	34173737	99408127	203979992	225714585	840893443
2021-22	208738005	1497358	53130871	57075110	2559255	55550712	19935908	60640831	114262594	136127451	459128050

Source: NSSO 47th, 50th, 57th, and 68th rounds EUS and PLFS, 2021-22

Note: AA- Agriculture and Allied Activities; MQ- Mining and Quarrying; Man- Manufacturing; Con- Construction; EGWS- Electricity, Gas and Water Supply; THR- Trade, Hotel and Restaurants; TSC- Transport, Storage and Communication; OS- Other Services; AIS- Agriculture, Industry and Service

Table-A4: Changing Sectoral Percentage Point Share in Output

	AA	MQ	Man.	Con.	EGWS	THR	TSC	OS	Industry	Service
Odisha										
1993-94 to 2001-02	-7.09	3.38	0.32	-1.38	-1.84	0.64	0.97	4.99	0.49	6.60
2001-02 to 2011-12	-11.14	2.20	8.23	-1.38	-1.08	3.21	2.60	-2.65	7.97	3.16
2011-12 to 2021-22	-2.41	-0.46	7.15	-2.11	0.44	-0.94	-0.14	-1.53	5.02	-2.61
1993-94 to 2021-22	-20.64	5.13	15.70	-4.87	-2.48	2.91	3.43	0.82	13.48	7.16
India										
1993-94 to 2001-02	-6.03	-0.50	0.80	-4.42	4.44	1.29	1.92	2.50	0.32	5.71
2001-02 to 2011-12	-7.79	-1.28	2.25	7.30	-4.47	1.39	1.01	1.59	3.80	3.99
2011-12 to 2021-22	-2.89	-0.99	1.06	-0.99	-0.01	-0.29	0.74	3.37	-0.93	3.82
1993-94 to 2021-22	-16.71	-2.77	4.11	1.89	-0.03	2.38	3.67	7.46	3.20	13.51

Source: Author's calculation based on share (%) in Output values listed in Table-1

Note: AA- Agriculture and Allied Activities; MQ- Mining and Quarrying; Man- Manufacturing; Con- Construction; EGWS- Electricity, Gas and Water Supply; THR- Trade, Hotel and Restaurants; TSC- Transport, Storage and Communication; OS- Other Services

Table-A5: Changing Sectoral Percentage Point Share in Employment

	AA	MQ	Man.	Con.	EGWS	THR	TSC	OS	Industry	Service
Odisha										
1993-94 to 2001-02	6.73	-0.93	-0.54	0.53	-0.11	-0.52	-1.28	-3.88	-1.04	-5.69
2001-02 to 2011-12	-25.46	0.30	2.84	9.38	0.22	2.24	5.41	5.08	12.73	12.72
2011-12 to 2021-22	-10.11	0.55	-2.00	6.02	-0.10	1.84	2.69	1.13	4.46	5.66
1993-94 to 2021-22	-28.84	-0.08	0.30	15.93	0.01	3.55	6.82	2.32	16.15	12.69
India										
1993-94 to 2001-02	-4.04	-0.2	1.5	1.3	-0.18	0.66	3.31	-2.36	2.42	1.61
2001-02 to 2011-12	-11.9	0.01	0.69	6.16	0.33	0.63	0.26	3.82	7.2	4.71
2011-12 to 2021-22	-3.44	-0.21	-1.03	1.83	0.04	0.28	1.14	1.39	0.63	2.81
1993-94 to 2021-22	-19.38	-0.4	1.16	9.29	0.19	1.57	4.71	2.85	10.25	9.13

Sources: Author's calculation based on share (%) in employment values listed in Table-2

Note: AA- Agriculture and Allied Activities; MQ- Mining and Quarrying; Man- Manufacturing; Con- Construction; EGWS- Electricity, Gas and Water Supply; THR- Trade, Hotel and Restaurants; TSC- Transport, Storage and Communication; OS- Other Services