

Original Article

# Structural change, Employment and Economic growth in Bihar, India: A disaggregated sector-wise analysis

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**Abstract** - Bihar's economy has been growing at a phenomenal rate since the last decade compared to the subdued growth rate in the 90s. Such economic growth leads to structural changes in the economy in the form of the reallocation of economic factors within the different sectors of the economy. The increase of output with a reallocation of labor and employment composition is the silent feature of structural changes in the economy, and hence economic growth occurs as a result. Bihar, the most underprivileged state in India, drew attention due to rapid growth in late 2010. In this paper, a disaggregated sector-wise analysis is done to perceive the growth trend of the income and Employment in Bihar and the process of structural changes. This paper utilizes various development indicators data, income, and employment data from several rounds of employment surveys for more than two decades (i.e., 1993-94 to 2018-19). The analysis result shows that Bihar is in the phase of structural transformation, as is evident with a significant decline of income and workforce share of the primary sector and a continued positive growth rate of income. The sub-period analysis shows that Bihar has witnessed a golden period of growth during 2004-05 to 2011-12. Agriculture, construction, communication, and other services are the driving force toward the growth and structural change in the economy. Rural laborers are moving towards non-farm activity within rural areas and are much dynamic than the urban area.

**Keywords** - Bihar, Structural change, Growth, Economic sectors, workforce.

## I. INTRODUCTION

The growth and development of an economy are some of the most important indicators of people's well-being. Debate on growth and development is prominent in underdeveloped nations to understand the need and to sustain in the competitive world. Unemployment and poverty reduction are always being an integral part of development agendas and are still in progress in third world countries. The pace of development of an economy

depends on the mutual interrelations between the policies, politics, and administrative roles of the state. Indeed, the state has a vital role in the development process as it is the agency for development and thus enhances the process of structural changes in the economy. Such changes in the economy are evident for economic growth and development. In this process, the composition of resources in terms of income/output and Employment reallocate, along with the changes in rural-urban texture in the form of labor movement and change in labor productivity for the overall growth of the economy (Lewis, 1954; Ranis & Fei, 1961; Hasan, Lamba, & Gupta 2013; Herrendorf, Rogerson, & Valentinyu 2014). Hence, for the economic development of an economy, the structural change is obvious; it is because structural change is important for modern economic growth (Syrquin, 1988). And for its continued growth, a set of interrelated changes in the structure of an economy is required (Chenery & Elkington, 1979). Such interrelated changes occur due to structural changes in the sectors in the form of movements of labor toward more productive sectors, i.e., from primary to secondary and then a tertiary sector of the economy.

As per the national Industrial classification -2008, the Indian industries have been classified into three broad sectors, namely- primary sector, secondary sector, and tertiary sector. Within these broad sectors, there are many sub-sectors identified in numerous pieces of literature. The importance of these broad sectors varies based on the specific region and the available resources for utilization. However, there are ample development theories that suggest the role and importance of these sectors in the development process of an economy. At the primitive stage of development, the role of the primary sector is very important, as this sector employs a large section of society. Still, due to the limited capacity of growth, its importance declines in the development process. At the same time, the role of the manufacturing and service sector emerges as a significant factor for the overall development. It is because the manufacturing sector has ample scope of expansion through the proper utilization of capital and technology. On the other hand, the service sector has the maximum



limit to expand. (Aggarwal, 2016; Aggarwal & Kumar, 2015).

Bihar's growth rate in the last decade seems very impressive and thus drew the attention of scholars and researchers to look at the growth trends and prospects. A state among the so-called "BIMARU"<sup>1</sup> states has started recovering from its annoyance. During the 90s, a very low and inconsistent growth rate of the state had suppressed the development process of the state (Singh & Stern, 2014). But, in the last decade, after 2005, the state performed well on all fronts in the regime of the newly formed government. It had witnessed a surprising growth rate in double-digit and ranked in top positions among the states of the nation in growth rate. A significant decline in the primary sector share and sustained growth rate of some of the important sectors are crucial for structural change in the economy. The growth of the service sector and its share in income has been commendable in the recent period. Governance, social structure, and policy implementation are some of the essential factors whose interaction leads to the way of development. Such interaction in Bihar proved efficient towards growth and development prospect for the state. The poverty Head Count Ratio (HCR)<sup>2</sup> has shown significant improvement regarding poverty reduction of about 20% in the decade (Tendulkar, 2009). Increased investment in development projects such as infrastructure, roads, electricity, etc., enhanced the growth speed of the economy. Thus it is in the process of structural change in the economy.

The phenomenal growth rate in recent decades compared to the 90s has to go a long way for sustained structural transformation of the economy. There is a lot to do in terms of curbing the rising unemployment, high migration rate, very low per capita agricultural land uses, low literacy rates, and poor health infrastructure. After independence, Tamil Nadu, Andhra Pradesh, Gujarat, Maharashtra are the states who have grown at a faster rate due to heavy industrialization with ample scope of employment generation. On the other hand, Punjab, Haryana, West Bengal, Andhra Pradesh are the states of India that have proved their significance through proper mechanization with the help of technology in the agriculture sector. But, the Bihar growth pattern did not show up like others. Therefore the pertaining questions arise that why Bihar's growth had not paralleled with other states? Why were the structural changes in the economy so slow? Though also it is evident that in the last decade, the economy has started reviving and accelerating to structural changes in the economy regarding income and Employment. Hence, it is a matter of investigation that what are the deriving factors of the recent growth of the economy and to what extent is it

commendable and sustainable? These questions have been answerable in subsequent sections.

Therefore, in the purview of the recent growth and development of Bihar's economy and structural changes, this is important to decipher the growth and development trajectory. For this purpose, the main objective of this paper is to understand the growth and development process of the state along with trends and patterns of Net State Domestic Product and the structural change in the economy. Further, the role of the various industrial sector has been analyzed in the growth process. This paper adds value to the existing kinds of literature in two ways. First, we have utilized the most recent data for Net State Domestic Product (NSDP) at the base price of 2011-12<sup>3</sup> and the first Periodic Labour Survey (2017-18) data to update the workforce statistics. Secondly, this paper is based on the GSDP and workforce estimated for the undivided Bihar for the whole of the study period. Thus, this study covers a long period of more than two and a half-decade period under analysis (i.e., 1993-94 to 2018-19).

## II. DATA AND METHODOLOGY

This paper analyses the pattern and trends of growth rate and the structural change of the Bihar Economy in the post-liberalization era. The period of analysis has taken from 1993-94 to 2018-19, which is later divided into three sub-period of analysis. The first period is from 1993-94 to 2004-05, the second period is 2004-05 to 2011-12, and lastly, the third is from 2011-12 to 2018-19. For this purpose, the paper utilizes the income data through the net state domestic product of Bihar. The domestic product has been taken by the industries of origin in Bihar at the constant price of 2011-12. For this purpose, the income data from 1993-94 to 2018-19 of the various base year spliced into the same base price of 2011-12. Several rounds of Employment and unemployment survey (EUS) and the first periodic labor force survey data have been extracted for the sector-wise employment data for Bihar (NSSO, 2014; PLFS, 2019). A national sample survey organization carries the labor force survey at a regular interval in India. The industry-wise sectoral classification has been done through national industrial classification-2008. At the same time, the workforce estimation is based on both principal and subsidiary activity of workers based on usual status. Apart from this, various data set has been borrowed from various reports of the National Institution of Transforming India (NITI) database and the Economic & weekly political Research foundation (EPWRF). The method of analysis is purely exploratory and analytical. The growth rate has been derived by a simple average growth rate and compound average growth rate formula.

<sup>1</sup>The 'BIMARU' term is referred for the most underprivileged states of India. These states are Rajasthan, Madhya Pradesh, and Uttar Pradesh; Bihar

<sup>2</sup>HCR= Ratio of The number of person below poverty line to the total population of the economy.

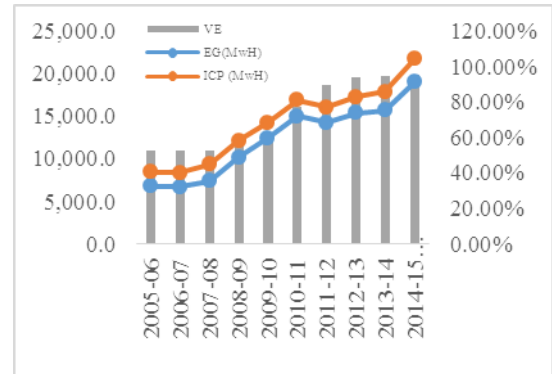
<sup>3</sup>To use the Net State Domestic product at the base rate of 2011-12, the Net State Value addition (GSVA) data has been spliced using 2011-12 as base year for the period of 1993-94 to 2018-19.

**III. ECONOMIC STRUCTURE OF BIHAR**

Bihar’s economy is primarily agriculturally based but experienced service-oriented growth with the highest share in GSDP during the last decades. The bifurcation of Jharkhand from Bihar in 2000 remnants it from the most important sources of growth - mining, quarrying, and manufacturing base. This is now part of a new Jharkhand state. Due to this bifurcation, shares of the manufacturing sector, especially mining & quarrying in total GSDP of Bihar, and due to this Bihar economy went down by around 30% (See Appendix) (Mukherji & Mukherji, 2012). But, even after bifurcation, Bihar has been showing decent growth rates in both the agriculture and service sectors, with a slight growth of the secondary sector since the last decade. Though the structural transformation in an economy follows a certain process, and it does not happen automatically. However, the transformation process depends upon several economic factors in the form of human capital, better infrastructure, institutions, and industrial investments. This is why the process of structural change could be slow, rapid, or episodic (McMillan, Rodrik, & Sepulveda, 2017). The nature of structural change could be either growth-enhancing or growth-reducing. As it is evident in most countries like India and Thailand that structural change has contributed to the growth process of the economy in a positive direction. In contrast, there are some countries such as Argentina, Brazil, Nigeria, and Zambia where the structural change proved to be “growth reducing” (Ahsan, 2012; Mcmillan, Margaret S & Rodrik, 2011).

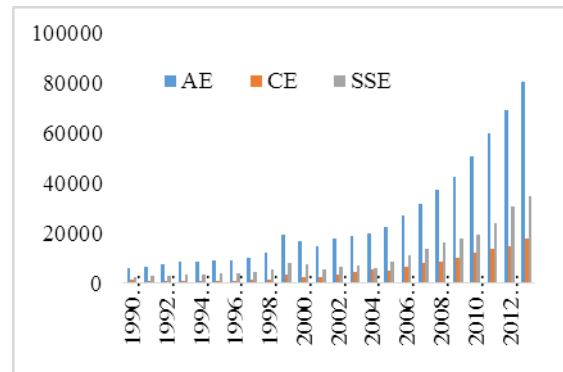
Before 2005, the economic growth and the acceleration of the economic growth were prolonged, and so the pace of structural change. But after the formation of the new government in 2005, the economic growth accelerated along with other development parameters that enhanced the way of structural change in the economy in the last fifteen years. In the case of infrastructure development, a total of 1723 mega, major & minor bridges have been completed during 2005-06 to 2015-16 in which alone 1013 major and minor bridges were built under Mukhyamantri Setu Nirman Yojana. The extension of roads in the form of national and state highways with major district roads is impressive. The length of the National Highway has increased from 3410 km in 2001 to 4595 km in 2015. State highways had increased from 2383 km in 2011 to 4253 km in 2015. Also, the major district roads have been built from 7739 km (2001) to 10634 km in 2015. Almost 45% of households have been electrified up to 2017, with an increase from 52.83% of village electrification (VE) in 2005-06 to 95.50% in 2014-15. An annual average growth rate of 12.6% and 7% of electricity generation (EG) and installation of the capacity of power (ICP) respectively after 2005 (Figure 01). From 1999-00 to 2013-14, the expenditure on the capital sector and the social sector have increased many folds, but a significant acceleration has started after 2005-06 (figure 02). Aggregate expenditure (AE), capital (CE), and social sector expenditure (SSE) have grown at an average growth

rate of 16.70%, 14.94%, and 21.76% respectively from 2005 to 06 to 2013-14, much higher than the earlier period of 1999-00 to 2004-05 except capital expenditure. The social sector has been highly focused after 2005, with a significant increase in its allocation for expenditure.



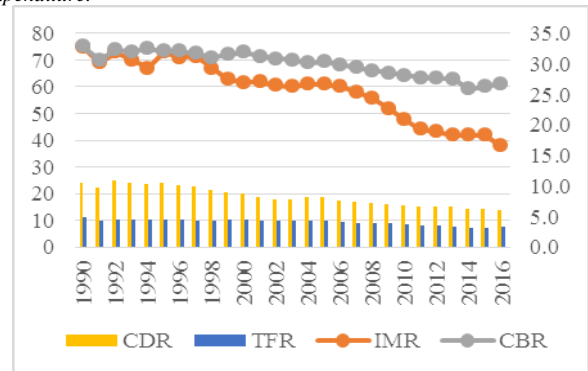
**Fig. 1 Trend of Village Electrified, Electricity Generation and Installed Power After 2004**

Source: Own computation, data taken from Niti Aayog



**Fig. 2 Trend of Capital, Social Sector, and Aggregate Expenditure in Bihar**

Source: Own computation with data taken from Niti Aayog. AE= Aggregate Expenditure, CE= Capital Expenditure, SSE= Social Sector Expenditure.



**Fig. 3 Trend of CDR, TFR, IMR, and CBR from 1990 to 2016**

Source: Own computation, data taken from Niti Aayog

In the case of health indices, a significant decrease in infant mortality rate and the birth rate has been recorded along with a minimal reduction in the crude death rate and total fertility rate (Figure 03). In 1990 Infant Mortality Rate (IMR) and Crude Birth Rate (CBR) were 75 and 32.9, respectively, which has fallen to 38 and 26.8 in 2016. At the same time, a sharp decline is evident after 2005 only in both IMR and CBR. Crude Death Rate (CDR) and Total Fertility Rate (TFR) declined from 10.6 and 4.8 in 1990 to

6.0 and 3.3 in 2016, respectively. After 2005, Jeevika, Under the national rural livelihood Programme, has been continuously working for poverty alleviation. School drops out in all section has decreased in the state, though the literacy rate is still very low compared to other states. In Purview of such significant changes in all socio-economic segments and investment in the growth fundamentals, the structural changes should be consequences in the economy.

**A. The Primary Sector**

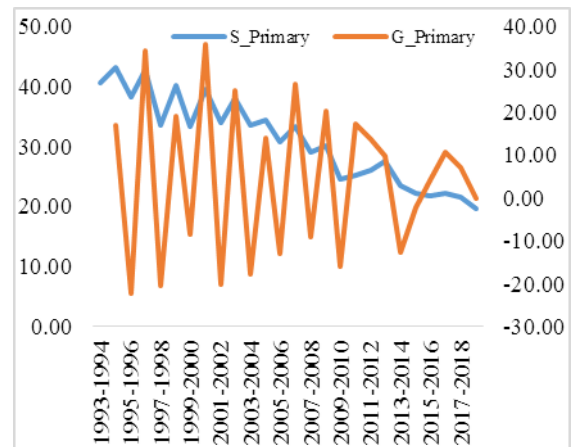
The primary sector is the basic and the most important sector of an economy. In the development process, initially, the contribution of the primary sector in the income is highest than the other sectors. Still, later it declines due to the limited capacity of expansion. The primary sector consists of five sub-sectors, namely- agriculture, forestry & logging, fishing, livestock, and mining & quarrying in the estimation of Net State Domestic Product (NSDP). Some researchers consider mining & quarrying as a part of the secondary sector and some in the primary sector. At the same time, mining & quarrying has been subtracted from the primary sector for the estimation of agriculture and allied.

In developed economies, the Share of the agriculture sector in value-added ranges from 1 percent to 8 percent, whereas North American states have less than one percent contribution in total value-added. In India, the primary sector contributes to an average of 14 to 15 percent in net value-added. In the case of Bihar, the Share of the agriculture sector is reducing at an average rate of 2.19 % during P1<sup>4</sup> (Figure 04). In 1993-94 primary sector was contributing 40.57% in overall NSDP, which has reduced to 19.70 % in 2018-19 shows a significant decline of 20.87 percent. Among the primary sector, during the years, fishing has been an almost constant share in total NSDP. Still, forestry & logging has recorded an average annual decline to nearly 3% during P1, followed by a growing share of Mining and Quarrying<sup>5</sup> At an average rate of 34%. However, the Share of this sector is so minimal (0.35%) in the primary sector that it has no impact in the primary sector as well as the overall value-added of the economy.

It is to note that from 1999-00 to 2004-05, the Share of the primary sector and the agriculture sub-sector had gone up with a marginal increment of 1.12 % and 0.65 %, respectively, in the Share of NSDP. Whereas in just the next six years (2004-05 to 2009-10), there was a significant reduction of almost 9.93% and 6.08%, respectively. So a significant change can be seen in the primary sector after 2004-05 in terms of sectoral Share. More precisely, the trends of Share of the primary sector were highly volatile (ups and downs) till 2004-05, for the later periods, after 2012-13, the sector shows a continuous

decline. The Share of agriculture and fishing in the primary sector has an increasing trend, whereas a decline has been observed for forestry & logging, while mining is showing a constant trend.

However, despite a lesser share of mining and quarrying either in GSDP or in the primary sector, it has recorded a maximum growth rate with an average growth rate of 31.30% and 14.08 % during P4<sup>6</sup> and P3<sup>7</sup>, respectively. But during P2<sup>8</sup> The growth rate of mining and quarrying was less than 2 %.



**Fig. 4 Share in GSDP and Annual Growth Rate of The Agriculture and Allied Sector.**

Source: Own computation data are taken from DES, Bihar. S\_Primary= Share of primary sector to GSDP, G\_Primary= Growth rate of the primary sector.

This sector seems highly volatile in production, and so in growth rate, in 2013-14, it had the highest growth rate of 535.57 %, and in the subsequent year, it fell to -60.61 %. The nature of mining & quarrying is quite unreasonable and very difficult to explain; however, due to minimal Share in value-added, it does not impact the overall trends of the sector. In NSDP, Agriculture and Fishing have recorded 4.47 % and 6.06 %, respectively, of an average growth rate during P1.

**B. The Secondary Sector**

Among the secondary sector, three sub-sectors are considered in the estimation of net domestic product, namely- manufacturing, construction, Electricity, Gas & Water supply. Manufacturing is one of the most crucial sectors that act as an agency for structural changes in an economy. An economy endowed with a good manufacturing base has such potential that it can grow faster than others. Unfortunately, Bihar had not any such types of support after the bifurcation in 2000, and most of the major industrial units and mines pulled down to the newly formed state Jharkhand. But after 2005, the secondary sector has started reviving from its curse to some extent and is in the way of continued growth.

<sup>4</sup> P1 = Period of 1993-94 to 2018-19

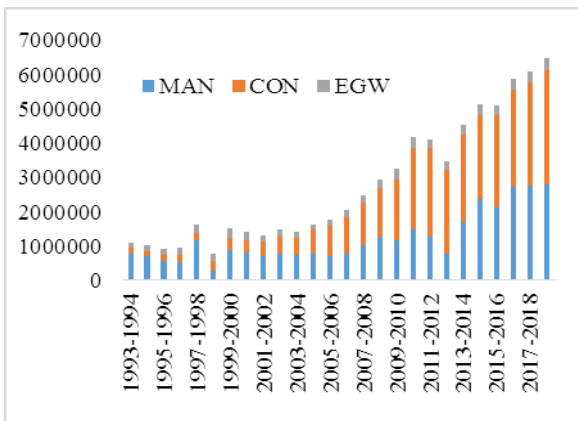
<sup>5</sup> This sector shows a large number for growth rate; thus seems significant, but it is not because of the high volatility of the sector throughout the year.

<sup>6</sup> P4= period of 2011-12 to 2018-19

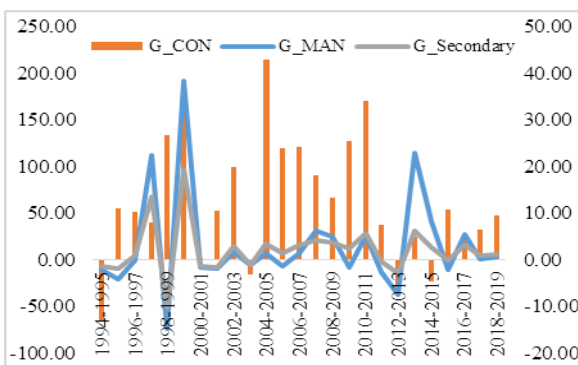
<sup>7</sup> P3= period of 2004-05 to 2011-12

<sup>8</sup> P2= Period of 1993-94 to 2004-05

Fig .5 and 06 explain that there was an increase of almost 5 % share of the secondary sector to total GSDP during P1. After 2004-05, about a 6 % increase (from 13.12% in 2004-05 to 19.05 % in 2018-19) in the Share of the secondary sector has been recorded, with the highest share of 20.85 % in 2014-15. The construction sector is the only sector whose Share has shown a significant rise from 1993-94 (2.39 %) to 2018-19 (9.72%) and hence reflects in the secondary sector. Particularly after 2004-05, this sector has speeded up from 6% to 12% of Share to total GSDP with the highest 13.69 % average growth rate of Share to total GSDP during P3. But in the later Period of P4, it slowed down to 2.28%. Most importantly, the Share of manufacturing has decreased by 1.47 % along with electricity & gas (0.74 %) during P1.



**Fig.5 Gross State Domestic Product of Secondary Sector in ₹ Lakhs**  
 Source: Own computation data taken from DES, Bihar



**Fig. 6 Growth Rate of Secondary Sectors.**

Source: Own computation data taken from DES, Bihar

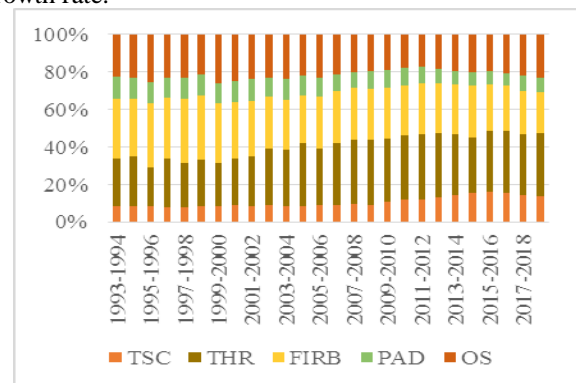
Among the secondary sector, construction contributed more than 50% in the secondary sector in 2018-19. It has increased substantially from 17.15 % to 51.02 %, with an increase of 197 % and an average growth rate of 13 %pa. The declining share of manufacturing, and electricity, gas & water supply sub-sector to the secondary sector is worrisome. From 2004-05 to 2011-12, construction is the only sector whose average growth rate of Share in the secondary sector was positive (13.69 %). But the same is not true for the next P4 period. However, we do see some momentum in the manufacturing sector in P4 but very little growth rate for the construction sector. The most favorable

period for the construction was P3, where it grew at a rate of 23.69 % per annum.

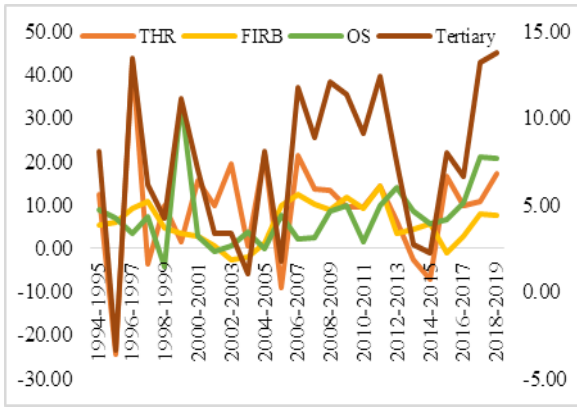
**C. The Tertiary Sector**

The tertiary sector consists of broadly eight sub-sectors. It is the largest sector in the economy among all three sectors and also contributes most to total domestic product. The Share of the tertiary sector has increased by 15.75 % during P1, which picked up from 45.50 % share in 1993-94 to 61.24 % in 2018-19. The service sector has recorded the maximum growth among the other two sectors of about 9 % of the average annual growth rate during P3 and 8.30 % during P4, but during P2, its average growth was least (5.68 %). However, its average annual growth rate of Share in overall NSDP was only 1.51%, 0.49%, and 1.53% during P2, P3, and P4, respectively (Fig.7).

Among the service sector, trade hotels& restaurants and other services have the highest Share in both NSDP and among service sector. But Communication, B&I, and THR are growing much faster than others. Share of communication had a consistent increment from 0.88% in 2008-09 to 2.86% in 2015-16, with an average annual growth rate of 25.80%. Though the Share of communication is less than one percent on average, it had recorded the highest average growth rate of 28.10% during P3. Moreover, THR's Share has increased by 6.17% with an average growth rate of 9.59% during P2, but later on, in the subsequent period of P3 and P4, the share increased marginally by only 1.59% and 1.02%, respectively. Though, Banking & Insurance has also improved in the Share with an increase of 3.16% and with an average growth rate of 11.47% during P1. But the maximum growth in Share has been recorded for B&I during P3 at the rate of 14.96%. (figure 08). Railways, Storage, Transport by other means, real estate, and Public administration has an almost constant share of total GSDP during the years. However, railways have recorded a negative growth rate during the periods along with public administration and other services in P1. Despite having a larger share of THR and other services in the service sector, the growth rate is minimal, even negative in the case of other services. Only communication in the Service sector has been increasing at a substantial rate, either in Share or growth rate.



**Fig. 7 Gross State Domestic Product of Tertiary Sector in ₹ Lakhs.**  
 Source: Own computation data taken from DES, Bihar

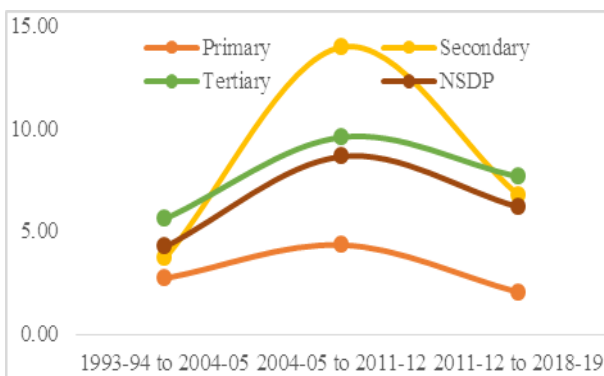


**Fig. 8 Trends of the Growth Rate of The Tertiary Sector.**

Source: Own computation data taken from DES, Bihar

**IV. Structural Changes in the Economy**

Structural change in an economy occurs at both micro and macro level. In the case of the micro-level, structural change is concerned with the functioning of economies in the context of markets, institutions, a mechanism for resource allocation, income generation, and distribution. The macro-level analysis focuses on economy-wide phenomena such as industrialization, urbanization, and agricultural transformation. This occurs in the form of change in the Share of income and employability across the sector and overall growth in terms of income and productivity. So, at the macro level, the structural change in income has been analyzed in this paper in terms of net state domestic product. The analysis shows that the Bihar economy grew at a compound annual average growth rate of 5.61% during 1993-94 to 2018-19 (Table 04). The economy had recorded a significant double-digit CAGR for most of the sub-sectors for period P3 (2004-05 to 2011-12) and an overall growth rate of around 9 %. The growth trends of the three broad sectors in several sub-period of estimation appear as inverted ‘U’ shaped (Figure 09). For the same period, gross state domestic product (GSDP) has reached a double-digit growth rate, as pointed out by many scholars (Gupta, 2010; Santra, Kumar, & Bagaria, 2014). At the same time, the least growth rate was in the first period of 1993-94 to 2004-05.



**Fig. 9 The Trends of Sectors For Several Sub-Periods.**

Source: Author’s estimation.

For the primary sector, agriculture has recorded a significant fall of 20.87% share in overall NSDP with a compound average growth rate of 2.33% in P1. Despite a

high growth rate of 31.30% from 2011-12 to 2018-19 for mining & quarrying, its Share in the NSDP and also among the primary sector are not significant. However, the decline in the Share of the primary sector was most observed due to a decline in the agriculture sub-sector only.

In the case of the Secondary sector, the role of the construction sector was significant in both the contribution to NSDP and in terms of growth rate in P3. Though, during the later period, the compound growth rate for construction (3.59%) was the last among the three periods. Moreover, the CAGR for the manufacturing sector had gone up from 0.11% in P2 to 12.03 % in P4. Communication has emerged as a significant sector among the tertiary sector after 2008-09. It has recorded a maximum growth of 28.79% in P3, followed by banking and insurance with 16.13% and trade, hotel & restaurant by 9.95% in terms of CAGR. Wherein, the Share of the tertiary sector in GSDP has increased by 15.75% from 45.50% in 1993-94 to 61.24% in 2018-19.

If we look at the employment statistics as shown in Tables 02 and 03, the NSSO employment unemployment survey and periodic labor force survey data of 1993-94 to 2018-19 revealed that in the rural sector, for the given period, almost 37 % of working person had moved out from primary sector. Whereas, in the urban sector, the decline was about 7 %. But overall (including rural and urban areas), there was a significant decline in primary sector workforce employment by 35.52% from 80.69% in 1993-94 to 45.17% in 2017-18. In contrast, for the secondary sector, a significant increase of 21.13% of the working person in rural and 9.72% in the urban sector has to boost up the secondary sector employment during P1. The growth of employment in the secondary sector was highest during P3 in comparison to the other two sub-periods. The increment in the workforce in the secondary sector was due to an increment of the workforce in the construction sector.

In comparison to the above two sectors, the service or tertiary sector has recorded very little growth in the working person. It has increased by a marginal number of 16.09% in rural areas but a decline in the workforce by 2.4% in urban areas. This is quite interesting to note that the behavior of rural and urban areas is very different. However, the tertiary sector is still the most employable sector than others. It hence contributes about 67% of the total working person in an urban area, whereas the primary sector was the most employable sector in rural areas by about 48.85% in 2017-18. The overall rural sector has performed much better in the period P1 regarding the secondary sector, as the working persons moved off from the primary sector had entered non-farm activities mostly in the secondary sector rather than in the services sector. Whether in an urban sector, the working persons moved off from the primary sector has equally incorporated in the secondary and tertiary sector. According to the study of structural change in the Indian economy, in the rural sector, the laborers are migrating towards the non-farm sector much within the rural areas rather than going to urban, and

there is a feminization of the agriculture sector(Binswanger-Mkhize, 2013). Though in the case of Bihar, the trend is similar to in the Indian context. Due to the migration of male workers, female workers have become more mobile towards village activity,i.e.,Agricultural and non-agricultural works.

Whereas remittances sent by migrant people have upgraded the rural living standard,but also agriculture is the driving force for the growth of the economy due to a modest growth rate. (Sharma & Rodgers, 2012; Sharma & Rodgers, 2015). So, the structure of men's Employment has changed faster over time than that of women.

**Table 2. Percentage of The Working Person (PSSS) By Broad Industry Division in Different Sectors of The Economy**

Sl. no	Sector	Year/Period				Absolute Change			
		1993-94	2004-05	2011-12	2017-18	1993-94/2004-05	2004-05/2011-12	2011-12/2017-18	1993-94/2017-18
<b>RURAL</b>									
1	Primary	86.07	78.06	67.66	48.85	-8.01	-10.4	-18.81	-37.22
2	Secondary	4.16	8.28	15.16	25.29	4.12	6.88	10.13	21.13
3	Tertiary	9.77	13.66	17.18	25.86	3.89	3.52	8.68	16.09
<b>URBAN</b>									
1	Primary	15.99	20.7	9.47	8.67	4.71	-11.23	-0.8	-7.32
2	Secondary	15.94	18.78	23.82	25.66	2.84	5.04	1.84	9.72
3	Tertiary	68.07	60.52	66.72	65.67	-7.55	6.2	-1.05	-2.4

Source: Organized byfrom64<sup>th</sup> and 68<sup>th</sup> round NSSO data

**Table 3. Share of Different Sectors and Workforce (PSSS) of The Economy to Overall NSDP**

Years	Share in GSDP			Share of Workforce		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
1993-94	40.86	13.7	45.44	80.69	5.07	14.24
1999-00	33.77	15.09	51.15	76.83	8.36	14.81
2004-05	33.5	13.75	52.74	73.5	9.12	17.39
2011-12	25.76	18.76	55.48	62.45	15.93	21.62
2017-18	19.65	19.13	61.22	45.17	25.32	29.51

Source: GSDP data are taken from DSE, Bihar, and2011-12 data of workforce are taken from NSSO.

In the rural sector, the continuous decline of labor employment in agriculture and continuous acceleration of Employment in the service sector is evident,but the pace of this change seems very slow. Construction has recorded similar growth patterns in both rural and urban sectors with

an increasing share of laboremployed in the economy while declining in urban sector manufacturing but constant employment in the case oftheruralsector in the period above.

**Table 4. Sector-wise Compound Annual Average Growth Rate for Several Periods.**

Sl.No.	Industry	1993-94 to 2018-19	1993-94 to 2004-05	2004-05 to 2011-12	2011-12 to 2018-19
<b>1</b>	<b>Primary</b>	<b>2.33</b>	<b>2.71</b>	<b>4.33</b>	<b>2.04</b>
1.1	Agriculture and Allied Activities(AGR )	2.27	2.71	4.31	1.83
1.1a	Agriculture	1.34	2.52	5.19	-1.86
1.1b	Forestry and Logging	2.32	3.59	-1.97	5.13
1.1c	Fishing	5.38	6.78	1.46	8.32
1.2	Mining and Quarrying(MIN)	10.23	1.41	14.08	31.30
<b>2</b>	<b>Secondary</b>	<b>7.65</b>	<b>3.68</b>	<b>13.92</b>	<b>6.77</b>
2.1	Manufacturing(MAN)	5.77	0.11	7.16	12.03
2.2	Construction(CON)	12.75	12.50	20.67	3.59
2.3	Electricity, Gas and Water supply(EGW)	3.03	1.55	5.40	5.63

<b>3</b>	<b>Tertiary</b>	<b>6.93</b>	<b>5.59</b>	<b>9.56</b>	<b>7.63</b>
3.1	Transport Storage and Communication(TSC)	9.16	5.47	15.64	9.89
3.1a	Railways	4.06	1.06	8.27	4.91
3.1b	Transport by other means	7.66	3.94	9.01	13.24
3.1c	Communication	14.76	16.44	28.79	4.04
3.2	Trade, Hotels and Restaurants(THR)	7.90	8.35	9.95	6.95
3.3	FIRB	5.48	3.44	10.84	4.27
3.3a	Banking and Insurance	10.65	8.87	16.13	8.96
3.3b	Real Estate, Ownership of Dwellings and Business Services	4.16	2.57	9.40	2.32
3.4	Public Administration(PAD)	5.19	4.62	5.99	6.09
3.5	Other Services(OS)	7.00	5.26	5.96	12.24
<b>4</b>	<b>Net State Domestic Product (NSDP)</b>	<b>5.61</b>	<b>4.24</b>	<b>8.62</b>	<b>6.17</b>

Source: Own computation, data taken from DES, Bihar.

## V. CONCLUSION

This paper attempts to understand and analyze the growth and employment dynamics for Bihar. This is important to perceive the essence of structural change in the economy as a driving force of development. The analysis of growth rates of the sectors and their contribution to the income and Employment have a sound prospect. For more than two and half decades of 1993-94 to 2018-19, the economy has recorded an average growth rate of 6.30% with a significant decline of the Share of the primary sector of about 35.52% and an increment in the share of the secondary and tertiary sector of 20.25% and 15.27% respectively. The structural change in the economy, either in growth rate or Share to total NSDP, exhibits a unique phenomenon. The growth rates and the shares primarily manifest the increase or decrease of each broad sector is due to only changes in one or two minor sectors of the broad three sectors and have more substantial effects on the overall growth of the sectors. Though in the overall period only five sectors have a share of almost 75% to total GSDP, namely Agriculture & allied, construction, transport, communication, trade, hotel & Restaurant, and Other Services, rest comes to quarter. Where from 2001 to 2010, more than 74% share in growth was contributed by only four sectors- Agriculture & Allied, Construction, Trade, hotel and restaurant and Communication (Gupta, 2010). Though mining and quarrying have a minimal share either in total GSDP or primary sector but its Share is growing very fast with the highest growth rate.

Construction is the only deriving factor in the secondary sector, whose growth rate was phenomenal during P2 but declined in P3. However, still, the construction sector provides most of the workforce. Also, it is a matter of concern that it provides only temporary Employment of the labor forces in the informal market without social security. For growth-driven structural changes, indeed, the manufacturing sector should grow with larger employment of the labor forces followed by others. Therefore, the manufacturing sector should be grown for commendable structural changes in the economy. Trade, hotels, and restaurants can't be the growth deriving factor after 2005 because in P2, its growth rate and share in GSDP were higher than the growth rate

and share in P1 and P3, but the difference between the periods was very small. So there are no growth-driven changes that were evident due to THR. The communication sector has also shown a significant growth trend after 2007, mostly due to central level policies change and an increase in mobile connections, which has increased from 12.64 telephone connections per 100 population in 2007 to 51.20 in 2015.

In a nutshell, the P2 sub-period had a significant impact on the Bihar economy than the other periods. In this period, the economy has witnessed a commendable growth rate and dynamism in employment share among the sectors. In the given period, data shows the reallocation of output and Employment, which has enhanced the growth process in the state, but the pace of structural change is plodding. The structural change is evident across the sectors regarding employment, but it is within the sectors due to the labor movement and changing employment structure between the rural and urban sectors. Overall, Bihar's economy is performing well right from the ruling of the new government in the economy under the motto of "good governance" or "Sushasan." The expenditure on development has also increased many folds, mainly focusing on the infrastructure, water, electricity, and road constructions. In social sector expenditure, health and education front but still more and more pro-development policies are required to fasten up the growth process of the economy. The poverty Headcount ratio has decreased significantly by 20.7%, with the increase of per capita income is mostly due to poverty alleviation programs like JEEVIKA and rural non-farm income along with remittances. But still, millions of people are in poverty with increasing population and without secured Employment, mostly dependent on agriculture production in rural areas.

## VI. THE WAY FORWARD

Bihar's growth story seems fascinating, and as well such a growth rate proved that even a so-called BIMARU state could grow backed upon the political will and good governance. But such structural changes in the economy are in itself questioning and thus forced to rethink the process of growth and structural changes. The theoretical aspect of the structural change emphasis manufacturing



growth as an important factor. Several papers advocate significant structural changes in the agricultural and service sector but not in the secondary sector in recent years in the cases of Bihar (Santra, Kumar, & Bagaria, 2014). But the question is that being an agrarian state, the low growth rate of industries and dependence on the service sector is sustainable, or it will pave the way towards development, or is it only a supposititious? Is this development process de facto able to upgrade the living standard and well-being of the society or lead to structural transformation?

Indeed, the manufacturing sector is still stagnant over the period and has caused a huge migration of workforce to other states in search of Employment. However, the growth rate achieved by agriculture and some service sectors is commendable. Still, questions arise whether such growth rate is sustainable and able to map up the increasing demand for Employment to the large population shortly. Such biased growth in the sectors may lead to demand and supply problems in the economy. So, for a positive structural change in the economy, the growth of the manufacturing sector, as well as a strong base of the primary sector, are not only important but is much needed for the balanced growth of the economy.

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**Appendix**

**Table 1. Structural Change Between Undivided and Divided Bihar.**

Sector	Values (Rs. million)		Composition (%)	
	Pre-bifurcation (1999/2000)	Post-bifurcation (2000/2001)	Pre-bifurcation (1999/2000)	Post-bifurcation (2000/2001)
Agriculture and Allied	136,550	214,960	32	41
Construction	19,170	18,720	4	4
Industry	52,570	33,560	12	6
Services	21,929	25,448	51	49
GSDP	427,580	52,173	100	--

Source: Mukherji and Mukherji.