Economic Growth & Employment In India

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Abstract: - At present, joblessness or unemployment is a major challenge facing the Indian society. And this leads to financial crises and reduced purchasing power of a nation. This in turn reduces the economic growth and creates problems like inequality, poverty and many social tensions. The reason behind this jobless growth is attributed to the dissimilar structural change process in income and employment. Therefore, a clear understanding of structural change in terms of income and employment for long period of time (1980-81 to 2019-20) will help to identify various growth and employment potential sectors in the economy. Accordingly, policies could be designed for the growth of respective sectors to augment income and employment growth at the same time so that the problem related to jobless growth can be addressed. This will ultimately go a long way in redressing the problems like unemployment, under employment and hence poverty & inequality in the economy. Therefore, proper comprehension of structural change assumes major importance in designing macroeconomic socially just policies in the economy. A clear prospective on structural change and its relationship with growth and employment will help us to examine the exact relationship between these three important macro-economic variables which will help us to design a conductive and appropriate development strategy. Further sharp divergences in the growth rate of different sectors are found to have serious implications for income distribution, inflation and current account deficit of a country Bhattacharya & Mitra (1990). Therefore, a detailed analysis of structural change and how various factors affecting the process will help us to build sustainable growth strategy. As India is a country having diversified economy, a state-wise analysis in this regard can identify the difference in structural change in rich and poor states and can also ascertain various loopholes existing in poor economy. Accordingly, the poor states can approve suitable strategy for its growth in income and employment. This will ultimately go a long way in reducing convergence problem among Indian states.

Structural change (income & employment) and its association with economic growth, productivity growth and employment growth separately a negative & significant association found between structural change in income with economic growth and productivity growth. But a positive and significant association found between structural change in employment with economic growth & productivity growth. This implies that structural change in employment extends economic growth & productivity growth but structural change in income dampen economic & productivity growth. Along with that, it is found that structural change (income & employment) negatively effecting employment growth in case of Indian economy. Given the significance of structural change on various important variables (economic growth, productivity growth, employment growth), it is imperative to study the various factors causing structural change (income & employment). Therefore, the present study is an attempt to analyze various factors affecting structural change in India.

Keywords: Economic growth, Productivity growth, Employment growth

Research Questions

1. How the process of structural change is going on in different states of India having different level of growth?
   a) Whether the process of structural change in rich states is similar to that of the poor states?
   b) Whether the process of structural change in terms of income and employment is happening in the same direction in the respective states?
2. How structural change is associated with economic growth & how it is associated with employment growth?
3. What are the various demand-side factors and supply-side factors affecting structural change?
4. What are the policy measures that can be designed to overcome structural rigidities and can augment employment and income growth simultaneously in the economy?

Research Objective :- Research Objectives

1. To review various studies on structural change and its relation with income and employment.
2. To analyze the state-wise structural change process in terms of income and employment in India for the time period 1983-84 to 2019-20.
3. To examine the relationship between structural change and economic growth & structural change and employment growth.
4. To scrutinize various demand-side and supply-side factors affecting structural change in India.
5. To suggest policy measures for different states to remove structural rigidities and to augment growth and employment simultaneously in the economy.

Research Hypothesis :- The hypothesis with regard to the current empirical study is that the level and nature of Given the significance of structural change on various important variables (economic growth, productivity growth, employment growth), it is imperative to study the various factors causing structural change (income & employment). Therefore, the present study is an attempt to analyze various factors affecting structural change in India.

Research Design:- The research design screening the data source, methodology, the period chosen for the study and the description about selected variables for the empirical analysis are explained in this section.

Data Source, Methodology, and Period of Study:- The present study is completely based on secondary data. The main sources of data for the study are Journals, Annual Reports and the web sites of selected platforms. In addition to this the information published by the central government of India and the published literature available in the form of books and journal articles are used to complete relevant data for the purpose of the study. The data period is chosen from January 1982 to 2020

Limitations of the Study:- The study used disaggregated NSDP & employment data for the construction of structural change index having its limitation as a singular measure. In case of sectorial employment shares, the key issue is that the employment share may not represent the true labor input because there are systematic differences in hours worked or in human capital per worker per sectors that changes with the level of development. As in case of Indian data base, disaggregated data on hours worked is absent. So in this respect disaggregated working population taken into account for the analysis. The major concerns and limitations with regard to the present study include:

The secondary data collected for analysis is limited to 40 years from 1982 to 2020.

❖ The data collected for the analysis is limited to few factors. The analysis can provide considering structural break which will provide much more insight of the influencing variables. Keeping in view the above-mentioned objectives of the study, it was intended to test the research hypothesis

❖ Data Source-All data for the study are collected from secondary data sources. The main data sources are as follows. (i) Disaggregated NSDP data & per-capita NSDP data are collected for the period 1983-84 to 2019-20 from EPWRF. Gross Enrollment Ratio in higher education (9th to 11th class) data is also collected from the same source. (ii) By using ICSSR data base (www.icssrdataservice.in), disaggregated employment data collected from NSSO, different rounds such as 27th round (1972-73), 32nd round (1977-78), 38th round (1983-84), 43rd round (1987-88), 50th round (1993-94), 55th round (1999-00), 61st round (2004-05), 64th round (2009-10), 66th round (2007-08) and 68th round (2019-20). Data on percentage of working population who attained higher education is also collected from the same source. (iii) State-wise credit data, data on fixed capital, data on population collected from RBI data on state-finances under the headings such as Hand Book of Indian Statistics, Basic Statistical Returns from Scheduled Commercial Banks of India. This study is based on secondary data for 16 major states[1]. [1] Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal 81, 1993-94, 1999-00, 2004-05 and 2019-20 are collected. By using splicing method data of different series are to be converted to 2004-05 series to arrive at a comparable data for the total period.

Methodology - The study is mainly based on analysis of nexus between three important variables such as structural change, economic growth and employment. The literature Specifies different measures to describe the changes in the structural change of an Economy statistically. Generally they used three sectors (agriculture, Industry and service) and their respective shares to describe structural change in the economy. Based on their wide spread use, two structural change index such as NAV (Norm of Absolute Values) and MLI (Modeified Lilien Index) selected for the construction of structural change index. The formulas are as follows

Norm of Absolute Value Index The Norm of Absolute Value (NAV) is a simple index to measure structural change given by Dietrich (2009). Let $\phi_{i,T}$ be the share of sector i in the final period T and $\phi_{i,S}$ be the share of sector i in the initial period s. The NAV index, sometimes called Michaely Index (1962) or Stoikov Index (1966) can be written as

$$\text{NAV}=0.5 \sum_{i=1}^{n} \mathbf{I}\, \Phi_{i,t} - \Phi_{i,s}\, \mathbf{I} \qquad (1)$$

For computation of this index, first the differences of the sector shares ϕi between two points in time, s and t, are calculated. Then the absolute amounts of these differences are summed up and divided by two because each change is counted twice. In implementing this calculation for the Indian states, sectorial shares are calculated for two levels of disaggregation of the GDP data. In the first disaggregation, there will be three main sectors, namely Primary, Secondary and Tertiary. In the second disaggregation, there are 9 subsectors are calculated. This guarantees that the range of the index ranges from zero (no structural transformation) to one (highest structural transformation). But in the current research, all indices values are multiplied by 100 to make it convenient to interpret the values. Here, the high index value represent high structural change and low index value represent low structural change.

Time Frame

The study covers the period from 1983-84 to 2019-20 based on the availability of employment data for 16 major states in India. However, Data for two newly created states such as Chhattisgarh and Jharkhand available after 2000-01. Therefore data for these two states skipped wherever it is required.

Over the past one and half decade India has experienced high growth in its GDP with very slow or even stagnant growth in its employment giving rise to a new peculiar phenomenon of "jobless growth". Employment generation has not kept pace with GDP expansion. The reason is the lopsided structure of income (GDP) and employment. In other words, the structure in which income is changing, employment is not changing in the same structure giving rise to the major concern called Jobless growth. In India, growth is

attributed to service sector but employs less than 30 percent of India"s population. On the other hand, the biggest employing sector is agriculture or primary sector engaging 45 percent of India"s population and contributing a meagre 15 percent to its GDP (labor ministry's 27th Quarterly Employment Survey, 2015-16). Structural transformation generally referred to as longterm changes in the composition of an aggregate that is attributable to changes in the relative significance of different sectors in the economy to changes in the location of economic activity (urbanization) and to other concomitant aspect of industrialization which taken together Singariya (2014). Structural change as a source of economic growth has been excessively studied in literature on endogenous growth (Romer 1990; Aghion & Howitt 1992; Fisher 1935 & 1952; Clark 1940/51 & 1959; Kuznets 1972). Because structural change comes out with a change in final demand, new method of production, which allows for a more efficient allocation of resources or innovation of a new product line which itself augment the value of the produce, that form the essence of the growth process Zagler (2009). However structural change does not come without a cost. The most evident social cost of structural change is unemployment and underemployment. The reason is that, firm producing a product in a declining market will lay off workers. Workers specializing in particular modes of production make their qualification redundant until these workers re-qualify and are matched to a new job in an expanding product segment or in a new technology; these workers will suffer from the spell of unemployment Zegler & Martin (2009). India is real world example of such growth. Because unlike other developed and developing countries, India is not following same kind of structural change in terms of income and employment. As a result of which economic growth has been accompanied by a much lower rate of growth in employment and by zero or negative growth of what theILO has termed as "Decent Work" Bagchi (2004).

     Therefore for a developing country like India where socio economic problem such as poverty, unemployment and inequality influences policy decisions, it becomes imperative to study structural change and its relation with economic growth and employment, so that positive growth and employment impulses emerging sectors could be identified and foster to sustain economic growth momentum. Along with this, an in-depth understanding of structural change in response to policy change from time to time becomes all the more important for policy makers to design effective monetary, fiscal and credit policy in order to be able to achieve broader objective of inclusive growth. In this backdrop, the present work drafted an in-depth study on structural change in terms of income & employment and its association with economic growth & employment growth.

    Earlier, one sector growth models have been extensively used by economists of all schools of thought because of its simple structure. But later on, many authors such as Fisher (1939), Clark (1940), Lewis (1951), Kuznets (1957) & Chenery(1960) have acknowledged the process of structural change. In his Nobel work, Kuznets investigated and documented the process of structural transformation and represented it as an important characteristic of growth process. Dual economic model by (Lewis 1950s, Ranis & Fei 1961; and Gorgenson 1961) introduced the significance of structural change in the growth process. In the above dual economy models the assumption of unlimited supply of labor or structural change in employment is crucial for economic growth. Recently better waves of growth models have been developed to analyze structural change in better ways. The literature have identified numerous channels to explain the process of structural change and its relation with economic growth which ranges from purely demand driven factors to technology driven. One set of economists focused on supply side factors advocated that change in relative prices is the main source of structural change. These changes affect the structure of expenditure whenever the elasticity of substitution across sectors is different from one. This view of structural change is known as the technological explanation. On the other hand some economistlike Hauthaker (1987) emphasized on demand side variable like change in income elasticity of demand leading to change in structure of the economy and hence economic growth. Their view is based on angel"s law which advocates that as household"s income increases, the fraction of income spend on agricultural good declines. However some economists like (Baumol 1967; Nardhus, 2008; Hartway 2012, 2015) are of the view that structural change leads to slow down in the productivity and hence economic growth widely recognized as Baumol"s cost disease. We discussed numerous work on the association of structural change with economic growth and productivity growth but a very few literature emphasized the association of structural change with employment growth. In this respect Zegler (2009) developed a model where he advocated structural change of employment or constant flow of workers in and out of employment leading to structural unemployment.

    Nationaly as well as worldwide, there are many existing studies which have simply analyzed the pattern of structural change in terms of both income & employment (Herrendorf etal 2013; Papola, 2000; Bala Anju 2013; Setthy 2003; Rao 1979; Panagariya 2008; Bhattacharya & Mitra 1990; Basu & Meartens 2007). They are ofthe view that, structural change process is different for different countries at different time period. In case of most of the developed countries like Japan, USA and UK, share of employment and value added of agriculture sector declined whereas share of employment and value added of service sector increased over time with increase in GDP per capita. Manufacturing sector experienced a different hump size pattern which increases at a lower level of development and decreases at a higher level of development. Additionally, it is also observed that with a very low level of development at the earlier period, employment share in agriculture sector was higher than value added share in the respective sector. It highlights the fact that countries which are poor, their labour force mainly depends on agriculture sector. In case of service sector, the income share bounded away from zero even at very low level of development. Similar pattern of structural shift was also found for poor countries. In case of Indian economy, it is found that there is a sharp fall in the share of agriculture in Indian economy in the first three decades of economic growth such as in 1960s, 1970s and 1980s and then growth rate of Indian economy was followed by industrial sector and the service sector to some extent. Since then, it has been service lead. After that, from 1980, the growth rate of economy has followed the growth rate of service sector. There is stagnation in Indian Industrial sector after 1980 with a decline in manufacturing sector. But still after 1980, the share of agriculture was high in many states like Punjab, Haryana and in poor state like Bihar. Gujarat is the only state to have experienced a distinct improvement in the share of industry both in 1980s and 1990s. Thus share of different sub-sectors are diverse in different states. They identified that, India is different from other developed countries in two respects. Firstly, India is able to skip the intermediate phase of industrialization in the transformation of its economic structure. Secondly, the change in the structure of income is not accompanied by the same change in its structure of employment which raises, serious concern about jobless nature of economic growth in India.

    World-wide, many studies (Dietrich"s 2012; Zhong etal 2019; Zulkhibri & Ghazal 2015) analyzed association between structural change and economic growth. By usingGranger Causality Test in panel environment for 7 OECD Countries for the period 1960 to 2004, it was found that aggregate economic growth decelerates structural change in short run but accelerates structural change in long period

depending on whether structural change measured in terms of employment or value added. Economic growth decelerates structural change in employment whereas it accelerates structural change in income. This implies that structural change in income or output is driven by changes in demand due to rising income & productivity. On the other hand, structural change supports economic growth irrespective of the measures used in the analysis. Zulkhibri & Ghazal (2015) investigates the relationship between structural change and economic growth. The Panel Integration Test advocated that structural change and economic growth are co-integrated in these countries. The Dynamic Ordinary Least Square (DALS) estimators show that there is a strong long run positive association existing between structural change and economic growth. Impact of GDP on structural change is higher than impact of structural change on GDP. The larger impact of GDP on structural change implies that it is the demand side factors resultant from increase in income leads to structural change in the economy. On the other hand, the comparatively weak impact of structural change on economic growth may be because structural change generates both positive and negative contribution to productivity growth in the economy. After the thorough review, given the variables in the backdrop of present economic situation, the present study develops a conceptual framework which is represented by the following figure.

Figure : Conceptual Framework for Structural change, Economic growth and Employment
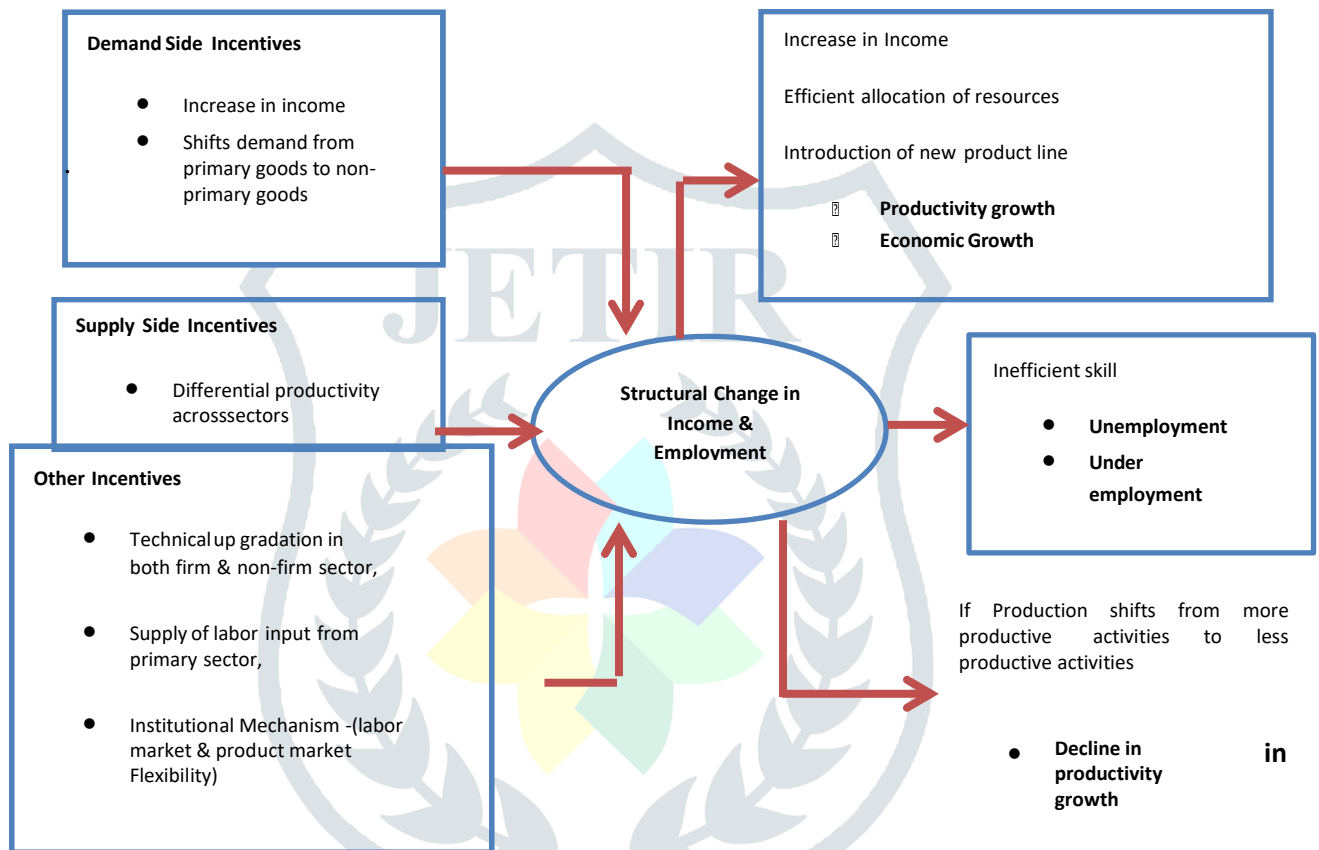

Structural change implies the shift of economic activities from traditional primary sector to modern non-primary sector which is caused by both demand side & supply side factors as shown in figure 1. In case of demand side factor, it is the increase in income, leading to structural change in the economy. As income grows, individual shifts their demand from less productive primary goods to more productive non- primary goods (Angel's law). As a result of which production shifts from primary goods to non-primary goods and hence structural change takes place in the economy. In case of supply side factors such as technical up gradation, supply of more skilled human capital, institutional mechanism related to labor market & product market flexibility, foreign direct investment, supply of more labor inputs from traditional sector causes structural change in the economy. Individual after receiving efficient skill no longer wants to work in primary sector which is considered as less productive as compare to modern non-primary sector which is considered as more productive. Similarly labor saving technical up gradation in primary sector now require less manpower in the respective sector leading to structural change. Along with that the economy over supplied labor force in primary sector always appeared as a cause for structural change. On the other hand, technical up gradation in non-primary sector having high productivity attracts more manpower from the primary sector to non-primary sector leading to structural change in the economy. Alongside flexible or liberal rules and regulation also causes structural change in the economy. As states with more flexible labor laws can shift their labor input effortlessly as compare to those state practicing more stringent labor laws. Similar case can also be made-up for product market. States with more generous product market flexibility can shift their production structure more certainly as compare to others. After the post liberalization period, structure of production not only inclined by domestic demand it is also inclined by foreign demand. Therefore the export structure also plays a significant role in causing structural change in the economy. In this respect, supply of hard capital in terms of infrastructure such as (roadways, railways, industrial setups) can be appeared as the robust growth of non-primary sectors. Structural change in turns leads to productivity growth and economic growth in the economy.

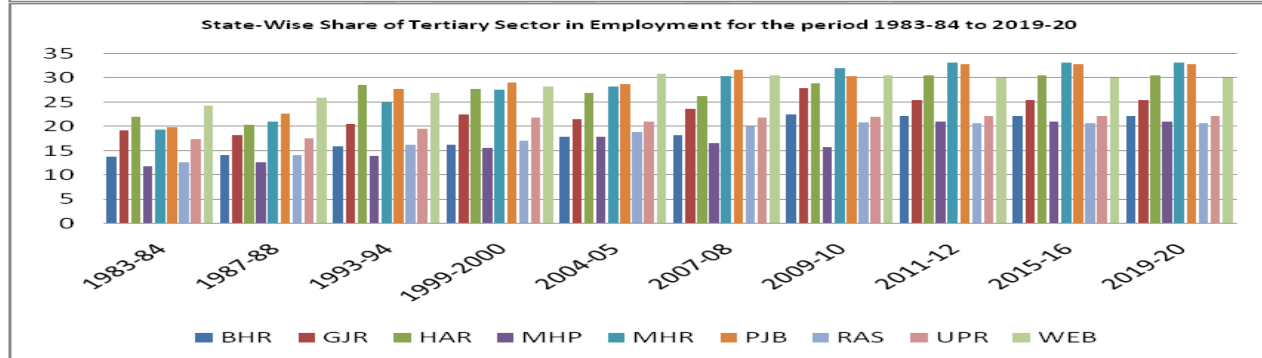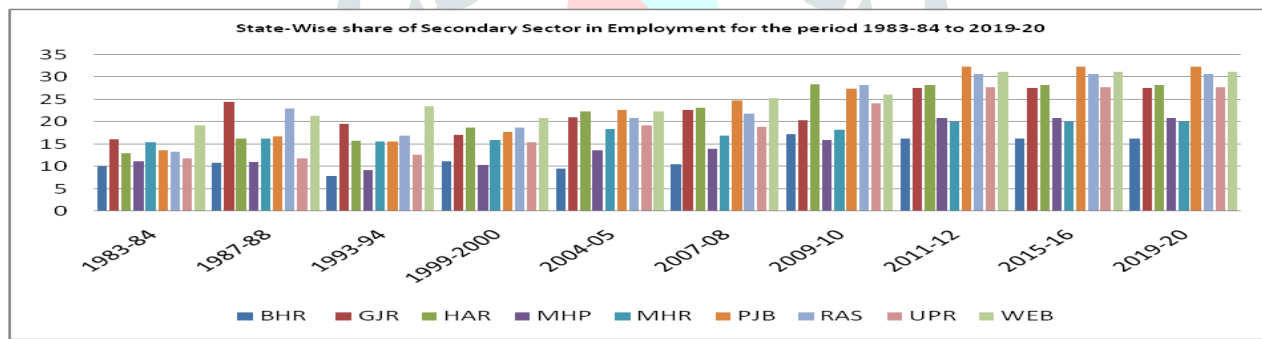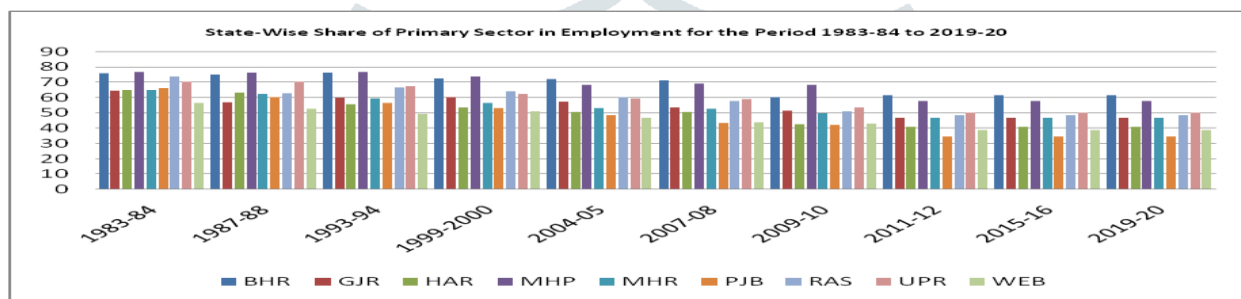# State/ Sector -Wise Share NSDP for the period 1983 -84 to2019-20

St/yr	Sr	APD	BHR	CHG	GJR	HAR	JHK	KAR	KEL	MHP	MHR	ODS	PJB	RAS	TAN	UPR	WEB
1983-84	Pr	46.32	46.72	NA	38.17	51.05	NA	43.77	35.44	53.5	25.86	55.26	48.74	55.13	26.77	50.07	32.37
	Sr	17.87	25.5	NA	30.77	19.92	NA	21.37	24.7	20.36	34.17	16.12	19.87	19.27	32.54	17.08	28.16
	Tr	35.81	27.79	NA	31.05	29.03	NA	34.86	39.86	26.14	39.97	28.63	31.38	25.6	40.7	32.85	39.47
1987-88	Pr	37.04	40.5	NA	17.17	40.66	NA	39.48	34.63	46.96	23.71	46.22	48.93	36.32	24.26	45.45	33.09
	Sr	19.68	28.79	NA	39.68	25.67	NA	21.4	22.6	21.06	34.91	18.61	20.52	24.61	29.74	19.32	26.66
	Tr	43.29	30.71	NA	43.15	33.67	NA	39.12	42.77	31.98	41.38	35.17	30.56	39.07	46	35.22	40.25
1993-94	Pr	35.95	51.38	NA	24.25	42.61	NA	37.48	32.02	42.93	20.7	39.83	48.22	35.19	25.64	41.11	34.7
	Sr	20.84	8.71	NA	35.92	25.59	NA	24.61	20.53	21.37	31.68	24.9	19.83	25.29	32.76	19.82	22.51
	Tr	43.21	39.91	NA	39.83	31.79	NA	35.7	47.45	35.7	47.62	35.27	31.95	39.53	41.6	39.07	42.79
1999-00	Pr	30.65	34.36	26.81	17.68	33.48	17.95	32.42	21.23	31.49	17.08	32.35	39.91	31.72	17.83	36.78	31.74
	Sr	20.91	11.94	30.65	37.59	26.42	44.68	21.17	20.88	21.51	27.46	21.76	20.3	25.04	27.33	19.65	15.68
	Tr	48.44	53.7	42.53	44.74	40.11	37.37	46.41	57.89	47	55.46	45.88	39.79	43.24	54.83	43.56	52.58
2004-05	Pr	30.97	31.78	22.71	17.71	24.32	15.67	19.5	16.47	29.07	11.17	25.25	34.59	27.06	11.12	31.06	24.99
	Sr	18.95	12.87	40.53	35.57	30.39	50.61	27.38	22.3	24.81	26.74	30.43	23	28.46	31.65	21.61	19.32
	Tr	50.08	55.35	36.75	46.71	45.29	33.72	53.12	61.23	46.12	62.09	44.31	42.4	44.48	57.23	47.33	55.69
2007-08	Pr	28.18	26.44	22.42	17	20.66	16.21	17.13	12.04	25.87	11.08	21.73	29.31	23.58	9.79	27.42	22.26
	Sr	20.38	16.83	40.89	35.69	28.54	45.96	27.96	21.76	27.15	29.75	31.65	29.29	29.98	30.53	23.49	18.76
	Tr	51.44	56.73	36.69	47.31	50.8	37.83	54.9	66.2	46.98	59.17	46.62	41.4	46.44	59.68	49.1	58.98
2009-10	Pr	26.93	22.06	19.7	12.46	17.88	16.79	16.89	10.7	24.95	8.43	21.91	26.35	20.64	8.7	24.51	20.51
	Sr	19.29	18.69	39.37	39.97	27.14	35.83	25.91	20.05	27.98	27.63	25.1	29.79	30.21	30.94	23.08	17.24
	Tr	53.78	59.25	40.93	47.57	54.98	47.39	57.2	69.25	47.07	63.93	52.99	43.86	49.15	60.36	52.41	62.25
2011-12	Pr	25.03	23.14	21.09	14.23	17.44	18.27	16.05	9.21	24.65	8.59	19.92	24.06	22.43	8.46	23.65	18.19
	Sr	18.46	19.22	36.18	36.24	25.88	36.25	25.45	21.6	26.81	27.09	23.99	28.37	31.19	30.57	21.72	15.66
	Tr	56.51	57.65	42.73	49.53	56.68	45.48	58.5	69.2	48.54	64.32	56.1	47.56	46.38	60.96	54.63	66.15
2015-16	Pr	28.95	21.04	16.18	15.82	18.97	12.91	9.9	9.67	33.83	10.57	15.59	28.18	27.51	12.64	24.31	23.06
	Sr	24.65	20.17	47.9	47.21	30.02	44	26.28	26.73	25.79	34.43	41.84	23.31	29.68	33.07	26.17	24.23
	Tr	46.4	58.79	35.92	36.97	51.01	43.09	63.82	63.6	40.39	55.01	42.57	48.5	42.8	54.29	49.52	52.71
2019-20	Pr	29.85	22.08	18.14	17.62	19.99	15.97	10.8	10.87	36.88	13.59	18.67	30.64	28.85	14.76	28.83	26.94
	Sr	24.65	20.17	47.9	47.21	30.02	44	26.28	26.73	25.79	34.43	41.84	23.31	29.68	33.07	26.17	24.23
	Tr	46.4	58.79	35.92	36.97	51.01	43.09	63.82	63.6	40.39	55.01	42.57	48.5	42.8	54.29	49.52	52.71

Note: APD-Andhra Pradesh, BHR-Bihar, CHG-Chhattisgarh, GJR-Gujarat, HAR-Haryana, JHK-Jharkhand, KAR-Karnataka, KEL-Kerala, MHP-Maharashtra, ODS-Odisha, PJB- Punjab, RAS-Rajasthan, TAN-Tamil Nadu, UPR-Uttar Pradesh, WEB-West Bengal
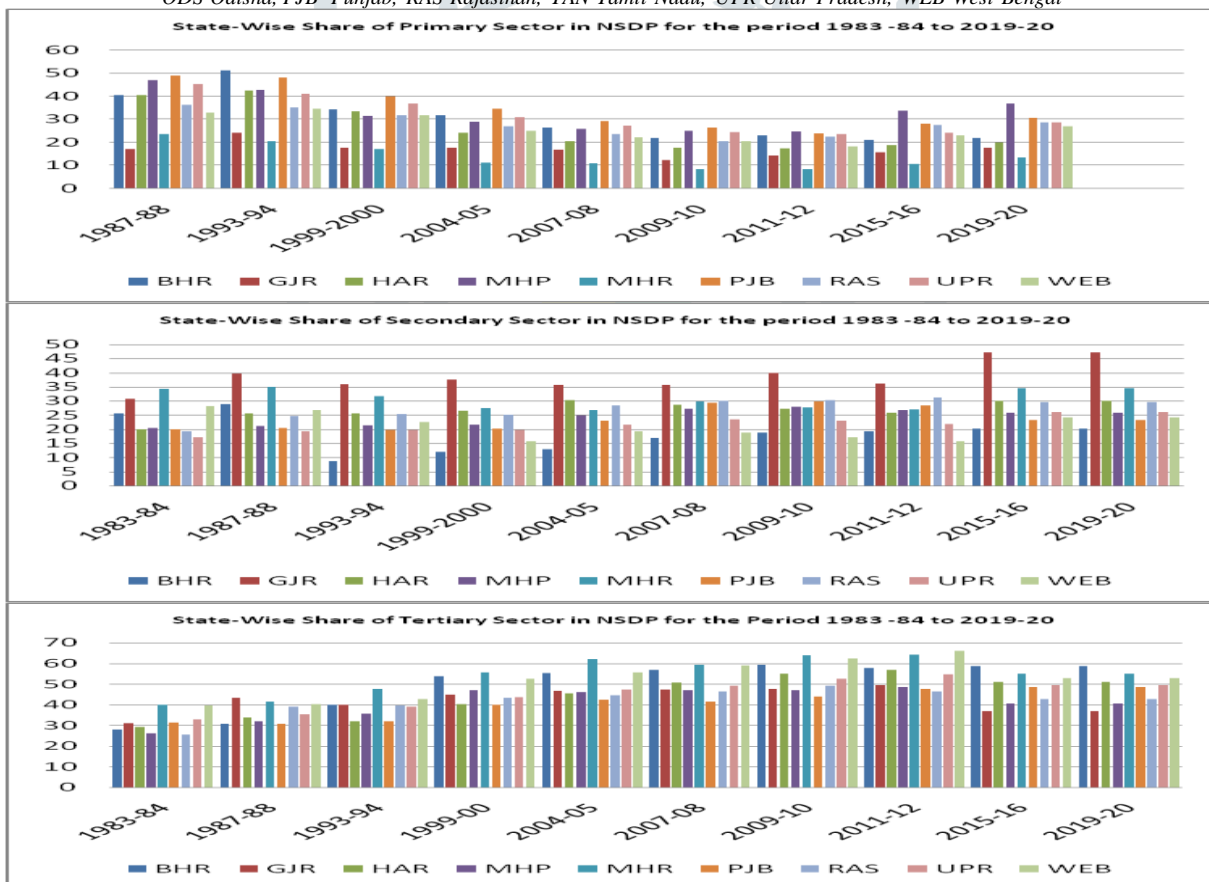
State/ Sector -Wise Share in Employment for the Period 1983-84 to 2019-20

St/yr	Sr	APD	BHR	CHG	GJR	HAR	JHK	KAR	KEL	MHP	MHR	ODS	PJB	RAS	TAN	UPR	WEB
1983-84	Pr	68.12	76.18	NA	64.65	65.02	NA	66.78	55.49	76.93	65.2	71.52	66.49	74.05	57.15	70.71	56.5
	Sr	13.22	9.99	NA	16.13	12.91	NA	15.55	20.42	11.21	15.47	12.71	13.65	13.24	20.19	11.89	19.21
	Tr	18.66	13.84	NA	19.22	22.06	NA	17.67	24.1	11.86	19.33	15.77	19.86	12.72	22.66	17.4	24.29
1987-88	Pr	66.28	75.02	NA	57.23	63.26	NA	66.07	49.58	76.44	62.65	68.85	60.53	62.81	52.01	70.61	52.64
	Sr	14.8	10.79	NA	24.5	16.32	NA	15.86	22.22	10.97	16.25	14.95	16.81	23.06	23.7	11.88	21.38
	Tr	18.93	14.19	NA	18.22	20.4	NA	18.07	28.2	12.59	21.09	16.2	22.66	14.13	24.28	17.52	25.97
1993-94	Pr	66.29	76.31	NA	59.84	55.68	NA	65.81	45.88	76.77	59.45	73.71	56.48	66.75	52.65	67.77	49.63
	Sr	13.59	7.81	NA	19.63	15.79	NA	14.75	23.53	9.24	15.6	11.25	15.67	16.92	22.4	12.61	23.42
	Tr	20.12	15.88	NA	20.53	28.52	NA	19.44	30.59	13.98	24.94	15.04	27.85	16.32	24.94	19.62	26.95
1999-00	Pr	63.17	72.62	NA	60.42	53.56	NA	65.38	35.9	74.01	56.6	69.28	53.21	64.14	49.21	62.61	50.95
	Sr	13.98	11.18	NA	17.01	18.72	NA	14.23	26.75	10.43	15.87	14.4	17.68	18.72	24.41	15.52	20.79
	Tr	22.84	16.2	NA	22.57	27.72	NA	20.39	37.35	15.56	27.53	16.32	29.11	17.15	26.39	21.88	28.25
2004-05	Pr	17.04	9.56	10.07	21.08	22.38	22	14.89	28.59	13.59	18.33	18.67	22.71	20.92	26.97	19.3	22.28
	Sr	58.61	72.46	77.06	57.39	50.61	61.28	62.13	32.25	68.49	53.35	62.43	48.47	60.27	44.99	59.66	46.9
	Tr	24.35	17.98	12.87	21.53	27.02	16.72	22.98	39.16	17.92	28.32	18.89	28.82	18.82	28.04	21.03	30.82
2007-08	Pr	17.73	10.44	7.74	22.67	23.12	22.21	17.01	30.09	13.99	16.86	14.76	24.8	21.89	30.07	18.97	25.29
	Sr	57.89	71.37	80.96	53.62	50.53	60.11	58.19	28.35	69.48	52.71	65.56	43.48	58.03	41.75	59.25	44.1
	Tr	24.38	18.19	11.3	23.7	26.36	17.68	24.8	41.56	16.52	30.43	19.69	31.71	20.08	28.18	21.79	30.62
2009-10	Pr	21.44	17.22	11.54	20.34	28.36	32.4	19.25	31.92	16.01	18.19	20.9	27.39	28.23	29.06	24.17	26.14
	Sr	53.53	60.35	73.64	51.74	42.8	44.73	53.86	25.41	68.24	49.79	59.39	42.23	50.95	42.47	53.73	43.24
	Tr	25.03	22.43	14.82	27.92	28.84	22.87	26.89	42.67	15.76	32.02	19.71	30.38	20.82	28.47	22.1	30.62
2011-12	Pr	20.3	16.2	13	27.6	28.3	29	19.4	34	20.9	20	23.5	32.4	30.7	35	27.7	31.2
	Sr	50.8	61.5	72.1	47	41.1	49.2	48.4	21.5	58	47	53.8	34.8	48.7	32.9	50.3	38.8
	Tr	28.9	22.2	14.8	25.4	30.5	21.8	32.2	44.6	21	33.2	22.7	32.8	20.7	32.1	22.2	30
2015-16	Pr	20.3	16.2	13	27.6	28.3	29	19.4	34	20.9	20	23.5	32.4	30.7	35	27.7	31.2
	Sr	50.8	61.5	72.1	47	41.1	49.2	48.4	21.5	58	47	53.8	34.8	48.7	32.9	50.3	38.8
	Tr	28.9	22.2	14.8	25.4	30.5	21.8	32.2	44.6	21	33.2	22.7	32.8	20.7	32.1	22.2	30
2019-20	Pr	20.3	16.2	13	27.6	28.3	29	19.4	34	20.9	20	23.5	32.4	30.7	35	27.7	31.2
	Sr	50.8	61.5	72.1	47	41.1	49.2	48.4	21.5	58	47	53.8	34.8	48.7	32.9	50.3	38.8
	Tr	28.9	22.2	14.8	25.4	30.5	21.8	32.2	44.6	21	33.2	22.7	32.8	20.7	32.1	22.2	30

State-Wise Share of Primary Sector in Employment for the Period 1983-84 to 2019-20

State-Wise share of Secondary Sector in Employment for the period 1983-84 to 2019-20

State-Wise Share of Tertiary Sector in Employment for the period 1983-84 to 2019-20

Conclusion :-

Structural change not only leads to economic growth but also indispensible for economic development. Because structural change come out with changes in final demand, change in resource allocation and innovation of new product line which worked as the source productivity growth and hence economic growth. Contrastingly, group of economists advocated that, structural change causes aggregategrowth to decline because the composition of output has shifted away from productivesectors (manufacturing) to non-productive sectors (public service, construction). The recent growth models advocated their theories where they identified numerous channels to explain the process of structural change and its association with economic growth which ranges from purely demand driven factors to technology driven. Set of economists advocated that, demand side factor such as change in income elasticity of demand leads to resource allocation or structural change whereas some other group of economists viewed that, supply side forces such as change in productivity across sectors leads to structural change. Similarly, economist like Zegler (2009) pointed out the impact of structural changes on

unemployment. Given the theoretical backdrop, many studies (internationally & nationally) analyzed the pattern of structure change in terms of income & employment. They found that countries such as Belgium, Finland, France, Japan, Korea, the Netherlands, Spain, Sweden, the United Kingdom and the United States experienced a decline in the share of primary sector and an increase in the share of tertiary sector both in terms of income & employment. On the other hand, secondary sector followed a humped shaped pattern where the share of the sector increases with lowers income level and then declines with higher level income. India is different from these countries as India skipped the process of industrialization. In other words India experienced high growth in tertiary sector without accomplishing higher growth in secondary sector. The other concern is that, unlike other developed countries, India experienced a mismatch in its structure with regard to income & employment. Further, world-wide, some of the studies examined the association of structural change with regard to economic growth. Set of literature found a positive and significant association between structural change & economic growth over long period of time which is absent in short period of time. Contrastingly, some of the studies found negative association between structural change & economic growth. In case of Indian economy, a very few studies analyzed the association between structural change & economic growth. The studies found one-way causality between structural change in income & economic growth. tructural change leads to economic growth but not the other way round. Recently a line of literature examined the impact of structural change in employment on productivity growth & poverty. They found structural change in employment has a positive and significant association with productivity growth. Bunch of literatures in this respect, shed light on determinants of structural change. The factors include: soft capital such as human capital & hard capital like fixed capital (infrastructure), institutional mechanism such as labor market flexibility, product market flexibility, Foreign Direct Investment (FDI), flow of labor from primary sector etc. It is story of structural change and economic growth. A very few studies analyzed the association between structural change & employment growth. They said that, structural change leads to unemployment in the economy.

Although many economists theoretically emphasized the association of structural change and economic growth, but very few studies examined it empirically. In this concern, study with regard to the association between structural change & employment growth is very limited. The current study reviewed & discussed the available literature on structural change, economic growth & employment growth. Using the disaggregated data on income & employment, it provides a comparative study on structural change in income and employment. Similarly, by using the long term data for the year 1983-84 to 2011-12, it examined the association between structural change (income & employment) with economic growth, employment growth & productivity growth. With regard to the determinants of structural change, very few studies empirically tested the demand side and supply side stimulus in case of Indian economy. This is a major contribution with regard to the literature in this aspect.

It is found that likewise the developed countries; Indian economy is also experiencing a shift in its economic activities (in terms of income & employment) from primary sector to secondary & tertiary sector. In case of income, the shift is more towards tertiary sector whereas in case of employment, the shift is more towards secondary sector. In case of income, all 16 major states collectively as well as individually experienced a decline in the share in primary sector whereas they experienced an increase in the share in tertiary sector. But in case of secondary sector, some of the states such as Andhra Pradesh, Bihar, Jharkhand, Tamil Nadu, Kerala, Maharashtra and West Bengal experienced decline in their shares whereas other experienced a slight increase in their shares. In case of income, manufacturing and construction sector experienced dominated share as compare to mining & electricity sector. Similarly, in case of employment, these two sectors experienced dominated share as compared to other sub-sectors under secondary sector. In case tertiary sector income, trade & other services experienced higher share than banking & transport sector. Similarly, in case of employment these two sectors experienced leading share under tertiary sector. It is found that most of the rich states like Gujarat, Maharashtra & Tamil Nadu along with two newly created states Chhattisgarh & Jharkhand experienced a higher income share in manufacturing sector which is recognized as one of the high productive sectors in the economy. Similarly, in case of mining sector, most of the poor states such as Madhya Pradesh, Rajasthan, Bihar and Odisha experienced highest share in NSDP. In case of tertiary sector, most of the rich states such as Haryana, Karnataka, Tamil Nadu, and Maharashtra experienced higher share than other states although most of the poor states (Bihar, Odisha, Madhya Pradesh & Rajasthan) experienced highest percent increase in the share in the period of analysis (1983-84 to 2015-16). In case of employment under manufacturing sector, most of the rich states like Gujarat, Haryana, Kerala, Karnataka, Maharashtra, and Tamil Nadu along with a poor state (West Bengal) experienced higher share as compared to other states. Similarly most of the rich states along with a poor state (West Bengal) experienced higher share in employment in tertiary sector as compare to other states. Although structural change in employment followed similar path like structural change in income but the rate of change in structural change in income & employment are different from each other for 16 general states as a whole. All 16 major states collectively experienced declined share of income & employment in primary sector. Percentage decline in income of primary sector (62.6percent), much higher than percentage decline in employment of primary sector (29.30percent) in the period of analysis. Percentage increase in income in tertiary sector (68.57percent) is much higher than percentage increase in the share of employment (49.53percent) in tertiary sector. Similarly, in case of secondary sector, percentage increase in income (10.42percent) is much smaller than percentage increase in the share of employment (75.3percent). It is observed that, on an average, most of the poor states such as Bihar, Chhattishgarh, Jharkhand, Odisha, Madhya Pradesh and Rajasthan along with a rich state (Gujarat), experienced more structural change in income for the period 1983-84 to 2015-16. On the other hand, on an average, for the whole period from 1983-84 to 2011-12, Jharkhand, Rajasthan, Kerala and Punjab experienced highest structural change in employment whereas states like Andhra Pradesh, Maharashtra, Karnataka, Bihar, Madhya Pradesh experienced lowest structural change in employment. It is important to note that two poor states (Bihar & Madhya Pradesh), instead of experiencing high structural change in income; they are experiencing lowest structural change in employment throughout the period of analysis. Contrastingly, two rich states (Kerala & Punjab) instead of experiencing lowest structural change in income are experiencing highest structural change in employment.

A negative and significant association found between structural change in income with economic growth and productivity growth. This implies structural change in income neither augmenting economic growth nor augmenting productivity growth in case of Indian economy. This supports Baumal‟s Cost Disease which reveals that structural change shifts the economy from more productive sector (manufacturing) to less productive sector (tertiary) that leads to loss of productivity and hence economic growth. It buttressed in third chapter where we found that most of the poor states experienced highest percentage increase in income in tertiary sector. However

the study also found divergence among Indian states. The study found a positive association between economic growth with human capital, private investment and found a negative association with population growth. Unlike structural change in income, a positive and significant association found between structural change in employment with economic growth and productivity growth. This supports Lewis Model. It is observed that structural change in employment is happened more towards secondary sector which is considered as more productive as compare to tertiary sector. A Positive association found between productivity growth with respective to human capital, technology, private investment but a negative association detected between economic growth & population growth. A negative association found between structural change (income & employment) with employment growth. The result with regard to structural change in employment is significant whereas it is insignificant with regard to structural change in income. It supports Zegler"s model which advocates structural change leading to structural unemployment in the economy. A negative and significant association is found between employment growth with respect to human capital & technology as expected. Because it is found in many literatures that enrollment in higher education is one of the main reasons for low growth in workforce participation and labor force participation. It is also pointed out in many studies that production of Indian economy is based on technology which is not employment intensive . In this respect, population growth & fixed capital appeared as the positive stimulus for employment growth.It is found that, neither the demand side incentive such as increase in income nor the supply side incentives such as human capital, technology, initial per capita income, and private investment are positively effecting structural change in income. This approves the result of Third & Fourth chapters that poor states are experiencing more structural change in terms of income. Contrastingly, it is found that both demand side incentives (economic growth or income growth) and supply side incentives (human capital, technology, private investment) positively contributes to structural change in employment. However, a negative and significant association is found between structural change in employment with initial share of workforce which implies that states are tapped with more workforce in primary sector are unable to mobilize their labor to the non-primary sectors. It is important to note here that all the growth & productivity enhancing variables such as initial per capita income, human capital, technology and private investment acts as incentives for structural change in employment but are negatively associated with structural change in income. The studyexperienced similar result for the whole period 1983-84 to 2019-20 and for the post liberalization period 1993-94 to 2019-20.

Gaps in Research

1. Despite being the main constituent of economic growth and development, structural change has not been studied comprehensively. Although many literature analyzed the pattern of structural change in terms of income & employment separately, a comparative study by using recent disaggregated
   income & employment data at a time is still absent in the case of Indian economy.

2. Similarly, a very few literature analyzed the association of structural change in terms income & employment with economic growth. Analysis about the association of structural change and employment growth is also absent in Indian setting.

3. Theoretically, many studies designed the demand side and supply side determinants of structural change but empirical study with regard to determinants of structural change is very limited.

A systematic analysis of these issues may offer fresh insights into existing literature on structural change. Such insights may offer policy implications for growth & employment generation for Indian economy where joblessness appeared as the biggest problem. As this is a state-wise analysis, this vision has policy implications for inter- regional growth of income in Indian federation. Thus, the basic motivation for this study is to derive these insights for policy purposes, as reflected in the following objectives of the study.

Policy Suggestions

It is observed from the study that, poor states are experiencing the twin problem of low growth and unemployment in case of Indian economy. Divergence still appeared as a major problem for policy makers. Although the poor states in India experienced relatively higher structural change in their income but the structural shift in income is having a negative impact on their growth process. Structural change in income is dampening the growth rather than augmenting it. The reason is that shift of income is happening more towards tertiary sector which is considered as less productive rather than secondary sector which is recognized as more productive sector Papola (2012). Indian states, especially poor states, should undertake measures to promote industrialization. Various financial measures are required which can promote investment and hence industrialization. But it is found in the study that, poor states arecomparatively getting less credit from commercial banks as compare to rich states. Therefore, the scheduled commercial banks instead of having biasedness towards rich states should provide sufficient credit to needy states. It is found that structural change in employment positively contributing economic growth and productivity growth. Therefore, poor states should take measures to shift their employment structure rather than income structure. For that, they should promote higher education as the study found a positive and significant association between structural change in employment and human capital. Along with that, a positive association also found in between economic growth and human capital. In this respect, institutional measures such as labor market regulation & product market regulation should be designed in such a way that it can enhance structural change in employment and industrialization at a time.

The major concern which is worrisome, it is neither structural change in income nor structural the change in employment is promoting employment growth. In fact, structural change in employment is dampening employment growth. Only two factors,such as fixed capital & population growth, appeared as the contributor of employment growth. But, on the other hand, population growth is appeared as the negative stimulus from economic growth and productivity growth. So measures should be undertaken to promote fixed capital in the country. This can enhance both growth & employment at a time. In order to promote economic growth with employment growthat a time, composition of all important variables like income, employment, productivity and employment elasticity should drifted in similar direction. Because it is observed in some earlier research that, growth of manufacturing which has constantly shown high employment elasticity has registered a slow growth in income generation. On the other hand tertiary sector which have low & declining income elasticity attributed a major share to the income generation. Construction no doubt hasregistered high growth in GDP & employment but the low productivity in this sector needs utmost care. So declining employment elasticity is desirable over this sector. In case of tertiary

sector, communication & business services have been the fastest growing sectors, both of which experienced declining income elasticity. Therefore, essential policy measure should be undertaken keeping eyes on their ongoing requisitePapola (2012). It is observed earlier that, export is also not significantly contributed toemployment growth as the composition of export oriented goods are capital intensive rather than labor intensive. As Indian possesses comparative advantage in labor intensive product, measures should be undertaken to improve the production and their export in the international market. In this regard, policies should be undertaken to shrink the population growth as it is having a negative impact on the growth as well asproductivity in the economy.

It is witnessed that poor states having high share of working population in primary sector are unable to move or release their workforce to non-primary sector. So, various measures with regard to skill enhancement are required so that they can get tapped in to technology oriented secondary & tertiary sector. Because workers should be technically upgraded in order to get work in the corresponding sectors.

Indian economy is experiencing rapid growth rate in the last one decade which is appreciable. But the major concern in this aspect is its sustainability. Balance growth among the three sectors is required for sustainable growth. In case of Indian economy growth is attributed to tertiary sector which may not be successful without the growth of secondary & tertiary sector. The future growth depends on composition of growing tertiary sector in terms of whether it contributes to the capacity of primary and secondary sector. In this respect, growth of sub-sectors like transport and communication possesses the capability to maintain overall growth in medium term. Additionally growth of infrastructure sector would have to induce faster growth to sustain growth in long term Papola (2012). Further sharp divergences in the growth rate of different sectors are found to have serious implications for income distribution, inflation and current account deficit of a country Bhattacharya & Mitra (1990). Therefore, a balanced growth strategy is required to augment the growth of three sectors (Primary, secondary & Tertiary).

Future Research

It is concluded that structural change in income is negatively associated with economic growth which reveals that, poor states are experiencing more structural change in income. From Chapter third we found that poor states are shifting more towards tertiary sector which is considered as less productive instead of secondary sector which is recognized as more productive. Deindustrialization can be the reason for their low growth. In this respect, a comprehensive study should be undertaken to examine the impact of industrialization on economic growth and the determinants of industrialization.

It is observed from the fifth chapter that, given the explanatory variables in the analysis, it is neither the demand side incentive nor the supply incentives stimulating structural change in income. In this respect, further study should analyze the detail about determinants of structural change in income more expansively. The study found structural change in employment having a positive & significant impact on economic growth & productivity growth. So a further analysis should be planned to check what the other variables are working as incentives for structural change in employment.

It is observed that more or less, workers are shifting from primary sector to secondary & tertiary sector. In this regard, it is important to see the type of jobs they are availing at the secondary and tertiary sector, whether the jobs are formal or informal. An in-depth work should be designed to check the impact of structural change on types of employment. As state-wise data on product market and labor market is not available, but using some proxy variables like export data, data on Foreign Direct Investment (FDI), study can be done at aggregate level to check its association with structural change & economic growth.

References

Abramovitz, M., 1994. The origins of the postwar catch-up and convergence boom. In: Fagerberg, J., Verspagen, B., von Tunzelman, N. (Eds.), The Dynamics of Technology, Trade and Growth. Elgar, Aldershot, pp. 21 – 52.

Amable, B., 1996. The Effects of Foreign Trade, Specialization and Growth: Does Specialization in Electronics Foster Growth? TEIS Working Paper, MERIT, University of Maastricht.

Baumol, W.J.,1986. Productivity growth, convergence and welfare: what the long run data show. American Economic Review 76, 1072 – 1085.

Bernstein, J., 1997. Interindustry R&D spillovers for electrical and electronic products: the Canadian case. Economic Systems Research 9, 111 – 125.

Chung, W.K., Denison, E.F., 1976. How Japans Economy Grew so Fast: The Sources of Postwar Expansion. D.C: Brookings Institution, Washington.

Denison, E.F., 1967. Why Growth Rates Differ: Post-War Experience in Nine Western Countries. DC:Brookings Institution, Washingt on Dollar, D., Wolff, E.N., 1988. Convergence of industry labor productivity among advanced economies, 1963 – 1982, The Review of Economics and Statistics, vol. LXX, No. 4 November, 549 – 558. Durlauf, S., Johnson, P., 1995. Multiple regimes and cross-country growth behaviour. Journal of Applied Econometrics 10, 365 – 384.Fabricant, S., 1942. Employment in Manufacturing, 1899 – 1939. National Bureau of Economic Research New York. Fagerberg, J., 1994. Technology and international differences in growth rates. Journal of Economic Literature 32, 1147 – 1175. Fagerberg, J., Sollie, G., 1987. The method of constant market share analysis reconsidered .A Economics 19,

1571 – 1583.   Fagerberg, J., Verspagen, B., 1999. Modern Capitalism in the 1970s and 1980s, In: Setterfield, M. (Ed.). The Political Economy of Growth, Inflation and Employment. MacMillan, London.

Goto, A. Suzuki, K., 1989. R&D capital, rate of return on R&D Investment and Spillover of R&D in Japanese manufacturing industries, The Review of Economics and Statistics, vol. LXXI (4), 555 – 564. Griliches, Z.,   1979. Issue is assessing the contribution of research and development to productivity growth. Bell Journal of Economics 10, 92 – 116. Grossman, G.M., Helpman, E., 1991. Innovation and Growth in the Global Economy. The MIT Press, Cambridge(USA).   Henderson, R.Jaffe, A.B., Trajtenberg, M., 1993. Geographic localization of knowldge spillovers as evidenced by patent citations. Quarterly Journal of Economics 108, 577 – 598.   Lucas R.E.,1988. On the mechanisms of economic development. Journal of Monetary Economics 22, 3 – 42. Lucas R.E., 1993. Making a miracle. Econometrica 61, 251 – 272.Maddison, A.1952. Productivity in an expanding economy. Economic Journal September, 584 – 594. Maurseth, P.,Verspagen, B., 1999. Europe: One or Several Systems of Innovation?