Structural Transformation in Employment in J&K State Economy (1981-2011)

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Abstract:

The structural change theory states that as GDP per capita increases, the % share of employment in primary sector declines whereas the % share of the secondary sector initially increases and subsequently decreases ,while the % share of tertiary sector increases steadily. The structural change in employment across Jammu & Kashmir economy's key sectors is not following the path way of the structural change theory of employment which implies that percentage share of work force in primary sector declines systematically as GNP per capita income rises whereas the percentage share of both secondary and tertiary sectors workers rise to offset this decline. But, this offset takes place in such a manner that at first stage of structural change theory major percentage share of work force reallocates to secondary sector (almost 75%) and the rest is reallocated to tertiary sector and during the second stage of structural change theory of employment shift of labour force from primary and secondary sector takes place to tertiary sector.

Key words: Key sectors, Structural Transformation theory of Employment, Structural Change Index (SCI)

The term "structural change" is widely used in economic research, although with different meanings and interpretations. In development economics, the structural change is defined as a process of combining economic growth with changing share of different sectors in gross domestic product (GDP) and labour force. Historically, the most common pattern of structural change that has been observed in developed countries has followed a sequence of shift from primary to secondary and then to tertiary sector. In this pattern, an underdeveloped economy is characterized by a predominant share of primary sector, while with economic development the share of secondary sector increases and that of primary sector declines and subsequently after reaching a reasonably high level of development, the tertiary sector attains importance by becoming the dominant sector of the economy. These structural changes have been observed both in the relative share of gross domestic product and workforce.

Structural Transformation theory of Employment

Structural change theory states that one of the best known characteristics of employment in developing economies is that most share of work force comes from primary sector. Primary sector's share in employment is highest in the poorest economies and declines systematically as GNP per capita rises. The shares of both secondary and tertiary sectors employment rise to offset this decline. The offset takes place in such a way that during the first stage of structural change theory of employment most of the share shifted from primary sector to secondary sector till it reaches to maturity phase (and this stage is known as industrialization) and in the second stage of the theory, the employment share shifted from primary and secondary sectors to tertiary sector (and this stage is known as tertiarisation or post-industralisation). Similar, shift takes place in the output of the economy.

In simple words the structural change theory on sectoral shares in employment – suggests two stages of development. In the first stage, (modern stage) as countries move from low-income to lower-middle-income status, the share of both industry and services rises, the rise in the former being greater than that in the latter. In the second stage, (post modern stage) as the economy moves to upper-middle- and high-income levels, the share of industry declines and that of services increases. The similar shifts take place in respect of output across the key sectors.

Symbolic Representation of structural change theory

First Phase: During the first stage of structural change theory most of the workforce reallocates from primary sector to secondary sector till it reaches to maturity stage (i.e. its contribution to employment reaches almost 50%) and the rest gets reallocated to tertiary sector. Symbolically it may be expressed as:

$P \rightarrow S$ = most resources shifted from primary sector to secondary sector (almost 70%)
$P \rightarrow T$ = Less resources shifted from primary sector to tertiary sector (almost 30%)

Second Phase: During the second stage of structural change theory resources shifts not only from primary sector to tertiary sector but also from secondary sector to tertiary sector and that is why the secondary sector curve is hump shaped. Symbolically it may be expressed as:

$P \rightarrow T$ = resources shifted from primary sector to tertiary sector
$S \rightarrow T$ = resources shifted also from secondary sector to tertiary sector

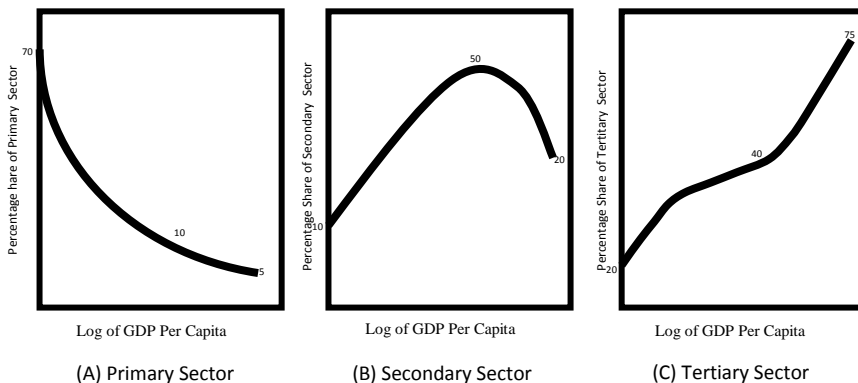## Graphic Representation of structural change theory Employment

(A) Primary Sector (B) Secondary Sector (C) Tertiary Sector

Figure: Structure Transformation in Developed Countries

Table-1: Employment Shares at Different Levels of Development (1980-1992)

GDP per capita ($)	Percent of labour force employed in		
	Agriculture	Industry	Services
less than 1000	74	8	18
1000 to 2000	65	13	22
2000 to 5000	38	22	40
5000 to 10000	24	32	44
more than 10000	6	29	65

Sources: Gillis, Perkins et al. "Economics of development" fourth *edition. P-223.*

One of the best known characteristics of labour in developing economies is that most people work in agricultural sector. Agriculture's share of the labour force is highest in the poorest economies and declines systematically as GNP per capita rises. The shares of both secondary and tertiary sectors workers rise to offset this decline (table 6.6).

Table-2: Fourasite's Employment Structural Transformation

Time Period	Primary Sector	Secondary sector	Tertiary Sector	Total
Traditional Civilization	70%	20%	10%	100
Transitional Period	20%	50%	30%	100
Tertiary Civilization	10%	20%	70%	100

Fourasite's Employment Structural Transformation divides the society into three stages viz; traditional civilization, transitional period and tertiary civilization. In the traditional civilization primary sector is dominating sector in respect of employment whereas the transitional period is dominated by secondary sector and finally the tertiary civilization is dominated by the tertiary sector:

Countries	Table-3: Percentage sectoral shares in Employment of Selected Developed Countries in the year 2006		
	Agriculture	Industry	Services
United Kingdom	1	25	74
United States	2	24	74
France	3	25	72
Japan	5	31	64
Germany	3	33	64
Italy	5	32	63
Australia	5	21	74

Source: *Computed from World Development Report, 2008.*

Table 2.1 shows the percentage sectoral shares of employment of some selected developed countries in the year 2006. What is interesting to observe is that by the end of the twentieth century most of the developed countries showed a remarkably similar employment structure of their economies. Thus, primary sector contributed less than 5 percent in employment, secondary sector 20 percent to 30 percent and services around 70 percent in all of them. The most striking feature is that today the employment structure of most developed countries is

strikingly similar to their production structure, thus, reflecting a high degree of inter-sectoral equality in their productivity and income levels.

Table-4: Percentage sectoral shares in Employment of selected developing Asian (1960-2006)

Country	Sector					
	Primary		Secondary		Tertiary	
	1960	2006	1960	2006	1960	2006
China	69	43	18	25	13	32
Indonesia	75	42	08	18	17	40
Thailand	84	42	04	21	12	37
Philippines	61	35	15	14	24	51
Malaysia	63	14	12	31	25	55
Republic of Korea	66	08	09	25	25	67
Pakistan	61	53	18	18	21	29
India	74	53	11	19	15	28

Source: Computed from World Development Report, 2008

The Table 2.2 depicts the changing sectoral shares in employment of these selected developing countries of Asia for the year 1960 and 2006. In consonance with the historical experience of developed countries the share of primary sector in employment has been continuously declining in all of these countries including India. However, in these countries this corresponding shift in labour force from primary sector to other sectors has been relatively much slower as compared to their GDP shares.

Objectives

The explicit objectives of the study are:
1) To analyze the changes in volume and composition of employment in the primary, secondary and tertiary sectors of the state economy.
2) To examine the process and nature of structural transformation of employment in the state economy.

Data and Methodology

The study is primarily based on the secondary data that is obtained from the following sources:

- Economic census, Government of India, various issues.
- Digest of statistics; Directorate of Economics and Statistics; Government of J&K, various issues.
- Economic Survey; Directorate of Economics and Statistics; Government of J&K, various issues.
- Economic Review of J&K; Directorate of Economics and Statistics; Government of J&K, 2007-08.
- Reports, journals, magazines and news papers.

In addition to the above sources relevant information has been collected from the following departments:

- Directorate of Economics, Statistics & planning, Government of Jammu and Kashmir, Srinagar.
- Directorate of Sericulture, J&K, Srinagar.
- Directorate of Handicrafts, J&K, Srinagar.
- Directorate of Handlooms, J&K, Srinagar.
- Labour Commissioner, J&K, Srinagar.

The following appropriate statistical tool has been used to analyze the data:

Structural Change Index Method (SCI)

A commonly used method of measuring structural change in employment (and out-put) is the rate or coefficient of (compositional) structural change, often referred to as a SCI. The SCI for employment may be defined as half the sum of the absolute value of the differences in employment over time. The calculation is given by the formula:

$$SCI = \tfrac{1}{2} \sum | x_{i\,(t)} - x_{i\,(t-1)} |$$

Where $X_{i,(t)}$ and $X_{i,(t-1)}$ represent each industry's percentage share in employment at time (t) and (t-1), respectively. The use of absolute values ensures that positive and negative changes in industry share do not cancel each other out when the values are summed across industries. The SCI is bound between zero and 100, with zero representing no structural change while 100 indicates a complete reversal of structural change.

Occupational Structure Trends of Jammu & Kashmir Economy (1981 - 2011)

Jammu and Kashmir State is the northernmost state of India. It is situated mostly in the Himalayan Mountains. J&K State shares a border with the states of Himachal Pradesh and Punjab to the south and internationally with China to the north and east and the Pakistan occupied Kashmir and Gilgit-Baluchistan, to the west and northwest respectively.

The present occupational structure clearly reflects the backwardness in J&K economy. We shall now examine whether occupational distribution of labor force has changed since 1981. We notice that since 1981 until now primary sector remains the main occupation of the people, as employment in it never falls below 40%. According to census 1981, the total labor force employed in primary sector was 63.88%. But there was gradual decrease in primary sector labor force from 1981 to 2011. In 1981 the total percentage of labor force employed in primary sector was 63.88%, but in 1991, 2001 and 2011, these numbers declined to 58.89%, 52.23% and 41.48% respectithere is 22.4% points decline in labor force employed in primary sector since last three decades.

Table-5: Sectoral Occupation Structure (Percentage)

Occupation	1981	1991	2001	2011
Primary sector	63.88	57.96	50.1	41.48
Secondary sector	14.25	9.51	6.23	3.99
Tertiary sector	21.87	32.53	43.67	54.53

Source: compiled from census of India, various issues.

Considering the overall performance of secondary sector in terms of employment of labour force it looks that persistent decline has happened in this sector. In 2011, 3.99% of labor force was employed in this sector as against 14.25% in 1981.Since 1981, there was a continuous decline in employment of work force in the secondary sector and it declined more rapidly during the last decade of the reference period.

There is a terrific and continuous rise in the percentage of labor force employed in service sector since 1981 upto 2011. In 1981 the total labor force employed in tertiary sector was 12.89% which rises to 31.35% and 54.53% in 2001 and 2011 census respectively.
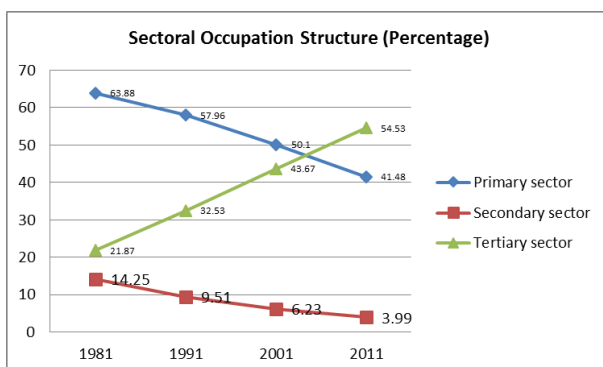

Table-6: Decadal Occupational Structural shifts in Key Sectors of J&K Economy (1981-2011)

Sector	1981	1991	Change in %pt.	SCI	1991	2001	Change in %pt.	SCI	2001	2011	Change in %pt.	SCI
Primary	63.88	57.96	-5.92		57.96	50.1	-7.86		50.1	41.48	-8.62	
Secondary	14.25	9.51	-4.74	10.66	9.51	6.23	-3.28	11.1	6.23	3.99	-2.24	10.9
Tertiary	21.87	32.53	10.66		32.53	43.67	11.14		43.67	54.53	10.86	
Total	100	100			100					100		

Source: Compiled from Census of India, various issues.

The above table depicts that structural change index of occupational structure has increased continuously during the

reference period. It was 10.66% during the first decade of the reference period which reached to 11.1% in second decade and finally it increased to 10.9% during the last decade of the reference period. Therefore, there was a continuous increase in structural occupation in the state economy.

The occupational structural change index was 10.66% during the first decade of the reference period. This suggests that 10.66% work force has shifted from primary and secondary sectors to tertiary sector of an economy. The magnitude of shift in percentage from primary to tertiary sector is 55.53% whereas from secondary sector to tertiary sector is 44.46%.

The occupational structural change index was 11.1% during the second decade of the reference period. This suggests that 11.1% work force has shifted from primary and secondary sectors to tertiary sector of the economy. The magnitude of shift in percentage from primary to tertiary sector is 70.81% whereas from secondary sector to tertiary sector is 29.19%.

The occupational structural change index was 10.9% during the third decade of the reference period. This suggests that 10.9% work force has shifted from primary and secondary sectors to tertiary sector of the economy. The magnitude of shift in percentage from primary to tertiary sector is 79.08% whereas from secondary sector to tertiary sector it is 20.92%.

Table-7: (30- yearly) Occupational Structural shifts in Key Sectors of J&K Economy (1981 – 2011)

Sector	1981	2011	Change in %pt.	SCI
Primary	63.88	41.48	-22.4	
Secondary	14.25	3.99	-10.26	**32.66**
Tertiary	21.87	54.53	32.66	
Total	100	100	0	

Source: Compiled from Census of India, various issues.

Note: Occupational Structural shifts in Key Sectors of J&K Economy(30-yearly)

The above table depicts that structural change across three key sector of Jammu and Kashmir economy is equal to 32.66 percent which implies that during the 30-year period, 32.66% resources have been reallocated to tertiary sector from primary and secondary sectors of economy. The resources shift from primary sector to tertiary sector is equal to 22.4% (i.e. 69%) whereas from secondary sector to tertiary sector it is equal to 10.26%. (i.e. 31%).

Conclusion

Therefore, it becomes clear that the structural change in occupation in all the three decades across its key sectors is not following the path way of the structural change theory of employment which implies that percentage share of work force in primary sector declines systematically as GNP per capita income rises whereas the percentage share of both secondary and tertiary sectors workers rise to offset this decline. But, this offset takes place in such a manner that at first stage of structural change theory major percentage share reallocates to secondary sector (almost 75%) and the rest is reallocated to tertiary sector and during the second stage of structural change theory of employment shift of labour force from primary and secondary sector takes place to tertiary sector. But, shift from secondary sector takes place after the maturity stage (i.e. after 50% contribution to economy).

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