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Nature and Momentum of Structural Transformation in Himachal Pradesh

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ABSTRACT

This present study analysis on the nature and speed of structural transformation in different components of Himachal Pradesh economy. Components are the different sub-sectors of GSDP. The study is based on secondary data collected from various reports of economic survey and statistical abstracts of Himachal Pradesh. Data on state gross domestic product and its components at constant prices from 1980-81 to 2015-16 was evaluated. The nature of structural transformation in different component was estimated by following eleven different kinds the relative growth rates and speed of structural transformation and for measuring the speed of structural transformation during different spans of time, the indexes θ (Moore, 1978) and ξ (Sethi, 2003) were used. During the entire study period the Mining and Quarrying; Manufacturing; Electricity, Gas, Water Supply and other utility Services; Transport by Other Means; Communication; Trade Repair, Hotel and Restaurant Services; Financial Services; Real Estate and Ownership of Dwelling and Professional Services; Public Administration and Other Services displayed an increasing trend in relative share, while the relative share of railways and storage sub-sector almost remains the minimum and stagnant. The relative share of Agriculture and Animal Husbandry, Forestry, and Logging, Fishing, and construction sub-sector displayed a declining trend. In the process of structural transformations, the relative share of the primary sector declined in Himachal Pradesh economy. Whereas, those of tertiary and its sub-sectors has increased, particularly during post-liberalization period. The relative share of secondary sector has remained more or less stagnant. Further, speed of structural transformation has faster during post-liberalization than that during pre-liberalization, which indicated that economy of Himachal Pradesh has been developing.

Keywords: Structural Transformation, Components, GSDP and Himachal Pradesh

1. Introduction

After attaining the statehood in 1971, Himachal Pradesh experienced significant economic growth. Historically agricultural and allied activities that is Primary sector was dominated one followed by secondary and tertiary sector. With the passage of time state undergone a notable structural transformation. Himachal Pradesh has done remarkable progress in education, health, tourism, human development and transportation sector.

During the process of development, when the basket of income enlarges, a shift in the economic activity occurs away from agriculture and towards the manufacturing and service activities. This results in the diminishing significance of primary producing activities and growing dominance of secondary and tertiary activities. The structural shifts are best illustrated in terms of shifts in relative shares of agriculture, industrial and service sectors in domestic product. As per Chenery et al. (1974), in most of the developed countries, the service sector experienced accelerated growth only after a specific development take place in agriculture and industry. That is economic development follows a sequence, wherein, after the development of agriculture, industry and service sector get an impetus in that order.

Investigation of the growth performance and structural transformation at the aggregated/disaggregated level could prove beneficial from the policy perspective. Knowledge of such changes in income may turn out to be instrumental in framing suitable public policies, which could help in inducing a balanced growth pattern in developing a better perspective about possible feedback mechanisms that may exist across different sectors. Keeping this in view, the present chapter has been devoted to an examination of overall performance of Himachal Pradesh economy which includes the growth performance, relative growth rates, pooled growth rates, turning point and kinked growth rates in real GSDP of different sectors and sub-sectors of Himachal Pradesh and nature and speed of structure transformation in respect of domestic product for the Himachal Pradesh economy.

Thirty six years (1980-81 to 2015-16) data of Himachal Pradesh gross state domestic product including four sectors and twenty four sub-sectors, population and per capita income viz., agriculture and animal husbandry (AGRL); forestry and logging (FRLG); fishing (FSNG); mining and quarrying (MNQR); primary sector (PRMR); manufacturing (MNFG); construction (CNST); electricity, gas, water supply and other utility services (EGWS); secondary sector (SCDR); transport, storage and communication (TRSC); railways (RLWS); transport by other means (TROM); communication (COMM); storage (STRG); trade repair, hotel and restaurant services (THRS); total- transport, communication and trade, repair, hotel and restaurants (TRCT); financial services (FNSC); real estate and ownership of dwelling and

professional services (REDS); total- financial services and real estate (FSRE); public administration (PBAD); other services (OTSR); total- communication and personal services (CMPS); tertiary sector (TRTR); gross state domestic product at constant price (GSDP); population in lakhs (PPLN) and per capita income in rupees (PCIN) was taken at constant prices with base year 2011-12 which was again indexed for the base year 2011-12. To find the kinked, pooled growth rates and turning points in the Himachal Pradesh economy.

2. Methodology

The present study is based on quantitative research and secondary data have been used.

2.1 AIC Criteria:

Following Stock and Watson (2003)[1], Akaike's Information Criterion (AIC) of a model involving p unknowns was obtained as:

$$AIC(p) = \ln\left(\frac{RSS\,(p)}{n}\right) + (p+1)\,\frac{2}{n}$$

where RSS (p) stands for the sum of the residuals of squares of the estimated model; n is the total number of observations in the time series, and ln stands for natural logarithm. In comparative terms, smaller the value of AIC, better is the model.

2.2 Relative Growth Rates

With the help of the best-fit functional form, relative growth rates (RGR_t) in the time-series $\{Y_t\}$ in respect of different components of gross domestic product were computed. As per Rudra (1970)[3], $RGR_t = Y_t/Y_1$ where $Y_t = [dy/dt]$ represents the time derivation of Y_t.

For different functional forms, the derived expressions (by Sethi, 2008)[4] for relative growth rates were:

1. SLR $= \frac{b_1}{b_0+b_1t}$
2. PRB $= \frac{b_1+2b_2t}{b_0+b_1t+b_2t^2}$
3. CUB $= \frac{b_1+2b_2\,t+3b_3t^2}{b_0+b_1t+b_2t^2+b_3t^3}$
4. LLN $= b_1$
5. LPB $= b_1 + 2b_2t$
6. LCB $= b_1 + 2b_2t + 3b_3t^2$
7. GEO $= \frac{b_1}{t}$
8. HYP $= \frac{b_1}{(b_1+b_0\,t)\,t}$

9. MEX $= \frac{(b_0 b_1 t) Inb_1}{k + b_0 b_1^t}$

10. GOM $= Inb_0 . Inb_1 . b_1^t$

11. LGS $= \frac{-(b_0 b_1^t) Inb_1}{1 + b_0 b_1^t}$

Such growth rates were computed at different points in time so as to examine of consistency, acceleration or deceleration regarding behavioral growth paths traced by the different components. For this purpose, the temporal change in the relative growth rates was depicted against time graphically.

2.3 Nature and Speed of Structure Transformation

Nature of structural transformations was assessed through shifts in the relative shares of different sectors in aggregated value of the study variable (say, income) of the given economy. For measuring the speed of structural transformations during different spans of time, the indexes θ (Moore, 1978) and ξ (Sethi, 2003) were computed as:

$$\theta = \cos^{-1}\left[\frac{\sum_{i=1}^{n} W_{0i} W_{1i}}{\sqrt{\sum_{i=1}^{n} W_{0i}^2 \sum_{i=1}^{n} W_{1i}^2}}\right]$$

$$\xi = [1 - (1/n)\, e^E] \times 100$$

where e stands for base of the natural logarithm and E (= $-\sum_{i=1}^{n} W_i \ln W_i$) for the entropy measure between relative shares (W_is) of the n distinct components of the variable.

3. Result and Discussion

This section is divided into two sub-sections. In the first sub-section, relative share of different components of state gross domestic product were computed as a percentage of aggregated domestic product so as to examine the nature of structural transformation and, in the second sub-section, analysis is based upon the indexes [viz., θ due to Moore (1978) and ξ due to Sethi (2003)] has been presented so as to assess the speed of structural transformations in different components of state gross domestic product in Himachal Pradesh economy.

3.1 Nature of Structure transformations in Different Components of State Gross Domestic Product

Table 1 revealed that the Himachal Pradesh economy has witnessed voluminous structure transformations. For instance, during the entire study period, the relative share of

agriculture and animal husbandry has declined from 10.29 to 9.6 percent in Himachal Pradesh economy. The share of forestry and logging sub-sector almost remained stagnant during the entire study period from 5.83 to 5.27 percent. The share of fishing sub-sector also remains almost stagnant during the entire study period from 0.05 to 0.01 percent. The share of mining and quarrying sub-sector also remain the same for the entire study period from 0.07 to 0.33 percent. During the entire study period, the relative share of manufacturing sub-sector has increased substantially–from 1.5 to 24.79 percent. Construction sub-sector has been dominating in relative share from 1980 to 1995 afterward it declined substantially from 1995 to 2000 and started declining continuously.

Table 1
Structure Transformation Points in Time - Himachal Pradesh

	1980	1985	1990	1995	2000	2005	2010	2015
AGRL	10.29	10.21	8.67	7.93	17.81	17.59	12.98	9.6
FRLG	5.83	4.88	3.98	3.61	7.31	6.66	4.75	5.27
FSNG	0.05	0.07	0.11	0.1	0.19	0.13	0.07	0.1
MNQR	0.07	0.18	0.22	0.23	0.46	0.39	0.57	0.33
MNFG	1.5	2.39	3.43	4.8	14.54	15.36	25.44	24.79
CNST	64.57	62.96	63.47	64.17	13.86	14.77	9.36	7.78
EGWS	0.46	1.74	2.43	3.54	7.83	6.77	9.24	7.68
RLWS	0.03	0.04	0.04	0.04	0.09	0.07	0.03	0.02
TROM	0.42	0.49	0.53	0.69	2.4	3.04	2.44	4.17
COMM	0.48	0.58	0.53	0.67	1.66	2.62	2.07	1.91
STRG	0.01	0.01	0.01	0.01	0.01	0.01	0	0
THRS	1.74	1.99	2.13	2.17	5.98	6.13	6.44	6.92
FNSC	0.59	1.18	1.54	1.91	4.81	3.52	3.49	3.61
REDS	10.74	9.3	8.05	5.8	10	10.13	8.23	12.09
PBAD	1.3	1.72	2.02	1.66	4.79	5.33	5.72	5.74
OSTER	1.93	2.28	2.84	2.67	8.26	7.49	9.16	9.99

Source: Author's Computations

Electricity, gas, water supply and other utility services sub-sector displayed a continuous increase in its relative share during the entire study period from 1.5 to 24.79. During the entire study period, the relative share of railways sub-sector has displayed the minimum and stagnant relative share from 0.03 to 0.02 percent. The relative share of transport by other

means increased slightly during the entire study period from 0.42 to 4.17 percent. The communication sub-sector displayed a prolonged increase in its relative share during the entire study period from 0.48 to 1.91 percent. The relative share of storage sub-sector comes to zero from 0.01 percent. The relative share Trade Repair, Hotel and Restaurant Services sub-sector has increased more than three times from 1.74 to 6.92 percent. The relative share financial services sub-sector has also increased more than six times from 0.59 to 3.61 percent. The relative share real estate and ownership of dwelling and professional services sub-sector have increased slightly from 10.74 to 12.09 percent. The relative share public administration sub-sector has increased more than four times from 1.3 to 5.74 percent. The relative share other services sub-sector has increased more than five times from 1.93 to 9.99 percent.

During the entire study period the Mining and Quarrying (MNQR); Manufacturing (MNFG); Electricity, Gas, Water Supply and other utility Services (EGWS); Transport by Other Means (TROM); Communication (COMM); Trade Repair, Hotel and Restaurant Services (THRS); Financial Services (FNSC); Real Estate and Ownership of Dwelling and Professional Services (REDS); Public Administration (PBAD) and Other Services (OTSR) displayed an increasing trend in relative share, while the relative share of railways and storage sub-sector almost remains the minimum and stagnant. The relative share of Agriculture and Animal Husbandry (AGRL), Forestry, and Logging (FRLG), Fishing (FSNG), and construction sub-sector displayed a declining trend.

3.2 Speed of Structure Transformations in Different Components of State Gross Domestic Product in Himachal Pradesh Economy

The pace of structural transformation in respect of state gross domestic product of Himachal Pradesh measured with the help of two different indexes– due to Moore θ and based on Entropy ξ. The two indexes have not been able to provide us with an identical picture, which, however, is not an unusual phenomenon. For instance, as per the index theta, as per the index theta, the speed of structural transformations in different components of state gross domestic product of Himachal Pradesh during the pre-liberalization period (i.e., 1980-81 to 1990-91) slower (4.0722 *versus* 53.8413) than that during the post-liberalization period (1990-91 to 2000-01). However, as per the index exile, the picture was just the opposite (i.e. 16.2652 *versus* 10.3994). Here it may be mention that the measure theta is relatively more sensitive than exile to the structure transformations because the C.V. value of theta (i.e., 97.09) is higher than the C.V. value of exile (i.e. 93.05). Therefore, the theta accepted as superior to exile for the

calculation of structural transformation in different components of state gross domestic product.

Table 2

Indexes theta and exile of the speed of Structure Transformations in Different Components of State Gross Domestic Product in Himachal Pradesh Economy

Period	Θ	ξ
1980-81 to1985-86	2.0525	9.5241
1985-86 to 1990-91	2.3476	2.0944
1980-81 to 1990-91	4.0722	16.2652
1990-91 to1995-96	2.7119	2.0248
1995-96 to 2000-01	54.1574	6.5619
1990-91 to 2000-01	53.8413	10.3994
2000-01 to 2005-06	4.5579	2.2127
2005-06 to 2010-11	21.4902	8.9308
2000-01 to 2010-11	22.069	10.5369
2010-11 to 2015-16	9.7298	3.8798
1980-81 to 2000-01	54.1365	28.2733
2000-01 to 2015-16	25.4729	12.7511
1980-81 to 2015-16	68.6246	39.2241
CV (%)	97.09	93.05

Source: Author's Computations

If the whole study divided in two time periods, then the speed of structural transformations in different components of state gross domestic product of Himachal Pradesh during first half, as per the index theta, (i.e., 1980-81 to 2000-01) is fast (i.e. 54.1365 *versus* 28.2733) than that during second half (2000-01 to 2015-16). However, as per the index exile, the picture was just the opposite (i.e. 25.2729 *versus* 12.7511). For the whole study period also (i.e., 1980-81 to 2015-16), the speed of structure transformation was slow in index exile than index theta (i.e., 39.2241 *versus* 68.6246).

4. Conclusion

In the process of structural transformations, the relative share of the primary sector declined in Himachal Pradesh economy. Whereas, those of tertiary and its sub-sectors has increased, particularly during post-liberalization period. The relative share of secondary sector has remained more or less stagnant. Further, speed of structural transformation has faster during post-liberalization than that during pre-liberalization, which indicated that economy of Himachal Pradesh has been developing.

Reference

A. K. Tiwari, "*Infrastructure and Economic Development in Himachal Pradesh"*, Indus Publishing Company, New Delhi, 2005, pp. 32.

A.S. Sethi, "Inter-Sectoral Linkages in Haryana's Income – A Temporal Analysis", *Artha Vijnana*, 45(3&4), 2003, pp. 147-60.

A.S. Sethi, "Some Further Aspects of Rates of Growth Computations", *Journal of International Economics*, 1(2), 2010, pp. 57-70.

A.S. Sethi, "Some Methodological Aspects of Rates of Growth Computations: Limitations and Alternatives", *South Asia Economic Journal*, 9(1), 2008, pp. 195-209.

Croxton, E., Frederick and Cowden, J. Dodley, (1956). *Applied General Statistics*. Second Edition, London, pp. 302-303.

Government of Himachal Pradesh. (2013). *Statistical Abstract of Himachal Pradesh*. Shimla: Department of Economics & Statistics, 20-35.

Government of Himachal Pradesh. (2014). *Statistical Abstract of Himachal Pradesh*. Shimla: Department of Economics & Statistics, 50-68.

Government of Himachal Pradesh. (2015). *Statistical Abstract of Himachal Pradesh*. Shimla: Department of Economics & Statistics, 30-40.

Gujrati, N., Damodar, & Porter, C., Dawn, (2009). *Basic Econometrics*, The McGraw-Hills, Fifth Edition, New Delhi, pp. 39-40.

J.H. Moore, "A Measure of Structural Change in Output", *Review of Income and Wealth*, 24(1), 1978, pp. 105-18.

J.K. Boyce, "Kinked Exponential Models for Growth Rate Estimation", *Oxford Bulletin of Economics and Statistics*, 48(4), 1986, pp. 385-91.

M., C. Latha, & Shanmugam, V. (2014). *Growth of Service Sector in India*, IOSR Journal of Humanities and Social Science, Ghaziabad, Volume 19, Issue 1, pp. 08-12.

Sethi, A.S. (1997), "*Dynamics of National Income"*, Deep and Deep Publications, New Delhi.

Sharma, L. R. (2007), "*Perspectives on Growth-Oriented Hill Economy"*, Mittal Publication, Delhi.

Sharma, L. R. (1987), "*The Economy of Himachal Pradesh Growth and Structure"*, Mittal Publication, Delhi.

Soren, Kjeldsen-Kragh, (2007). *The Role of Agriculture in Economic Development: The Lessons of History*. Copenhagen Business School Press, Dan Kragelund. p. 73.

The Government of Himachal Pradesh. (2018-19). *Economic Survey of Himachal Pradesh*. Economics and Statistics Department, Shimla, pp. 09.

The Government of India. (2019). *Economy of Indian States.* Ministry of Statics and Programme Implementation, New Delhi.