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Growth and Pattern of Net State Domestic Product: A Comparative Study of Punjab and Haryana

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Abstract: *The state domestic product (SDP) commonly known as state income is one of the important indicators to measure the economic development of the state. Both Punjab and Haryana are the neighboring states of India. These states have played an active role in bringing about green revolution in the Indian economy. During the 1970's, Punjab was projected as a role model of development for the other states and Haryana was the first state in the country to achieve 100 per cent rural electrification in the same year. These states have also achieved a phenomenal growth in the field of net state domestic product (NSDP). No doubt, both of these states have experienced significant structural transformation but the process accelerated with the country's adoption of a new economic policy by the country in 1991. The main objectives of the study examined the growth and pattern of NSDP and comparative analysis of Punjab and Haryana. The study has been based on secondary data collected from various issues of Statistical Abstracts of Punjab and Haryana and covering the period from 1991-92 to 2015-16.*

Introduction

The state domestic product (SDP) commonly known as state income is one of the important indicators to measure the economic development of the state. In the context of planned economic development of any state, State Income and Per Capita Income (PCI) play a vital role in formulation of policies by policy makers, planners and administrators. These estimates serve as an indicator to assess the status of the economy among the states in the country as well as overall impact of various developmental programmes implemented by the Government. It gives an overall picture of the economy over the period of time (Economic Survey, 2005-06).

The state domestic product (SDP) is defined as the aggregate of the economic value of all goods and services produced within the boundaries of the state. These estimates are

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prepared both at current and constant prices. The state domestic product estimates at current prices are obtained by evaluating the goods and services at prices prevailing during the particular year. The estimates of state domestic product at current prices, over the period of time do not reveal actual economic growth because these contain the combined effect of (i) the changes in volume of goods and services and (ii) the changes in the prices of goods and services. In order to eliminate the effect of price changes or inflation, the estimates of state domestic product are estimated by evaluating the goods and services at the prices prevailing in the base year known as estimates at constant prices (GoD, 2007). As an economy grows it will undergo some structural changes. Structural changes of an economy have been a subject of analysis right from the era of pre-classical economists like William Petty (1691) to the era of modern economists like Holis Chenery (1975), Simon Kuznets (1966) etc. According to them, an underdeveloped economy is characterized by a pre-dominant role of agriculture and other allied activities. As economic development proceeds, the role of industry increases and that of agriculture declines and subsequently after reaching a reasonably high level of development, the service sector increases in importance, becoming a major component of economy. This pattern has not only been observed historically, but also across the countries with different levels of development. Structural shifts and changing sectoral shares are found to hold good for both the national product and the work-force. Structural economists like Colin Clark, Fisher, Kuznets, etc. have empirically demonstrated that growth is brought about by changes in structural composition. Indian economy also has been experiencing major structural changes in the recent decades. All developed countries have gone through a process of structural change which implied movement from agricultural sector to the industrial sector and then finally to the service sector. Given India’s present stage of development, industrial growth would be considered to be the engine of growth (Maurya and Vaishampayan, 2012). In this paper, we shall discuss the growth and structural change in the economy of Punjab and Haryana in the period of twenty-five years, i.e., from 1991-92 to 2015-16. We would specifically examine the structure, growth and trends in NSDP.

Objectives of the Study

1. To analyze the growth and pattern of Net State Domestic Product in Punjab and Haryana.
2. To analyze the comparative analysis of Net State Domestic Product in both the states.

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Methodology

The study has been based on secondary data collected from various issues of Statistical Abstracts of Punjab and Haryana. The study using time series data covering the period from 1991-92 to 2015-16 is to estimate the growth rates and net state domestic product of Punjab and Haryana with the help of various major variables, Compound Annual Growth Rate (CAGR) has been calculated by using formula $Y= (ab^t)$. Primary Sector, Secondary Sector and Tertiary Sector are the main components of NSDP of any economy.

Growth and Pattern of Net State Domestic Product in Punjab

The composition of the Net State Domestic Product (NSDP) reveals that the share of the primary sector comprising of agriculture and allied sectors, has constantly been declining, whereas the share of the secondary sector comprising of manufacturing, construction, electricity, gas & water supply segments, and the tertiary sector comprising of trade, transport, banking, ownership of dwellings and other services is constantly increasing. There has been a decline in the share of the agricultural sector in the NSDP, mainly on account of the high growth of service sector. The main reasons behind the growth of service sector are rapid urbanization, the expansion of the private and public sector to foster new employment opportunities, innovation, technology and increased demand for intermediate and final consumer services. Access to efficient services has become essential for the productivity and competitiveness of the state economy. All this has consequently adversely impacted agricultural sector.

The growth and pattern of Net State Domestic Product (NSDP) at factor cost in the Punjab state during the period from 1991-92 to 2015-16 has been presented in the Table 1. The table clearly shows that NSDP of the Punjab state at constant prices throughout the period has been continuously increasing. It was Rs. 20245.04 crore in 1991-92 which has risen to Rs. 79299.92 crore in 2015-16. The contribution of primary, secondary and tertiary sector in NSDP increased from Rs. 9516.44 crore, Rs. 4095.56 crore, and Rs. 6633.04 crore respectively in 1991-92 to Rs. 24369.02 crore, Rs. 18063.06 crore and Rs. 36867.84 crore respectively in 2015-16. But sectoral share reveals that it is decreasing in primary sector whereas it shows an increasing tendency in secondary and tertiary sectors. However, the tertiary sector showed relatively faster growth in the share of NSDP as compared to that of

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the secondary sector. The share of primary sector in NSDP which was 47.01 per cent in 1991-92 has decreased to 30.73 per cent in 2015-16. The share of secondary sector shows a little change over the period of time, as it has increased from 20.23 to 22.78 per cent in 1991-92 to 2015-16. A steady increase during the second decade but relatively a small overall increase during the study period in the share of secondary sector in NSDP is noticed. On the other hand tertiary sector shows a significant increase over the period of time as its percentage share in the NSDP increased from 32.76 per cent in 1991-92 to 46.49 per cent in 2015-16. Over a period of time, there have been structural changes in the contribution of various sectors to NSDP in Punjab. Hence, in terms of contribution to NSDP, the primary sector is losing its share and both secondary and tertiary are gaining the ground. The tertiary sector has emerged as a more dominant sector compared respectively with the primary and secondary sectors during the period under study.

The average contribution of NSDP has also been calculated for the period from 1991-92 to 2015-16. On an average, the NSDP in Punjab was estimated to be Rs. 43699.52 crore during the study period. Out of which 35.06 per cent was contributed by primary sector, 22.90 per cent by secondary sector and 42.02 per cent by tertiary sector. Tertiary sector was found to be the major contributor in NSDP.

Table 1: Growth and Pattern of NSDP at Factor Cost in Punjab at Constant Prices

(Base Year: 1991-92) (Rs. in crore)

Year	Primary Sector	Secondary Sector	Tertiary Sector	Total NSDP
1991-92	9516.44 (47.01)	4095.56 (20.23)	6633.04 (32.36)	20245.04 (100)
1995-96	10654.06 (45.18)	5224.69 (22.16)	7703.49 (32.67)	23582.23 (100)
1999-00	14072.97 (39.91)	7155.37 (20.29)	14030.73 (39.79)	35259.07 (100)
2003-04	13498.90 (35.49)	7640.85 (20.09)	16897.46 (44.42)	38037.21 (100)
2007-08	17583.51 (33.35)	14170.69 (26.88)	20967.81 (39.77)	52722.01 (100)
2011-12^{R}	20231.12 (31.04)	15545.66 (23.85)	29395.80 (45.10)	65172.58 (100)
2012-13^{P}	20351.31	15806.62	31063.64	67221.56

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	(30.27)	(23.51)	(46.21)	(100)
2013-14^{Q}	20988.68 (29.72)	16106.01 (22.81)	33516.22 (47.47)	70610.92 (100)
2014-15^{A}	21437.26 (28.21)	17002.36 (22.37)	37554.56 (49.42)	75994.18 (100)
2015-16*	24369.02 (30.73)	18063.06 (22.78)	36867.84 (46.49)	79299.92 (100)
Average	15322.45 (35.06)	10016.20 (22.92)	18360.87 (42.02)	43699.52 (100)
CAGR	**(3.69)**	**(6.97)**	**(7.88)**	**(6.06)**

Source: Statistical Abstract of Punjab, Various Issues
Note: CAGR= Compound Annual Growth Rate, R=Revised, P=Provisional, Q=Quick Estimate, A=Advanced, (*) = Estimates of NSVA at factor cost (earlier called NSDP at factor cost) can be compiled by using the estimates of NSVA at basic prices.

The Compound Annual Growth Rate (CAGR) of NSDP has been estimated and the data shows that during the study period Punjab economy has grown at 6.06 per cent rate of growth. The sectoral growth of primary, secondary and tertiary sector has also been estimated during the study period. The growth rate of primary, secondary and tertiary sector was found to be 3.69, 6.97 and 7.88 per cent respectively. This reveals that tertiary sector recorded the highest growth rate as compared to primary sector and secondary sector during the study period. The primary sector growth in Punjab NSDP has been rapidly declining during the study period mainly due to the higher growth of industrial and service sector. The declining growth rate represents the structural transformation of the economy from agriculture to other sectors of the economy.

The agriculture sector in the state has been showing signs of a serious slowdown over the period of time. There has been a tremendous scope for the growth of manufacturing and service sectors in the state of Punjab. It is essential for Punjab to strengthen its manufacturing and service sectors which offer huge potential for growth and development in the state.

Growth and Pattern of Net State Domestic Product in Haryana

Net state domestic product (NSDP) at factor cost in the Haryana state at constant prices throughout the period has been continuously increasing. It was Rs. 14638.97 crore in 1991-92, Rs. 31249.75 crore in 2001-02, Rs. 78272.91 crore in 2011-12 and Rs. 98633.67 crore in 2015-16 as shown in Table 2. The table clearly shows that the share of primary sector, secondary sector and tertiary sector has also been increasing in absolute terms. In

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1991-92, the contribution of primary, secondary and tertiary sectors in NSDP was Rs. 6642.20 crore, Rs. 3246.10 crore and Rs. 4750.67 crore respectively, which increased to Rs. 20137.90 crore, Rs. 30490.48 crore and Rs. 48005.30 crore in 2015-16 respectively. As far as the composition of NSDP is concerned, the share of primary sector has been decreasing but revealed an increasing tendency for secondary and tertiary sectors. The percentage share of primary sector in NSDP was 45.37 per cent in 1991-92 which decreased to 20.42 per cent in 2015-16. This percentage decline in the primary sector has been accompanied by an impressive jump in the share of the tertiary sector in NSDP of Haryana. The percentage share of secondary sector in NSDP has increased from 22.17 per cent in 1991-92 to 30.20 per cent in 2004-05, but this share had declined to 24.02 per cent by 2014-15 and further increased to 30.91 per cent in 2015-16. This is mainly due to the reason that the industrial development in Haryana is quite satisfactory especially in Gurgaon and Faridabad region. The percentage share of tertiary sector in NSDP was 32.45 per cent in 1991-92 but has increased to 48.67 per cent in 2015-16. It means that there is sharp increase in tertiary sector's share in NSDP. Hence, in terms of contribution to NSDP, the primary sector is losing its dominant position to both secondary and tertiary sectors as these have been gaining ground especially the tertiary sector which has now become a dominant sector.

The average contribution of NSDP in Haryana has also been calculated. On an average NSDP in Haryana state was estimated to be Rs. 45333.90 crore during the study period which comprised of 25.19 per cent from primary sector, 26.91 per cent from secondary sector and 47.90 per cent from tertiary sector. Sectoral average contribution has been increasing for all the three sectors over the period of time. But tertiary sector was found to be the major contributor in NSDP of Haryana.

Table 2: Growth and Pattern of NSDP at Factor Cost in Haryana at Constant Prices

(Base Year: 1991-92) (Rs. in crore)

Year	Primary Sector	Secondary Sector	Tertiary Sector	Total NSDP
1991-92	6642.20 (45.37)	3246.10 (22.17)	4750.67 (32.45)	14638.97 (100)
1995-96	6663.23 (36.95)	5589.64 (31.00)	5779.92 (32.05)	18032.79 (100)

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1999-00	9209.00 (33.74)	7138.90 (26.15)	10947.00 (40.11)	27294.91 (100)
2003-04	9523.69 (26.33)	10296.63 (28.47)	16348.13 (45.20)	36168.45 (100)
2007-08	12873.53 (24.26)	14434.68 (27.20)	25754.69 (48.54)	53062.91
2011-12[R]	17154.24 (21.92)	19863.47 (25.38)	41255.21 (52.71)	78272.91 (100)
2012-13[P]	17376.06 (20.81)	21302.00 (25.51)	44811.88 (53.67)	83489.95 (100)
2013-14[Q]	18674.68 (20.95)	21692.54 (24.34)	48751.99 (54.70)	89119.20 (100)
2014-15[A]	19034.55 (19.47)	23476.56 (24.02)	55238.37 (56.51)	97749.48 (100)
2015-16[*]	20137.90 (20.42)	30490.48 (30.91)	48005.30 (48.67)	98633.67 (100)
Average	11420.00 (25.19)	12198.59 (26.91)	21715.31 (47.90)	45333.90 (100)
CAGR	**(5.14)**	**(9.28)**	**(11.88)**	**(9.07)**

Source: Statistical Abstract of Punjab, Various Issues
Note: CAGR=Compound Annual Growth Rate, R=Revised, P=Provisional, Q=Quick Estimate, A=Advanced, (*) = Estimates of NSVA at factor cost (earlier called NSDP at factor cost) can be compiled by using the estimates of NSVA at basic prices.

The compound annual growth rate (CAGR) of the NSDP at constant prices (1991-92) for Haryana state has been estimated. The growth rate of NSDP during the study period Haryana economy has grown at the 9.07 per cent rate of growth. However, the growth of primary, secondary and tertiary sector comes to 5.14, 9.28 and 11.88 per cent respectively. The primary sector in Haryana has shown a rate of growth lower than that of the national income for the period under study. On the other hand, the growth rate of secondary and tertiary sector in Haryana has been impressive during study period registering higher growth than national income. It is however worth mentioning that this growth in the service sector is localized and broadly confined to the areas surrounding the National Capital. Thus, issues of regional disparity in growth have remained largely unaddressed. Structural change is indicative of the fact that the secondary and tertiary sectors are fast growing sectors of the economy as compared to the primary sector and the role of agriculture sector has dramatically changed during the period under study.

There are mainly three sectors in the economy which has contributed maximum to the economic growth and development of Haryana state. Primary sector's share has been

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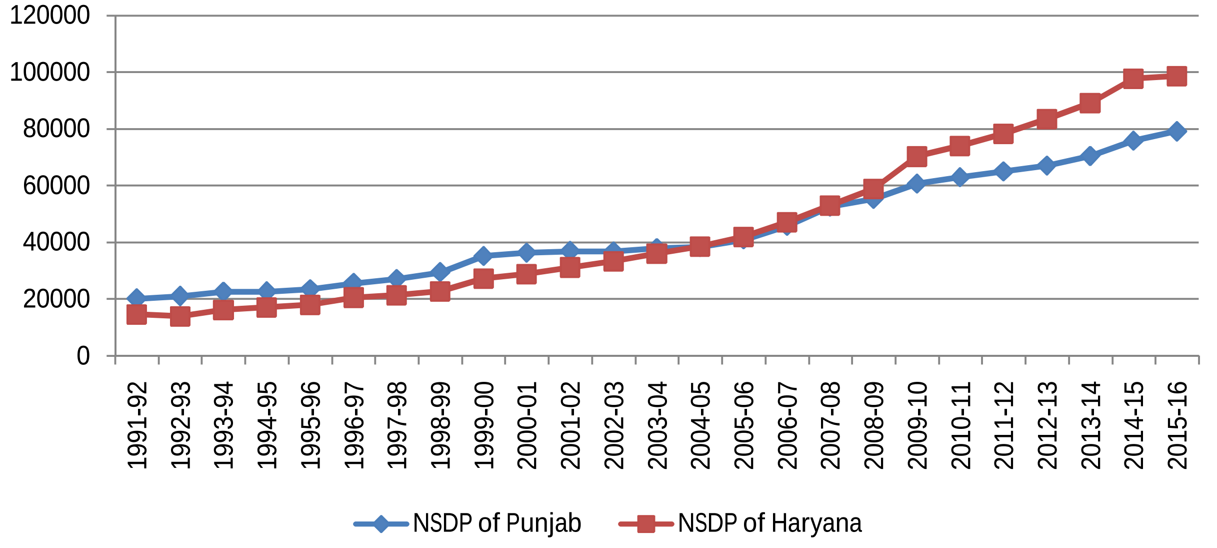
progressively diminishing in the NSDP whereas the share of secondary and tertiary sector has been progressively growing. This shows that the state economy has been moving from agriculture sector to manufacturing and services sector which is a sign of a healthy economy.

A Comparative Analysis of Punjab and Haryana

Both Punjab and Haryana are the neighbouring states of India. These states have played an active role in bringing about green revolution in the Indian economy. During the 1970's, Punjab was projected as a role model of development for the other states and Haryana was the first state in the country to achieve 100 per cent rural electrification in the same year. These states have also achieved a phenomenal growth in the field of net state domestic product (NSDP). No doubt, both of these states have experienced significant structural transformation but the process accelerated with the country's adoption of a new economic policy by the country in 1991. Structural transformation refers to the movement of labour and other productive resources from such economic activities that have low-productivity to the ones that exhibit high-productivity. Economic development has historically been associated with structural changes in economies of both the states. Structural changes in both these states have been observed to show a sequence of shift from agriculture to industry and then to services.

Figure 1: NSDP of Punjab and Haryana



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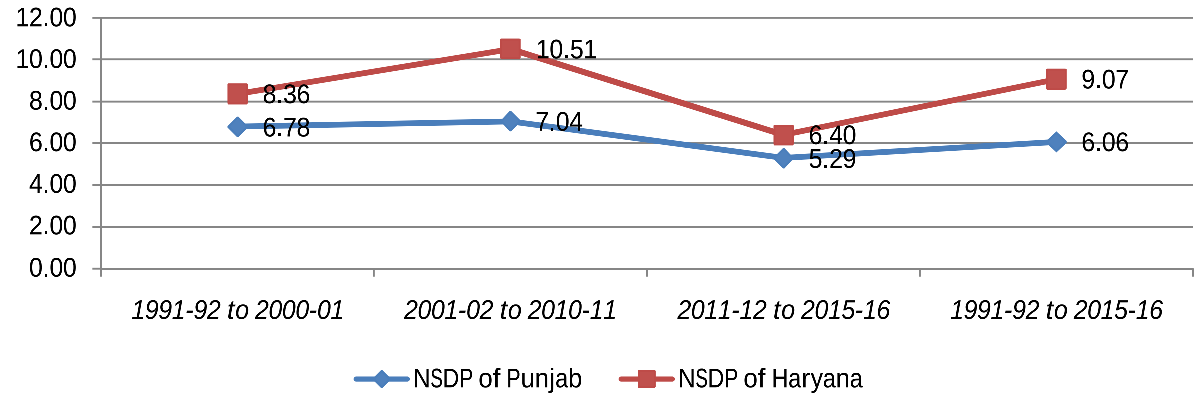
Source: Self-calculations based on data collected from Statistical Abstract of Punjab and Haryana, Various Issues.

Figure 1 shows that for a period of thirteen years, i.e., from 1991-92 to 2003-04, NSDP of Punjab remained higher than Haryana, but thereafter Haryana overtook Punjab in this respect. Ever since 1991-92, both these states have experienced significant structural transformation. The industrial and services sector registered higher growth rates than agriculture and allied activities whereby sectoral growth of income and output shifted in favour of tertiary sector. After the period of 2003-04, Haryana surpassed Punjab and ever since then Haryana has performed considerably well in the field of industry and services sector. Faridabad and Gurgaon, the two industrial towns of Haryana are especially the prominent industrial and services sector hub of the country.

Figure 2: Growth Rate of NSDP of Punjab and Haryana



Source: Self-calculations based on data collected from Statistical Abstract of Punjab and Haryana, Various Issues.
Note: To calculate Compound Annual Growth Rates at constant prices, the data has been deflated to 1991-92 as the base year.

Ever since 1991, Haryana's NSDP grew at a higher rate than Punjab's NSDP as shown in figure 2. During the first decade of the post reform period, Haryana's NSDP grew at the rate of 8.36 per cent per annum while Punjab's NSDP grew at the rate of 6.78 per cent per annum. During the second decade of the post reform period, Haryana's NSDP grew at the rate of 10.51 per cent per annum growth rate while Punjab's NSDP grew at 7.04 per cent per annum. During the first half of the current decade of the post reform period, the NSDP of Haryana grew by 6.40 per cent per annum while Punjab's NSDP grew at the rate of 5.29 per

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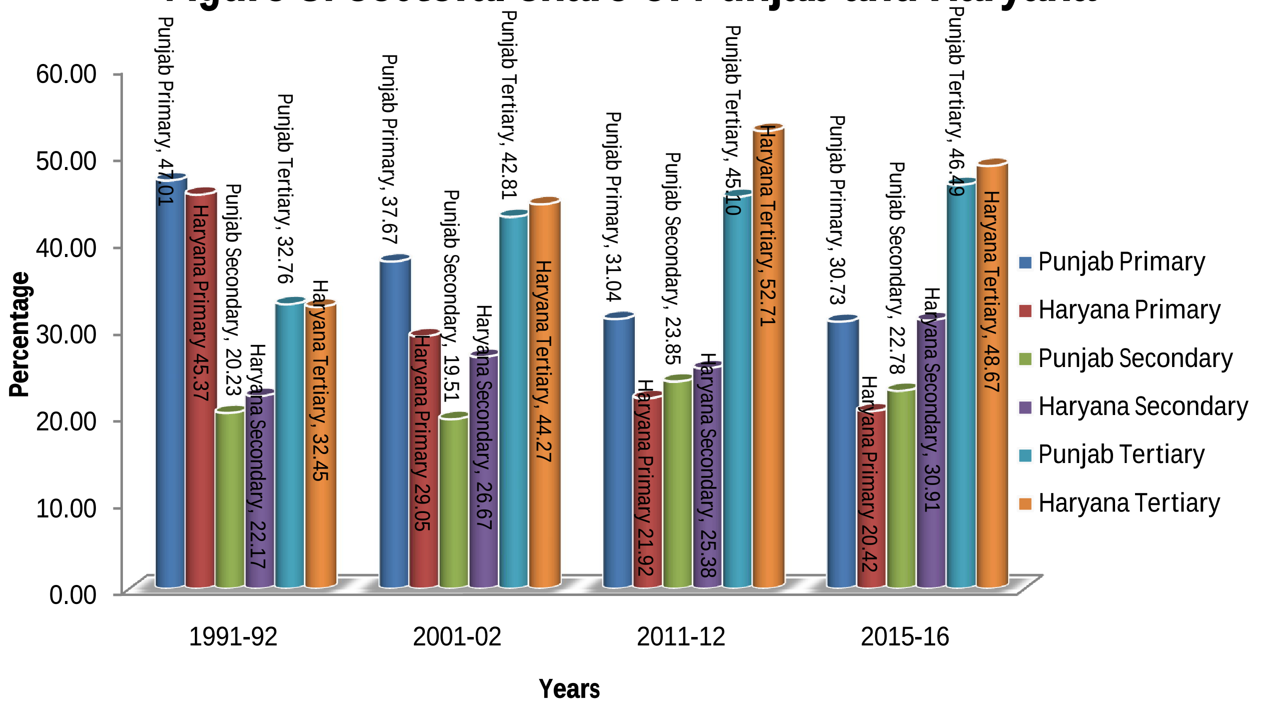
cent per annum. Thus it holds true that the growth rates of NSDP for both of these states have been increasing over the period under study.

Structural transformation is a process by which the relative importance of different sectors and activities of an economy changes over time. The Punjab and Haryana economy is also undergoing the transformation process, i.e., from traditional backward agrarian economy to a modern services sector led economy. Structural changes are considered as a crucial factor for economic development. It has repeatedly been argued that the economic growth is strongly connected with the structural changes. Structural changes are considered as the vehicle of economic growth and economic growth in turn induces structural changes (Van Gemert, 1986). The structural changes would ideally imply as those changes which take place primarily due to economic growth and result into shifts in the shares of NSDP and labour force from primary sector to secondary sector and the tertiary sector. This structural transformation is regarded as a long run tendency of an economy and a step forward for economic prosperity when it is accompanied by a relative shift in workforce from primary sector to other sectors of the economy (M. Pattanayak and B. P. Nayak, 2004).

Figure 3: Sectoral Share of Punjab and Haryana



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Source: Self-calculations based on data collected from Statistical Abstract of Punjab and Haryana, Various Issues.

The above figure 3 shows that structural changes have occurred in Punjab and Haryana state after the adoption of new economic policy in 1991. For Punjab state 47.01, 20.23 and 32.76 per cent of NSDP was generated from primary, secondary, and tertiary sector respectively in 1991-92. For 2001-02 these figures were 37.67, 19.51 and 42.81 per cent respectively. For 2011-12 these figures were 31.04, 23.85 and 45.10 per cent respectively and these further changed to 30.73, 22.78 and 46.49 per cent respectively for the year 2015-16. As far as Haryana state is concerned, primary, secondary and tertiary sector contributed 45.37, 22.17 and 32.45 per cent respectively to NSDP of the state. For 2001-02 these figure were 29.05, 26.67 and 44.27 per cent respectively. For year 2011-12 these figure were 21.92, 25.38 and 52.71 per cent respectively and for 2015-16 these figure changed to 20.42, 30.91 and 48.67 per cent respectively. It means during the study period primary sector has lost its importance in both the states as its share in NSDP has declined from 47.01 to 30.73 per cent in Punjab and from 45.37 to 20.42 per cent in Haryana. In the Punjab state, the share of NSDP shifted directly from primary sector to tertiary sector because it could not accelerate the pace of secondary sector. But in the Haryana state, the share of NSDP shifted from primary sector to secondary sector. After that the growth rate of NSDP of both the states changed rapidly with the emergence of knowledge based, pharmaceutical, marketing services, information and technology etc.

The comparative analysis of the two states over the period reveals that substantial changes have occurred more in the sectoral composition of the Haryana state as compared to the Punjab state. While the share of primary sector in Haryana state reduced from 45.37 per cent to 20.42 per cent from 1991-92 to 2015-16, it witnessed a reduction of 24.95 percentage points. On the other hand it was reduced to only 30.73 per cent from 47.01 per cent in case of Punjab for the same period showing a reduction of 16.28 percentage points. The share of secondary sector remains almost constant in case of Punjab, whereas it has increased from 22.17 per cent to 30.91 per cent in case of Haryana for the same period. Industrial sector has been regarded as the most dynamic sector of an economy and it provides desired economic transformation from economic activities yielding low wage-low productivity to the economic activities providing high wage-high productivity. However, in case of Punjab, the industrial

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sector of Punjab economy in terms of its relative contribution to the NSDP remained quite small. As far as the contribution of services sector in the NSDP of both the states is concerned, these states witnessed significant changes as the share of this sector increased substantially in both of the states.

Structural transformation in Haryana started much earlier than Punjab, as the share of primary sector declined abruptly by five percentage points in 1995-96 while comparatively a slow decline in the share of agriculture sector in Punjab took place and it remained almost more than 40 per cent during the period of ten years, i.e., from 1991-92 to 2000-01, whereas it declined to the level of 32 per cent in Haryana. The proportion of primary sector declined by seven percentage points from 2001-02 to 2005-06 in Haryana, while it declined to four per cent in Punjab in the same corresponding period.

Conclusion:

The majority of population of Punjab as well as Haryana state is still dependent on agriculture for their livelihood despite the fact that a larger part of state’s income originates from the tertiary sector. It has been observed from the study that the NSDP of Punjab state remained high from 1991-92 to 2003-04 but after that period NSDP of Haryana state increased at a higher speed than that of Punjab. This happened because Haryana has performed considerably well in the fields of industry and services sector. Over the period of time, the economies of both of these states have experienced a structural transformation as in the contribution of various sectors to NSDP. The relative contribution of various sectors i.e., agriculture and allied, industries, and tertiary in NSDP has changed significantly. The agriculture sector has remained the single largest sector of these economies in terms of NSDP and slow growth in this sector has interrupted the overall growth performance of the primary sector. Structural composition of Punjab and Haryana has shown that in the contribution to NSDP has changed to a large extent; the primary sector has been losing its dominant position to both secondary and tertiary sectors as these have been gaining ground especially the tertiary sector which has now become a dominant sector. Structural change is indicative of the fact that, the secondary sector is sluggish and tertiary sector is fast growing sector of these economies as compared to the primary sector and the role of agriculture sector has dramatically changed in the course of development.

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Punjab and Haryana are still predominantly agricultural states and the growth rate of agricultural development has declined over the last two and a half decade. There are several environmental problems faced by these states because of the excessive use of chemical inputs during the Green Revolution phase. The problems of water logging, soil salinity, declining water label, water and air pollution as well as related health issues like cancer are afflicting the state. The comparative analysis of growth rate of NSDP of the states of Punjab and Haryana during the entire study period reveals that Haryana state grew at a higher rate as than Punjab state.

The study reveals that structural changes have occurred in Punjab and Haryana state after the adoption of new economic policy. It means that primary sector has, lost its importance in both of these states as its share in NSDP has declined. The primary sector share in Punjab NSDP has rapidly declined during the study period mainly due to higher average growth of industrial and services sector. The declining share represents the structural transformation of the economy from agriculture to other sectors of the economy. In the Punjab state the share of various sectors in NSDP shifted directly from primary sector to tertiary sector. But in Haryana the share of NSDP shifted from primary to secondary, and then to tertiary sector. It can be said that Haryana state structural changes justify the Kuznet's structural transformation theory.

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