An Analysis of Structural Change in Punjab Economy

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Abstract

The term "structural change" has been widely used in economic research, although with different meanings and interpretations. In developing economics and in economic history, structural change is commonly understood as "the different arrangements of productive activity in the economy and different distributions of productive factors among various sectors of the economy, various occupations, geographic regions, types of product, etc….." (Bonatti and Felice, 2008).The rise of new economic powers has generally been driven by the rapid structural transformation of their economies, featured by the shift from primary production, such as mining and agriculture to manufacturing; and in manufacturing from natural-resource-based to more sophisticated, skill and technology-intensive activities. With urbanisation, labour intensive manufacturing activities grow faster than primary activities, generating new jobs, income and demand. Capital accumulation leads to a more sophistic Increasingly, development practitioners and policymakers recognize that economic development requires continuous diversifying and upgrading from existing sectors/industries to new high productivity ones. Convergence in labour productivity at the sector and industry level is seen as an important aspect of growth. India's economic performance over the past two decades has often been excessively focussed on the achievement and prospects of a high rate of economic growth. Introduction of economic reforms in 1991 is seen as the turning point in India's post-independence economic history, providing a break from the low growth trap in which the country's economy had been caught for four decades. The study is an attempt to evaluate these structural changes in India pre and post reform Period and its implication on Indian Economy.

Keywords: Economy, Capital accumulation, Labour productivity.

1. Introduction

The term "structural change" has been widely used in economic research, although with different meanings and interpretations. In developing economics and in economic history, structural change is commonly understood as "the different arrangements of productive activity in the economy and different distributions of productive factors among various sectors of the economy, various occupations, geographic regions, types of product, etc….." (Bonatti and Felice, 2008).

The rise of new economic powers has generally been driven by the rapid structural transformation of their economies, featured by the shift from primary production, such as mining and agriculture to manufacturing; and in manufacturing from natural-resource-based to more sophisticated, skill and technology-intensive activities. With urbanisation, labour

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intensive manufacturing activities grow faster than primary activities, generating new jobs, income and demand. Capital accumulation leads to a more sophisticated manufacturing structure and the economy gradually moves to skill and technology-intensive sectors. (Aggarwal, 2001)

Since 1945, developing economies have gradually been involving in the industrialisation process with their manufacturing sector growing faster than mining and agriculture. But aggregate patterns often hide large differences at regional or national level. Different endowments of productive factors, specific historical and geographical conditions, all contribute to the great diversity of development paths across. (Szirmai, 2009).

Different trends are observed since the 1970s. The service sector has become the dominant economic activity, while the role of agriculture and manufacturing has declined. Timmer and Akkus (2008) consider this is a natural developing process, a "powerful historical pathway of structural transformation", which leads every country to move from agriculture to industry and then to services (Aghion, 2008).

To some extent, this can be explained by the decrease in relative prices of consumption goods, conjunction with the simultaneous growth of demand for services with higher income elasticity. However, the trend toward 'tertiarisation' cannot be fully understood without recognizing the role of complex technological and economic transformations, blurring the distinction between manufactured goods and services (Chamarbagwala, 2006). The interaction between manufacturing and services, especially of business services, has indeed become stronger and more complex. Many service activities support manufacturing or are based on material inputs and technology- intensive goods produced by the manufacturing sector. Important differentiations have emerged even in the service sector, leading some analysts to identify a process of 'quaternarisation,' characterised by the rise of sophisticated intermediate services, which are used as inputs by other sectors of the economy (Peneder and others, 2001).

1.1Macroeconomic or Intersectoral Structural Change and Growth

The simplest explanation of the growth and structural change relationship holds that structural change is not expected to affect growth, but instead occurs as a result of growth process. Sectoral changes in output are thought to occur as development proceeds because the income elasticity of demand for agricultural products is low, while for industrial, particularly manufacturing goods, it is high; and, for services, it is still higher. As levels of income rise, the demand for agricultural products relatively declines and that for industrial goods increases until after reaching a reasonably high level of income, demand for services increases sharply, as well. Accordingly, the shares of different sectors in output are affected by the changes in the pattern of demand which accompany growth (Aggarwal and Kumar, 2012).

Structural change can also be placed at the core of economic development with casuality running from the former to the latter. While a heavy dependence on agriculture may create a vicious circle of low productivity and poverty, it is believed industrialisation can break this vicious circle by raising incomes to levels that raise saving and investment rates high enough to produce self-sustained growth (Lewis, 1954; Kaldor, 1966, 1967; Fei and Ranis, 1964). Shifting resources out of primary activities thus sustains the productivity gains that characterise economic development (Acemoglu, 2008).

Economic growth and structural change can also be seen as mutually reinforcing phenomena. Inter-linkages between growth and structural changes mean growth both leads to structural shifts and is inconceivable without them, (Kuznets 1966, 1971). In such a two-way relationship between structural change and growth, growth causes structural shift from agriculture to industry and then to services. In turn, structural changes promote growth. Agriculture being mainly dependent on a fixed factor of production, namely land, faces a limit on its growth and is subject to early operation of the law of diminishing returns. Industry, especially manufacturing, on the other hand, offers large scope of the use of capital and technology, which could be augmented almost without limit with human effort to push growth.

1.2Micro or Intrasectoral Structural Change and Growth

In paralance with broad sectoral changes at the economy wide levels the micro economic foundations of structural change also merit attention. Restructuring within the industrial sector itself can have impact on the macroeconomic growth. The intra-industry product cycle is driven by the emergence of new product groups within each industrial sector, i.e., from simple items to complex goods, while the inter-industry product cycle entails a shift in the relative mass of production from consumer to capital goods. Each product cycle, whether intra- or inter-industry, passes through a three-stage import-production-export sequence. The country begins to import foreign goods, then begins itself to produce the imported manufactured goods (import-substituting production), and finally begins to export the excess production of these goods. During the cycle the efficiency, competitiveness and as a result value added is enhanced, the industry ceases to exist. The interaction between the inter-industry and intra-industry stimulates the industrial development of the national economy. (Kojima, 2000)

More recent approaches to structural change view economic growth as a process of transformation and not convergence to a steady state growth path. Technological changes are seen to lie at the heart of economic growth as they provide the incentives for capital accumulation to drive efficiency and yield the benefits of increasing returns to scale. The evolution of the industrial structure should involve technological sophistication and upgradation, which generates a premium for aggregate productivity growth in the manufacturing sector. This means that economic growth is characterised by the creation of high tech industries and the replacement of old industries. The former drive growth process by accelerating the pace at which output, employment and productivity in the economy grow. (Bai & Perron, 1998)

1.3New Structural perspective

Increasingly, development practitioners and policymakers recognize that economic development requires continuous diversifying and upgrading from existing sectors/industries to new high productivity ones. Convergence in labour productivity at the sector and industry level is seen as an important aspect of growth. The catching up process in manufacturing results from technology transfers and is a key driver of rapid productivity growth. Within manufacturing, convergence is more rapid in technology- and knowledge-intensive modern sectors rather than in primary and traditional sectors; it appears to be least rapid in low technology intensive textiles and clothing sectors and most rapid in sectors that are technology intensive. Technology and knowledge intensive sectors/ industries produce

tradable goods and can be rapidly integrated into global production networks, facilitating technology transfer and absorption. Even when they produce just for the home market, they operate under competitive threat from efficient suppliers from abroad, requiring that they upgrade their operations and remain efficient. If, instead poor economies get their resources stuck in traditional agriculture, selected non tradable services, and especially informal economic activities, the forces of convergence may be blurred or fail entirely. The lack of productivity growth and the lack of structural change can thus reinforce each other trapping the economy in a low growth trajectory (Baumol, 1967).

Structural change should therefore remove constraints from productivity growth. When labour and other factors of production move from less productive to more productive activities, the economy grows even if there is no productivity growth within sectors.

1.4Structural Change in the Indian Economy

India's economic performance over the past two decades has often been excessively focussed on the achievement and prospects of a high rate of economic growth. Introduction of economic reforms in 1991 is seen as the turning point in India's post-independence economic history, providing a break from the low growth trap in which the country's economy had been caught for four decades. It is emphasised that high rate of growth of GDP that was triggered off by economic reforms and has been the most important achievement of the Indian economy in recent years. (Papola, 2005)

An exclusive focus on growth rate obviously leaves out the issues relating to structural changes. These changes take place in the development process in a relatively long term perspective. But their composition and pace can be significantly affected even in the short-term by major policy-induced developments. Thus while the structural transformation of an economy from agriculture to non-agriculture is a longer term secular phenomenon, its speed could be faster in an open than in a closed economy, and whether the shift takes place towards industry or services would also very much depend on domestic policies and external economic environment during the period under reference. Economic, growth is accompanied by structural change and changes in the structure of an economy have their own implications for the rate and sustainability of economic growth. What is more important is that a given rate of economic growth can have different implications for economic development in broader terms of equity, sustainability and improvement livelihoods and welfare of the people, depending on the composition of growth. (Cortuk and Singh, 2011)

Structural changes in an economy can be studied in respect of different outcomes like output, employment, capital investment and consumption. Various dimensions in which their structure can be analysed include sectors and product groups, space-rural-urban and interregional, distribution across size of production units, income groups and consumption expenditure classes of households, technological and productivity variations across sectors and activities, different sizes and locations, and earning differences across activities, skills, gender and social groups. In other words, an analysis of structural changes accompanying economic growth brings out various manifestations of the composition and distribution of growth.

1.5 Structural Change in Punjab Economy

Punjab is one of the smallest states of India, accounting for 1.65 percent of the country's area about 2.45 percent of its population. This state bore the main brunt of the partition of India in

1947. However, within a few year after this shattering experience, Punjab was able not only to rehabilitate its economy but also to emerge as the richest state in India. (Gill, 2004). While the rate of growth in the primary sector in Punjab was nearly double that of India, growth rates in the secondary and tertiary sectors were nearly one and a half times higher. Further, although the growth of the primary sector in Punjab was substantially lower than that of the other sectors, it is quite impressive when compared with other low and middle income countries. The various sectors within the primary, secondary, and tertiary sectors, however, recorded varying rates of growth (Bhagwati and Desai, 1970). Despite the rapid growth of primary, secondary and tertiary sectors, primary sector continuous to dominate the Punjab economy to earn much greater extent than it does the country as a whole. Punjab one of the developed state of the Indian Union, has experienced a phenomenal growth since early 1970s. The benefits of this growth have not equally reached the different sectors, strata or the special unit of the economy. In the Punjab Model of Development, the capitalistic development of the agricultural sector has been unable to alter its linkages pattern with the other sectors. Whole of the development in agricultural sector has been in isolation from its counterpart, the industrial sector. (Singh, 2000)

The economy of Punjab has remained a symbol of economic prosperity and a role model of economic development among the Indian state for more than three decades since the ushering in of the green revolution. (Singh, 1998). The rapid growth and structural transformation of the Punjab economy has taken place primarily as a result of technological breakthroughs in agriculture. The Punjab experience underlines that in an agriculture-dominant, labour-surplus economy, rapid growth in agriculture has widespread effects and can become a powerful instrument for marked acceleration of the overall growth of the economy.

The Punjab experience also emphasizes that it is possible for a region within a large country to enjoy the fruits of specialisation and comparative advantage in a constrained "open" economy context. Punjab was able to derive the maximum benefits of specialisation in agriculture because, being a state of India, it could freely export its agricultural surpluses at favorable prices, import modern agricultural and industrial inputs from the rest of India, and attract a large number of agricultural labourers from other Indian states (Bhalla and et al, 1990).

Structural change encompasses various changes in its definition. Some of the important aspects of structural changes in the economy of Punjab are structural changes in agricultural and rural economy, changing structure of production, urban migration and changing rural – urban linkages, gender and social dimensions in quality, changing importance of public and private sector as well as change in the consumption pattern. While all the above said dimensions and many other can be important area of study, the present research is an attempt to study the change in consumption pattern due to structural change in the economy. The limitation of the study hence is to study only the change in consumption pattern of people due to change in sectoral contribution in Punjab.

2.Methodology

As per the objectives of the study, the secondary data has been used which has been obtained from various published and unpublished sources. Most of the published data has been taken from various issues of Statistical Abstracts of Punjab and reports of Planning Commission of

Punjab. The data relates to three broad sectors; primary sector, secondary sector and tertiary sectors and further all the respective sectors has been divided into sub-sectors. The detail of the sub-sectors has been given in the Annexure enclosed. The total period has been divided into two parts namely pre-economic reform period (1970-1990) and post economic reform period (1990-2014). The average rate of growth for such a long period can not totally revealed many facts related to the short term changes. Hence such division has been made. The period is specifically important for the economy of Punjab as the decade of 1970s has been an onset of Green Revolution and period of late 1980s and early 1990s is the period of social upheaval in the state. The period from late 1990s till the current year has been the era of liberalization, privatalisation and globalization.

Structural Change in terms of Share of different Sectors:

The growth pattern of different sectors in the economy are the true indicators of the structural change which is being witnesses by the economy. Table No. 1.1 reveals the sectorwise gross state domestic product for Punjab at constant prices. The table indicates that the contribution of the primary sector has fallen from 46.55 percent in 1970-71 to 21.82 percent in 2012-13. The share of secondary sector has increased from 16.01 percent in 1970-71 to 29.49 percent in 2012-13. The table also revealed that the share of tertiary sector has risen from 37.44 percent in 1970-71 to 48.69 percent in 2012-13.

Hence in terms of contribution to gross state domestic product, the primary sector is lagging behind whereas secondary and tertiary sector are progressive.

Table No. 1.1 Sector-wise Gross State Domestic Product for Punjab at Constant Prices (2004-05)

Rs. (in Crores)

Year	Sector						Total GSDP	
	Primary		Secondary		Tertiary			
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1970-71	9088	46.55	3125	16.01	7311	37.44	19524	100
1980-81	13015	41.30	5149	16.34	13351	42.36	31515	100
1990-91	21459	41.28	10332	19.88	20191	38.84	51981	100
2000-01	29396	35.46	19912	24.02	33581	40.51	82888	100
2010-11	35267	23.88	45441	30.70	66963	45.35	147670	100
2011-12	36022	23.03	46854	29.96	73534	47.01	156411	100
2012-13	35899	21.82	48511	29.49	80115	48.69	164525	100

Note : Percentages has been calculated from the total GSDP.

Source : Various issues of Statistical Abstract of Punjab

Table No. 1.2 reveals the sector wise net state domestic product for Punjab at constant prices. The table indicates that the contribution of the primary sector has fallen from 46.63 percent in 1970-71 to 30.26 percent in 2012-13. The share of secondary sector has increased from 15.57 percent in 1970-71 to 24.71 in 2012-13. The table further reveals that the percentage share of tertiary sector has increased from 37.80 percent in 1970-71 to 45.03 percent in 2012-13. This increase in growth of the contribution of tertiary sector is due to the increase in contribution by all the sub-sectors of the tertiary sector. In the decade of 1970s, 'real estate', 'ownership of dwelling and business services' and 'trade, hotels and restaurants' have shown a positive

growth rate which is 27.71 percent and 26.55 percent respectively. In the decade of 1980s, the sub-sector, 'other services, which include professional services and supposed services started declining alongwith trade hotels and restaurants. Since then some sub-sectors are showing continuous improvement while other are lagging behind. The reason can be attributed to the upheavals which the state has paid during the decades of 1980s and 1990s.

Table No. 1.2 Sector-wise Net State Domestic Product for Punjab at Constant Prices (2004-05)

Rs. (in Crores)

Year	Sector						Total NSDP	
	Primary		Secondary		Tertiary			
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1970-71	8348	46.63	2788	15.57	6769	37.80	17904	100
1980-81	11987	41.48	4396	15.21	12518	43.31	28901	100
1990-91	20480	42.56	8844	18.38	18801	39.07	48126	100
2000-01	27714	37.19	16441	22.07	30357	40.74	74512	100
2010-11	64052	31.70	51384	25.43	86589	42.86	202025	100
2011-12	71801	30.88	58031	24.96	102692	44.16	232524	100
2012-13	80047	30.26	65363	24.71	119128	45.03	264537	100

Note : Percentages has been calculated from the total NSDP.

Source : Various issues of Statistical Abstract of Punjab

The table 1.3 reveals the growth rate of Gross State Domestic Product and Net State Domestic Product at Constant Prices. The GSDP rose from Rs.19524 increases to Rs.173221 in crores. The growth percentage of GSDP has been given in parenthesis which depicts an uneven pattern of growth from increasing to decreasing. The percentage growth of GSDP in 1971-72 was 6.79 percent in comparison to previous year which fell to 5.25 percent in 2013-14 in comparison to previous year.

The table further reveals the net state domestic product of the same period, NSDP has risen from Rs.17904 crores in 1971-72 to Rs.149948 crores in 2013-14. The percentage growth rates are also showing increasing and decreasing trends. The percentage growth of NSDP was 3.42 percent in 1971-72 comparison to previous year and it rose to 5.21 percent in 2013-14 in comparison to previous year.

Table No. 1.3 Gross State Domestic Product / Net State Domestic Product for Punjab at Constant Prices (2004-05)

Rs. (in Crores)

Year	GSDP at constant (2004-05) Prices	NSDP at constant (2004-05) Prices
1	2	3
1970-71	19524	17904
1971-72	20851 (6.79)	18516 (3.42)
1972-73	20855 (0.02)	19179 (3.58)
1973-74	21609 (3.62)	19716 (2.80)
1974-75	22160 (2.55)	20346 (3.19)
1975-76	24119 (8.84)	22173 (8.98)

1976-77	25843 (7.15)	23593 (6.40)
1977-78	28018 (8.42)	25539 (8.25)
1978-79	29756 (6.20)	27417 (7.35)
1979-80	30533 (2.61)	27695 (1.01)
1980-81	31515 (3.22)	28901 (4.35)
1981-82	34105 (8.22)	31434 (8.76)
1982-83	35239 (3.33)	32410 (3.10)
1983-84	36097 (2.43)	33061 (2.01)
1984-85	38580 (6.88)	35457 (7.25)
1985-86	41406 (7.32)	38051 (7.31)
1986-87	43045 (3.96)	39511 (3.84)
1987-88	45235 (5.09)	41595 (5.27)
1988-89	47601 (5.23)	43640 (4.92)
1989-90	51290 (7.75)	47192 (8.14)
1990-91	51981 (1.35)	48126 (1.98)
1991-92	54366 (4.59)	50132 (4.17)
1992-93	56917 (4.69)	52487 (4.70)
1993-94	59664 (4.83)	54622 (4.07)
1994-95	61455 (3.00)	56019 (2.56)
1995-96	64187 (4.45)	58274 (4.03)
1996-97	69028 (7.54)	62586 (7.40)
1997-98	71400 (3.44)	64669 (3.33)
1998-99	75467 (5.70)	68516 (5.95)
1999-00	79713 (5.63)	72086 (5.21)
2000-01	82888 (3.98)	74512 (3.37)
2001-02	8445 (1.89)	75408 (1.20)
2002-03	86900 (2.90)	76729 (1.75)
2003-04	92189 (6.09)	81543 (6.27)
2004-05	96838 (5.90)	86108 (5.60)
2005-06	102556 (5.90)	90330 (4.90)
2006-07	112997 (10.18)	100072 (10.78)
2007-08	123223 (9.05)	108738 (8.66)
2008-09	130431 (5.85)	114766 (5.45)
2009-10	138636 (6.29)	122097 (6.39)
2010-11 (R)	147670 (6.52)	129983 (6.46)
2011-12 (P)	157302 (6.52)	136987 (3.39)
2012-13 (Q)	164588 (4.63)	142526 (4.04)
2013-14 (A)	173221 (5.25)	149948 (5.21)

Note : Figures mentioned in parenthesis are averages of growth over the previous year.

Source : Various issues of Statistical Abstract of Punjab

R-Revised, P-Provisional, Q-quick Estimates.

The table 1.4 shows the growth rate of Gross State domestic product at constant prices during 1970-71 to 2013-14. The growth percentage contribution in comparison to previous year of primary sector is revealing an uneven picture in which the share of agriculture sector is rising and falling and also dipping to the negative growth rate. The trend can be attributed to increasing, decreasing and negative contribution of various sub-sectors with in the primary sector. The mining and quarrying sector as a data reveals has varied from (–) 65.83 percent to 8.23 percent in 2013-14.

The secondary sector on the other hand as per the data shows positive growth trends throughout the period, occasionally dipping down to negative growth rate. The reason for the same can not be attributed to only one sub-sector but on the whole all the sub-sectors within the secondary sector are growing at a decreasing rate than the previous year.

The tertiary sector however has shown an increasing growth rate from 36.58 percent in 1971-72 to 8.98 percent in 2013-14. On the whole during the period the sector has been showing positive growth rate with few exceptional years. The banking and insurance sector has been a major contributor in the growth of tertiary sector throughout the period.

Table 1.4 : GSDP on the Basis of Ratio at Constant Prices (2004-05)

Rs. (in Crores)

Year	Primary Sector	Percentage contribution in comparison to previous year.	Secondary Sector	Percentage contribution in comparison to previous year.	Tertiarty Sector	Percentage contribution in comparison to previous year.
1970-71	9088.34	-	3125.20	-	7310.82	-
1971-72	6644.77	26.89	4221.07	35.06	9985.13	36.58
1972-73	9253.55	39.26	3488.86	-17.35	8112.54	-18.75
1973-74	9755.00	2.18	3452.65	-1.04	8401.74	3.56
1974-75	10092.38	3.46	3380.42	-2.09	8686.83	3.39
1975-76	10625.81	5.28	4037.75	19.45	9455.08	8.84
1976-77	11239.03	5.77	4442.63	10.03	10161.01	7.47
1977-78	12240.60	8.91	4942.30	11.25	10834.80	6.63
1978-79	14768.15	20.65	5824.00	17.84	9163.74	-15.42
1979-80	13130.39	-11.09	5274.00	-9.44	12128.15	32.35
1980-81	13015.02	-0.88	5149.47	-2.36	13350.52	10.08
1981-82	14502.82	11.43	5792.68	12.49	13809.57	3.44
1982-83	15006.99	3.48	585227	1.03	14379.89	4.13
1983-84	14858.57	-0.99	6266.90	7.11	14971.30	4.11
1984-85	16583.38	11.61	6518.63	4.02	15478.17	3.38
1985-86	18034.68	8.75	7339.41	12.59	16031.71	3.58
1986-87	17953.59	-0.45	793.15	8.05	17161.31	7.05
1987-88	18917.86	5.37	8349.02	5.28	17968.54	4.70
1988-89	19549.27	3.34	9279.55	11.14	18772.13	4.47
1989-90	21756.48	11.29	9915.83	6.86	19617.20	4.50

1990-91	21459.06	-1.37	10331.77	4.19	20190.53	2.92
1991-92	23271.12	8.44	10555.88	2.17	20538.69	1.72
1992-93	23752.21	2.07	11653.73	10.40	21511.28	4.73
1993-94	24680.73	3.91	12737.62	9.30	22245.48	3.41
1994-95	25131.29	1.82	13438.91	5.50	22884.44	2.87
1995-96	25182.81	.20	14838.56	10.42	24165.85	5.60
1996-97	27092.26	7.58	15477.50	4.30	26457.89	9.48
1997-98	25948.48	-4.22	17103.91	10.51	28347.41	7.14
1998-99	26730.78	3.01	18894.80	10.47	29841.32	5.27
1999-00	28955.90	8.32	18792.78	-0.54	31964.08	7.11
2000-01	29395.89	1.52	19911.81	5.95	33580.73	5.06
2001-02	2962089	0.76	19592.71	-1.60	3523902	4.94
2002-03	29307.59	-1.06	20224.00	3.22	37368.09	6.04
2003-04	30986.54	5.73	21737.06	7.48	39465.63	5.61
2004-05	3164.33	2.09	23957.30	10.21	41246.88	4.51
2005-06	31936.32	5.90	26632.17	11.16	43987.59	6.64
2006-07	32846.39	10.18	32340.90	21.43	47810.10	8.69
2007-08	34106.76	9.5	37711.20	16.60	57405.27	7.52
2008-09	34805.18	5.85	39303.28	4.22	56322.30	9.56
2009-10	34694.41	6.29	42757.97	8.79	61184.09	8.63
2010-11 (R)	35266.54	6.52	45440.86	6.27	66962.72	9.44
2011-12 (P)	35904.51	6.52	46520.37	2.37	7487804	11.82
2012-13 (Q)	35953.47	4.63	47800.24	2.75	80834.53	7.95
2013-14 (A)	36113.01	5.25	49017.39	2.55	88091.07	8.98

Note : Percentage growth over the previous year has been calculated on the basis of data.
Source : Various issues of Statistical Abstract of Punjab.
R-Revised, P-Provisional, Q-quick Estimates.

The table No. 1.5 reveals the growth rate of Net State Domestic Product at constant Prices during 1970-71 to 2013-14. The beginning period is very close to the era of Green Revolution and hence we can appropriately analysis the gains of new technology which was introduced on agriculture especially in the production of two main crops of wheat and rice. The growth NSDP in the primary sector has fallen from 2.27 percent to 0.59 percent in 2013-14 revealing the decreasing contribution of the sector. The growth rate of NSDP in the secondary sector has fallen from 3.32 percent in 1970-71 to 2.74 percent in 2013-14. The growth rate in the tertiary sector has increased from 4.87 percent in 1970-71 to 8.75 percent in 2013-14.

Although the growth of the primary sector in Punjab was substantially lower than that of other sectors yet it is in a better position. The various sub-sector within the primary, secondary and tertiary sector can be regarded as the cause of varying rates of growth. In the primary sector for instance the growth of livestock is showing increasing trends almost throughout the period. Within the secondary sector, income from electricity, gas and water supply is growing and in the tertiary sector, banking and insurance is contributing at an increasing rate.

Table 1.5 : NSDP on the Basis of Ratio at Constant Prices (2004-05)

Rs. (in Crores)

Year	Primary Sector	Percentage contribution in comparison to previous year.	Secondary Sector	Percentage contribution in comparison to previous year.	Tertiary Sector	Percentage contribution in comparison to previous year.
1970-71	8348.05	-	2787.81	-	6768.50	-
1971-72	8537.37	2.27	2880.47	3.32	7098.11	4.87
1972-73	8571.79	0.40	3096.15	7.49	7510.88	5.81
1973-74	8984.55	4.23	3016.76	-2.56	7764.92	3.38
1974-75	9326.07	4.78	2969.66	-1.56	8050.15	3.67
1975-76	9852.53	5.64	3519.19	18.50	8801.64	9.33
1976-77	10303.21	4.57	3877.62	10.18	9412.20	6.94
1977-78	11239.71	9.09	4308.78	11.12	9990.93	6.15
1978-79	12232.82	8.83	4539.22	5.35	10644.82	6.54
1979-80	12151.80	–0.66	4511.48	–0.61	11031.72	3.63
1980-81	11987.21	–1.35	4395.79	–2.56	12518.04	13.47
1981-82	13489.07	12.53	4981.66	13.33	12963.25	3.56
1982-83	13941.48	3.35	4955.26	–0.53	13573.03	4.24
1983-84	13688.50	–1.81	5307.96	7.12	14064.72	4.08
1984-85	15413.19	12.60	5539.68	4.36	14504.50	3.13
1985-86	16850.46	9.32	6193.88	11.81	15006.20	3.46
1986-87	16796.47	–0.32	6603.46	6.61	16111.31	7.36
1987-88	17731.16	5.56	6917.05	4.75	16946.55	5.18
1988-89	18507.73	4.38	7683.11	11.07	17499.34	2.97
1989-90	20718.79	11.95	8146.85	6.03	18326.31	5.02

1990-91	20480.28	-1.15	8843.86	8.55	18801.45	2.59
1991-92	22126.27	8.04	8931.81	0.99	19073.54	1.45
1992-93	22582.63	2.06	9932.80	11.21	19971.24	4.71
1993-94	23440.56	3.80	10924.46	9.98	20257.35	1.43
1994-95	23835.59	2.11	11415.80	4.50	20767.43	2.52
1995-96	2380816	-0.11	12562.78	10.05	21902.99	5.47
1996-97	25630.28	7.65	12984.57	3.36	23971.23	9.89
1997-98	24446.19	-4.62	14477.07	11.49	25745.40	7.40
1998-99	25207.77	3.11	16251.84	12.26	27056.63	5.09
1999-00	27324.30	8.40	15722.99	-2.95	28988.53	7.14
2000-01	27714.16	1.67	16441.42	4.24	30356.82	4.72
2001-02	27851.95	0.50	15991.52	-2.74	31564.95	3.98
2002-03	27489.98	-1.30	16358.21	2.29	32880.84	4.17
2003-04	29078.32	5.78	17671.31	8.03	34793.69	5.82
2004-05	29806.35	2.50	19788.61	11.98	36513.17	4.94
2005-06	30014.13	0.70	21649.48	9.40	38666.20	5.88
2006-07	30816.14	2.67	27283.25	26.02	41972.40	8.55
2007-08	31897.72	3.51	31821.81	16.63	45018.75	7.26
2008-09	32523.88	1.96	32987.8	3.66	49255.11	9.41
2009-10	32192.91	-1.02	36352.67	10.20	53551.67	8.72
2010-11 (R)	32578.65	1.20	38698.52	6.45	58706.16	9.62
2011-12 (P)	32977.77	1.22	38555.71	-0.38	65153.90	10.98
2012-13 (Q)	32710.34	-0.81	39712.34	3.00	70103.83	7.60
2013-14 (A)	32905.24	0.59	40800.95	2.74	76241.98	8.75

Note : Percentage growth over the previous year has been calculated on the basis of data.
Source : Various issues of Statistical Abstract of Punjab
R-Revised, P-Provisional, Q-quick Estimates.

Table 1.6 reveals the decadal growth rate of various sectors of the Punjab economy. The data reveals the increasing contribution of primary sector in pre-reform period from 4.32 percent in 1970-80 to 6.49 percent in 1980-90. In the post reform period, the decadal growth of primary sector has been showing decreasing trends from 3.49 percent in 1990-2000 to 1.98 percent in 2000-2010. Further, on the basis of the availability of the data from 2010-14, the four year percentage contribution of the primary sector has been estimated 0.6 percent. The trends shown by the data reveals the decreasing importance as well as contribution of the primary sector in the economy of the Punjab.

The secondary sector has been growing at a faster pace in pre as well as post-reform period. The decadal growth rate of GSDP by secondary sector rose from 6.48 percent in 1970-80 to 10.06 percent in 1980-90. In the post reform period, the secondary sector's decadal growth rate of GSDP was 8.18 percent in 1990-2000 and it rose to 12.75 percent in 2000-2010. The

data from 2010-14 reveals the four year average growth rate of the secondary sector which is 1.99 percent.

The decadal growth rate of tertiary sector has fallen down from 8.26 percent in 1970-80 to 5.12 percent in 1980-90, thereby revealing the decreasing contribution of various sub-sectors in the growth of the concerned sector. The post-reform period, the tertiary sector has been progressing impressively where its growth has increased from 5.80 percent in 1990-2000 to 10.99 percent in 2010-14. The decadal growth rate reveals the increasing importance of the secondary and tertiary sector in the economy of Punjab over the years. The reason for the same can be attributed infrastructural facilities provided to increase the investment in the sectors and also an attempt to reduce the burden of increasing population on the primary sector.

Table 1.6: Decadal Growth Rate of GSDP on the basis of constant prices (2004-05) Sectorwise.

Rs. (in percent)

Year	Primary Sector	Secondary Sector	Tertiary Sector
1970-80	4.32	6.48	8.26
1980-90	6.49	10.06	5.12
1990-2000	3.49	8.18	5.83
2000-2010	1.98	12.75	9.14
2010-2014	0.6	1.99	10.99

Note : Decadal growth rate has been calculated on the basis of data.

Source : Various issues of Statistical Abstract of Punjab

R-Revised, P-Provisional, Q-quick Estimates.

Table 1.7 reveals the average annual decade-wise growth rate of Gross State Domestic Product and Net State Domestic Product at constant prices. Gross State Domestic Product has been showing increasing trend in pre reform period where the average annual decadal growth rate of the same was 6.14 percent in 1970-80 and it rose to 6.49 percent in 1980-90. In the post-reform period the Gross State Domestic Product has increased from 5.33 percent in 1990-2000 to 7.39 percent in 2000-2010. Moreover, the data reveals the four year average growth of GSDP which is 2.49 percent during 2010-14.

The table also reveals the average annual decade wise growth rate of net state domestic product at constant prices which has risen from 6.14 percent in 1970-80 to 6.65 percent in 1980-90 during the pre-reform period. In the post reform period the average annual decade wise growth rate of NSDP has risen from 4.98 percent in 1990-2000 to 6.94 percent in 2000-2010. As per the data, the average annual four year growth rate of NSDP during the period 2010-14 is 1.54 percent.

Table 1.7 Average Annual Decade-wise Growth Rate of GSDP/NSDP at constant (2004-05) prices.

Rs. (in percent)

Year	**GSDP**	**NSDP**
1970-80	6.14	6.14
1980-90	6.49	6.65
1990-2000	5.33	4.98

2000-2010	7.39	6.94
2010-2014	2.49	1.54

Note : Average Annual Decade-wise Growth Rate of GSDP/NSDP rate has been calculated on the basis of data.

Source : Various issues of Statistical Abstract of Punjab.

The table 1.8 shows the average annual growth rate of GSDP from 6th plan to 11th plan. The table compares the growth rate of primary, secondary and tertiary sectors of Punjab with India. The average annual growth rate of primary sector in Punjab in 1980-85 was 5.37 percent whereas it was 5.63 percent in case of India. During all the plans the average annual growth rate of GSDP at the level of India was more than the Punjab.

The average annual growth rate of GSDP by Secondary sector in Punjab was 5.04 percent in 6th plan (1980-85) whereas it was 6.05 percent in case of India. The average annual growth rate of the sector in case of India was almost higher than Punjab throughout the period. In case of tertiary sector the average annual growth rate of GSDP during 6th plan (1980-85) was 5.14 percent whereas it was 5.42 percent of India. During 11th plan the overall rate of growth was 6.85 percent against the target of 5.90 percent. The country as a whole witnesses 8.05 percent growth rate against the target of 9.00 percent. The table also reveals that after the post-reform period, the growth rate of GSDP in overall has been progressing slowly in case of Punjab.

Table 1.8 Average Annual Growth Rate of GSDP from 6th Plan to 11th Plan

(percent per annum)

	Punjab				India			
Period /sector	Primary	Secondary	Tertiary	Overall	Primary	Secondary	Tertiary	Overall
(1980-81 prices)	5.37	5.04	5.14	5.23	5.63	6.05	5.42	5.66
6th plan (1980-85)	5.24	8.65	5.22	5.98	3.58	6.49	7.41	5.79
7th plan (1985-90)								
(1993-94 prices)	3.08	7.10	5.78	4.81	3.85	8.28	7.87	6.76
8th plan (1992-97)	1.90	4.97	5.80	3.97	2.16	4.63	8.08	5.50
9th plan (1997-02)								
(1999-2000 prices)	2.28	7.75	5.96	5.11	2.74	9.40	9.37	7.80
10h plan (2002-07)								

(2004-05) prices	3.84	16.61	7.52	9.05	5.52	10.27	10.27	9.32
11th plan (2007-12)	2.05	4.22	9.57	5.85	0.36	4.66	9.98	6.72
2007-08	(–) 0.32	8.79	8.63	6.29	1.47	9.46	10.5	8.59
2008-09	1.65	6.27	9.44	6.52	8.32	7.64	9.67	8.91
2009-10	1.81	2.38	11.82	6.52	4.36	8.49	6.57	6.69
2010-11	1.81	7.65	9.40	6.85	4.01	8.10	9.40	8.05
2011-12 (P) Overall 11th plan								
Targets by Planning Commission (11th Plan)	2.40	8.00	7.40	5.90	4.10	10.50	9.90	9.00
2012-13 (Q)	0.14	2.75	7.95	4.63	0.96	10.96	6.96	4.47
	0.44	2.55	8.98	5.25	3.96	3.96	6.78	4.74
2013-14 (A)	1.60	7.50	8.00	6.40	4.00	4.00	9.10	8.20
Targets by Planning Commission (12th Plan)								

Source : Various issues of Statistical Abstract of Punjab

R-Revised, P-Provisional, Q-quick Estimates.

Table 1.9 shows the per capita income (NSDP) of Punjab from 1970-71 to 2013-14 at current as well as constant prices. The per capita income at 2004-05 prices has risen from 13343 in 1970-71 to Rs. 49411 in 2013-14. Since its formation in 1966, the state has been ranked first in terms of per capita income which it has lost after the introduction of economic reforms in 1990s. The growth rate of per capita income has otherwise shown an increasing trend and even though Punjab's rank in per capita income has gone down in comparison to other states, it remains still among the highest.

The table further shows the percentage growth rate of per capita income (NSDP). The growth rate is positive throughout the period; barring few years in which the grwoth was negative, 0.93 in 1979-80 and -0.15 in 1983-84 and than in year 2001-02 where it was -0.07 percent and in 2002-03 where it was -0.09 percent.

Table 1.9 Per Capita Income and Population of Punjab

(Rs. in Crores)

Sr.No.	Year	Per Capita NSDP	Per Capita Income (NSDP) at back series (2004-05) in Rs.	Percentage growth over the previous year
1	**2**	**4**	**5**	**6**
		At (1970-71) prices		
1	1970-71	1070	13343	
2.	1971-72	1084	13531	1.41
3.	1972-73	1098	13745	1.58
4.	1973-74	1107	13858	0.82
5.	1974-75	1120	14025	1.20
6.	1975-76	1192	14990	6.88
7.	1976-77	1244	15642	4.35
8.	1977-78	1320	16607	6.17
9.	1978-79	1388	17483	5.27
10.	1979-80	1365	17320	0.93
		At (1980-81) prices		
11.	1980-81	2674	17726	2.34
12.	1981-82	2875	18491	4.31
13.	1982-83	2906	18661	0.92
14.	1983-84	2904	18632	–0.15
15.	1984-85	3073	19558	4.97
16.	1985-86	3249	20545	5.05
17	1986-87	3302	20881	6.76
18.	1987-88	3410	21516	3.04
19.	1988-89	3526	22095	2.69
20.	1989-90	3730	23387	5.85
21.	1990-91	3730	23468	0.35
22.	1991-92	3825	23989	2.22
23.	1992-93	3931	24920	22.64
		At (1993-94) prices		
24.	1993-94	12710	25648	2.92
25.	1994-95	12784	25812	0.64
26.	1995-96	13008	26348	2.08
27.	1996-97	13705	27768	5.39
28.	1997-98	13812	28155	1.40
29	1998-99	14333	29270	3.96
		At (1999-2000) prices		
30	1999-2000	25631	30220	3.24

31	2000-01	25986	30651	1.43
32	2001-02	25992	30628	–0.07
33	2002-03	25955	30599	–0.09
34	2003-04	27075	31928	4.34
35	2004-05	33103	33103	8.55
36	2005-06	36199	34096	2.99
37	2006-07	41883	37087	8.57
38	2007-08	49380	39567	6.56
39	2008-09	55315	41003	3.63
40	2009-10	61805	42831	4.46
41	2010-11	69582	44769	4.52
42	2011-12	76895	46325	3.47
43	2012-13	84526	47834	3.26
44	2013-14	92638	49411	3.30

Note : Percentage growth over the previous year has been calculated on the basis of data.
Source: Various issues of Statistical Abstract of Punjab.

Table 1.10 reveals the decadal growth rate of NSDP at constant prices by different sectors. Due to the differential rates of growth in the three sectors, their respective shows in the net state domestic product has undergone a significant change which has been further divided into two parts comprising of pre and post reform period. The growth rate of primary sector in the decade of 1970-80 has been 4.35 percent which has increased to 7.08 percent in 1980-90; in pre economic reform period. The growth has further decreased from 3.34 percent in 1990-2000 to 1.62 percent in 2000-2010 in post-economic period. Hence the decadal growth rate of NSDP has fallen down in case of primary sector in the post-economic reform period.

The decadal growth rate of secondary sector has been revealing the increasing tendency of growth from 5.76 percent in 1970-80 to 10.11 percent in 1980-90; during the pre-economic reform period. In the post reform period, the decadal growth rate of NSDP in secondary sector has risen from 7.83 percent in 1990-2000 to 13.05 percent in 2000-2010.

The tertiary sector has been revealing decreasing decadal growth rate of NSDP in both pre and post economic reform period. The decadal growth rate of NSDP in the tertiary sector has fallen from 8.49 percent in 1970-80 to 5.01 percent in 1980-90 during the pre-economic reform period. During the post-economic reform period, the decadal growth rate of NSDP has fallen from 5.42 percent in 1990-2000 to 4.82 percent in 2000-2010. It is obvious that the Punjab economy is undergoing a process of sectoral diversification in terms of income generated by various sectors. In case of tertiary sector, the share of all its sub-sectors except 'real estate and dwelling' increased. While a rapid increase in the share of banking and insurance sector is a positive sign but that of relatively unproductive segment of public administration and defence is not much fruitful.

Table 1.10 Decadal Growth Rate of NSDP on the basis of Ratio at Constant Prices (2004-05) by Sectors.

(in percentage)

Year	Primary Sector	Secondary Sector	Tertiary Sector
1970-80	4.35	5.76	8.49
1980-90	7.08	10.11	5.01
1990-2000	3.34	7.83	5.42
2000-2010	1.62	13.05	4.82
2010-2014			

Note : Calculated on the basis of data.

Source : Various issues of Statistical Abstract of Punjab.

The analysis concludes that the rapid agricultural transformation is a potent instrument for bringing about significant acceleration in the overall growth and transformation of a labour-surplus economy dominated by the agricultural sector. In the case of Punjab, after adoption of the new seed-fertilizer technology there was a marked increase in the growth rate of agriculture, which in turn accelerated growth in other sectors of the state economy through input, output, and consumption linkages.

3. Conclusion

In short, rapid agricultural growth, by raising the incomes of an overwhelmingly large proportion of the labour force, not only made a deep dent in rural poverty but also led to development of other sectors through forward and backward linkage effects. It should, however, be noted that the direct and indirect effects of increased economic activity in both agriculture and manufacturing in Punjab have been considerably reduced, since the state is a large importer of modern agricultural inputs such as fertilizers, insecticides, and diesel fuel; raw materials for manufacturing such as coal, pig iron, and metals; and numerous finished goods for consumption.

Manufacturing continues to be dominated by agro-processing industries, with textiles accounting for about one-fourth of total manufacturing activity in both value of output and value added. This is followed by other agriculture-based industries, particularly food processing and dairying. Because of the much higher level of agricultural output and manufacturing activity, trade and transport and other services such as public administration and banking and insurance have significantly increased their share in the state economy. The Punjab economy, which continues to be dominated by agriculture and agriculture-based industries, is snowing signs of a slow and gradual transition toward a more diversified economy

The structural change in the composition of state income by industrial origin is the consequence of the process of economic growth initiating during these days. Since the growth process involved a rapid expansion of manufacturing activities in the organized sector, the share of secondary sector was bound to indicate a relatively sharp increase. Similarly with the development of the economy, the share of tertiary sector was bound to increase. This development was bound to reduce the relative share of primary sector.

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