Structural Transformation and Economic Growth – A Comparative Study of J&K State & Other Northern States

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Certificate

This is to certify that the thesis entitled ***"Structural Transformation and Economics Growth – A Comparative Study of J&K State & Other Northern States"*** is the original and bonafide research work of **Ms Mudasir Afshan,** Ph.D Scholar, Post-graduate Department of Economics, University of Kashmir, Srinagar. This research work has been carried out under my supervision and guidance and has not been submitted for the award of degree or diploma to any institution or University. The source material used has been duly acknowledged.

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CERTIFICATE

This is to certify that the Thesis entitled, **"Structural Transformation and Economic Growth--- A Comparative Study of J&K State and Other Northern States"** is the original and bonafide research work carried out by **Ms Mudasir Afshan (as reported by her Supervisor)**in Post graduate Department of Economics, University of Kashmir, Srinagar under the Supervision of Professor Nisar Ali for the award of Doctor of Philosophy (Ph.D) in Economics. She has fulfilled all the statutory requirements for the submission of her thesis.

It is also certified that this work has not been submitted so far in part or full to this University or any other University for the award of Ph.D Degree in Economics or any other Degree or Diploma.

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ABBREVIATIONS

SDP	:	State Domestic Product
NDP	:	Net Domestic Product
NSDP	:	Net State Domestic Product
GSDP	:	Gross State Domestic Product
J&K	:	Jammu and Kashmir
U.P	:	Uttar Pradesh
H.P	:	Himachal Pradesh
HYV	:	High Yielding Varieties
MTS	:	Metric Tonnes
HET	:	Hectare
SSI	:	Small Scale Industries

Chapter-1

Introduction

The present study has been undertaken to investigate the structural change in the state economy of Jammu and Kashmir in relation to northern States and patterns of growth over the period. The terms "structure" and "structural change" have been widely used in economic research, although with different meanings and interpretations. Even in earlier economic literature, economic theory has given significant attention to structural change (Quesnay 1758)[1] (Turgot 1766)[2], for Adam Smith (1776)[3] structural features were strongly related to the level of economic development while for Ricardo (1817)[4] changing composition of productive system was requisite for economic growth. While structural transformation was central in the works of classical economists, most neo-classical authors regard this as secondary. In fact if the former stressed the importance of movement of labour from traditional activities, such as agriculture, to modern industry as a driving force of economic development, the faith in allocation efficiency of markets, underlying neo-classical school of thought, leads to consider structural change as an automatic result market development, rather than necessary condition for economic growth. Although the structural change has been defined in different ways, the most common meaning refers to long term and persistent shift in the sectoral composition of economic systems (Chenery & Others 1986, Syrquin 2007)[5]. More specifically, the structural change is associated with modifications in the relative importance of different sectors over time,

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[1] Quesnay F.1758. Table Economique The Economics of Structural Change, Vol III, International Library of Critical Writings.

[2] Turgot, ARJ. 1766. "Reflections on Formation and Distribution of Wealth" in R.L. Meek ed Turgot on Progress Sociology and Economics

[3] Adam Smith 1776 "An Inquiry in to Nature and Causes of Wealth of Nations" (in Campbell R.H Skinner, A.S. Todd) World Bank. Ox Univ Press.

[4] David Ricardo, 1817, Principles of Political Economy and Taxation (in Hageman, H.M. Landesman and R. Scazzieri)ed Vol I, Critical Writings 2003

[5] Chenery H, S. Robinson & M. Syrquin 1986 "Industrialization and Growth, A Comparative Study". World Bank, Oxford Univ Press

measured by their share of output or employment. Thus, "the structural change analysis assumes that economic dynamics can be studied by focusing on a relatively small number of groups or activities that comprise the economic system and thereby forms economic structure"(Silva Teixeira 2008, 273)[6]. Traditionally, in economic literature this analysis has been associated with different growth theories. In Schumpeter's view innovation was essential force leading to structural economic shift (Schumpeter 1939)[7]. Kuznets[8] established the essential link between growth and structural changes. According to UNIDO (2010) diversification and sophistications of productions are identified as the main drivers of middle and low income countries. The productive sectors of the world economy have changed rapidly in the last decade, reinforcing the established trends from past. The services sector was already dominant in 1970 representing 52 percent of world production and 68 percent in 2005, industry 38 percent in 1970 and 29 percent in 2005 (UNIDO)[9]. Even in Europe, the tertiarisation process, shown by rising value added share of services from 47 to 71 percent during 1970-2005 , slightly receded in last few years to the advantage of "mining and utilities" and construction industry. The share of agriculture and manufacturing with declining trends during previous decade, stabilized at 2 and 17 percent respectively. This confirms tertiarisation and for Pasinetti (1981)[10] economic growths are linked to continuous structural transformation and change. The structural change implies to investigate the relative sectoral shares in the process of growth and structural shifts as a consequence thereof. It equally implies to study the sectoral linkages and identification of key sectors in the economy as a result of structural shifts.

[6] Silva E.G & A.C Teixeira 2008, "Surveying Structural Change: Seminal Contributions and Bibliometric Account of Structural Change in Economic Dynamics.

[7] Schumpeter J.A 1939, Business Cycles: A Theoretical, Historical and Structural Analysis of Capitalist Process McGraw Hill, N Y London.

[8] Simon Kuznets 1971, Economic Growth of Nations: Total Output and Production Structure. Camb Mass, Harvard Univ Press

[9] UNIDO 2010, Structural Change in the World Economy: Main Features and Trends, Vianna.

[10] Pasinetti, L.L 1973, "The Notion of Vertical Integration of Economic Analysis" Microeconomica, Vol 25.

Simon Kuznets (1955, 1971)[11] has established the essential link between growth and structural change and believes that the growth is inconceivable without structural shifts. "High rates of growth are closely associated with, and indeed require, changes in economic structure; the later require shift in production structure and legal and political institutions and in social ideology" (1971 p 348). He further argues that," it does mean that some structural changes, not only in economic, but also in social institutions and beliefs, are required without which modern economic growth would be impossible"[12]. In the analysis of Kuznets the focus is that massive structural changes in the economy and society are necessary and integral part of economic growth process because, according to him, the economy-wide adoption of modern technology brings about common pattern of change. These encompass shift, away from agriculture to manufacturing and industry and services, a replacement of small scale by large scale production units and relate shifts from personal enterprise to impersonal organization of economic firms and from occupation in farming to blue collar jobs to white collar jobs. These changes are inevitably related with income distribution shifts and population & geographical shifts, migration from countryside to urban centres and cities.

In the theoretical scaffolding, the structural relationship of an economy can be examined with the application of input-output technique. The study of sectoral linkages and identification of key sectors based on input-output tables shows the nature and degree of interdependence of an economy. Leontief[13] has been among the pioneers to develop the input-output technique to study economic structure of American economy and Dasgupta & Chakarborty (2005), using the Leontief model to study structure of Indian economy. Earlier Baradwaj

[11] Simon Kuznet 1955,"Towards Theory of Economic Growth Ed in R. Lakachman, National Policy for Economic Welfare at Home and Abroad, Garden City, N.Y.

[12] Simon Kuznet, 1979, Modern Economic Growth: Rate Structure and Spread (N.D: Oxford and IBH publication, Co.

[13] W. Leontief 1951 The Structure of American Economy:1919-1939 Oxf Univ Press

(1966)[14], Hazari (1970)[15], Cella(1974)[16] and Mehta studied intersectoral linkages in Indian economy and identified key sectors by using supply side model for computing forward linkages and demand side model for calculating backward linkages. Backward linkage of a particular sector is defined as the change in gross output of all sectors in the economy, if the final demand for that particular sector increases by a unit. Usually a transaction matrix is required and developed in inter-sectoral analysis and in the matrix notation backward linkage is defined as

$$Q = e\ (1 - A)^{-1}$$

Where, e is unit vector and Q is vector for backward linkage. Backward linkages are nothing but column-sum of Leontief inverse and are also treated as output multipliers in input-output framework. On the other hand, forward linkage demonstrates a relationship between total output of a sector and sale of its output as intermediate input to other sectors. In a demand led model forward linkage is defined as the row sums of Leontief inverse, that is, forward linkage of a particular sector shows the change in the total output of a sector if final demand of each sector increases by one unit. In matrix notational form it can be expressed or defined as

$$R_1 + (1 - A)^{-1}e$$

Where vector for forward linkage is R1 and based on the above relationship they arrived at the key sectors in Indian economy, that is, paper and paper products, petroleum products, heavy chemicals, synthetic fibre, iron and steel, non-ferrous basic metals, construction, electricity and a few other industries stand identified as key sector industries.

The present study has not examined the structural change based on input-output framework due to non-availability of regional and State level data,

[14] Bardwaj. K 1966, "Note on Structural Interdependence and Concept of Key Sector". Kyklos, Vol. 9.

[15] B. Hazari 1970, "Empirical Identification of key Sectors of Indian Economy". Review of Economics & Statistics, 52.

[16] Cella G 1984, " The Input-Output Measurement of Interindustry Linkage". Oxf Bulletin of Eco & Stat, Vol 46.

rather has more or less studied in terms of Kuznets analysis. Indian economy, predominantly agricultural economy, there is a marked shift in the relative share of critical sectors and in relation to GDP the percentage share of agriculture in 1950-51 was 73.07, that of industry 14.35 and services 12.58. In terms of Kuznets analysis the sectoral composition of GDP has undergone a perceptible change and the structural shift tends from agriculture to services underlying social, demographic, occupational and institutional shift and changes. The share of services in GDP goes up from 12.58 percent to 59.03 percent (table 1) and agriculture declines from 73.07 percent to 15.97 percent during 1950-51 to 2011-12.[17]

Table 1: Percentage share of principal sectors in Gross Domestic Product at factor cost by industry origin at constant prices in Indian economy

(Rs. in Crores)

Year	Agriculture	Industry	Services
1950-51	73.07	14.35	12.58
1960-61	49.80	17.92	32.28
1970-71	43.85	21.42	34.73
1980-81	38.31	23.04	38.65
1990-91	33.00	24.15	42.85
2000-01	25.27	24.35	50.38
2011-12	15.97	25.00	59.03

Source: Computed from Economic Survey, various issues, Statistical Appendix, Government of India, New Delhi.

Thus, the sectors in Indian economy are broadly identified which have contributing to growth. The state of Jammu and Kashmir economy equally have undergone a transformation, but the structural change over six decades demonstrates sectoral shifts, yet the economic system that has emerged, consequent upon structural shifts, is oriented to missing economic opportunities whether of labour absorption or domestic investment.

[17] Economic Survey, & Digest of Statistics 2008-09, 2011-12, Directorate of Economics and statistics, J&K Govt.

The economy has undergone structural shifts in terms of its sectoral shares in net state domestic product and certain sectors are identified as key economic sectors underlying the present state of economic growth. The share of agricultural sector in net state domestic product in 1960-61 at current prices was 76.17 percent, while as that of industry 9.97 percent and services sector 11.65 percent which today constitute the core sector of the economy. The relative shares of the sectors under reference have considerably changed over the period as is demonstrated in table 2 below, 47.40 percent in case of agriculture, 12.90 for industry and 39.70 for services in 1980-81.The tendencies in structural shifts further accentuate to the extent that the services sector is identified as core sector of the economy, while the agriculture sector's share decline sharply in line and tune with national level. In case of agriculture and its allied sectors the relative share in net state domestic product declined to 19.84 percent, industry increased to 25.93 percent and services 54.23 in 2011-12.Thus, the high growth rate of 11.55 percent in case of services in 2008-09 is associated with high relative share in gross state domestic product as is established by Kuznets in theory of growth. There have been shift in population and social institutions as a consequence. This is true in neighboring states in northern region where the relative share of agriculture in net state domestic product has declined from 64.76 percent in 1970-71 to 23.11 percent in case of Haryana, from 58.56 percent to 22.38 percent in Himachal Pradesh, 58.36 percent to 34.35 percent in Punjab, 60.26 percent to 31.83 percent in Uttar Pradesh. On the other hand, the relative share of services sector in the states under references has significantly gone up during the period 1970-71 to 2006-07 and the detailed analysis is given in chapter IV.

Table 2: The Relative Percentage Share of Key Economic Sectors in Net State Domestic Product by Industry Of Origin at Current Prices in Jammu and Kashmir. **(Rs. in Crores)**

Year	Agriculture	Industry	Services
1960-61	76.17	9.97	13.86
1970-71	56.63	14.57	28.80

1980-81	47.40	12.90	39.70
1990-91	43.29	13.22	43.49
2000-01	33.01	21.68	45.33
2008-09*	28.00	28.48	43.52
2011-12	19.84	25.93	54.23

Source: Compiled from Digests of Statistics, 1968-69, 1976-77, 2008-09 & Economic Survey, 2011-12. Directorate of Economics & Statistics, J&K Government.
*At 2004-05 prices

The structural change in growth process as given above, however, has been associated with certain 'growth externalities' unlike many other northern States and national economy, in the sense that a high relative share in the net state domestic product by industry is not realized in manufacturing sector in Jammu and Kashmir State, which stands around 8 percent, rather greater relative share is associated with construction industry, that is, 20.48 percent in 2008-09 which should be a cause of concern as most of the inputs including labour of the industry concerned are imported hence the multiplier effect, both investment and employment, is felt in exporting regions or states.

The attempt has been made in the present investigation to ascertain structural shifts in the Jammu and Kashmir State in relation to selected northern States and also identify the factors responsible for slow growth in critical sectors in the state. It is interesting to note that while the structural change has occurred over the period on expected lines as per growth theories, the growth process has been slow discussed in detail in chapter IV. The investigation analyzes impact of growth pattern on social sector and attempts to examine the extent to which inter-state cooperation can help in self-sustained growth.

In terms of Kuznet's generalization, the contribution of agricultural sector (A-sector Pa) towards NSDP at current prices demonstrates relative decline from 0.59 percent to 0.03 percent and on the other hand the relative contribution of non-agricultural sector (non-A sector, Pn) has shown an increase from 0.41 percent to 0.20 percent during the period under reference.

In the course of study the methodology that has been pursued using secondary sources data, both published and unpublished, and statistical techniques like simple linear equation and exponential function for estimating simple growth rates and compound growth rates respectively. The exponential function of the following form has been used:

$Y = AB^x$

When expressed in logarithm form, this function becomes log-linear and takes the following form.

log y = log A + log B

Where log A = $\frac{\epsilon \, log \, y}{N}$ and

log B = $\frac{\epsilon \, log \, y}{\epsilon x 2}$

Yt (trend values of y) = Antilog of log Y

Compound growth rate = (B-1) 100, where β = Antilog of β.

Moreover Kuznet's equation has also been used for the further analysis

the equation is P = $\frac{1}{1+ P_{nr_n}/P_{ar_a}}$

The present chapter begins with the statement of the problem with conceptual background on structural transformation, the second chapter deals with the review of studies on the subject related to structural change in the economies, the third chapter deals with the structure of Jammu and Kashmir economy in its historically perspective and IV chapter compares the structural change and growth process in the State of Jammu and Kashmir with the northern States and V chapter summarizes the study and focuses on critical findings.

Chapter-2

Review of Literature

In this chapter an attempt has been made to summarize some important theories, models and studies on Economic Growth and Structural Transformation so as to provide basis for the present study. The chapter has been divided into three sections.

Section I deals with review of Theoretical related literature on structural transformation and economic growth.

In Section II the review of some important studies related to structural transformation and economic growth in Indian context has been made.

Section III takes care of studies conducted in state on various issues related to the structural transformation.

Section I

Economists often argue that countries pass through certain phases during the course of development and that by identifying these phases, a country can be said to have reached a certain stage of development. The simplest stage theory is the sector theory of Fisher (1939) and Clark (1940) who made the distinction between the primary, secondary and tertiary sector as a basis of theory of development. According to them, countries are assumed to start as primary producers and then, as the basic necessities of life are met, resources shift into manufacturing or secondary activities. Finally, with rising income, more leisure and increasingly saturated market for manufactured goods, resources move into service or tertiary activities producing commodities with a high income elasticity of demand. They further argue that one of the main determinants of these shifts is a difference in the income elasticity of demand for the commodities and changes in elasticity as development proceeds.[18]

[18]. Thrilwal, A.P. 2003. Stages of development and structural change in "Growth and Development "with special reference to developing Economics pp. 109-110.

Kuznets (1979) has noted that in the period of modern economic growth there has been rapid decline in the share of agriculture and industries in the aggregate output, while share of public utilities and some service groups such as professionals, government etc increased. These changes have also been accompanied by corresponding, shifts in the sectoral allocation of labor force[19]. A detailed analysis of Kuznet's analysis is contained in preceding chapter.

Rostow presents a political theory as well as descriptive economic study of the pattern of growth and development of Nations. The essence of Rostow Thesis is that it is logically and practically possible to identify stages of development and to classify societies according to those stages. He distinguishes five such stages: traditional, transitional, take- off, maturity and high mass consumption.[20]

Nicholas Kaldor has enunciated three laws of growth in the 1960s to show the relationship between the industrial growth, productivity growth and SDP growth. These three basic laws have been widely tested in developed and developing countries using both cross sectional (across countries) and time series data.

The first law is that there exists a strong positive correlation between the growth of manufacturing output (gm) and growth of GDP (g GDP)

That is $g\,GDP = fi(gm)$ $fi>0$

Where fi is the functional relationship that is hypothesized to be positive. The second law is that there exists a strong correlation between the growth of manufacturing output and growth of productivity in manufacturing (pm)

That is $(pnm) = f3\,(gm)$ $f3 >0$

Where f3 is the functional relationship assumed to be positive.[21]

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[19] . Siman Kuznets, Modern Economic Growth: Rate Structure and Spread (N.D: Oxford and IBH publishing Co, 1979). Chapter.3

[20] Palgrane Macmillan, 2003. P.116.

[21] . Kaldors Growth Laws, (1967) op cit pp. 121-122. 1967, strategic factors in Economic Development, New York, Ithaca. P. 9

The structural changes in the economy are so numerous in number and various in form that it is almost impossible to measure with any precision and objectivity. The rates and levels of change in them they can be rough and ready measure only. The "mix and share" and the "shift and share" in the economy are discernible but the rate or tempo is not measured precisely. Structural change improve and should improve the "scale as well as scope" of operations[22].

Structural changes in the tertiary sector have to be such that they are development inducing. A developing economy frequently experience shortage of social overhead capital (SOC) and economic infrastructure (DPA) Development of tertiary sector makes the development of other two sectors possible and it in turn gets all the structure from the other two sectors. A balance between all the sectors can be found through "trial and error method" of the market mechanism. This may sometimes entail deadly losses or excess capacities. In the present time of economic liberalization, the state cannot abdicate all obligations of inducing development. All the three sectors have to develop in juxtaposition; there has to be physical consistency.[23]

Section II

Economists have analyzed Indian economy in its structural change and growth performance over the planning period. An extensive study has been made by V.K.R.V. Rao (1983), having used thirty years of data from 1950-1980 to observe the change in the Indian economy. He has observed that rate of growth of secondary and tertiary sectors have been more than double than that of the primary sector over the whole period. While having a close introspection he says slackening of the growth of secondary sector in its NDP contribution, especially during later half of the period seems to indicate some measure of

[22] O.S. Srivastava, 'Theory of structural Changes in Economy and the process of Economic Growth," Economics of Growth, Development, Planning, pp- 34. 1996, Vikas publishing House, Delhi

[23] O.S Srivastava, Op cit. P-36.

retrogression in the inter-sectoral growth of Indian economy. He has reached the conclusion that if this trend continues into 1980s, it does not augar well either for the overall growth of the economy or its structural change in the desired direction.[24]

Nair's (1983), pioneering analysis covered 14 major states of India. He put together data on SDP for the year 1950-51, 1955-56, 1960-61 to 1975-76 from different official and unofficial sources. The study showed that inter-state disparities in per capita NSDP, as measured by co-efficient of variation (cv), had declined over the period 1950-51 to 1960-61, increased between 1964-65 and 1976-77. The cv was about 24% in 1950-51, 18% in 1964-65 and 28% in 1976-77. Punjab (including Haryana) Gujarat and West Bengal were high income states in 1950-51, 1960-65 and 1971-76. Bihar, Orissa and U.P were at the bottom of the income state[25].

Roychoudhary (1993) reported that cv of per capita in NSDP in current prices has increased between 1967-68 and 1977-78, but declined between 1977-78 and 1985-86. However, the cv in terms of constant price data showed a persistent increase during the entire period 1967-68 to 1985-86[26].

Dholakia (1994) in his analysis of inter-state disparities in growth rates of 20 Indian states over the 30 year period 1960-61 to 1989-90 identified empirically the optimal year of shift in growth trend separately for each state, through the estimation of kinked exponential trend curve model[27].

Das and Barua (1995) examined several dimensions of regional economic disparities among 23 states /union territories during the period 1970-92. Theil's entropy measure of inequality was computed for economy wide NSDP and

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[24] V.K.R.V. Rao (1983) India's National Income – 1950 -1980 An analysis of economic Growth and change, Chapter – 4pp.32-33.

[25] Nair, K.R.G. 1983, Regional experience in a developing economy, Wiley-eastern, New Delhi

[26] Roychoudhury. U.D (1993). Inter-state variation in Economic Development and Standard of living". NEPFP, New Delhi.

[27] Dholakia, B.H. (2002), "Sources of India's Accelerated growth and the vision of the Indian Economy", Indian Journal, Vol. 49. No.4, pp. 27-46.

NSDP in different sectors for each of the years 1970 to 1992. It was found that interstate inequality increased in almost all states[28].

Ghosh, Majit and Neogi (1998) used the data for 35 years, 1960-61 to 1994-95 to test the hypothesis of absolute convergence and found strong evidence for divergence. The co-efficient of variation of per capita SDP declined between 1961-62 and 1981-82 from 33.9% to 31.8%. The cv increased steadily after 1981-82 reaching the value to 43.4% in 1993-94. The consumer price index number for agriculture labourers available for 15 states for deflating the nominal net SDP figures to obtain the real SDP figures[29].

Pritchett (2000) found considerable evidence of instability in growth rates in his analysis of patterns of economic growth in developing countries over the period 1960-92[30].

Chandhuri (2000) in a comprehensive and insightful study growth experiences of 19 Indian States over the four decades; 1960s, 1970s, 1980s and 1990s. In his analysis, chaudhuri had found that inter-state disparities in income levels and growth rates as measured by the co-efficient of variation increased over time and this was inspite of the policy of balanced regional development pursued right from 1950-51[31].

Apart from instability, volatility appears to be a dominant characteristic of the economic growth of Indian states.

Dasgupta et al (2000) used per capita NSDP data in 1980-81 prices over the period 1960-81 to 1995-96 for 21 states to analyze inter-state disparities in growth. However, much of the analysis related to the period 1970-71 to 1995-96. His study highlighted the inter-state diversity, volatility of year to year growth rates, with the coefficient of variation ranging between 84% for Punjab

[28] Das, S.K and A. Barua (1995), "Regional Inequalities, Economic Growth and Liberalisation. A study of the Indian Economy jurnal of development studies, Vol. 32, No. 3. Pp. 364-390.

[29] Ghosh, B.S. Marjit and C. Neoji (1998), "Eco-growth and Regional Divergence in India, 1960 to 1995", Eco and political weekly, June 27, pp. 1623-1630.

[30] Pritchett .I (2000), understanding patterns of economic growth search for Hills among plateaus mountains and plains world bawak, economic review, vol. 14. No. 2, pp. 221-250.

[31] Chanduri, S. (2000), Economic Growth in the states four decades 1", Money and Finance, oct-Dec. pp. 45-69.

and 63% for Orissa. In addition to Orissa, Rajasthan, Gujarat, UP and Delhi displayed high volatility of growth rates[32].

Mathur (2001) in continuation of his earlier work, analyzed several facets of national and regional economic growth since 1950, but with a specific focus on 1980s and 1990s. The study reported a steep acceleration in the co-efficient of variation of per capita incomes in the post-reform period of 1991-96. A tendency towards convergence was noticed within the group of middle income states, while divergence was evident within the group of high and low income states[33].

Sochs et al (2002) attempt a detailed qualitative assessment of the factors behind interstate differentials. Sachs et al noted that there are major differences across Indian states in the area of policy reforms. Maharashtra, Tamil Nadu, Gujarat, Karnataka and Andhra Pradesh have been more reform oriented. Haryana, Kerala, Orissa, Madhya Pradesh, Punjab, Rajasthan, and West Bengal are somewhat behind in undertaking policy reform. Bihar and UP are far behind with the exception of Andhra Pradesh, the reforms oriented states are also the fastest growing states in the post-reform period[34].

Section III

The state of Jammu and Kashmir has presented a dismal growth performance over a larger time horizon in certain critical sectors. In a pioneering study, made by NCAER (1969) has presented a distributed report of appraisal of various resources of J&K and indicates its growth potentialities in agriculture and allied activities and industries and recommended guide lines for feasible programmes in these fields. Over the 10 years period (1966-76).

Techno economic survey of J&K (1969) - In agriculture, the state from its existing deficit position should be seraphs in production which would become

[32] Dasgupta, D.P. Maiti, R. Mukherjee, S. Sarkar and S. Chakrabarti (2000), "Growth and Interstate Disparities in India, Economic and political weekly, July 1, pp. 2413-2422.

[33] Mathur. A (2001) National and Regional growth performance in the Indian Economy. "A sectoral Analysis", paper presented at National seminar an Economic reforms and Employment in Indian Economy IAMR.

[34] Sachs, J.D.N. Bajpai and A. Ramiah (2002) "Geogaphy and Regional growth". The Hindu, Feb, 25 and 26.

possible by the improvement and extension of irrigation facilities, increase in double cropped area and through larger application of inputs. By the expansion of horticulture, though already developed yet has considerable scope for further expansions; rural economy will gain more.

The industrial sector of the state will continue to be weak since the state has no known rich mineral resources which usually provide the base for heavy industries because of the small population of the state. The location of the state being in the unfavourable position, the best thing is to concentrate on small scale industries which cater for the local requirements.

The size and pattern of investment as suggested in this report, if fully implemented will give a string push to the growth of the economy[35].

The Development Review Committee Report (1976) has accorded a view that there is no correlation between factor input and product output in J&K agriculture[36].

According to J&K Economic Review (2006-07), the economy of the state has perceived a marked change over the years. There has been remarkable shift of the economy from primary to tertiary sector. The contribution of primary sector has declined from 56.64% in 1970-71 at constant (1970-71) prices to 31.11% in 2006-07 at constant (1999-00) prices. The contribution of tertiary sector during the same period has increased from 28.80% 46.64%[37].

After reviewing state Domestic product of J & K (2007-08), the GSDP of the state is continuously increasing over the years. The GSDP at constant (1999-00) prices has shown 5.59 percent average annual growth rate during 10th five year plan which is lagging much behind the growth rate at national level. This is the real state of economy suggesting that state is growing at an average rate

[35] Techno-Economic survey of J&K, national council of applied Economic research, New Delhi, June 1969.

[36] Development Review Committee, Report Vol. 1, 1976, J&K government.

[37] Economic Review of Jammu and Kashmir, 2006-07, Directorate of Economics and Statistics, Planning and Development department. Govt. of J & K .

of 5.59 percent per annum while as inflationary growth is 4.40 percent making as aggregate growth of 9.99% at current prices during the same period[38].

The primary sector has contributed about 25.82% to GSDP. The lower growth rate in agriculture is a major cause of concern from the point of view of inclusiveness. The secondary sector contributes about 28.29% to GSDP. The low growth index reveals that industrial performances needs to be improved further which inturn will generate high quality employment in the non-agricultural sector. The tertiary sector is growing in volume as well as sectoral. The percentage contribution of tertiary sector to GSDP in 2008-09 was 45.89%.

While reviewing digest of statistics (2010), the situation in 2009-10 digest does not reveal any significant variation in sectoral contribution to GSDP. Primary sector contribution decline from 25% in 2008-09 to 22% in 2009-10 but contribution in secondary sector shows slight increase from 28.29% to 29.55%. Similar is the case with tertiary sector which has increased from 47.82% to 57.17% for the same period. So the overall growth rate has shown the similar trend over the last few years[39].

From the review of literature it can be concluded that the process of growth is accompanied and assisted by structural transformation. This transformation has however been uneven in terms of sectoral indices and in terms of time in different countries of the world. The percentage of population employed in agriculture in Thailand declined by 6% between 1937and 1960, in India by 5% between 1931 and 1961. In Philippines by 9% between 1939-1962; in Japan by 10% between 1940-60 and in Indonesia it increased from68%- 73% between 1930-61[40].

The structural changes in the economy are the direct outcome of the change in the consumption pattern which accompanies the growth process. These

[38] State Domestic Production J & K (1999-00 to 2007-08), Directorate of Economics and Statistics, Planning and Development Deptt. Govt. of J & K.

[39] Digest of Statistics (2009-10). Directorate of Economics and statistics, government of J&K.

[40] Chritensen, R.P. 1966. "Population Growth & Agricultural Development". Agr. Eco. Research, Vol. 18, P.122.

structural changes can dampen the growth or can induce it. It can be growth dampening if balance between different sectors is not maintained and is left to the vagaries of market mechanism or to the whims of policy makers who do not frame policies consistent with social preferences and in conformity with factor endowment position of the state. Structural changes can be development inducing if sectoral growth is planned and executed with the objective of keeping a balance between different sectors and inconformity with the potential of these sectors. It is because of the invariability of the aforesaid factors that high interregional diversity, volatility is observable in different states of India.

However, the present investigation is carried out to examine the structural changes in the state economy and bottle-necks in harnessing its potential. The study further investigates the role of linkage-effect, built-in structural transformation which, in absence of effective state intervention, may lead the state to emerge as a parasite economy with mass-unemployment, stagnation in capacity building and barren for investment opportunities.

Chapter-3

Structure of Jammu & Kashmir Economy

In order to comprehend dynamics of structural transformation of Jammu & Kashmir economy in the post independence period, the present chapter is divided into five sections.

The S**ection I** is devoted to the subject in its historical perspective indicating that land holding system and political structure was both exploitative and growth retarding.

The **Section II** examines the development performance and growth of agriculture and its allied sector.

Section III is devoted to the analysis of changing agrarian structure of J&K economy and it is here that Kuznets analysis of relative share of different sectors have been examined and analyzed.

Section IV is related to structural transformation interms of urbanization, demographic transition and occupational structure.

Section V deals with the growth analysis of different sectors based on decennial data and examines compound growth equations of Net State Domestic Product (NSDP) at current as well as constant prices.

Section: I - Economy in Historical Prospective

During pre 1947 period the agrarian economy of Jammu & Kashmir state exhibited all the characteristics of a feudal and stagnant agriculture.

The immemorial tradition in Kashmir which treated all land as the property of the ruler and those who cultivated it as his tenants, led to the creation of various intermediaries between the state and the cultivators from ancient times down to the pre-reform period[41]. The organisation of rural economy during the ancient period was directed towards the sole purpose of collecting revenue from the tenants.

[41] Bamzai, P.N. (1962). A History of Kashmir, Political, Social and Cultural, Delhi, P. 29.

The revenue administration and organisation or rural community during medieval Kashmir (1339-1589) was not different from that obtained during earlier Hindu period. The revenue demand during this period stood at 1/6th of the produce in the beginning and was later raised to one-third. The system of collection of revenue remained unchanged[42].

During the Mughal period (1586-1753) large chunks of land were granted as Jagirs and Muffis with proprietary rights to those who carried favours with the kings. The 'Jagir' was a free grant of one or more villages from the ruler to the grantee as a reward for some conspicuous service, either military or otherwise. During the Afghan rule (1753-1819) the system of revenue collection did not differ in practice from the Mughal system. In this period a portion of the revenue was transferred to Afghan capital in Kabul.[43]

During the Sikh rule (1819-1846) the miseries of the cultivators increased further. The grant of land as Jagir and Maufi continued but without proprietary rights and large tracts of fertile land were reserved for royal households termed as 'Khalis', which later assumed the corrupted nomenclature of 'Khalsa', which gradually led to large scale revenue farming of which the direct result was the imposition of a class of intermediaries between the cultivator and the state.

The land holding systems prevalent between 12th and 19th centuries give rise to a long chain of intermediaries as between the state and the actual tillers of the soil. There was a Malik Ala, Malik Adna, the occupancy tenant of grade A, the occupancy tenant of grade B, and the Sub- tenant. In between was yet another man, as the landlord under the inferior proprietor, and under the landlord was a lease holder, a Mustalir and the Pattidar. And on the top was the Jagirdar, and Maufidar and the Illaqadar.[44]

This resulted in the development of landed aristrocracy, absentee landlordism, concentration of land among few and alienation of land from

[42] Ibid. P. 442.
[43] Ibid. PP 443-444.
[44] Report of the Land Compensation Committee, Govt. of Jammu and Kashmir, 1951-52, P.12.

small and petty owners to bigger landlords and increasing expropriation of the share of peasantry.

The peasants on whom depended the agricultural economy were at the mercy of the rapacious officials, who enacted the "last bush of grain from their meagre produce," but here credit goes to Lawrence in 1887 who fixed the area of their holdings and the amount of land revenue, they had to pay. Apart from this, Lawrence also recommended partial abolition of the beggar (forced labor) to which the poor peasant was subjected.[45] But the attempt by Lawrence could not cut much ice and the expropriation of tenant continued on a large scale.

Tenancy Reforms Big Landed Abolition Act: Then in 1948 the maidan attempt towards Jagirdari abolition was made through the enactment of Tenancy (Amendment) Act leading to the emancipation of peasantry by conferring protected tenancy rights in respect of land not exceeding 17 canals Abi or 33 canals Khuski in Kashmir province and 33 canals Abi and 65 canals Khushki in Jammu Division. However, this act was more tenurial-security-oriented rather than having a redistributive bias. On the 13 of July, 1950, the Government under a historic decision of transferring land to the tiller passed the Big Landed Estates Abolition Act, and in 2007 a ceiling was placed on all proprietary holdings at 22.75 acre. The surplus land (above the ceiling) was transferred to the tillers holding it to the extent of their actual cultivating occupation on 17th Oct, 1950 or was vested in the state, where it was not so held.[46]

The tiller was made the full owner of the land transferred to him. As a result of this about 900 land owners were expropriated without payment of compensation from the surplus land (above the ceiling) amounting to about 4.5 lakh acres out of which about 2.3 lakh acres were transferred to the tillers in ownership right free from any encumbrances. The expropriated land subject to a maximum of Rs. 3,000 per. annum for a period of one and a half year. The

[45] Ali Nisar (1978) Deteriorating agrarian situation in Jammu and Kashmir, Eastern Economist.
[46] Op cit. 12

feudal structure of orgarian economy in the Mid – 1947 era made the peasants miserable victims of serfdom.

These reforms reduced rural poverty but could not ensure self – sustained growth of agriculture because of a combination of political and economic factors. The architects of reforms were arrested in 1953 as a consequence of which complementary measures that ensure success of law could not be taken. In 1975 when a new dose of land reforms was introduced, the purpose was to ban creation of all kinds of tenancies. But the level of enthusiasm that was present in 1951 was totally absent in 1975 as lot of water had flown through the rivers of Kashmir from 1953 to 1975.

After the abolition Act, further measures adopted were, ban on conversion of paddy growing lands into orchards as too was growing trend among Zamindars to convert Paddy growing lands into orchards with a view to growing cash crops and to defeat the provisions of any possible future legislations which might have prevented such lands from passing into the hands of tillers or the government. Such conversation had started affecting adversely the production of staple food in the state. However this measure alone has not proved to be sufficient to achieve the purpose, a Bill was therefore introduced in the legislature the object of which was to put a total ban on conversion into orchards, not only of the paddy growing lands but of all food growing lands.

After enactment and enforcement acts in J&K state, the second most important change in state agriculture was that of technology-adoption. Till 1965-66, traditional and conservative agricultural practices were followed. After 1966 the farmers adopted new agricultural improved practices by using high yielding varieties of seeds (HYV) but limited to certain areas and some crops only as a humble beginning. Main factors responsible for adoption of this technology change was because of improved and assured irrigational facilities with high yielding crops. The benefits of technological changes accrued to only such areas and crops which enjoyed irrigation facilities and its impact on hilly

agriculture was very low. Thus the agricultural changes were area-specific and crop-specific.

Section: II - Development through Decades

The analysis of the table No. 3brings to the fore some interesting facts. Firstly no important changes have taken place in respective plan priorities. Irrigation, power, transport and social services continued to remain areas of focus from first to 8th plan. From 8th plan onwards, rural development seems to be added objective of the state planning. Second aspect which is both interesting and disturbing is that there has been huge gap between the plan outlay and actual expenditure. This is presented in column No. 4. The actual expenditure declined from 90.39 crores to 82.31 crores from 1st to 3rd plan. The decline would be much greater in real terms if price rise during this period is accounted for. Again actual expenditure in 5th and 9th plan is also lower than the actual expenditure in first plan.

Table 3: Growth of Five year plan outlay and actual utilization of Resources with Priorities from 1950-51 to 2002-07 in Jammu and Kashmir State.

(Rs. In Crores)

S. No.	Plan Period	Five year plan outlay	Actual expenditure (5of outlay)	Gap between plan out lay and actual expenditure	priority sectors
	1	2	3	4*	5
1	1951 – 56 – I	12.74	90.39	-77.65	Irrigation, Power, Transport, Communication
2.	1956 – 61 – II	33.92	76.49	-42.57	Agriculture, Irrigation, Transport, Communication and Social Services.
3.	196 – 66 – III	75.15	82.31	-7.16	Irrigation, Social Service and Agriculture
4.	1969 – 74 – IV	158.40	102.81	55.59	Irrigation, Power, Social Service, Transport and Communication.
5	1974 – 79 – V	363.40	76.65	286.75	Irrigation, Power and Social Service
6.	1980 – 85 – VI	900.00	102.02	797.98	Social Service, Irrigation, Power and Agriculture
7.	1985 – 900 – VII	1400.00	116.90	1283.10	Social Service, Irrigation Power and Agriculture
8.	1992 – 97 – VIII	4000.00	113.00	3887.00	Irrigation, Power and Social Service
9.	1997 – 02 – IX	10,000.00	75.43	9924.57	Social Service, Irrigation Power, Agriculture, Rural Development
10.	2002 – 07 – X	14,500.00	101.03	14398.97	Social Service, Irrigation, Power, Agriculture, Rural Development
11.	2007 – 12 – XI	2583400.00			Power, R&B, Education, and agriculture and irrigation

Source:- State Finance Commission Report, Vol. I-III

* Calculations based on SFC Report

Thirdly, gap between actual expenditure and plan outlay indicates that during the first three plans, actual expenditure exceeds plan outlay but in later period this trend gets reversed. This clearly shows that either outlays have not been carefully worked out or actual execution of expenditure has remained faulty for reasons best known to planners and administrators whose activities are, nine times out of ten, influenced by Politicians.

Development Performance and Growth

Jammu & Kashmir economy despite witnessing institutional as well as technological changes has not witnessed the kind of transformation that is generally associated with economic development. Although the contribution of agriculture towards SDP has fallen over the plan period, the dependence on agriculture has not declined substantially as majority of population still directly and indirectly depend on agriculture. The performance of various sectors in the economy is as under:-

Agricultural Sector:- Overall economic development of the state is directly rather very closely linked to the agriculture. It is imperative to develop the agriculture in our state in view of poor performance achieved in the secondary sector. There is no doubt that the economy of the state is deep rooted in agriculture and it plays a vital role in the economic scenario of the state as almost all the economic activities revolve round it. Since the J&K State is lagging behind in diversified economic structure, as such the economy of the state is mostly dependent on Agriculture sector.

The state is literally a monocrop economy mostly growing the cereal crops and cropping pattern has not significantly changed over the decades.

Within the agricultural sector, following noticeable structural changes/ diversification is visible.

From past some decades Horticulture has become an indispensable and growing part of agriculture offering a wide range of choices to the farmers for crop diversification. It has a large scope for a good chunk of agro industries

which generate substantial employment avenues with agriculture and allied sectors finding alternate ways of increasing productivity of crops, it has been observed that Horticulture as sub sectors is showing remarkable progress in the State.

Pertinent to mention here that both temperate and sub tropical fruits are grown in our State, which include Apple, Walnut, Almonds, Pear, Apricot, Peach, Plum, Cherries, and Citrus, Mangoes and Gauva in small pockets. However, Apple is the only fruit which carries a very high industrial potential.

Besides, medicinal and aromatic plants, floriculture, mushroom, plantation crops and a wide range of vegetables are cultivated in the state. In addition to this, Black Zeera and world famous Kashmiri Saffron are cultivated in some selected pockets of the state. Horticulture is flourishing in the state as is revealed by its contribution to the State Gross Domestic Product and with its relative share in the agriculture sector as well. Almost 45 percent of economic returns in agriculture sector is attributed to horticulture which indicates its growing importance in the economy of the state. It contributes around 7 to 8 percent to GSDP. There is a vast scope for food processing industry in the State as it offers tremendous opportunities for commercial exploitation. However, it has been observed that commercial processing has not been showing healthy progress as is quite evident from the available data which indicates that commercial processing is around 1 percent only due to lack of post-harvesting and processing facilities as well as scientific packaging. However, opportunities are available in the state for exploiting this vast potential under individual, joint venture and sponsored efforts.

Area under fruits growing in Jammu & Kashmir state has increased from 3.06 lakh hectares in 2008 -09 to 3.15 lakh hectares in 2009-10, showing increase of 2.94 percent and the production has increased from 16.91 lakh MTS in 2008-09 to 17.13 lakh MTS in 2009-10, showing an increase of 1.3 percent (table no.4).

Table 4: Area, Production and Productivity of fruits (All fruits) J&K State

year	kind of fruit	area (in Het)	Production in Lakh MTS	Productivity
2005-2006	fresh	1.75	12.89	7.36
	Dry	0.93	1.24	1.33
	Total	2.68	14.13	5.27
2006-07	fresh	1.85	13.77	7.43
	Dry	0.99	1.31	1.33
	Total	2.84	15.08	5.31
2007-08	fresh	1.96	14.78	7.54
	Dry	0.99	1.58	1.60
	Total	2.95	16.36	5.55
2008-09	fresh	2.06	15.26	7.41
	Dry	1.00	1.65	1.65
	Total	3.06	16.91	5.53
2009-10	Fresh	2.10	15.35	7.31
	Dry	1.05	1.78	1.70
	Total	3.15	17.13	5.44
2010-11	Fresh	2.17	20.46	9.43
	Dry	1.08	1.76	1.63
	Total	3.25	22.22	6.84

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Amongst the allied Sectors of Agriculture, Live stock is an important Sector. The contribution from live stock to the SDP of our state is about 11percent. The cattle and poultry rearing provides gainful employment to small and marginal farmers. It is also eco-friendly sector, besides adding to domestic bio-diversity it facilitates producing food in dry lands without depleting ground water resources. Pertinently, the per capita consumption of meat and poultry

items and milk is higher in Jammu and Kashmir State, as compared to average consumption at the national level.

Despite the limited role of live stock in Agriculture, it has a prominent role to play in industrialization of the state. The live stock are a best source of raw material for Tanneries and leather Industry. They are a source of raw material to many industries and at the same time provide market to an industrial product. Hides and Skins, wool and bones are found in sufficient quantities in the state which constitute the main raw material for many such industries.

The availability of such material provides sufficient scope to the state to industrialize in the lines based on these resources. All efforts are being made to achieve the all round development of Animal Husbandry in the state particularly in sheep, dairy and poultry farming.

Although a good beginning has been made in the state with regard to Poultry Farming, however, it still needs to go a long way. Presently, besides Government Hatchery and Poultry Farms, there are two hatcheries, some feed factories and a number of poultry farms in the state. However, this does not suffice against the every growing demand for broilers and eggs. A good chunk of rural and urban population seems to be interested in Poultry farming. However, they need to be encouraged by the Government by providing adequate financial support and technical know-how. This would also help in solving the unemployment problem to a great extent.

Despite the aforesaid positive changes in the agricultural sector that augur well for future growth of this sector, the state continues to be deficient in rice, wheat, maize, eggs, meat, milk and other such products which draw their basic raw material from agriculture. Therefore whatever changes have taken place in this sector, these have not reduced the dependence of the economy on imports.

Section: III – Changing Structure of J&K economy & Kuznets Analysis

In the changing structure of Jammu and Kashmir economy, the relative share of agriculture in NSDP has instaintially declined from 67.55percent in 1960-61 to 26.57percent in 2009-10 as has happened at All India level, and Industrial Sector share increased from 8.8percent in 1960-61 to 30.06percent in 2009-10 as depicted in (table 5&6).

Changing Structure of J&K economy and contribution of various sectors.

Table 5: Percentage Distribution of Net State domestic Product at Industry of Origin at (Current Prices)

Year	Agriculture (including live-stock, hunting &trapping, forestry & logging and fishing)	Manufacturing (including mining & quarrying, construction, Electricity, Gas & water supply)	Construction	Manufacturing (excluding construction)	Transport & communication (including trade storage, Hotel & Restaurant)	Public administration & other services (including Banking Insurance, Real Estate & ownership of Dwelling.)	Total NSDP
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = 2+3+6+7
1960-61	67.55	8.84	2.52	6.32	11.32	12.29	100.00
1970-71	56.47	14.73	8.75	5.98	13.31	15.49	100.00
1980-81	47.04	13.26	7.65	5.71	17.98	21.72	100.00
1990-91	43.23	13.28	9.96	3.32	16.85	26.64	100.00
2000-01	32.87	20.48	11.21	9.27	11.20	35.45	100.00
2009-10	26.57	30.06	21.84	8.22	14.59	28.78	100.00

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Table 6: Percentage distribution of Net domestic product at Industry of origin at (Constant prices)

Year	Agriculture (including live-stock, hunting &trapping, forestry & logging and fishing)	Manufacturing (including mining & quarrying, construction, Electricity, Gas & water supply)	Construction	Manufacturing (excluding construction)	Transport & communication (including trade storage, Hotel & Restaurant)	Public administration & other services (including Banking Insurance, Real Estate & ownership of Dwelling.)	Total NSDP
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = 2+3+6+7
1960-61	67.55	8.84	2.52	6.32	11.32	12.29	100.00
1970-71	56.47	14.73	8.75	5.98	13.31	15.40	100.00
1980-81	47.04	13.26	6.96	6.30	17.98	21.72	100.00
1990-91	38.42	16.88	8.01	8.87	12.74	31.96	100.00
2000-01	32.47	20.34	10.46	9.88	11.38	35.81	100.00
2009-10	26.11	26.71	17.83	8.88	18.89	28.29	100.00

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues

In terms of Kuznets analysis the relative share of manufacturing has to increase in the long run there by demonstrating industrialization taking place in the economy. But disaggregating the data of Jammu and Kashmir economy, the relative share of industry is accounted for, by construction to a greater degree, i.e; by about 21.84 percent and 8.22 percent is accounted for, by manufacturing sector and its ancillary. In comparison to other northern growing state, Jammu and Kashmir is contributing to greater dependence rather than the growth. Most of the construction material and goods and much of the labour in construction industry is imported, hence the growth if generated is in exporting states rather than in J&K and industrialization has occurred in exporting states rather in our state economy. Therefore, the investment opportunities and gainful economic pursuits particularly interms of employment generation is not realized in the state.

In J&K economy product contribution of agricultural sector (A-sector) has been very limited because of stagnant non-agricultural sector (non-A sector). Market contribution has also been low because most of the factor inputs required by rural population are imported like tractors, fertilizers, pesticides and other agricultural implements.

Factor contribution has remained relatively much higher than product and market contribution because increases in rural incomes, because of growth of agricultural and tertiary sectors, have contributed significantly to capital formation which Kuznet terms as factor contribution. Further, agricultural sub-sectors like horticulture have contributed towards the foreign exchange earnings of the state which is not explicitly identified by Kuznets but is implicit in his market contribution. In order to show the contribution of agriculture to Net State Domestic Product (NSDP), the following expressions have been used.

P_a = agricultural net product

P_n = non-agricultural net product

P = total national product

Then

$$P = P_a + P_n \ldots\ldots\ldots \quad (1)$$

and

$$\delta P = \frac{\delta Pa}{Pa} P_a + \frac{\delta Pn}{Pn} P_n \ldots\ldots \quad (2)$$

writing r_a for $\delta P_a/P_a$, r_n or $\delta P_n/P_n$:

$$\delta P = P_a r_a + P_n r_n \ldots\ldots \quad (3)$$

$$P_a r_a = \delta P - P_n r_n \ldots\ldots\ldots \quad (4)$$

and

$$\frac{P_{ar_a}}{\delta P} = 1 - \frac{P_{nr_n}}{\delta P} \ldots\ldots\ldots \quad (5)$$

substituting for δP on the RHS of equation (5) from equation (3):

$$= 1 - \frac{P_{nr_n}}{P_{ar_a} + P_{nr_n}}$$

$$= \frac{P_{ar_a} + P_{nr_n} - P_{nr_n}}{P_{ar_a} + P_{nr_n}}$$

$$= \frac{P_{ar_a}}{P_{ar_a} + P_{nr_n}}$$

$$= \frac{1}{(P_{ar_a} + P_{nr_n})/P_{ar_a}}$$

$$= \frac{1}{1 + P_{nr_n}/P_{ar_a}} \ldots\ldots\ldots \quad (6)$$

Kuznets formula expressing an inverse relationship between agriculture's share of GDP growth ($P_a r_a/ \delta P$) and the product of the ratio of sectoral shares of GDP (P_n/P_a) and the ratio of sectoral growth rates (r_n/r_a), is given by equation (6).

On the basis of these equations, the relevant estimates are present in the (table No.7)

Table: 7. Agriculture's contribution to the Rate of Economic Growth in J&K State at (1993-94 prices)

State	Pa^1		Pn^2		ra^3		rn^4		P_n/P_a		rn/ra		$\frac{Pa/ra^5}{\delta P}$		$\delta P^6/p$	
	1968 (TE)	2009 (TE)	1968 (TE)	2009 (TE)	1967-88	1989-2010	1967-88	1989-2010	1968	2009	1968	2009	1968	2009	1967-88	1989-2010
J&K	0.59	0.30	0.41	0.70	2.51	3.90	5.72	5.47	0.69	2.33	2.27	1.40	0.39	0.31	3.44	4.83

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Pa^1 = A-sector (agriculture, animal husbandry, forestry and fishing) share of NSDP

Pn^2 = Non-A sector share of NSDP

ra^3 = Average annual growth rate of A-sector product

rn^4 = Average annual growth of non-A sector product

$\frac{Pa/ra^5}{\delta P}$ = Ratio of A-sector to NSDP growth (derive from Pa, Pn, ra, rn using Kuznets formula)

$\delta P^6/p$ = Average annual growth rate of NSDP

TE: Trannium Average

It is clear from the table above that the contribution of agriculture sector (A-sector P_a) towards NSDP at constant prices has decreased from 0.59 percent to 0.30 percent while as the contribution of Non agricultural sector (Non-A P_n) has increased from 0.41 percent to 0.70 percent during this period.

The growth rate of agriculture sector (A-sector) interestingly during 1967-88 has remained at 2.51 percent while as in the post 89 period the growth rate was 3.90.

The growth rate of non A- sector stood at 5.72 percent during 1967-88 and 5.47 percent during 1989-2010. The ratio of the contribution of non-A sector to A-sector has increased from 0.69 percent to 2.33 percent while as the ratio of corresponding growth rates decreases from 2.27 percent to 1.40 percent. In so far as ratio of agriculture growth to GDP growth, the estimates stood at 0.39 percent in 1968 and declined to 0.31 percent in 2009 which is in line with the earlier stated estimates with regard to agricultural contribution towards NSDP. It would not be out of place to mention here that overall GDP growth to 1967-88 stood at 3.99 percent and increased marginally to 4.83 percent during 1989-2010.

As the state of Jammu and Kashmir was not having any significant Industrial base at the time of Independence of the country. The Industrial sector in the State was limited to a few Cottage Industries and one or two factories in small scale Sector. Infact, Handicraft Industry was occupying the main place in the Industrial Sector and it still continues to be so.

After Handicrafts Sector, it is small Scale Industries (SSI), which have provided plenty of Job avenues. Small Scale Industries have contributed more than 28 percent of the total employment generated in the Industrial sector in the State. Industrial growth in the state is pronounced more towards small scale sector than other sectors. While having a look at sector- wise growth of Industry in J&K, it is observed that small scale industries sector has achieved remarkable growth and diversification over a period of time. The number of S.S.I units in the state have gone to 51,441 units in 2008-09 from 8,428 units in

1980-81. The number of functional units were 574 in 1981-82 and have gone to 964 in 2001-02. The number has gone upto 25694 in 2010- 11 (Directorate of Economics and statistics, J&K Government).

The absence of large and medium scale industries in the state has put the onus on handcrafts and small scale industries for industrial output acceleration and employment generation. The production of handicraft industries has increased to Rs 1614.594 crores during 2007-08 as against 200 crores during 1990-91. Employment of handicraft sector has increased to 3.5 lakhs as against 2.5 lakhs during 1990-91. Small scale industries provide employment to 2.38 lakh people.

Although the number of small scale industrial units in the state have gone up, there are cases of sickness of units with some of them having become non-functional due to number of reasons like financial crunch, marketing problem, non availability of raw material and inadequate infrastructure especially power. The employment level in this sector has also remained more or less stagnant for a number of years indicating that even small scale industries sector has also lost its employment generation capacity in the economy, thereby, posing new challenges to policy makers in the state.

The table 5 & 6 shows that the percentage contribution of other vital sector of the economy namely transport and communication (Including Trade, Storage, Hotel and Restaurant) at current prices stood at 11.32 in 1960-61, 13.31 in 1970-71,17.98, 16.85, 11.20, in 1980-81, 1990-91, 2000-0,1 rose to only 14.59 in 2009-10. At constant prices, the relevant estimates are 11.32, 13.31, 17.98, 12.74, 11.38 and 18.89 percent for the same periods.

However, the percentage Contribution of Banking and Insurance, Real Estate ownership of dwelling and services (including Education, Medical and Health, Sanitary services n.e.c) at current prices, has increased from 12.29 in 1960-61 to 15.49 in 1970-71 and to 21.72 in 1980-81 and further to 26.64, 35.45 in 1990-91 and 2000-01 respectively then decreased to 28.78 in 2009-10. At constant prices, the relevant estimates are 12.29Percent, 15.40Percent,

21.72, 31.96, 35.81, and 28.29 respectively. Thus the sectors which classical economists treated as "unproductive" experienced some growth but the contribution of the vital sectors of the economy remained, more or less stagnant.

Section: IV - Structural transformation - interms of urbanization, Demographic transition and occupational structure

Urbanization

The development experience of various countries of the world reveals that the growth process and structural transformations move concurrently. The decline in the contribution of agriculture and growth in the contribution of manufacturing and tertiary sector give fillip to process of urbanization. The J&K economy too has experienced similar structural changes and this is evident from the analysis of table no. 8.

Table: 8. Showing urban population and density of population in J&K State

Year	Urban Pop.	Kashmir division	Jammu division	Density pop.	No of towns
1961	16.66	20.21	12.18	NA	NA
1971	18.59	23.14	13.81	45	45
1981	21.05	25.20	14.61	59	58
1991	23.83	NA	NA	NA	NA
2001	24.81	26.52	22.62	100	75
2011	27.21	31.70	22.02	124	NA

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

The percentage of urban population to the total population in the state has steadily increased from 16.66 percent to 27.21 percent during the last 6 decades i.e., from 1961-2011. At the provincial level though similar pattern is observable yet some interesting aspects call for special attention. In Kashmir division, the process of urbanization has increased from 20.21 percent in 1961 to 23.14 percent in 1971, 25.20 in 1981 and then to 26.52 & 31.70 in 2001-11

respectively. While as in the Jammu division correspondingly estimates are 12.18 percent, 13.81percent, 14.61percent, 22.62 percent and 22.02 percent. Interestingly in Kashmir division the percentage increase from 1981-2001 has been slow but after 2001, this division experiences the highest percentage increase. On the other hand during the period 1981-2001 Jammu division experiences the highest increase in proportion of urban population because of the turmoil and consequent migration of population from Kashmir to Jammu division. During the last decade i.e., 2001-11, when Kashmir division experiences the highest percentage increase, in Jammu division, this percentage of urban population decreases marginally from 22.62 to 22.02 which may be due to migration of some sections of the people from majority and minority communities to Kashmir Division following improvement in economic and political conditions in the state during the last decade. So far as density of Urban population for the state as a whole is concerned it has during the last six decades increased nearly threefold.

Demographic Transition

J&K state has performed well in providing health and medical facilities to the people. The number of health institutions has increased substantially in the recent past. The health indicators have improved and indicate the following position over the last five decades as shown in table no. 9.

Table: 9. Showing Birth Rate, Death Rate and Infant Mortality Rate in J&K State from 1971-2011

Years	Birth Rate (BR per 000)		Death Rates (DR per 000)		Infant Motility Rate (IMR per 000)	
1971	Combined Rural Urban	21.44 22.19 20.89	Combined Rural Urban	7.19 11.7 6.0	Combined	71
1981	Combined Rural Urban	31.6 33.9 21.4	Combined Rural Urban	9.0 9.7 6.0	Combined	72
2001	Combined Rural Urban	20.2 21.1 16.4	Combined Rural Urban	6.1 6.1 6.1	Combined Rural Urban	50 51 45
2011	Combined Rural Urban	18.6 19.9 13.7	Combined Rural Urban	5.7 6.0 4.7	Combined Rural Urban	45 48 34

Source: Demographic year book, 1975-76 and 1989, 2011. Department of family welfare, Srinagar.

From the above estimates, it can be inferred that vital indicators BR, DR & IMR have come down thus reflect a satisfactory picture of health status of J&K state. However, death rate is lower in urban areas as compared to rural areas which can be attributed to better health care and health standards in urban areas. Similarly, table shows the high birth rate in rural areas as compared to urban areas which can be attributed to illiteracy and less acceptance to family planning measures.

Though there has been a steady increase in health care infrastructure available since independence period, the infrastructure in the shape of buildings, machinery and equipments, has not been able to keep pace with the expansion in the recent plans due to topographical constraints. Moreover, the health infrastructure in J&K state at all levels suffers from shortages that are both qualitative and quantitative in nature.

Occupational Structure

Estimates with regard to sectoral structure reveal that in consistent with the declining contribution of primary sector towards GSDP, the labor absorption of this sector shows a consistently declining trend. Despite this declining trend, primary sector continues to be the largest employer upto 2001 as shown in table. Thereafter, the tertiary sector occupied this place as the employment generation by secondary sector has remained more or less constant over the period except for the decade 1971-81.

Table: 10. Sectoral occupational structure (Percentage)

Occupation	1961	1971	1981	2001	2011*
Primary sector	78.62	71.05	64.28	50.1	43
Secondary sector	9.03	8.94	14.27	6.2	8
Tertiary sector	12.35	20.01	21.45	43.7	49

Source: Compiled from Census of India, various Issues

* Projected

From the table above, it is interesting to note that in 1981-2001decade, there has taken place a sharp fall from 14.27 percent to 6.2 percent in secondary sector which, it seems, has been compensated by a sharp and unprecedented increase in the tertiary sector by 21.45 percent to 43.7 percent. The percentage estimates regarding the decadal occupational pattern depicted in table no. 11 shows a somewhat similar picture. However, certain aspects of occupational pattern need to be analyzed.

Table: 11. Decadal occupational pattern (Percentage)

Occupation	**1961**	**1971**	**1981**	**2001**	**2011****
Cultivators	75.81	64.27	56.85	43.40	36
Agricultural laborers	2.81	6.78	7.23	6.70	6
Household industry	9.03	10.94	14.47	6.20	6
Others	12.35	18.01	21.45	43.70	52
Total	100	100	100	100	100

Source: Compiled from census of India

** Projected

Firstly, the number of cultivators shows the consistent decline from 1961-2011 and the direct labor absorption capacity of agriculture during the five decades of planning is reduced by one half. The most interesting aspect that is revealed by the aforesaid estimates is that there has been a sharp increase in the agricultural laborers which has pronounced during the early decade as compared to later decades. This increasing prolitarisation in Kashmir agriculture can be attributed to sharp decline in the size of holdings during 60s as compared to 50s of the 19^{th} century and absence of industrialization during the said decade. So far as industrialization is concerned, it has mainly been confined to small scale household industry whose progress over the period has seen many ups and downs which is also revealed by the cyclical nature of the figures falling outside agriculture and Industry; and these estimates show a consistent increase from 1961 to 2011 and the labor absorption outside the

productive sectors seems to be increasing by more than fourfold which shows the parasitic nature of the economy.

The government in its plan and official documents tries to exhibit its keen sense to effect structural transformation from economy which implies less dependence of agriculture and more on industrial sector. But the performance of the sectors is suggestive of the fact that industrialization has neither reduced dependence on agriculture on a large scale nor has this transformation increased agricultural surpluses.

Section: V - Pattern of growth based on decennial data

The growth rates based on the decennial data regarding the contribution of major sectors to NSDP in J&K as shown in the table no 13 reveals that the primary sector has not been favorably contributing while as the Contribution of other two sectors has been significant. Looking at the decennial growth rate of primary sector at constant prices, it was 1.38 percent in the first decade (1960-1971) and with marginal increase to 1.81 percent in the following decade, but showing a negative growth (-0.14) during the decade (1980-1991). Though in the following periods, the growth rate in the sector has increased but it is of marginal nature as compared, to other two sectors secondary and tertiary, their growth rate to NSDP has been considerably significant. The growth rate in the first decade in secondary sector was 9.69 percent which has fluctuated in the following decades and has reached to 10.97 percent in the last decade (2000-01) to 2009-10). At current prices secondary sector has shown some growth upto 1991-2000 but again its declining in the last decade. At constant prices the secondary sector is showing ups and downs. It has shown the growth of 9.69 percent during 1961-70 then growth rate has come down to 1.9 percent during 1971-80. Again the sector showing some growth of 5.32 percent during 1981-90 then again declining by 1.91 percent in 1991-00.

However the tertiary sector has shown considerable growth both at current and constant prices. It has actively contributing with 14.77 percent as the growth rate in the first decade & has increased by 23.84 percent in 1971-80. There has

been marginal decline in the following decade but the growth rate in the sector has again increased by 29.46 percent in the period 1991-00.

The total NSDP growth rates were positive with a slight fluctuation in the first decade, the growth rate on constant prices was 3.51percent which has marginally increased in the following decade and then slightly declined in the period 1981-1990, but improved in the decade 1991-2000, when the growth rates stood at 4.26percent. The growth in income on per capita basis at constant prices has been throughout small, but it has enhanced in the last decade under study.

At current prices, the per capita income showed significant rate of growth throughout the period under discussion, it was 8.47percent in 1961-70 which has increased by 13.1 percent in the following decade and further increased by 26.2 during 1991-2000. It is inferred from this data that the overall NSDP is still being influenced by tertiary sector.

Pattern of Growth based on decennial data

Table: 12. Contribution of NSDP by Sectors in J&K at Current and Constant (at 1993-94) Prices for the Period 1960-61 to 2009-10

(Rs. 000 crores)

S. No	Sector	Sectoral NSDP at constant and Current prices											
		1960-61		1970-71		1980-81		1990-91		2000-01		2009-10	
		Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices
1	Primary	1204.16	64.14	1413.78	141.36	1798.04	497.44	1892.17	1258.89	2519.11	4729.5	3277.65	8785.52
2	Secondary	157.6	8.26	368.83	36.36	489.42	135.4	826.26	384.56	1027.61	2914.55	2154.64	9733.91
3	Tertiary	420.96	22.38	720.9	71.87	1506.06	416.66	2197.03	1264.81	3628.42	62.55	5825.68	14174.23
4	Total NSDP	1728.72	94.78	2503.51	249.59	3793.52	1049.5	4915.46	2908.26	7211.13	13899.5	11579.25	32693.66
5	Per capita income	5060	269	5493	548	6419	1776	6449	3816	7274	14268	10222	28414

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Per capita income in Rupees.

Growth rates are based on decennial data 1960-61 – 1969-70, 1970-71 – 1979-80, 1980-81 – 1989-90, 1990-91 – 1999-00, 2000-01 – 2009-10.

Table: 13. Annual Growth Rate of NSDP of different sectors in J&K at Current and Constant (at 1993-94) Prices for the Period 1960-61 to 2009-10

(Percent per annum)

S. No	Sector	Sectoral NSDP at constant and Current prices									
		1961-70		1971-80		1981-90		1991-00		2001-10	
		Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices
1	Primary	1.38	10.94	1.81	16.87	0.14	12.73	3.45	25.8	3.01	8.58
2	Secondary	9.69	26.34	1.97	28.6	5.33	15.07	1.91	60.12	10.97	23.4
3	Tertiary	7.27	14.77	9.24	23.84	4.03	19.24	5.73	29.46	6.06	12.66
4	Total NSDP	3.51	13.19	3.97	20.58	2.25	15.62	4.26	28.26	6.06	13.52
5	Per capita income	0.71	8.47	1.09	13.1	0.26	10.37	1.27	26.2	4.01	9.91

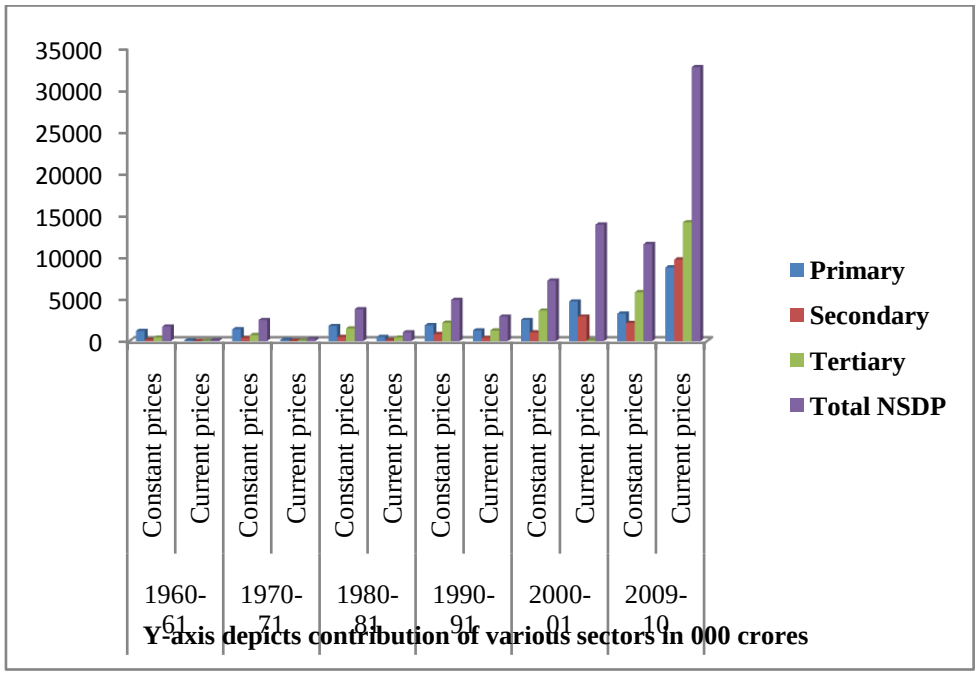
Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Per capita income in Rupees.

Growth rates are based on decennial data 1960-61 – 1969-70, 1970-71 – 1979-80, 1980-81 – 1989-90, 1990-91 – 1999-00, 2000-01 – 2009-10.

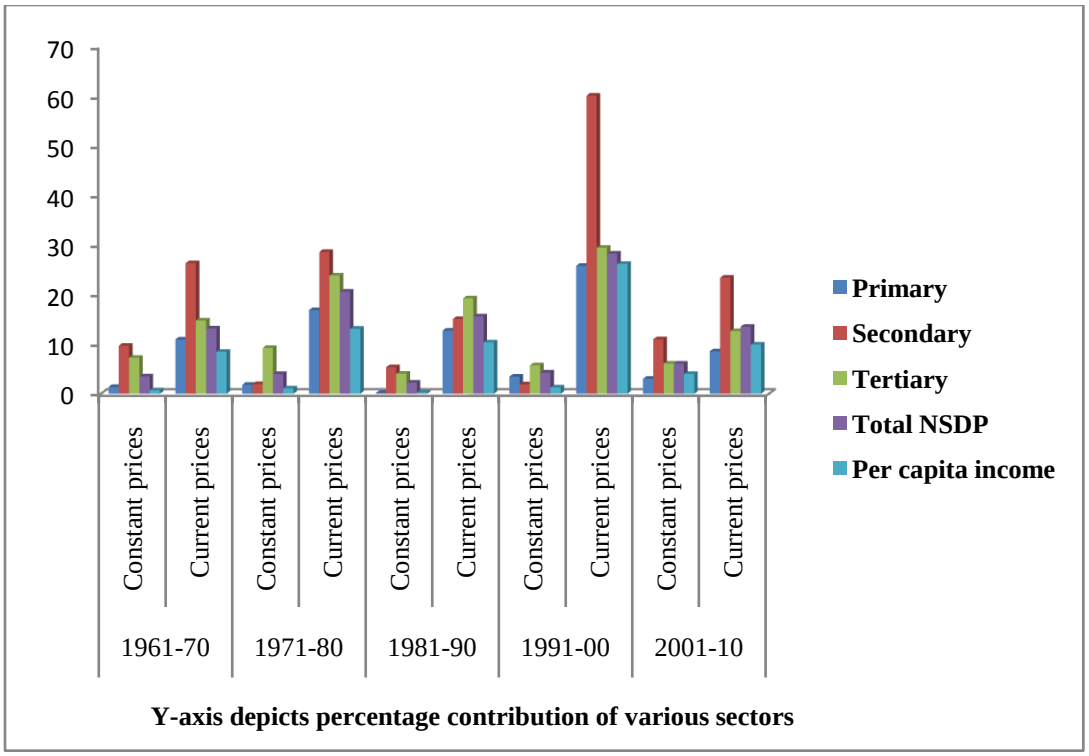
Contribution of NSDP by sectors in J&K at Current and Constant prices (period 1960-61 to 2009-10)

(Rs. 000 crores)



Annual Growth Rate of NSDP of different sectors in J&K at Current and Constant (at 1993-94) Prices for the Period 1960-61 to 2009-10

(percent per annum)



Growth analysis of J&K state (in terms of linear and exponential model)

The present investigation has examined the NSDP time series data both at current prices and constant prices and estimated the annual growth rates based on simple linear equation and compound growth rates on exponential function. In order to minimize the temporal variation, the time series data has been converted into the series indices to get realistic growth estimates. The state of Jammu and Kashmir demonstrates a compound growth of 4.00 percent per annum in case of aggregate NSDP at current prices (index based) from 1960-61 to 2010-2011 (table 16). The estimated relationship is statistically significant with coefficient of determination about 0.92.

While estimating the compound growth rates, the tertiary sector among the basic sectors has registered a higher growth rate of 4.30 percent per annum as compared to other sectors. It would be equally appropriate to examine the time series growth rates on per capita basis. While in relationship is statistically significant at 0.95 probability level. The annual compound growth on per capita basis worked out 3.80 percent showing a significant relationship with $R^2 = 0.93$.

In terms of simple linear function the aggregate NSDP has shown better performance both in absolute values and per capita basis. In any case, among the three sectors, the growth in tertiary sector over the period of 1960-61 to 2010-11 is higher than primary and secondary sector (linear current index). This is shown in table 18.

Table: 14. Compound Growth Rates of NSDP at Current and Constant Prices based on index and absolute figures for the State J&K for the period to 1960-61 to 2010-11.

(Percent per annum)

	Primary	Secondary	Tertiary
Current prices (Index based)	3.8	4.00	4.30
Current (absolute based	11.5	15.2	15.3
Constant prices (Index based)	1.1	2.2	2.6
Constant prices (absolute based)	2.10	4.60	5.5

Table: 15. Compound Growth Equations of NSDP at Current and Constant prices (both index and absolute basis) for the Principal Sectors for J&K State, period 1960-61 to 2010-11.

(Rs. In crores)

Exponential function $Y=ab^x$

		Primary	R^2	Secondary	R^2	Tertiary	R^2
Current prices (Index based)	Y=	$(124.96)\ (1.038)^x$	0.94	$(155.26)\ (1.04)^x$	0.94	$(135.57)\ (1.04)^x$	0.93
		{5.18}** {.001}**		{6.40}** {.001}**		{6.82}** {.002}**	
Current prices (absolute based)	Y=	$(47.33)\ (1.12)^x$	0.99	$(7.15)\ (1.15)^x$	0.99	$(15.67)\ (1.15)^x$	0.99
		{1.58}** {.001}**		{.40}** {.002}**		{.91}** {.002}**	
Constant prices (index based)	Y=	$(95.68)\ (1.01)^x$	0.30	$(134.31)\ (1.02)^x$	0.94	$(118.38)\ (1.02)^x$	0.95
		{6.71}** {.002}**		{3.84}** {.001}**		{2.92}** {.001}**	
Constant prices (absolute based)	Y=	$(1098.46)\ (1.02)^x$	0.94	$(193.97)\ (1.046)^x$	0.96	$(413.63)\ (1.05)^x$	0.99
		{25.35}** {.001}**		{7.411}** {.001}**		{7.913}** {.001}**	

** significant at 0.99 probability level

Note: Figures with {} show the Standard Error.

Table: 16. Compound Growth Rates of NSDP at Current and Constant Prices based on index and absolute figures for Aggregate NSDP and Per Capita NSDP the J&K State for the period to 1960-61 to 2010-11.

(Percent per anum)

Growth Rate = (b-1)100		
	Aggregate NSDP	**Per capita NSDP**
Current prices (Index based)	4.00	3.8
Current (Absolute based)	13.5	10.78
Constant prices (Index based)	2.2	1.1
Constant prices (Absolute based)	3.8	1.2

Table: 17. Compound Growth Equations of NSDP at Current and Constant Prices based on index and absolute figures for Aggregate NSDP and Per Capita NSDP for the J&K State for the period to 1960-61 to 2010-11.

(Rs. In crores)

Exponential function $Y=ab^x$					
		Aggregate NSDP	**R^2**	**Per capita NSDP**	**R^2**
Current prices (Index based)	Y=	$(129.44)\ (1.01)^x$ {5.43}** {.001}**	0.92	$(117.35)\ (1.04)^x$ {4.13}** {.001}**	0.93
Current prices (Absolute based)	Y=	$(66.24)\ (1.14)^x$ {2.13}** {.001}**	0.99	$(190.87)\ (1.11)^x$ {5.65}** {.001}**	0.99
Constant prices (Index based)	Y=	$(105.98)\ (1.02)^x$ {1.62}** {.001}**	0.97	$(96.41)\ (1.01)^x$ {1.32}** {0.001}**	0.92
Constant prices {Absolute based}	Y=	$(1552.54)\ (1.04)^x$ {143.44}** {.003}**	0.75	$(4673.93)\ (1.01)^x$ {93.69}** {.001}**	0.87

** significant at 0.99 probability level

Note: Figures with {} show the Standard Error.

Aggregate NSDP (in absolute figures) at current prices (table 16) shows the compound growth rate of 13.50 percent from 1960-61 to 2010-11 and the relationship is highly

significant with co-efficient of determination 0.99. While estimating the sector-wise growth, the tertiary sector again shows the higher growth of 15.30 while that of primary and secondary sector is 11.50 percent and 15.20 percent respectively (table 14). While estimating the time series growth rate on per capita basis, the relationship is statistically significant at 0.99 probability level and shows the compound growth of 10.78 percent. The linear equation on (absolute basis) again shows the better performance of tertiary sector as compared to primary and secondary sector but with low R^2 than in exponential function i.e; 0. 70.

Table: 18. Linear Growth Equations of NSDP at Current and Constant prices (both index and absolute basis) for the Principal Sectors for J&K State, period 1960-61 to 2010-11

(Rs. In crores)

		Linear function Y=a+bx					
		Primary	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**
Current prices (Index based)	Y=	68.55 + 11.93x (3.84)** (.13)**	0.99	61.85 + 17.13x (9.188)** (.37)**	0.98	57.22 + 16..06x (7.48)** (.25)**	0.99
Current prices (Absolute basis)	Y=	-2069.59 + 166.48x (386.32)** (12.93)**	0.77	-2034.88 + 139.95x (5.7.05)** (16.97)**	0.58	-3296.65 + 242.94x (658.19)** (22.03)**	0.71
Constant prices (Index based)	Y=	90.74 + 1.59x (9.64)** (.32)**	0.33	119.74 + 4.99x (9.64)** (.13)**	0.97	98.45 + 5.61x (2.26)** (.075)**	0.99
Constant prices {Absolute based}	Y=	907.90 + 41.94x (54.69)** (1.83)**	0.91	-51.54 + 31.49x (61.14)** (2.01)**	0.83	-456 + 101.50x (136.91)** (4.58)**	0.91

** significant at 0.99 probability level

Figures with parentheses show the Standard Error

Table: 19. Linear Growth Equations of NSDP at Current and Constant Prices based on index and absolute figures for aggregate NSDP and Per Capita NSDP for the J&K Sate for the period to 1960-61 to 2010-11

(Rs. In crores).

		Linear function Y=a+bx			
		Aggregate NSDP	**R^2**	**Per capita NSDP**	**R^2**
Current prices (Index based)	Y=	59.29 + 13.91x (3.86)** (.13)**	0.99	61.51 + 11.15x (3.52)** (.12)**	0.99
Current prices (Absolute based)	Y=	-7401.13 + 549.36x (1532.78)** (51.30)**	0.70	-6170.30 + 205.27x (1219.10)** (40.80)**	0.76
Constant prices (Index based)	Y=	92.07 + 3.90x (1.51)** (0.050)**	0.99	93.14 + 1.36x (1.93)** (0.065)**	0.90
Constant prices {Absolute based}	Y=	242.32 + 179.72x (311.96)** (10.44)**	0.86	4387.84 + 84.11x (169.53)** (5.67)**	0.82

** significant at 0.99 probability level

Figures with parentheses show the Standard Error

When estimating the annual growth rate of NSDP at constant prices (Absolute based) (table 16) state shows the compound growth of 3.8 percent where in tertiary sector is again at the top with 5.50 percent (table 14) and primary sector is at the lower side with 2.10 percent only. The annual per capita growth rate works out to be 1.20 percent only.

In terms of simple linear function (on absolute basis) NSDP shows good performance and the growth of tertiary sector, over the period (1960-61 to 2010-11), is highest than primary and secondary sector.

Thus, it is clear from the above analysis, (whether based on percentages, decennial growth or exponential growth) that it is only the tertiary sector which has grown considerably than primary and secondary sectors, which is not sustainable growth as it does not meet the domestic demand especially basic consumer goods and consumer durables, thus making the economy market oriented.

High Growth Sectors

The growth in the economy has been due to the rapid growth in the sub sectors like construction, trade, hotel and restaurant and public administration rather than the main sectors that is agriculture and manufacturing. The analysis based on the decennial data (table 21) shows that the growth rate of agriculture sector has been increasing at a declining rate, in the first decade 1961-70 at constant prices it has been 1.89 and has increased by 2.27 during in 1991-00 and has gone up only 3.07 percent during 2001-10. On the basis of current prices the growth rate of agriculture sector increased by 12.03 percent in the first decade (1961-70) which has marginally increased in the following two decades and increased by 29.1 percent during 1991-00. In case of other sector like manufacturing the growth rate has remained almost constant, however the construction sector has been very vibrant sector growing very fast throughout the period under analysis. Almost the same trend is seen in the sectors that is trade, hotel and public administration as shown in Table no. 21.

Table: 20. Contribution of NSDP by Sub-Sectors of Economy in J&K at Current and Constant (at 1993-94 prices) for the Period 1960-61 to 2009-10

(RS. 000 crores)

S. No	Sector	Total NSDP											
		1960-61		1970-71		1980-81		1990-91		2000-01		2009-10	
		Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices
1	Agriculture	1042.52	55.53	1248.73	127.55	1427.69	394.98	1761.90	1037.89	2237.99	4221.95	2925.05	7807.91
2	Manufacturing (registered / unregistered)	104.57	5.48	159.59	13.35	176.39	48.8	351.62	160.20	398.75	477.04	1188.67	1941.66
3	Construction	45.62	2.39	186.29	21.85	290.40	80.34	393.77	289.79	813.10	1606.64	2225.69	7141.03
4	Trade hotels restaurants	132.22	10.73	140.75	21.58	651.10	180.13	563.91	438.44	785.08	1175.55	1199.53	3464.18
5	Public administration	69.8	3.71	160.89	14.22	187.13	51.77	615.82	366.62	1009.86	2099.46	948.29	3270.72

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Growth rates are based on decennial data 1960-61 – 1969-70, 1970-71 – 1979-80, 1980-81 – 1989-90, 1990-91 – 1999-00, 2000-01 – 2009-10.

Contribution of NSDP by Sub-Sectors of Economy in J&K at Current and Constant (at 1993-94 prices) for the Period 1960-61 to 2009-10

(RS. 000 crores)

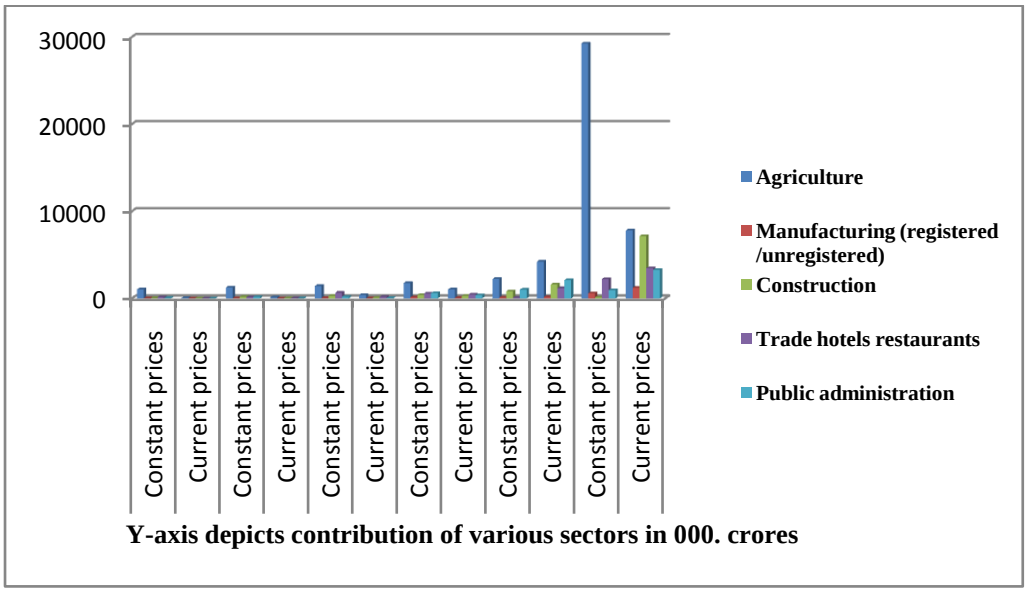


Table: 21. Annual Growth Rate of Sub-sectors of the economy at Current and Constant (at 1993-94 prices) for the Period 1960-61 to 2009-10

(Percent per annum)

S. No	Sector	Total NSDP									
		1961-70		1971-80		1981-90		1991-00		2001-10	
		Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices
1	Agriculture	1.89	12.03	0.61	13.92	1.05	12.66	2.72	29.10	3.07	8.5
2	Manufacturing (registered/ unregistered)	3.5	16.53	1.10	36.31	7.00	20.05	2.29	22.09	19.81	13.07
3	Construction	22.6	55.73	3.04	23.89	3.11	23.05	12.14	44.16	17.37	34.15
4	Trade hotels restaurants	1.52	3.95	32.05	16.87	-1.36	16.43	4.24	16.56	5.47	19.47
5	Public administration	12.05	23.64	0.91	22.32	21.33	55.15	5.89	44.45	-0.61	5.58

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Growth rates are based on decennial data 1960-61 – 1969-70, 1970-71 – 1979-80, 1980-81 – 1989-90, 1990-91 – 1999-00, 2000-01 – 2009-10.

The present study has estimated the annual growth rates of sub-sectors of the economy that is agriculture, manufacturing, construction and public administration based on simple linear function and compound growth rates of exponential function both at current and constant prices to find out high growth sectors in the economy. The estimated figures show a compound growth of 3.70 percent per annum of agriculture at current prices (Index based) from 1960-61 to 2010-11 (Table 22). While estimating the compound growth rates of public administration it has registered higher growth rate i.e., 4.20 percent per annum. While the other sub-sectors, i.e., manufacturing and construction show the annual growth rate of 4.00 and 3.80 percent per annum respectively. The relationship has been statistically significant with R^2= 0.95 level in all the sub-sectors.

In terms of simple linear function, it is the construction sector which has shown better performance than other sub-sectors over the period 1960-61 to 2010-11 (table 27) at current prices (Index based).

Figure at current prices (absolute based) again reveal that construction and public administration are showing good performance with 16.7 and 16.4 percent of compound growth rate per annum from 1960-61 to 2010-11 (table 23). While as the other two sectors agriculture and manufacturing depict the lower compound growth rate of 11.4 percent and 12.3 percent respectively, however the relationship is statistically significant at 0.99 probability level.

The table no. 24 at constant prices (absolute basis) shows the compound growth rate with construction sector at the top showing the compound growth rate of 6.90 percent followed by public administration, manufacturing and agriculture with 6.0 percent, 4.40 percent and 2.20 percent respectively. The relationship is statistically significant at 0.95 probability level.

While estimating the simple linear function, the table no. 28 shows the same trend of construction sector which is leading followed by public administration, manufacturing and agriculture

From the above analysis, it becomes clear that construction and public administration are emerging as high growth sectors showing high performance both at current and constant prices throughout the period under study. The other two sectors agriculture and manufacturing are the sectors with dismal performance.

Table: 22. Compound Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Current Prices (Index based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Exponential Function $y = ab^x$			Growth rate (b-1)100	R^2
Agriculture	Y=	(126.853)	$(1.037)^x$	3.7	0.94
		{4.842}**	{.001}**		
Manufacturing	Y=	(138.387)	$(1.040)^x$	4.00	0.95
		{5.256}**	{.001}**		
Construction	Y=	(190.661)	$(1.038)^x$	3.8	0.90
		{10.156}**	{.002}**		
Public administration	Y=	(146.428)	$(1.042)^x$	4.20	0.94
		{6.545}**	{.002}**		

**Significant at 0.99 probability level

Figures with { } shows the Standard Error

Table: 23. Compound Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Current Prices (absolute based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Exponential Function $y = ab^x$			Growth rate (b-1)100	R^2
Agriculture	Y=	(41.062)	$(1.114)^x$	11.4	0.99
		{1.487}**	{.001}**		
Construction	Y=	(2.959)	$(1.167)^x$	16.7	0.99
		{.177}**	{.002}**		
Public administration	Y=	(2.683)	$(1.164)^x$	16.4	0.99
		{.181}**	{.003}**		
Manufacturing	Y=	(4.680)	$(1.123)^x$	12.3	0.99
		{.272}**	{.002}**		

**Significant at 0.99 probability level

Figures with { } shows the Standard Error

Table: 24. Compound Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Constant Prices (absolute based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Exponential Function $y = ab^x$			Growth Rate (b-1)100	R^2
Agriculture	Y=	(959.182) {22.149}**	$(1.022)^x$ {.001}**	2.2	0.94
Construction	Y=	(65.594) {4.120}**	$(1.069)^x$ {.002}**	6.9	0.95
Public administration	Y=	(73.385) {4.333}**	$(1.060)^x$ {.002}**	6.0	0.95
Manufacturing	Y=	(92.446) {4.962}**	$(1.044)^x$ {.002}**	4.4	0.92

**Significant at 0.99 probability level

Figures with { } shows the Standard Error

Table: 25. Compound Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Constant Prices (Index based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Exponential Function $y = ab^x$			Growth Rate (b-1)100	R^2
Agriculture	Y=	(100.798) {1.696}**	$(1.017)^x$ {.001}**	1.7	0.95
Construction	Y=	(158.461) {6.484}**	$(1.027)^x$ {.001}**	2.7	0.89
Public administration	Y=	(126.968) {3.974}**	$(1.027)^x$ {.001}**	2.7	0.93
Manufacturing	Y=	(110.488) {6.647}**	$(1.024)^x$ {.002}**	2.4	0.74

**Significant at 0.99 probability level

Figures with { } shows the Standard Error

Table: 26. Linear Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Current Prices (absolute based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Value of Linear Function Y = a + bx				R^2
Agriculture	Y =	-1860.854 (36.747)**	+	147.256 **x** (12.074)**	0.75
Construction	Y=	-143.609 (376.878)**	+	97.33 **x** (12.614)**	0.55
Public administration	Y=	-873.646 (164.638)**	+	64.292 **x** (5.510)**	0.74
Manufacturing	Y=	-372.059 (96.752)**	+	27.263 **x** (3.238)**	0.59

**Significant at 0.99 probability level

Figures in parentheses shows the Standard Error

Table: 27. Linear Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at current Prices (Index based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Value of Linear Function Y = a + bx				R^2
Agriculture	Y =	68.963 (4.113)**	+	11.853 **x** (.138)**	0.99
Construction	Y=	105.410 (9.465)**	+	18.463 **x** (.317)**	0.99
Public administration	Y=	60.455 (7.857)**	+	16.829 **x** (.263)**	0.99
Manufacturing	Y=	57.710 (7.818)**	+	14.909 **x** (.262)**	0.99

**Significant at 0.99 probability level

Figures in parentheses shows the Standard Error

Table: 28. Linear Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Constant Prices (Absolute based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Value of Linear Function Y = a + bx				R^2
Agriculture	Y =	780.220 (5.9653)**	+	37.812 **x** (1.695)**	0.91
Construction	Y=	-291.016 (84.238)**	+	33.889 **x** (2.819)**	0.75
Public administration	Y=	116.400 (34.131)**	+	22.789 **x** (1.142)**	0.89
Manufacturing	Y=	-52.235 (45.046)**	+	15.624 **x** (1.508)**	0.69

**Significant at 0.99 probability level

Figures in parentheses shows the Standard Error

Table: 29. Linear Growth Rate of Agriculture, Manufacturing, Construction and Public Administration at Constant Prices (Index based) State J&K year 1960-61 to 2010-11

(Rs. In crores)

	Value of Linear Function Y = a + bx				R^2
Agriculture	Y =	92.838 (2.009)**	+	2.632**x** (.070)**	0.97
Construction	Y=	133.006 (6.297)**	+	8.016 **x** (.211)**	0.97
Public administration	Y=	101.922 (6.558)**	+	6.622 **x** (.220)**	0.95
Manufacturing	Y=	87.559 (11.889)**	+	5.091 **x** (.398)**	0.77

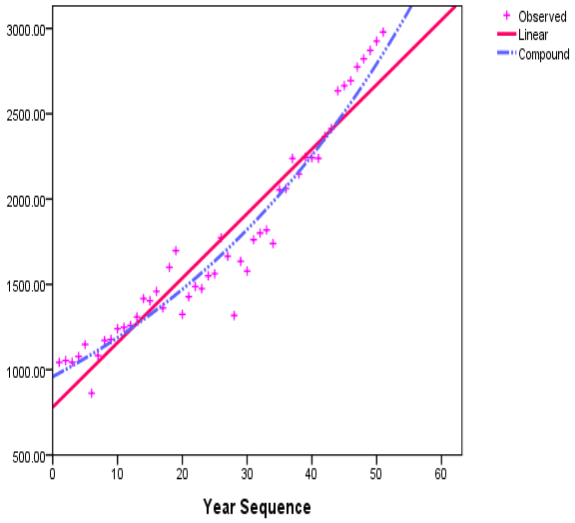
**Significant at 0.99 probability level

Figures in parentheses shows the Standard Error

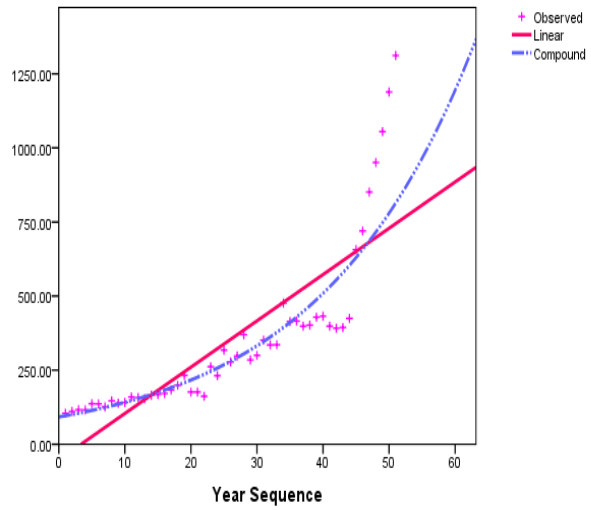
Linear and Compound Growth Trends at Constant prices (absolute based)

From 1960-61 to 2010-11 (State J&K)

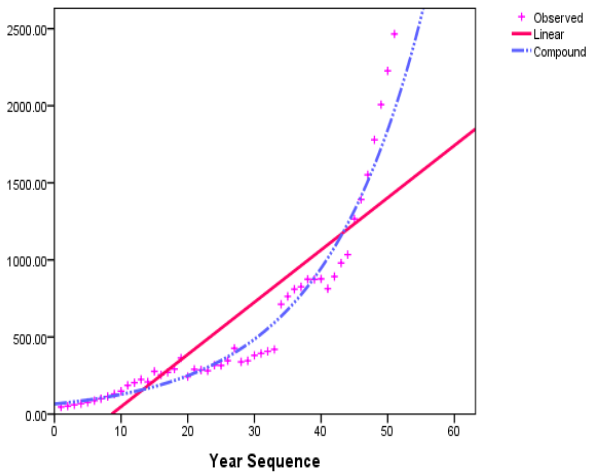
Agriculture



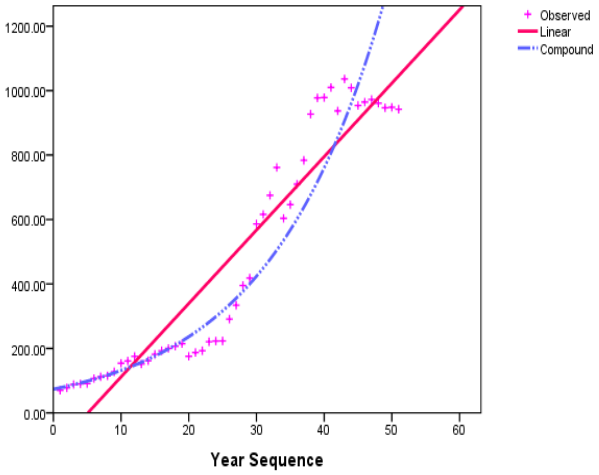
Manufacturing



Construction



Public administration

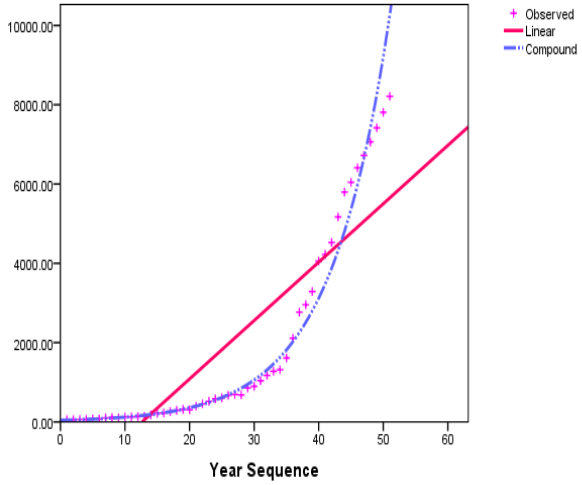


Y-axis depicts contribution of various sectors in 000 crores

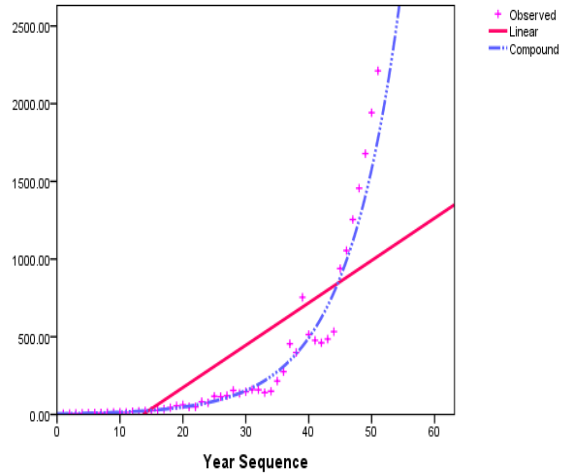
Linear and Compound Growth Trends at Current prices (absolute based)

From 1960-61 to 2010-11 (State J&K)

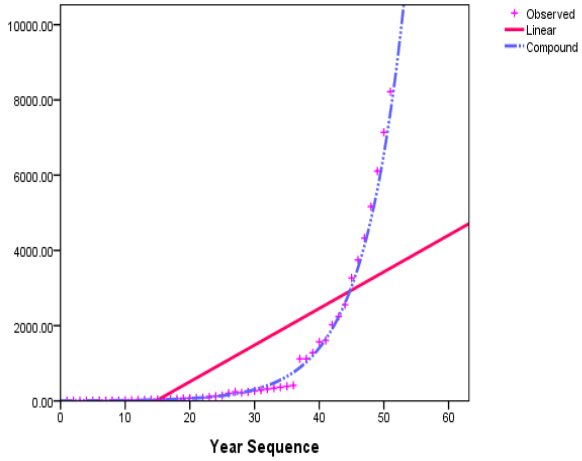
Agriculture



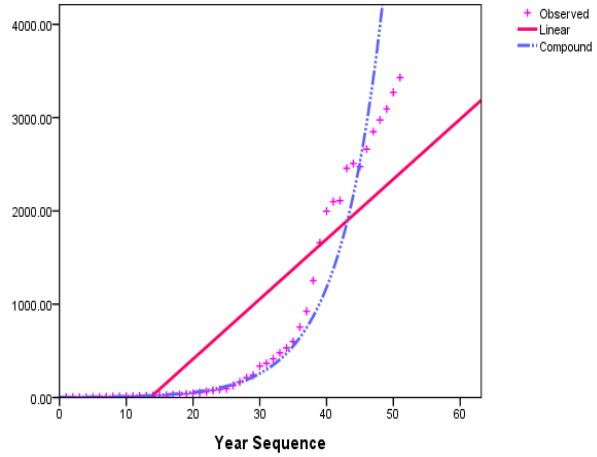
Manufacturing



Construction



Public administration

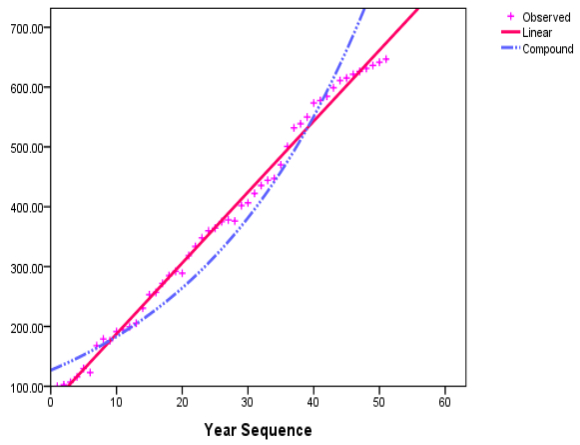


Y-axis depicts contribution of various sectors in 000 crores

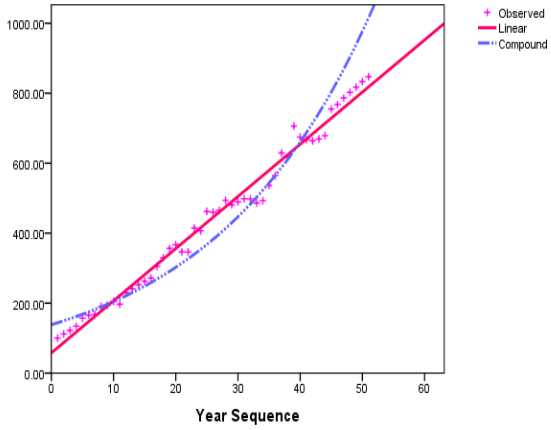
Linear and Compound Growth Trends at Current prices (index based)

From 1960-61 to 2010-11 (State J&K)

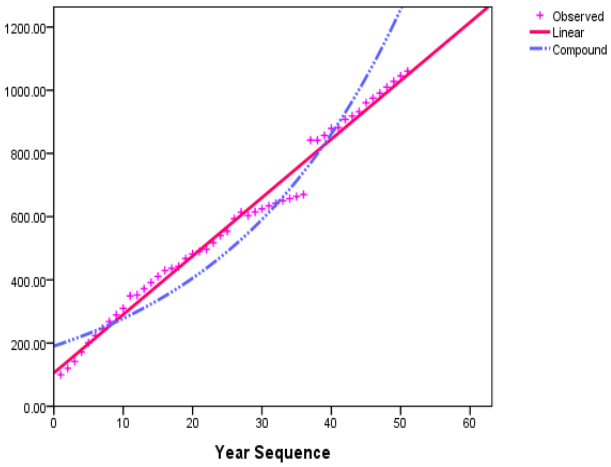
Agriculture



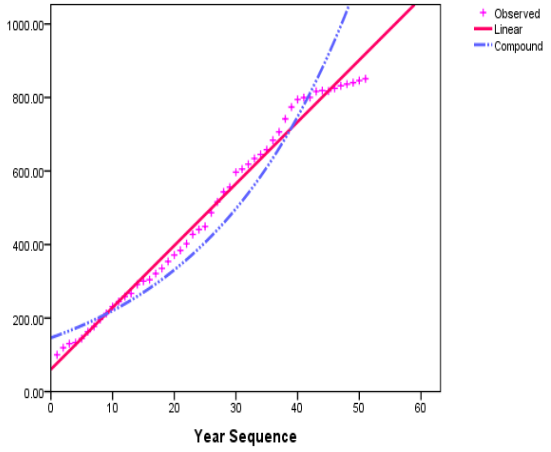
Manufacturing



Construction



Public administration



Y-axis depicts contribution of various sectors in 000 crores

Crisis in Growth

Jammu & Kashmir economy is facing crisis in the agriculture and industrial sector as these sectors are showing a dismal performance. The agricultural sector is showing a declining trend from 1960-61 onwards and industrial sector is showing a constant trend which amounts to stagnation in the classic sense. The dismal performance of these sectors is mainly due to lack of clear cut strategy. Most of the expenditure incurred on agriculture in the state, increased over the plan period, has been on minor irrigation. There is no correlation between irrigation and agriculture production as is clear from the table no 30 & 31.

Table No: 30. Planwise Expenditure on Different Sectors of J&K State

(Rs. In Lakhs)

Plan	Agriculture	Minor irrigation	Community development & cooperation	Irrigation and Power	Industries and mining	Transport and Communication	Social services	Miscellaneous	Grand total
	Agricultural production, minor irrigation, animal husbandry, forest & soil Conversation and fisheries		C. D NES and Corporation	Major and Medium irrigation, Flood Control and power	Large and Medium industries, industrial development and village and small scale industries	Road transport and tourism	Education health, housing, welfare of backward classes, water supply, social welfare, labour and labour welfare and public corporation		
1	2	3	4	5	6	7	8	9	10
First	52.00	-	36.78	488.14	66.49	305.90	178.05	24.15	1151.71
Second	267.11	95.82	360.02	451.73	218.78	516.05	613.46	167.60	2594.75
Third	506.66	98.84	417.31	1612.63	860.08	1028.67	1480.47	279.27	6185.09
Fourth	2260.05	785.76	266.69	6770.21	749.15	2905.03	2602.80	730.87	16284.80
Fifth	3043.10	1210.01	215.97	12067.63	1945.30	3084.14	5370.16	2128.41	27854.71
Sixth	16901.03	4050.18	1345.87	21178.59	5983.30	10790.67	27658.01	159571.30	99814.77
Seventh	34245.16	6269.23	5174.36	143945.02	20575.54	53884.97	124695.06	47705.87	452007.71
Eighth	56026.89	9954.83	5174.36	143945.02	20575.54	53884.97	124695.06	47705.87	452007.71

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues.

Table No: 31. Percentage of Expenditure Incurred on Various Sectors under Five Year Plans of J&K State.

Plan	Agricultural production, minor irrigation, animal husbandry, forest & soil Conversation and fisheries	Minor irrigation	Agriculture excluding minor irrigation	Industries and Mining large and medium industries, industrial development village and small scale industries	Other services education, health, housing, welfare of backward classes, water supply and labour welfare and public corporation
A	B	C	B-C = D	E	F
First	4.51	-	-	5.77	15.45
Second	10.29	3.69	6.60	8.43	23.64
Third	8.19	1.60	6.59	13.90	23.93
Fourth	13.87	4.82	9.05	4.60	15.98
Fifth	10.92	4.34	6.58	6.98	19.27
Sixth	17.63	4.22	13.41	5.99	29.13
Seventh	17.07	3.12	13.95	4.96	30.35
Eighth	12.40	2.20	10.20	4.55	27.59

Computed on the basis of table No. 30

Moreover the declining trend of primary sector can be attributed to the stagnation in food grain production from 1980-81 to 2010-11. The state of Jammu and Kashmir has not even become self sufficient in the production of agricultural commodities, both cereal and non–cereal. The production of total food grains stood at 15325 thousand quintals in the year 2003-04. While as in the succeeding year, the figure stood at 15027 thousand quintals. Thus showing a decrease of 298 thousand quintals. While as the food grains production has further decreased and reached to 15025 thousand quintals during 2005-06. During the current year 2010-11, import figure of foodgrains were accorded at 553.5 thousand metric tons (Digest of statistics 2010-11, DES, J&K Govt.).

The second factor responsible for the slow growth of primary sector especially agriculture is mushroom growth of marginal holdings. These small holdings are mostly sub divided and fragmented, and are not found in one complete block and hence un-economic. A delayed breakthrough in agriculture is mainly attributed to small holdings that defied the introduction of modern farm practices and are now a major handicap in the agriculture development of the state.

Estimates of the State totals based on sample survey showed that in 1953-54 there were 4.76 lakh operational holdings[47] in the rural sector of Jammu And Kashmir, out of which 4.05 lakh (i.e., over 85 percent) were agricultural holdings. Further 73.34 percent of the holders operated less than 5 acres (40 Kanals) of land amounting for 42.35 percent of the total operated area. This was more or less expected because the Government had already passed the Big Landed Estates Abolition Act of 1950.

[47] An operational holding is defined as all land that is directed or managed by one or more persons, alone or with assistance of others, without regard title, size or location. It may consist of more and more parcels of land, even if widely separated provided these form a part of the same technical and economic unit.

Other important results of 1953-54 survey of agricultural holdings for Jammu and Kashmir were as follows:-

There were 17.31 percent of rural households who did not own any land. In this category were included those who owned less than 0.005 acres (less than one marla). Average size of household ownership, holdings was 3.59 acres and of operational holdings (agricultural) was 3.98 acres (Agriculture Census, pp 5-6). In 1980 Government of India participated in the world-Census of Agriculture. This time, however, the coverage was much wider and the data was collected in two NSS rounds the 16th and 17th round. The definition of operational holdings was revised to include all lands which are wholly or partly out to agricultural uses. This was by and large the same definition as adopted in 1970 census.

The results estimated at state level showed that in 1960-61 there were 5.31lakh operational holdings over an area 18.75lakh acres in the rural areas of Jammu and Kashmir. The statistics regarding size, number and area under operational holdings is presented below:

Table: 32. Size, Number and Area Operated in Jammu and Kashmir (1960-61)

Size of operational holdings	**No. of operational holdings**	**Percentage**	**Area**	**Percentage**
(acres)	(1000 acres)		(1000 acres)	
Upto 0.49	26	4.90	7	0.37
0.50-0.99	48	9.04	37	1.97
1.00-2.49	173	33.52	304	16.21
2.50-4.99	158	29.75	545	29.07
5.00-7.49	70	13.18	411	21.92
7.50-9.99	25	4.71	210	11.20
10.00-12.49	13	2.45	137	7.31
12.50-14.99	5	0.94	69	3.68
15.00-19.99	5	094	77	4.11
20.00 & above	3	0.57	23	4.16
Total	531	100.00	1875	100.00

Source: Agriculture census, 1970-71, J&K government, p.7

A comparative study of the figures presented in above table and those obtained in 1950census would indicate that by 1960-61 the percentage

of holders operating less than 5 acres had increased from 73.34 percent to 77.31 percent. In view of the security of tenure, what was conferred as tillers of soil, the increase was attributed to the pressure of population.

Other important findings of the survey were as under:-

- Average size of a household ownership holding was 3.14 and for operational holdings it stood at 3.53 acres.
- 3.96 percent of the area owned by households was leased out compared to 16.13 percent in the earlier census.
- Estimated number of parcels per operational holding was 5.09 while the average per parcel turned out to be 0.69(5.52 kanals).

It is thus clear that due to the increase in population and the operation of laws of inheritance, the average size of household ownership holding decreased from 3.50 to 3.14 acres in 1960-61 and average size of operational holding declined from 3.93 to 3.53 acres.

Although the average size of agricultural operational holding in Jammu and Kashmir did not decline appreciably between 1953-54 to 1960-61, yet it remained far below the all India average[48].

In 1970-71 holdings below 5 acres constituted 88.60percent of the total holdings, as against 77.21 percent in 1960 and 73.34 percent in 1950. The percentage of area covered only holdings below 5 acres which had increased from 42.35 percent in 1950-51 to 47.62 percent in 1960. Further increased to 56.73 percent[49]

[48] Agriculture Census 1970-71, J&K government, pp 5-7.
[49] Kalra NN Regional Variations in Policy regarding size of agricultural holdings, Indian Journal of agriculture. Economic April-June 1966 vol. xx2 Pp34.

An analysis of the data provided by agricultural census indicates that a largest concentration of holdings is at the bottom i.e holdings upto 5 to 8 acres or below 5 kanals, constituting 31.03 percent of the total holdings of the state. Holdings upto 5 acres constitute 88.7 percent of the total holdings to cover an area of 56.73percent. It may be further pointed out that holdings below the average size of 2.3 acres constitute more than 63.82 percent of the total holdings.

As per agricultural census 2001, the average size of operational holdings reduced to 0.66 hectares and there are 8.46 lakh holdings below 0.5 hectares size comprising 1.99 lakh hectares operational area, being cultivated (operated) by 3.02 lakh of population. Another category of cultivating households is the size class of operational holding 0.5 -1.0 hectare, operating 2.30 lakh hectares of operational area comprising 3.49 lakh population. This means that 6.51 lakh population is in the farm sector deriving their livelihood as marginal farmers. The worst situation emerges when we look at sub marginal holdings, i.e, holdings less than 0.5 hectare size. These holdings are 58.64 percent as per Agricultural Census 2001 with average size 0.22 hectare comprising about 47 lakh population. This means that 4.7 million rural population, on an average, have 4.4 kanal of land or less, far below the subsistence level thus having serious bottleneck to get two square meals from land. Predominance of low size of holdings makes gainful pre-occupation, a doubtful proposition.

Irrigation Capacity building in farm sector has not taken place during 1980-2011. There is 80 percent growth in irrigation investment while as against this, irrigation capacity building (increase in irrigated acreage) registers an annual growth rate of only 1.31 percent per annum. The Development Review Committee in 1976-77 arrived at a finding that there is no correlation between the factor input and product output in

agriculture. This holds true even now. The investment in irrigation and the irrigation capacity building bear no relationship.

Thus agriculture sector is emerging as un-viable economic enterprise in changing structure of the state economy. Since performance of agriculture forms the basis of growth and development of an economy as it has multiplier effects across the economy. Unfavourable climatic conditions and lack of irrigation in some areas is limiting the cropping intensity in the state. Modern technology and equipments are put to use to increase the agricultural productivity but there seems yet long distance to be covered in this behalf. The area and production of cash crops particularly Kashmir's pride saffron has substantially decreased during 10^{th} five year plan as compared to 9^{th} five year plan. The yield rate in the primary sector in J&K State shows negative performance in the decade 1981-90 (at constant prices on absolute basis) with (-0.066 percent) compound growth rate and (-0.02 percent) growth rate (at constant prices based on index) during the same period. This has inturn resulted in the reduction in compound growth rate of per capita income to (-0.44 percent) in the aforesaid period. Thus, agriculture being the main component of primary sector and with half of the state's population deriving their income from agriculture and not having other identified areas to absorb and employ huge chunk of population, faster growth in this sector is necessary to provide boost to their incomes.

Another important aspects responsible for under development of the state economy is the over dependence on imports to meet the growing needs of the population. The state is suffering from very low export-import ratio implying that the state is suffering from very large trade deficit. The steady increase in the import and export in the state interms of value of taxable goods is presented in the following table. The table does not include the value of non-taxable goods and trade that excludes unaccounted trade.

Table. 33: Value of Exports & Import and their ratio in J&K State

(Rs. In crores)

Year	Value of taxable goods Imported	Value of taxable goods Exported	Export Import Ratio (E/I)	Trade Deficit
1990-91	1253.75	507.40	0.40:1	746.35
1994-95	2536.53	560.84	0.22:1	1975.69
2000-01	938.24	939.80	0.24:1	-1.56
2004-05	8173.64	2509.10	0.31:1	5664.54
2009-10	21986.26	12202.48	0.55:1	9783.78

Source: Commissioner, commercial Taxes Deptt. J&K Government.

The export-import ratio was 0.40 in 1990-91. For subsequent period the estimates have remained low the aforesaid estimates as 0.22 in 1994-95 then to 0.04 and 0.31 in 2001 and 2004-05 respectively. It is only 2009-10 that the figure showed marginal improvement and has risen to 0.55.

In absolute terms the trade deficit of the state has went up from 746.35 to 9783.78 in 2009-10 except in the year 2000-01 when the figure is showing the negative figure (-1.56). Exports from state include handicraft products, horticulture products, skin and hides, rosine and turpentine and wood in raw form only in the absence of necessary industrial base. The fact that becomes evident from the above analysis is that the state has failed to expand its productive capacity in particular in secondary sector. However the import and export of the state has shown increases since last two decades which is mainly attributed to the development in the means of transport communication, besides banking and insurance.

Conclusion

To Sum up, it is observed that the industrial setup prior to 1947 was practically non-existent. Agriculture was the principal sector contributing towards the economy but being feudal in nature, it hardly contributed towards the development of the state economy. During this period it was treated as the source of state revenue and depicted all the characteristics of a stagnant economy. After independence, due thought had been given for this sector which led to two major changes - institutional and technological reforms. Institutional reforms in the first instance had a positive impact on incentive structure as most of the inputs were subsidized by the government for boosting up the industrial growth but planners fail to take complementary measures. Political changes didn't provide the requisite support, all these negative implications led to non-sustainable growth of the sector.

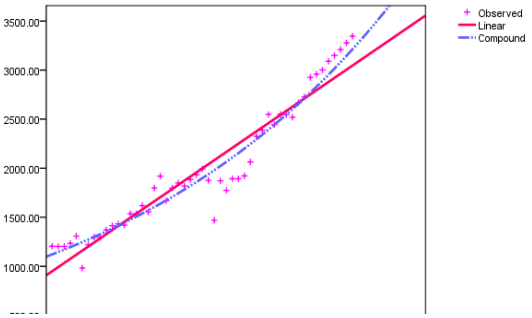
The low growth in agriculture is attributed because of the impact of technological changes which were crop-area specific rather to agriculture on holistic basis. On the industrial front despite govt. announcing various measures for boosting industrial growth could not ensure industrial growth both in private and public sectors because of the lack of requisite infrastructure in particular electric power. It is being observed that the State of Jammu and Kashmir is rich in resources, but the weak infrastructure has hindered in the exploration of such resources. The best strategy for the state would be to strengthen such industries which can provide easy transformation from agriculture to industrial developed state.

The state of Jammu and Kashmir has made little advancement in trade, and transport and communication. These components of the economy suffer from complicated export procedure, although it has under gone changes, but needs to be more rationale.

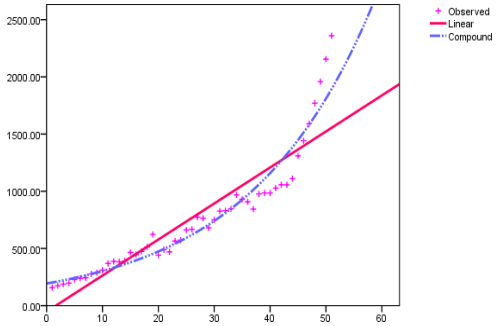
Linear and Compound Growth Trends at Constant prices (absolute based)

From 1960-61 to 2010-11 (State J&K)

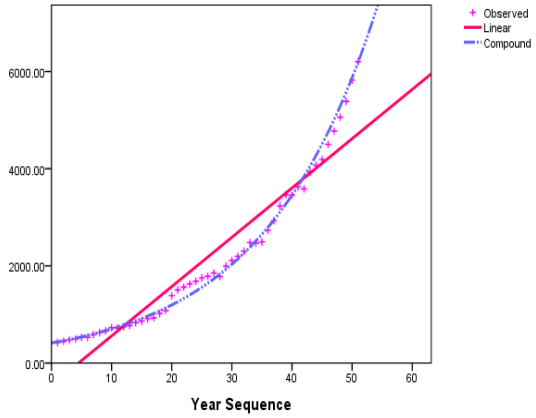
Primary sector



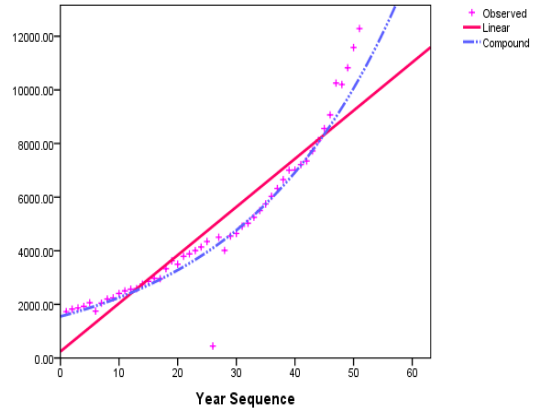
Secondary sector



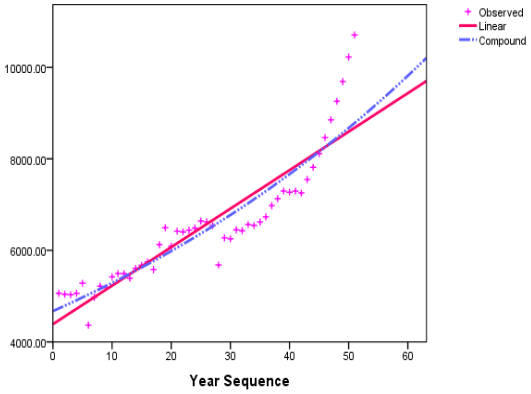
Tertiary sector



Total NSDP



Per capita (In Rupees)

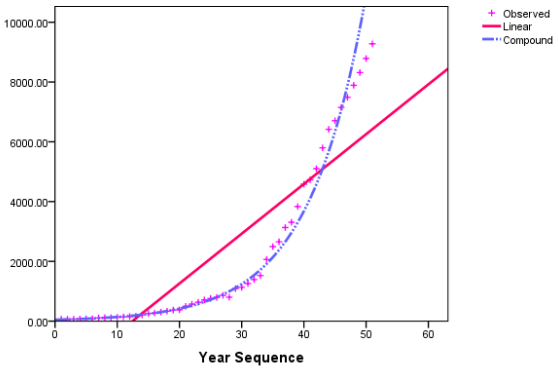


Y- axis depicts contribution of various sectors in 000 crores

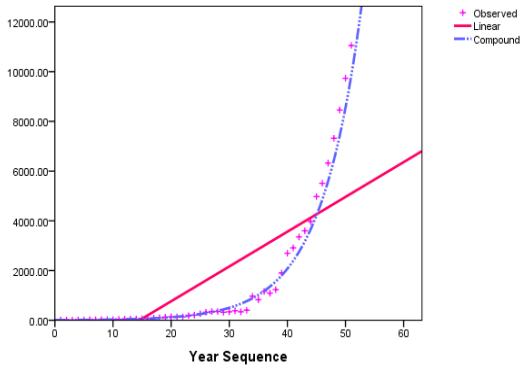
Linear and Compound Growth Trends at Current prices (Absolute based)

From 1960-61 to 2010-11 (State J&K)

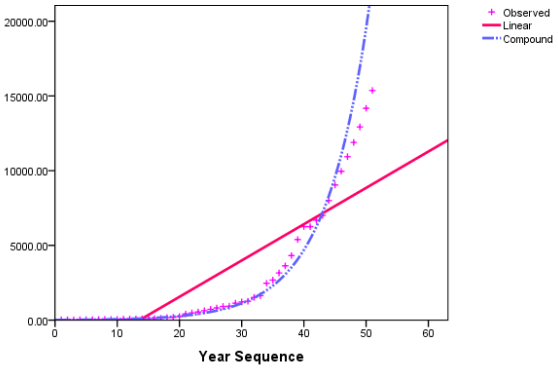
Primary secotr



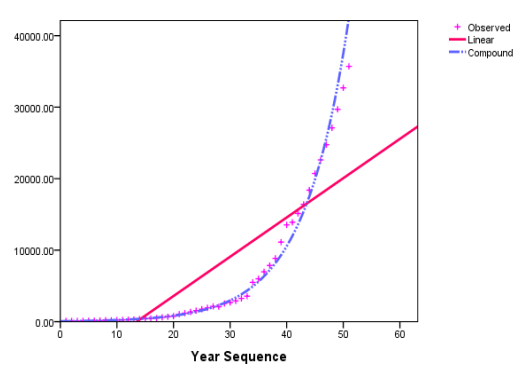
Secondary sector



Tertiary sector

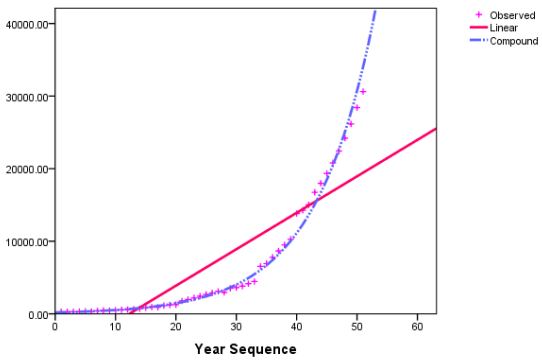


Total NSDP



(In Rupees)

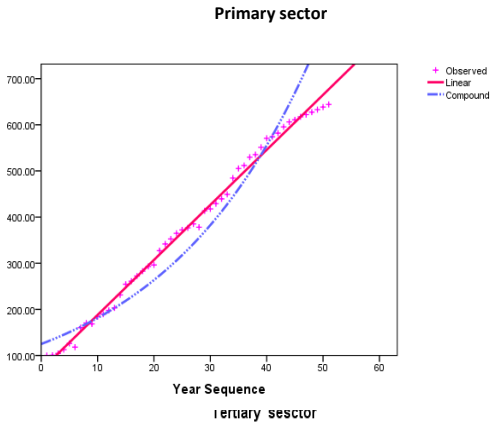
Per capita

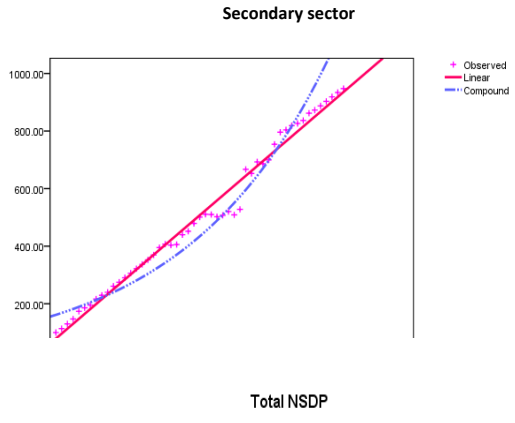


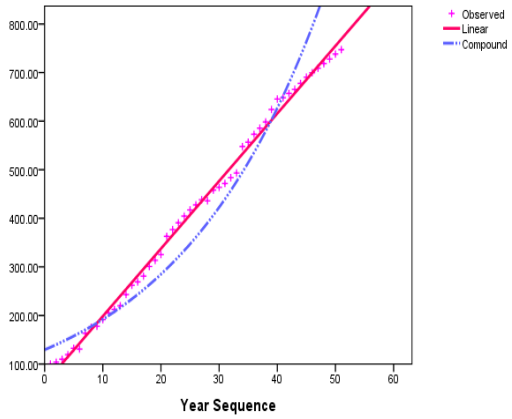
Y- axis depicts contribution of various sectors in 000 crores

Linear and Compound Growth Trends at Current prices (index based)

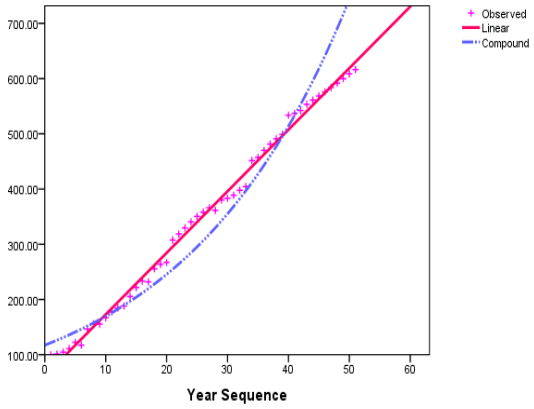
From 1960-61 to 2010-11 (State J&K)







Per capita (In Rupees)



Y- axis depicts contribution of various sectors in 000 crores

Chapter-4

Pattern and Economic Growth in Northern Region

In the present chapter an attempt is made to examine the relative changes in the structural transformation of selected states of northern region and relate the Jammu and Kashmir economy with the selected states under reference. At the outset we examine the relative share of the regional economies under reference in respective NSDP and their relative share of growth.

Table: 34. Percentage share of Key sectors in NSDP in the Selected Northern States at (Constant prices)

Year	Sectors	J&K	Haryana	H.P	Punjab	U.P	Delhi
1970-71	Primary sector	56.63	64.76	58.56	58.36	60.26	6.96
	Secondary sectors	14.57	15.22	16.73	15.32	14.93	25.69
	Services sector	28.80	20.02	24.71	26.32	24.81	67.35
1980-81	Primary sector	47.40	54.23	49.91	49.48	52.01	4.37
	Secondary sector	12.90	19.35	19.13	18.49	15.63	24.87
	Services sources	39.70	26.42	30.96	32.02	32.36	70.76
1990-91	Primary sector	38.49	45.72	40.84	48.33	43.29	3.26
	Secondary sector	16.81	23.47	22.86	22.54	19.79	29.02
	Services sources	44.70	30.81	36.30	29.13	36.92	67.72
2006-07	Primary sector	29.98	23.11	22.38	34.35	31.83	0.85
	Secondary sector	23.48	28.05	40.47	23.61	22.24	20.81
	Services sector	46.54	48.85	37.15	42.04	45.93	78.34

Source: Domestic Product of States of India, 1960-61 to 2006-07 (second updated edition), April 2009, EPW, Research Foundation, Mumbai.

From the above table the structural changes over the three and half decades reveals that relative share of the regional economies under reference have shifted from agriculture based economies to other sectors based economies. The percentage share of Primary sector of these economies towards NSDP has declined between the range 40-60 percent, for instance in Haryana's NSDP, the primary sector share was highest with 64.76 percent in (1970-71) which has sharply reduced to 23.11percent in 2006-07. Similarly in case of HP the relative share of Primary sector to its NSDP has declined from 58.56 percent in 1970-71 to 22.38 percent in 2006 -07 i.e., more than 60 percent decline. Almost same trend is followed in U.P. In case of J&K, Haryana and Punjab it has decline by more than 40 percent however these states still seems maintaining their agrarian structure.

The contribution of secondary sector toward NSDP of regional economies has increased considerably. In case of Himachal Pradesh there has been a sharp increase from 16.73 percent in 1970-71 to 40.47 percent in 2006-07. Similarly in case of Haryana the trend is almost same. In case of Punjab and U.P the percentage contribution of secondary sector towards NSDP has been almost identical. The relative share of secondary sector towards NSDP in J&K has been almost similar as that of Punjab. In J&K state the relative share of secondary sector towards NSDP has increased from 14.57 percent in 1970-71 to 23.48 percent 2006-07 which is not an encouraging trend.

So far as the contribution of services sector of these economies is concerned, except Delhi, the share was revolving round 30percent in 1970-71. However, the share in 2006-07 has been around 45percent. In J&K the services sector contribution to NSDP in 2006-07 was 46.54percent which was higher than Himachal Pradesh (37.15percent) and Punjab (42.04percent) and also U.P (45.93percent), but less than

Haryana (48.84percent). The analysis of the sectoral composition to NSDP at constant prices therefore reveals that the changes in the relative share of major sectors of various regional economies set a healthy trend as in case of Himachal Pradesh and Haryana. In these economies, while there has been a decline in primary sector share but at the same time an increase in the relative share has been found in their secondary sector. However in case of other regional economies including J&K, the trend is somewhat different as their primary sector decline is shifted to increase in tertiary sector (which is not a healthy sign from economic point of view because growth in the tertiary sector is not a sustainable growth).

The decline in the contribution of primary sector in case of J&K, Punjab, and U.P are showing the similar percentage decline. In case of contribution of secondary sector, the percentage increase seems to be similar in case of J&K and Punjab, while as in case of Himachal Pradesh the increase in the contribution of secondary sector has been substantial. It is interesting to note that J&K, Haryana, Punjab exhibit almost similar pattern in respect of contribution of services sector but in case of Himachal Pradesh the increase in the contribution of services sector to NSDP has not been as high as is the case in other states.

Table 35: Percentage share of Key sectors in NSDP in the selected northern states (at Current prices)

Year	Sectors	J&K	Haryana	H.P	Punjab	U.P	Delhi
1970-71	Primary sector	56.63	64.76	58.56	58.36	60.26	6.96
	Secondary sectors	14.57	15.22	16.73	15.32	14.93	25.69
	Services sector	28.80	20.01	24.71	26.32	24.81	67.35
1980-81	Primary sector	47.40	53.39	46.81	49.11	50.38	4.037
	Secondary sector	12.90	19.84	20.11	20.03	16.86	24.87
	Services sectors	39.70	26.77	33.08	30.86	32.77	70.76

1990-91	Primary sector	43.29	44.64	37.82	44.62	42.58	4.72
	Secondary sector	13.22	24.02	25.03	22.41	20.81	28.21
	Services sector	43.49	31.34	37.15	32.97	36.61	67.07
2006-07	Primary sector	30.26	22.50	23.08	33.70	33.67	0.83
	Secondary sector	25.52	29.77	40.38	22.24	18.73	21.49
	Services sector	44.19	47.27	36.54	44.06	47.60	77.68

Source: Domestic Product of States of India, 1960-61 to 2006-07 (second updated edition), April 2009, EPW, Research Foundation, Mumbai.

The analysis of the percentage share of key sectors in NSDP at current prices however depicts the different picture. For instance, the contribution of primary sector in case of J&K, Punjab and UP indicating that these economies however experiencing structural transformation still remains agrarian in nature while as in Haryana the fall in the contribution in the agriculture has been sustainable as it decreases from 64.76percent to 22.50percent. This is because of increasing urbanization and commercialization of agricultural land and the same is true of Delhi. In case of Punjab the fall in the contribution of primary sector has been relatively lesser. So far as contribution of secondary sector is concerned (at current prices) the contribution in Delhi has decreased from 25.83 to 21.49 where as in other states it has increased and the increase is sustainable in case of J&K and Haryana and even in Punjab, whereas in Himachal Pradesh the growth has been substantial. In U.P the increase has been very less.

In respect of contribution of services sector, the percentage increases are substantial in case of Haryana, Punjab, U.P and J&K. whereas in Himachal Pradesh the increase in services sector is not as high as in the aforesaid states. Delhi is leading in the northern region so far as the services sector is concerned.

The declining trend in the contribution of primary sector in the states like Haryana and Delhi have been compensated by the substantial increases in urbanization and developments in infrastructure, transport and communication. Haryana and Punjab have experienced decline in the contribution of primary sector but have maintained the high growth rate of agriculture where as in J&K the decline in the contribution of primary sector has been accompanied by the decline in the productivity of agriculture.

J&K has also lagged behind the other states in respect of secondary sector because the transformation process has not been sustainable as a result of which the labor absorption capacity of the economy during the last two decades has worsened.

Table 36: Annual Growth Rate (percent per annum) of NSDP at Constant and Current prices for various sectors of Selected States of Northern Region for a Period 1970-71 to 2006-07

(Rs. 000 crores).

S. No	State	Net state Domestic product											
		1970-71 to 79-80			1980-81 to 89-90			1990-91 to 99-00			2000-01 to 2006-07		
		Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
1	J&K	2.83 (16.87)	8.60 (28.60)	5.89 (23.84)	-0.14 (12.73)	5.51 (15.07)	4.03 (19.24)	3.30 (25.8)	1.45 (60.12)	5.21 (29.64)	3.24 (8.33)	7.82 (16.71)	4.50 (10.69)
2	Delhi	-0.39 (11.67)	5.32 (21.87)	8.19 (23.13)	5.45 (32.95)	11.33 (27.92)	9.41 (25.84)	-7.70 (30.60)	4.01 (22.55)	8.03 (48.84)	1.34 (1.19)	7.45 (13.94)	7.64 (9.14)
3	Haryana	0.33 (11.91)	9.25 (28.7)	10.93 (28.97)	4.18 (16.26)	10.71 (30.45)	10.47 (30.51)	1.29 (19.21)	4.31 (32.04)	8.06 (39.03)	2.58 (7.12)	12.05 (16.61)	13.01 (20.21)
4	Himachal Pradesh	0.17 (8.74)	3.12 (16.86)	6.52 (21.25)	3.03 (13.63)	6.44 (24.73)	9.08 (27.50)	0.87 (23.4)	8.51 (59.24)	8.89 (42.44)	2.24 (6.82)	9.71 (15.89)	5.95 (10.20)
5	Punjab	3.59 (13.88)	7.16 (29.24)	8.27 (25.85)	6.67 (21.34)	9.07 (29.08)	4.07 (24.67)	3.02 (22.67)	5.72 (23.08)	4.87 (33.99)	1.88 (3.06)	7.00 (10.98)	4.82 (10.30)
6	UP	-1.30 (8.21)	5.52 (23.06)	3.25 (23.6)	2.5 (13.36)	9.78 (31.09)	7.85 (24.67)	2.09 (18.03)	2.27 (18.41)	4.03 (27.52)	1.63 (7.32)	7.72 (10.85)	5.02 (11.52)

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues. and

State Domestic Product from 1960-61 to 2006-07 issued by Economic and Political Weekly Research Foundation, Mumbai.

Note: Figures in brackets are annual growth rates at current prices

Figures for 1970-71 to 1979-80 are based on 1970-71 prices, for 1980-81 to 1999-00 the base year is 1980-81 for 2000-01 to 2006-07 the base period is 1999-00

Table 37: Total Net State Domestic Product and Per capita NSDP at Constant and Current Prices for Various Sectors of Selected States of Northern Region for the Period 1970-71 to 2006-07

S. No	State		Total NSDP									
			1970-71		1980-81		1990-91		2000-01		2006-07	
			Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices	Current prices
1	J&K	Total NSDP	248.99	248.59	1049.50	1049.5	1359.89	2908.26	13917.48	13899.50	18557.42	24747.13
			(4.54)	(20.58)	(2.25)	(15.62)	(4.11)	(28.26)	(4.76)	(11.15)	16817	22426
		Per Capita	548	548	1776	1776	1784	3816	13859	15019		
			(1.55)	(13.1)	(-0.26)	(10.37)	(1.48)	(26.2)	(3.05)	(-3.30)		
2	Delhi	Total NSDP	477.29	477.29	2454.68	2454.68	5046.41	10243.36	54088.09	5628616	82007.21	107764.74
			(6.85)	(22.01)	(9.71)	(26.67)	(6.35)	(39.84)	(7.37)	(13.07)	52314	72735
		Per Capita	1199	1199	4038	4030	5447	11057	39817	41436		
			(1.54)	(11.93)	(3.47)	(14.86)	(2.41)	(24.98)	(4.48)	(7.55)		
3	Haryana	Total NSDP	868.88	868.88	3031.95	3031.95	5719.21	12238.45	50890.88	53310.37	84326.79	11578.72
		Per Capita	(3.81)	(17.88)	(7.08)	(22.72)	(4.08)	(28.5)	(9.39)	(16.67)	35779	49038
			877	877	2370	2370	3509	7508	24328	25484		
			(0.96)	(12.13)	(3.73)	(16.3)	(1.92)	(20.8)	(6.72)	(9.48)		
4	Himachal	Total NSDP	223.24	223.24	722.82	72732	115080	2521.47	13262.22	1385.49	19035.84	24713.22
	Pradesh		(2.03)	(13.19)	(5.54)	(20.23)	(5.53)	(39.44)	(6.22)	(11.20)	28236	36656
		Per Capita	651	651	1704	1704	2241	4910	21824	22795		
			(0.03)	(9.32)	(3.20)	(15.67)	(3.58)	(32.37)	(4.20)	(8.67)		
5	Punjab	Total NSDP	1436.16	146.16	4449.25	4449.25	7504.93	16738.36	63182.00	67738.78	81375.55	109459.44
			(5.37)	(19.38)	(6.55)	(23.84)	(4.16)	(26.5)	(4.11)	(8.07)	30158	40566
		Per Capita	1070	1070	2674	2674	3730	8318	25990	27865		
			(2.76)	(14.4)	(3.95)	(18.51)	(2.21)	(20.79)	(2.30)	(6.51)		
6	UP	Total NSDP	4256.50	4256.50	14011.82	14011.82	22779.65	49496.24	159668.17	161289.85	207368.09	272157.97
			(0.85)	(14.25)	(5.34)	(19.36)	(2.84)	(21.58)	(4.27)	(9.82)	11189	14685
		Per Capita	486	486	1278	1278	1652	3590	9700	9799		
			(-1.11)	(9.86)	(2.46)	(1415)	(0.01)	(17.07)	(2.20)	(7.12)		

Source: Digests of Statistics, Directorate of Economics and Statistics, J&K Government, various issues. and
State Domestic Product from 1960-61 to 2006-07, Economic and Political Weekly Research Foundation, Mumbai.
Note: Total NSDP in 000 crores
Per capita income in terms of Rupees
Figures in parentheses are the growth rates
Growth rates are based on decennial data 1970-71 – 79-80, 1980-81 – 89-90, 1990-91 – 99-00, 2000-01 – 2006-07.

The trend of annual growth of various sectors, based on decennial data, of regional economies shows that 1970-71 to 1988-89 except Delhi and U.P, the growth rate of primary sector has been positive in rest of the states. In the following decade, J&K was the only state which has the negative growth rate in the sector. However in the decade of 1990-91 to 2000-01 while as Delhi had negative growth rate of (-0.1), Himachal Pradesh had marginal increase of 0.87percent, the rest of the states including J&K have been normally growing.

In the period of 2001-07 among all the regional economies under study, the annual growth rate of primary sector to NSDP in J&K was highest (3.24percent).

In case of secondary sector, the annual growth rate of these regional economies have been impressive during the decade 1981-90 and during the decade 1991-00, J&K was the only state among these economies which had a marginal increase in the secondary sector (1.45percent) and the highest growth was found in case of Himachal Pradesh (8.51percent). Although during the period 2001-07 in all these regional economies, the annual growth of secondary sector was quite satisfactory, however Himachal Pradesh was the leading economy (with 9.71percent) growth.

In terms of the annual growth of the tertiary sector, the regional economies show that J&K and Haryana were among the top states whose annual growth rate in this sector has been higher than others.

From the whole decadal analysis (based on the percentage and decennial data) the relative share and annual growth rate reveals that there has been shift from mainly agrarian economy to manufacturing based economy but in case of J&K particular, situation is somewhat different, the analysis brings us to conclusion that this economy has

become market-oriented rather than growth- oriented because the growth has been more in the tertiary sector than in the secondary sector.

C) Sectoral Growth and Trends- of Northern States – Comparative analysis (based on linear and exponential growth model)

The present investigation has examined the NSDP time series data for all the northern states, both at current and constant prices and estimated the annual growth rates based on simple linear equation and compound growth rates on exponential function. In order to minimize the temporal variation, the time series data has been converted into time series indices to get realistic growth estimates.

The state of Jammu and Kashmir demonstrates a compound growth of 4.82 percent per annum in case of aggregate NSDP at current prices (index based) from 1970-71 to 2006-07 (table 40). The estimated relationship is statistically significant with co-efficient of determination about 0.95.

Table 38: Compound Growth Rate of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1970-71 to 2006-07

(Percent Per annum)

S. No	State	Primary	Secondary	Tertiary
1	J&K	4.41	5.24	5.34
2	Delhi	4.47	5.18	5.25
3	Haryana	4.52	5.12	5.16
4	Himachal Pradesh	4.55	5.47	5.19
5	Punjab	4.50	4.66	4.80
6	U.P	4.23	4.62	4.72

Table 39: Compound Growth Equations of NSDP at Current prices (Index based) for Principal Sectors for Selected Northern States for the period 1970-71 to 2006-07

(Rs. 000 crores)

			Exponential function $Y=ab^x$					
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**
1	J&K	Y=	(130.457) (1.044)^x {5.193}** {.001}**	0.94	(128.788) (1.052)^x {4.886}** {.002}**	0.96	(129.223) (1.053)^x {8.705}** {.003}**	0.89
2	Delhi	Y=	(134.933) (1.045)^x {7.804}** {..003}**	0.88	(133.858) (1.052)^x {6.986}** {.003}**	0.92	(137.979) (1.052)^x {7.046}** {.002}**	0.93
3	Haryana	Y=	(123.106) (1.045)^x {4.484}** {.001}**	0.95	(136.733) (1.051)^x {5.876}** {.002}**	0.95	(138.580) (1.051)^x {6.439}** {.002}**	0.94
4	Himachal Pradesh	Y=	(121.268) (1.045)^x {4.137}** {.002}**	0.96	(123.824) (1.055)^x {3.923}** {.002}**	0.97	(126.270) (1.052)^x {5.362}** {.002}**	0.95
5	Punjab	Y=	(122.131) (1.045)^x {4.488}** {.002}**	0.95	(138.953) (1.046)^x {6.349}** {.002}**	0.93	(133.853) (1.048)^x {5.580}** {.002}**	0.95
6	U.P	Y=	(125.133) (1.042)^x {4.904}** {.002}**	0.94	(131.477) (1.046)^x {6.625}** {.002}**	0.92	(136.096) (1.047)^x {6.724}** {.002}**	0.92

** Significant at 0.99 probability level

Note: Figures with { } shows the Standard Error

While estimating the compound growth rates, the tertiary sector has registered a higher growth rate that is 5.34 percent per annum which is higher as compared to primary sector and secondary sector (table 38).

It would be equally appropriate to examine the time series growth rates on per capita basis. While in relationship is statistically significant with $R^2 = 0.96$, the annual compound growth rate of aggregate NSDP on Per capita basis worked out at 4.30 percent (table 40). The high growth in state's NSDP has been mainly due to considerable/ growth in tertiary sector.

Table 40: Compound Growth Rate of NSDP at Current prices (index based) for aggregate NSDP and Per capita NSDP for Selected Northern States for the period 1970-71 to 2006-07

(Percent per annum)

S. No	State	Aggregate	Per capita
1	J&K	4.82	4.30
2	Delhi	5.20	4.67
3	Haryana	4.91	4.56
4	Himachal Pradesh	5.01	4.75
5	Punjab	4.66	4.34
6	U.P	4.45	4.07

Table 41: Compound Growth Equations of NSDP at Current prices (index based) for Aggregate NSDP and Per Capita NSDP for Selected Northern States for the period 1970-71 to 2006-07

(Rs. 000 crores)

			Exponential function $Y=ab^x$			
S. No	**State**		Aggregate	R^2	Per Capita	R^2
1	J&K	Y=	$(129.978)\ (1.048)^x$	0.94	$(121.485)\ (1.043)^x$	0.96
			{5.874}** {.002}**		{3.776}** {.001}**	
2	Delhi	Y=	$(136.422)\ (1.052)^x$	0.93	$(121.672)\ (1.047)^x$	0.95
			{6.921}** {.002}**		{4.854}** {.002}**	
3	Haryana	Y=	$(127.215)\ (1.049)^x$	0.95	$(118.327)\ (1.046)^x$	0.97
			{4.574}** {.001}**		{3.396}** {.001}**	
4	Himachal Pradesh	Y=	$(121.245)\ (1.050)^x$	0.97	$(113.65)^{**}\ (1.048)^x$	0.98
			{3.974}** {.002}**		{2.999}** {.001}**	
5	Punjab	Y=	$(127.441)\ (1.047)^x$	0.95	$(120.542)\ (1.043)^x$	0.96
			{4.837}** {.001}**		{3.889}** {.002}**	
6	U.P	Y=	$(129.144)\ (1.045)^x$	0.94	$(158.467)\ (1.041)^x$	0.81
			{5.339}** {.002}**		{11.124}** {.003}**	

** Significant at 0.99 probability level

Note: Figures with { } shows the Standard Error

Per Capita in Rs.

In terms of simple linear function the aggregate NSDP has shown better performance both in absolute values and per capita basis. In any case, among the three sectors, the growth in tertiary sector over the period of 1970-71 to 2006-07 is higher than primary and secondary sector (table 42).

Table 42: Linear Growth Equations of NSDP at Current prices (Index based) for Principal Sectors for Selected Northern States for the period 1970-71 to 2006-07.

(Rs. 000 crores)

			Linear function Y=a+bx					
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**
1	J&K	Y=	91.088 + 12.442x	0.99	53.355 + 17.794x	0.97	80.229 + 11.243	0.99
			(3.638)** (.166)		(11.855)** (.543)**		(3.430)** (.157)**	
2	Delhi	Y=	104.556 + 12.629x	0.95	78.497 + 16.915x	0.99	76.099 + 18.010x	0.99
			(10.994)** (.504)**		(5.535)** (.254)**		(4.613)** (.211)**	
3	Haryana	Y=	81.986 + 12.346x	0.99	74.416 + 17.271x	0.99	75.238 + 17.713x	0.99
			(5.015)** (.230)**		(2.765)** (.126)**		(2.794)** (.128)**	
4	Himachal Pradesh	Y=	77.247 + 12.479x	0.99	43.204 + 18.543x	0.98	66.002 + 16.391x	0.99
			(4.035)** (.185)**		(8.975)** (.411)**		(3.757)** (.172)**	
5	Punjab	Y=	82.380 + 12.116x	0.99	94.348 + 14.432x	0.99	82.668 + 14.967x	0.99
			(4.812)** (.220)**		(4.087)** (.187)**		(2.677)** (.128)**	
6	U.P	Y=	92.465 + 11.029x	0.99	138.953 + .045x	0.93	93.174 + 14.376x	0.99
			(4.419)** (.203)**		(6.349)** (.002)**		(3.429)** (.157)**	

** Significant at 0.99 probability level

Note figures with parentheses are the Standard Error

Table 43: Linear Growth Equations of NSDP at Current prices (Index based) for Aggregate NSDP and Per Capita NSDP for Selected Northern States for the period 1970-71 to 2006-07

(Rs. 000 crores)

			Linear function Y=a+bx			
S. No	**State**		**Aggregate**	**R^2**	**Per Capita**	**R^2**
1	J&K	Y=	81.940 + 14.528x	0.99	83.659 + 11.244x	0.99
			(4.071)** (.187)**		(3.430)** (.157)**	
2	Delhi	Y=	77.631 + 17.427x	0.99	79.104 + 12.875x	0.99
			(4.270)** (.196)**		(3.413)** (.157)**	
3	Haryana	Y=	72.081 + 15.008x	0.99	74.019 + 12.258x	0.99
			(2.806)** (.128)**		(2.829)** (.129)**	
4	Himachal Pradesh	Y=	62.251 + 15.071x	0.99	62.777 + 12.931x	0.99
			(5.038)** (.231)**		(5.243)** (.240)**	
5	Punjab	Y=	82.049 + 13.473x	0.99	83.417 + 11.283x	0.99
			(3.136)** (.144)**		(3.070)** (.140)**	
6	U.P	Y=	91.684 + 12.389x	0.99	140.617 + 12.086x	0.95
			(3.171)** (.145)**		(9.829)** (.451)**	

** Significant at 0.99 probability level

Note figures with Parentheses are the Standard Error

Per Capita in Rs.

Decade wise analysis shows that NSDP has grown at higher rate in the decade 1991-00 with compound growth of 11.9percent at current prices (index based) (table 51).

The primary sector has shown its best performance in J&K during the period 2001-07 (at constant prices) with 3.4percent (table 65) compound growth rate while the worst performance has been shown in 1981-90 with (-3.2percent) compound growth rate (table 61).

The decadal as well as annual growth rates of the NSDP shows the same pattern and same trend, both at current as well as at the constant prices.

The secondary sector has improved its position in 2001-07 with 8percent of compound growth at constant prices and has shown lowest performance in 1991-00 with (-1.1 percent) compound growth.

The tertiary sector has shown its best performance in 1981-90 at constant prices with 10.9percent compound growth rate and lowest performance in 1991-00 with 4.6percent compound growth.

The decade wise analysis (at current prices) shows that NSDP has grown more fastly in the decade 1991-2000 with compound growth of 11.90percent (table 51). All the three sectors have shown their best performance in the same period.

The compound growth rate, in 1991-00 of primary, secondary and tertiary sector was 10.41percent 17.32percent and 11.95percent respectively. While the lowest performance was in 1981-90 (6.62 in primary sector, 9.2 in secondary sector 8.58 in tertiary sector). Where the compound growth in total NSDP was 7.72 (table 49). The coefficient of determination was around 0.95 in case of primary and incase of secondary sector it is 0.83.

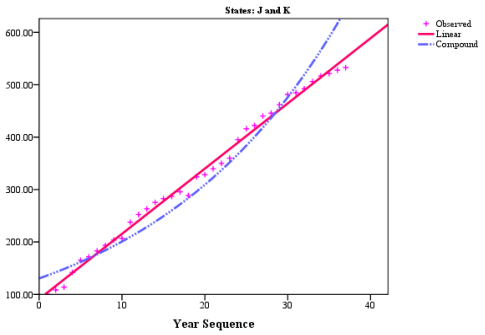
The decadal analysis shows that the highest per capita income compound growth (at current prices) in 1991-2000 was 10.18percent.While in other decades under study the per capita income of the state has increased around 7-8 percent.

The linear equation analysis at current prices shows that during 1991-2000, the per capita income has increased by 15.42percent while as in 2001-07, it has increased by 8 percent annually. The value of R^2 is also very high 0.99 and shows that the value of both intercept as well as the slope of the function is significantly high (table 56 & 57).

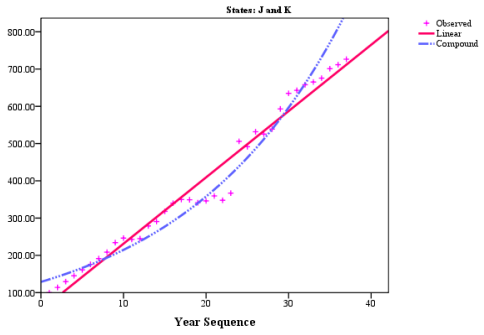
Linear and Compound Growth Trends at Current price (Index based)

From 1970-71 to 2006-07 (State J&K)

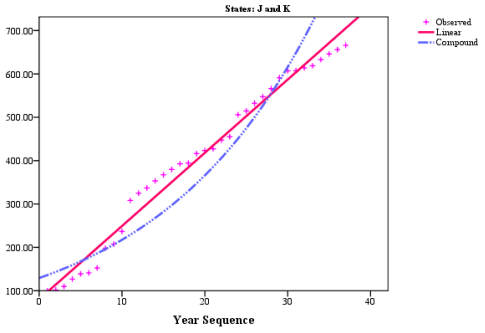
Primary sector



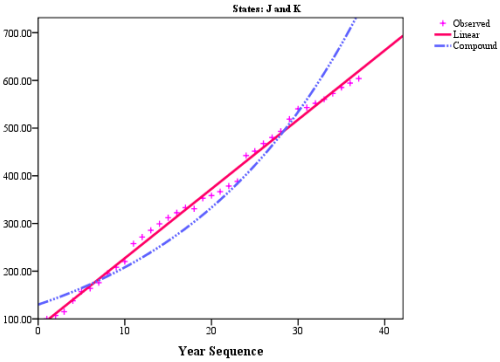
Secondary sector



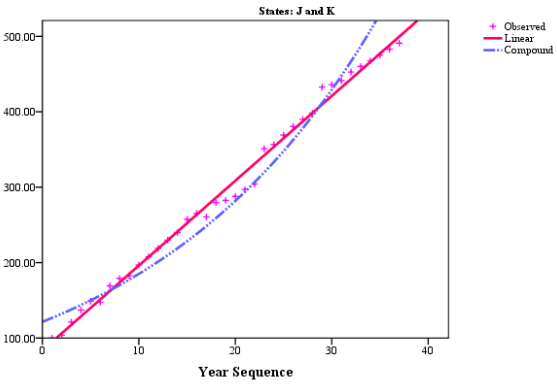
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y -axis depicts contribution of various sectors in 000 crores

Delhi

The data on NSDP at current prices as well as constant prices from 1970-71 to 2006-07 shows the positive trend.

From the decadal analysis, it is clear that at current prices Delhi shows the substantial increase from 1971-2000. The compound growth rate of total NSDP was 9.62 percent in 1971-80 with value of R^2 = 0.96 percent which is very high then it has increased to 10.08 percent in 1981-90 then to 11.10 in 1991-00. There were increasingly moving trends due to the price changes and high inflation rates.

On the basis of decadal analysis at constant prices the best performance of NSDP during 2001-07 was (7.64percent compound growth rate) (table 65) and lowest performance was found during the period 1991-00 showing a negative growth of (-3.3 percent) (table 63). The main factor responsible for decline in the NSDP in the given decade was decline in the growth of primary sector.

Delhi shows a compound growth rate of 5.20percent at current prices (Index based) during the period 1970-71 to 2006-07 (table 40) and is highly significant with R^2 =0.93 (table 41). While it shows lower growth rate in agriculture sector, secondary and tertiary sectors are competing each other at 5.18 growth rate in case of former and 5.20 in case of later. So for as per capita income statistics, its growth was slow at 4.67percent. However the Growth Rate of all these sectors was significant as shown by statistical results with R^2 = 0.95.

From the given analysis of the primary sector of Delhi, it reveals that its performance is lowest in the whole time period. On the basis of decadal growth rates, there was not any significant change in the growth rates of primary sector of Delhi upto 1990. But from 1991-2000, the statistical figures show the considerable decline in primary sector growth rates i.e.,

(-19.92percent). It has improved largely from 2000-01 to 2006-07 however the growth rate is still negative at -1.72 percent.

In case of secondary sector there has not been any visible change. From decade-wise analysis, contribution of secondary sector shows its best performance for the period 2001-07 with 8.50percent compound growth rate in terms of production at constant prices. But in 1991-2000 secondary sector shows its lowest performance of 4.13percent.

The whole analysis shows that secondary sector does not contribute much to the NSDP of the state. On an average it contributes only 23percent approximately from 1970-71 to 2006-07.

From 1991-2000 the total NSDP of Delhi shows the negative growth of (-3.3percent) which may be because of the poor performance of primary sector which shows negative growth of (-19.92percent).

From the individual performance of all the three sectors of economy, the tertiary is on the upper side and primary sector on the lower side, while as secondary sector is almost stagnant.

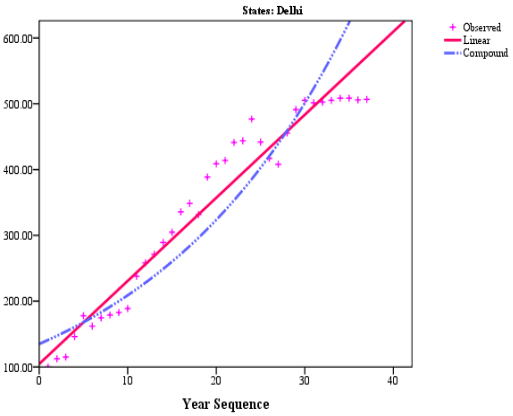
On the basis of decadal time period (at constant prices) the tertiary sector shows its best performance in 1981-90 with 7.85percent while as lowest performance in 1991-2000 with 6.09 percent.

At current prices, tertiary sector has shown its best performance in the decade 1991-00 with 12.15 growth and secondary sector with 8.67percent growth rate. While during the period 2001-07, it is the secondary sector which is leading with 10.12percent and tertiary with 8.58percent compound growth rate only (table 51).

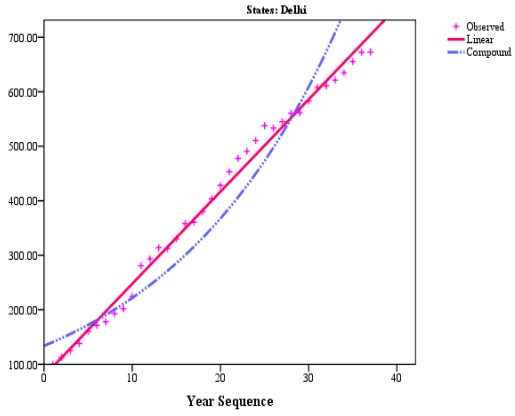
Linear and Compound Growth Trends at Current price (Index based)

From 1970-71 to 2006-07 (State Delhi)

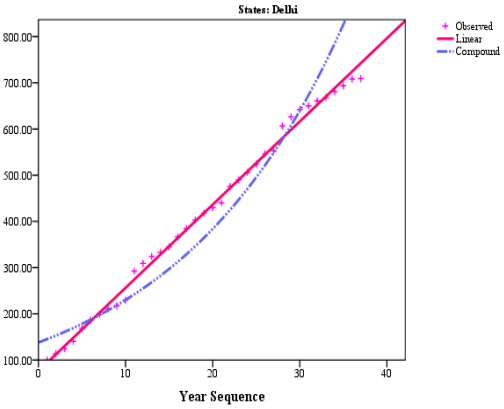
Primary sector



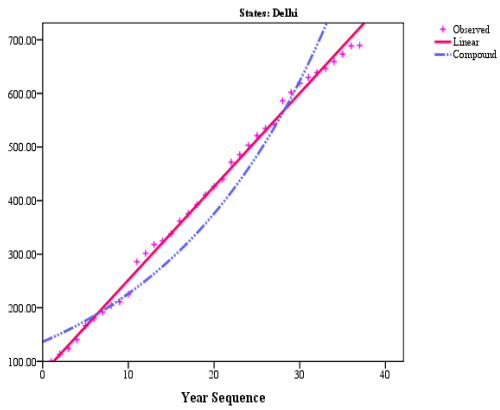
Secondary sector



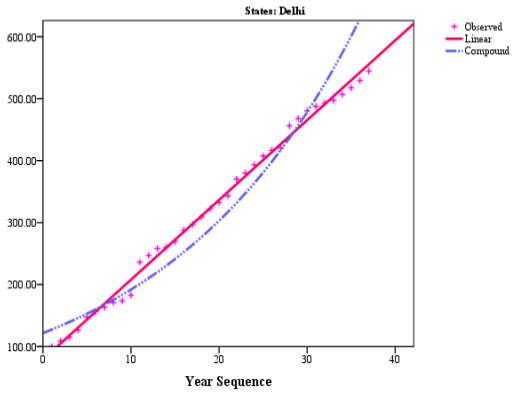
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y- axis depicts contribution of various sectors in 000 crores

Haryana

Decadal compound growth rate through exponential method (at constant prices) shows that the total NSDP of Haryana state grows more fastly during 2001-07 at 8.70percent (table 65) while lowest growth was found in 1991-00 (4.18percent) (table 63). The annual growth rates of Haryana shown by given (table 68) by the method of linear regression model shows that highest annual growth rates of NSDP at constant prices was found in 1991-00. While the lowest annual growth rate was found in 1971-80. The table showing the NSDP of Haryana at current prices in absolute terms depicts that NSDP of Haryana has a positive trend for last 37 years. Haryana at the current prices (Index based) is also showing the same trend as Delhi and primary sector is lagging behind the secondary and tertiary sectors. The secondary and tertiary sectors were growing almost at the same trend.

The sectoral analysis of Haryana shows that in the initial stage primary sector in absolute terms is showing good performance but at the later stage, the sector contributes less. While the secondary and tertiary sectors contribute largely to the NSDP of the state. In 1970-71 primary sector contributes 65percent while secondary and tertiary sector contribute 15percent and 20percent respectively whereas the contribution of primary sector has fallen to 23percent in 2006-07, tertiary sector contributes almost 49percent to the states NSDP.

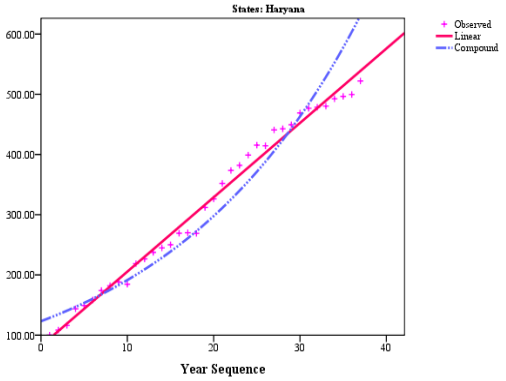
At current prices (based on decadal analysis) all the three sectors in the state are showing an increasing trend in the three decades (i.e., 1971-80; 1981-90 and 1991-00) but primary sector is showing an increase at low rate than secondary and tertiary sector. Even secondary sector is having edge over the tertiary sector in almost all the decades. Based on constant prices, the three sectors in Haryana state are showing the same trend in their compound growth as at current prices. Secondary and tertiary

sectors are growing parallel showing ups and downs but the primary sector is showing very low growth as well as low level of significance. The whole analysis shows that there is a less contribution of primary sector after green revolution, liberalization and globalization.

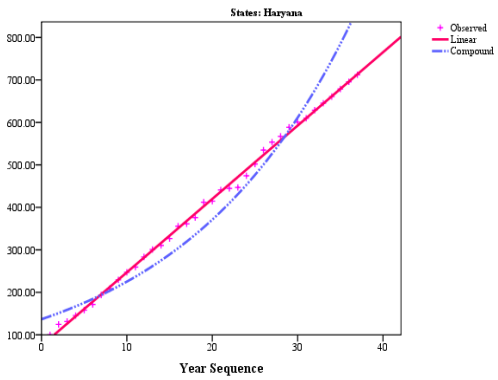
Linear and Compound Growth Trends at Current price (Index based)

From 1970-71 to 2006-07 (State Haryana)

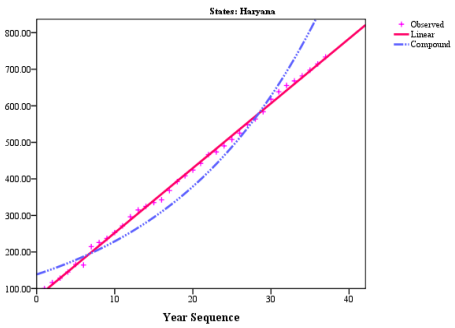
Primary sector



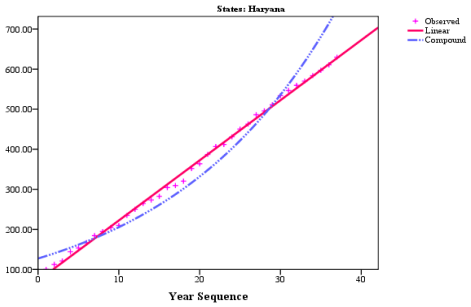
Secondary sector



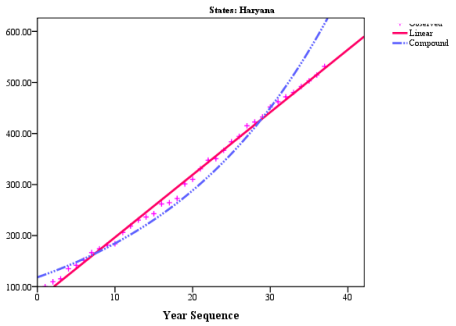
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y -axis depicts contribution of various sectors in 000 crores

Himachal Pradesh

The total NSDP of Himachal Pradesh at current prices shows an increasing trend from 1970-71 to 2006-07. The growth trends both linear and exponential given in the tables however show that there were certain slight fluctuations in the mid 90s.

The primary sector is showing low growth than secondary and tertiary sectors at current prices during the period 1970-71 to 2006-07 (table 38).

The decadal analysis on exponential basis shows that the compound growth of the state has shown increasing trend as it has grown from 3.10percent in 1971-80 to 6.47percent 2001-07 (table 47 & 53). Coefficient of determination is also very high with $R^2 = 0.91$. The linear growth rates have also shown the increasing trend.

The primary sector of the state has remained the main contributor to NSDP and has the positive slope during 70s. In 1970-71 the contribution of services sector has remained 24percent to the total NSDP while in 2006-07 it has contributed 38percent.

The decadal analysis at constant prices reveals that the contribution of primary sector in all the three decades (i.e., 1971-80, 1981-90, and 91-00) has remained stagnant with less than 2percent compound growth (table 59-65). However during the period 2001-07, its contribution has increased to 3.11percent but the co-efficient of determination is low with $R^2 = 0.57$.

However the secondary sector has shown its good contribution during 1991-00 and tertiary sector during 1981-90 with 6.91percent and 7.22percent compound growth rate respectively. During the period 2001-07 the rate in the two sectors has been 8.98percent and 6.37percent and the level of significance is also high with $R^2 = 0.97$.

The linear growth rate of NSDP of H.P state have also shown an increase of 4percent annually and confirms that it is the secondary sector which is showing its best performance among the three sectors. During the decade 1991-00 at current prices secondary sector is leading with 14.80percent compound growth followed by the other two sectors tertiary and primary with 12.10 and 8.99percent compound growth rates. Per capita income in the economy has also shown an increase of 10.91percent during the same period.

However during the period 2001-07, there is slight decline in all the sectors along with per capita income. The contribution of secondary sector during the period is 9.89percent while that of tertiary and primary sector is 7.70percent and 6.63percent respectively with 6.92percent growth in per capita income.

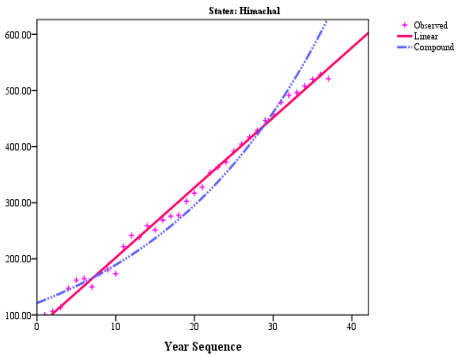
At constant prices again it is the secondary and tertiary sector which are taking the leading role in the NSDP of economy while as the primary sector is lagging behind with its performance in 1991-2000 as 1.87percent compound growth with low (R^2 = 0.89) as compared to 1971-80 and 1981-90. While as the contribution of secondary and tertiary sector has been 6.91percent and 6.34percent in the same decade that is showing parallel growth. However during the period 2001-07 the contribution of primary sector has shown increase with 3.11percent growth but still it is the secondary sector which is again taking the lead with 8.98percent followed by tertiary sector with 6.37percent compound growth and 3.37percent per capita income.

The linear equation analysis based on current and constant prices reveals the same trend of all the three sectors of the economy with secondary and tertiary sector at top, growing parallel and agriculture showing very low growth with R^2 = 0.22 at the constant prices.

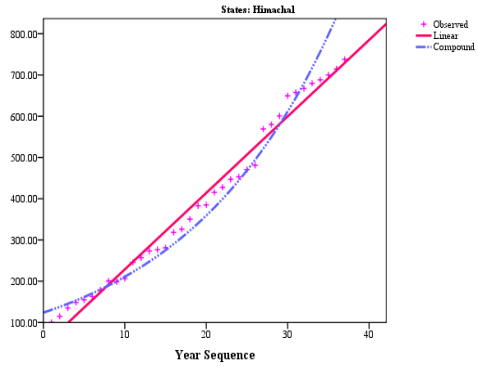
Linear and Compound Growth Trends at Current price (Index based)

From 1970-71 to 2006-07 (State Himachal Pradesh)

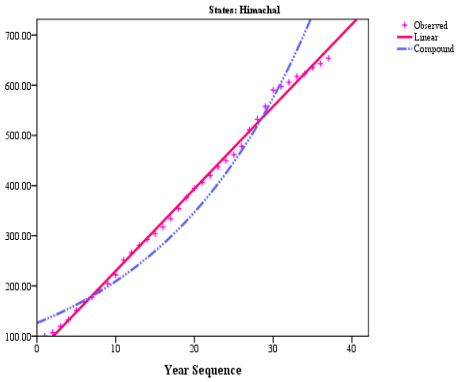
Primary sector



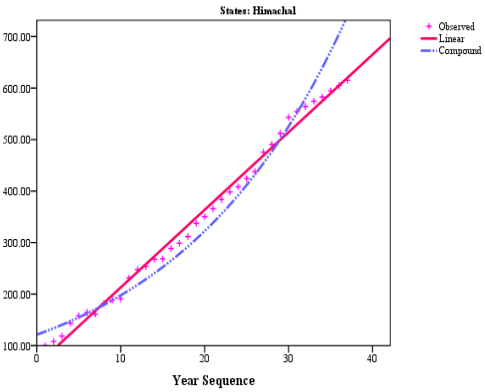
Secondary sector



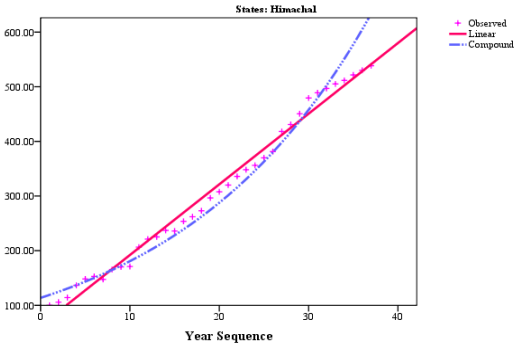
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y- axis depicts contribution of various sectors in 000 crores

Punjab

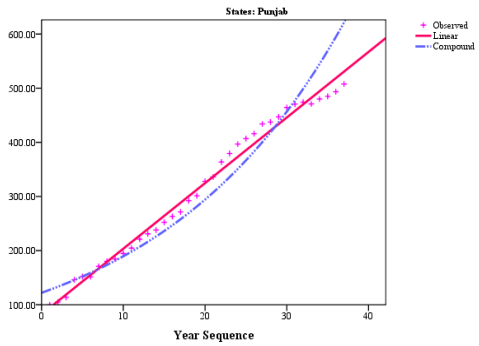
The exponential function at current prices shows the highest growth rate of NSDP of the state, during 1991-00 with 9.53percent compound growth rate, while the lowest was observed during 2006-07 i.e., 7.05percent. At current prices (index based), during the period 1970-71 to 2006-07, Punjab was having almost same growth in all the sectors with more than 4percent compound growth rate (table 38 & 40) which was lower than other states. The sectoral contribution of the economy of Punjab shows that primary sector has been the main contributor to the NSDP of the state. The relative contribution of primary sector in the state was 58.36percent in 1970-71 while in 2006-07 it was only 34.35percent. Decadal compound growth rate (at constant prices) shows that it has been the secondary and tertiary sector which have contributed more from the very beginning with 6.90percent, 7.16percent, 6.20percent in secondary sector and 7.17percent, 4.63percent and 4.71percent percent in tertiary sector respectively in the decades (1971-80, 1981-90 and 1991-00). The contribution of agricultural sector in the above mentioned decades has been 4.04, 5.25 and 2.41 percent only. During the period 2001-07 the contribution of three sectors has been 7.50 (secondary) 4.93 (tertiary) and 2.18 (primary) with 2.61 per capita income. At current prices also it is the secondary and tertiary sectors which are contributing more to the state economy growth at constant rate of about 10percent in all the three decades from 1971 to 2000 with small fluctuations and agriculture sector is lagging behind these two sectors. But there is decline in all the three sectors during the period 2001-07, however the decline in agriculture sector is more than in other sectors. The linear equation based on current prices is revealing that primary sector in Punjab is showing the upward trend from 1971 to 2000 but beyond that it is declining. The level of significance has also come down and R^2 also reducing from 0.98 to 0.86. On constant prices the

primary sector in Punjab is showing ups and downs and the State is showing upwards moving trend in secondary and tertiary sector upto 1990 but beyond that is showing downward trend in primary sector than other two sectors.

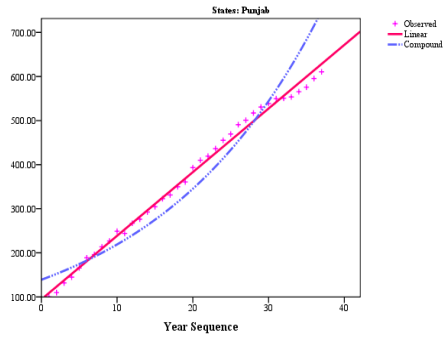
Linear and Compound Growth Trends at Current price (Index based)

From 1970-71 to 2006-07 (State Punjab)

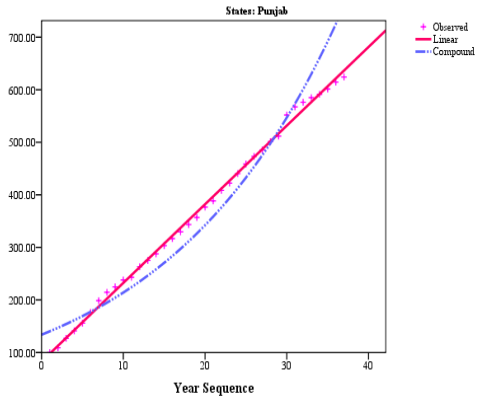
Primary sector



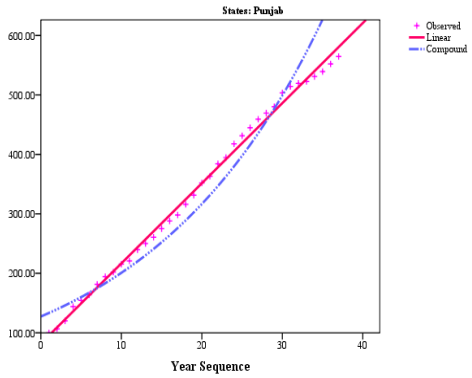
Secondary sector



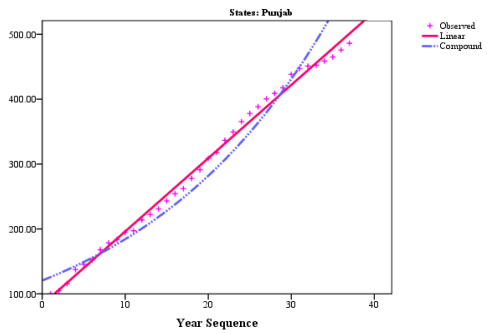
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y- axis depicts contribution of various sectors in 000 crores

Uttar Pradesh

The state of U.P is ranked first in India in terms of population. Like Punjab, U.P is also showing the same growth rate in all the sectors with more than 4percent compound growth rate at current prices (index based) (table 38, 40).

In U.P the sectoral analysis shows that primary sector has remained one of the main contributors to the NSDP of the economy which gives maximum livelihood to its population. But in relative terms the role of primary sector has declined and contributes only 31.37percent.

On the basis of decadal compound growth rates, the highest annual contribution of primary sector was in the decade 1991-00 with 8.33percent at current prices and lowest in 1971-80 with 6.25percent which has further declined to 6.19percent during the period 2001-07 (table 47-53).

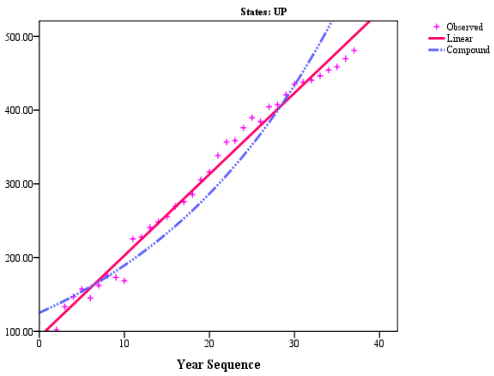
However, the secondary and tertiary sector are growing more rapidly than primary sector with about 9 to 10percent growth with marginal fluctuation and during the period 2001-07 the two sectors are showing 8.77percent and 8.39percent compound growth with 6.19percent per capita growth. The level of significance throughout the period has remained high with $R^2 = 0.95$.

The linear equation based on current prices is showing the increasing trend in all the three sectors but the increase in secondary and tertiary was more than in primary sector in all the three decades and during 2001-07 the primary sector has even shown downward trend with $R^2 = 0.88$. While as secondary and tertiary sectors have shown increasing trend and high level of significance with $R^2 = 0.99$.

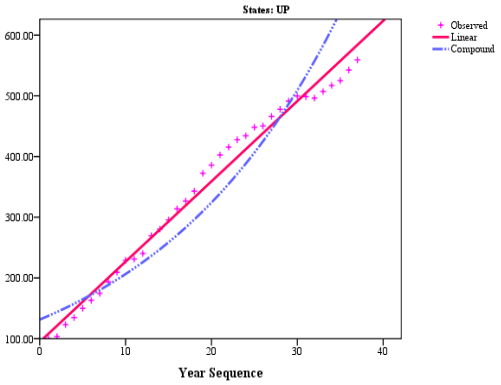
Linear and Compound Growth Trends at Current price (Index based)

From 1970-71 to 2006-07 (State UP)

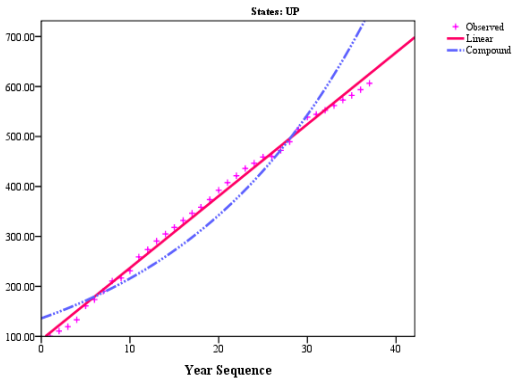
Primary sector



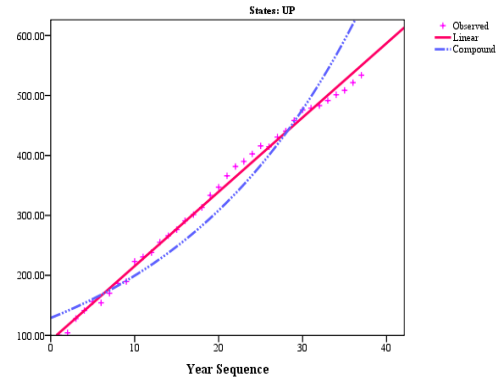
Secondary sector



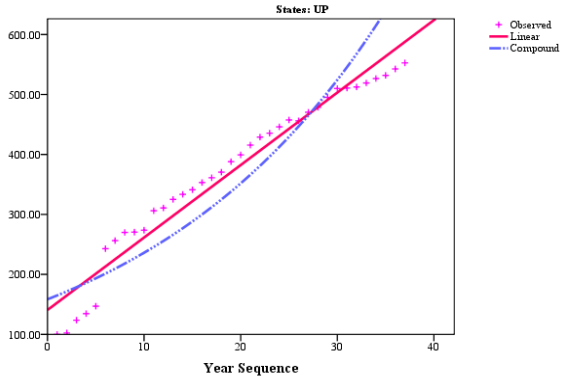
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y- axis depicts contribution of various sectors in 000 crores

Overall Findings

From the above analysis, it could be summed up that at constant prices (absolute based) (Table 59, 61, 63, 65) NSDP growth in J&K state has worsened compared to all the other northern states, in the 1980s; where it has infact increased and in some states become more than double (U.P) as compared to 1970s. This deceleration in NSDP growth in J&K can be attributed to deceleration in the growth of agriculture where it shows the negative growth. However, secondary sector has shown some growth but still it is less when compared with other states especially Haryana, Punjab, U.P and Delhi.

While a sharp fall in the share of agriculture has taken place in the decade 1981-90 in case of J&K, it has increased during 1990s. During the decade 1990s there is acceleration in the growth of all the sectors except industry which has deteriorated significantly. However agricultural growth has worsen in case of other northern states especially in Delhi, where it is showing negative growth. During the period 2001-07, growth rates in all the states are showing acceleration but agricultural growth has shown deceleration except in Haryana where it has accelerated and Delhi where it is negative.

In tertiary sector J&K is again lagging behind all the northern states except (U.P) where it is showing negative growth. Tertiary sector in Delhi is contributing 80 percent to NSDP.

The growth in Per Capita income has increased significantly in 1980s as compared to 1970s in all the northern states except in J&K where it is showing negative growth.

NSDP growth in all the northern states at current prices (index based) (table 47, 49, 51, 53) has accelerated in 1980s as compared to 1970s except in J&K where the growth in all the sectors has decelerated. However during 1990s sectoral growth in J&K has increased as

compared to other northern states while during the period 2001-07, it is again showing declining trend.

Per Capita NSDP at current prices has accelerated during 1990s in case of all the northern states including J&K as compared to 1970s and 1980s, however it has again declined during the period 2001-07 in all the states except Haryana where it has remained stagnant.

NSDP measures for the period from 1970-71 to 2006-07 (current prices index based) indicates that Delhi has shown highest compound growth rate of NSDP (5.20percent) during the period 1970-71 to 2006-07 followed by Himachal Pradesh (5.02percent), Haryana (4.91percent) and J&K (4.82percent). The lowest rate was found in Punjab and U.P (4.66) and 4.45 respectively.

Moreover, NSDP measures from 1970-71 to 2006-07 (current prices absolute based) shows that agricultural growth has remained more or less same in all the states under study except Delhi where it has shown negative trend. However, in case of industrial growth, it is Himachal Pradesh which is taking the lead and all the other states are lagging behind. In fact at current prices (index based) is also depicting the same picture. J&K is lagging behind in industrial growth from its neighbouring state Himachal Pradesh, however the two states having the same topography. In tertiary sector all the states are growing almost at the same rate except Punjab and Uttar Pradesh. In Per Capita terms, growth rate is same in case of J&K and Punjab. While it is more in Himachal Pradesh and less in UP.

From 2000 onwards, J&K state is showing the downward trend and is lagging behind the other northern states like Delhi, Haryana and Himachal except in primary sector in which it has shown higher growth than all the other northern states but still the growth is less as compared to last three decades in the state.

From the analysis, it becomes clear that, undoubtedly, significant structural transformation has taken place in sectoral composition of incomes at states level broadly on the pattern observed at national level; a steady fall in the share of agriculture, a moderate rise in the share of industry and a steady rise in the share of services to about more than 50 percent during the last decade.

Table: 44. Compound Growth Equations of NSDP at Current prices (absolute basis) for Principal Sectors for Selected Northern States for the period 1970-71 to 2006-07

(Rs. 000 Crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	$(129.65)\ (1.12)^x$ {4.13} {.001}**	0.99	$(28.71)\ (1.53)^x$ {2.17} {.004}**	0.98	$(58.91)\ (1.16)^x$ {3.94} {.004}**	0.99	$(213.16)\ (1.141)^x$ {7.45} {.002}**	0.99	$(482.79)\ (1.11)^x$ {15.31} {.002}**	0.99
2	Delhi	Y=	$(37.83)\ (1.10)^x$ {4.09} {.005}**	0.92	$(101.84)\ (1.16)^x$ {4.64} {.002}**	0.99	$(261.71)\ (1.175)^x$ {9.49} {.002}**	0.99	$(390.70)\ (1.17)^x$ {13.22} {.002}**	0.99	$(989.34)\ (1.12)^x$ {27.45} {.001}**	0.99
3	Haryana	Y=	$(482.47)\ (1.12)^x$ {20.65} {.002}**	0.99	$(106.53)\ (1.17)^x$ {2.44} {.001}**	0.99	$(136.87)\ (1.175)^x$ {3.29} {.001}**	0.99	$(677.47)\ (1.15)^x$ {16.39} {.001}**	0.99	$(693.56)\ (1.12)^x$ {17.33} {.001}**	0.99
4	Himachal Pradesh	Y=	$(102.89)\ (1.12)^x$ {4.24} {.002}**	0.99	$(24.11)\ (1.17)^x$ {1.59} {.003}**	0.99	$(40.98)\ (1.16)^x$ {1.29} {.001}**	0.99	$(158.69)\ (1.15)^x$ {7.12} {.002}**	0.99	$(463.54)\ (1.13)^x$ {21.92} {.002}**	0.99
5	Punjab	Y=	$(707.73)\ (1.12)^x$ {30.43} {.002}**	0.99	$(207.80)\ (1.14)^x$ {7.45} {.001}**	0.99	$(323.95)\ (1.148)^x$ {7.34} {.001}**	0.99	$(1216.93)\ (1.13)^x$ {33.97} {.001}**	0.99	$(915.85)\ (1.11)^x$ {25.64} {.001}**	0.99
6	U.P	Y=	$(2211.02)\ (1.11)^x$ {82.04} {.002}**	0.99	$(578.10)\ (1.14)^x$ {28.34} {.002}**	0.99	$(947.36)\ (1.147)^x$ {23.20} (.001}**	0.99	$(3725.59)\ (1.13)^x$ {91.98} {.001}**	0.99	$(422.34)\ (1.10)^x$ {10.78} {.001}**	0.99

** Significant at 0.99 probability level
Note: Figures with { } shows the Standard Error
Per Capita in Rs.

Table: 45. Compound Growth Rate of NSDP at Current prices (absolute basis) for Principal Sectors for Selected Northern States for the period 1970-71 to 2006-07

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	14.12	12.06	15.23	16.12	11.19
2	Delhi	17.00	10.48	16.38	17.46	12.49
3	Haryana	14.82	11.83	16.93	17.45	12.07
4	Himachal Pradesh	14.71	11.87	17.46	16.22	12.58
5	Punjab	13.37	11.89	14.21	14.83	11.19
6	U.P	12.70	11.01	13.53	14.71	10.42

Table: 45.1. Linear Compound Growth Equations of NSDP at Current prices (absolute basis) for Principal Sectors for Selected Northern States for the period 1970-71 to 2006-07

(Rs. 000 Crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per capita NSDP**	**R^2**
1	J&K	Y=	1486.756 + 192.08x	0.82	1256.819 + 130.202x	0.67	-2319.559 + 263.304x	0.79	-5063.135 + 585.563x	0.78	-4029.054 + 551.068x	0.82
			(329.257)** (15.107)**		(335.907)** (15.412)**		(493.550)** (22.645)**		(1147.65)** (52.657)**		(942.507)** (43.245)**	
2	Delhi	Y=	126.783 + 28.003x	0.89	-4569.796 + 506.113x	0.77	-17694.98 + 1866.699x	0.74	-22391.560 + 2400.815	0.76	-13012.189 + 1649.929x	0.82
			(35.444)** (1.626)**		(1016.335)** (46.32)**		(4022.128)** (184.547)**		(5021.876)** (230.419)**		(2852.349)** (130.874)**	
3	Haryana	Y=	-4716. 997 + 643.125x	0.86	-6759.834 + 698.715x	0.69	-10680.413 + 1079.295x	0.67	-22139.338 + 2420.884x	0.74	-8695.414 + 1080.232x	0.79
			(952.788)** (43.716)**		(1721.925)** (79.007)**		(2806.116)** (128.753)**		(5388.258)** (247.230)**		(2066.458)** (94.815)**	
4	Himachal Pradesh	Y=	-1218.849 + 152.559x	0.79	-2033.996 + 203.593x	0.68	-2002.251 + 214.001x	0.74	-5255.097 + 570.155x	0.74	-7502.576 + 884.103x	0.77
			(287.961)** (13.212)**		(517.791)** (23.757)**		(462.01)** (21.225)**		(1257.836)** (57.713)**		(1790.358)** (82.147)**	
5	Punjab	Y=	-6890.624 + 949.282x	0.87	-4651.170 + 555.459x	0.81	-10108.068 + 1124.258x	0.76	-21645.268 + 2628.061x	0.82	-7240.774 + 1019.527x	0.86
			(1343.244)** (61.632)**		(978.979)** (44.918)**		(2340.298)** (107.379)**		(4582.250)** (210.248)**		(1522.982)** (69.879)**	
6	U.P	Y=	-15876.844 + 2302.778x	0.87	-9297.636 + 1198.303x	0.86	-26118.201 + 2999.052x	0.78	-51156.162 + 6498.060x	0.83	-2387.432 + 366.528x	0.87
			(3279.729)** (150.484)**		(1812.727)** (83.173)**		(5831.971)** (267.581)**		(10805.455)** (495.788)**		(511.592)** (23.473)**	

** Significant at 0.99 probability level
Note: Figures with Parentheses shows the Standard Error
Per Capita in Rs.

Table: 46. Compound Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1971 – 1980

(Rs. 000 Crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per capita NSDP**	**R^2**
1	J&K	Y=	$(95.083)\ (1.091)^x$	0.94	$(94.629)\ (1.104)^x$	0.99	$(84.273)\ (1.104)^x$	0.97	$(92.054)\ (1.096)^x$	0.98	$(93.350)\ (1.079)^x$	0.97
			{4.712}** {.009}**		{1.852}** {.003}**		{3.426}** {.007}**		{2.646}** {.005}**		{2.672}** {.004}**	
2	Delhi	Y=	$(101.487)\ (1.074)^x$	0.84	$(96.495)\ (1.091)^x$	0.98	$(96.157)\ (1.100)^x$	0.96	$(96.569)\ (1.096)^x$	0.96	$(96.363)\ (1.072)^x$	0.95
			{6.917}** {.012}**		{2.765}** {.005}**		{4.108} {.007}**		{3.792}** {.006}**		{3.229}** {.005}**	
3	Haryana	Y=	$(97.667)\ (1.077)^x$	0.93	$(97.987)\ (1.097)^x$	0.99	$(93.876)\ (1.110)^x$	0.98	$(96.664)\ (1.088)^x$	0.97	$(96.481)\ (1.074)^x$	0.97
			{4.399}** {.008}**		{2.271}** {.004}**		{3.411}** {.006}**		{3.213}** {.005}**		{2.793}** {.005}**	
4	Himachal Pradesh	Y=	$(100.307)\ (1.068)^x$	0.82	$(101.307)\ (1.082)^x$	0.95	$(92.129)\ (1.095)^x$	0.99	$(98.338)\ (1.076)^x$	0.92	$(98.486)\ (1.064)^x$	0.91
			{6.873}** {.012}**		{4.221}** {.680}**		{2.116}** {.341}**		{4.564}** {.008}**		{4.331}** {.007}**	
5	Punjab	Y=	$(95.727)\ (1.080)^x$	0.93	$(94.724)\ (1.106)^x$	0.98	$(92.842)\ (1.106)^x$	0.98	$(94.461)\ (1.092)^x$	0.97	$(94.455)\ (1.08)^x$	0.97
			{4.309}** {.008}**		{3.223}** {.006}**		{2.574}** {.005}**		{3.092}** {.005}**		{2.801}** {.005}**	
6	U.P	Y=	$(102.984)\ (1.062)^x$	0.80	$(90.849)\ (1.098)^x$	0.99	$(92.073)\ (1.103)^x$	0.98	$(95.062)\ (1.087)^x$	0.96	$(98.157)\ (1.06)^x$	0.97
			{6.841}** {.011}**		{1.717}** {.003}**		{2.879}** {.005}**		{3.515}** {.006}**		{4.015}** {.007}**	

** Significant at 0.99 probability level
Note: Figures with { } shows the standard error
Per Capita in Rs.

Table: 47. Compound Growth Rate of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1971-1980

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	9.64	9.13	10.49	10.37	7.92
2	Delhi	9.62	7.39	9.09	10.06	7.24
3	Haryana	8.89	7.71	9.74	11.07	7.40
4	Himachal Pradesh	7.70	6.82	8.20	9.50	6.43
5	Punjab	9.21	8.00	10.68	10.61	8.03
6	U.P	8.76	6.25	9.87	10.35	6.61

Table: 48. Compound Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1981-1990.

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per capita NSDP**	**R^2**
1	J&K	Y=	$(100.641)\ (1.066)^x$	0.93	$(100.641)\ (1.090)^x$	0.83	$(99.867)\ (1.085)^x$	0.97	$(100.412)\ (1.077)^x$	0.95	$(98.696)\ (1.071)^x$	0.96
			{3.791}** {.006}**		{8.619}** {.015}**		{3.364}** {.005}**		{6.549}** {.006}**		{3.209}** {.005}**	
2	Delhi	Y=	$(96.888)\ (1.109)^x$	0.96	$(92.987)\ (1.102)^x$	0.98	$(95.711)\ (1.100)^x$	0.99	$(95.204)\ (1.140)^x$	0.99	$(94.368)\ (1.077)^x$	0.99
			{4.501}** {.008}**		{2.403}** {.004}**		{46.116}** {286.142}**		{1.890}** {.003}**		{1.422}** {.002}**	
3	Haryana	Y=	$(92.298)\ (1.078)^x$	0.95	$(99.640)\ (1.105812)^x$	0.97	$(100.496)\ (1.100)^x$	0.97	$(96.015)\ (1.091)^x$	0.98	$(95.669)\ (1.078)^x$	0.98
			{3.448}** {.006}**		{3.685}** {.006}**		{3.510}** {.006}**		{2.172}** {.003}**		{2.085}** {.003}**	
4	Himachal Pradesh	Y=	$(98.234)\ (1.067)^x$	0.95	$(89.832)\ (1.106)^x$	0.98	$(94.072)\ (1.100)^x$	0.99	$(94.779)\ (1.086)^x$	0.99	$(94.648)\ (1.076)^x$	0.98
			{3.383}** {.005}**		{3.053}** {.006}**		{1.209}** {.002}**		{1.913}** {.003}**		{2.104}** {.003}**	
5	Punjab	Y=	$(96.098)\ (1.086)^x$	0.99	$(99.058)\ (1.096)^x$	0.98	$(99.163)\ (1.092)^x$	0.98	$(97.388)\ (1.091)^x$	0.99	$(97.214)\ (1.080)^x$	0.99
			{1.689}** {.003}**		{2.777}** {.004}**		{2.596}** {.004}**		{1.846448}** {.003}**		{1.550}** {.002}**	
6	U.P	Y=	$(91.180)\ (1.076)^x$	0.99	$(94.962)\ (1.108)^x$	0.98	$(97.585)\ (1.094)^x$	0.98	$(93.705)\ (1.09)^x$	0.99	$(93.357)\ (1.076)^x$	0.99
			{1.264}** {.002}**		{3.087}** {.005}**		{2.545}** {.004}**		{1.493}** {.002}**		{1.156}** {.002}**	

** Significant at 0.99 probability level

Note: Figures with { } shows the Standard Error

Per Capita in Rs.

Table: 49. Compound Growth Rate of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1981-1990

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	7.72	6.62	9.02	8.58	7.13
2	Delhi	10.08	10.96	10.23	10.00	7.79
3	Haryana	9.18	7.88	10.58	10.04	7.84
4	Himachal Pradesh	8.68	6.78	10.67	10.05	7.67
5	Punjab	9.12	8.60	9.65	9.25	8.10
6	U.P	8.92	7.61	10.86	9.47	7.60

Table: 50. Compound Growth Equations of NSDP at Current prices (Index based) for Principal Sectors for Selected Northern States for the period 1991-00

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	$(95.577)\ (1.104)^x$	0.95	$(85.557)\ (1.173)^x$	0.99	$(98.092)\ (1.119)^x$	0.95	$(95.207)\ (1.118)^x$	0.94	$(95.161)\ (1.101)^x$	0.93
			{4.850}** {.009}**		{13.539}** {.029}**		{5.558}** {.010}**		{5.947}** {.011}**		{5.451}** {.010}**	
2	Delhi	Y=	$(105.543)\ (1.041)^x$	0.26	$(105.937)\ (1.086)^x$	0.91	$(101.259)\ (1.121)^x$	0.97	$(102.056)\ (1.111)^x$	0.97	$(101.684)\ (1.092)^x$	0.97
			{15.93}** {.025}**		{5.904}** {.009}**		{4.473}** {.007}**		{4.326}** {.007}**		{3.734}** {.006}**	
3	Haryana	Y=	$(102.146)\ (1.082)^x$	0.95	$(84.044)\ (1.129)^x$	0.96	$(95.695)\ (1.112)^x$	0.99	$(95.851)\ (1.103)^x$	0.99	$(95.717)\ (1.090)^x$	0.98
			{4.001}** {.006}**		{4.524}** {.009}**		{2.061}** {.004}**		{2.451}** {.004}**		{2.290}** {.004}**	
4	Himachal Pradesh	Y=	$(101.78)\ (1.899)^x$	0.97	$(83.807)\ (1.147)^x$	0.97	$(90.120)\ (1.121)^x$	0.99	$(92.327)\ (1.117)^x$	0.99	$(91.497)\ (1.109)^x$	0.99
			{3.381}** {.005}**		{4.755}** {.010}**		{1.338}** {.002}**		{1.855}** {.004}**		{1.974}** {.003}**	
5	Punjab	Y=	$(107.310)\ (1.084)^x$	0.92	$(94.988)\ (1.100)^x$	0.97	$(98.387)\ (.098)^x$	0.98	$(100.578)\ (1.095)^x$	0.97	$(101.130)\ (1.084)^x$	0.96
			{5.443}** {.008}**		{3.254}** {.006}**		{3.200}** {.005}**		{3.785}** {.006}**		{3.471}** {.005}**	
6	U.P	Y=	$(97.740)\ (1.083)^x$	0.98	$(95.258)\ (1.087)^x$	0.99	$(93.855)\ (1.098)^x$	0.99	$(95.656)\ (1.0898)^x$	0.99	$(95.139)\ (1.080)^x$	0.99
			{2.559}** {.004}**		{1.766}** {.003}**		{1.337}** {.002}**		{1.350}** {.002}**		{.972}** {.002}**	

** Significant at 0.99 probability level

Note: Figures with { } shows the standard error

Per Capita in Rs.

Table: 51. Compound Growth Rate of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1991-00

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	11.90	10.41	17.32	11.95	10.18
2	Delhi	11.10	4.17	8.67	12.15	9.22
3	Haryana	10.27	8.22	12.93	11.19	9.04
4	Himachal Pradesh	11.68	8.99	14.80	12.10	10.91
5	Punjab	9.53	8.42	10.04	9.84	8.41
6	U.P	8.98	8.33	8.78	9.83	8.07

Table 52: Compound Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 2001-2007

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	(96.494) (1.069)^x	0.95	(91.366) (1.107)^x	0.99	(90.815) (1.085)^x	0.98	(92.709) (1.084)^x	0.99	(94.140) (1.068)^x	0.99
			{2.925}** {.007}**		{2.136}** {.006}**		{1.576}** {.002}**		{1.094}** {.002}**		{1.226}** {.003}**	
2	Delhi	Y=	(100.480) (1.008)^x	0.53	(87.729) (1.101)^x	0.97	(93.189) (1.086)^x	0.98	(92.077) (1.088)^x	0.98	(89.961) (1.078)^x	0.98
			{1.683}** {.004}**		{3.177}** {.009}**		{2.118) (.006)**		{2.163}** {.005}**		{1.914}** {.005}**	
3	Haryana	Y=	(90.667) (1.061)^x	0.91	(93.227) (1.122)^x	0.99	(92.476) (1.114)^x	0.99	(91.617) (1.103)^x	0.99	(91.819) (1.090)^x	0.99
			{3.367}** {.008}**		{2.421}** {.007}**		{1.426}** {.004}**		{.669}** {.002}**		{.531}** {.001}**	
4	Himachal	Y=	(97.478) (1.066)^x	0.91	(910.670) (1.098)^x	0.99	(93.874) (1.077)^x	0.99	(93.565) (1.082)^x	0.99	(94.239) (1.069)^x	0.99
	Pradesh		{3.948}** {.009}**		{1.467}** {.004}**		{1.088}** {.003}**		{.793}** {.002}**		{.581}**{.001}**	
5	Punjab	Y=	(91.294) (1.052)^x	0.88	(85.779) (1.088)^x	0.94	(93.200) (1.077)^x	0.99	(90.888) (1.070)^x	0.97	(91.943) (1.056)^x	0.95
			{3.385}** {.009}**		{3.732}** {.011}**		{.795}** {.002}**		{2.007}** {.005}**		{2.261}** {.006}**	
6	U.P	Y=	(91.890) (1.061)^x	0.98	(85.984) (1.088)^x	0.95	(92.403) (1.084)^x	0.99	(90.942) (1.077)^x	0.99	(91.573) (1.062)^x	0.98
			{1.562}** {.004}**		{3.183}** {.009}**		{.349}** {.009}**		{1.141}** {.003}**		{1.531}** {.004}**	

** Significant at 0.99 probability level

Note: Figures with { } shows the Standard Error

Per Capita in Rs.

Table 53: Compound Growth Rate of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 2001-2007

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	8.45	6.88	10.70	8.45	6.78
2	Delhi	8.81	0.89	10.12	8.58	7.85
3	Haryana	10.35	6.05	12.16	11.41	9.00
4	Himachal Pradesh	8.21	6.63	9.89	7.70	6.92
5	Punjab	7.05	5.20	8.77	7.31	5.62
6	U.P	7.71	6.19	8.77	8.39	6.19

Table 54: Linear Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1971-80

(Rs. 000 crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	86.839 + 13.075x	0.96	80.815 + 16.413x	0.99	68.184 + 15.105x	0.93	80.970 + 14.024x	0.99	86.169 + 10.774x	0.98
			(5.537)** (.892)**		(2.264)** (.364)**		(9.344)** (1.505)**		(2.956)** (.476)**		(3.446)** (.555)**	
2	Delhi	Y=	97.812 + 10.186x	0.86	86.735 + 13.422x	0.99	85.116 + 15.238x	0.98	86.411 + 14.411x	0.99	91.078 + 9.702x	0.97
			(8.968)** (1.445)**		(2.722)** (.438)**		(4.573)** (.737)**		(3.827)** (.616)**		(3.666)** (.590)**	
3	Haryana	Y=	92.144 + 10.602x	0.95	84.141 + 15.788x	0.99	77.807 + 17.677x	0.98	87.956 + 12.920x	0.99	90.677 + 10.052x	0.98
			(5.247)** (.845)**		(3.414)** (.550)**		(6.165)** (.993)**		(3.054)** (.492)**		(2.923)** (.471)**	
4	Himachal	Y=	97.369 + 9.058x	0.83	94.302 + 11.949x	0.97	81.019 + 13.863x	0.99	92.859 + 10.637x	0.95	94.970 + 8.396x	0.93
	Pradesh		(8.867)** (1.429)**		(4.220)** (.680)**		(2.116)** (.341)**		(5.260)** (.847)**		(5.093)** (.820)**	
5	Punjab	Y=	89.450 + 10.990x	0.96	81.068 + 16.637x	0.99	79.060 + 16.251x	0.99	84.960 + 13.330x	0.99	87.460 + 11.012x	0.99
			(4.951)** (.797)**		(2.638)** (.425)**		(2.816)** (.453)**		(2.747)** (.442)**		(2.704)** (.435)**	
6	U.P	Y=	100.980 + 8.245x	.83	78.428 + 14.478x	0.99	79.132 + 15.554x	0.99	85.841 + 12.647x	0.97	94.259 + 8.691x	0.95
			(8.075)** (1.301)**		(2.826)** (.455)**		(3.664)** (.590)**		(5.032)** (.811)**		(4.419)** (.712)**	

** Significant at 0.99 probability level

Note: Figures with Parentheses shows the Standard Error

Per Capita in Rs.

Table 55: Linear Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1981-90

(Rs. 000 crores)

			Linear function Y=a+bx									
S. No	**State**		Primary	R^2	Secondary	R^2	Tertiary	R^2	Aggregate	R^2	Per capita	R^2
1	J&K	Y=	95.411 + 9.154x	0.93	95.591 + 13.068x	0.85	91.693 + 12.690x	0.99	94.174 + 11.004x	0.98	93.464 + 9.733x	0.97
			(5.311)** (.855)**		(11.799)** (1.901)**		(2.811)** (.453)**		(3.475)** (.560)**		(3.622)** (.583)**	
2	Delhi	Y=	80.754 + 17.965x	0.95	78.479 + 15.767x	0.97	82.601 + 15.559x	0.99	81.814 + 15.601x	0.99	86.509 + 10.795x	0.99
			(8.579)** (1.382)**		(5.483)** (.833)**		(2.617)** (.421)**		(2.726)** (.439)**		(2.628)** (.423)**	
3	Haryana	Y=	83.081 + 11.014x	0.91	85.300 + 17.316x	0.99	87.018 + 16.285x	0.98	84.667 + 13.822x	0.98	87.381 + 11.094x	0.97
			(7.407)** (1.193)**		(4.468)** (.720)**		(4.545)** (.732)**		(4.268)** (.687)**		(4.182)** (.674)**	
4	Himachal Pradesh	Y=	92.002 + 9.374x	0.94	73.594 + 16.413x	0.96	80.127 + 15.503x	0.99	84.218 + 12.718x	0.97	86.320 + 10.742x	0.96
			(5.301)** (.854)**		(7.483)** (1.206)**		(3.738)** (.602)**		(4.540)** (.731)**		(4.552)** (.733)**	
5	Punjab	Y=	86.011 + 12.650x	0.98	86.830 + 15.153x	0.99	88.565 + 14.180x	0.99	86.441 + 13.795x	0.99	88.652 + 11.690x	0.99
			(3.793)** (.611)**		(3.7492)** (.604)**		(1.530)** (.246)**		(2.591)** (.417)**		(2.431)** (.391)**	
6	U.P	Y=	83.607 + 10.176x	0.98	80.043 + 17.226x	0.99	86.654 + 14.416x	0.99	83.628 + 12.878x	0.99	86.074 + 10.303x	0.99
			(3.072)** (.495)**		(3.317)** (.534)**		(1.205)** (.194)**		(2.169)** (.349)**		(2.180)** (.351)**	

** Significant at 0.99 probability level
Note: Figures with Parentheses shows the Standard Error
Per Capita in Rs.

Table 56: Linear Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 1991-00

(Rs. 000 Crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	83.897 + 15.944x	0.98	58.346 + 31.229x	0.99	81.391 + 20.147x	0.98	79.379 + 19.397x	0.97	83.976 + 15.415x	0.96
			(5.265)** (.848)**		(23.116)** (3.725)**		(5.658)** (.911)**		(6.944)** (1.119)**		(6.996)** (1.127)**	
2	Delhi	Y=	102.296 + 6.070x	0.31	98.797 + 13.371x	0.96	80.182 + 21.916x	0.98	85.437 + 19.106x	0.98	90.736 + 14.511x	0.98
			(19.910)** (3.208)*		(6.212)** (1.001)**		(7.062)** (1.138)**		(5.443)** (.877)**		(4.691)** (.756)**	
3	Haryana	Y=	94.767 + 12.196x	0.98	63.816 + 20.103x	0.97	78.005 + 18.455x	0.99	82.335 + 16.042x	0.99	85.611 + 13.314x	0.99
			(4.093)** (.659)**		(7.297)** (1.176)**		(4.677)** (.753)**		(2.667)** (.429)**		(2.611)** (.420)**	
4	Himachal Pradesh	Y=	92.051 + 13.900x	0.99	49.404 + 26.321x	0.93	68.321 + 19.982x	0.97	72.403 + 19.233x	0.98	74.093 + 17.263x	0.97
			(2.405)** (.387)**		(15.776)** (2.542)**		(7.245)** (1.167)**		(6.428)** (1.035)**		(6.543)** (1.054)**	
5	Punjab	Y=	100.347 + 13.036x	0.97	83.484 + 15.156x	0.99	84.562 + 16.582x	0.99	90.096 + 14.826x	0.99	93.427 + 12.501x	0.99
			(4.772)** (.769)**		(2.627)** (.423)**		(4.410)** (.710)**		(2.855)** (.460)**		(2.723)** (.438)**	
6	U.P	Y=	89.448 + 12.062x	0.99	85.694 + 12.741x	0.99	80.225 + 15.037x	0.98	85.154 + 13.288x	0.99	86.652 + 11.417x	0.99
			(2.551)** (.411)**		(1.959)** (.315)**		(4.727)** (.761)**		(2.050)** (.330)**		(2.126)** (.342)**	

** Significant at 0.99 probability level
Note: Figures with Parentheses shows the Standard Error
Per Capita in Rs.

Table 57: Linear Growth Equations of NSDP at Current prices (index based) for Principal Sectors for Selected Northern States for the period 2001-07

(Rs. 000 Crores)

			Linear function Y=a+bx									
S. No	State		Primary	R^2	Secondary	R^2	Tertiary	R^2	Aggregate	R^2	Per capita	R^2
1	J&K	Y=	94.183 + 8.223x	0.97	83.802 + 14.061x	0.98	86.155 + 10.292x	0.98	88.299 + 10.406x	0.99	91.437 + 8.001x	0.99
			(2.989)** (.668)**		(3.715)** (.830)**		(2.583)** (.577)**		(1.231)** (.275)**		(1.034)** (.231)**	
2	Delhi	Y=	100.484 + .917x	0.52	81.251 + 12.558x	0.96	88.735 + 10.644x	0.98	87.306 + 10.913x	0.98	85.464 + 9.4293x	0.96
			(1.747)** (.390)**		(5.193)** (1.161)**		(2.897)** (.648)**		(3.202)** (.716)**		(3.756)** (.839)**	
3	Haryana	Y=	87.793 + 6.952x	0.88	84.013 + 16.933x	0.99	83.984 + 15.453x	0.99	84.526 + 13.490x	0.99	86.388 + 11.295x	0.99
			(5.098)** (1.140)**		(.637)** (.142)**		(1.895)** (.423)**		(2.123)** (.474)**		(2.175)** (.486)**	
4	Himachal Pradesh	Y=	95.348 + 7.944x	0.91	83.7801 + 12.706x	0.97	90.219 + 9.365x	0.99	89.349 + 10.138x	0.99	91.247 + 8.255x	0.99
			(4.955)** (1.108)**		(4.091)** (.914)**		(1.150)** (.257)**		(.731)** (.163)**		(.707)** (.158)**	
5	Punjab	Y=	89.067 + 5.854x	0.86	79.876 + 10.519893x	0.91	89.262 + 9.420x	0.99	87.223 + 8.318x	0.96	89.519 + 6.414x	0.93
			(4.643)** (1.038)**		(6.422)** (1.436)**		(1.765)** (.394)**		(3.575)** (.799)**		(3.409)** (.762)**	
6	U.P	Y=	89.156 + 7.137x	0.97	80.394 + 10.444x	0.94	87.853 + 10.335x	0.99	86.868 + 9.223095x	0.98	88.870 + 7.106x	0.97
			(2.693)** (.602)**		(5.479)** (1.225)**		(1.277)** (.285)**		(2.544)** (.569)**		(2.577)** (.576)**	

** Significant at 0.99 probability level
Note: Figures with Parentheses shows the Standard Error
Per Capita in Rs.

Table 58: Compound Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 1971-1980

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	State		Primary	R^2	Secondary	R^2	Tertiary	R^2	Aggregate NSDP	R^2	Per Capita	R^2
1	J&K	Y=	(1347.53) (1.03)^x	0.75	(352.07) (1.04)^x	0.63	(645.94) (1.06)^x	0.90	(2335.089) (1.043)^x	0.94	(5256.642) (1.017)^x	0.71
			{49.76}** {.006}**		{25.09}** {.01}**		{28.42}** {.007}**		{54.364}** {.004}**		{123.447}** {.004}**	
2	Delhi	Y=	(105.51) (1.05)^x	0.05	(111.11) (1.05)^x	0.92	(298.49) (1.07)^x	0.99	(600.774) (1.047)^x	0.36	(1157.825) (1.017)^x	0.85
			{5.769}** {.009}**		{3.56}** {.005}**		{4.44}** {.002}**		{309.624}*· {.087}**		{19.048}** {.003}**	
3	Haryana	Y=	(502.38) (1.02)^x	0.41	(127.71) (1.06)^x	0.95	(158.53) (1.088)^x	0.97	(783.384) (1.0481)^x	0.84	(81.049) (1.021)^x	0.51
			{33.67}** {.011}**		{3.92}** {.005}**		{5.23}** {.006}**		{35.597}** {.008}**		{37.030}** {.008}**	
4	Himachal Pradesh	Y=	(128.53) (1.01)^x	0.23	(36.77) (1.04)^x	0.76	(50.81) (1.05)^x	0.99	(214.967) (1.031)^x	0.80	(639.242) (1.010)^x	0.31
			{7.36}** {.009}**		{1.72}** {.007}**		{.740}** {.002}**		{7.240}** {.005}**		{21.298}** {.005}**	
5	Punjab	Y=	(778.34) (1.04)^x	0.95	(197.29) (1.069)^x	0.94	(342.66) (1.072)^x	0.98	(1315.322) (1.054)^x	0.97	(1001.576) (1.032)^x	0.92
			{15.36}** {.003}**		{6.97}** {.006}**		{7.02}** {.003}**		{26.561}** {.003}**		{20.029}** {.003}**	
6	U.P	Y=	(2392.65) (1.01)^x	0.13	(553.90) (1.06)^x	0.87	(534.89) (1.11)^x	0.17	(3913.122) (1.026)^x	0.64	(458.742) (1.003)^x	0.34
			{166.11}** {.011}**		{24.94}** {.007}**		{268.44}* {.089}**		{167.407}** {.007}**		{19.514}** {.007}**	

** Significant at 0.99 probability level
Note: Figures with { } shows the Standard Error
Per Capita in Rs.

Table 59: Compound Growth Rate of NSDP at Constant prices (absolute basis) for Principal Sectors for Selected Northern States for the period 1971-1980

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	4.30	2.96	4.30	6.41	1.67
2	Delhi	4.68	4.56	4.92	7.07	1.78
3	Haryana	4.83	2.58	6.62	8.78	2.16
4	Himachal Pradesh	3.10	1.42	3.90	5.84	1.02
5	Punjab	5.40	4.04	6.90	7.17	3.24
6	U.P	2.26	1.24	5.52	11.08	0.37

Table 60: Compound Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 1981-1990

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	(630.144) (.968)^x {61.268}** {.015}**	0.35	(129.561) (1.056)^x {7.202}** {.009}**	0.82	(218.122) (1.109)^x {110.452}** {.091}**	0.17	(1049.482) (1.020)^x {30.825}** {.005}**	0.68	(1821.455) (.994)^x {54.418}** {.005}**	0.16
2	Delhi	Y=	(105.507) (1.047)^x {5.769}** {.009}**	0.76	(591.771) (1.075)^x {22.646}** {.007}**	0.95	(1564.215) (1.078)^x {47.462}** {.005}**	0.97	(2260.680) (1.076)^x {57.735) (.004)**	0.97	(3860.412) (1.032)^x (100.447)(.004)**	0.88
3	Haryana	Y=	(1524.304) (1.038)^x {95.321}** {.010}**	0.64	(498.255) (1.096)^x {20.173}** {.007}**	0.96	(754.567) (1.078)^x {20.389}** {.005}**	0.97	(2762.929) (1.063)^x (96.041) (.006)**	0.94	(2211.980) (1.037)^x (77.143) (.006)**	0.84
4	Himachal Pradesh	Y=	(347.040) (1.0158)^x {22.639}** {.011}**	0.22	(119.144) (1.066)^x {7.651}** {.011}**	0.83	(196.694) (1.072)^x {6.679}** {.006}**	0.95	(658.116) (1.046)^x (28.575) (0.007)**	0.83	(1574.099) (1.027)^x (70.294) (.007)**	0.63
5	Punjab	Y=	(2136.521) (1.052)^x {47.611}** {.004}**	0.96	(777.342) (1.071)^x {13.930}** {.003}**	0.99	(1342.926) (1.046)^x {14.467}** {.002}**	0.99	(4254.096) (1.054)^x (52.452) (.002)**	0.99	(2607.258) (1.035)^x (30.896) (.002)**	0.98
6	U.P	Y=	(7174.919) (1.025)^x {120.471}** {.002}**	0.91	(1922.838) (1.082)^x {54.744}** {.005}**	0.97	(4143.076) (1.063)^x {94.490}** {.004}**	0.97	(13160.675) (1.048)^x (253.089) (.003)**	0.97	(1225.672) (1.024)^x (24.169) (.003)**	0.87

** Significant at 0.99 probability level

Note: Figures with { } shows the Standard Error

Per Capita in Rs.

Table 61: Compound Growth Rate of NSDP at Constant prices (absolute based) for Principal Sectors for Selected Northern States for the period 1981-1990

(Percent Per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	2.0	-3.2	5.6	10.9	-0.6
2	Delhi	7.63	4.56	7.52	7.85	3.20
3	Haryana	6.27	3.85	9.70	7.82	3.72
4	Himachal Pradesh	4.54	1.58	6.66	7.22	2.67
5	Punjab	5.44	5.25	7.16	4.63	3.50
6	U.P	4.79	2.46	8.26	6.34	2.40

Table 62: Compound Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 1991-00

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per Capita**	**R^2**
1	J&K	Y=	$(492.814)\ (1.031)^x$	0.96	$(225.082)\ (.989)^x$	0.02	$(591.909)\ (1.046)^x$	0.97	$(1505.573)\ (1.020)^x$	0.25	$(1734.605)\ (1.019)^x$	0.96
			{7.159}** {.002}**		{116.876}** {.083}*		{9.758}** {.003}**		{110.516}** {.012}**		{14.144}** {.001}**	
2	Delhi	Y=	$(247.415)\ (.801)^x$	0.82	$(1499.636)\ (1.041)^x$	0.80	$(3502.031)\ (1.061)^x$	0.94	$(13017.874)\ (.967)^x$	0.05	$(5696.503)\ (1.020)^x$	0.78
			{57.350}* {.029}**		{66.628}** {.007}**		{117.065}** {.006}**		{13583.945}** {.163}**		{133.567}** {.004}**	
3	Haryana	Y=	$(2591.322)\ (1.014)^x$	0.54	$(1205.322)\ (1.050)^x$	0.93	$(1578.959)\ (1.069)^x$	0.95	$(5334.496)\ (1.042)^x$	0.95	$(3304.542)\ (1.023)^x$	0.87
			{72.762}** {.005}**		{35.722}** {.005}**		{52.517}** {.006}**		{106.029}** {.003}**		{64.403}** {.003}**	
4	Himachal Pradesh	Y=	$(443.514)\ (1.019)^x$	0.75	$(247.247)\ (1.069)^x$	0.98	$(371.866)\ (1.063)^x$	0.89	$(1.055.410)\ (1.049)^x$	0.97	$(2069.322)\ (1.033)^x$	0.92
			{10.397}** {.004}**		{4.648}** {.003}**		{18.013}** {.002}**		{20.004}** {.003}**		{43.639}** {.004}**	
5	Punjab	Y=	$(3678.536)\ (1.024)^x$	0.87	$(1616.615)\ (1.061)^x$	0.93	$(2022.485)\ (1.047)^x$	0.98	$(7303.421)\ (1.039)^x$	0.98	$(3674.037)\ (1.022)^x$	0.97
			{73.748}** {.003}**		{58.324}** {.006}**		{30.664}** {.002}**		{87.922}** {.002}**		{31.542}** {.001}**	
6	U.P	Y=	$(9626.773)\ (1.017)^x$	0.86	$(7616.948)\ (1.000)^x$	0.00	$(7757.009)\ (1.041)^x$	0.96	$(21479.484)\ (1.029)^x$	0.95	$(1573.590)\ (1.013)^x$	0.77
			{147.319}** {.002}**		{7962.006}* {.168}*		{144.281}** {.003}**		{309.945}** {.002}**		{24.189}** {.002}**	

** Significant at 0.99 probability level

* Not Significant

Note: Figures with {} shows the Standard Error

Per Capita in Rs.

Table 63: Compound Growth Rate of NSDP at Constant prices (absolute basis) for Principal Sectors for Selected Northern States for the period 1991-00

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	2.0	3.1	-1.1	4.6	2.00
2	Delhi	-3.30	-19.92	4.13	6.09	2.01
3	Haryana	4.18	1.38	5.05	6.98	2.28
4	Himachal Pradesh	4.90	1.87	6.91	6.34	3.37
5	Punjab	3.99	2.41	6.20	4.71	2.25
6	U.P	2.92	1.76	0.01	4.13	1.30

Table 64: Compound Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 2001-2007

(Rs. 000 crores)

			Exponential function $Y=ab^x$									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per capita**	**R^2**
1	J&K	Y=	(4467.864) (1.034)^x {70.542}** {.004}**	0.95	(2442.760) (1.080)^x {124.451}** {.012}**	0.90	(6089.569) (1.049)^x {116.742}** {.004}**	0.96	(12974.625) (1.051)^x {144.396}** {.003}**	0.99	(13061.430) (1.035)^x {171.830}** {.003}**	0.97
2	Delhi	Y=	(795.516) (.983)^x {22.532}** {.006}**	0.60	(9862.598) (1.085)^x {356.211}** {.009}**	0.95	(383265.785) (1.076)^x {596.495}** {.004}**	0.99	(49048.972) (1.076)^x {878.355}** {.004}**	0.99	(36681.999) (1.049)^x {806.738}** {.005}**	0.95
3	Haryana	Y=	(15597.021) (1.028)^x {413.166}** {.006}**	0.81	(11451.104) (1.108)^x {134.677}** {.003}**	0.99	(19346.583) (1.111)^x {235.437}** {.003}**	0.99	(46078.403) (1.087)^x {639.018}** {.003}**	0.99	(2286.584) (1.066)^x {331.238}** {.004}**	0.99
4	Himachal Pradesh	Y=	(3759.500) (1.031)^x {196.948}** {.0120}**	0.58	(4048.305) (1.089)^x {122.195}** {.007}**	0.97	(4556.027) (1.064)^x {94.919}** {.005}**	0.97	(12304.752) (1.065)^x {137.856}** {137.856}**	0.99	(20601.656) (1.046)^x {233.541}** {.003}**	0.98
5	Punjab	Y=	(23716.637) (1.0218)^x {367.363}** {.004}**	0.89	(10911.852) (1.075)^x {626.722}** {.014}**	0.86	(24308.152) (1.049)^x {82.193}** {.001}**	0.99	(58783.541) (1.044)^x {1039.121}** {.004}**	0.96	(24687.317) (1.026)^x {404.7261}** {.004}**	0.91
6	U.P	Y=	(57863.146) (1.016)^x {763.024}** {.003}**	0.86	(26015.242) (1.079)^x {961.683}** {.009}**	0.94	(66172.430) (1.051)^x {388081.761}* {.316}***	0.02	(149527.311) (1.044)^x {2278.201}** {.004}**	0.97	(9246.522) (1.024)^x {147.563}** {.004}**	0.89

** Significant at 0.99 probability level
* Not Significant
*** Significant at 5% probability level
Note: Figures with {} shows the Standard Error
Per Capita in Rs.

Table 65: Compound Growth Rate of NSDP at Constant prices (Absolute basis) for Principal Sectors for Selected Northern States for the period 2001-2007

(Percent per annum)

		Growth Rate = (b-1)100				
S. No	**State**	**Aggregate**	**Primary**	**Secondary**	**Tertiary**	**Per capita**
1	J&K	5.1	3.4	8.00	4.9	3.5
2	Delhi	7.64	-1.72	8.50	7.62	4.87
3	Haryana	8.70	2.75	10.79	11.15	6.60
4	Himachal Pradesh	6.47	3.11	8.98	6.47	4.65
5	Punjab	4.44	2.18	7.50	4.93	2.61
6	U.P	4.42	1.59	7.95	5.1	2.40

Table 66: Linear Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 1971-1980

(Rs. 000 crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per Capita**	**R^2**
1	J&K	Y=	1331.677 + 46.9x (63.796)** (10.282)**	0.72	343.065 + 19.312x (36.235)** (5.839)**	0.58	595.701 + 60.057x (58.502)** (9.428)**	0.84	2273.123 + 125.938x (80.593)** (12.989)**	0.92	5233.467 + 97.333x (141.584)** (22.818)**	0.70
2	Delhi	Y=	33.724 + -.036x (1.070)** (.172)*	0.01	106.516 + 7.229x (5.472)** (.882)**	0.89	277.285 + 30.161x (9.223)** (1.486)**	0.98	1100.871 + 6.293x (1163.501)* (187.515)*	0.00	1152.600 + 22.745x (21.161)** (3.410)**	0.84
3	Haryana	Y=	498.324 + 15.195x (39.146)** (6.308)***	0.42	119.107 + 11.973x (6.991)** (1.126)**	0.93	139.501 + 21.832x (10.501)** (1.693)**	0.95	756.932 + 49.000x (47.834)** (7.709)**	0.83	805.600 + 19.891x (41.295)** (6.655)**	0.53
4	Himachal Pradesh	Y=	128.280 + 2.017x (8.161)** (1.315)*	0.23	36.177 + 1.738x (2.298)** (.370)**	0.73	48.229 + 4.031x (1.567)** (.253)**	0.97	212.686 + 7.786x (9.055)** (1.459)**	0.78	638.400 + 7.000x (22.949)** (3.699)*	0.31
5	Punjab	Y=	760.133 + 38.948x (22.029)** (3.550)**	0.94	183.135 + 19.489x (11.389)** (1.836)**	0.93	315.500 + 35.709x (15.194)** (2.448)**	0.96	1258.767 + 94.147x (44.690)** (7.202)**	0.96	986.267 + 38.642x (25.981)** (4.187)**	0.91
6	U.P	Y=	2383.837 + 34.254x (178.541)** (28.774)*	0.15	524.292 + 41.955x (37.342)** (6.018)**	0.86	702.678 + 73.460x (217.528)** (35.057)*	0.35	3877.935 + 118.750x (202.073)** (32.567)**	0.62	458.533 + 1.867x (19.969)** (3.218)*	0.04

** Significant at 0.99 probability level
* Not Significant
*** Significant at 5% probability level
Note: Figures with Parentheses shows the Standard Error
Per Capita in Rs.

Table 67: Linear Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 1981-1990

(Rs. 000 crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per Capita**	**R^2**
1	J&K	Y=	640.569 + -19.183x (58.212)** (9.382)**	0.34	126.419 + 9.220x (9.512)** (1.533)**	0.81	289.988 + 28.699x (88.881)** (14.324)**	0.33	1045.935 + 22.764x (34.154)** (5.504)**	0.68	1820.067 + -10.194x (50.762)** (8.181)**	0.16
2	Delhi	Y=	103.490 + 5.959x (7.666675)** (1.236)**	0.74	540.412 + 65.825x (42.526)** (6.854)**	0.92	1413.953 + 184.480x (90.817)** (14.636)**	0.95	2057.855 + 256.412x (117.948)** (19.009)**	0.95	3803.267 + 147.242x (122.791)** (19.789)**	0.87
3	Haryana	Y=	1482.921 + 74.850x (125.357)** (20.203)*	0.63	427.893 + 78.508x (38.779)** (6.249)**	0.95	684.175 + 88.273x (40.842)** (6.582)**	0.96	2594.989 + 241.631x (167.301)** (26.963)**	0.91	2164.667 + 101.297x (103.652)** (16.705)**	0.82
4	Himachal Pradesh	Y=	344.601 + 6.474x (25.654)** (4.135)*	0.23	109.909 + 11.576x (12.671)** (2.042)**	0.80	178.525 + 21.172x (14.333)** (2.309)**	0.91	633.035 + 39.223x (41.535)** (6.694)**	0.81	1551.067 + 50.424x (85.282)** (13.745)*	0.63
5	Punjab	Y=	2059.177 + 146.157x (68.858)** (110.097)**	0.96	719.545 + 80.119x (28.708)** (4.627)**	0.97	1303.421 + 78.894x (25.463)** (4.104)**	0.98	4082.143 + 305.170x (94.816)** (15.281)**	0.98	2566.533 + 108.794x (40.243)** (6.486)**	0.97
6	U.P	Y=	7117.193 + 201.243x (149.267)** (24.056)**	0.89	1721.856 + 242.473x (119.578)** (19.272)**	0.95	3874.134 + 369.996x (206.022)** (33.203)**	0.94	12713.183 + 812.817x (428.585)** (69.073)**	0.95	1214.600 + 33.764x (30.148)** (4.859)**	0.86

** Significant at 0.99 probability level

* Not Significant

Note: Figures with Parentheses shows the Standard Error

Per Capita in Rs.

Table 68: Linear Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal sectors for Selected Northern States for the period 1991-2000

(Rs. 000 crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per Capita NSDP**	**R^2**
1	J&K	Y=	485.858 + 18.202x	0.94	223.562 + 3.447x	0.02	591.909 + 1.046x	0.97	1515.839 + 31.037x	0.23	1728.200 + 35.509x	0.96
			(10.042)** (1.618)**		(58.383) (9.409)**		(9.758)** (.003)**		(123.870)** (19.963)**		(15.394)** (2.481)**	
2	Delhi	Y=	200.131 + -19.446x	0.79	1485.221 + 73.364x	0.80	3379.632 + 280.247x	0.96	132434.424 + -11244.874x	.03	5690.533 + 123.376x	0.79
			(21.672)** (3.492)**		(80.071)** (12.904)**		(123.430)** (19.892)**		(143700.245)** (23159.39139)**		(137.824)** (22.212)**	
3	Haryana	Y=	2589.322 + 38.098x	0.52	1166.018 + 78.503x	0.93	1458.484 + 159.186x	0.93	5213.825 + 275.787x	0.95	3281.667 + 85.224x	0.87
			(80.608)** (12.991)*		(45.831)** (7.386)**		(92.962)** (14.982)**		(141.112)** (22.742)**		(73.837)** (11.899)**	
4	Himachal Pradesh	Y=	442.135 + 9.055x	0.75	232.106 + 23.911x	0.98	342.385 + 34.320x	0.82	1016.627 + 67.287x	0.95	2031.133 + 84.376x	0.89
			(11.413)** (1.839)**		(7.039)** (1.134)**		(34.950)** (5.632)**		(35.4300)** (5.710)**		(61.789)** (9.958)**	
5	Punjab	Y=	3658.773 + 99.354x	0.87	1555.937 + 132.696x	0.94	1960.461 + 121.367x	0.97	7175.172 + 353.419x	0.98	3654.733 + 91.921x	0.97
			(82.869)** (13.355)		(75.303)** (12.136**		(47.944)** (7.726)**		(97.219)** (15.668)**		(34.639)** (5.583)**	
6	U.P	Y=	9583.584 + 184.324x	0.84	64673.490 + -2167.580x	.003	7563.489 + 399.547x	0.94	21221.578 + 732.209x	0.94	1569.333 + 22.194x	0.77
			(173.697)** (27.994)		(103918.906)* (16748.048)*		(211.374)** (34.066)**		(402.385)** (64.850)**		(26.421)** (4.258)**	

** Significant at 0.99 probability level

* Not Significant

Note: Figures with ( ) shows the Standard Error

Per Capita in Rs.

Table 69: Linear Growth Equations of NSDP at Constant prices (based on absolute figures) for Principal Sectors for Selected Northern States for the period 2001-07

(Rs. 000 crores)

			Linear function Y=a+bx									
S. No	**State**		**Primary**	**R^2**	**Secondary**	**R^2**	**Tertiary**	**R^2**	**Aggregate NSDP**	**R^2**	**Per Capita NSDP**	**R^2**
1	J&K	Y=	4442.866 + 167.952x (73.525)**(16.441)**	.95	2302.634 + 265.893x (190.534)** (42.605)**	.89	5983.219 + 357.408x (150.994)** (33.763)**	.96	12728.579 + 791.305x (230.757)** (51.599)**	.98	12942.571 + 519.679x (215.535)** (48.195)**	.96
2	Delhi	Y=	793.626 + -12.645x (20.536)** (4.592)**	.60	9318.959 + 1135.865x (556.111)** (124.350)**	.94	36679.003 + 3837.874x (1152.505)** (257.708)**	.98	46893.556 + 4921.989x (1564.664)** (349.869)**	.97	35976.143 + 2153.107x (1112.747)** (248.818)**	.94
3	Haryana	Y=	15500.170 + 479.674x (475.244)** (106.268)**	.80	10405.860 + 1802.955x (490.296)** (109.634)**	.98	17449.221 + 3187.098x (917.233)** (205.099)**	.98	43355.251 + 5469.726x (1688.168)** (377.486)**	.98	21632.714 + 1877.393x (638.230)** (142.713)**	.97
4	Himachal Pradesh	Y=	3756.2000 + 126.599x (222.506)** (49.754)**	.56	3770.433 + 507.395x (246.502)** (55.119)**	.94	4414.078 + 365.989x (145.798)** (32.601)**	.96	11940.711 + 999.983x (229.978)** (51.426)**	.99	20295.143 + 1130.643x (314.194)** (70.256)**	.98
5	Punjab	Y=	23631.674 + 562.086x (404.185)** (90.378)**	.89	10326.329 + 1106.829x (940.408)* (210.282)*	.85	23906.211 + 1425.564x (200.268)** (44.781)**	.99	57863.931 + 3094.609x (1430.316)** (319.828)**	.95	24548.429 + 715.929x (473.497)** (105.877)**	.90
6	U.P	Y=	57745.257 + 979.261x (849.173)** (189.881)**	.84	24584.311 + 2798.737x (1597.726)** (357.262)**	.92	2214079.697 + -264609.985x (2576334.395)* (576085.884)*	.04	147237.500 + 7814.484x (3325.212)** (743.539)**	.96	9201.429 + 244.464x (173.405)** (38.774)**	.88

** Significant at 0.99 probability level

* Not Significant

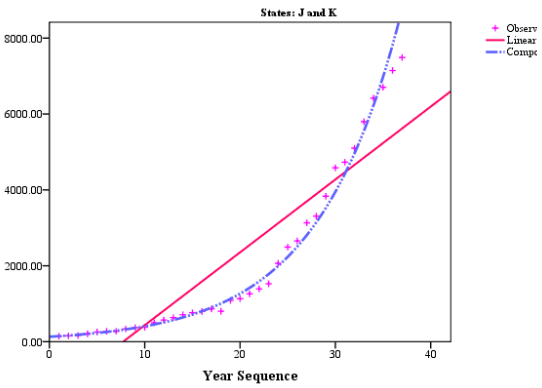
Note: Figures with ( ) shows the Standard Error

Per Capita in Rs

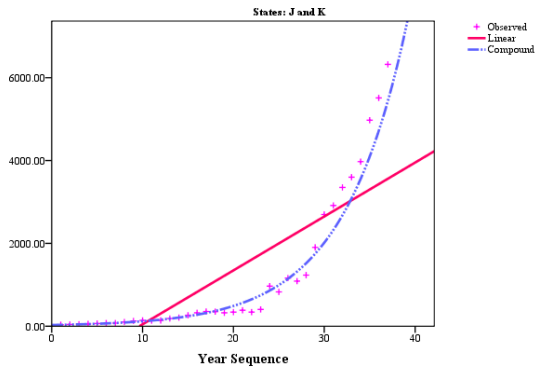
Linear and Compound Growth Trends at Current prices (absolute basis)

From 1970-71 to 2006-07 (State J&K)

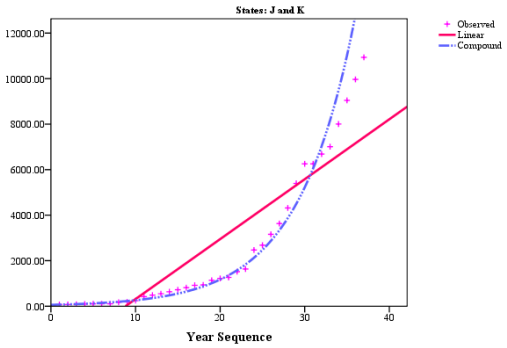
Primary sector



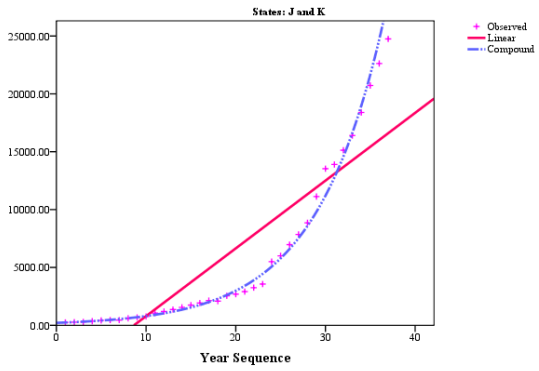
Secondary sector



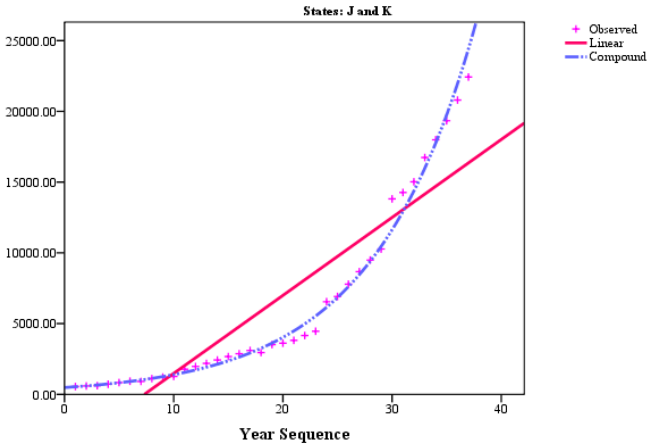
Tertiary sector



Total NSDP



Per capita income (In Rupees)

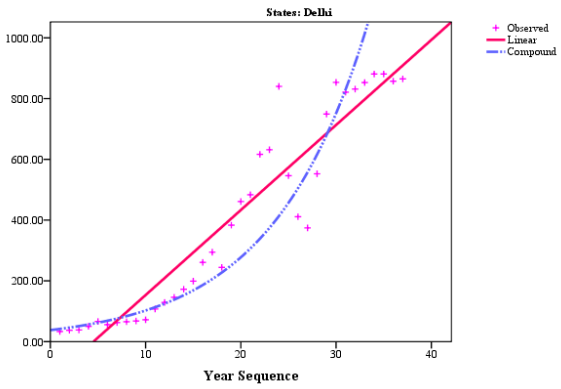


Y- axis depicts contribution of various sectors in 000 crores

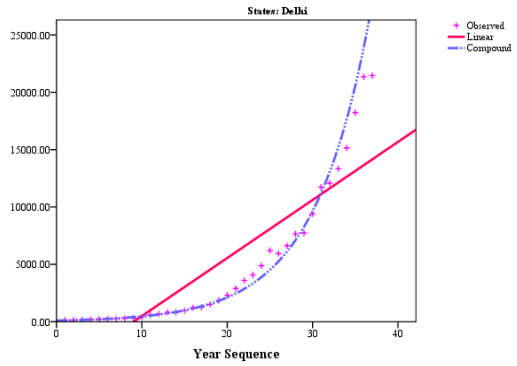
Linear and Compound Growth Trends at Current prices (absolute basis)

From 1970-71 to 2006-07 (State Delhi)

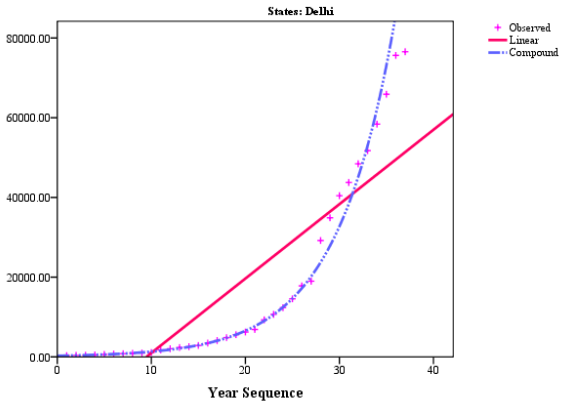
Primary sector



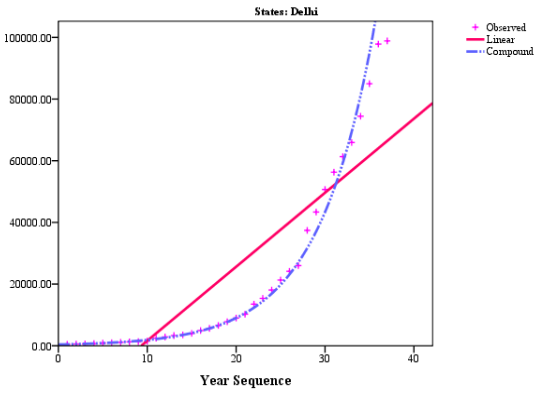
Secondary sector



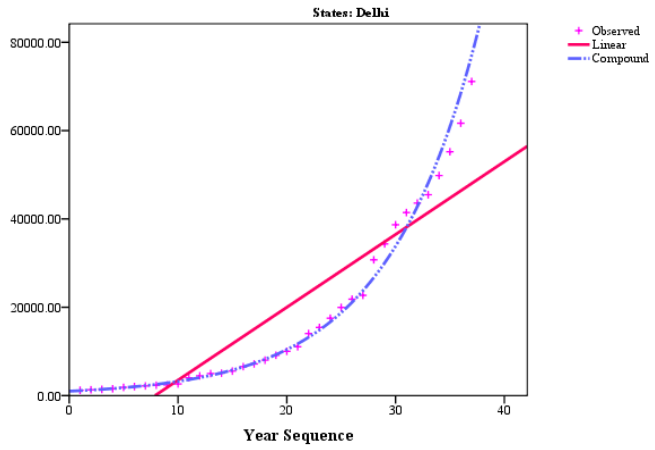
Tertiary sector



Total NSDP



Per capita income (In Rupees)

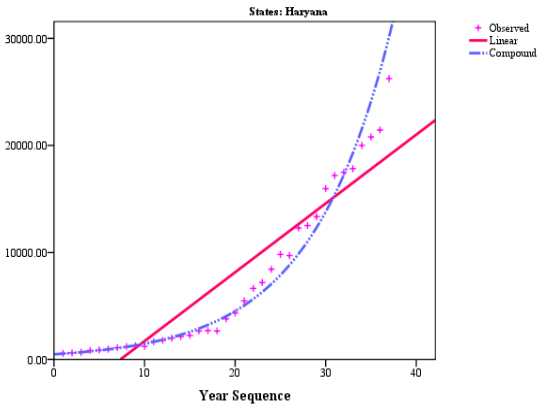


Y -axis depicts contribution of various sectors in 000 crores

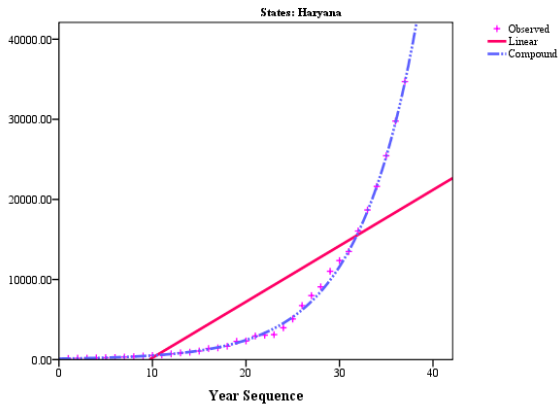
Linear and Compound Growth Trends at Current prices (absolute basis)

From 1970-71 to 2006-07 (State Haryana)

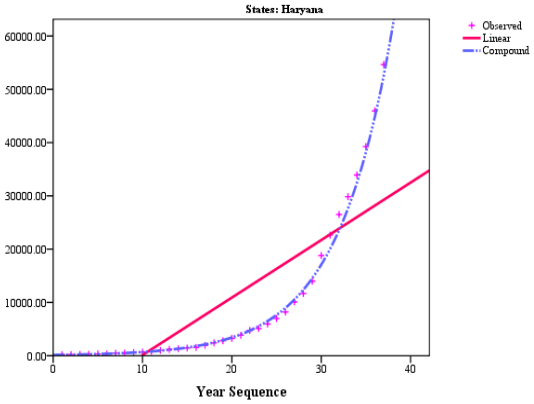
Primary sector



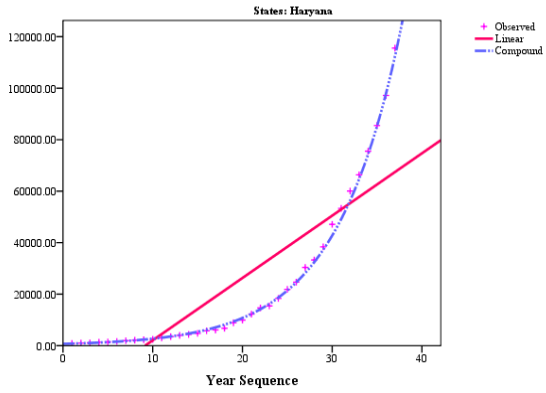
Secondary sector



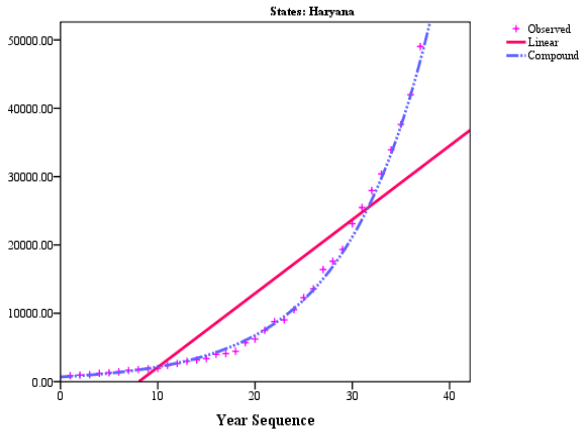
Tertiary sector



Total NSDP



Per capita income (In Rupees)

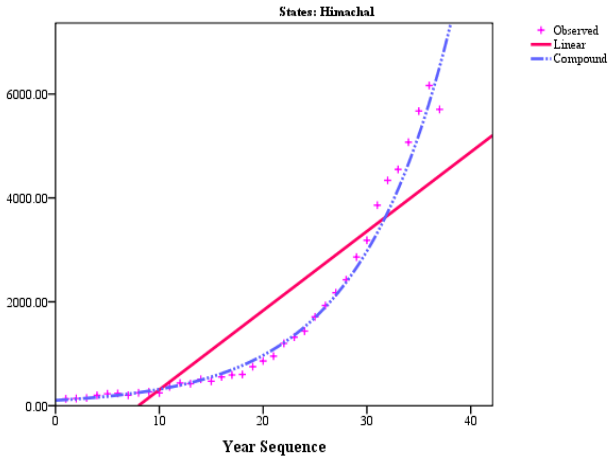


Y- axis depicts contribution of various sectors in 000 crores

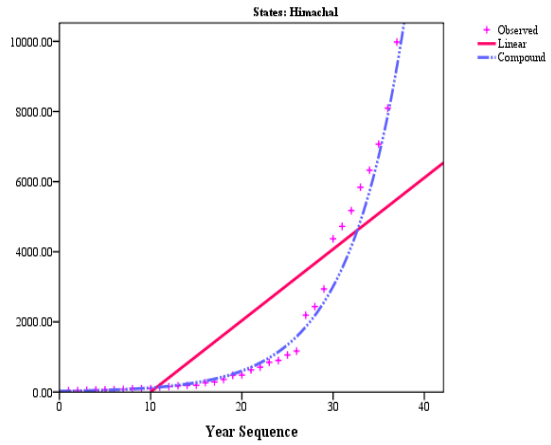
Linear and Compound Growth Trends at Current prices (absolute basis)

From 1970-71 to 2006-07 (State Himachal Pradesh)

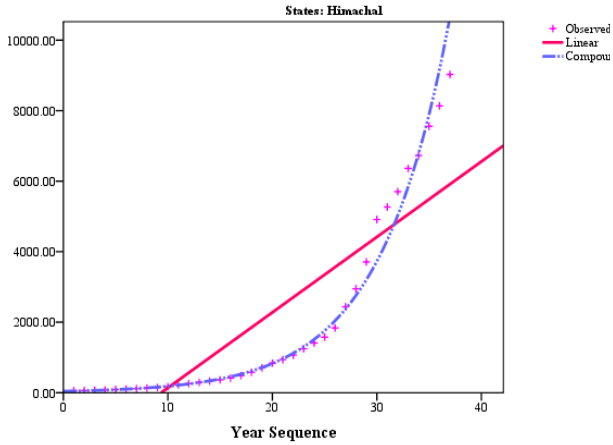
Primary sector



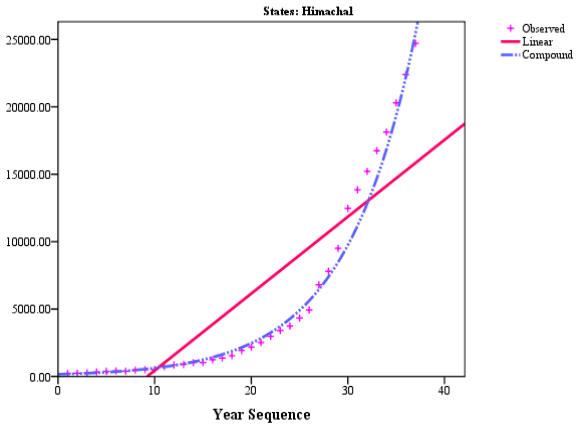
Secondary sector



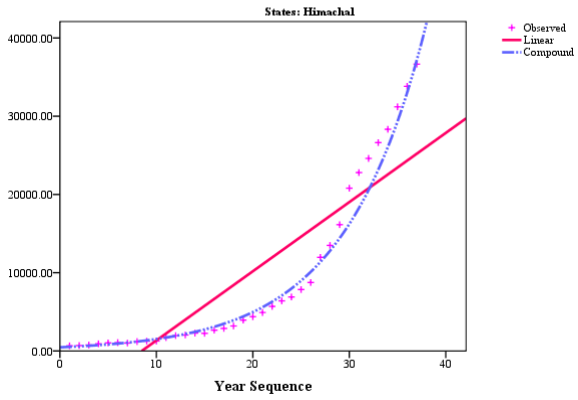
Tertiary sector



Total NSDP



Per capita income (In Rupees)

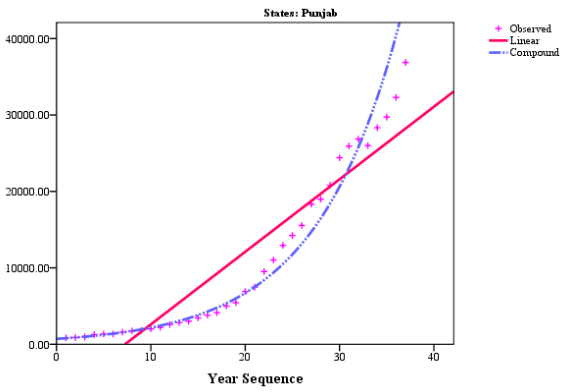


Y- axis depicts contribution of various sectors in 000 crores

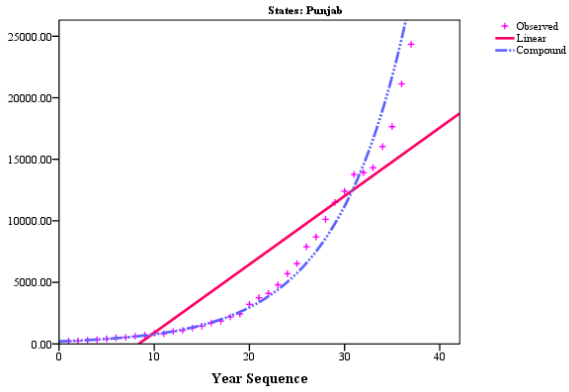
Linear and Compound Growth Trends at Current prices (absolute basis)

From 1970-71 to 2006-07 (State Punjab)

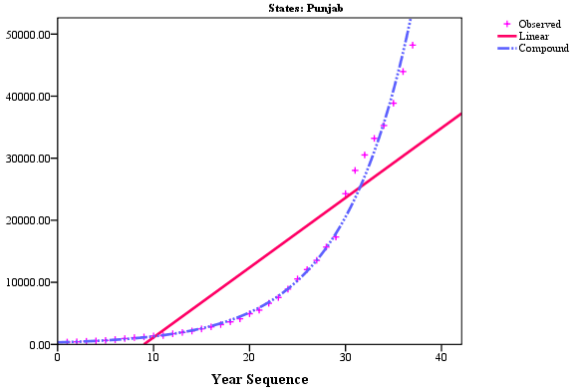
Primary sector



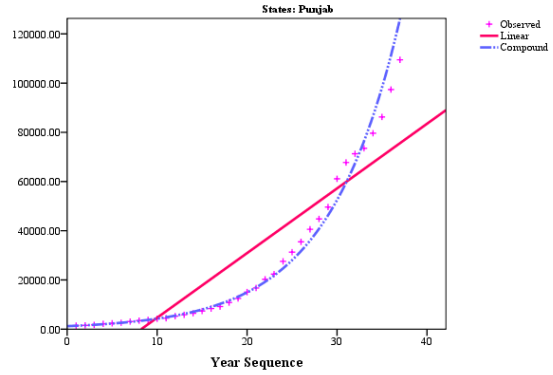
Secondary sector



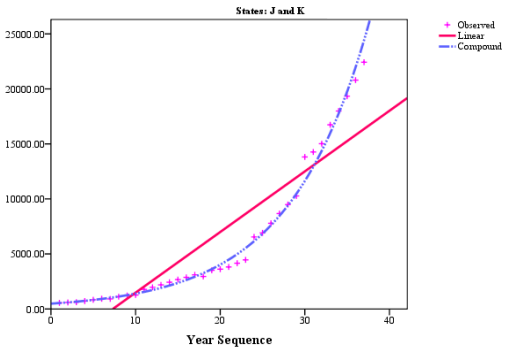
Tertiary sector



Total NSDP



Per capita income (In Rupees)

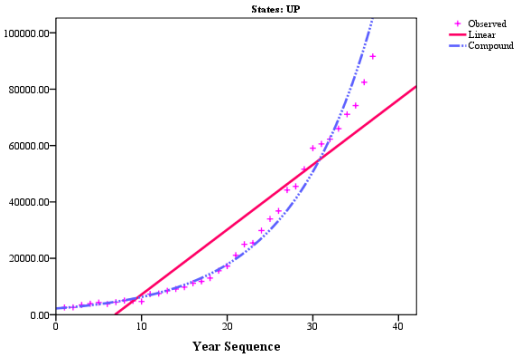


Y- axis depicts contribution of various sectors in 000 crores

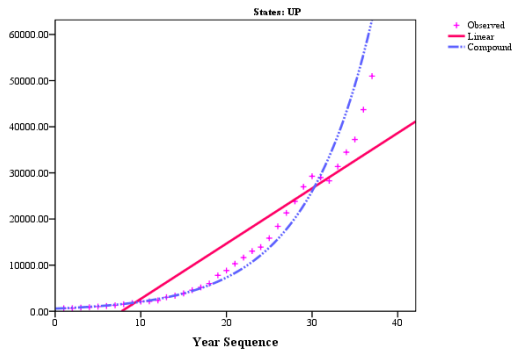
Linear and Compound Growth Trends at Current prices (absolute basis)

From 1970-71 to 2006-07 (State U.P)

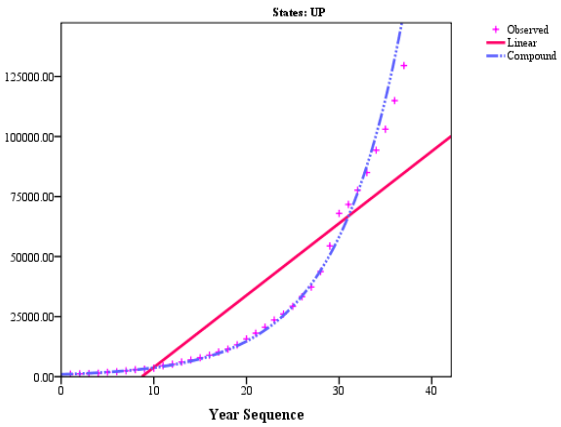
Primary sector



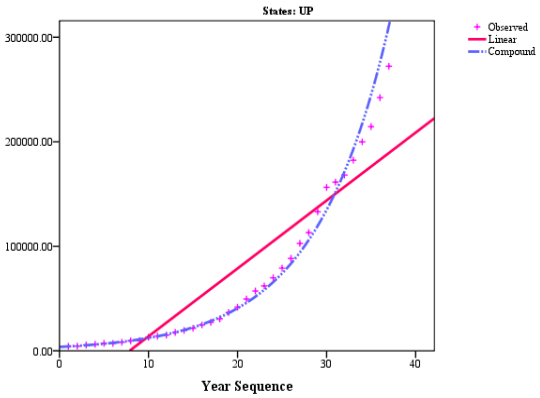
Secondary sector



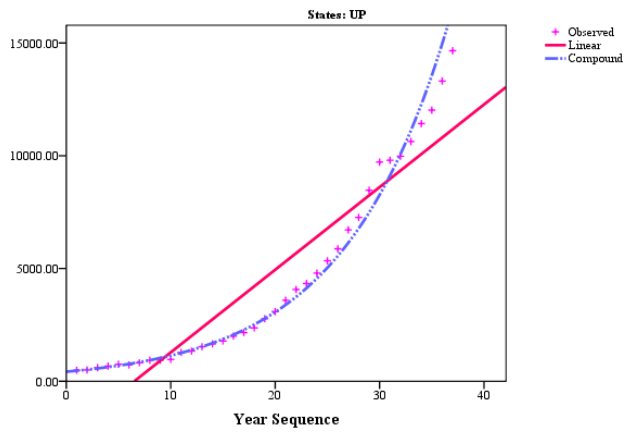
Tertiary sector



Total NSDP



Per capita income (In Rupees)

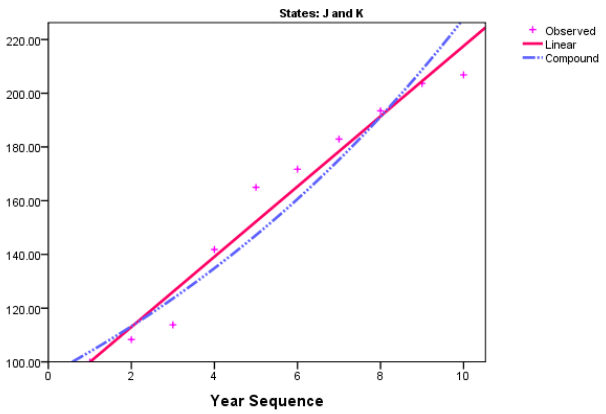


Y- axis depicts contribution of various sectors in 000 crores

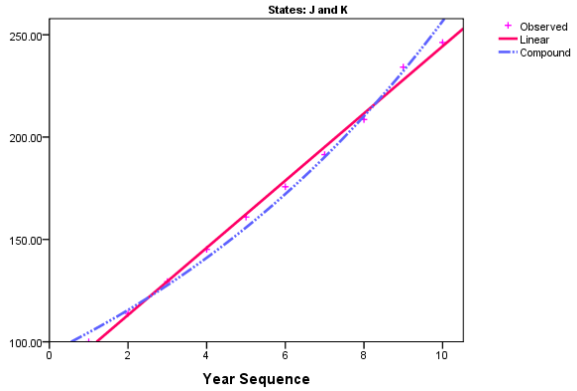
Linear and Compound Growth Trends at Current prices (index based)

Decade 1971-80 (State J&K)

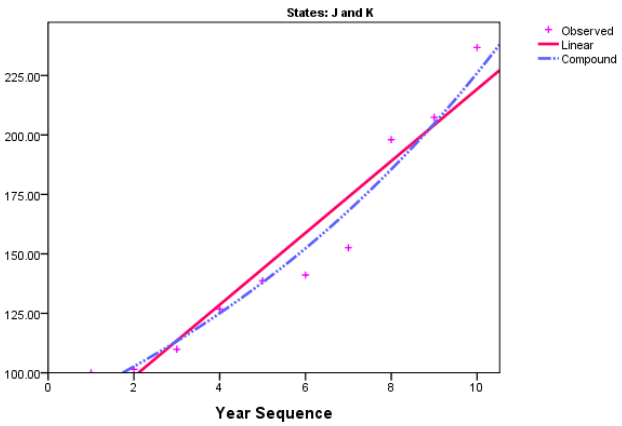
Primary sector



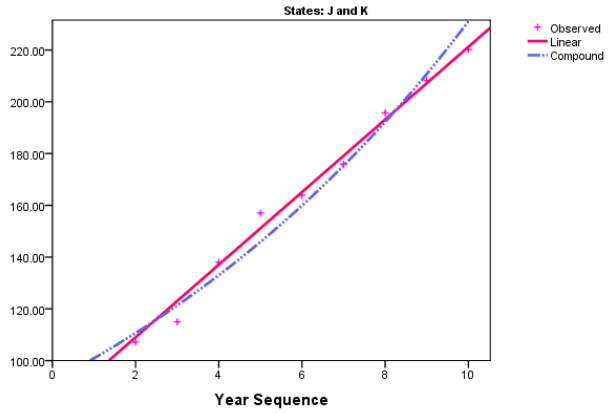
Secondary sector



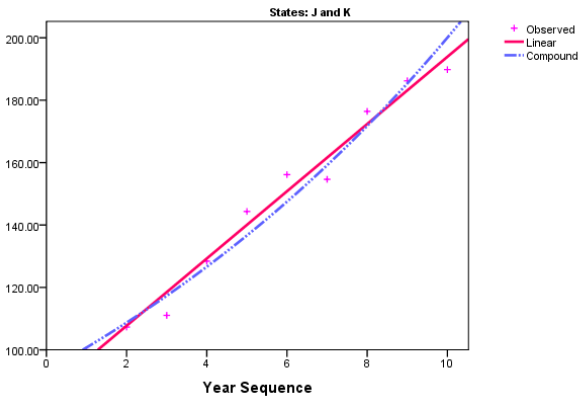
Tertiary sector



Total NSDP



Per capita income (In Rupees)

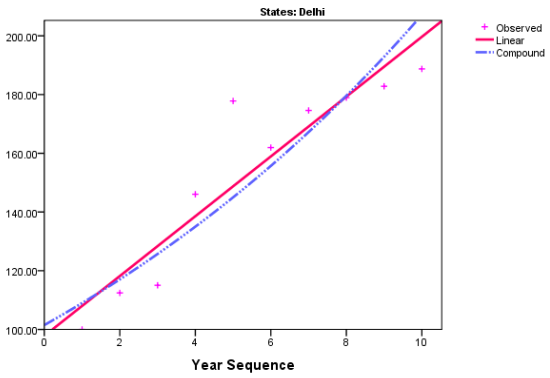


Y- axis depicts contribution of various sectors in 000 crores

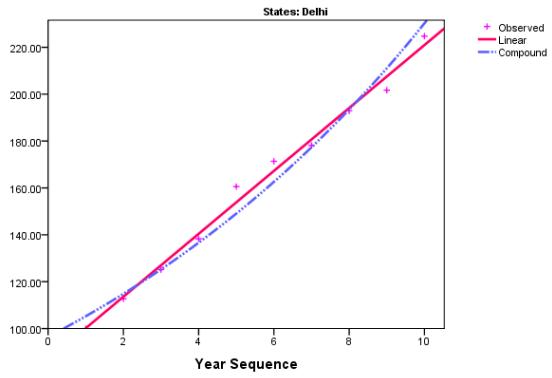
Linear and Compound Growth Trends at Current prices (index based)

Decade 1971-80 (State Delhi)

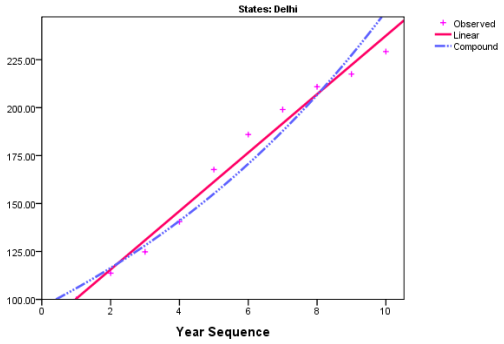
Primary sector



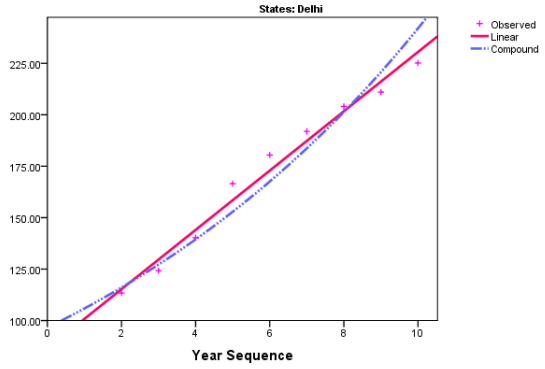
Secondary sector



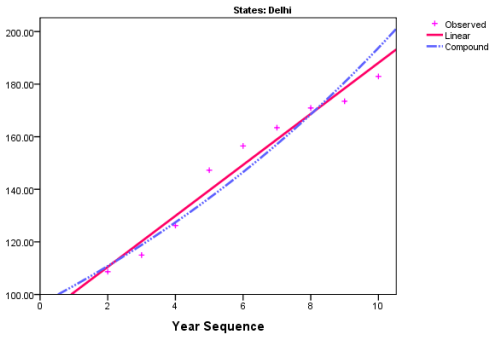
Tertiary sector



Total NSDP



Per capita income (In Rupees)

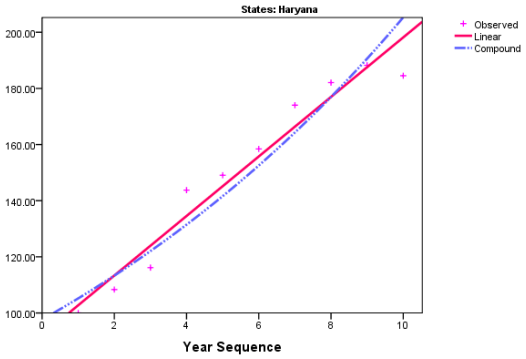


Y- axis depicts contribution of various sectors in 000 crores

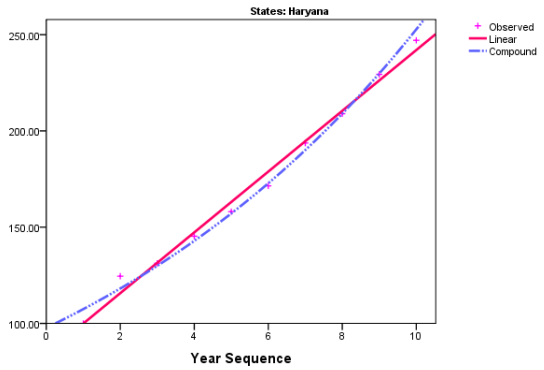
Linear and Compound Growth Trends at Current prices (index based)

Decade 1971-80 (State Haryana)

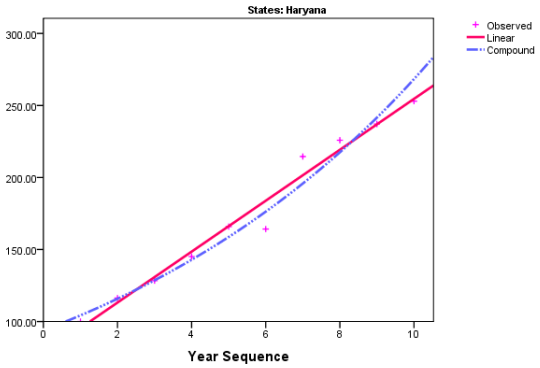
Primary sector



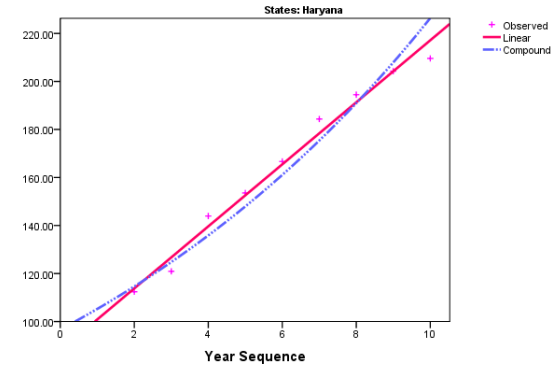
Secondary sector



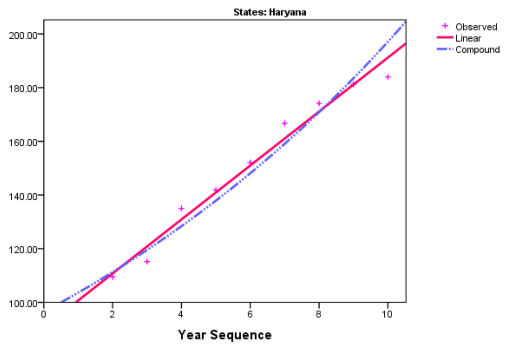
Tertiary sector



Total NSDP



Per capita income (In Rupees)

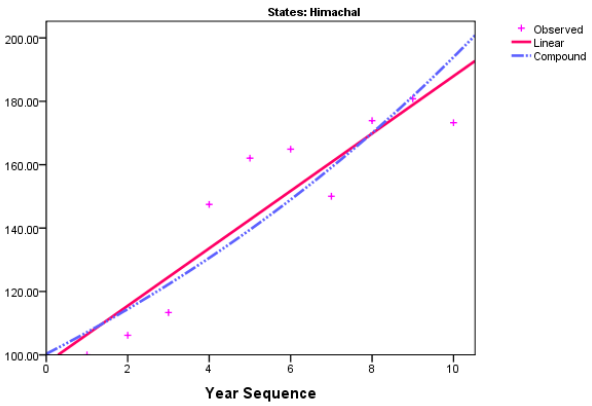


Y- axis depicts contribution of various sectors in 000 crores

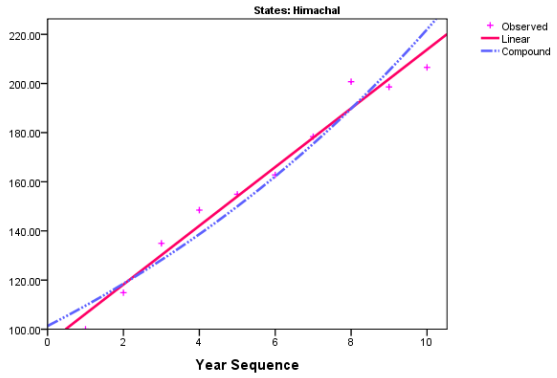
Linear and Compound Growth Trends at Current prices (index based)

Decade 1971-80 (State Himachal Pradesh)

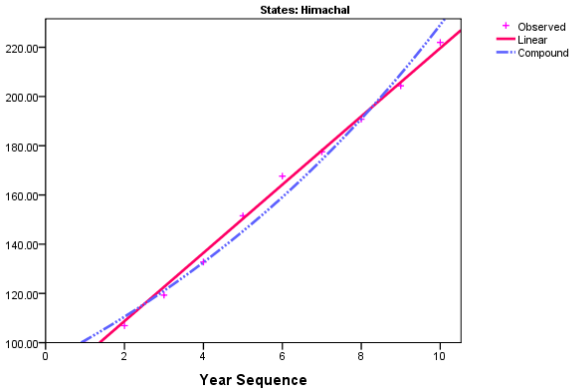
Primary sector



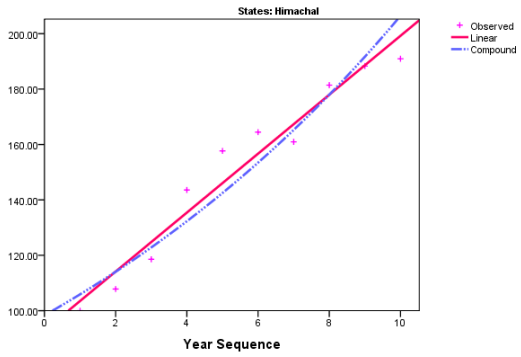
Secondary sector



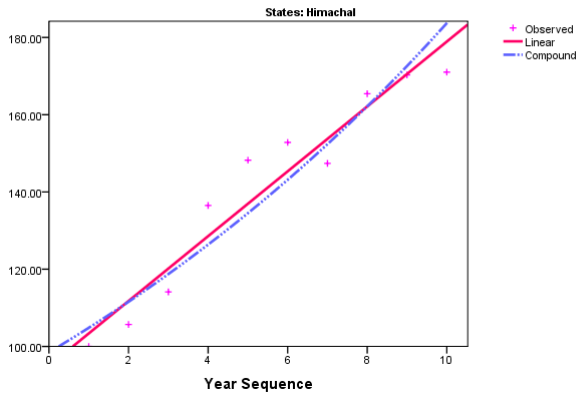
Tertiary sector



Total NSDP



Per capita income (In Rupees)

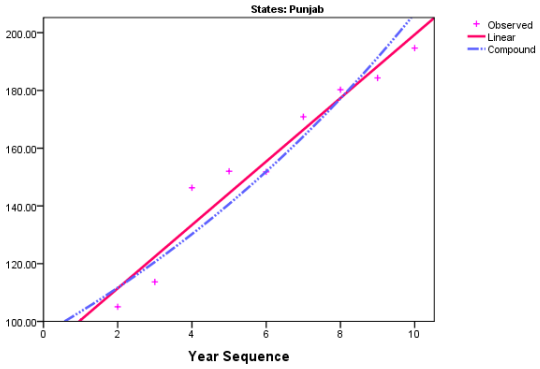


Y- axis depicts contribution of various sectors in 000 crores

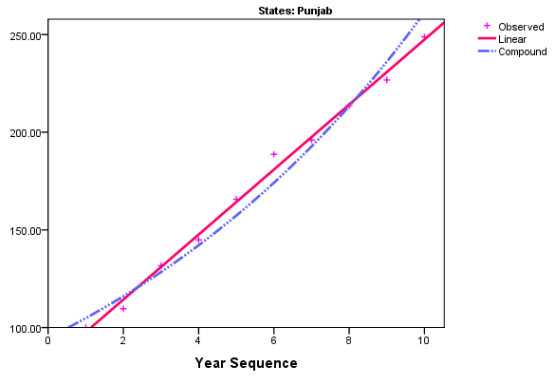
Linear and Compound Growth Trends at Current prices (index based)

Decade 1971-80 (State Punjab)

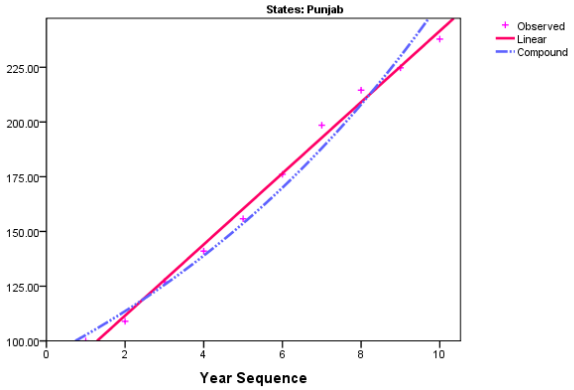
Primary sector



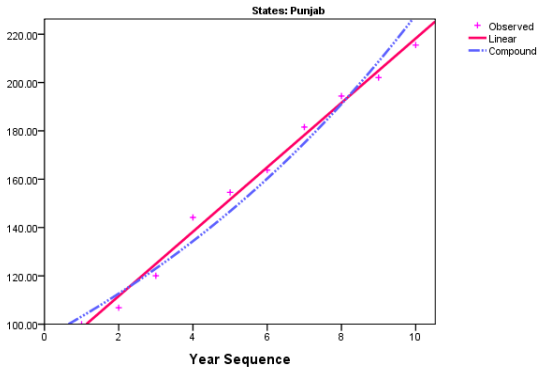
Secondary sector



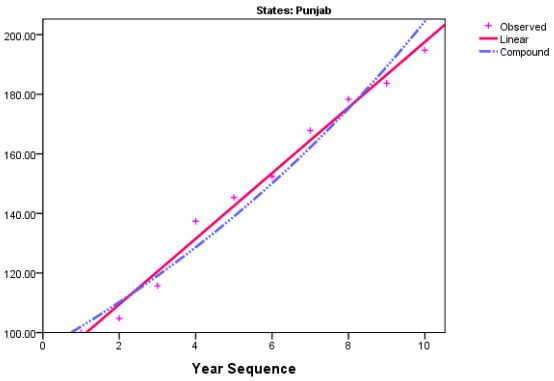
Tertiary sector



Total NSDP



Per capita income (In Rupees)

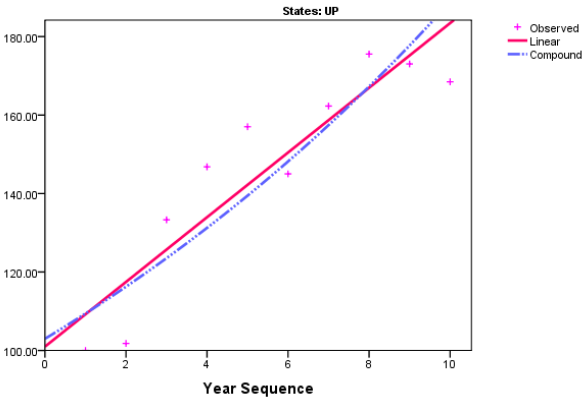


Y- axis depicts contribution of various sectors in 000 crores

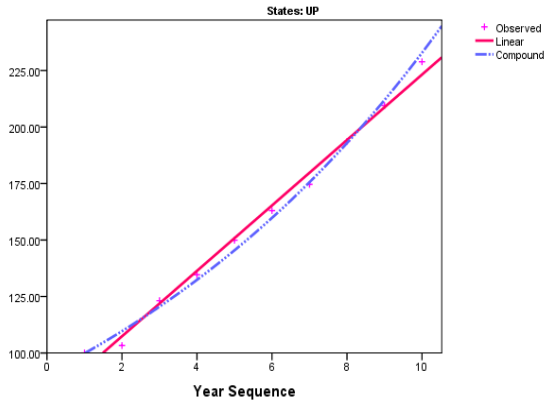
Linear and Compound Growth Trends at Current prices (index based)

Decade 1971-80 (State U.P)

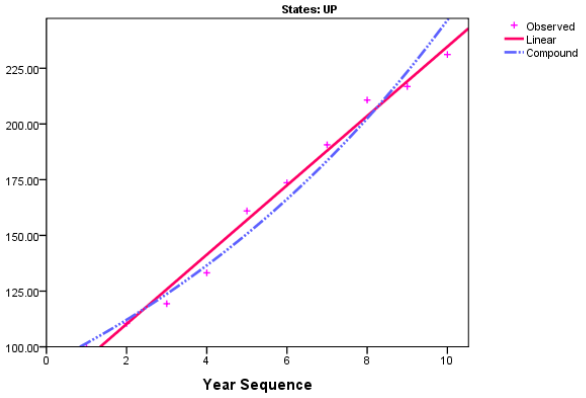
Primary sector



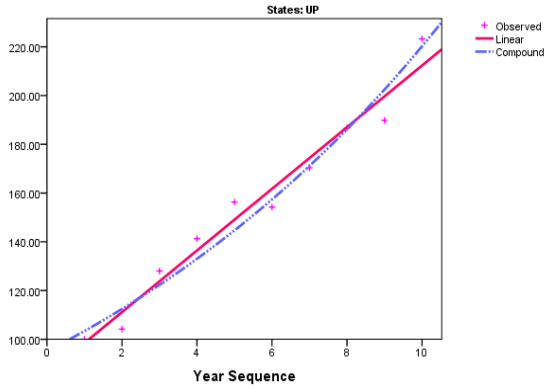
Secondary sector



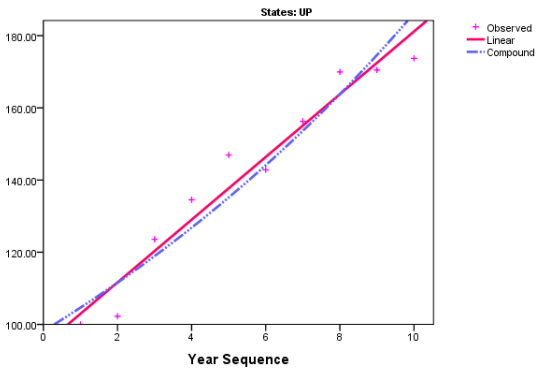
Tertiary sector



Total NSDP



Per capita income (In Rupees)

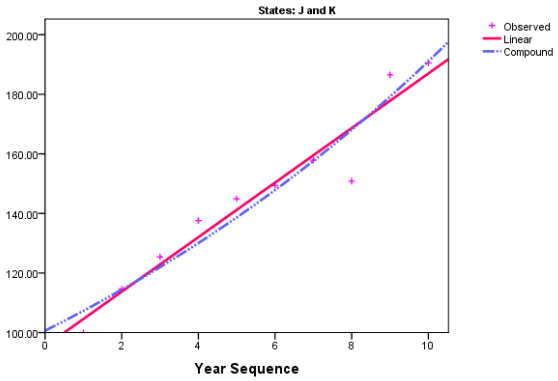


Y - axis depicts contribution of various sectors in 000 crores

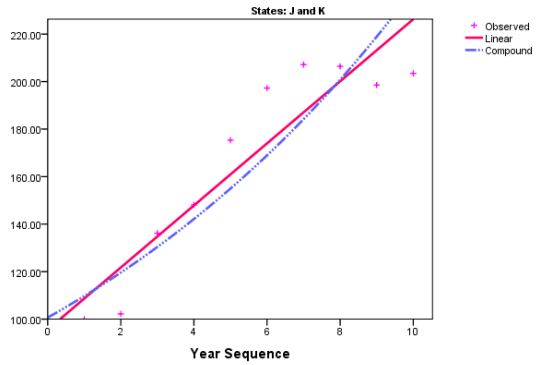
Linear and Compound Growth Trends at Current prices (index based)

Decade 1981-90 (State J&K)

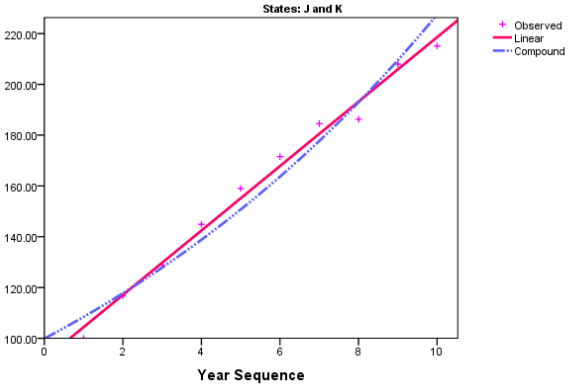
Primary sector



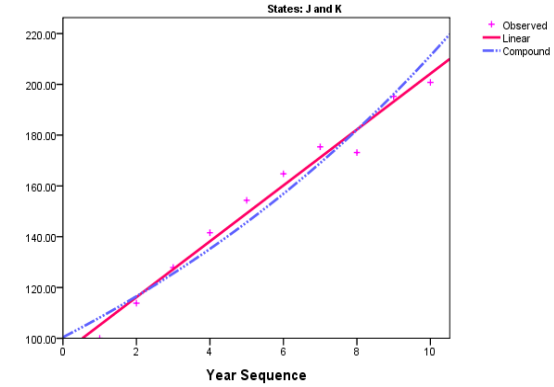
Secondary sector



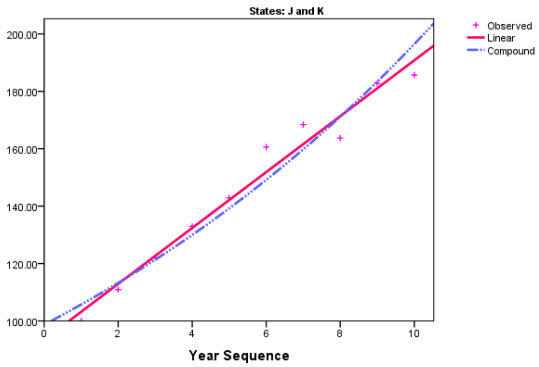
Tertiary sector



Total NSDP



Per capita income (In Rupees)

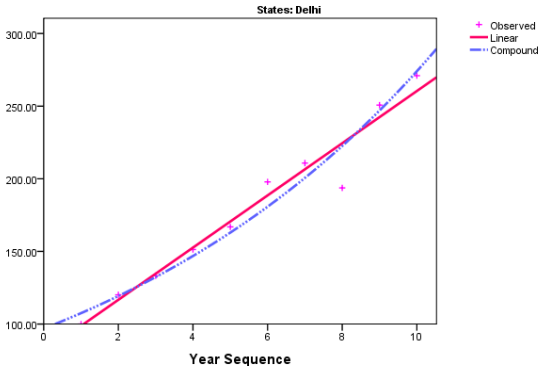


Y- axis depicts contribution of various sectors in 000 crores

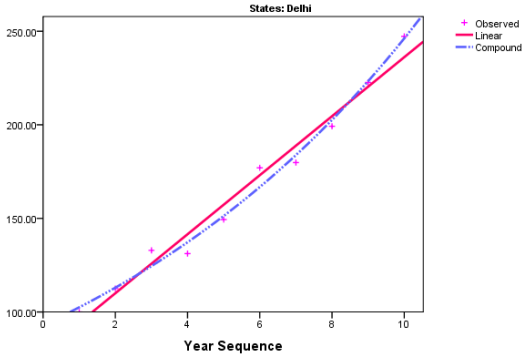
Linear and Compound Growth Trends at Current prices (index based)

Decade 1981-90 (State Delhi)

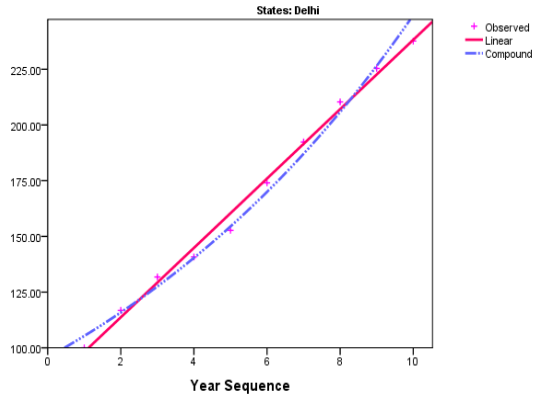
Primary sector



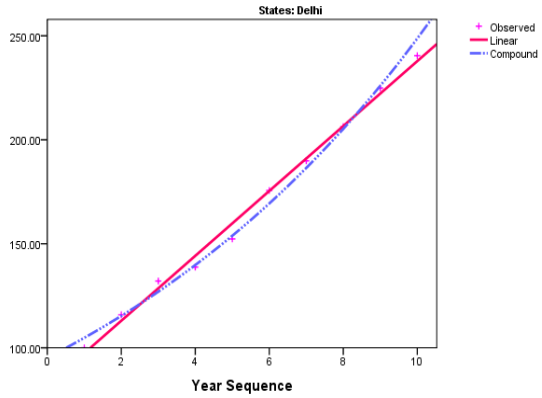
Secondary sector



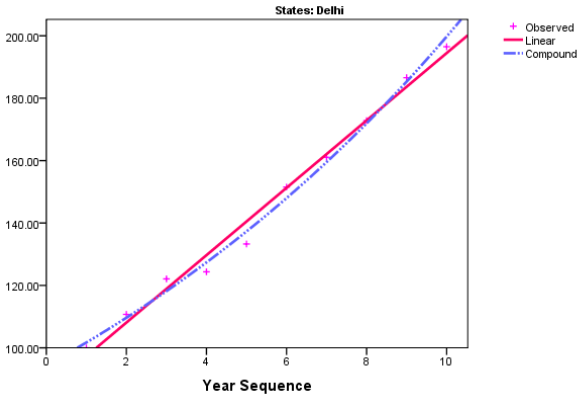
Tertiary sector



Total NSDP



Per capita income (In Rupees)

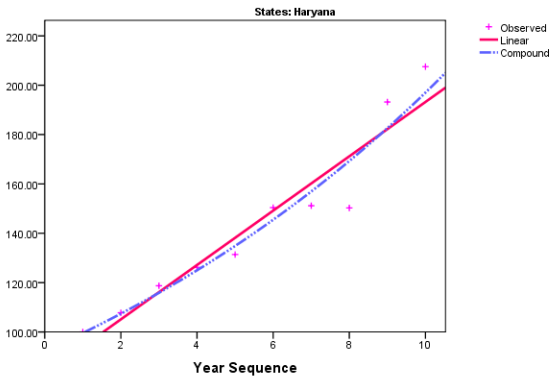


Y- axis depicts contribution of various sectors in 000 crores

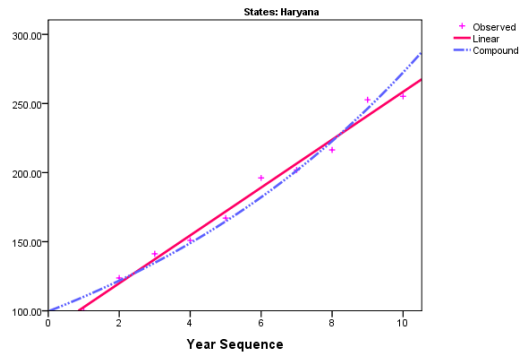
Linear and Compound Growth Trends at Current prices (index based)

Decade 1981-90 (State Haryana)

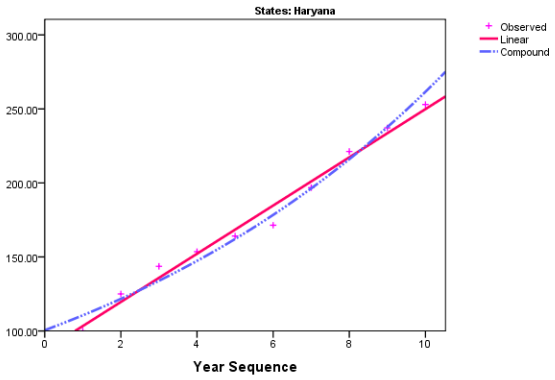
Primary sector



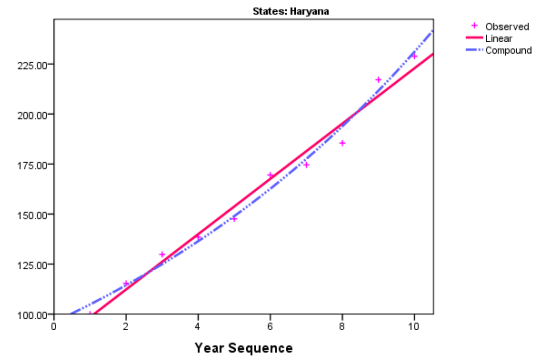
Secondary sector



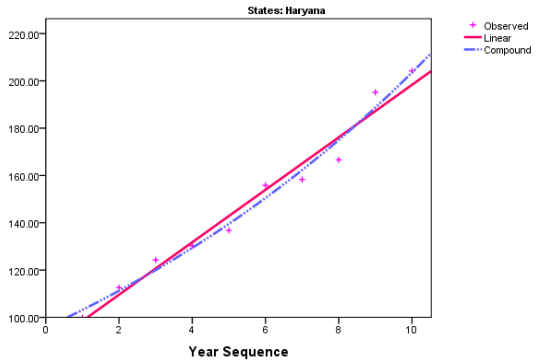
Tertiary sector



Total NSDP



Per capita income (In Rupees)

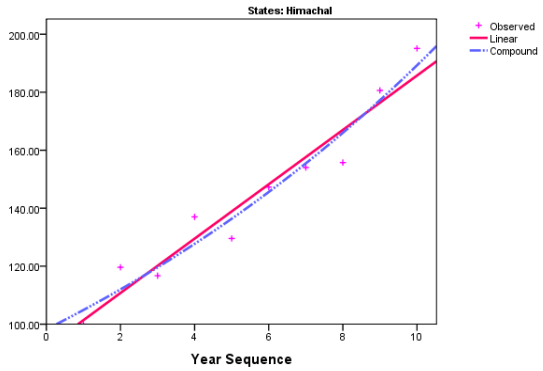


Y- axis depicts contribution of various sectors in 000 crores

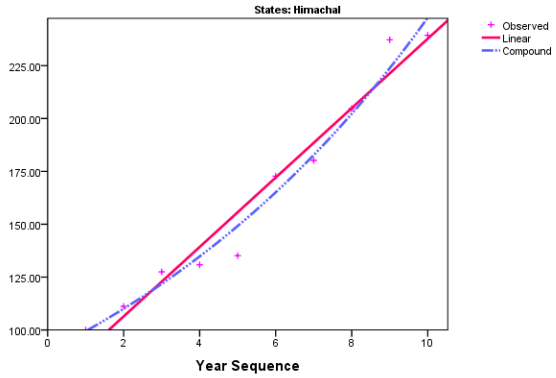
Linear and Compound Growth Trends at Current prices (index based)

Decade 1981-90 (State Himachal Pradesh)

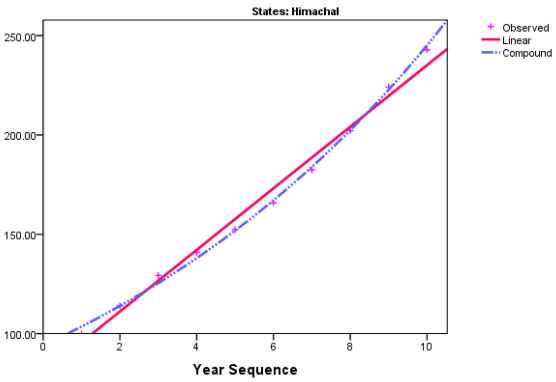
Primary sector



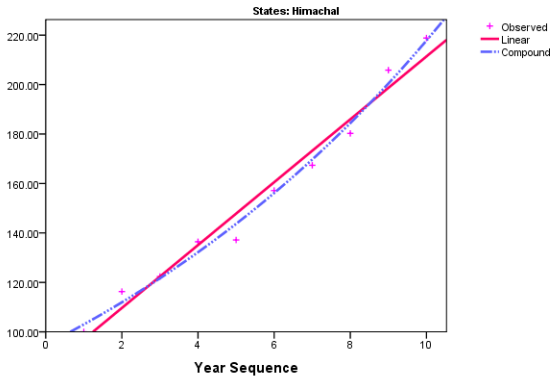
Secondary sector



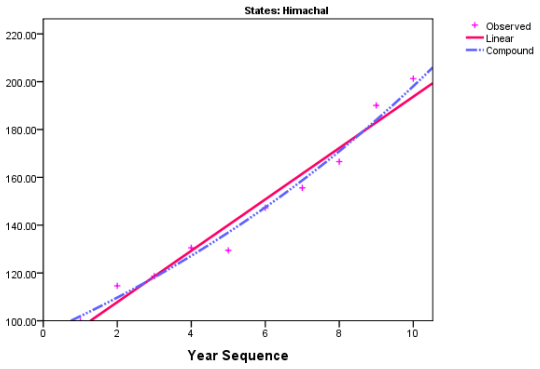
Tertiary sector



Total NSDP



Per capita income (In Rupees)

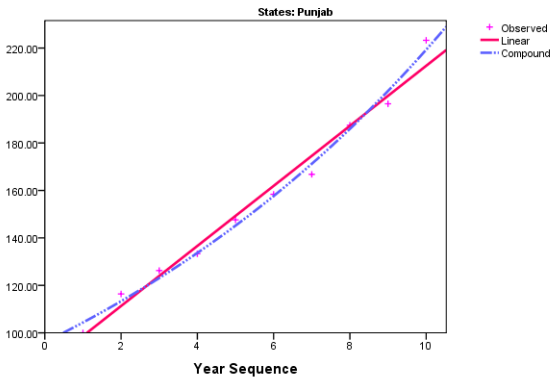


Y - axis depicts contribution of various sectors in 000 crores

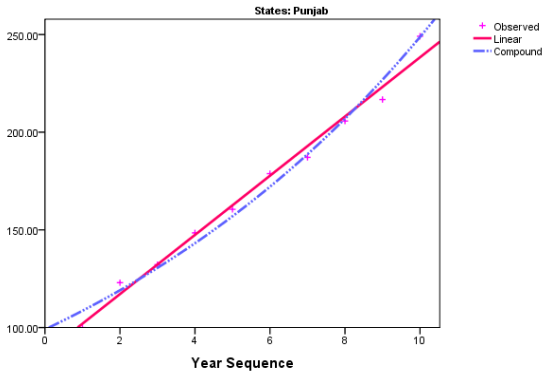
Linear and Compound Growth Trends at Current prices (index based)

Decade 1981-90 (State Haryana)

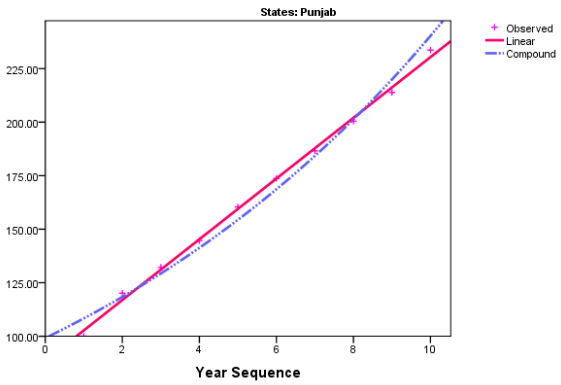
Primary sector



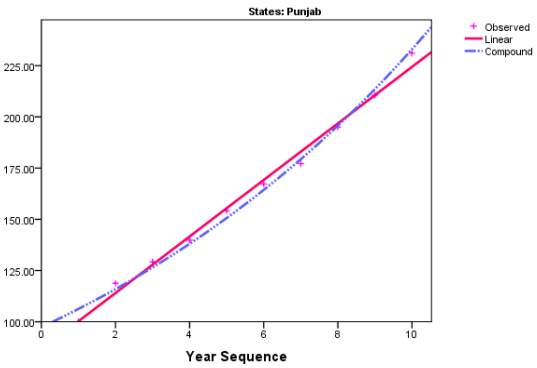
Secondary sector



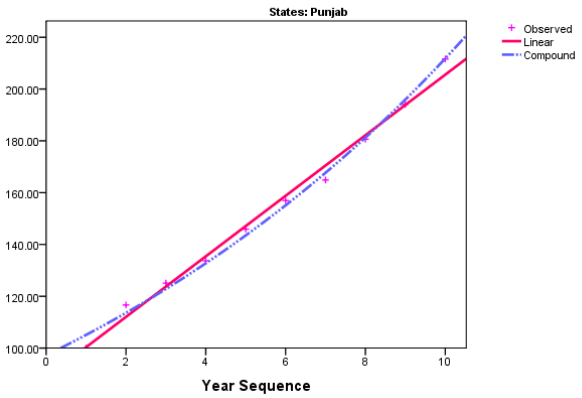
Tertiary sector



Total NSDP



Per capita income (In Rupees)

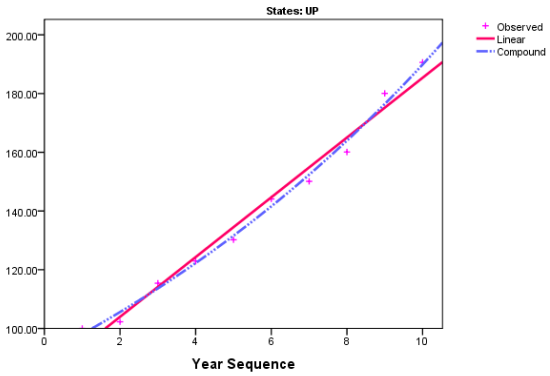


Y- axis depicts contribution of various sectors in 000 crores

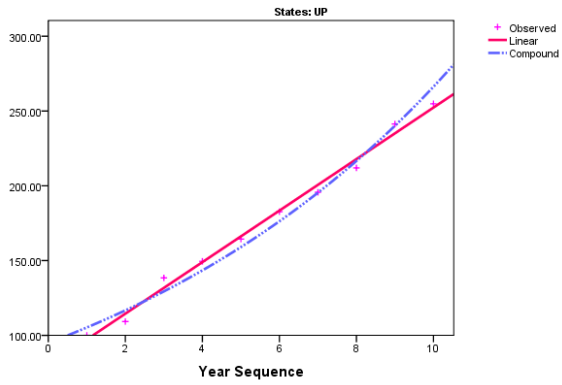
Linear and Compound Growth Trends at Current prices (index based)

Decade 1981-90 (State U.P)

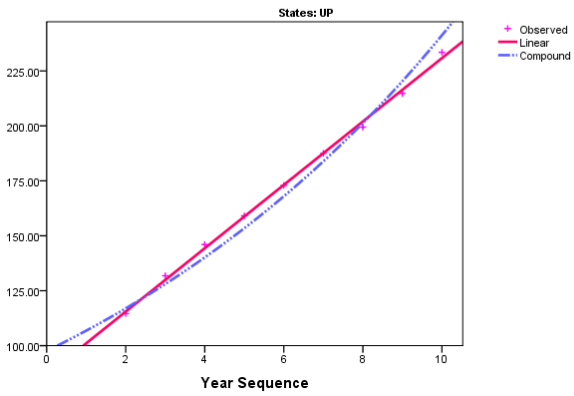
Primary sector



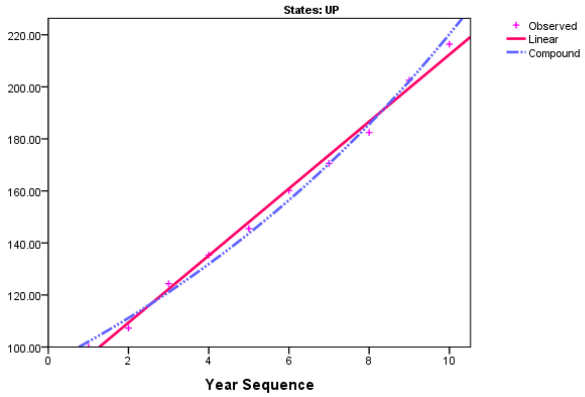
Secondary sector



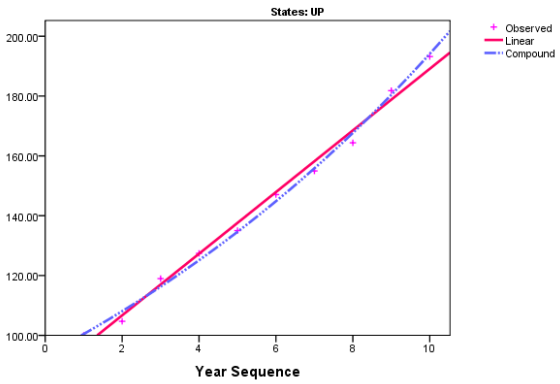
Tertiary sector



Total NSDP



Per capita income (In Rupees)

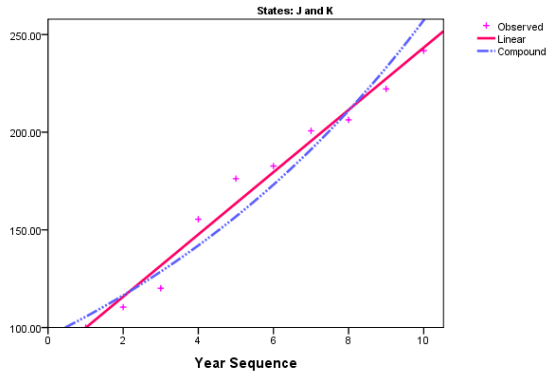


Y- axis depicts contribution of various sectors in 000 crores

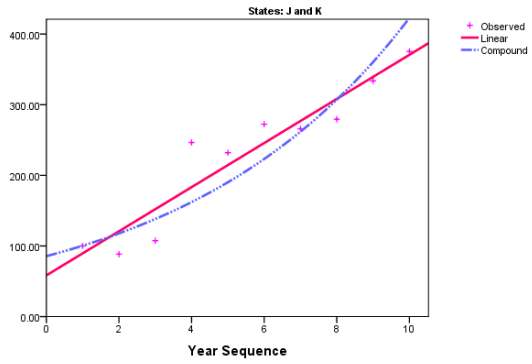
Linear and Compound Growth Trends at Current prices (index based)

Decade 1991-2000 (State J&K)

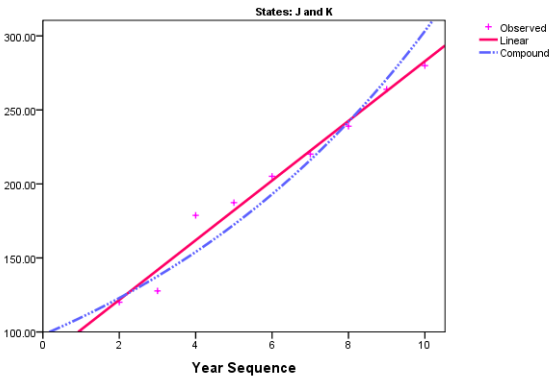
Primary sector



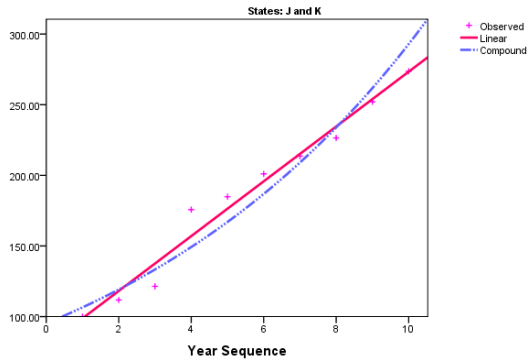
Secondary sector



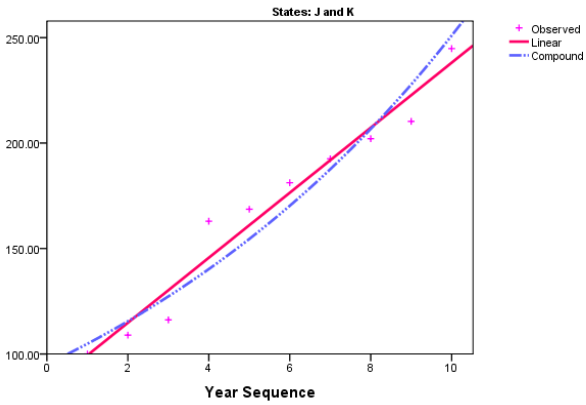
Tertiary sector



Total NSDP



Per capita income (In Rupees)

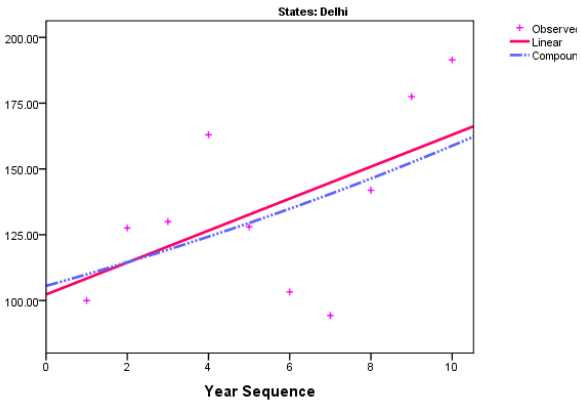


Y - axis depicts contribution of various sectors in 000 crores

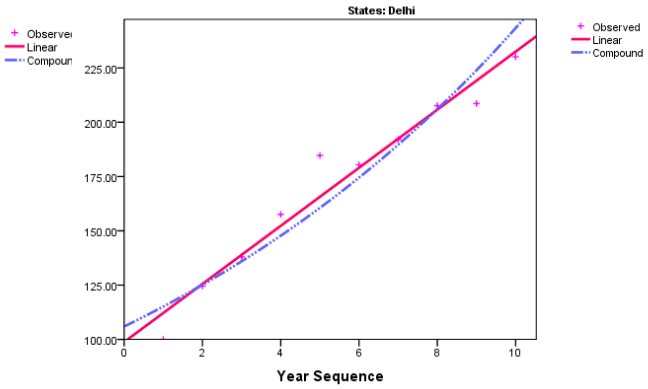
Linear and Compound Growth Trends at Current prices (index based)

Decade 1991-2000 (State Delhi)

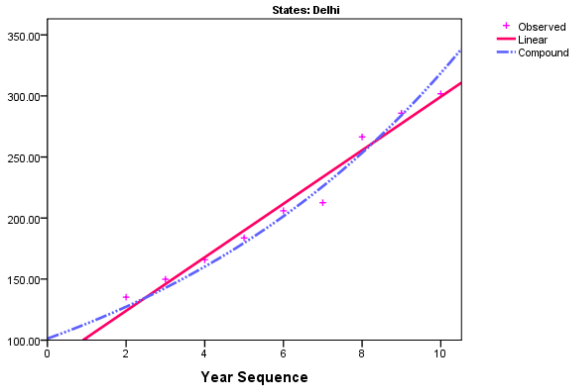
Primary sector



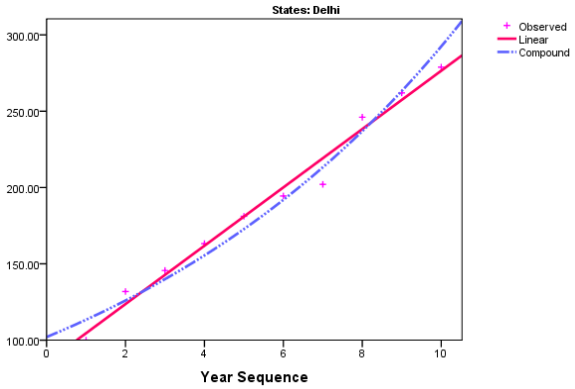
Secondary sector



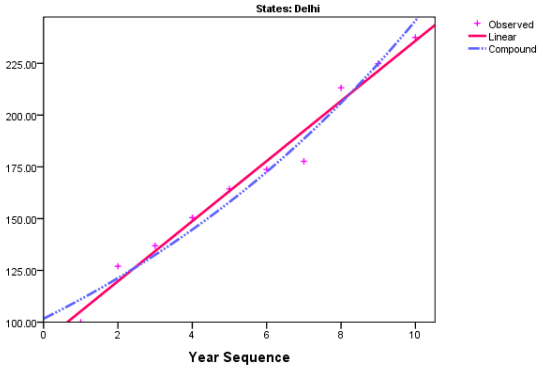
Tertiary sector



Total NSDP



Per capita income (In Rupees)

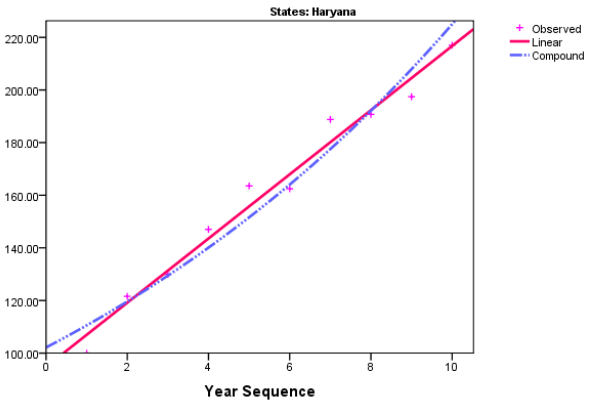


Y- axis depicts contribution of various sectors in 000 crores

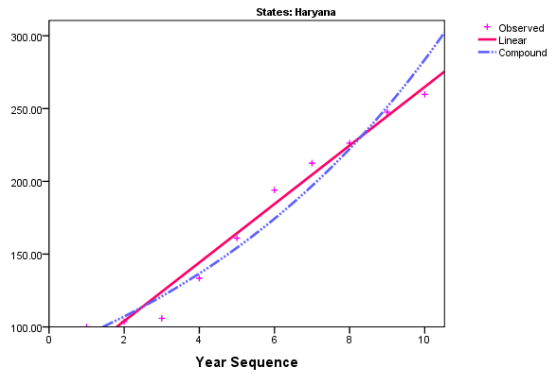
Linear and Compound Growth Trends at Current prices (index based)

Decade 1991-2000 (State Haryana)

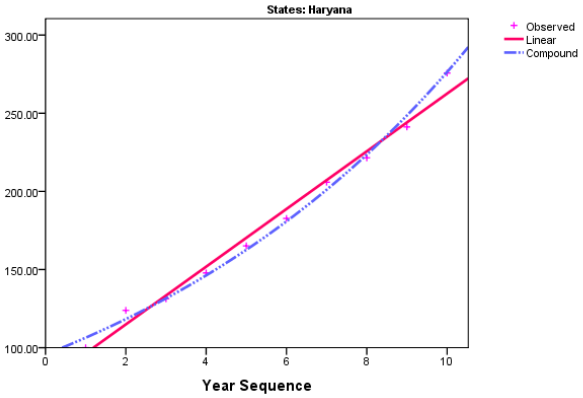
Primary sector



Secondary sector

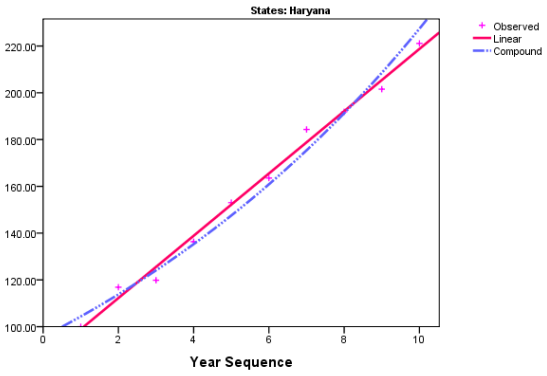


Tertiary sector



Total NSDP

Per capita income (In Rupees)

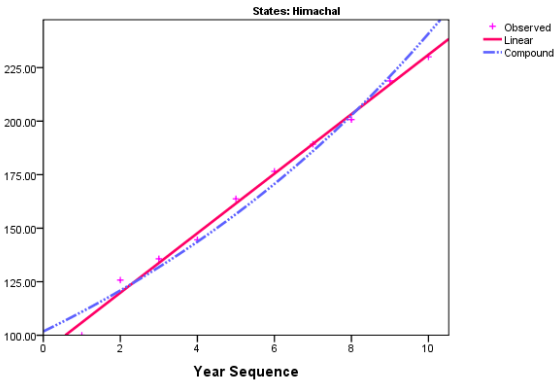


Y- axis depicts contribution of various sectors in 000 crores

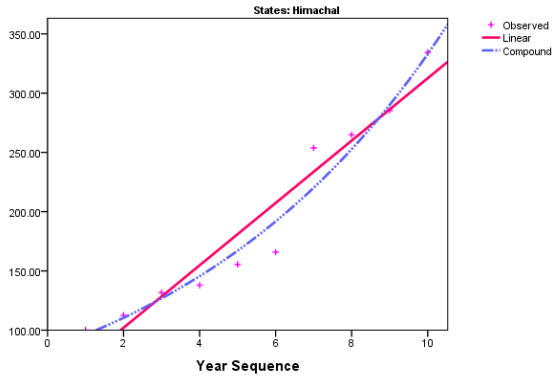
Linear and Compound Growth Trends at Current prices (index based)

Decade 1991-2000 (State Himachal Pradesh)

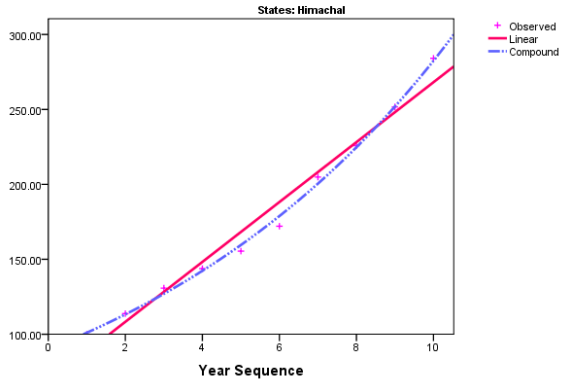
Primary sector



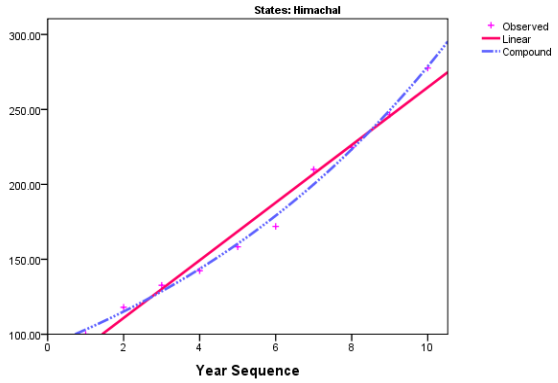
Secondary sector



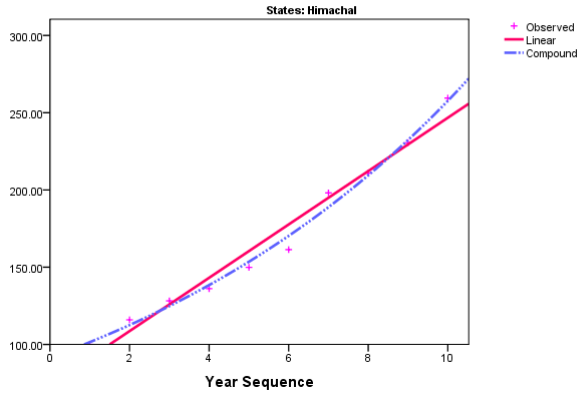
Tertiary sector



Total NSDP



Per capita income (In Rupees)

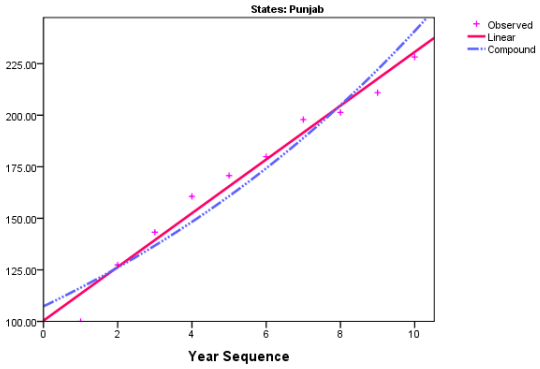


Y -axis depicts contribution of various sectors in 000 crores

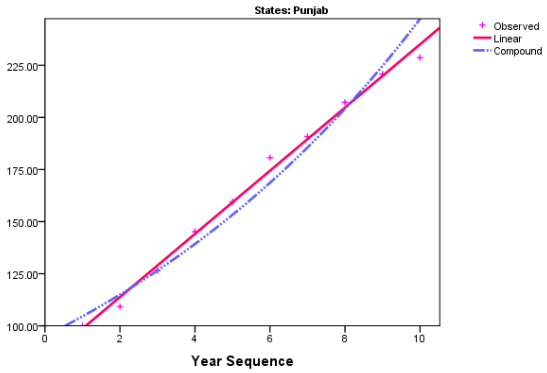
Linear and Compound Growth Trends at Current prices (index based)

Decade 1991-2000 (State Punjab)

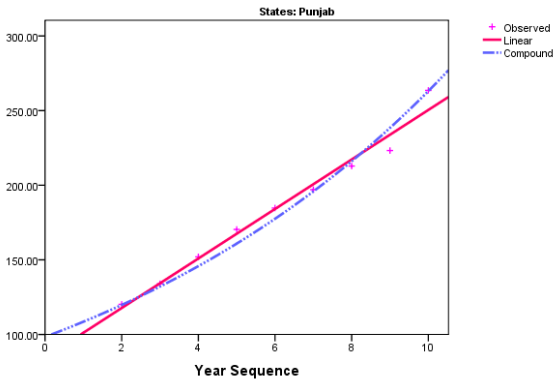
Primary sector



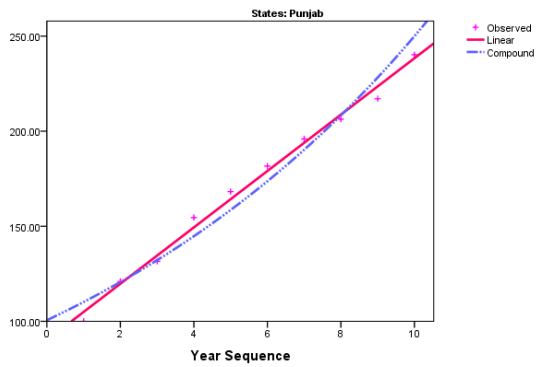
Secondary sector



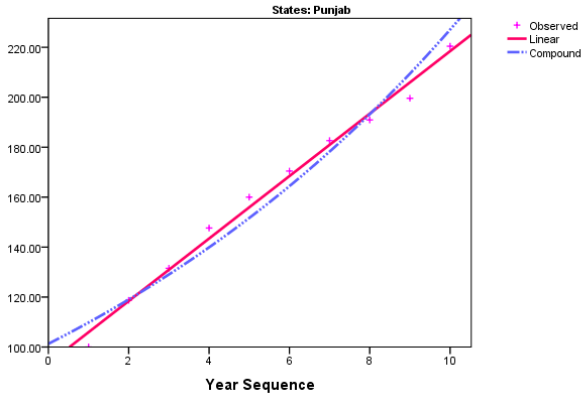
Tertiary sector



Total NSDP



Per capita income (In Rupees)

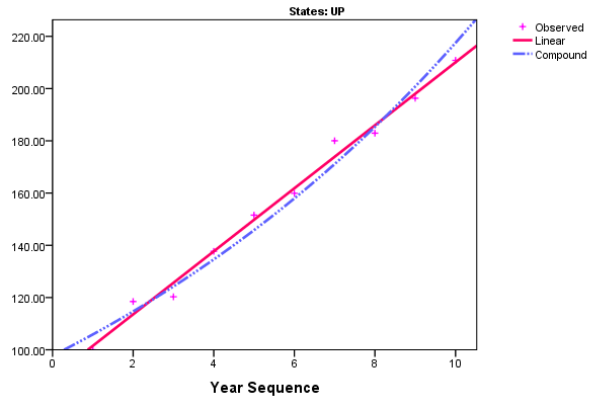


Y- axis depicts contribution of various sectors in 000 crores

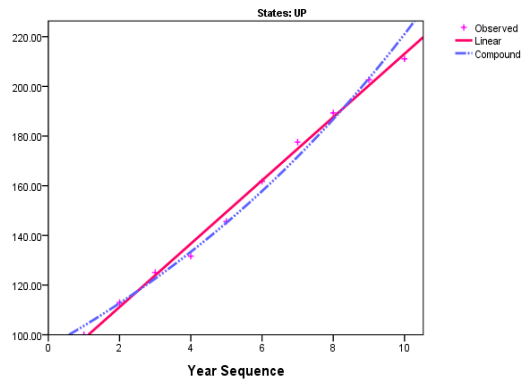
Linear and Compound Growth Trends at Current prices (index based)

Decade 1991-2000 (State U.P)

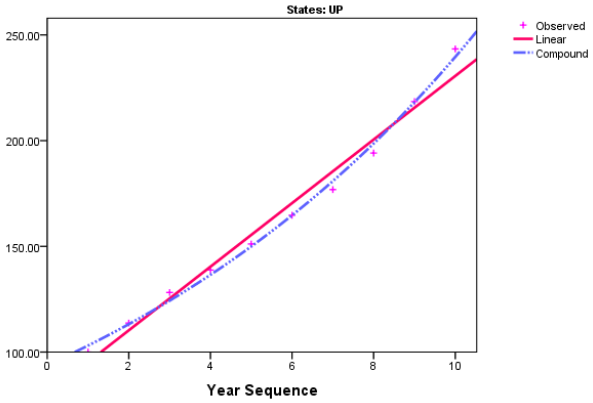
Primary sector



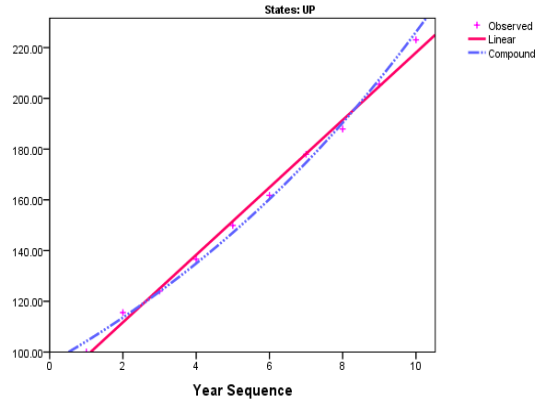
Secondary sector



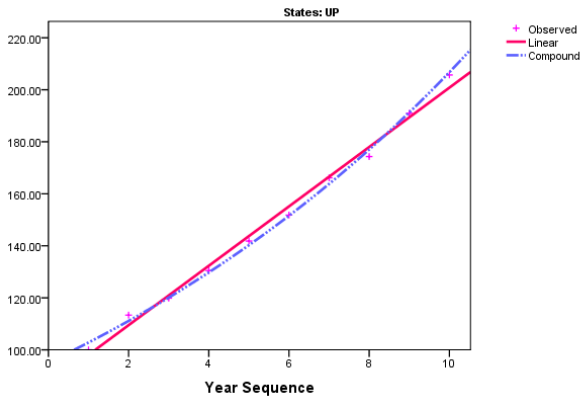
Tertiary sector



Total NSDP



Per capita income (In Rupees)

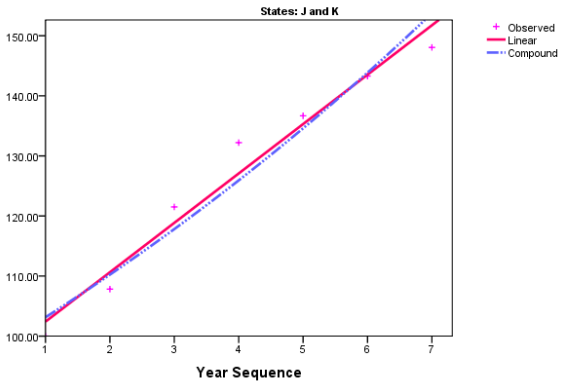


Y -axis depicts contribution of various sectors in 000 crores

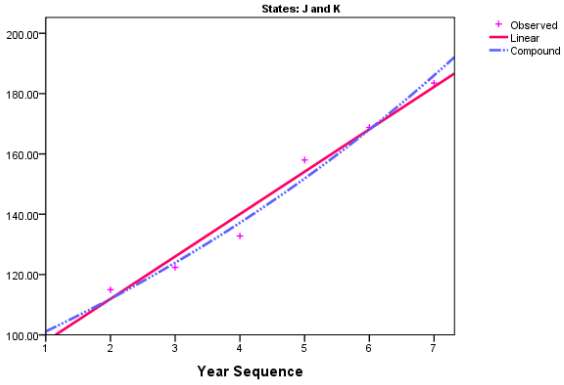
Linear and Compound Growth Trends at Current prices (index based)

Decade 2001-2007 (State J&K)

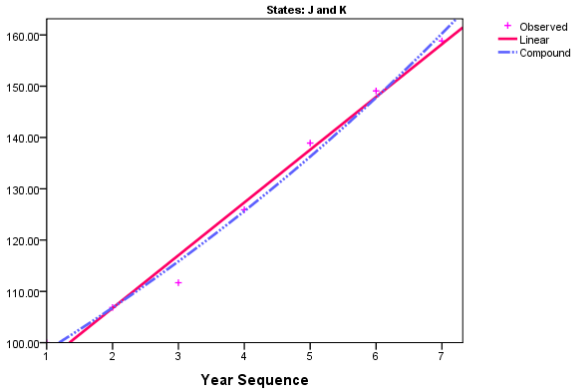
Primary sector



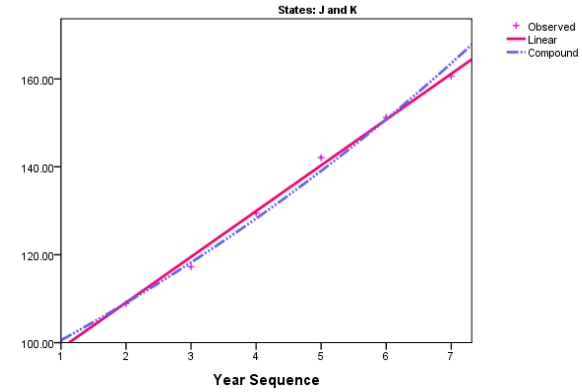
Secondary sector



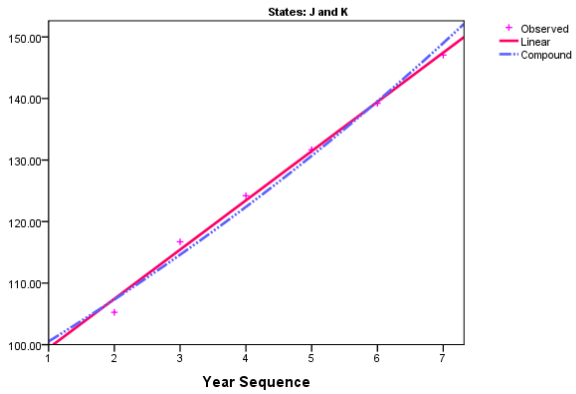
Tertiary sector



Total NSDP



Per capita income (In Rupees)

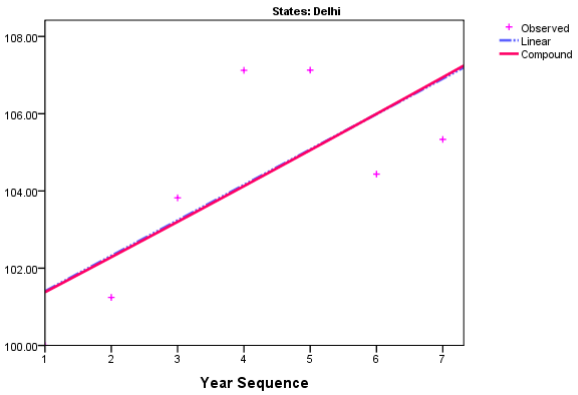


Y - axis depicts contribution of various sectors in 000 crores

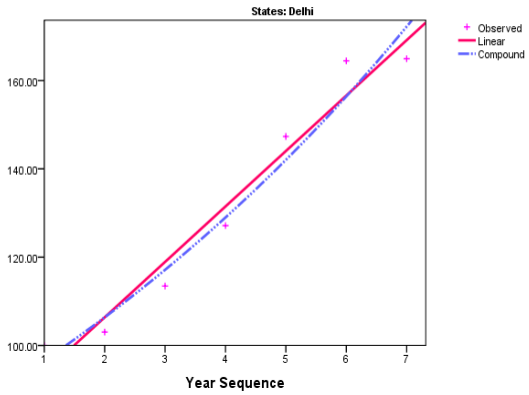
Linear and Compound Growth Trends at Current prices (index based)

Decade 2001-2007 (State Delhi)

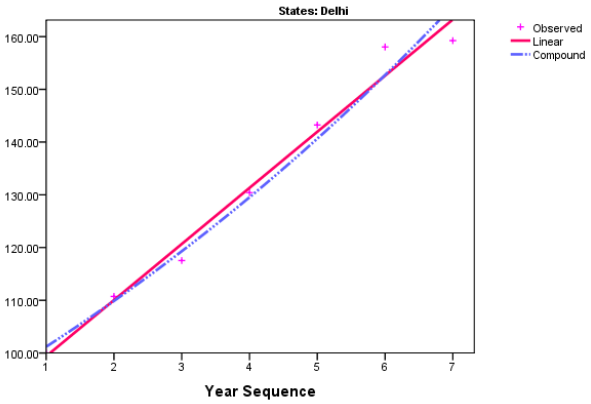
Primary sector



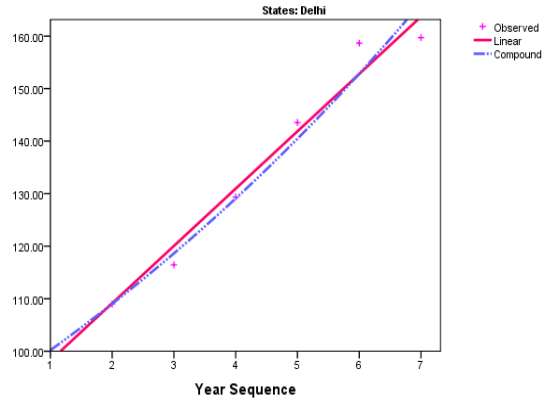
Secondary sector



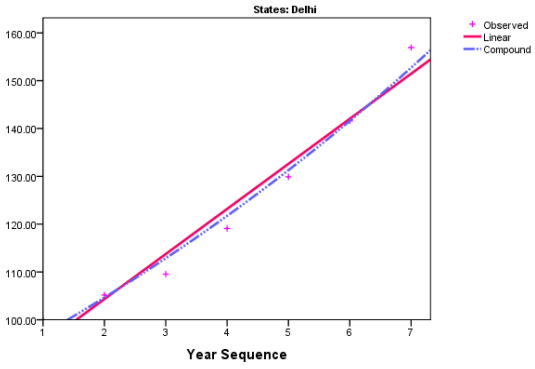
Tertiary sector



Total NSDP



Per capita income (In Rupees)

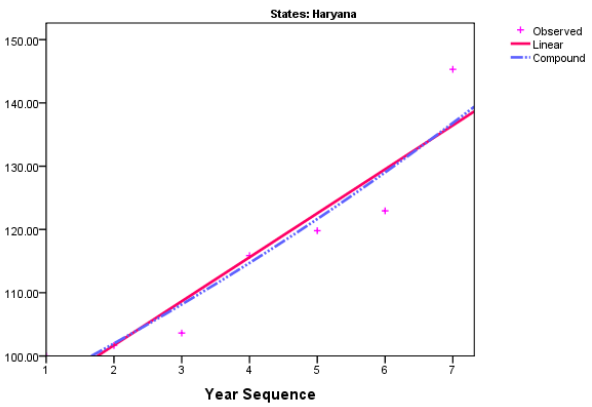


Y - axis depicts contribution of various sectors in 000 crores

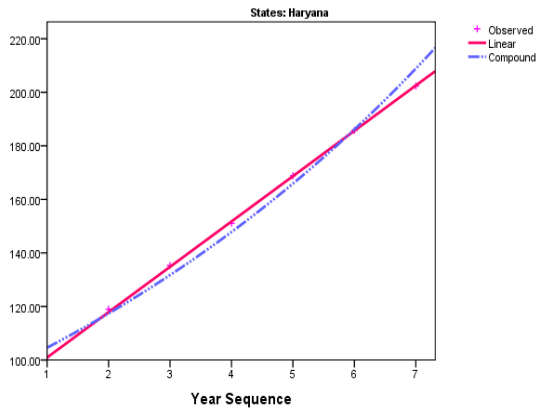
Linear and Compound Growth Trends at Current prices (index based)

Decade 2001-2007 (State Haryana)

Primary sector

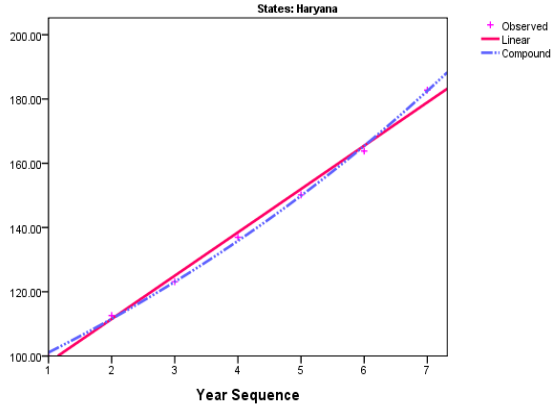


Secondary sector

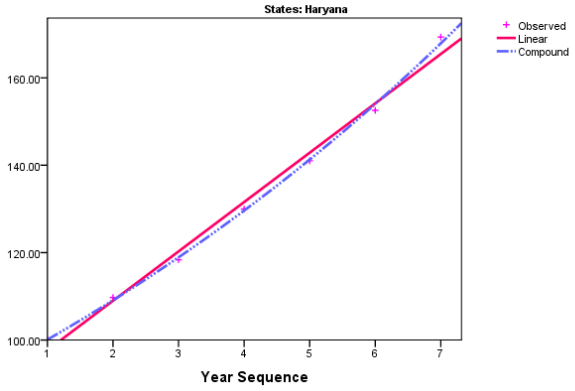


Tertiary sector

Total NSDP



Per capita income (In Rupees)

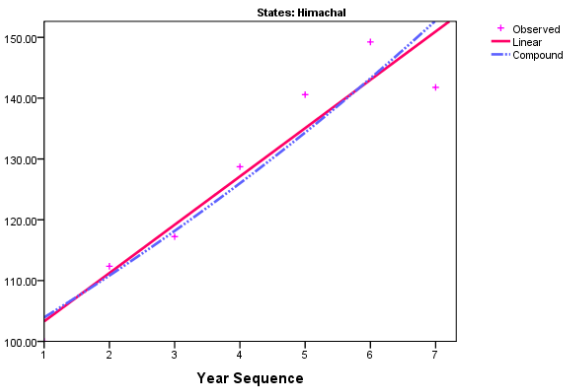


Y- axis depicts contribution of various sectors in 000 crores

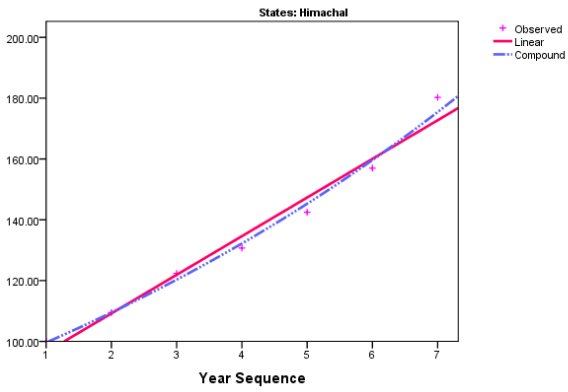
Linear and Compound Growth Trends at Current prices (index based)

Decade 2001-2007 (State Himachal Pradesh)

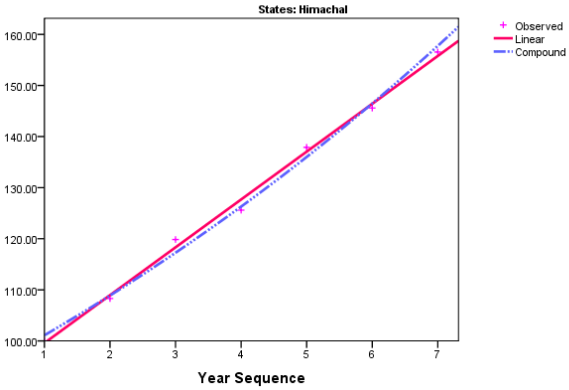
Primary sector



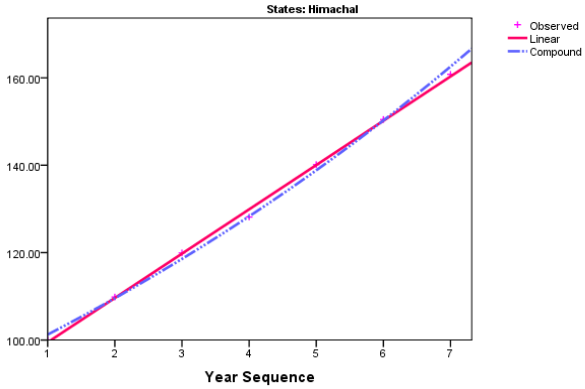
Secondary sector



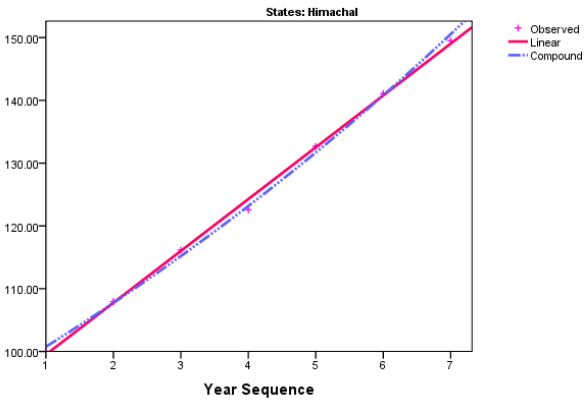
Tertiary sector



Total NSDP



Per capita income (In Rupees)

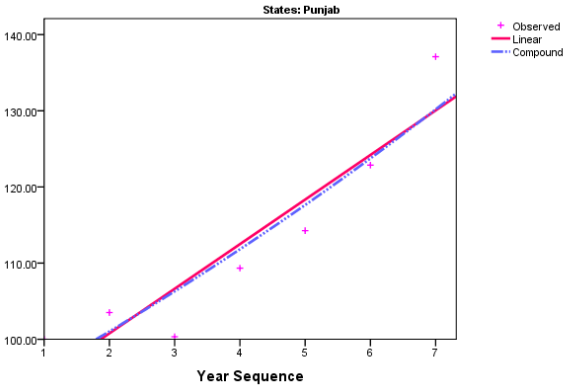


Y - axis depicts contribution of various sectors in 000 crores

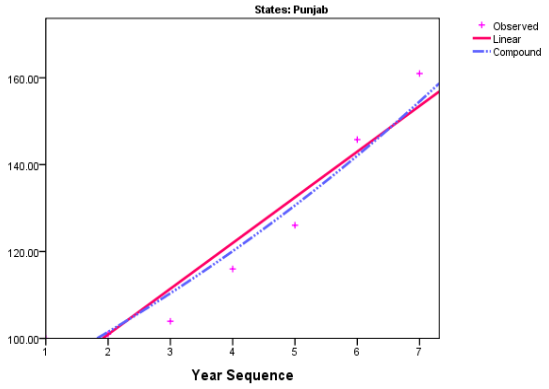
Linear and Compound Growth Trends at Current prices (index based)

Decade 2001-2007 (State Punjab)

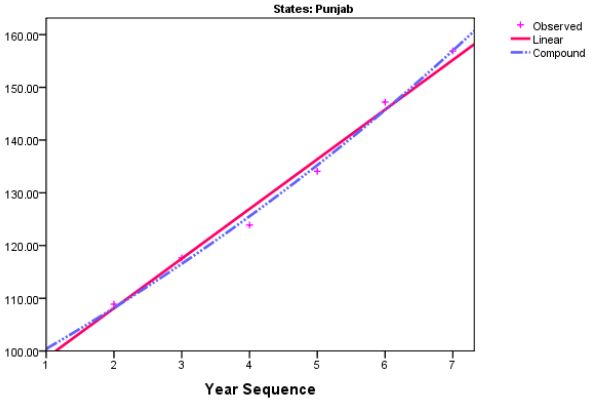
Primary sector



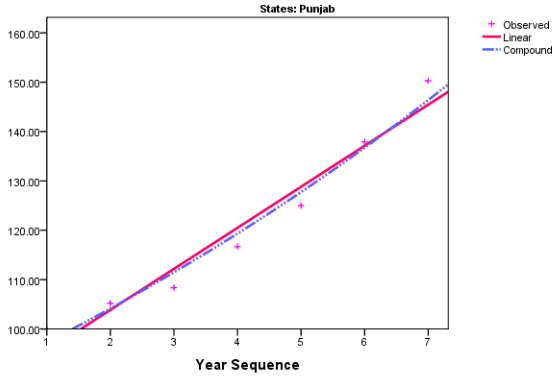
Secondary sector



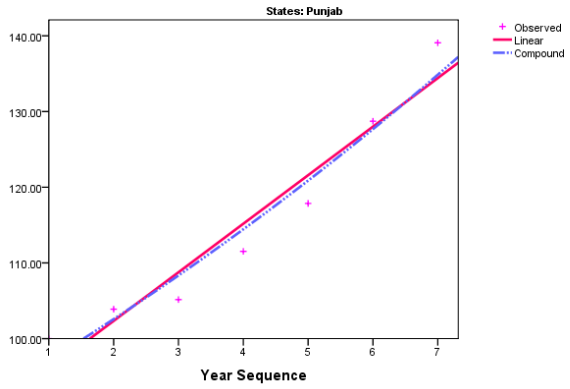
Tertiary sector



Total NSDP



Per capita income (In Rupees)

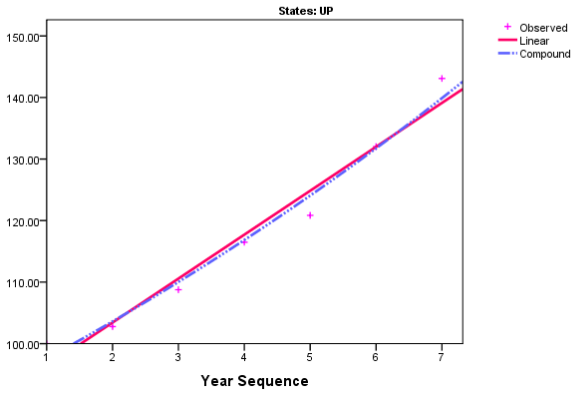


Y - axis depicts contribution of various sectors in 000 crores

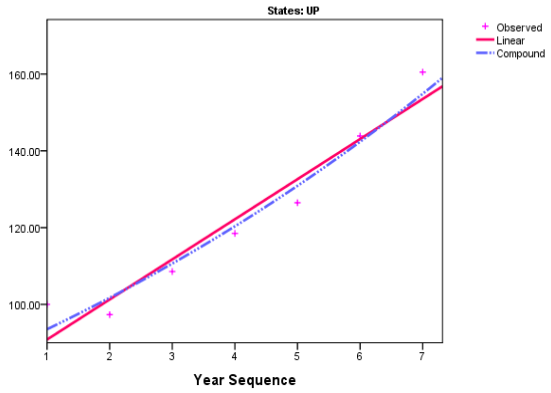
Linear and Compound Growth Trends at Current prices (index based)

Decade 2001-2007 (State U.P)

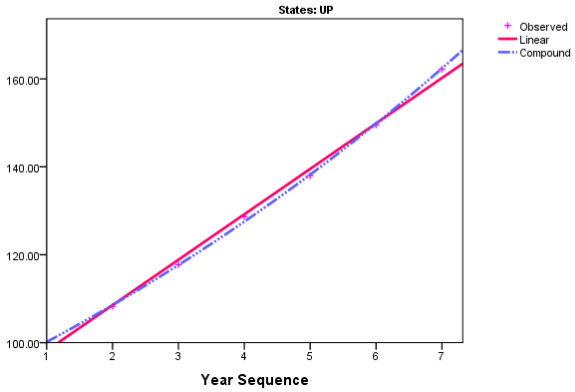
Primary sector



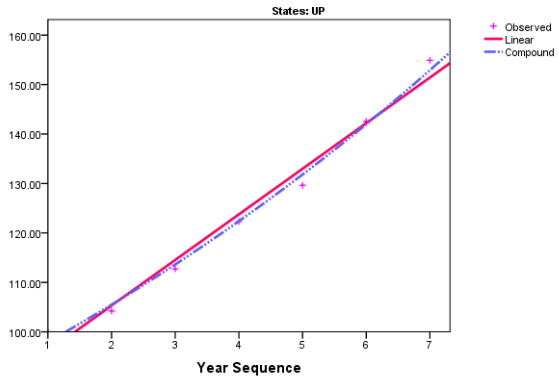
Secondary sector



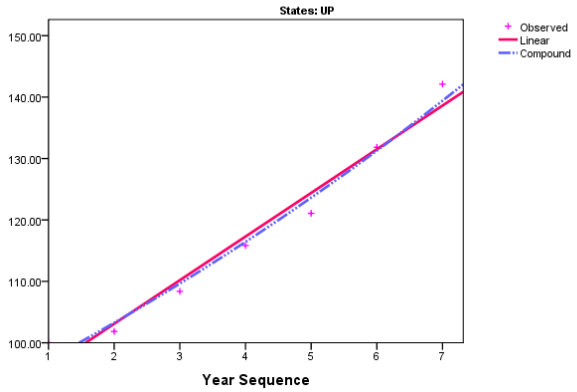
Tertiary sector



Total NSDP



Per capita income (In Rupees)

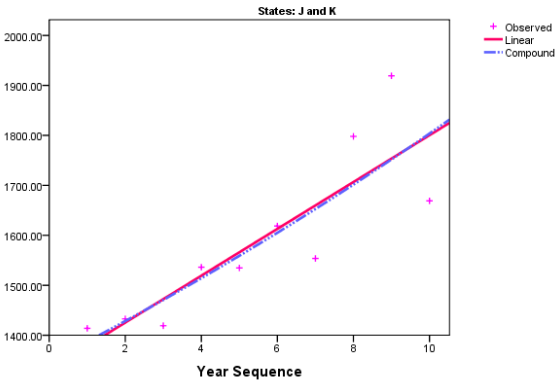


Y - axis depicts contribution of various sectors in 000 crores

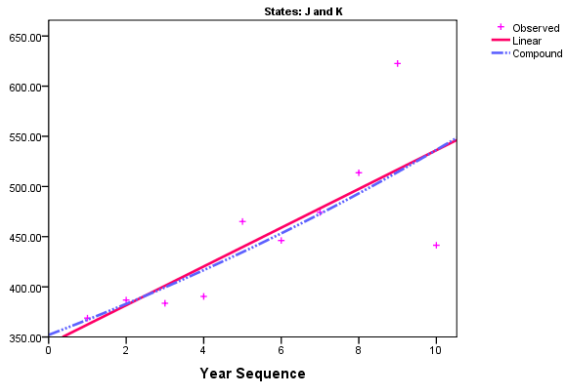
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1971-80 (State J&K)

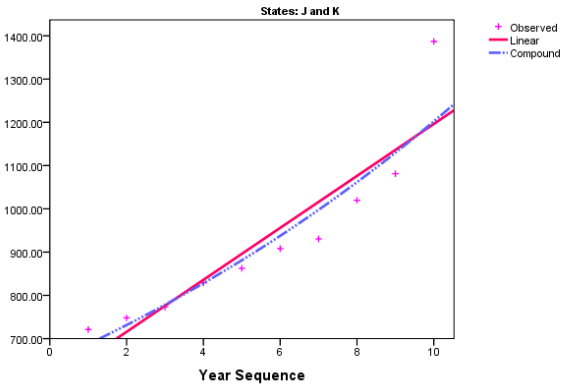
Primary sector



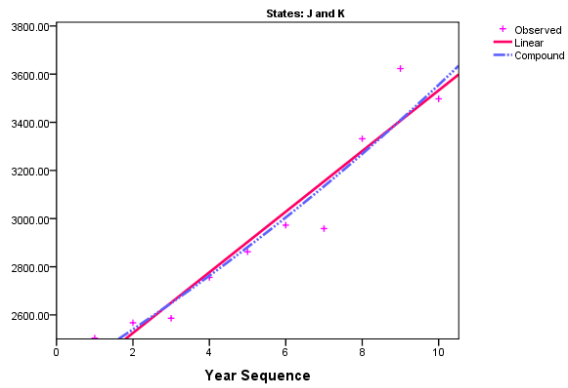
Secondary sector



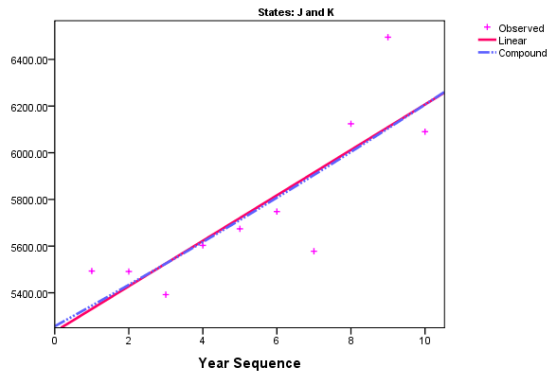
Tertiary sector



Total NSDP



Per capita income (In Rupees)

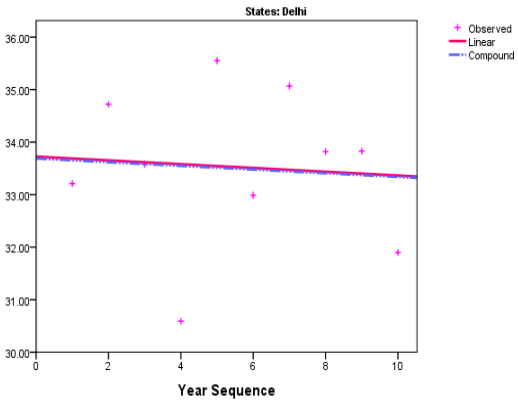


Y- axis depicts contribution of various sectors in 000 crores

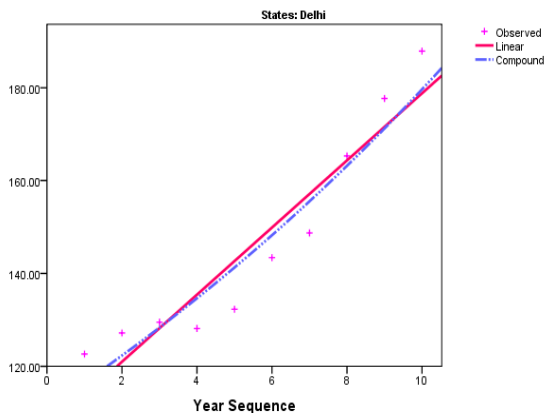
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1971-80 (State Delhi)

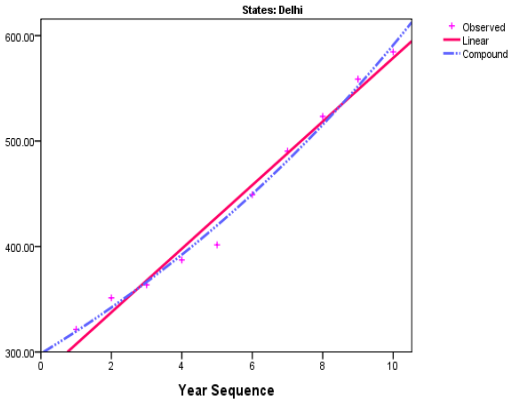
Primary sector



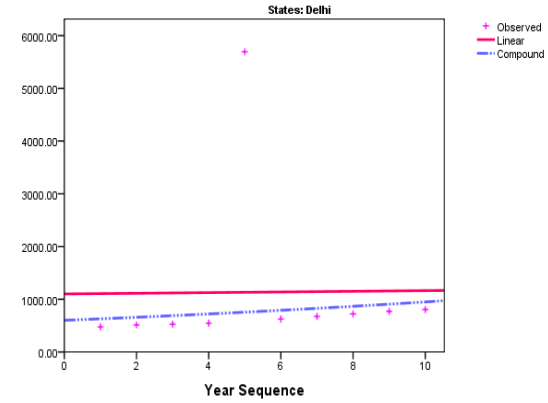
Secondary sector



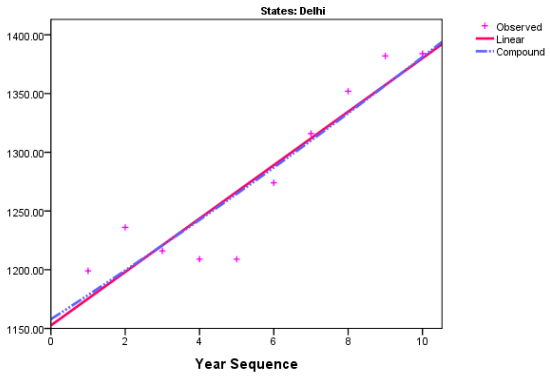
Tertiary sector



Total NSDP



Per capita income (In Rupees)

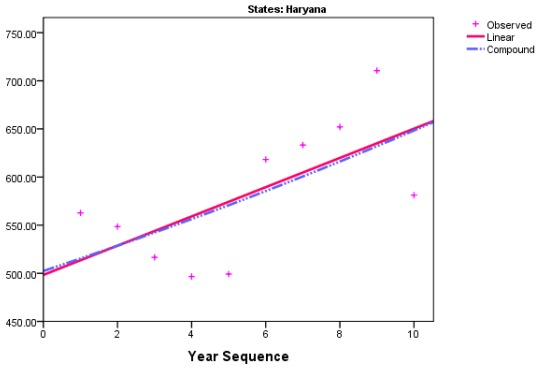


Y- axis depicts contribution of various sectors in 000 crores

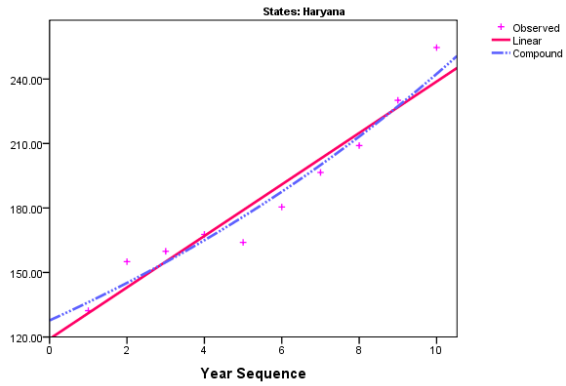
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1971-80 (State Haryana)

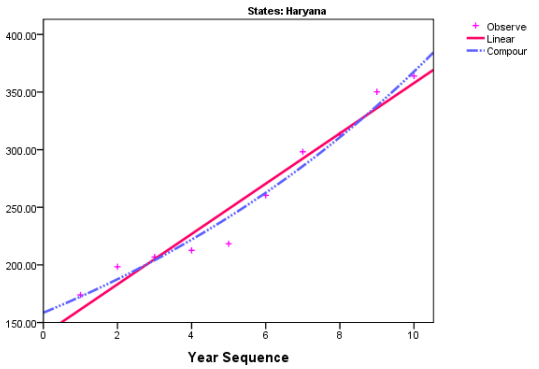
Primary sector



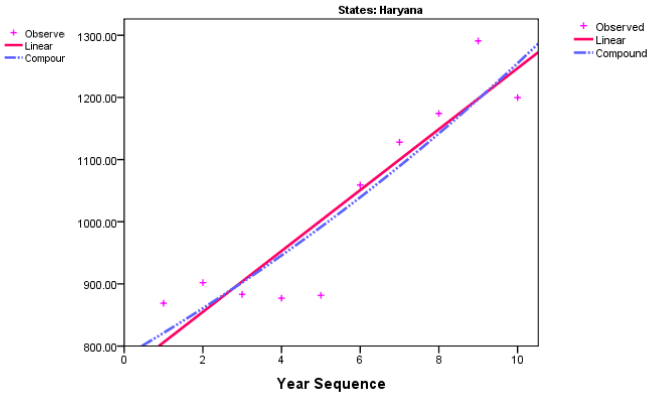
Secondary sector



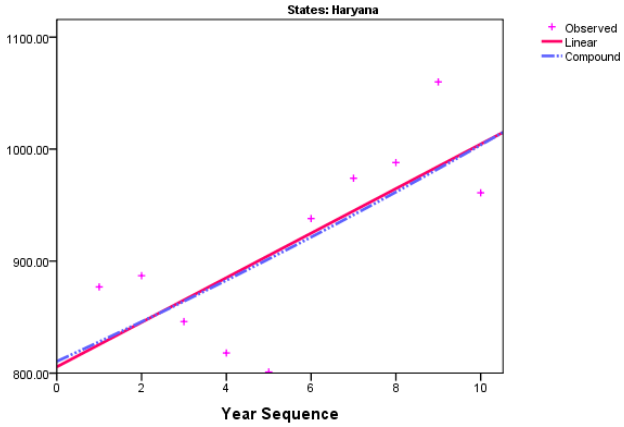
Tertiary sector



Total NSDP



Per capita income (In Rupees)

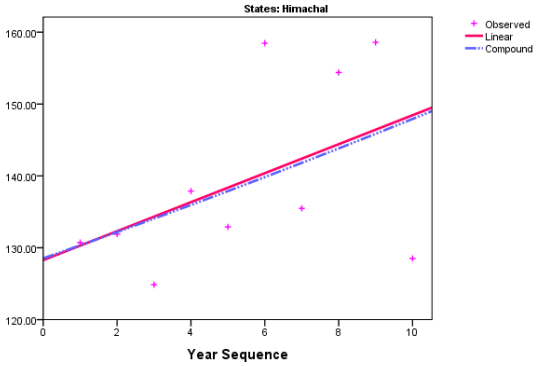


Y- axis depicts contribution of various sectors in 000 crores

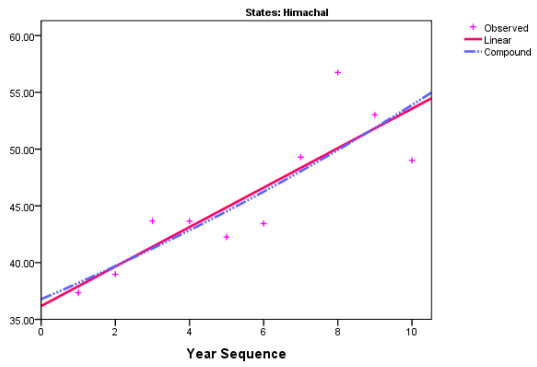
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1971-80 (State Himachal Pradesh)

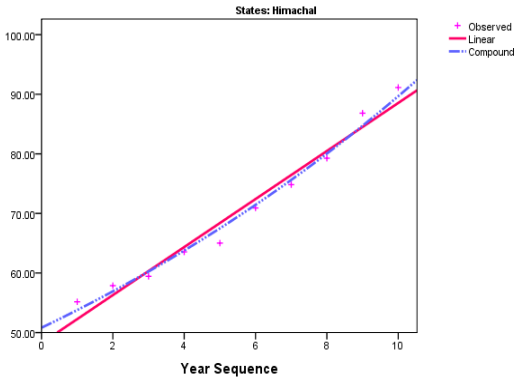
Primary sector



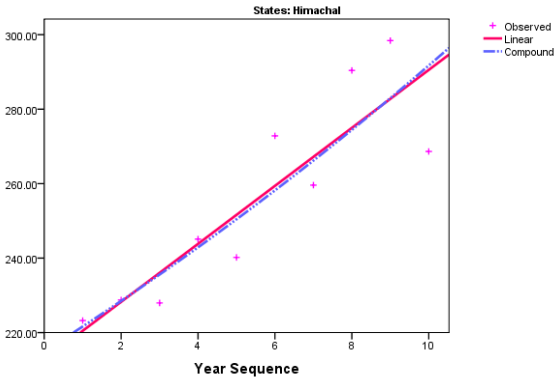
Secondary sector



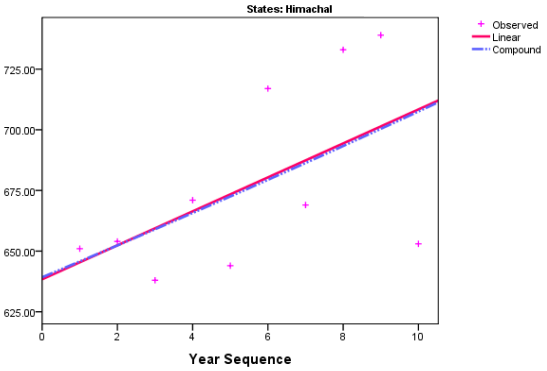
Tertiary sector



Total NSDP



Per capita income (In Rupees)

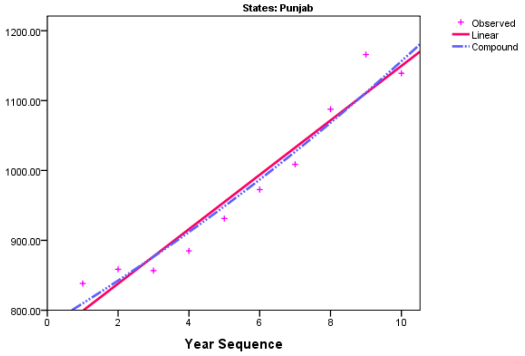


Y - axis depicts contribution of various sectors in 000 crores

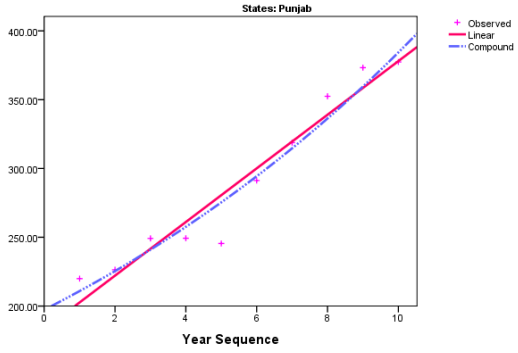
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1971-80 (State Punjab)

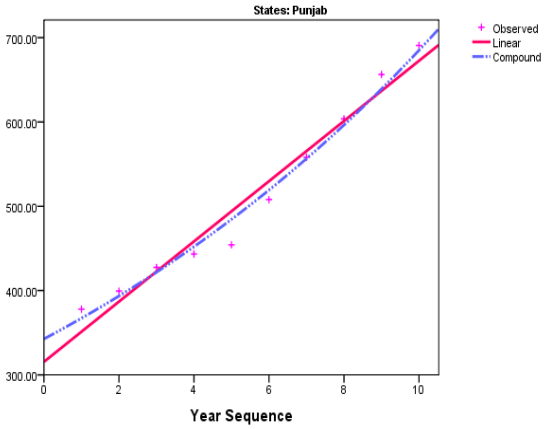
Primary sector



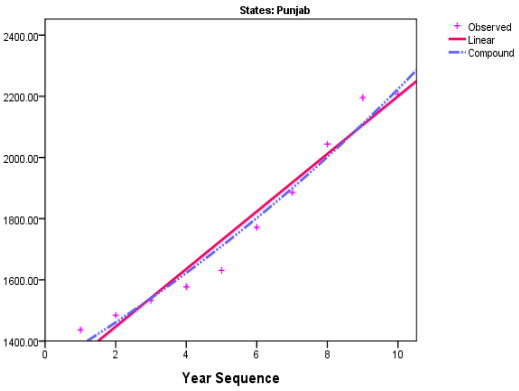
Secondary sector



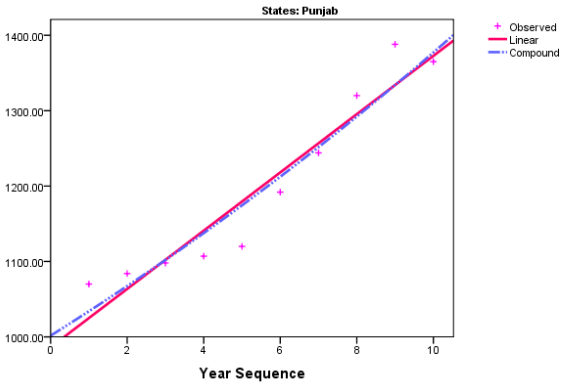
Tertiary sector



Total NSDP



Per capita income (In Rupees)

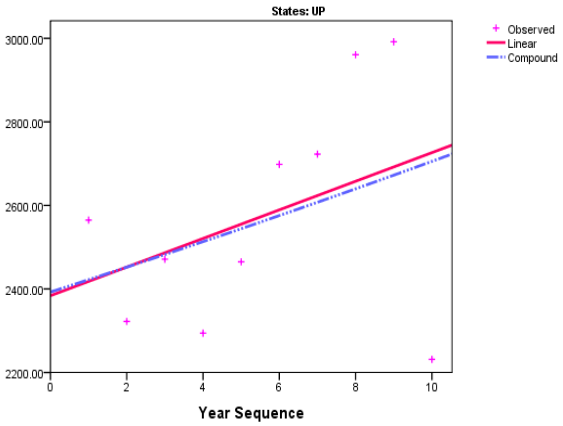


Y - axis depicts contribution of various sectors in 000 crores

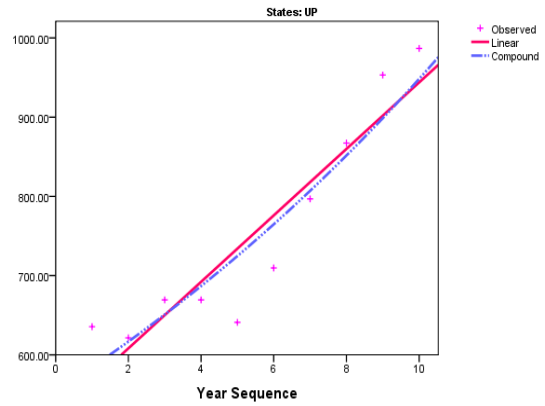
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1971-80 (State U.P)

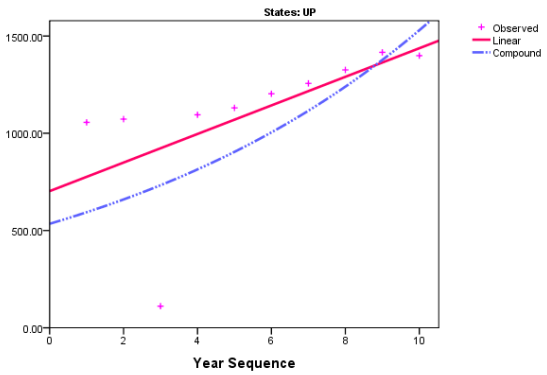
Primary sector



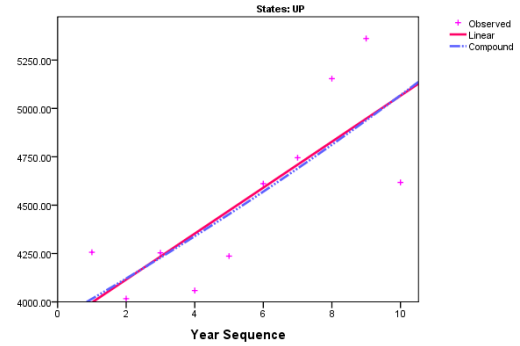
Secondary sector



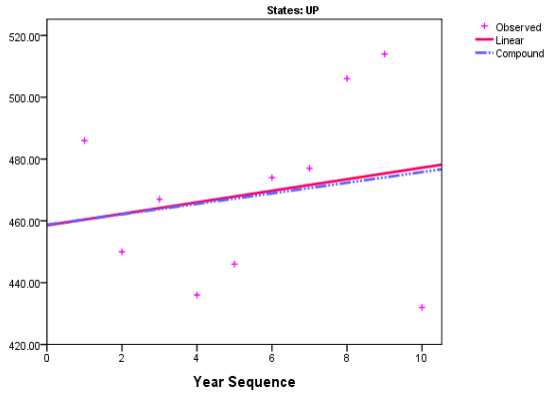
Tertiary sector



Total NSDP



Per capita income (In Rupees)

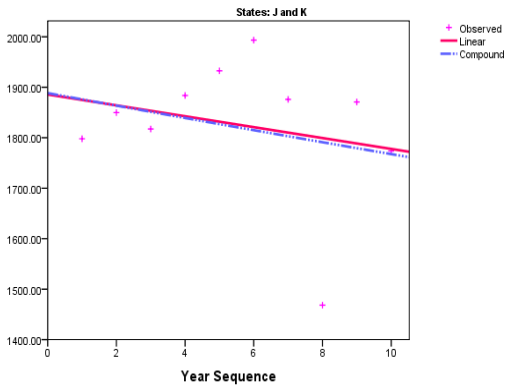


Y- axis depicts contribution of various sectors in 000 crores

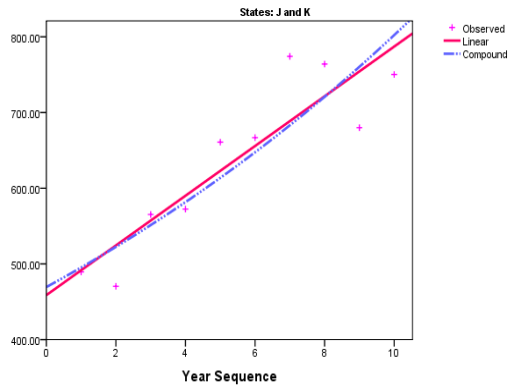
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1981-90 (State J&K)

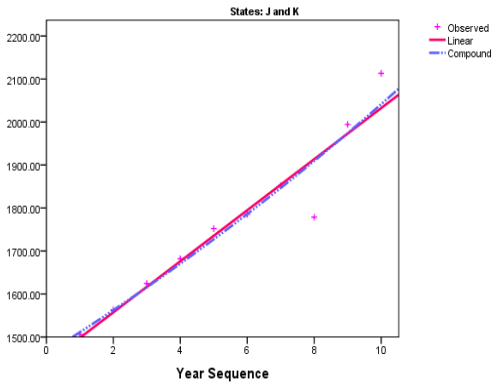
Primary sector



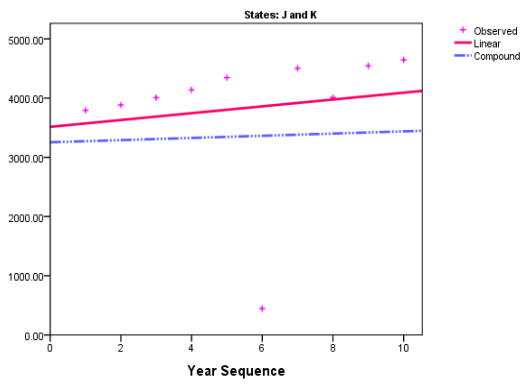
Secondary sector



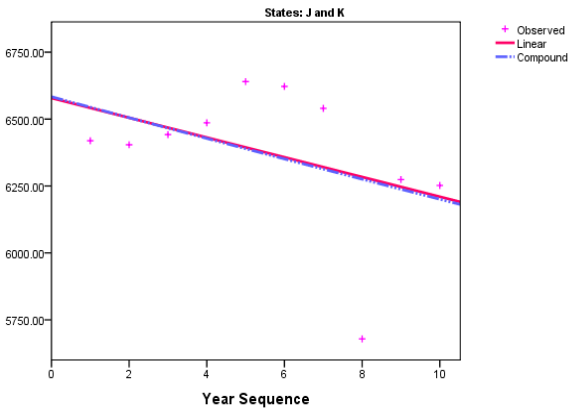
Tertiary sector



Total NSDP



Per capita income (In Rupees)

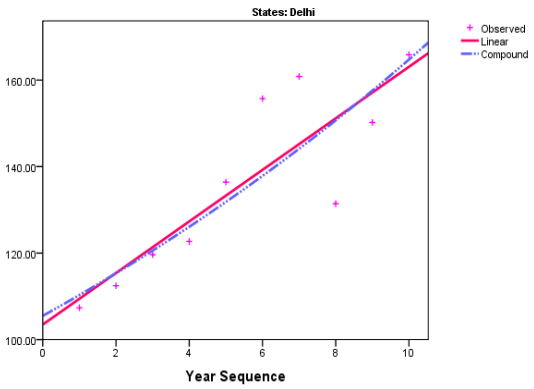


Y - axis depicts contribution of various sectors in 000 crores

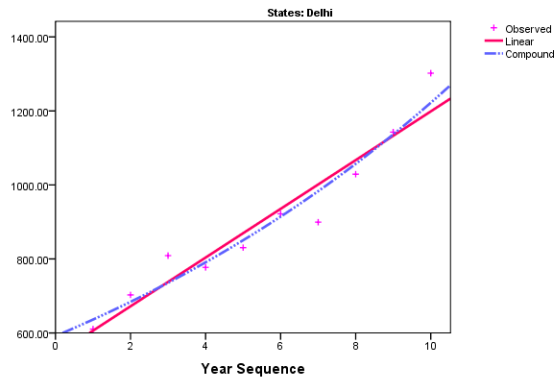
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1981-90 (State Delhi)

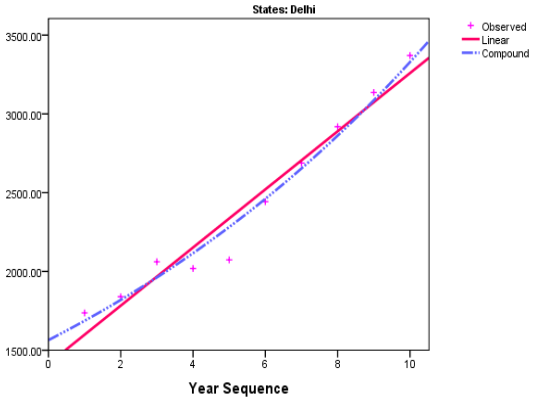
Primary sector



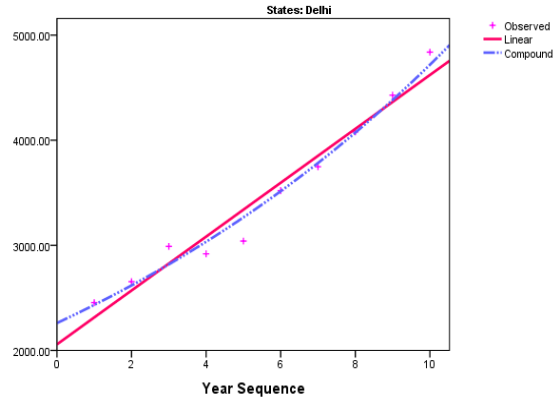
Secondary sector



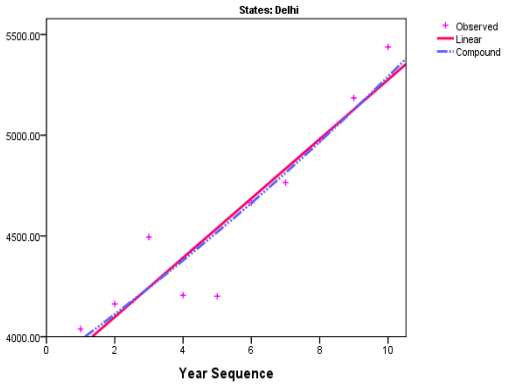
Tertiary sector



Total NSDP



Per capita income (In Rupees)

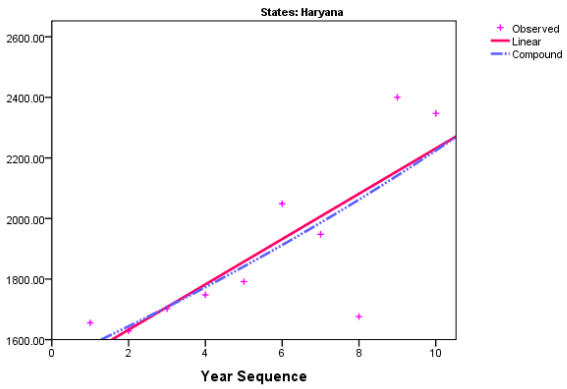


Y - axis depicts contribution of various sectors in 000 crores

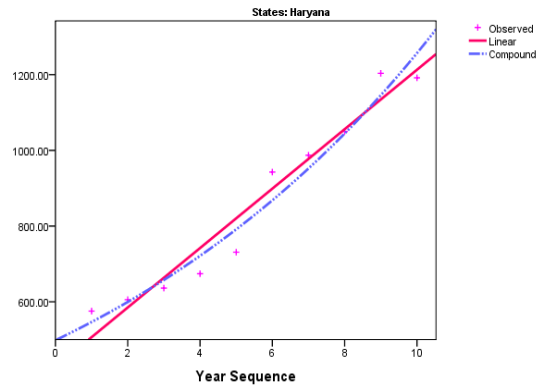
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1981-90 (State Haryana)

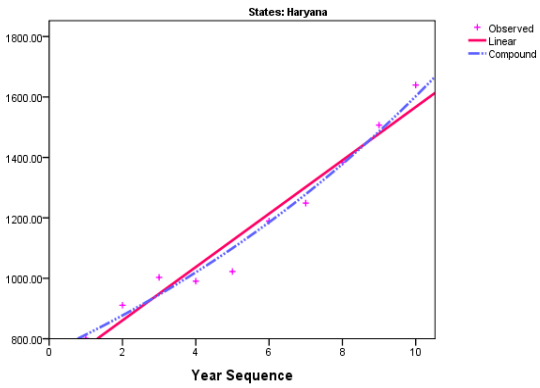
Primary sector



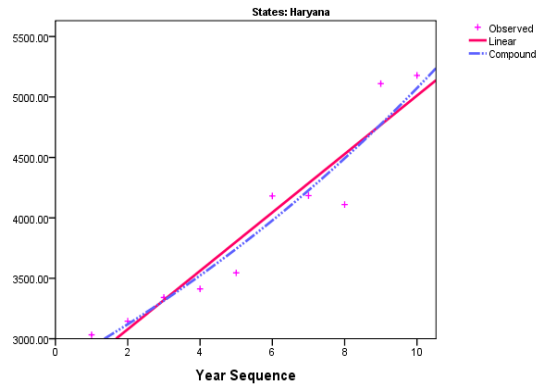
Secondary sector



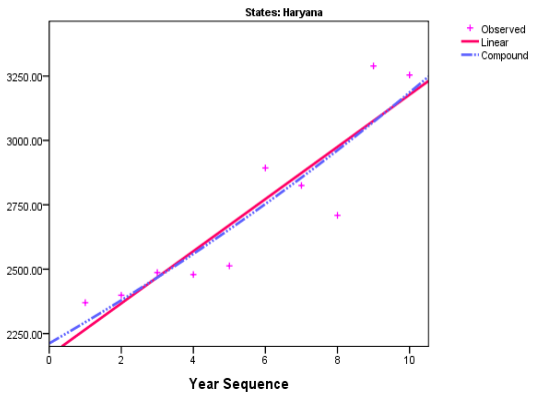
Tertiary sector



Total NSDP



Per capita income (In Rupees)

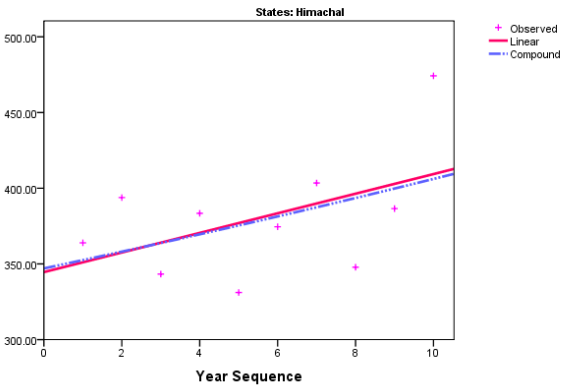


Y- axis depicts contribution of various sectors in 000 crores

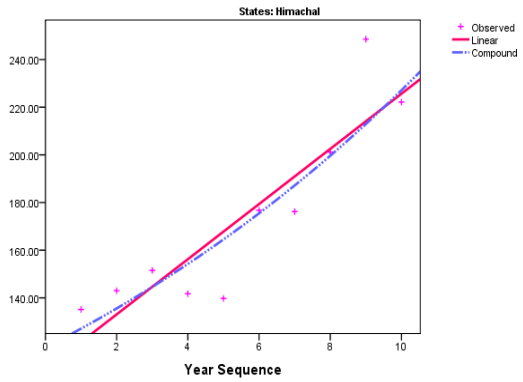
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1981-90 (State Himachal Pradesh)

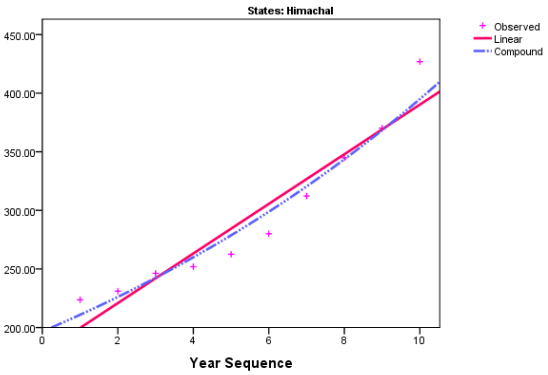
Primary sector



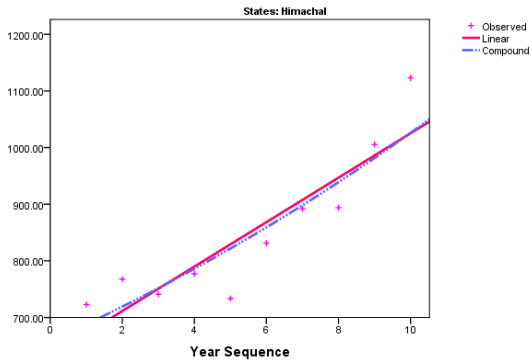
Secondary sector



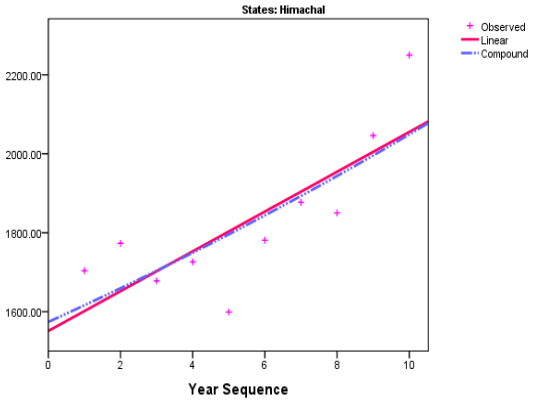
Tertiary sector



Total NSDP



Per capita income (In Rupees)

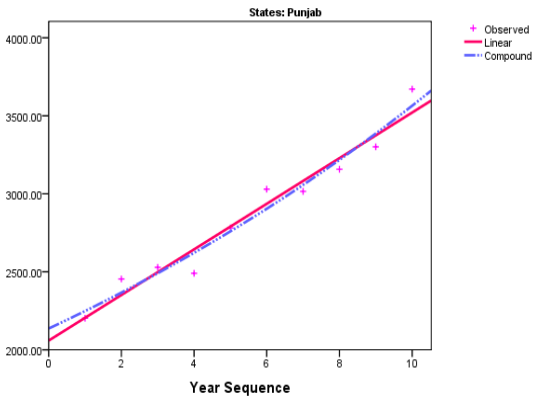


Y- axis depicts contribution of various sectors in 000 crores

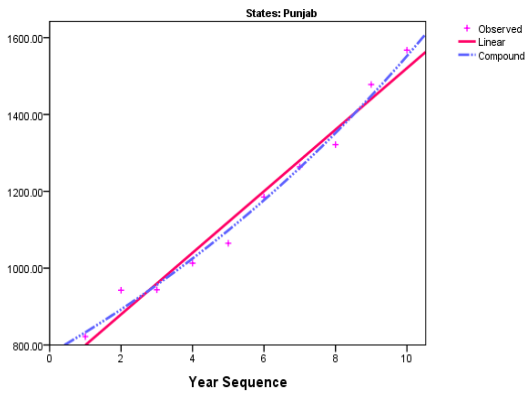
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1981-90 (State Punjab)

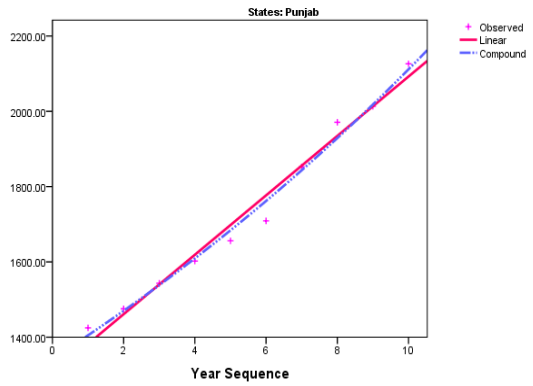
Primary sector



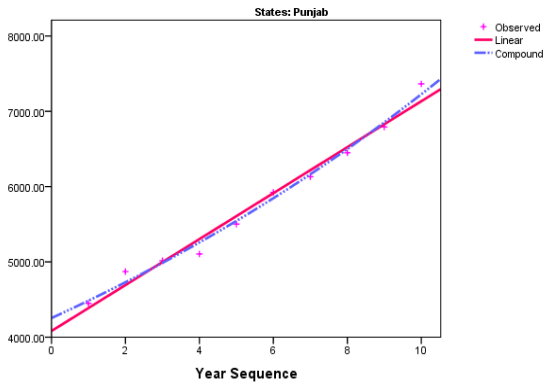
Secondary sector



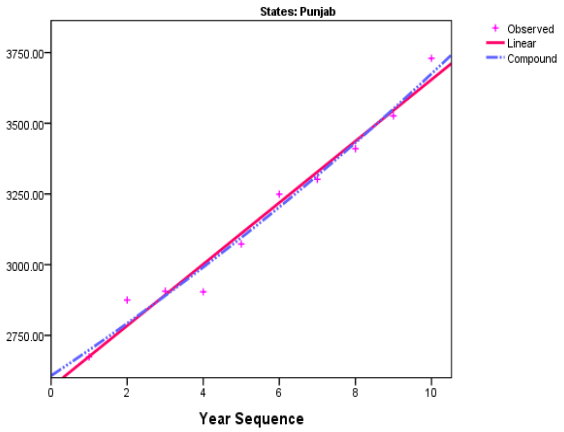
Tertiary sector



Total NSDP



Per capita income (In Rupees)

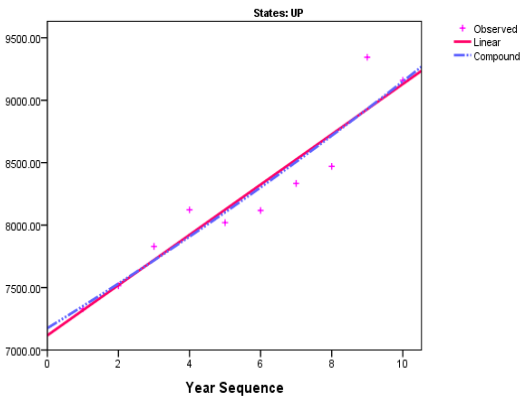


Y - axis depicts contribution of various sectors in 000 crores

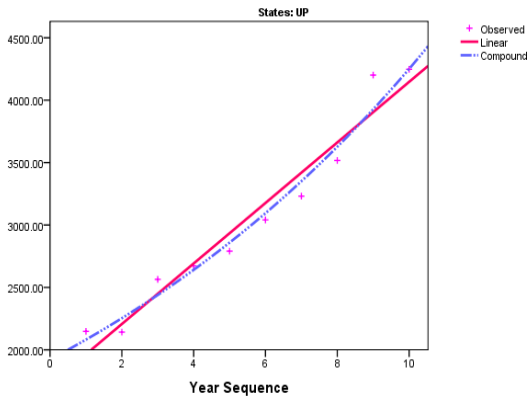
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1981-90 (State U.P)

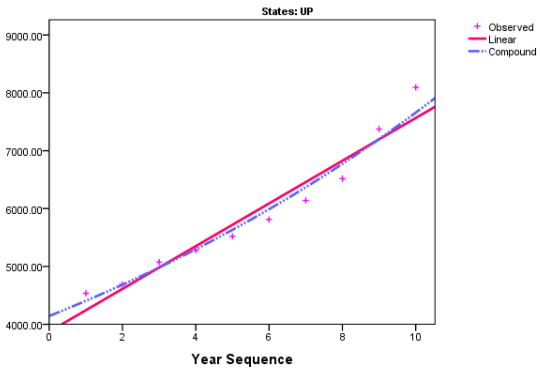
Primary sector



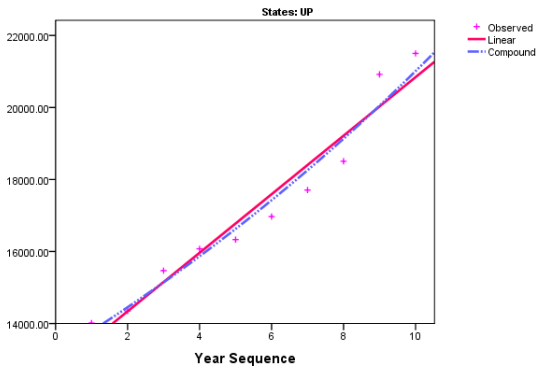
Secondary sector



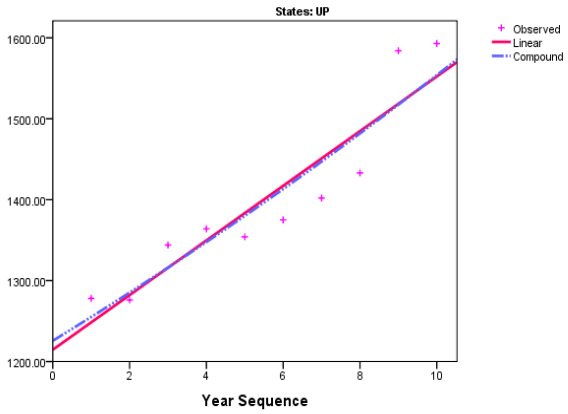
Tertiary sector



Total NSDP



Per capita income (In Rupees)

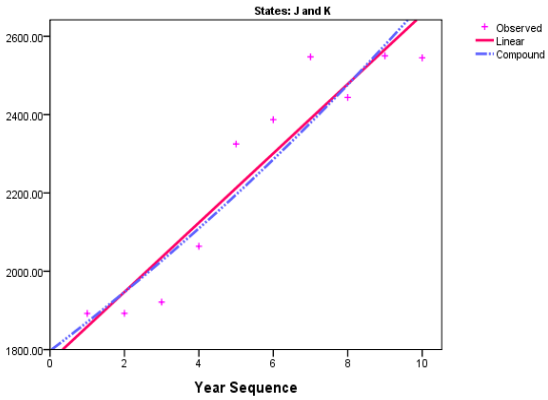


Y - axis depicts contribution of various sectors in 000 crores

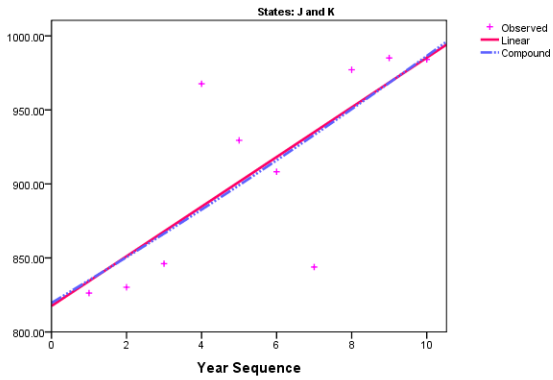
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1991-00 (State J&K)

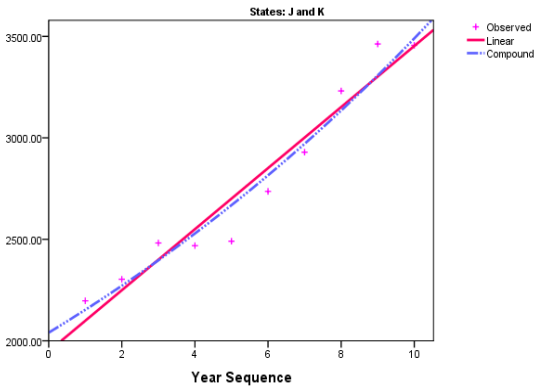
Primary sector



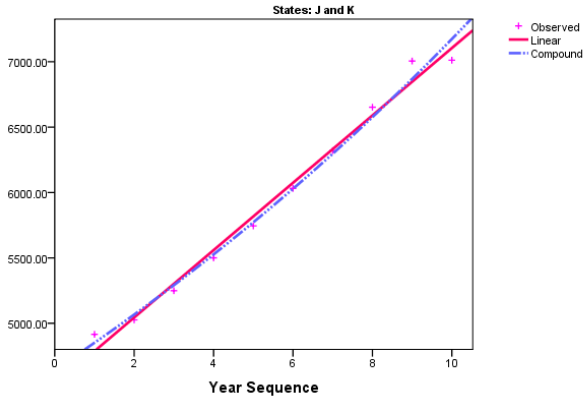
Secondary sector



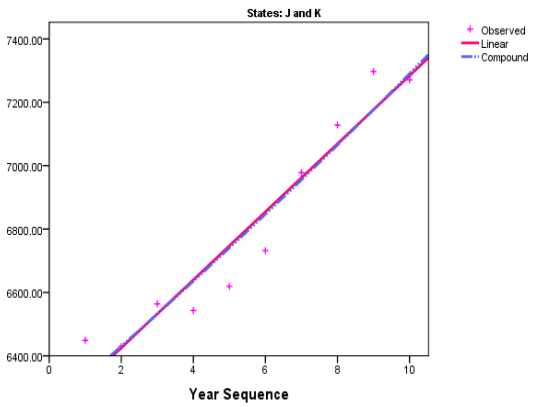
Tertiary sector



Total NSDP



Per capita income (In Rupees)

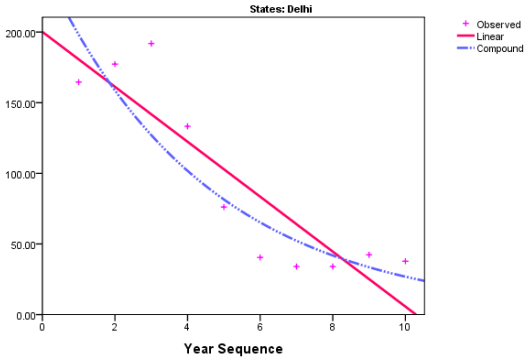


Y - axis depicts contribution of various sectors in 000 crores

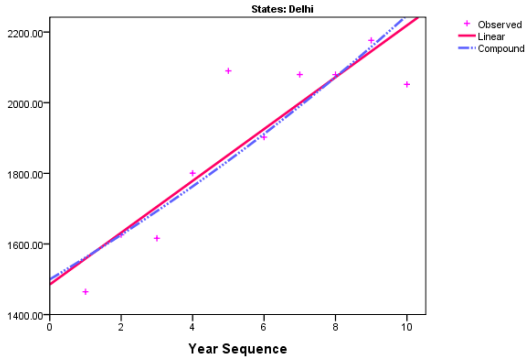
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1991-00 (State Delhi)

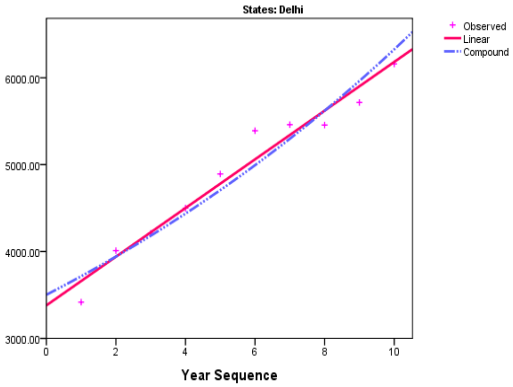
Primary sector



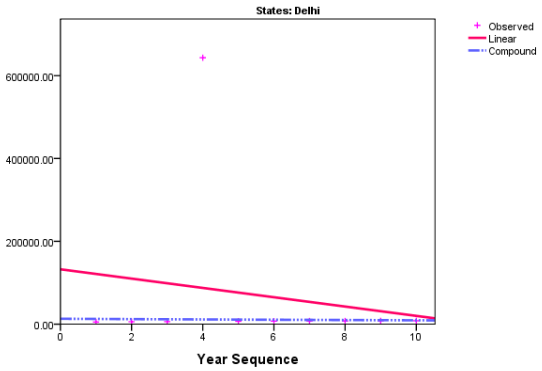
Secondary sector



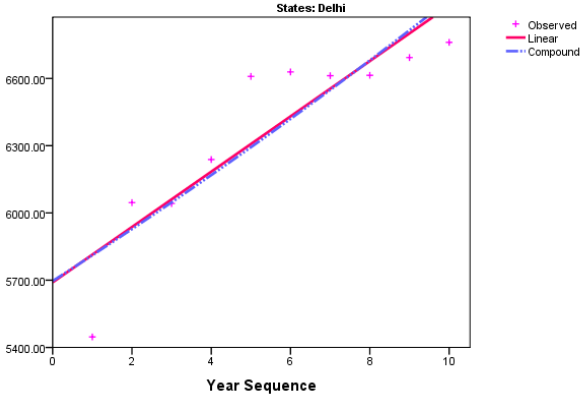
Tertiary sector



Total NSDP



Per capita income (In Rupees)

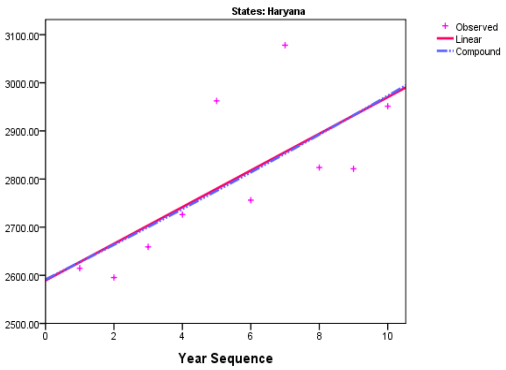


Y- axis depicts contribution of various sectors in 000 crores

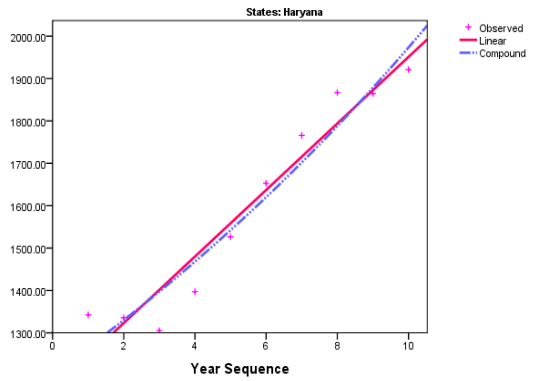
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1991-00 (State Haryana)

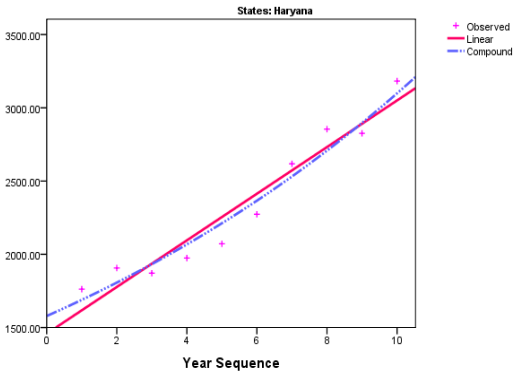
Primary sector



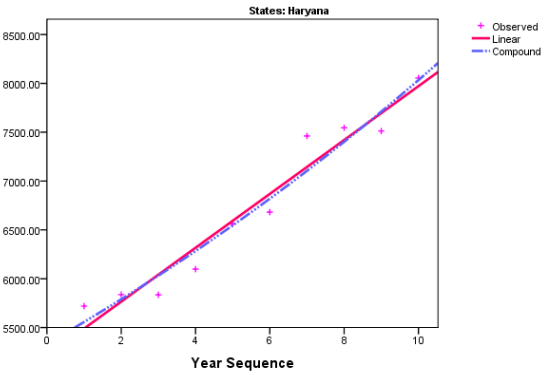
Secondary sector



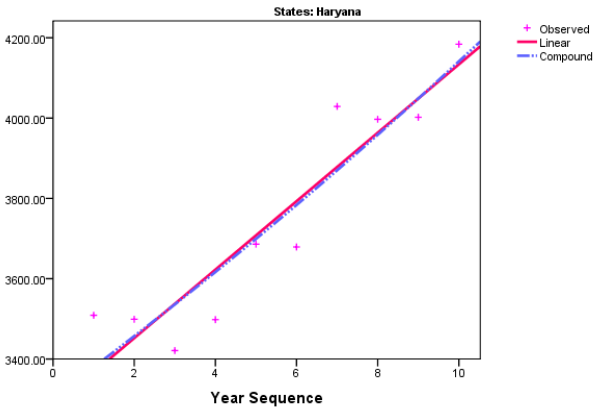
Tertiary sector



Total NSDP



Per capita income (In Rupees)

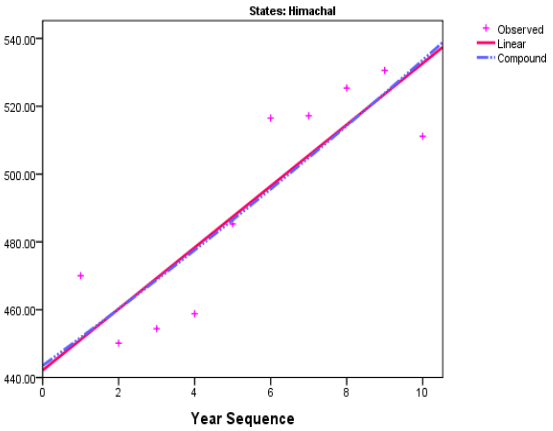


Y- axis depicts contribution of various sectors in 000 crores

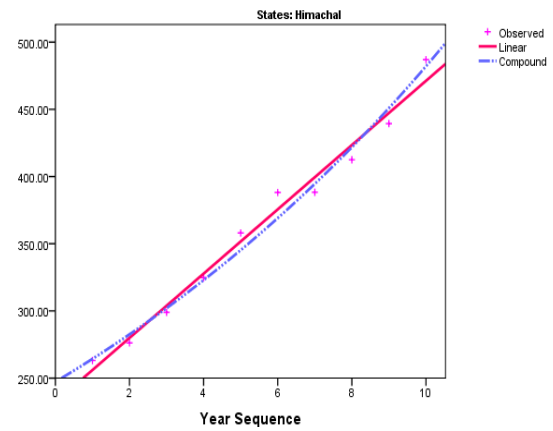
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1991-00 (State Himachal Pradesh)

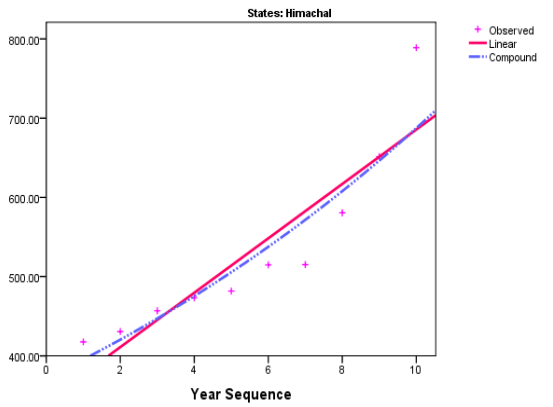
Primary sector



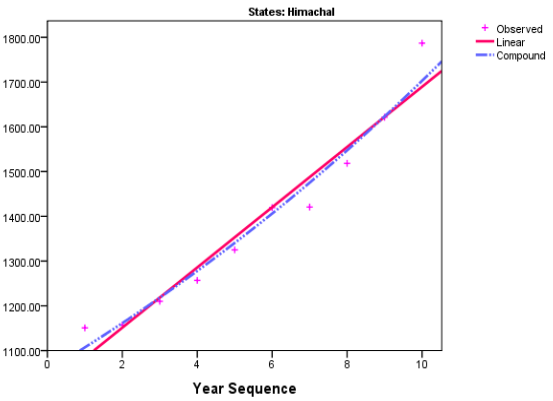
Secondary sector



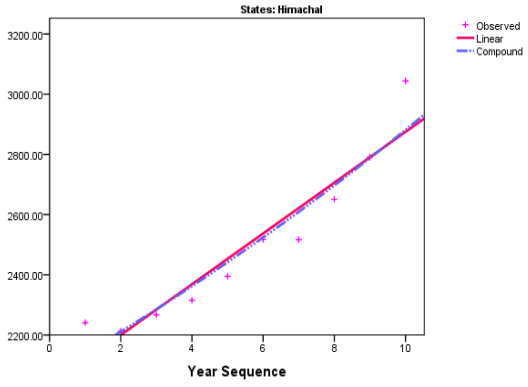
Tertiary sector



Total NSDP



Per capita income (In Rupees)

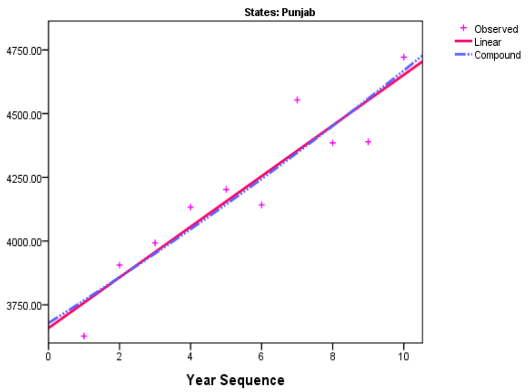


Y- axis depicts contribution of various sectors in 000 crores

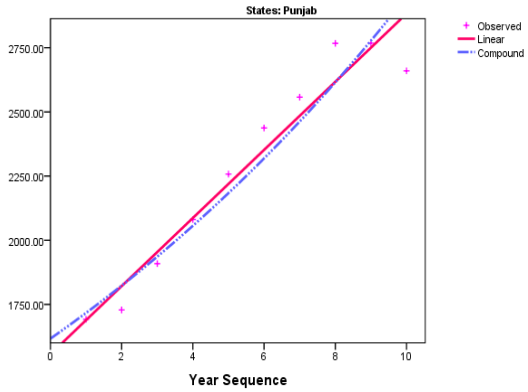
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1991-00 (State Punjab)

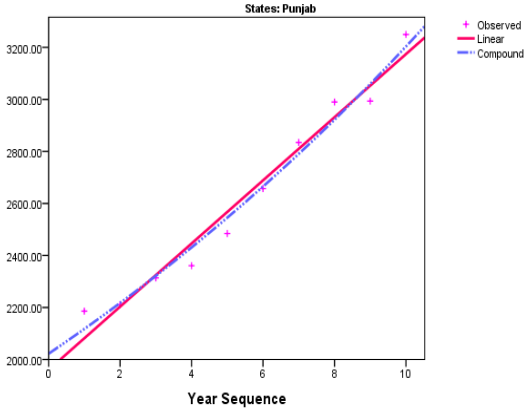
Primary sector



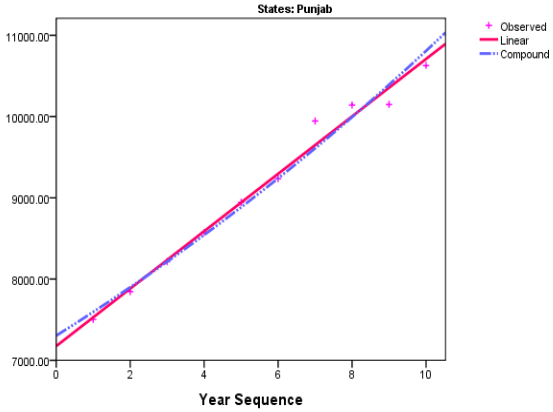
Secondary sector



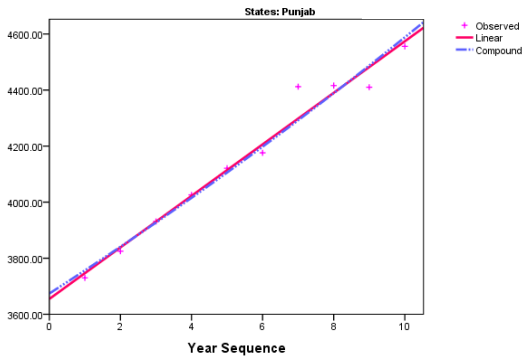
Tertiary sector



Total NSDP



Per capita income (In Rupees)

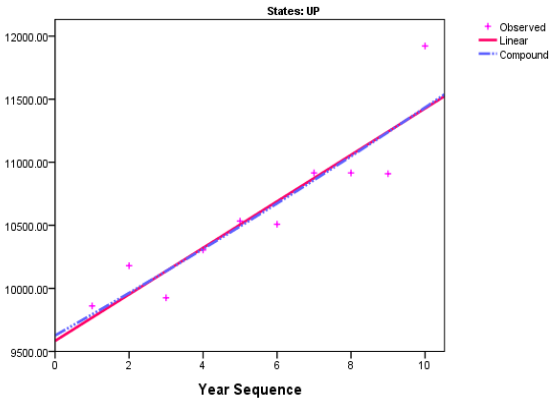


Y- axis depicts contribution of various sectors in 000 crores

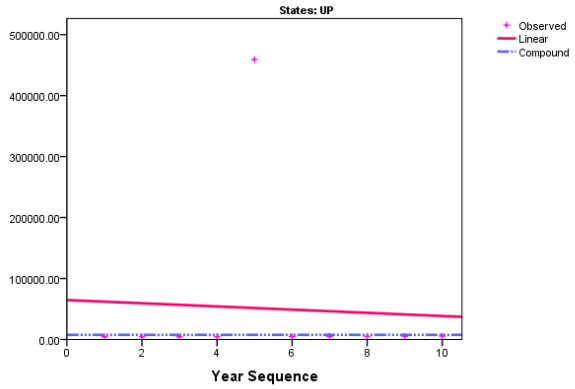
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 1991-00 (State U.P)

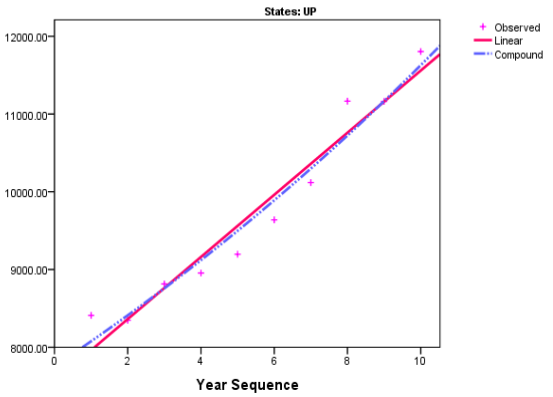
Primary sector



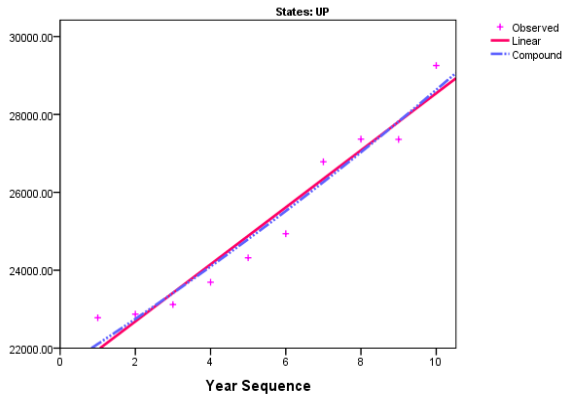
Secondary sector



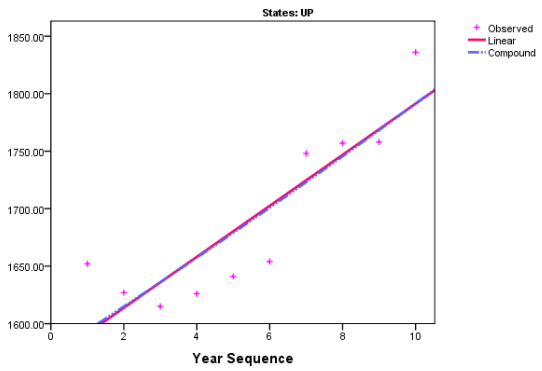
Tertiary sector



Total NSDP



Per capita income (In Rupees)

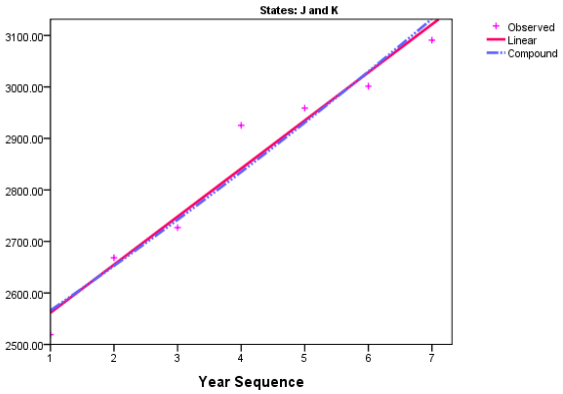


Y - axis depicts contribution of various sectors in 000 crores

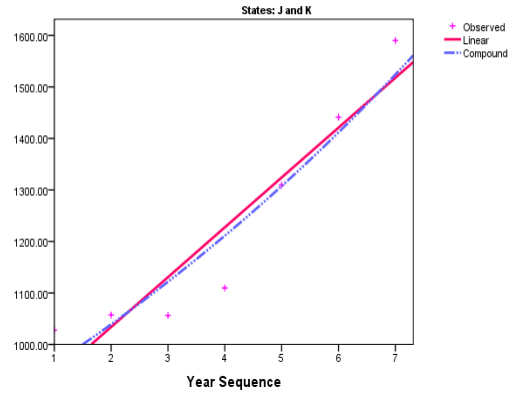
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 2001-07 (State J&K)

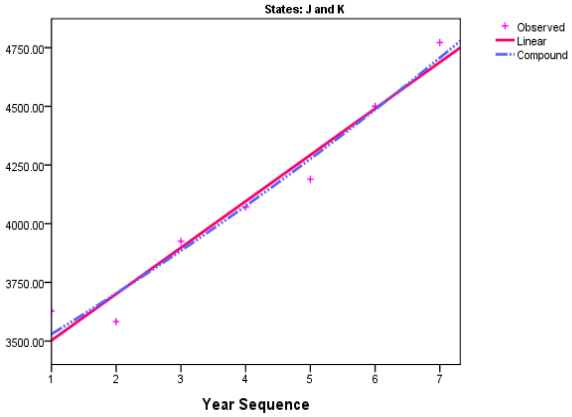
Primary sector



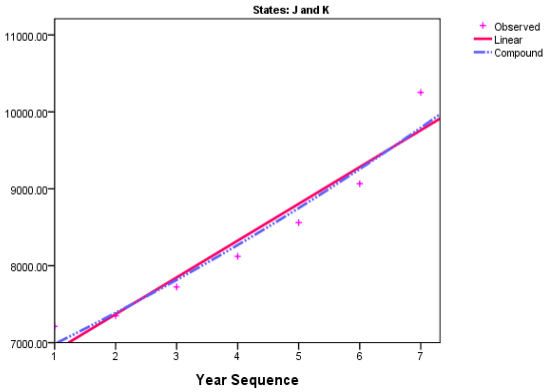
Secondary sector



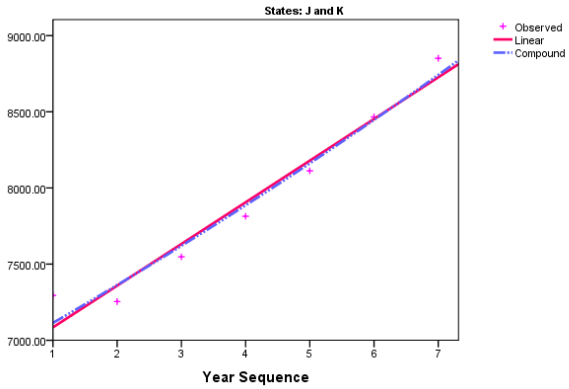
Tertiary sector



Total NSDP



Per capita income (In Rupees)

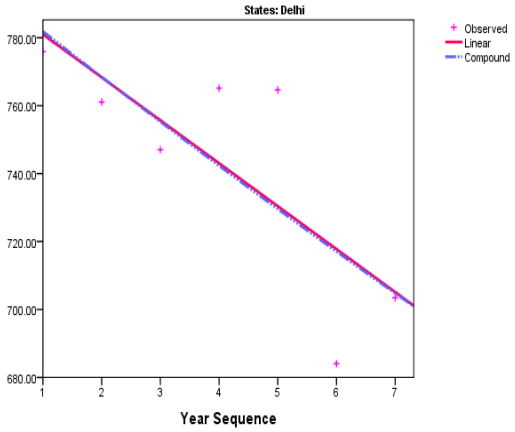


Y - axis depicts contribution of various sectors in 000 crores

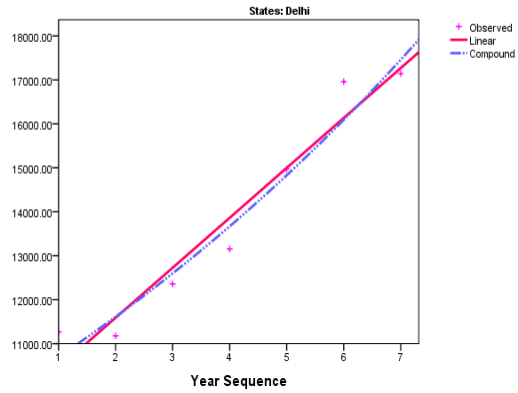
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 2001-07 (State Delhi)

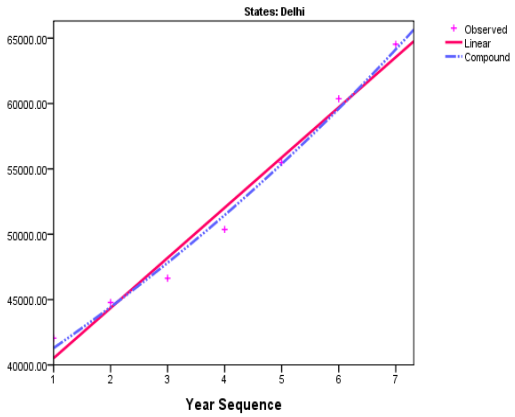
Primary sector



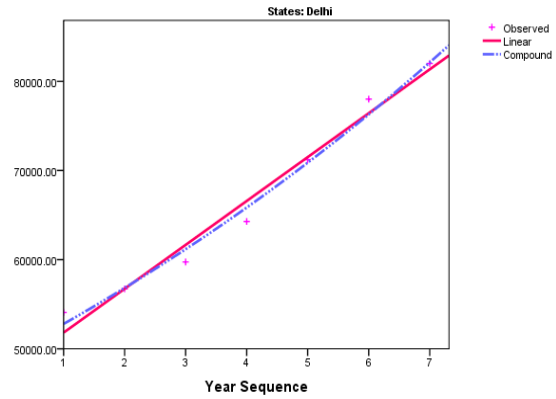
Secondary sector



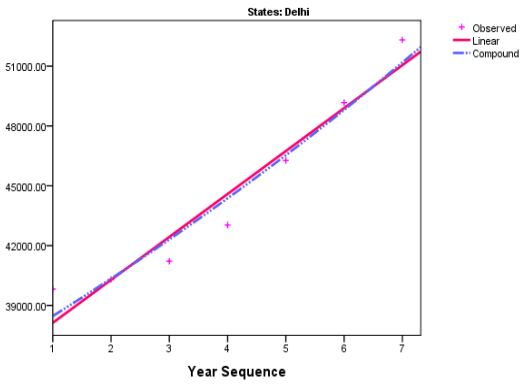
Tertiary sector



Total NSDP



Per capita income (In Rupees)

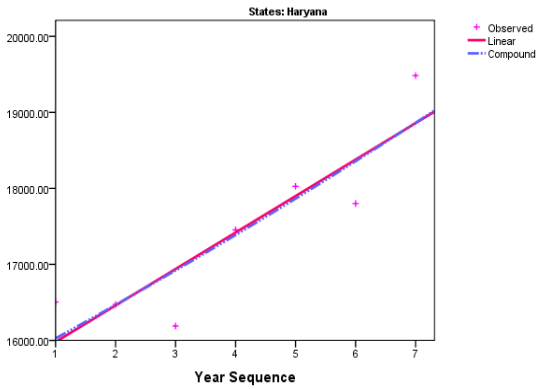


Y- axis depicts contribution of various sectors in 000 crores

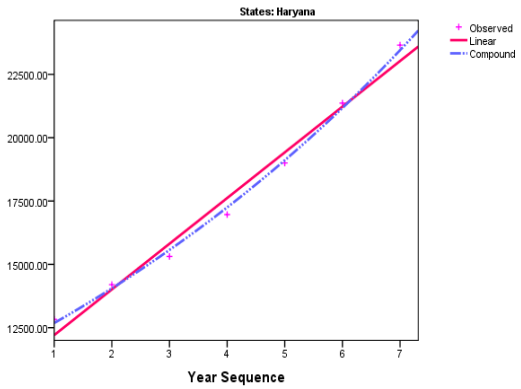
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 2001-07 (State Haryana)

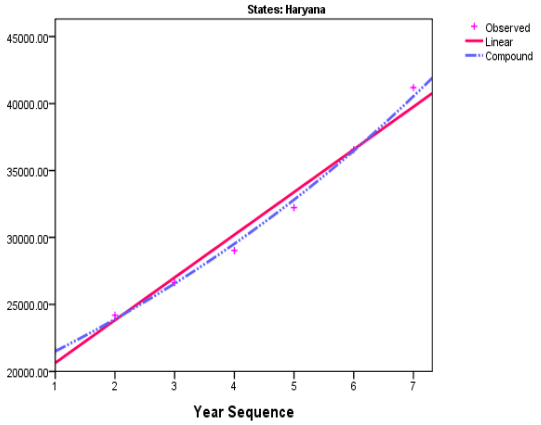
Primary sector



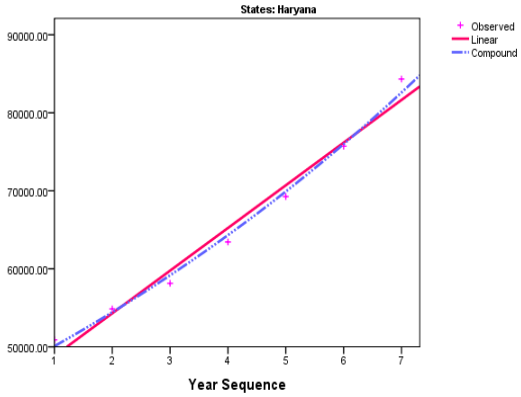
Secondary sector



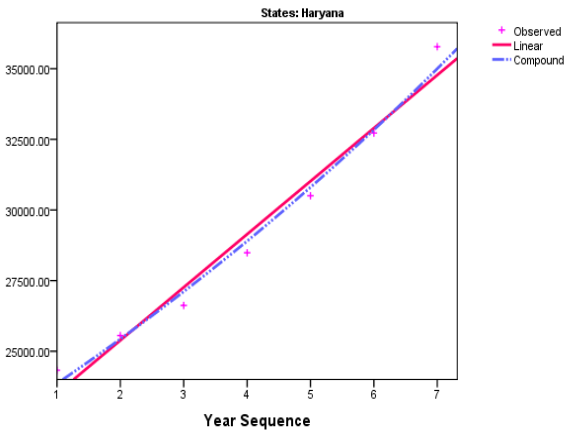
Tertiary sector



Total NSDP



Per capita income (In Rupees)

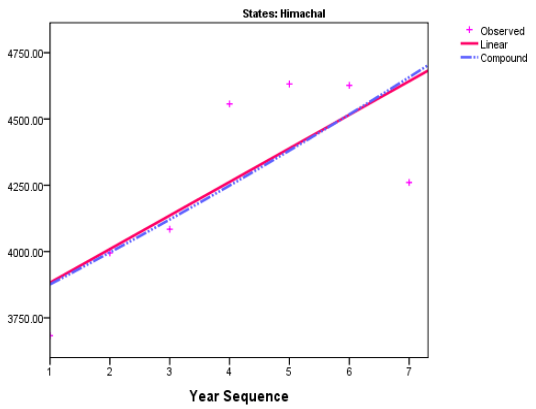


Y - axis depicts contribution of various sectors in 000 crores

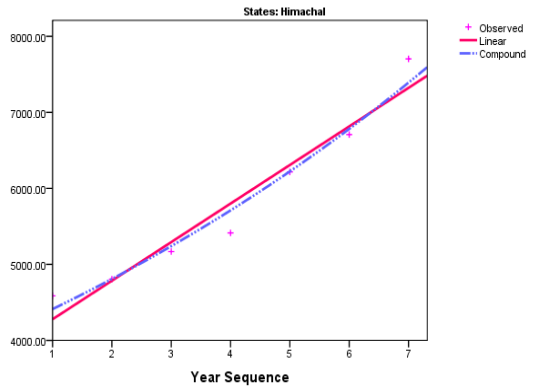
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 2001-07 (State Himachal Pradesh)

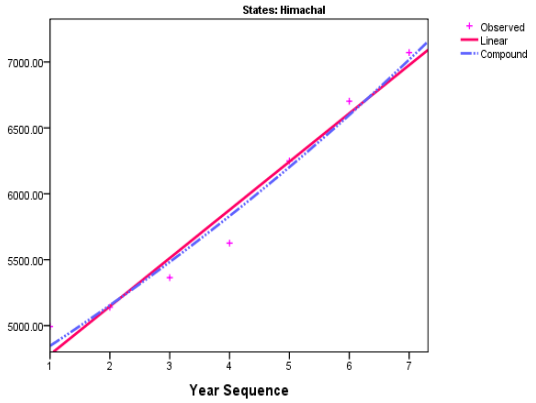
Primary sector



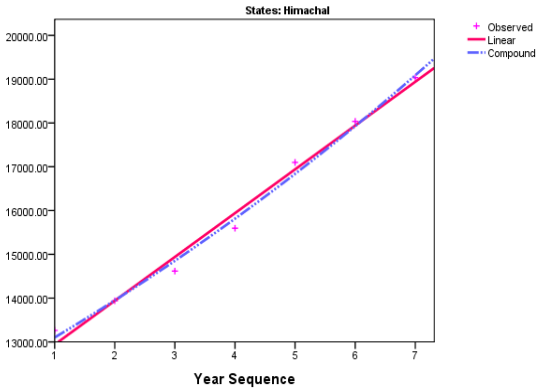
Secondary sector



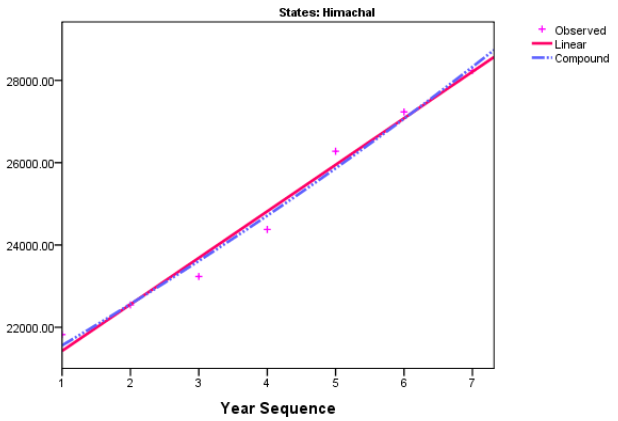
Tertiary sector



Total NSDP



Per capita income (In Rupees)

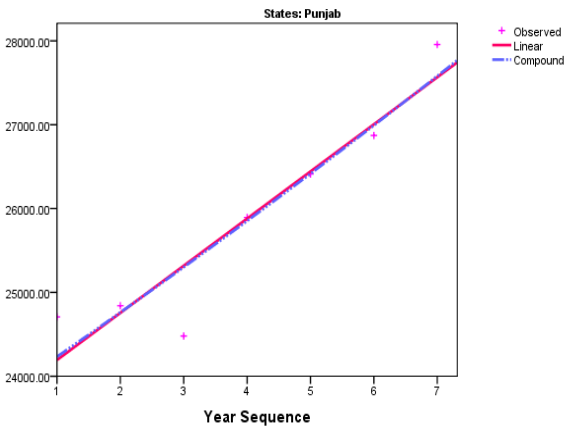


Y- axis depicts contribution of various sectors in 000 crores

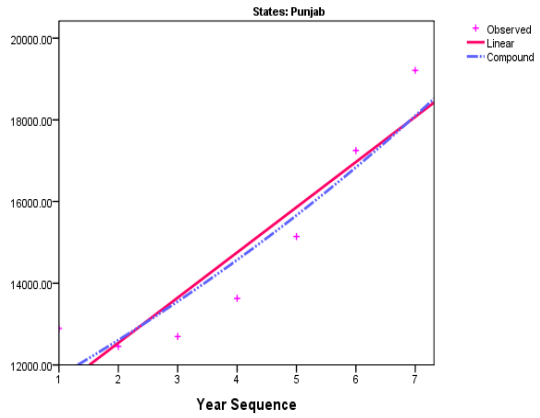
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 2001-07 (State Punjab)

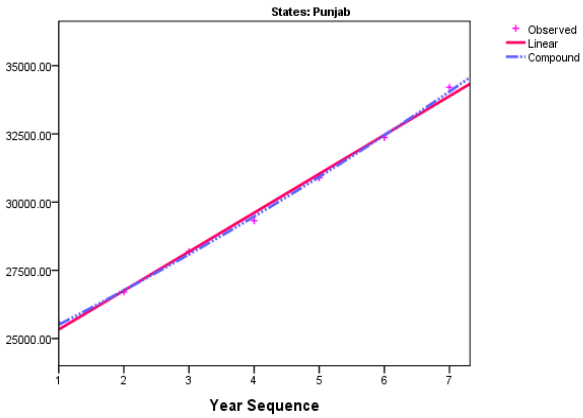
Primary sector



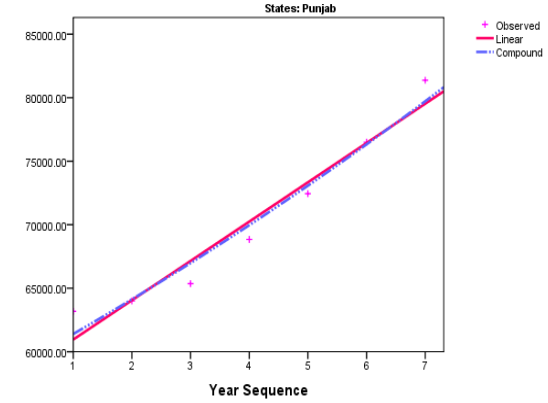
Secondary sector



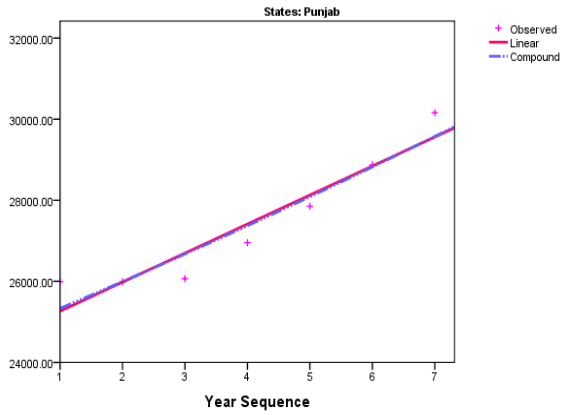
Tertiary sector



Total NSDP



Per capita income (In Rupees)

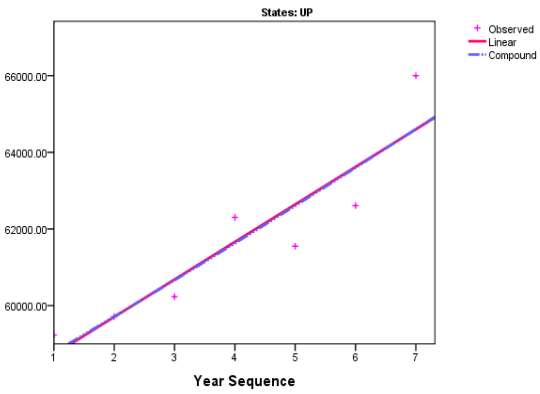


Y- axis depicts contribution of various sectors in 000 crores

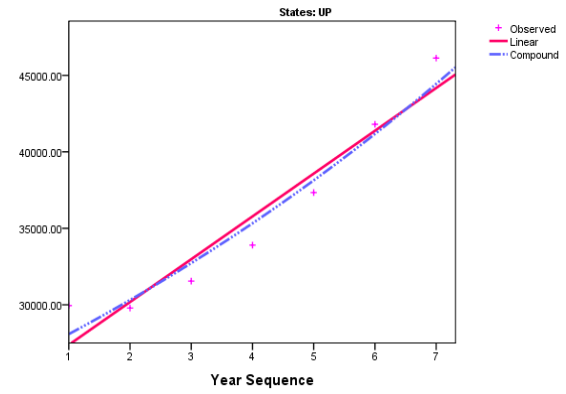
Linear and Compound Growth Trends at Constant prices (absolute basis)

Decade 2001-07 (State U.P)

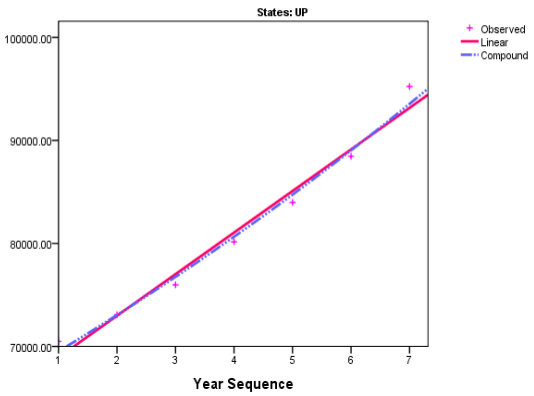
Primary sector



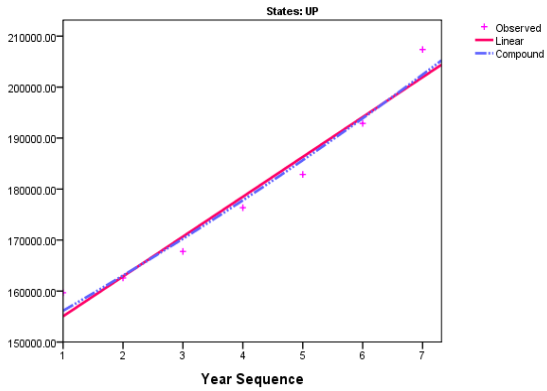
Secondary sector



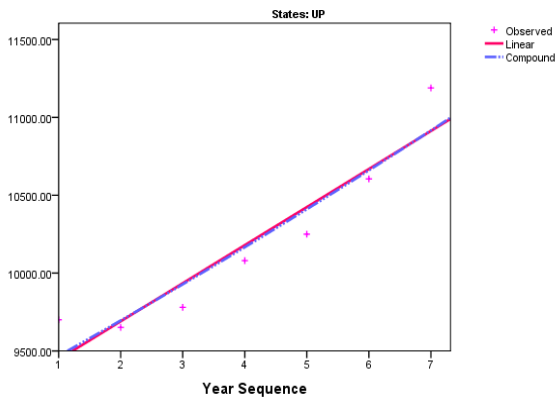
Tertiary sector



Total NSDP



Per capita income (In Rupees)



Y -axis depicts contribution of various sectors in 000 crores

Chapter-5

Summary and Conclusion

Almost all the states of India have experienced structural transformation during the plan period and J&K economy is no exception. J&K economy despite facing various obstacles to development process compares favorably with other states of India with regard to structural transformation which is difficult to sustain.

The State of J&K has not even become self sufficient in the production of agricultural commodities both cereals and non cereals. A large chunk of such commodities are imported from the neighboring states to meet the basic requirements thus making the state an import oriented state. Excessive dependence on agriculture and allied activities and disproportionate growth of services sector have made the economy dependent on imports of both food and non-food items. The scope of exports from the state has remained narrow and is confined to a few items like handicrafts, dry fruits and fresh fruits etc.

The most disturbing aspect has been decline in the productivity of major production crop of Kashmir region in recent years. The reason being small land holding and shrinkage of cultivable land due to unchecked construction and transformation of agricultural land into orchards. On the industrial front J&K has not been able to attract investments in industries and hence has remained backward. Although the number of Small Sale Industries Sector in the state has gone up, there are cases of sickness of units, some of them being non functional and missing.

The structural changes interms of industrial share in NSDP has considerably changed from around 8percent in 1960-61 to 30percent in 2009-10, however, while disaggregating the secondary sector, the share of manufacturing (registered & unregistered) sector still stands around 8percent while as the construction industry about 22percent. Such a

structural transformation is bound to accentuate the leverage effect, hence reduces the growth of economy. However the potential resources of the State are enormous, hitherto unexploited and need to be investigated and addressed while framing policies.

The available literature on the subject deals with various challenges that different economies and regions face in the process of development. The present investigation is carried out to examine the structural changes in the state economy and bottle necks in harnessing its potential. The study further investigates the role of linkage-effect built-in the structural transformation which, unless effective state intervention, may lead the state to emerge a parasite economy with mass-unemployment, stagnation in capacity building and shrinkage of investment opportunities.

The feudal agrarian structure that the state inherited resulted in the development of landed aristrocracy, absentee landlordism, concentration of land among few and alienation of land from small and petty owners to bigger landlords and increasing expropriation of the share of peasantry. The state government after 1947 initiated various land reform measures which aimed at tenurial- security and transfer of ownership of land to the actual tillers. These reforms were initiated in a phased manner and stabilized the position of the tenants and improved the incentive structure in agriculture.

These reforms reduced rural poverty but could not ensure self – sustained growth of agriculture because of a combination of political and economic factors. The architects of reforms were arrested in 1953 as a consequence of which complementary measures that ensure success level upon measures could not be taken. In 1975 when a new dose of land reforms was introduced, the purpose was to ban creation of all kinds of tenancies. But the level of enthusiasm that was present in 1951

was totally absent in 1975 as lot of water had flown through the rivers of Kashmir from 1953 to 1975.

The second most important change in state agriculture was that of technology -adoption. Till 1965-66, traditional and conservative agricultural practices were followed. After 1966 the farmers adopted new agricultural improved practices by using high yielding varieties of seeds (HYV) but limited to certain areas and some crops only as a humble beginning. Main features of this technology was adoption of improved and high yielding varieties which was facilitated by better irrigation facilities. The benefits of technological changes accrued to only such areas and crops which enjoyed irrigation facilities and its impact on hilly agriculture was very low. Thus the agricultural changes were area-specific and crop-specific. Within the agriculture sector some diversification however, is visible, despite the fact that the state is literally a monocrop economy mostly growing the cereal-crops and cropping pattern has not mostly changed over decades.

From past some decades Horticulture has become an indispensable and growing part of agriculture offering a wide range of choices to the farmers for crop diversification. It has a large scope for a good chunk of agro industries which generate substantial employment avenues with agriculture and allied sectors finding alternate ways of increasing productivity of crops, it has been observed that Horticulture as sub-sector is showing remarkable progress in the State.

Pertinent to mention that both temperate and sub tropical fruits are grown in our State, which include Apple, Walnut, Almonds, Pear, Apricot, Peach, Plum, Cherries, and Citrus, Mangoes and Gauva in small pockets. However, apple is the only fruit which carries a very high industrial potential.

Besides, medicinal and aromatic plants, floriculture, mushroom, plantation crops and a wide range of vegetables are cultivated in the state. In addition to this, Black Zeera and world famous Kashmiri Saffron are cultivated in some selected pockets of the state. Horticulture is flourishing in the state as is revealed by its contribution to the State Gross Domestic Product and with its relative share in the agriculture sector as well. Almost 45 percent of economic returns in agriculture sector is attributed to horticulture which indicates its growing importance in the economy of the state as it contributes around 7-8 percent to GSDP.

In the changing structure of Jammu and Kashmir economy, the relative share of agriculture in NSDP has substantially declined from 67.55percent in 1960-61 to 26.57percent in 2009-10 as has happened at All India level, and industrial sector share increased from 8.8percent in 1960-61 to 30.06percent in 2009-10. But when disaggregating the data of Jammu and Kashmir economy, the relative share of industry is accounted for by construction to a greater degree, i.e., by about 22percent and 8percent is accounted for by manufacturing sector and its ancillary. In comparison to other northern growing state, Jammu and Kashmir is contributing to greater dependence rather than the growth. Most of the construction material and goods and much of the labour in construction industry is imported, hence the growth if generated is in exporting states rather than in J&K and industrialization has occurred in exporting states rather in our state economy.

The state of Jammu and Kashmir was not having any significant industrial base at the time of Independence of the country. The industrial sector in the State was limited to a few cottage industries and one or two factories in small scale Sector. Infact, Handicraft Industry was occupying the main place in the industrial Sector and it still continues to be so. After handicrafts sector, it is Small Scale Industries (SSI), which

have provided plenty of job avenues. Small Scale Industries have contributed more than 28percent of the total employment generated in the industrial sector in the State. Industrial growth in the state is pronounced more towards small scale sector than other sectors. Small scale industries have registered maximum growth during the decade of 80's after that declining trend started. Similarly, SSI Units under Khadi and village industries and registered factories also started declining. The declining trend of different industrial sectors in the state during the decade of 90's is attributed to a great extent to the turmoil / un-favorable political conditions in the state which have crippled the Industrial Sector especially medium and large scale sectors in the state.

Another reason for the dismal performance of industrial sector has been the lack of basic infrastructural facilities. In terms of composite physical infrastructure development index, the state ranked 19th, but in terms of various components of infrastructure with regard to availability of power, irrigation and telephone facilities, J&K State ranked 25th[50].

It is clear from the analysis, (whether based on percentages, decennial growth or exponential growth) that it is only the tertiary sector which has grown considerably than primary and secondary sectors, which is not sustainable growth as it does not meet the domestic demand especially basic consumer goods and consumer durables, thus making the economy market oriented.

Because of the dependence on imports the state is suffering from very large trade deficits and has failed to expand its productive capacity in particular in secondary sector. However the import and export of the state has shown increases since last two decades which is mainly attributed to the development in the means of transport & communication, besides banking and insurance.

[50] Economic and political weekly, November 21, 1998, P. 3040-3042.

The structural changes that have been experienced by northern states reveals that the percentage share of Primary sector of these economies towards NSDP has declined between the range 40-60percent, for instance in Haryana's NSDP, the primary sector share was highest with 64.76percent in (1970-71) which has sharply reduced to 23.11percent in 2006-07. Similarly in case of H.P the relative share of Primary sector to its NSDP has declined from 58.56percent in 1970-71 to 23.38percent in 2006 -07 i.e., more than 60 percent decline. Almost same trend is followed in U.P. In case of J&K, Haryana and Punjab it has decline by more than 40 percent however these states still seems maintaining their agrarian structure.

The contribution of secondary sector toward NSDP of regional economies has increased considerably. In case of Himachal Pradesh there has been a sharp increase from 16.73 percent in 1970-71 to 40.47 percent in 2006-07. Similarly in case of Haryana the trend is almost same. In case of Punjab and U.P the percentage contribution of secondary sector towards NSDP has been almost identical. The relative share of secondary sector towards NSDP in J&K has been almost similar as that of Punjab. In J&K state the relative share of secondary sector towards NSDP has increased from 14.57 percent in 1970-71 to 23.48 percent 2006-07 which is not an encouraging trend.

So far as the contribution of services sector of these economies is concerned, except Delhi, the share was revolving round 30percent in 1970-71. However, the share in 2006-07 has been around 45percent. In J&K the services sector contribution to NSDP in 2006-07 was 46.54percent which was higher than Himachal Pradesh (37.15percent) and Punjab (42.04percent) and also U.P (45.93percent), but less than Haryana (48.84percent). The analysis of the sectoral composition to NSDP at constant prices therefore reveals that the changes in the relative

share of major sectors of various regional economies set a healthy trend as in case of Himachal Pradesh and to some extent Haryana. In these economies, while there has been a decline in primary sector share but at the same time an increase in the relative share has been found in their secondary sector as is the case of H.P. However in case of other regional economies including J&K, the trend is somewhat different, their primary sector decline is shifted to increase in tertiary sector (which is not a healthy sign from economic point of view because growth in the tertiary sector is not a sustainable growth).

The decline in the contribution of primary sector in case of J&K, Punjab and U.P have shown the similar declining trend. In case of contribution of secondary sector, the increasing trend seems to be similar in case of J&K and Punjab, while as in case of Himachal Pradesh and U.P the increase in the contribution of secondary sector has been substantial. It is interesting to note that J&K, Punjab exhibit almost similar pattern in respect of contribution of services sector but in case of Himachal Pradesh the increase in the contribution of services sector to NSDP has not been as high as is the case in J&K, U.P & Haryana.

The declining trend in the contribution of primary sector in the states like Haryana and Delhi have been compensated by substantial increases in urbanization and developments in infrastructure - transport and communication. Haryana and Punjab have experienced decline in the contribution of primary sector but have maintained the high growth rate of agriculture where as in J&K, the decline in the contribution of primary sector has been accompanied by the decline in the productivity of agriculture.

J&K has also lagged behind the other states in respect of services sector because the transformation process has not been sustainable as a result

of which the labor absorption capacity of the economy during the last two decades has worsened.

The trend of annual growth of various sectors based on decennial data of regional economies shows that in 1970-71 to 1989-90 (except Delhi and U.P), the growth rate of primary sector has been positive in rest of the states. In the following decade, J&K was the only state which has the negative growth rate in the primary sector. However in the decade of 1990-91 to 2000-01 while as Delhi had negative growth rate of (-0.1), Himachal Pradesh had marginal increase of 0.87percent, the rest of the states including J&K have been normally growing.

In the period of 2001-07 among all the regional economies under study, the annual growth rate of primary sector in J&K was highest (3.24percent).

In case of secondary sector, the annual growth rate of these regional economies have been impressive during the decade 1981-90 and during the decade 1991-00, J&K was the only state among these economies which had a marginal increase in the secondary sector (1.45percent) and the highest growth was found in case of Himachal Pradesh (8.51percent). Although during the period 2001-07 in all these regional economies the annual growth of secondary sector was quite satisfactory, however Himachal Pradesh was the leading economy (with 9.71percent) growth.

In terms of the annual growth of the tertiary sector, the regional economies show that J&K and Haryana were among the top states whose annual growth rate in this sector has been higher than others.

From the whole decadal analysis (based on the percentage and decennial data) the relative share and annual growth rate reveals that there has been shift from mainly agrarian economy to manufacture based

economy but in case of J&K particular, situation is somewhat different, the analysis brings us to the conclusion that this economy has become market-oriented rather than growth oriented because the growth has been more in the tertiary sector than in the secondary sector.

The sectoral growth trends based on linear and exponential growth model shows that the state of Jammu and Kashmir demonstrate a compound growth of 4.82 percent per annum in case of aggregate NSDP at current prices (index based) from 1970-71 to 2006-07. While estimating the compound growth rates, the tertiary sector has registered a higher growth rate that is 5.34 percent per annum as compared to primary sector and secondary sector. The high growth in states NSDP has been mainly due to considerable/ growth in tertiary sector.

In terms of simple linear function the aggregate NSDP has shown better performance both in absolute values on per capita basis. In any case, among the three sectors, the growth in tertiary sector over the period of 1970-71 to 2006-07 is higher than primary and secondary sector.

In 1970-71, the contribution of primary sector to NSDP of state was 56percent while the secondary and tertiary sector contribution 14percent and 28.8percent respectively. But in 2006-07, there was a reverse trend in the primary and tertiary sector, while secondary sector takes its own 2^{nd} position. The primary sector contributed only 30percent in 2006-07. While tertiary sector contribution was 40-46percent in 2006-07 both at current as well as constant prices.

The decadal as well as annual growth rates of the NSDP shows the same pattern and same trend, both at current as well as at the constant prices.

The secondary sector has improved its position in 2001-07 with 8percent of compound growth at constant prices and lowest performance in 1991-00 with -1.1 percent growth.

The tertiary sector has shown its best performance in 1981-90 at constant prices with 10.9percent compound growth rate and lowest performance in 1991-00 with 4.6percent compound growth.

The decade wise analysis (at current prices) shows that NSDP has grown more fastly in the decade of 1991-2000 the compound growth of 11.90percent. All the three sectors of NSDP have shown their best performance in the same period.

The compound growth rate (at current prices) in 1991-00, of primary, secondary and tertiary sector was 10.41percent 17.32percent and 11.95percent respectively. While the lowest performance was in 1981-90 (6.62 in primary sector, 9.2 in secondary sector 8.58 in tertiary sector). Where the compound growth in total NSDP was 7.72.

From the above analysis it could be summed up that the overall growth rates of Haryana are lower as compared to selected northern states under study i.e., J&K, Delhi, Haryana, Himachal, Punjab and U.P. There is not any such significant change in the growth rates except in few states.

Delhi has shown highest compound growth rate of NSDP (5.20percent) during the period 1970-71 to 2006-07 (at current prices index based) followed by Himachal Pradesh (5.02percent), Haryana (4.91percent) and J&K (4.82percent). The lowest rates were found in Punjab and UP (4.66) and 4.45 respectively.

The sector-wise analysis of NSDP based on compound growth rate (at current prices index based) of the northern states depicts that the secondary sector has the upward moving trend in all the states of the region with slight changes. But again J&K, Punjab and U.P does not have the satisfactory result on the given sector of the economy.

Thus from the above it can be concluded, that the state economy witnessed structural transformation like the other states of Indian union. One noticeable difference worth mentioning is that while the northern

states have experienced satisfactory industrial growth, J&K economy has failed to reduce considerably its dependence on agriculture because of which the scope of exports from the state has remained and is confined to a few items like handicrafts and some horticultural items. Even on the agricultural front the performance has remained dismal in respect to production and productivity of food crops. The low agricultural output and manufacturing activities have made the state dependent on imports from neighbouring states. Relative backwardness of the state in terms of infrastructure and remoteness and lack of clear cut industrial policy have thwarted the growth of large and medium scale industries, reducing the labour absorption capacity of the economy. The disproportionate growth of services sector as compared to northern counterparts has remained high which has drained the resources of the state and made it heavily dependent on central assistance. This factor has also led to increased urbanisation and unplanned growth of cities and towns and has further led to conversation of agriculture land towards housing and other non-agricultural uses. The combined impact of this has been low agricultural output, stagnant industrial sector, low exports, large unemployment and development of consumption -oriented society which is verified by the latest census data.

If the state is to be put on the path of self-sustained growth, the aforesaid issues need to be addressed seriously. For achieving this objective, infrastructural bottlenecks need to be removed, land holding policy needs to be reviewed so that fertile agricultural land does not get converted into non-agricultural uses. Effective steps be taken to mobilize resources internally and development of agro-processing and agro-based industries be promoted and the opinion of experts be sort so that the intersectoral linkage can be assessed and a broad policy for a sustainable development is evolved.

Bibliography

Arya, P.S. (1999). Vegetable Seed Production Principles, *Kalyani Publishers*, Ludhiana.

Ayazi, A.R. (1968). Inter relationship between Agriculture and other sector and their implication in terms of planning. Near East Commission on Agricultural Planning.

Bamzai, P.N.K. (1962). History of Kashmir, Braham Vira Gupta, 1, Netaji Subash Road, Delhi-6.

Bamzai, P.N.K. (2008). History of Kashmir, Gulshan Publishers Srinagar.

Bansil, P.C. (1970). Agricultural situation in India: *Danapat Rai and Sons*, Delhi.

Bardwaj. K. (1966), "Note on Structural Interdependence and Concept of Key Sector". *Kyklos*, Vol. 9.

Basu, Asok. (1978). The Technological Possibilities of Indian Agricultural, *Firma KLM Pvt*. Ltd Kolkata.

Batra, M.M. (1978). Agricultural Production, *Prices and Technology Allied Publishers Pvt*. Ltd, New Delhi.

Beg, M.A. (1951). On the Way of Golden Harvests; Agricultural Reforms in Kashmir, Jammu and Kashmir Government.

Cella G 1984, "The Input-Output Measurement of Interindustry Linkage". *Oxf Bulletin of Eco & Stat*, Vol 46.

Chanduri, S. (2000). Economic Growth in the states four decades 1", *Money and Finance*, Oct-Dec. pp. 45-69.

Chaudhary, P. (1978). Problems of Change in Agriculture in the Indian Economy, *Vikas Publications*, New Delhi.

Chenery, H. S., Robinson & Syrquin, M. (1986). "Industrialization and Growth, A Comparative Study". World Bank, Oxford Univ Press. Computed on official figures *(Digest of statistics 2008-09 J&K government planning and Development Department*)

Chowhan, D.S. (1966). Studies in Utilization of Agricultural Land. Shivlal Agarwala and Company, Agra.

Coale A.J., & Hover, E.M. (1958). Population Growth and Economic development in Low Income countries. *Princetin uni. Press.*

Dantwala, M.L. 1966. Agriculture in a Development Economy - The Indian Experiences, Gokhale Institute of Politics and Economics, Pune.

Das, S.K. and Barua, A. (1995). "Regional Inequalities, Economic Growth and Liberalisation. *A study of the Indian Economy Journal of development studies*. Vol. 32, No. 3. Pp. 364-390.

Dasgupta, A.K. (1973). Agriculture and Economic Development in India. *Associated Planning House,* New Delhi.

Dasgupta, D.P., Maiti, R. Mukherjee, S. Sarkar and Chakrabarti, S. 2000, "Growth and Interstate Disparities in India, Economic and political weekly, July 1, pp. 2413-2422.

Datt, R. & Sundram, K.P. M. (1983). Indian Economy, S. Chand and Co. Ltd., New Delhi.

David, C. & Nixan, F. (1980). Economics of Change in Less Developed Countries. New Delhi: *B.R. Publishing Corporation*. P.179.

Deshpande, A and Bapat, S.B (1980). Indian Agriculture, Performance and Political, *Jaico Publishing House*, Bombay, 1980.

Development Review Committee Report, (1976). Vol. 1, J&K government.

Dhawan, J. (2007). The changing face of Indian Economy, *Atlantic publishers & Distributors (p)* Ltd.

Dholakia, B.H. (2002). "Sources of India's Accelerated growth and the vision of the Indian Economy", *Indian Journal*, Vol. 49. No.4, pp. 27-46.

Digest of Statistics (2009-10). Directorate of Economic and statistics, Government of J&K.

Digest of Statistics 2008-09, 2011-12. Department of Economics & Statistics, J&K Government.

Domer, P. (1992). Land Reform and Economic Development. England.

Driver, P.N. (1949). Problems of Zamindari and Land Tenure Reconstruction in India, Bombay.

Economic and political review, November 21st, 1998, P. 3040-3042.

Economic Review of Jammu and Kashmir, (2006-07). Directorate of Economics and Statistics, Planning and Development Department. *Govt. of J & K.*

Eicher, C and Witt, L. (1970). Agriculture in Economic Development, *Vora and Company Publishers*.

Fei, J.C. H. and Ranis, G. (1964). Development of the Labour Surplus Economy, Theory and Policy, Homewood, III: Richard D. Irvin.

Frederick. H. 1973. Human resources as the wealth of Nations (New York: *oxford university press.*

Ghatak, S., & Ingersent, K. (1984). Agriculture and Economic development, *the Harvesta press, Publishing group.*

Ghosh, B.S. Marjit and C. Neoji (1998). "Eco-growth and Regional Divergence in India, 1960 to 1995", Eco and political weekly, June 27, pp. 1623-1630.

Grey. A. (2009). The Development of Economic doctrine. An introductory survey, Longman, *Green & Co. Publishers*.

Gujarati, N.D. (2007). Basic Econometrics, tat MC Graw-hill, Inc; New York.

Gupta, N.S and Sing, A.J. (1979). Agricultural Development of States in India, Vol. I, Jammu and Kashmir.

Harrod, R.F. (1960). Towards a Dynamic Economies. London: Macmillan & Co. Ltd. New York. *St. Martin's Press.*

Hazari, B. (1970), "Empirical Identification of key Sectors of Indian Economy". *Review of Economics & Statistics,* 52.

Jain S. C. (1966). Changing Indian Agriculture, *Vora and Company Publishers* Pvt. Ltd. Bombay.

Joseph, E. & Hisofumi, U. (1969). Reading in the Modern Theory of Economic Growth. *The M.I.T Press, Cambridge*, Mass: P.7.

Kadar, B. (1984).Structural changes in the world economy. Frances Printer Publishers, limited, London & St. *Martins press,* New York.

Kaldor, A. (1980). A Model of Economic Growth. *Printed in Niolas Kaldor, London. Holmes & Meiven publications*.

Kaldor, N. (1989). Strategic factors in Economic development. *Cornell university Press*. P. 243.

Kalra N.N (1996). Regional Vaniations in Policy regarding size of agricultural holdings, Indian Journal of agriculture. Economic April-June 1966 vol. xx.2 pp.34.

Katyal, S.L and Chandra, K.L. (1968). Vegetables Growing in Indian, *Oxford and IBOL Publications,* New Delhi.

Khusro, A.M. (1968). Reading in Agricultural Development, *Allied Publishers* Pvt. Ltd. Bombay.

Koop, G. (2000). Analysis of Economic Data, John Wiley & Sons, Ltd, Baffins Lane, Chichester, west suscex PO19 IUD, England.

Kuznet S. (1955). "Towards Theory of Economic Growth Ed. in R. Lakachman, National Policy for Economic Welfare at Home and Abroad. *Garden City, N.Y.*

Kuznet, S. (1979). Modern Economic Growth: Rate Structure and Spread *(N.D: Oxford and IBH publication, Co.)*

Kuznets, S. (1971). Economic Growth of Nations: Total Output and Production Structure. Camb Mass, *Harvard Univ Press*

Kuznets, S. (1979). Modern Economic Growth: Rate Structure and Spread (*N.D: Oxford and IBH publishing Co*.). Chapter 3.

Leontief, W. (1951). The Structure of American Economy: 1919-1939 Oxf. Univ Press.

Mackie, A.B. (1964). The Role of Agriculture in Economic Development, Illusions, Agricultural Economics.

Malassis, L. Agriculture and Development Process, *The UNESCO Press New York.*

Masoodi, M.A: Agriculture in Jammu and Kashmir - A Perspective.

Mathur. A (2001). National and Regional growth performance in the Indian Economy. "A sectoral Analysis", paper presented at National seminar an Economic reforms and Employment in Indian Economy IAMR.

Meier, M. G. (1990). Leading issues in Economic development Oxford university press, Delhi, Mumbai, Calcutta & Madras.

Nair, K.R.G. (1983), Regional experience in a developing economy, Wiley-eastern, New Delhi

NCAER. (1969). Techno-Economic survey of J&K. National council of applied Economic research, New Delhi.

Nisar, A. (1978). Deterioriationg agrarian situation in Jammu and Kashmir, Easter Econmist.

Palgrane Macmillan, (2003). P.116.

Pasinetti, L.L. (1973). "The Notion of Vertical Integration of Economic Analysis" *Microeconomica.* Vol 25.

Pritchett .I (2000). understanding patterns of economic growth search for Hills among plateaus mountains and plains world bawak. *Economic review*, vol. 14. No. 2, pp. 221-250.

Quesnay F.(1758). Table Economique, The Economics of Structural Change, Vol III, *International Library of Critical Writings*.

Rao, V.K.R. (1983). India's National Income – 1950 -1980 An analysis of economic Growth and change. *Chapter* – 4pp.32-33.

Rekhi, T. (1993). Socio-economic justice in Jammu and Kashmir, *Ideal publications,* new Delhi.

Report of the Land Compensation Committee, Govt. of Jammu and Kashmir, 1951-52, P.12.

Reynolds, L.G. (1987). Economic Growth in the third world, Archives publishers Distributor, 4e/8, Jhandewalan Extra. New Delhi.

Ricardo, D. (1817), Principles of Political Economy and Taxation (in Hageman, H.M. Landesman and R. Scazzieri)ed Vol I, *Critical Writings* 2003.

Roychoudhury. U.D (1993). Inter-state variation in Economic Development and Standard of living". *NEPFP,* New Delhi.

Sachs, J.D.N. Bajpai and A. Ramiah (2002). "Geogaphy and Regional growth". *The Hindu*, Feb, 25 and 26.

Schumpeter J.A (1939), Business Cycles: A Theoretical, Historical and Structural Analysis of Capitalist Process. *McGraw Hill, N Y London*.

Silva E.G & Teixeira, A.C. (2008). "Surveying Structural Change: Seminal Contributions and Bibliometric Account of Structural Change in Economic Dynamics.

Sing, D.V. (1990). Production of Marketing of Off-season Vegetables. *Mittal Publications*, New Delhi.

Sinha, S.P. (1965). Indian Agriculture: Its Fluctuating Fortunes, *Kitab Mahal Pvt. Ltd*. Allahabad.

Smith, A. (1776). "An Inquiry in to Nature and Causes of Wealth of Nations" (in Campbell R.H Skinner, A.S. Todd) World Bank. *Ox Univ Press*. Agriculture Census 1970-71, pp 5-7.

Srivastava, O.S. (1966). 'Theory of structural Changes in Economy and the process of Economic Growth," Economics of Growth, Development, Planning, pp. 34. *Vikas publishing House, Delhi*

State Domestic Product (1999-00 to 2007-08), Directorate of Economics and Statistics, Planning and Development Deptt. *Govt. of J & K.*

Thrilwal, A.P. (2003). Stages of development and structural change in "Growth and Development "with special reference to developing Economics pp. 109-110.

Turgot, A.R.J. (1766). "Reflections on Formation and Distribution of Wealth" in R.L. Meek Ed. Turgot on Progress Sociology and Economics

UNIDO. (2010). Structural Change in the World Economy: Main Features and Trends, *Vianna.*

Reports/ Journals / Articles / Speeches / Other Publications

Ahmad, N., Narayan, Rah., Wani, M.H., Khan, S.H and Jabeena, N. (2002). Present status and future prospect of vegetables technologies in temperate regions of Jammu and Kashmir, paper presented at National Workshop on Impact of Vegetable Research in India, IVRA, Voranasi.

Bhoite, M.S. and Barve, N.K. (1984). Adoption Pattern of cultivation fraction of tribal formers. Maharashtra Journal and Ext. Educ. 3.

Collion, M.H. and Kissi, A. (1995). Guide to program, planning and priority setting research management guidelines No. 2£. The Hague, International Service for National Agricultural Research.

Janib-i-Manzil (2009). A Quarterly Development Journal, Directorate of Economics & statistics, Government of Jammu & Kashmir.