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INPUT-OUTPUT COEFFICIENTS IN A NORTH-WESTERN HIMALAYAN REGION AND ITS IMPLICATION TO FINANCIAL RESOURCES

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ABSTRACT

Development depends upon availability and utilization of resources like men, material, capital, entrepreneurial ability. Availability and utilization of these resources by economic system and its organization in public and private sector transform the economy. Indian economy witnessed unprecedented demographic changes which substantially increased human labour in the country. The working population (15-59 years of age) in India likely to increase from 585 in 2001 to over 64 percent by 2021. This is a challenge as well as opportunity to effectively use and improve the productivity of public and private sector enterprises. Rural and urban linkages have been studied in the context of capital formation, labour migration, flow of input output, sectoral growth and its relative importance. Therefore, the magnitude of existence and persistence of dualism in the economy changes with the level of its growth and development. The planning era witnessed stress on development of industries and linkages between the two sectors weaken during 1980s compared to pre-green revolution period. An attempt has been made in this paper to estimate and study the inter-sectoral linkages of human and non human resources in rural and urban areas in the state of Himachal Pradesh. Our analysis suggests effective men- power planning and relevant policy implication for growth, development and social justice in an economy. However, use of proper prices and realistic inter-sectoral coefficients would not only enhance the manufacturing sectors growth with poverty eradication, but it would sustain it beyond 14 percent per annum which would account for over 35 percent share in the national income. Allocation and investment priorities in selected sectors of the economy till today seems to have been made arbitrarily. Similarly, the percent share of investment under each sector of the economy has been analyze. It is noted that the size of the First Five Year Plan (1951-56) in this hilly region of Himalayas was of the order of Rs. 0.53 Crore. Its highest priority was given to Industrial sector (46.3 per cent), while agriculture stood second highest (14 per cent) in the plan investment at that beginning era of Indian Planning. Today, the size of the Plan (12th-2012-17) in this Himalayan region has substantially increased to Rs. 2.5 thousand Crore. But, highest priority investment changed in favour of social service (30.9 per cent) and service sector (18.9 per cent). Therefore, agriculture and industry linkages were not only ignored, but thrown out of priorities. Resultantly, food insecurity, hunger, poverty, unemployment and social unrest will further grow especially in the Himalayan region. It would not only cause serious threat to the geography and topography of Himalayan region, but also disturb ecology, climate and environment.

KEYWORDS
financial resources, development, economic system, Indian economy.

1. INTRODUCTION
Nature and structure of Indian economy has shown that the magnitude of transformation is affected by growth strategy without giving due emphasis to saving, investment and resource mobilization. Moreover, fluctuation and gap between the required and actual growth objectives was largely explained by the inefficiency of capital and capital output ratio. Therefore, ownership of factors of production by mixed capitalistic and socialistic system accounted for the slow growth, inequalities and social injustice. It also accounted for the national and the macro policy distortions. Agriculture largely influenced by the World Trading Organizations and it also reveal the terms of trade and macroeconomic policy against the Indian production consumption, saving and investment. However, in the absence of capital accumulation and excess supply of money to promote and stabilize growth, it seems important to enhance efficiency of investment and promote high rate of saving and capital formation. The scope of saving, capital efficiency rests on the contribution of industry, service and other sub-sectors of the economy. This paper is, therefore, considered important to view the inter-sectoral linkages. The amount of capital and investment requirement to accomplish a desired level of growth and development is mainly determined by the input- output co-efficient and elasticity. An attempt is made .in this paper to establish input-output relation and estimate the elasticity across the sectors of a selected North-Western Himalayan Region. Further, agriculture-industry linkages over the years have been studied by analyzing the use of purchased inputs by the farm sector, consumption of consumer durables in rural areas and the demand for agro-based urban consumption items. Similarly, the influence of GDP from agriculture and service sector on real GDP from manufacturing sector was also analysed. In this, coefficient of GDP from manufacturing sector with respect to the GDP from agriculture was considerably higher in the green revolution period compared to the post-green revolution period. Therefore, modernization efforts of the traditional and subsistence sectors in under-developed region and developing countries would promote industrialization, urbanization, commercialization and competition. At the same time, agriculture-industry linkages at micro and macro levels have been studied with the help of Social Accounting Matrix (SAM) and Linear Programming model. This would not only minimize the requirement of financial resources, but also account for perspective planning for inclusive and sustainable growth and development.

2. PERFECT AND IMPERFECT ECONOMIES
Under-developed and planned economies are characterized by several imperfections, inequalities, poverty, unemployment and unbalanced growth. These economies are, thus, demand excess, industrial bias, and in dis-equilibrium. It also undervalue or overvalue its resources by using artificial and controlled prices which are far from realities in the imperfect economies as compared to real prices prevailing in the competitive and perfect market economies. Consequently, economies cannot properly quantify, value its inter-sector flows, and linkages which amounts to its vicious circle of poverty, inequality, social injustice and imbalanced growth. However, some studies have arbitrarily used sub-equilibrium prices as real and market prices for measuring rural-urban, inter-sectoral, inter-regional and inter-sector trade and flows linkages (Ishikawa, 1967; Millar, 1970; Macrace, 1979; Xingwei, 1980; Duhihui, 1983; Sheng, 1993; and Deaton 2015).

It is essential to institute new infrastructure investments, along with labour and tax reforms, to promote manufacturing and employment sectors. New investments in all these areas can be enhanced by encouraging enterprise and creativity by reforming the public sector and enabling private-public partnerships. It requires modifications to the rural-urban, sectoral, labour policies, social welfare legislation and assessing new markets through globalization and competition. Even growth of rural sector and modernization of Indian villages alone would solve the socio-economic problems of the masses and will promote India's economic growth. These efforts would result into sustainable economic growth and development with safe and conducive environment. However, use of proper prices and realistic inter-sectoral coefficients would not only enhance the manufacturing sector's growth with poverty eradication, but it would sustain it beyond 14 percent per annum which would account for over 35 percent share in the national income. Our study also revealed that the increased share of investment in manufacturing and service sectors by 35 to 45 percent of the national income at the constant efficient rate of the capital output ratio at 2:14 to 1:75 would register over 20 percent growth in these leading sectors of the economy. Our study at this level of capital efficiency revealed that rural sector at 20 percent share of total investment would account for 10 percent relative share of the national income and it may register a annual growth rate of only 4 percent as compared to 20 percent growth in manufacturing and 21 percent growth in service sector during the same period. The sectoral balance and efficient linkages with sustainable benefit and development can be achieved at the incremental capital-output (ICOR) of 2.99: 1 or 3:1.

3. BHARAT NIRMAN

At national level, India has to moot a specific financing window. To restructure and built the rural sector, an ambitious plan of 'Bharat Nirman' is suggested which aimed at giving new deal to rural India and bridging divides for balanced and sustained growth. In this gigantic task, all local institutions involving Panchayats and Private Sector as partners at micro level resource base and watershed unit could be most viable, feasible and socially acceptable. At the same time, domestic research and development capital stock would promote higher international technological spillovers. The benefits of International technological progress in the era of globalization are conditional to a public policy that enhance domestic innovation capabilities and provides a congenial economic environment for international technological spillovers. Government of India estimated a sum of Rs. 1, 74,000 crores for Bharat Nirman will be raised from internal and external financial institutions both in the public and private sector to realize the growth potential in rural India and to bridge the rural-urban divide. Under these circumstances, the government, the industry, and the agricultural sector should work together for mutual benefits. The corporate sector can help in extending better seeds, inputs, and manufacturing facilities to the farmers. Federation of Indian Chambers of Commerce and Industry emphasized that for every 10 percent rise in agricultural production, there is a direct increase of industrial production by 2.5 percent and indirect by 4.5 percent which adds to over 7 percent. Transforming rural and agricultural sector, manufacturing, industrial and urban sectors also contribute significantly by way of managing its input, output, processing storage, marketing, technological, infrastructural and contract farming.It is estimated that factor inputs in the manufacturing sector accounts for 36 percent, and remaining 64 percent of the total value of output is attributed to non-factor inputs. In this, dependence of manufacturing sector for input supplies from farm/rural sector varied from 34 to 92 percent given the type of industry. At the same time, studies have also confirmed that sectoral linkages have strong correspondence with the entire economic growth and development. Industrial Development is influenced by import substitution and foreign sector. While slackening of industrial growth was due to inadequacy of demand and hence improvement of agricultural income plays an important role. There has been significant improvement in agricultural production during plan period especially after green revolution. Rural economy has been transformed due to these technical and genetic engineering.

4. MACRO ESTIMATES OFAGRICULTURE- INDUSTRY LINKAGES

Few studies analyzed rural-urban linkage in terms of capital formation and role played by each sector. It analyzed rural-urban investment linkage, pattern of contribution to capital formation in farm and non-farm sectors by rural and urban households. Contribution of rural households in the capital formation in the non-farm sector was higher than the contribution of urban households to the agricultural sector. Per capita income had positive impact on private capital formation in the agricultural sector, which did not subsequently affect private capital formation in the non-farm sector. However, non-farm workers in the rural areas had significantly influenced the capital formation in the non-agricultural sector. At the same time, average capital investment by the rural households in non-farm business in the State was as high as Rs. 600 as compared to Rs. 2000 in farm business cultivating households in most agriculturally prosperous state of Punjab. Further, agriculture-industry linkages over the years have been studied by analyzing the use of purchased inputs by the farm sector, consumption of consumer durables in rural areas and the demand for agro-based urban consumption items. Similarly, the influence of GDP from agriculture and service sector on real GDP from manufacturing sector was also analysed. In this, coefficient of GDP from manufacturing sector with respect to the GDP from agriculture was considerably higher in the green revolution period compared to the post-green revolution period. Therefore, modernization efforts of the traditional and subsistence sectors in under-developed region and developing countries would promote industrialization, urbanization, commercialization and competition. At the same time, agriculture-industry linkages at micro and macro levels have been studied with the help of Social Accounting Matrix (SAM) and Linear Programming model. The output multiplier linkage coefficients for sugar industry, Sago and Starch, Trade, Service, Agro-industries and other industries were 0.56, 0.39, 0.51, 0.31, 0.58 and 0.50 respectively. This implied that the level of rural-rural and rural-urban interaction of endogenous sectors were significantly of high order. Further, optimization attempts revealed that reduction in levy sugar would generate greater employment opportunities than reduction in tax for Sago and Starch. Thus, government policies have significant impact on agro-industries for creation of employment in the rural and urban areas. Moreover, no policies in isolation for any single sector can promote economic transformation and sustainable development. Studies at micro level have also analyzed sectoral linkages for increasing employment potential with the help of input-output model.

Recent censuses and rural-based force surveys show a dramatic structural change in favour of non-farm sector activities. But rural industries form a small part of the rural non-farm activities. Similarly, operation of other rural enterprises is either negligible and inadequate or not assessed. Therefore, efforts and strategic measures are required to promote non-farm activities : such as self-employment in cottage industries, mechanics, wage employment in rural business enterprises, transport operations and construction; human capital based occupations, such as salaried service in public and private sector institutions, teachers, leaders, lawyers, doctors, barbers and other several personal services; and physical and capital inter activities, such as agro processing, shop-keeping, pedding, trading, medium and contractor services.("Rural Non-Farm Economy: Evidence from Household Surveys", by Mahabub Hussain, Economic and Political Weekly, Vol. 39 (36): 4053 – B). Non-farm Sector in many developing countries provides 20 to 45 percent employment and 36 to 54 percent income to rural households. Besides manufacturing, the service sector activities have vast political to provide relatively full time employment and income growth centers and rural towns and cities. Therefore, it is challenge to policy-makers to harness the potential and facilitate the distribution of non-farm employment to ensure sustainable development. (See "Farm-Non-Farm Linkage in Rural Sub-Saharan Africa", by S.P. Hazell Haggblade and J. Brown, World Development, Report Vol. 17(8) : 1173-1201;The New Economics of Growth : A Strategy for India and Developing World, Cornell University Press, Ithaca, 1976, New York).

5. MICRO ESTIMATES OF INTER-SECTORAL ELASTICITIES

For want of data and several constraints, a case of Himachal Pradesh economy is purposely selected to work out the elasticities across the sectors of economy. An output of the producing sectors is consumed by itself in the form of input and surplus left over consumption is disposed in the form of input to other related sectors as intermediate consumption. Thus, the total output available is utilized for the expansion and structural transformation of the economy. The linkages effect could be termed as backward and forward linkages. Its expansion depends on elasticities, due to which the economy grows horizontally and vertically. The integration of the economy would not only attain higher and sustainable growth, but also minimize the requirement of saving and financial investments.

5.1 CASE OF A NORTH-WESTERN HIMALAYAN REGION: HIMANCHAL PRADESH

Himachal Pradesh continued as a part 'C' State of the Indian Union till 1956. It continued to exist as a Union Territory till the conferment of statehood on 25th January, 1971. Himachal Pradesh is situated between $30^o 22^/ 40^{//}$ to $33^o 12^/ 20^{//}$ north latitudes and $75^o 45^/ 55^{//}$ to $79^o 04^/ 20^{//}$ east longitudes. Himachal Pradesh is wholly mountainous region in the lap of Himalayas and it ranges from 350 meters to 6975 metres above mean sea level. It is surrounded by Jammu and Kashmir in the north, Tibet on north east, Uttaranchal in the east/south east, Haryana in the south and Punjab in south - west/west. The state has a three tier Panchayati Raj structure comprising of 12 Zila Parishads, 75 Panchayat Samitis and 3070 Gram Panchayats. Panchayat is the smallest unit for development in rural areas. At the same time, there are 57 urban local bodies consisting of one Nagar Nigam, 20 Municipal Councils, 32 Nagar Panchayats, Seven Cantonment areas, and one census town. Out of the total geographical area of 55.67 lakh hectares, forests accounts for nearby 40 percent, whereas agricultural operation holding land is only around 17 percent (9.9 lakh hectare) which is being operated by 8.6 lakh farmers having 1.2 hectare of average holdings. 85 percent of the total land holdings are small and marginal. Agriculture is the main occupation which provides direct employment to our 70 percent of the total workers.

5.2 PRIORITY INVESTMENT IN DIFFIERENT SECTORS

Absolute amount of investment made under priority sectors in Himachal Pradesh since its inception may be examined form Table 1. Allocation and investment priorities in selected sectors of the economy till today seems to have been made arbitrarily. Similarly, the percent share of investment under each sector of the economy may be viewed from the table under reference. It may be noted that size of the First Five Year Plan (1951-56) in this hilly region of Himalayas was of the order of Rs. 0.53 Crore. Its highest priority was given to Industrial sector (46.3 per cent), while agriculture stood second highest (14 per cent) in the plan investment at that beginning era of Indian Planning. Today, the size of the Plan (12th-2012-17) in this Himalayan region has substantially increased to Rs. 2.5 thousand Crore. But, highest priority investment changed in favour of social service (30.9 per cent) and service sector (18.9 per cent). Therefore, agriculture and industry linkages were not only ignored, but thrown out of priorities. Resultantly, food insecurity, hunger, poverty, unemployment and social unrest will further grow especially in

the Himalayan region. It would not only cause serious threat to the geography and topography of Himalayan region, but also disturb ecology, climate and environment.

TABLE 1: SECTORAL SHARE OF INVESTMENT UNDER DIFFERENT FIVE – YEAR PLANS IN HIMACHAL PRADESH: 1951 TO 2015 (Rs. In Lakhs)

Sr. No.	Heads/Sub.-Heads	Ist Plan (1951-56)	2nd Plan (1956-61)	3rd Plan (1961-66)	Annual plan (1966-67)
A.	Economic Services:	NA	NA	NA	NA
I.	Agriculture and Allied Activities:	73.81	251.27	769.15	155.38
1.1	Crop Husbandry	NA	NA	NA	NA
1.2	Agriculture (including Res.& Edu.)	NA	NA	NA	NA
1.3	Horticulture (including Res.& Edu.)	74.13	238.27	350.45	51.82
1.4	Cooperation	NA	NA	NA	NA
II.	Rural Development:	NA	NA	NA	NA
2.1	Special Programmes for Rural-Development (IRDP, IREP, Antodya)	NA	NA	NA	NA
2.2	National Rural Employment (NREP,JRY, other Special Employment Schemes)	NA	NA	NA	NA
III	Special Area Programmes	21.59	150.69	240.14	295.04
IV	Irrigation and Flood Control	NA	NA	NA	NA
V	Energy :	NA	NA	NA	NA
5.1	Power	8.88	39.50	84.16	26.94
VI	Industries & Minerals	243.54	595.22	1191.10	301.60
VII	Transport	NA	NA	NA	NA
IX	Science, Technology, and Environment-Pollution	NA	NA	NA	NA
X	General Economic Services	104.85	308.36	716.27	112.22
B	SOCIAL SERVICES	0.32	19.29	33.20	3.05
C	MISC./ GENERAL SERVICES	NA	NA	NA	NA
	ALL GRAND TOTAL (A+B+C):	526.49	1602.60	3384.47	946.05

Sr. No.	Annual plan (1967-68)	Annual plan (1968-69)	IVth Plan (1969-74)	Vth Plan (1974-78)	Annl.Plan (1978-79)	Annl.Plan (1979-80)
1	305.16	278.87	9267.82	13146.37	5204.34	6097.27
2	NA	NA	2310.64	3453.88	1349.62	1646.40
3	NA	NA	1188.4	1313.73	507.29	587.52
4	NA	NA	822.69	885.85	350	427.12
5	71.71	56.07	356.82	588.71	218.29	244.86
6	NA	NA	132.37	176.62	107.15	148.36
7	NA	NA	289.18	288.1	114.9	266.40
8	NA	NA	NA	NA	NA	NA
9	396.52	420.08	289.18	153.09	56.47	197.40
10	NA	NA	NA	NA	NA	NA
11	NA	NA	8.14	911.76	584.00	669.68
12	NA	NA	2450.03	4053.89	1248.54	1550.00
13	39.29	60.20	2450.03	4053.89	1248.54	1550.00
14	470.46	578.94	414.46	539.15	233.72	260.23
15	NA	NA	3200.16	3637.83	1589	1616.96
16	NA	NA	NA	NA	NA	NA
17	157.33	190.12	97.84	237.76	78.56	84.60
18	3.47	3.91	2042.49	2709.78	1477.09	1654.91
19	NA	NA	32.66	357.95	128.74	193.18
20	1443.94	1588.19	11342.97	16214.10	6810.17	7945.36

Sr. No.	VIth Plan (1980-85)	VIIth Plan (1985-90)	Annl. Plan (1990-91)	Annl. Plan (1991-92)	VIIIth Plan (1992-97)	IXth Plan (1997-2002)
1	49454.50	99549.65	25247.19	27176.00	220172.06	348855.28
2	10509.95	26000.17	6960.94	8495.00	48810.88	84280.00
3	3109.15	4791.02	1521.51	2136.00	10566.18	15280.00
4	2807.36	5809.59	1580.18	2025.41	9488.06	14900.00
5	1352.82	6401.05	1453.33	1818.00	7646.18	13970.00
6	720.96	893.28	402.08	264.00	1708.81	2200.00
7	3095.96	4918.92	1305.23	1548.00	11645.53	24018.00
8	NA	NA	264.75	222.00	2152.72	2575.00
9	882.99	1196.14	301.74	207.00	2174.20	5800.00
10	50	NA	NA	NA	NA	NA
11	3879.66	7141.90	2475.27	2587.00	14728.59	25885.00
12	17924.95	35175.76	6811.58	5230.00	66122.26	105210.00
13	17889.25	34747.61	6721.58	5131.00	65229.63	101965.00
14	2048.74	4262.01	1106.61	1407.00	8654.33	15000.00
15	11838.34	19577.45	4998.50	6050.00	43766.76	61350.00
16	19	91.43	36.00	85.00	474.10	708.76
17	80.41	2382.01	1501.28	1786.00	25770.85	32283.52
18	14920.19	30100.36	11729.69	12546.00	121364.64	210643.41
19	2096.73	2825.74	786.05	761.00	8343.35	10501.31
20	66471.42	132475.75	37762.93	40483.00	349880.05	570000.00

Sr.no	Annl.Plan (1998-99)	Annl.Plan (1999-2k)	Annl.Plan (2k-2k1)	Xth Plan 2002-07	XI Plan 2007-12	XII Plan 2012-17
1	94710.59	95899.13	98345.22	53217.90	701045.00	49879.70
2	18787.16	20203.80	18286.72	120169.00	149377.00	290679.00
3	3371.95	4174.50	4203.42	29293.80	11667.00	15677.00
4	3476.69	3966.10	3931.30	11685.90	35885.00	3441.50
5	4464.21	3366.40	2889.22	3405.00	789.80	898.00
6	358.34	449.64	434.57	1990.20	779.00	889.70
7	6101.95	6870.81	6827.90	41549.00	36135.00	127673.00
8	778.13	803.00	813.00	41548.50	6235.00	5568.00
9	895.72	1663.50	1504.50	1606.00	1403.00	1507.50
10	400.00	400.00	400.00	2080.30	2080.00	15575.00
11	6061.47	8015.03	6950.54	45317.00	124029.00	197237.00
12	26368.41	25214.50	33514.50	125768.42	114022.00	280559.00
13	25599.11	24569.00	33037.00	123500.50	111344.00	124305.70
14	2561.35	3023.79	2465.73	10473.00	18054.00	22442.00
15	19297.53	23042.01	24627.95	163805.00	217680.00	470988.00
16	196.70	160.00	158.00	642.00	14351.00	10492.00
17	14926.52	8937.19	5081.88	22374.00	67092.00	59659.00
18	56055.95	61572.47	71012.98	489348.00	615794.00	767422.00
19	3199.38	2528.40	2641.80	10555.00	59805.00	37274.00
20	153965.92	160000.00	172000.00	1298328.50	1638757.60	2482168.20

Note-Agriculture includes Dry Land Farming, Soil and Water Conservation, Agriculture, Research and Education, Agricultural Financial Institutions, Marketing & Quality Control and Loans to cultivators. Similarly, Horticulture includes Research and Education. However, investment on Land Reforms, RID, Panchayats have been added to the Rural Development Head. Further, expenditure on Minor Irrigation (PWD & RIDD), Medium Irrigation and flood control has been kept under the head of Irrigation and Flood Control. Tourism forms a part of General Economic Services, while Telecommunication is listed as a separate head of expenditure. Details under Social and Community Services have been adjusted against the Social Services head of Plan Investments. However, reorganization of data in the present context does not affect the overall figures of plan investments as provided by the State Government.

5.3 STRUCTURAL TRANSFORMATION

State economy comprised of primary, secondary and tertiary sectors. Efforts made to transform the structure of state economy under various five year plan period may be viewed from the data presented in Table 1. It may be noted that total investment in all sectors of the economy increased from Rs. 5.27 crores in 1st Plan Period (1951-56) to Rs. 1600 crores in 2013-14. Sectoral priorities revealed that the agriculture or rural sector, on which over 70 percent people depends, could attract only around 10 percent of the total plan outlays. At the same time, industry and non-farm sectors investments stood around one percent over the period. Thus, economic general services, energy, transport, sewerage, housing and urban development attained over 70 percent of the total investment in the state.

5.4 GROWTH AND PRODUCTIVITY OF EMPLOYMENT

Annual Productivity per worker varied from Rs. 4.7 thousand in unorganized sector to Rs. 79.8 thousand in the organized sector during 2k. Moreover, the productivity of labour in agro-based activities stood at Rs. 3.8 thousands as compared to Rs. 7.0 thousand in non-agro based activities within the unorganized sector. Labour productivity in the organized sector varied for Rs. 44.0 thousand in the agro-based activities to Rs. 143.1 thousands in non-agro based activities. However, the growth of income per worker in the organized sector stood at 2.4 percent in agro-based activities and 5.27 percent in non-agro based activities during nineties over eighties, while the corresponding figures under unorganized sectors stood at 5.24 percent and 4.99 percent per annum. Thus, growth of employment productivity in non-farm sector was higher in the unorganized sector as compared to the organized sector in urban based activities during the period under reference. However, employment growth in Himachal Pradesh declined from 10-10 percent to 4.98 percent under construction activities. Growth of employment under different sectors in Himachal Pradesh as compared to the country as a whole may be evident from Table 3.

TABLE 2: COMPARATIVE GROWTH OF H.P. AND NATIONAL ECONOMY DURING FIVE YEAR PLANS

| Plan Period	Per Capita Investment (Rs.)	Per Capita Income (Rs.)	H.P.	India
1951-56	4	240	1.6	**3.6**
1956-61	11	286	4.4	4.1
1961-66	22	398	3.0	2.4
1966-69	40	440	3.0	4.1
1969-74	61	532	3.0	3.4
1974-78	100	576	4.6	5.2
1978-80	176	586	-3.6	0.2
1980-85	288	1020	3.0	5.3
1985-90	545	1249	8.8	6.0
1990-91	705	4910	3.9	5.4
1991-92	765	5691	0.4	0.8
1992-97	6312	11960	6.3	6.2
1997-02	13194	21570	6.4	5.6
2002-03	2122	22670	4.5	4.0
2003-04	2226	24903	8.1	8.5
2002-07	2465	10750	7.9	7.7
2007-12	2278	83899	9.0	8.0
2011-12	4753	74694	6.9	5.1
2012-13	5261	122660	4.8	3.2
2013-14	5756	92300	6.8	5.4

Source : 1. Annual Plan : 2005-06, Planning Department, Govt. of Himachal Pradesh, Shimla (Various Pages), 2005.
2. Annual Plan : 2014-15, Planning Department, Govt. of Himachal Pradesh, Shimla (Various Pages), 2005.

TABLE 3: SECTORAL CONTRIBUTION OF STATE DOMESTIC PRODUCT AT CURRENT PRICES IN HIMACHAL PRADESH (1950-51 TO 2014-15)

| Years | Sector | | | Percent |
	Primary	Secondary	Tertiary	Total
1950-51	71.01	9.50	19.49	100.00
1960-61	63.14	9.71	27.15	100.00
1970-71	58.56	16.73	24.71	100.00
1980-81	50.35	18.69	30.96	100.00
1990-91	35.10	26.50	38.40	100.00
1993-94	32.36	27.46	39.78	100.00
1996-97	28.75	34.68	36.57	100.00
1997-98	28.15	33.47	38.38	100.00
1998-99	27.40	33.28	39.32	100.00
1999-00	26.05	32.83	41.12	100.00
2000-01	25.71	34.40	39.89	100.00
2001-02	27.35	32.92	39.73	100.00
2002-03	25.75	34.40	40.96	100.00
2003-04	26.38	32.92	40.38	100.00
2004-05	25.00	33.29	41.00	100.00
2010-11	21.73	39.79	38.48	100.00
2011-12	17.70	27.20	54.90	100.00
2012-13	17.50	26.20	56.30	100.00
2013-14	18.20	24.80	57.00	100.00

Source: Annual Plan : 2014-2015, Planning Department, Govt. of Himachal Pradesh, Shimla, 2015, pp.10-11.

FIGURE 1: SECTORAL CONTRIBUTION OF STATE DOMESTIC PRODUCT AT CURRENT PRICES IN HIMACHAL PRADESH (1950-51 TO 2014-15)

$$y = -2.4296x + 57.253$$
$$R^2 = 0.7478$$
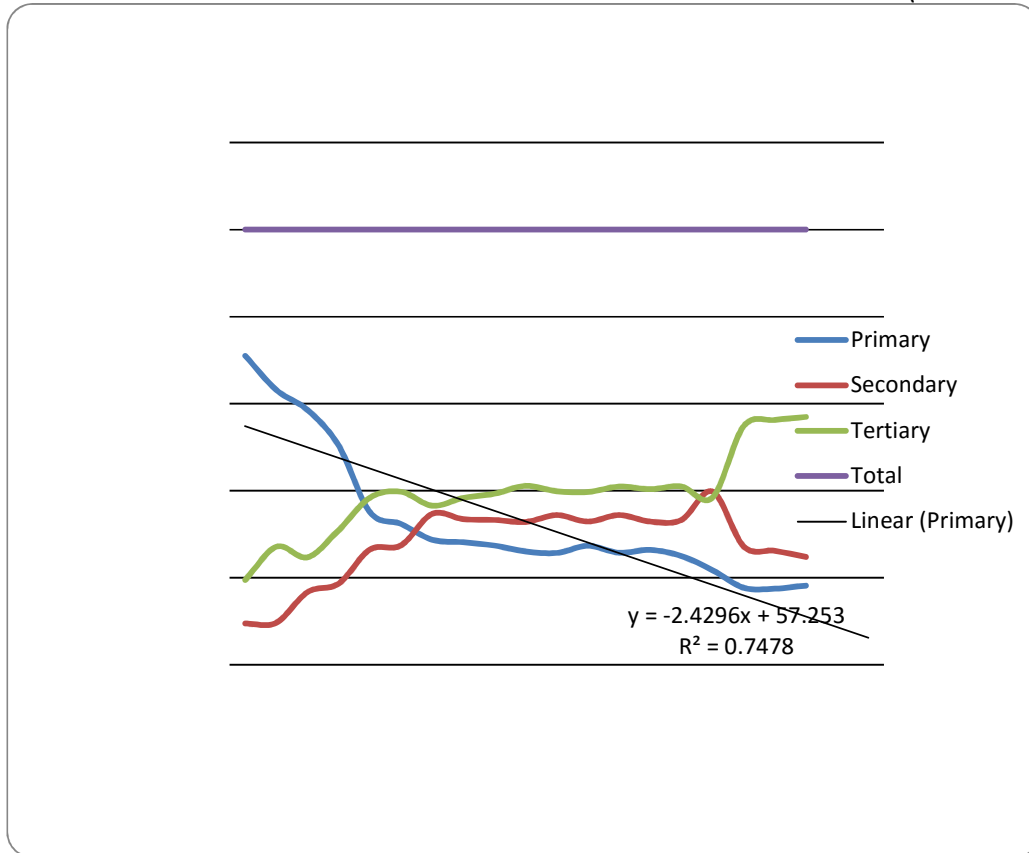
5.5 ESTIMATION OF BACKWARD AND FORWARD LINKAGES

On the whole, wide range of non-farm and manufacturing activities are the most thrust areas. As a short-term strategy, the state must strive to strengthen the land based activities by reversing the recent trend and pay due considerations to the priority sectors. Besides forestry, tourism, electricity, hydel and other manufacturing and processing sub-sectors have vast potential for employment absorption in Himachal Pradesh. Agriculture, horticulture and tourism sectors may be promoted through implementation of many welfare schemes and strengthening the economy of farmers. Currently however, state government planned to implement market integration scheme (MIS) for apple, mango and other citrus fruits, for ensuring remunerative prices to the farmers, subsidies on all packing material, transport and other inputs and equipments; national crop insurance scheme changing cropping pattern, incouring off-season vegetables and floriculture. Similarly, infrastructure and non-farm sectors call for special attention. Similarly, state economy has high sectoral linkage potential in tourism activities in rural and urban areas of the state. At the same time, these sub-sectors need to be made self-sustained and competitive with environmentally friendly economic growth and development. Growth of employment (especially in Assam, Haryana, Himachal Pradesh, Tamil Nadu and Utter Pradesh) in agriculture went down from positive during pre-reform period to negative during the post-reform period. The labour absorptive capacity of agriculture declined due to low land-man ratio increasing marginalization of holdings, labour-saving cropping pattern adjustments, increasing mechanization of field crop operations, low employment elasticity, high cost of production and failure of assess to the competitive markets. More importantly, farming has been viewed largely to retain the ownership of the land without commercializing and exploring this limited resource.

TABLE 4: GROWTH OF EMPLOYMENT IN HIMACHAL PRADESH DURING 1990-2015 OVER THE PRE-REFORM PERIOD (1950-90) (Percent)

Sector	Himachal Pradesh		India	
	Rural	Urban	Rural	Urban
Farming	-1.39	-6.99	0.18	-3.40
Mining & Quarries	-31.02	-	-2.28	-3.71
Manufacturing	4.40	14.76	1.78	1.83
Construction	4.98	6.67	6.43	6.26
Trade	-0.35	5.76	1.18	5.5
Transport	17.35	16.90	7.29	3.91
Social Service	7.30	2.21	3.23	3.54
Non-Farming	4.15	3.15	2.31	2.95
All Sectors	-0.13	1.68	0.66	2.27

Source: Computed from:
1)   Various Volumes of Sarvekshana, issued by Govt. of India.
2)   G.K. Chadha, "Rural Non-Farm issued Employment in India", in the Indian Income of Labour Economics, Vol. 45(4): 663-94.

TABLE 5: RANK CORRELATION OF LINKAGE INDICATES OF CLOSED STATE ECONOMY 10 X 10 SECTORS

Linkage on Matrix Multiplier	**Backword Linkages Based on**				**Forward Linkages Based on**			
	Z^1	N_2	N_2^1	Y^1	Z^1	N_2	N_2^1	Y^1
Z^1	1.00	-	-	-	1.00	-	-	-
N_2	0.60	1.00	-	-	0.71	1.00	-	-
N_2^1	0.63	0.91	1.00	-	0.51	0.80	1.00	-
Y^1	0.71	0.69	0.74	1.00	0.80	0.79	0.60	1.00

TABLE 6: RANK CORRELATION OF LINKAGE INDICATES OF STATE CLOSED ECONOMY WITH 10 X 10 MODEL

Linkage on Matrix Multiplier	**Backward Linkages Based on**				**Forward Linkages Based on**			
	Z	N_1	N_1^1	Y	Z	N_1	N_1^1	Y
Z	1.00	-	-	-	1.00	-	-	-
N_1	0.30	1.00	-	-	0.43	1.00	-	-
N_1^1	0.42	0.71	1.00	-	0.41	0.72	1.00	-
Y	0.34	0.32	0.45	1.00	0.72	0.76	0.49	1.00

It may be seen that the sectors for the four types of multipliers. Sectors having high backward linkages shown by the output multipliers do not correlate with those showing high employment, income and wages multiplier nor it show high employment multiplier with income multiplier. Similarly, forward linkages show greater correlation between the four multiplier indices. Backward linkage refer to where industry gets its inputs from and forward linkage refer to where an industry's output goes. The backward linkages to any Jth Sector (Source: "H.P. Govt. to Promote Agriculture, Horticulture, Tourism", in the Times of India, January 5, 2015, p.5). (LBj) can be measured as the ratio of purchased intermediate inputs to the total value of production, that is :

$$LB_J \frac{\sum_I X_{IJ}}{X_i} = \sum_I aij$$

The forward linkages of any i^{th} sector (LFi) can be measured as the ratio of inter-industry demand to total demand,

That is: $LF_i = \frac{\sum_j ij}{x_i}$

Where Xi is the sum of inter-industry ($\sum X_{ij}$) and final Yi) demand for industry i.e. Industries can be ranked according to their backward or forward linkages, or their sum. Both give a measure of stimulus that are industry may give to shares. Thus analysis provide a set of consistent projections for an economy indicating broadly the structure of the economy that might emerge out of the development strategy. This also explore alternative development strategies. Further, it shows the structural changes that must occur in the process of growth. Lastly, inter-industry, rural-urban consistency through input-output analysis provides structural information as a desegregation basis which is relevant for formulation of sectoral development plans. Efforts were also made in the past to measure the backward and forward linkages by using Rasmussen's method. *Source "Backward and Forward Linkages of the Plantation Sector vis-à-vis the other sectors in Kerala's economy, 1973-74", by S. Uma Devi, Indian Journal of Agricultural Economics, Vol. XLIII(I) : 44-45.*

6. SUMMARY

Development depends upon availability and utilization of resources like men, material, capital, entrepreneurial ability. Availability and utilization of these resources by economic system and its organization in public and private sector transform the economy. Indian economy witnessed unprecedented demographic changes which substantially increased human labour in the country. The working population (15-59 years of age) in India is likely to increase from 58.5 percent in 2001 to over 64 percent by 2021. This is a challenge as well as opportunity to effectively use and improve the productivity of public and private sector enterprises. Rural and urban linkages have been studied in the context of capital formation, labour migration, flow of input output, sectoral growth and its relative importance. Therefore, the magnitude of existence and persistence of dualism in the economy changes with the level of its growth and development. The planning era witnessed stress on development of industries and linkages between the two sectors weaken during 1980s compared to pre-green revolution period (Bhattacharya and Rao, 1986; Staysail and Vishwanathan, 1999). An attempt has been made in this paper to estimate and study the inter-sectoral linkages of human and non human resources in rural and urban areas in the state of Himachal Pradesh. Our analysis suggests effective men power planning and relevant policy implication for growth, development and social justice in an economy. However, use of proper prices and realistic inter-sectoral coefficients would not only enhance the manufacturing sectors growth with poverty eradication, but it would sustain it beyond 14 percent per annum which would account for over 35 percent share in the national income. Allocation and investment priorities in selected sectors of the economy till today seems to have been made arbitrarily. Similarly the percent share of investment under each sector of the economy may be viewed from the table under reference. It may be noted that size of the First Five Year Plan (1951-56) in this hilly region of Himalayas was of the order of Rs. 0.53 Crore. Its highest priority was given to Industrial sector (46.3 per cent), while agriculture stood second highest (14 per cent) in the plan investment at that beginning era of Indian Planning. Today, the size of the Plan (12th-2012-17) in this Himalayan region has substantially increased to Rs. 2.5 thousand Crore. But, highest priority investment changed in favour of social service (30.9 per cent) and service sector (18.9 per cent). Therefore, agriculture and industry linkages were not only ignored, but thrown out of priorities. Resultantly, food insecurity, hunger, poverty, unemployment and social unrest will further grow especially in the Himalayan region. It would not only cause serious threat to the geography and topography of Himalayan region, but also disturb ecology, climate and environment.

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