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Agriculture Productivity and Economic Growth: An Exploratory Study of Pre and Post-Independence Era

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Abstract:

'Agriculture is the backbone of the Indian Economy', a world known phrase for the Indian economy. It is widely acknowledged by the academician and policy makers that the growth of agriculture sector is the prerequisite for the inclusive development of an economy. It was also mentioned by the several economist in the growth models i.e. Gunnar Myrdal, Rostow, Libenstine and also found in the Gandhian perspective of economic development. But what seems to be happened in Indian economy over the last two decades. During past two decades majority of farmers have become poor and harried outcasts in their own country with no respectful place in the economic policy. Agriculture has become a relatively unrewarding profession causing abandoning of farming and increasing migration. It brings out the fact that something is terribly wrong in the countryside (Swaminathan-2006). The farm economy of the country is at the back foot during the reforms period. The mismatch between the increasing aspirations of the rural masses and the inability of the State and its economic model to satisfy these aspirations is not new. But the gap seems to be widening significantly after the launched of economic reforms in the early 1990s. There is no doubt that the growth process of the Indian economy has been highly impressive and that many of the macroeconomic indicators have also been equally impressive. According to the neo-liberal economic theory, such a growth performance should have resulted in the trickling down of benefits to the lower section of the society thereby lifting the laboring poor out of the poverty and various forms of deprivation. But the gap between income and expenditure of agriculture as well as the gap between the incomes of rural and urban has been widen during the reforms period. It has an outcome of the declined farm and factor productivity and lack of, off farm employment opportunities. On the other hand the development policies are urban centric. Nonetheless, we are far away from the goal of inclusive development. The present paper focuses on the factors that are responsible for the declining agricultural productivity and deterioration of the rural and agrarian economy. It has also pointing towards the impact of the deterioration of farm economy on the inclusive development of the Indian economy.

Key Words: Agrarian Economy, Inclusive Development, Farm Crisis.

Introduction:

Indian agriculture has never been a profession of profit. As has been pointed out by Amartya Sen (1962, 1964), if the family members working in agriculture are given an 'imputed Value', most of the Indian agriculture will turn to be an unremunerative. Agrarian relations in India had undergone a sea-change during the period of last two decades of economic reforms. Changes in agrarian relations occurred due to the changing policies and change in agricultural market. Changing macroeconomic policies and other changes led to the gross neglect of agriculture consisting of 53.6 per cent of the population and one fifth of the electorate. This took agriculture and rural economy towards distress. Since the mid 1990s, large section of farm households have been facing a distress as a consequence of decline in agricultural income and loan repaying capacity and increased debt burden. Rain-fed areas are particularly

prone to year to year fluctuations in production and degradation in environmental resources. In the liberalized market, farmers are exposed to price volatility because of fluctuations in domestic production and international prices of agricultural commodities. The most serious aspect of this crisis is deceleration in agricultural growth with distress state of farmers in general and that of small and marginal in particular. The issue of farmers indebtedness become a matter of intense debate whenever agricultural sector faces distress. But, indebtedness is not the root cause of the current crisis. The factors that are responsible for indebtedness are vital in this phenomenon. The declined or mere stagnation in agricultural productivity, increasing production and marketing risks, institutional credit shrunk, increase in cost of cultivation and lack of alternative opportunities of employment at countryside are causes for the indebtedness and thereby pathetic act of committing suicides. The 'Demonstration

Effect' has been observed among the farmers either in production or consumption practices.

I) The Background:

The agrarian crisis in India has both long term structural and institutional as well as short term manifestations. The long term structural features indicate sharp decline in the share of agriculture in the Gross Domestic Product (GDP) accompanied by very low rate of labour force diversification away from agriculture. This has resulted in declining relative productivity of agriculture and non-agriculture sector. The growth rate of agriculture has decelerated noticeably during the post reforms period. The crisis has been exacerbated further by rapid environmental degradation and plateauing the existing agricultural technology. The liberalization of economy has failed to give a big push to agriculture sector and to increase income and employment in agriculture. The gradual withdrawal of state from active participation in development activities has resulted in sharp decline in public investment in agricultural infrastructure in general and agriculture science and technology in particular. This has resulted in deterioration of rural infrastructure; decline in factor productivity in farm economy and thereby stagnation in rural development particularly during the post reforms period.

Although, almost all the regions of the country have experienced a deceleration in their agricultural growth, the adverse impact is especially serious in rain fed regions and among small and marginal farmers. The income from agriculture had been declined with increased cost of cultivation. However, the institutional credit supply dried up and farmers resorted to private moneylenders for their credit needs. The moneylenders took disadvantage of the footloose situation of farmers and charged heavy rates of interest on loan amount doubling the principal amount within a year or two. The situation further aggravated during the post reforms period.

The present agrarian crisis is closely associated with the misapplication of the macroeconomic policies towards agriculture during the post independence period in general and that of the post reforms in particular. The blindly following of the developmental policies of the developed countries has an adverse impact on the agriculture sector of the country. The innovation in the agriculture during the 1960s expected an inclusive growth of the sector as well as economy but has been limited to few crops (Paddy and Wheat) and in few states i.e. Punjab and Haryana. The increase in the agricultural credit remains only on paper and in real terms it has been

stagnant over the decades. The co-operatives are far away from their target group i.e. small, marginal and weaker sections of the agrarian community. However, the institutional structure of agricultural produce marketing failed to address the farming community and became a play ground for the new comers in the politics. The functioning of APMCs is like a private entity of the traders, whereas farmers are the mute receiver. This is the situation of the domestic institutional marketing mechanism of agricultural produce. Whereas, at international level, farmers have to face the international market competition without State support. Government withdrew the institutional support through reduction in import duties during the 1998 to 2001 from earlier 35 to 5 per cent. At the same time developed countries continuously support their farmers through direct subsidies under different schemes. Over the years, Indian government reduced the volume of indirect subsidies to the agriculture sector. It has resulted into increase in the cost of cultivation and the mere stagnant or declined support prices caused for the increase in the gap between income and expenditure.

In all, declined factor and crop productivity and thereby deterioration of agrarian economy in the country has the positive correlation with the agricultural and macroeconomic policies since the independence in general and post reforms in particular. It has been the negative impact on the inclusive development in India.

II) Agrarian Scenario in India:

The agricultural development in India essentially involves five important phases. The first phase involves the period prior to independence of the country. This period was marked by the retrogression of the sector and ended by leaving the country with perhaps the world's most refractory land problem. The second phase of development of agriculture sector covers the period of independence influenced both by the indigenous thinking about development i.e. Gandhian Perspective and also the western process of growth borrowed from the industrialized countries. This phase ended with the drought of mid-sixties when food security and acute poverty became prominent issues. The third phase consist the Green Revolution after the mid-sixties. Afterwards India not only met the domestic requirement of food but also became a net exporter of food grains particularly the Wheat and Rice. This was the success of the technological changes of the 1960s. This should be equally credited to the participation of farmers in readily accepting technological innovations along with the availability of new inputs. The role of farmers in the

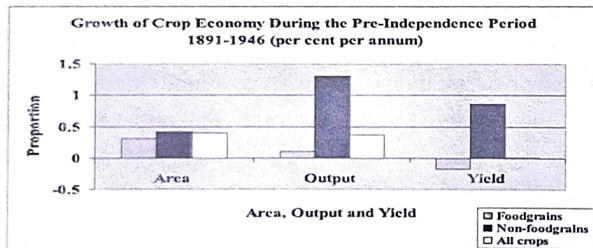
process of the spread of technological changes is of prime importance but acknowledged or highlighted rarely. The half-clad, ill-fed and under-nourished farmer with strong resource constrains was fully charged to provide food security to the country and to prove wrong the predictions of a widespread famine by the western economists. Therefore, the achievements of the technological change were possible only due to the farmers' positive role and whole-hearted participation in the process. This was followed by two distinct phases of growth, i.e. the immediate fall-outs of technological change and the phase of new economic policy.

Agriculture during Colonial Period:

Table- 01 Growth of Crop Economy during the Pre-Independence Period 1891-1946 (per cent per annum)

Sr. No.	Crop Groups	Area	Output	Yield
1	Food-grains	0.31	0.11	-0.18
2	Non-foodgrains	0.42	1.31	0.86
3	All crops	0.40	0.37	0.01

Source: State of the Indian Farmer A Millennium Study, Vol-09



During the pre-independence period, even though food was the major contribution expected from the agriculture sector, the foodgrain sector recorded extremely dismal rate of growth. The data in the above table revealed the agricultural stagnation during the period of 1891 to 1946 can be noted from the growth rates of 0.37 per cent per annum for all crops. It is further painful to observe that the foodgrain output grew only at 0.11 per cent per annum which was far below the growth of population during that period. The growth rates in non-foodgrains were higher than foodgrains which indicated strong forces of commercialization operating in the sector. It means, the farmers growing food crops were facing major constrains compared with those growing non-food crops. The growth of agriculture sector came mainly through the expansion of area under the crops and not through improvements in productivity. The productivity growth of 0.01 per cent per annum in all crops indicates stagnation or near absence of any technological changes over a half century. Production of non-food crops grew at much faster rate than food crops and same trend was visible in area as well as productivity.

It points to the historical process of commercialization of agriculture during British Rule, which favoured selected crops and areas of importance. The farmer and his welfare was obviously not the focus of the developmental process then.

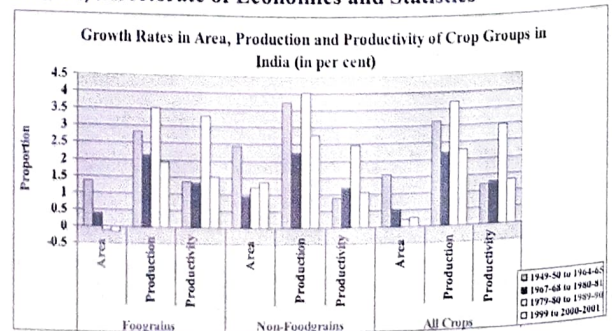
III) Post Independence:

At the time of independence, the agricultural economy of the country was clearly a stagnant with wide regional diversities, lower resource availability, inadequate institutional support and acute poverty. The policy makers then began with an optimistic note and recognized the problems at the outset. The farmers became the focus of reforms and increasing their efficiency became major objective. Farmers and food crops became the focus of the strategy during the period of Green Revolution. The technological changes focused on Cereals as a broad group and Paddy as well as Wheat as the vanguards of the revolution. The process involved providing essential resources for the transfer of the technology from lab to land along with extension support. In addition to this other support institutions also helped the technology to take roots in the farm i.e. price policy, agricultural education, extension services and provision of credit. All these presumed the farmer as a active participant, without really making the group as a part of decision making process at least overtly.

Table- 02 Growth Rates in Area, Production and Productivity by Crop Groups in India (in per cent)

Crop Groups		1949-50 to 1964-65	1967-68 to 1980-81	1979-80 to 1989-90	1999 to 2000-01
		Foodgrains	Area: 1.35	0.38	-0.11
	Production: 2.82	2.15	3.54	1.94	
	Productivity: 1.36	1.33	3.33	1.52	
Non-Food-grains	Area: 2.44	0.94	1.21	1.37	
	Production: 3.74	2.26	4.02	2.78	
	Productivity: 0.89	1.19	2.47	1.04	
All Crops	Area: 1.58	0.51	0.21	0.25	
	Production: 3.15	2.19	3.72	2.28	
	Productivity: 1.21	1.28	2.99	1.31	

Source: Government of India(1999)Agricultural Situation in India, Directorate of Economics and Statistics



It comes out clearly from data that the non-food crops dominated the growth in the crop economy during 1949-65 and the growth in the production of food crops came mainly through the expansion of area. Growth in productivity of food crops was quite low indicating little gains due to technological innovations during that period. The situation changed after the introduction of new technology. Growth of food-grains was quite impressive. It was food-grains, which contributed mainly to the crop economy, and the growth came out of improvement in yield per hectare. The growth rates in production of food-grains stayed ahead of the growth rates in population in following decades thereby ensuring certain minimum per capita availability of food-grains. The expansion in area under foodgrains more or less ceased by 1980s and growth in production was clearly visible during eighties and nineties. Yield improvement is seen during the seventies and the second spurt in the growth is visible around the late eighties. Production and productivity seem to be stagnated in the post 1997 period. The gains of technological changes were incurred in a few states and for a few crops. A large portion of the farming community was out of the technological changes during the mid1960s. As a result, the gains from the innovation were not as per the level of expectation. And more vigorously small and marginal farmers were at the marginal in this new commercial agricultural practice.

The transformation of the agriculture sector also had its negative externalities. The objections were directed more towards the inclusiveness in region, crop and groups of farmers participating in the technological change. The technological change resulted in widening the regional as well as interpersonal disparities.

Table-03 Area, Production and Yield of Major Crops in India 2003-04 to 2008-09

Crop / Group of Crops	Season	Area	Production	Yield
I. Food-grains				
Rice	Kharif	39.51	79.65	2016
	Rabi	4.26	13.18	3097
	Total	43.77	92.83	2121
Wheat	Rabi	27.33	74.61	2730
	Kharif	3.60	3.80	1055
	Total	8.31	7.44	896
Jowar	Kharif	9.33	8.58	920
	Rabi	6.87	12.88	1877
	Total	0.97	3.65	3741
Bajra	Kharif	7.84	16.53	2109
	Rabi	7.84	16.53	2109
	Total	7.84	16.53	2109
Total Coarse Cereals	Kharif	22.22	27.83	1252
	Rabi	6.32	8.62	1363

	Total	28.54	36.45	1277
Tur	Kharif	3.55	2.55	717
Gram	Rabi	7.31	6.04	826
Total Pulses	Kharif	10.79	5.09	472
	Rabi	12.02	8.91	742
	Total	22.81	14.00	614
Total Food-grains	Kharif	72.53	112.57	1552
	Rabi	49.93	105.33	2109
	Total	122.46	217.90	1779
II. Oilseeds				
Groundnut	Total	6.29	7.20	1144
Rapeseed & Mustard	Rabi	6.70	7.24	1080
Soyabean	Kharif	8.40	8.97	1068
Sunflower	Total	2.08	1.29	623
Nine Oilseeds	Total	27.23	26.82	985
III. Other Cash Crops				
Sugarcane	Total	4.50	301.40	67024
Cotton @	Total	9.09	21.14	396
Jute & Mesta \$	Total	0.47	15.53	6010
Potato *	Total	1.41	24.25	17207
Onion *	Total	0.62	7.81	12520

Source: Directorate of Economics and Statistics, Department of Agriculture and Co-operation(3.5)
Area- Million Hectare, Production- Million Ton, Yield- Kg./ per hectare

@ Production in million bales of 170 kg of each

\$ Production in million bales of 180 kg of each

* data not updated

Table-04 Area, Production and Yield of Food grains along with Irrigation Coverage 2000-01 to 2010-11

2000-01	121.05	19.35648	196.81	-6.60027	1626	-4.79705	43.4
2001-02	122.78	24.18902	212.85	7.535823	1734	6.228374	43.0
2002-03	113.86	6.025818	174.77	-21.7886	1535	-12.9642	42.8
2003-04	123.45	31.21833	213.19	18.02148	1727	11.11754	42.2
2004-05	120	17.125	198.36	-7.47631	1652	-4.53995	44.2
2005-06	121.6	22.91579	208.6	4.908917	1715	3.673469	45.5
2006-07	123.71	25.4156	217.28	3.994845	1756	2.334852	46.3
2007-08	124.07	24.36016	230.78	5.849727	1860	5.591398	46.8
2008-09	122.83	21.82047	234.47	1.573762	1909	2.566789	NA
2009-10*	121.37	20.16707	218.2	-7.45646	1798	-6.17353	NA
2010-11**	69.05	-106.721	114.63	-90.3516	1660	-8.31325	NA

Source: Directorate of Economics and Statistics, Department of Agriculture and Co-operation(3.6)

Area-Million Hectare, Production- Million Ton, Yield- Kg./ per hectare

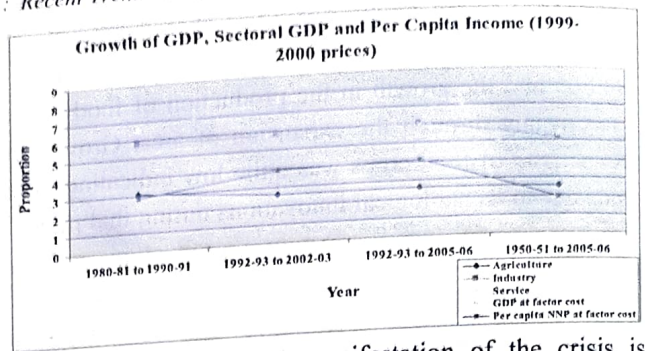
The data in the above table revealed the area production and yield for the period of 2000 to 2011. Initially the plan target i.e. first five year plan was food security. And we received the success more than level of expectation. But during the 1960s the situations of food-grains production was became worst. During that period the Indian agriculture was introduced with the new technological innovation i.e. the Green Revolution. It has

resultant impact on the crop productivity and it increased substantially. Irrigation is the key factor for the agricultural development. At the initial stage only 18.1 per cent of the total area under food-grains had irrigation coverage which was increased later but very slowly. At present 46.8 per cent of the total area under food crops is under irrigation. Still 54.2 per cent of the area is out of the purview of institutional and individual irrigation. This is the obstacle in the 11th five year plan goal of food security and 4 per cent growth of agricultural economy and thereby 10 per cent growth of the overall economy. After the implementation of the new policy during the mid 60s there were a boost in the agricultural production and thereby productivity. Till the late 1980s the crop productivity increased substantially. But during the period of new economic reforms and WTO amendment the production of food-grains has been volatile. Further the situation became worse during East Asian Economic Crisis in 1996-97. Another reason of the deceleration or mere stagnancy in the food grains production is the fundamental Law of Returns; which is applicable for the agriculture sector. According to the law; at the initial stage of production all factors of production are efficient hence there is incremental trend in production. As a time passes, the sector experiences a stagnation and thereby deceleration due to the over exploitation of technology and natural resources. In India, the boom in agriculture sector during the period of 1970-1990 was the resultant impact of green revolution of 1966. After 1991 the agriculture sector faced the stagnation and since 2003 the agricultural production decelerated considerably. And the country experienced the food insecurity and thereby food price inflation which has almost crossed the limit of 18 per cent in 2009-10. Hence now the policy makers are thinking about the second green revolution which is expected to give the sustainable food security.

Table-05 Growth of GDP, Sectoral GDP and Per Capita Income (1999-2000 prices)

Sr. No.	Year	Agriculture	Industry	Service	GDP at factor cost	Per capita NNP at factor cost
1.	1980-81 to 1990-91	3.08	5.79	6.54	5.15	2.82
2.	1992-93 to 2002-03	2.61	5.82	7.65	5.85	3.89
3.	1992-93 to 2005-06	2.57	6.05	7.72	6.00	4.10
4.	1950-51 to 2005-06	2.54	5.19	5.40	4.26	1.94

Source: CSO National Accounts Statistics, Various years



The most important manifestation of the crisis is deceleration of agricultural growth combined with increasing inefficiency in use of input and thereby adversely affecting the profitability of the sector. The growth rate of GDP from agriculture decelerated from 3.08 per cent during 1980-81 to 1990-91 to 2.61 per cent in 1992-93 to 2002-03. The growth rate of agriculture both in terms of GDP from agriculture and agricultural output has also decelerated in most of the states. Increasing share of service sector in GDP is an obstacle in sustainable development due to lack of creativity. Hence, sectoral transformation in the economy is required. Industrial sector has also shown an increasing trend during the mentioned period. But the share of service sector was high as compare to other sectors. Increasing share of the service sector in GDP indicates that the post reforms policies were more in favour of the same and adverse to the agriculture sector. As a result the economy is facing the problem of 'Jobless Growth' during reforms period. The negligence of the agriculture in the policy domain has reflecting by the declining share of the sector in GDP during the post reforms period.

Table-06 Per Worker Productivity in Agriculture and Non-Agriculture 2004-05 (Rs.)

Sr. No.	State	Agriculture	Non Agriculture	Non agri./agri.
1.	Andhra Pradesh	11245	56414	5.02
2.	Assam	9205	49592	5.39
3.	Bihar	4862	22392	4.61
4.	Gujarat	12934	104512	8.08
5.	Haryana	26192	85128	3.25
6.	Himachal P.	9796	69818	7.13
7.	Jammu & K.	14672	45400	3.09
8.	Karnataka	9653	82316	8.53
9.	Kerala	16139	56318	3.49
10.	Madhya Pradesh	6606	44980	6.81
11.	Maharashtra	9130	106912	11.71
12.	Orissa	7871	41341	5.25
13.	Punjab	35087	70138	2.00
14.	Rajasthan	10609	56830	5.36
15.	Tamil nadu	10789	58793	5.45
16.	Utter Pradesh	10367	42683	4.12
17.	West Bengal	17113	60307	3.52
18.	India	12371	61432	4.97

Source: CSO Employment and Unemployment Situation in India, 2004 and CSO Gross State Domestic Product, 2004-05

Among states, there were only few achievers in agricultural productivity. Productivity of Punjab worker was Rs.35,000/- this is 7.5 times that of Bihar. There was a decline in per worker productivity in agriculture in eight out of seventeen states. Per worker productivity for non-agricultural workers was high for all the states. In Maharashtra, productivity of non-agricultural worker was 11.71 times high than agricultural worker. This was higher than of national average. It means the income inequalities were high in the state of Maharashtra. The high income group lived in a luxurious life whereas the farming community was begging for basic needs. The general price level increased as per the increase in income of the non-agriculture worker and farmers and non-farmers groups have paid same price for the consumption. However, income of the farming community was not increased proportionate to non-agriculture group. Hence, farmers have to borrow the money for consumption purpose from the private sources at high rates of interest. The income inequalities were high in comparatively developed states as compare to under developed states. And these states were highly affected by farm suicides. The high ratio of agricultural and non-agricultural productivity is relatively more in industrial states like, Maharashtra, Gujarat and Karnataka indicates weak linkage between agricultural and non-agricultural sectors.

Sikkim	64.6	30.2	5.2	35.4
Tamil Nadu	68.9	25	6	31
Tripura	52.5	20.2	25.1	45.3
Uttar Pradesh	58.8	24	16.5	40.5
Uttaranchal	46.8	42.3	10.9	53.2
West Bengal	53.8	35.4	10.1	45.5
All India	59.4	26.5	13.6	40.1

Source: NSSO (2005 a, 2005b)

Farmers in India have perhaps reported willingness at first to leave agriculture as a profession provided that the substitute way of livelihood is available mainly because that the cultivation is no more remunerative. Overall proportion of the negative desire is of 40.1 per cent with Uttaranchal, West Bengal, Tripura, Uttar Pradesh, Karnataka, Maharashtra, Haryana and Andhra Pradesh leading the list.

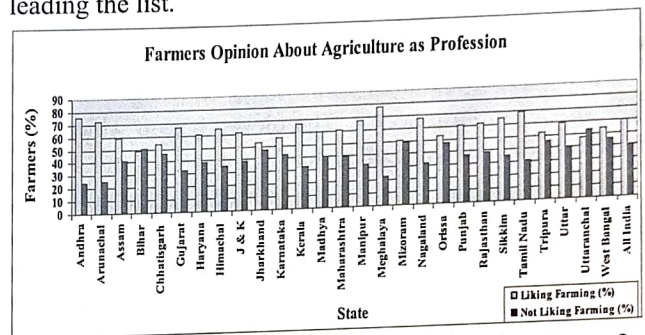


Table-07 Farmers Opinion about Agriculture as Profession

States	Liking farming (%)	Not liking farming		Total (%)
		Not Profitable (%)	Others (%)	
Andhra Pradesh	75.4	16.7	7.5	24.2
Arunachal Pradesh	72.1	10.7	14.3	25
Assam	59	21.2	19.7	40.9
Bihar	48.6	35.5	15.3	50.5
Chhatisgarh	53.7	24.2	22.1	46.3
Gujarat	66.8	25.4	7.5	32.9
Haryana	60.3	29.9	8.4	38.3
Himachal Pradesh	64.6	18.4	16.7	35.1
J & K	61.5	20.9	17.6	38.5
Jharkhand	52.8	30.2	16.8	47
Karnataka	56.7	27.9	15.4	43.3
Kerala	66.6	27.9	5.1	33
Madhya Pradesh	59.5	21.4	18.9	40.3
Maharashtra	60.7	28.6	10.7	39.3
Manipur	67.4	28.2	4.2	32.4
Meghalaya	77.4	15.2	7.4	22.6
Mizoram	50.8	34.1	14.6	48.7
Nagaland	67.6	26.8	4.5	32.3
Orissa	53.1	33.8	12.9	46.7
Punjab	60.8	27.2	9.7	36.9
Rajasthan	61.2	21.5	17.3	38.8

All the states from where farmers don't prefer agriculture is because it is not profitable to them due to increased cost of cultivation, stagnated productivity and mismatch between input and output prices. Unwillingness of farmers for agriculture profession has become a matter of concern because still we do not have the mechanism or substitute source to merge the farmers or say unskilled labour force. Already economy is facing the problem of informal sector labour and the trend among the farmers will further aggravate the situation. Hence, in future policy makers should take concern that to draft such a policy which will create the off farm employment opportunities in rural parts.

Conclusion:

In India, the marginalization of agriculture and rural sector ever since 1990s in the national planning and declined State investment in rural infrastructure and extension had caused in dwindling farm productivity and increase in cost of cultivation which resulted in the manifestation of the rural crisis and thereby distressful act of farmers suicides. The migration of rural to urban creates the pressure on the civil services and increase in the incidence of poverty in urban area. The gap between urban and rural income has been widened during the economic reforms period. The incidence of rural poverty is still high at alarming rate which is the matter of concern. On the one hand economy is growing at the rate

of 8-9 per cent and on the other the rate of unemployment and poverty has been increased. Can economy achieve the inclusive growth in this dualism? Certainly not. In order to reverse the emerging dualism, it is not merely enough to draft an inclusive policy by having a number of supplementary programmes and scheme. It is necessary to restoration of the original agenda of economic development of which inclusion is an integral part. The focus should be on planned development of agriculture and related activities and establishment of micro and cottage industry to generate off farm employment opportunities in rural part. Which will reduces the dependency on agriculture sector for the livelihood purpose. It will also help to reduce the incidence of 'Disguised Unemployment' in farm sector and thereby increasing agriculture productivity. Another way to increase the agricultural productivity is to introduce the PPP model in farm sector. The eleventh plan which was expected 8.5 per cent of annual growth rate and 10 per cent for the last two years with 4 per cent of the growth of agriculture with an inclusion has already been disproved as the agriculture has registered negative rate of growth. Hence, unless the plan incorporates the rural and farming economy with the policy intervention on the one front and special targeting of agriculture on the other it will not be possible to achieve the objective of inclusive growth in years to come.

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