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Development in Punjab**

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TOWARDS ALTERNATIVE STRATEGY OF ECONOMIC DEVELOPMENT IN PUNJAB

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Abstract

This paper has examined long term trends of growth and structural change of Punjab economy. The evolution of the structure of the Punjab economy reveals the fact that Punjab has over stayed in agriculture. The consequences of this over stay are resulting into economic and ecological disaster. The slowdown of agriculture sector has impacted and stunted the growth of other sectors of the economy and resulted into marginalization of the state's economy compared with other dynamic Indian states. It is now fell from top to middle income state and occupy the 7th rank in terms of per capita income. The agricultural labourers and farmers are committing suicides. Poverty and inequality has returned to Punjab. The developmental institutions have turned non-functional and private corporate sector has turned back to Punjab especially in the post reforms period. Factors that have been hindering the process of economic development of the Punjab economy are identified. The evolution of political scenario is examined to identify the cause of political apathy towards the long standing economic problems. An alternative strategy has been developed and preconditions are identified so that 21st century Punjab can be envisioned. The new strategy has a capacity to make the process of economic development increasingly inclusive and ecologically sustainable.

Keywords: Punjab Economy, evolution of economic development, overstay of agriculture, alternative strategy, public policy, India, development economics, technological constraints, structural change.

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Introduction

History has remained unkind to Punjab—a well-known geographical region of British colonial kingdom in India for land of five rivers and composite culture. With the end of colonial rule in 1947, Punjab was partitioned into East and West Punjab. This division resulted into turmoil in the region and consequently unprecedented transfer of population around 10 million and loss of human lives between 0.5 and 0.8 million due to communal riots (Ahmed 2011 and Singh, Singh and Singh 2014). The erection of artificial border and snapping of trade ties along with hostile international relations between India and Pakistan increased manifold the suffering of people of both East and West Punjab (Gill, Ghuman, Singh, Singh, Singh and Brar 2010). The disruption of economic activities for such a large sized population occurred and the rehabilitation posed a big challenge. However, Indian Punjab government rather quickly allocated productive assets to rehabilitate the refugee population such as land for cultivation, loans for housing, skill development and establishment of industrial areas near the cities (Randhawa 1954 and Jain 2016). Several institutional reforms were initiated with an objective in mind to generate capability for building production base both in agriculture and industrial sectors. This was supplemented with heavy public investment in electricity generation, irrigation system, credit network, agriculture marketing system, agriculture research and extension system and rural road networks. The web of institutional arrangements played catalytic role in revamping and revitalization of modern agriculture production system and small scale industrial development in the Punjab state.

As the revival of Punjab economy has started happening, Punjab state again divided into present Punjab, Haryana and Himachal Pradesh on November 1, 1966. The division of Punjab coincided with the rise of agriculture productivity multiple times due to new technology of HYV seeds known as green revolution. On the one hand, the division of Punjab on the basis of language made it a Sikh majority state but on the other hand, it was politically marginalized due to reduction of number of members in both the houses of parliament. However, the rise of economic might due to green revolution and providing food security to the country to some extent compensated for its political marginalization. Reduction of poverty and rise of per capita income were the remarkable achievements of the Punjab economy. In the post green revolution period, the Punjab state was turned out to be an iconic state (Basu 2016) and was ranked number one among the major Indian states in terms of per capita income. This provided it the status of a role model to be emulated in other parts of India and also in other developing countries. The glory of Punjab sooner than expected started fading due to decreasing returns to scale and limits of growth of agriculture based development and consequently political turmoil in the 1980s was mainly reflection of economic stagnation but coloured by the religion, territorial and water issues. This made socio-political scenario more complex and political turmoil made well-functioning institutional arrangements and public policy dysfunctional, which could not be restored even after the democratically elected government for two and a half decades. Precisely because of this reason Punjab could not draw any benefit from the economic reforms initiated after July 1991. Punjab during the period of more than two decades and a half has been increasingly marginalized in terms of economic status indicative of the fact that its relative rank dropped among the Indian states from first to seventh in terms of per capita income (Government of India 2015). Why Punjab economy trailed behind compared with other Indian states in the post reforms period is a matter of great concern? Can the lost glory of Punjab economy be restored? These are the vital questions that need investigation and further exploration to arrive at a futuristic strategy that will help the concerned to design policy to revive and

rejuvenate the Punjab economy. This paper is a modest attempt in this direction. The rest of the paper is organized in four sections. The following section examines the evolution of the structure of Punjab economy to ascertain the weak links for slow progress of the Punjab economy in the post reforms period. In section three, factors that led to allow Punjab to overstay in agriculture are identified. Alternative process of economic development and new initiatives are outlined to provide opportunity to policy makers for drawing benefits from fresh thinking on Punjab economy. Emerging conclusions and policy implications are described in the last section.

Evolution of the Structure of Punjab Economy:

The long term changes in the structure of the economy give a fair idea about the performance of an economy. The modern economic growth, triggered from technological and institutional changes, determines the rate and spread of economic transformation of an economy over time (Kuznets 1966). The evolutionary trends of advanced industrial countries captured through careful empirical analysis over two centuries and empirical evidence showed a high degree of correlation between increasing importance of industrial sector and level of economic development measured by per capita income (Kuznets 1966 and Chenery 1960). It is significant to note from these studies that the co-evolution of the production structure and work force/employment structure has not only shifted workforce from traditional economic activities to high productivity modern sector but also accompanied by dramatic changes in supportive institutional arrangements, improved socio-economic conditions and building composite culture which generated relatively the environment of equal opportunities. The backward linkages also improved productivity of the traditional sector and helped it through innovations and modern technology to build capacity and capability to meet food and other raw material requirements of the urban population. This kind of experience has generated demonstration effect and thus developing economies started aspiring to catch up with the western capitalist economies of the world. Keeping this in mind the political leadership in India (Punjab) also planned to steer the economic transformation process in the post-independence period. This is known as economic development consensus in the post second world war period where the state was entrusted responsibility to lead the economy in structural transformation through investment programmes (Nayyar 2013). Punjab state has also benefited from the development consensus and state led investment programme during the period of 1950s and early 1960s. But war with Pakistan in 1965 generated fear both among the private corporate sector and public sector investment by the Union government that deprived Punjab from the location of large scale industrial units due to its proximity to the border. Soon after the war, the Indian government suspended the planning process and declared plan holidays from 1966-1969. PL 480 agreement was reached with USA for securing food aid, which indicates the desperate situation of the Indian government due to food shortages. As the agriculture productivity started rising in Punjab, the Union government increased investment flow to agriculture sector of the state and system of public procurement at a minimum support prices. These prices and other concessions in the form of subsidies on seeds, fertilizers and farm machinery acted as an incentive to the farmers to make further investment in agriculture. Consequently, the agriculture sector showed promise to the state to reduce poverty and rise of per capita income along with employment opportunities. The establishment of the agriculture innovation system was having mandate from both the union government and also from the state government to develop seed varieties that only pertains to food grains (Gill, Singh and Sharma 2016). Therefore, two food grain crops started dominating the agriculture of Punjab, that is, wheat and rice. This has significantly affected the growth patterns and structure of the Punjab economy.

Punjab economy on the eve of green revolution was predominantly agrarian economy and generated 52.85 per cent of the state domestic product (SDP) in 1966-67 (L.Singh and S. Singh 2002). Agriculture production contributed nearly 41 per cent to the SDP and 10.7 per cent was from the livestock. This gives fairly good idea how agriculture production base was important for the Punjab economy and growth performance of this sector was very crucial and catalytic agent for the performance of the other sectors of the economy. The growth scenario for the period 1966-67 to 1979-80, which is the early period of green revolution, clearly shows that the contribution of agriculture sector to the state economy marginally increased 54.3 per cent in 1970-71 and thereafter it started declining. Within agriculture sector the rate of growth of agriculture proper increased at a rate more than 3 per cent per annum but the income growth from livestock increased at 6.1 per cent during the period 1966-67 to 1979-80. During the same period, the growth rate of combined agriculture sector was nearly 4 per cent per annum. It is important to note that SDP from livestock increased dramatically nearly 5 percentage point between the period 1966-67 and 1970-71 and continue to increase marginally thereafter but there was a continuous and slow decline in the share of agriculture proper in the SDP. The other sectors such as banking and insurance, electricity, manufacturing, public administration and transportation, storage and communication showed high growth potential during the period 1966-67 to 1979-80. The relative decline of the share of agriculture sector to the SDP was nearly 10 percentage point during the period of the 1980s was mainly gained by the manufacturing sector. However, the growth of the agriculture sector was peaked during the decade of the 1980s, that is, 5.15 per cent per annum. The manufacturing sector gained maximum, that is, 7 percentage point and other sectors gained marginally from the decline of agriculture sector (L. Singh and S. Singh 2002). It is important to note that the decade of the 1980s was also the period of turmoil but the growth momentum of the previous decade continued in gaining the higher growth rates in this decade also. This decade has also witnessed internal liberalization of the Indian economy but democratically elected governments in Punjab remained very fragile and most of the time president's rule was imposed to control the internal turmoil in Punjab. This turmoil not only disrupted the normal political processes, governance arrangements and investment plans of both the private and government sectors but also shifted emphasis from economic development to law and order. This kind of shift has reduced the level of investment in general and strategic investment for changing the engine of growth of the Punjab economy in particular.

Table 1: Growth rate of State Domestic Product Punjab from 1992-93 to 2014-15

Sectors	Year				
	Eighth five-year plan (1992-93 to 1996-97)	Ninth five-year plan (1997-98 to 2000-01)	Tenth five-year plan (2002-03 to 2006-07)	Eleventh five-year plan (2008-09-2011-12)	Twelfth five-year plan (2012-13 to 2014-15) (3 years average basis)
Primary Sector	3.80	1.90	2.28	1.81	0.6
Secondary Sector	7.10	4.97	7.75	7.65	1.15
Tertiary Sector	5.78	5.80	5.96	9.40	8.14
NSDP	4.81	3.97	5.11	6.85	5.52

Source: GOP (2006 and 2015).

Economic reforms of India in July 1991 shifted the widely held developmental consensus to Washington consensus. The reforms have lower down the tariff walls and also lifted controls on investment. This dramatic change in economic policy was expected to

generate new opportunities and challenges for India in general and for Punjab state in particular. It was expected that constraints on economic development of Punjab were released and new growth opportunities will overcome the challenges faced by Punjab economy. The post reform economic growth experience showed a deceleration of economic growth (L. Singh and S. Singh 2002) and Table 1 presents the plan wise sectoral rates of economic growth from 1992-93 to 2014-15. During this period, the growth rate of NSDP remained slow not only compared with the 1980s but much below the all India level as well as with other major fast growing states of India (Table 2).

Table 2: Growth Rates in SDP across major Indian States

Sr. No.	States/UTs	Averages for Plan Periods (% per annum)			
		Eighth Plan 1992-97	Ninth Plan 1997-2002	Tenth Plan 2002-07	Eleventh Plan 2007-12
1.	Andhra Pradesh	5.4	5.5	8.2	8.2
2.	Bihar	3.9	3.7	6.9	9.9
3.	Gujarat	12.9	2.8	11.0	9.5
4.	Haryana	5.2	6.0	9.0	9.0
5.	Karnataka	6.2	5.8	7.7	7.2
6.	Kerala	6.5	5.2	8.3	8.2
7.	Madhya Pradesh	6.6	4.5	5.0	9.2
8.	Maharashtra	8.9	4.1	10.1	8.6
9.	Odisha	2.3	5.1	9.2	7.1
10.	Punjab	4.8	4.0	6.0	6.7
11.	Rajasthan	8.0	5.3	7.1	8.5
12.	Tamil Nadu	7.0	4.7	9.7	7.7
13.	Uttar Pradesh	5.0	2.5	5.8	7.1
14.	West Bengal	6.3	6.5	6.2	7.3
15.	Himachal Pradesh	6.5	6.3	7.6	8.0

Source: GOI (2013).

Table 3: Sectoral Distribution of State Domestic Product of Punjab

(1980-81 prices)

Sectors	1990-91	1995-96	2000-01	2005-06	2010-11	2014-15
Agriculture and livestock	47.63	44.21	36.02	32.37	29.39	27.38
(a) Agriculture	30.69	26.54	25.50	21.35	20.17	16.78
(b) Livestock	16.94	17.67	10.52	11.02	9.22	7.78
Forestry and logging	00.59	00.50	0.32	1.21	2.08	2.50
Fishing	00.09	00.17	0.27	0.30	0.22	0.32
Mining and quarrying	00.02	00.00	0.01	0.02	0.01	0.03
Manufacturing	16.27	20.12	14.92	14.03	16.63	14.12
Electricity, gas and water supply	02.45	02.46	3.31	2.24	1.27	2.69
Construction	03.74	03.83	4.89	7.68	7.54	6.49
Trade, hotel and restaurants	11.33	11.12	12.52	13.10	11.68	13.03
Transport, storage and communication	02.32	02.58	5.22	5.77	4.89	5.76
Banking and insurance	04.67	05.23	4.48	4.87	5.60	6.07
Real estate ownership of dwelling and business services	03.20	02.62	4.60	4.52	4.40	9.27
Public administration	03.28	03.26	4.74	4.38	4.52	5.43
Other services	04.32	03.89	8.70	9.51	10.77	9.73

Source: GOP (2006 and 2015).

The analysis of the table 1 clearly brings out the fact that as the turmoil in Punjab started subsiding, the rate of growth has also decelerated from eighth five-year plan (1992 to 1997) to ninth five-year plan (1997 to 2002). As growth rate accelerated in the Indian economy in the first decade of twenty first century, Punjab economy has also improved marginally but its growth rate remained much below the national average. The sectoral growth rate experience showed that the agriculture sector has dramatically changed the course of development. The rate of growth slowed down from 3.80 per cent from eighth five-year plan to 1.90 per cent in ninth five-year plan. There was little recovery but then slipped to 1.80 per cent per annum in eleventh five-year plan. During the past three years (2012 to 2015) the growth was little higher than half per cent. The services sector has consistently and continuously increased the rate of growth during the post reform period but it surpassed even the secondary sector rate of growth in the eleventh five-year plan. Thus the changes in the sectoral growth rates has also altered the structure of the Punjab economy and can be seen through the sectoral shares during the period 1990 to 2014 presented with the interval of five years in Table 3.

Table 4: Gross fixed capital formation to gross national product in India and Punjab

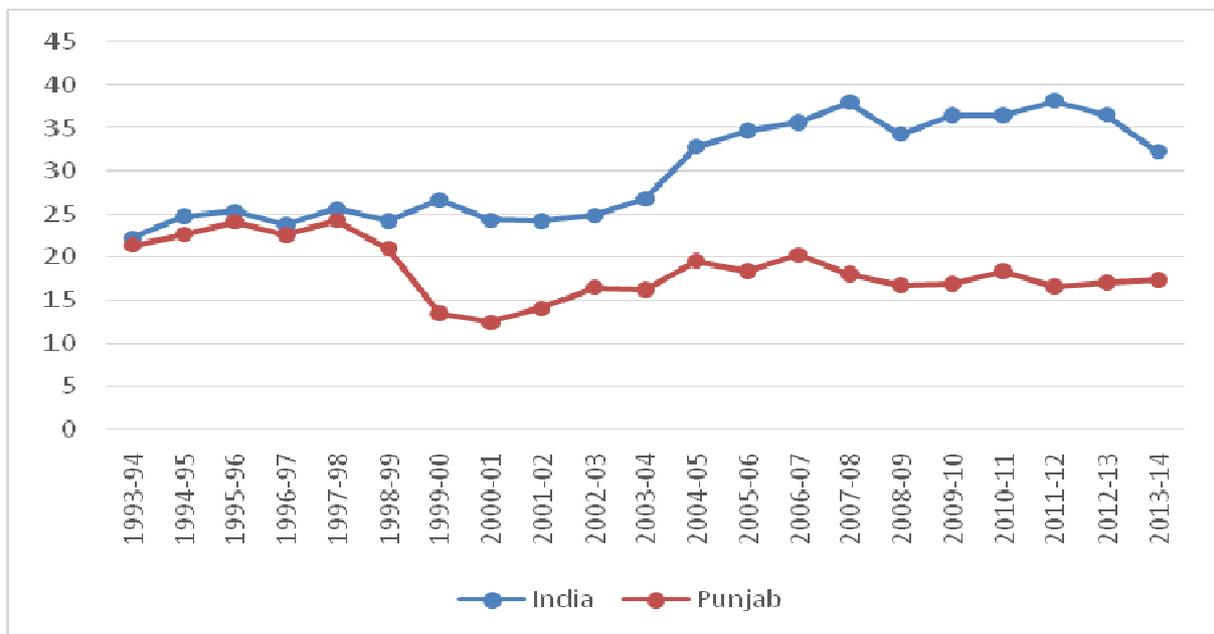
Year	India	Punjab
1993-94	22.2	21.3
1994-95	24.7	22.6
1995-96	25.3	24.1
1996-97	23.7	22.5
1997-98	25.6	24.2
1998-99	24.2	21
1999-00	26.6	13.4
2000-01	24.3	12.4
2001-02	24.2	14
2002-03	24.8	16.4
2003-04	26.8	16.2
2004-05	32.8	19.5
2005-06	34.7	18.3
2006-07	35.7	20.2
2007-08	38.1	18
2008-09	34.3	16.7
2009-10	36.5	16.8
2010-11	36.5	18.3
2011-12	38.2	16.5
2012-13	36.6	17
2013-14	32.3	17.3

Source: GOP (2015) and GOI (2016).

The analysis of the table 3 reveals that the share of agriculture in 1990-91 was 47.63 per cent which declined to 27.38 per cent in 2014-15, which is 20 percentage points. Both crop production sector and livestock lost dramatically during the post economic reforms period. It is important to note that manufacturing also recorded marginal decline in relative position. However, the loss of relative position of two productive sectors was compensated with the rise of services sector. Among the services the category of other services gained substantially followed by public administration and financial services. The slowdown of agriculture and manufacturing was fundamentally based on stagnation of investment at the level of pre-economic reforms period but India graduated to a very high investment-GDP ratio (Basu, 2016; CDEIS, 2012 and Ahluwalia, 2002). The ratio of capital formation to the

GSDP reached the lowest ebb in agriculture sector of Punjab (CDEIS, 2012 and Chand, 2008). This was due to fall of public expenditure during the period of 1990s and in the first decade of the twenty first century. This trend continued even in the first half of the second decade of the twenty first century. Similarly, the inflow of investment both foreign direct investment and corporate investment was quite slow (L. Singh 2005) but dramatic shift of industrial investment to the neighbouring states from Punjab has occurred (Ahluwalia, 2008). Precisely, because of this reason growth performance of the Punjab economy has remained poor in the post-economic reforms period. This is counter intuitive when we compare the post-economic reform period rise in the investment-GDP ratio of India and reached almost to the level of China. The divergent investment scenario of Punjab and India seems to explain the divergent trends in the growth rates achieved respectively (Table 4 and Figure I). On the whole, the history of economic development experience reveals that Punjab state has shown dynamism in terms of rise in SDP and per capita income but this dynamism lost in the post economic reforms period.

Figure 1: Gaps in gross fixed capital formation to gross national product between India and Punjab



The growth pattern and structural change remains incomplete without analysing the structural change of the work force. The analysis of the structure of work force across sectors clearly brings out the fact that there was a dramatic change in the work force employed in the agriculture sector of the Punjab economy (Table 5). When we compare the proportion of work force employed in the agriculture sector as cultivators, from 1971 to 2011 the proportion of work force declined from 42.56 per cent to 19.55 per cent. However, it needs to be noted here that absolute number of persons employed as cultivators have increased though marginally. Similarly, there was a marginal decline of proportion of work force that was working as agriculture labourers during the period under consideration. On the whole, the share of agriculture sector in work force was 62.67 per cent in 1971, which was declined to 35.60 per cent in 2011. It was decline of 27.07 percentage point. Although the manufacturing sector work force increase in absolute numbers but its relative share declined from 11.30 per cent to 10.24 per cent. The role of other workers has increased from 26.3 per cent in 1971 to 54 per cent in 2011. It is pertinent to point out here that the gap between the share of income

of agriculture sector in SDP and the share of work force employed in agriculture sector continue to remain almost same during the period of 1971 to 2011. However, the proportion of work force continued to be higher nearly 10 percentage points during the same period both in absolute numbers and in relative terms, it is disproportionately on the higher side. This reflects that the balance of the economy continues to be tilted in favour of agriculture sector of the economy. It is not exaggeration to say that engine of growth of Punjab economy is still agriculture sector. As the growth performance of agriculture sector declined in the post reforms period, the per capita income started lagging behind with several other dynamic states and according to recent estimates Punjab is ranked seventh. Punjab economy has slipped from top rank to middle income state during the past two decades and a half (Government of India, 2015).

Table 5: Changing structure of workforce across industrial categories in Punjab

Year	Cultivators	Agriculture workers	Industrial workers	Other workers	Total workers
2011	1934511 (19.55)	1588455 (16.05)	1013553 (10.24)	5360843 (54.16)	9897362 (100.00)
2001	2099330 (22.96)	1498976 (16.40)	769047 (8.41)	4774407 (52.23)	9141760 (100.00)
1991	1917210 (31.44)	1502123 (24.63)	749136 (12.28)	1929905 (31.65)	6098374 (100.00)
1981	1767286 (35.86)	1092225 (22.16)	665442 (13.50)	1402806 (28.47)	4927759 (100.00)
1971	1665153 (42.56)	786705 (20.11)	442075 (11.30)	1018664 (26.03)	3912592 (100.00)

Source: Government of India (2011), and Government of Punjab, Statistical Abstract, various issues.

Note: Figures in parenthesis are percentages.

Another important feature of evolution of the growth and structure of an economy is the reflection of it in the improvements of actual welfare seen through social indicators. The human development index of Punjab remained quite high with value 0.742 with the rank four but the proportion of population ‘multidimensional poor’ was 24.6 per cent (Dreze and Sen, 2013). However, in terms of multi-dimensionally poor¹, Punjab is just ranked next to Kerala. In terms of life expectancy at birth, infant mortality rate and maternal mortality ratio, Punjab state is way behind Kerala. Even Maharashtra and Tamil Nadu has forged ahead in terms of human development indicators as compared with Punjab and also Himachal Pradesh has achieved either slightly higher or equivalent to the level of Punjab (GOI, 2016:A153). The inter-state inequality measures based on non-income dimensions, that is, composite index of school infrastructure at primary level for the year 2005-06 was very high. According to this index, Punjab was ranked 9th among the major Indian states with value of the index 0.75 (Chakraborty, 2009). Inter-district variations measured through Gini coefficient based on per capita SDP was found to be 0.469, which was highest among the Indian states (Dubey, 2009:227). The recent household level studies conducted on Punjab have revealed increasing inequality at a rapid rate. While estimating Gini coefficient based on household assets, productive assets and household income across agriculture labour and farming categories, Satjit Singh (2008) revealed very high values of Gini coefficient in all the three districts examined. The recent Gini coefficient estimates based on 315 and 290 sampled households for the two periods, that is, 2005-06 and 2011-12 respectively also reveals very high Gini coefficients (0.46 in 2005-06 and 0.49 in 2011-12) for the rural Punjab (Vatta and Pavithra 2016). These studies provide enough evidence of rising inequality over time of various kinds across rural households in Punjab. However, this is contrary to the contribution of Punjab

model of economic development based on modern agriculture that has shown equitable and inclusive growth in Punjab (Bhalla and Chadha 1983)⁵.

Causes and Consequences of Over Stay of Punjab Economy in Agriculture

Agriculture innovations and its application in Punjab have catapulted the fortune of rural population since the mid-sixties. The rate of yield increases was very high. In the case of paddy, the yield was increased from 1009 kg per hectare in 1960-61 to 3741 kg per hectare in 2011-12. When we compare it with average yield in India prior to green revolution, Punjab had lower yield in paddy but in the post green revolution period Punjab turned out to be a leader in the yield of this crop also. The traditional crop of Punjab wheat has shown higher increments in the increases in the yield nearly four times, that is, from 1244 kg per hectare in 1960-61 to 5097 kg per hectare in 2011-12 (Sidhu, 2016). This is the result of multidimensional innovations regarding seed varieties, infrastructure, marketing and institutional arrangements (N. Singh, 2015). The long drawn investment in agriculture in the post green revolution period has generated specialization and evolved agricultural capabilities that resulted into attaining per capita income, which was highest among the major Indian states, and high consumption level reflects the welfare of the population of the state (Shergill, 2012). The agriculture sector of Punjab not only fulfilled the deficiency of food grains production and provided much needed food security to the nation but turned out to be an engine of growth of Punjab economy. Agriculture sector generated substantial amount of surpluses and initiated through some forward and backward linkages all-round economic development. There emerged small scale agriculture implements industry, transport and services along with social infrastructure and spread of health and education in Punjab (Bhalla, 1995). The agriculture led economic development has given Punjab economy the status of a role model state for capitalist economic development in a developing economy. This model of capitalist development was driven by public investment and state support. The only focus of enhancing productivity of food grains and every year higher record of production through increase in the area under two crops-wheat and paddy, higher doses of fertilizer, pesticides and insecticides, irrigation, mechanization, marginal increments in minimum support prices and subsidies. The sustained rise in production of food grains even during the drought year is based on assured irrigation system mainly provided through tubewells while exploiting ground water. The tubewell installation has increased from 6 lakh in 1980-81 to 13.84 lakh in 2012-13 (Government of Punjab, 2013). It is important to note that the electric operated tubewells increased from 2.8 lakh to 11.91 lakh during the same period. This is as high as 4.3 times the rise in the electric tubewells. The rest of the tubewells are operated by using diesel engines and the absolute numbers of diesel operated tubewells have been decreasing over the period of 1980-81 to 2012-13. The food grains produced in Punjab continued to be useful for maintaining food stocks in the country when rain fed agriculture states of India were facing drought. Monsoon often fails especially after every fourth year and sometimes continuously for two years and hence food shortages. Although the food production in the food deficit states have been increasing even at a marginal rate that has been reducing increasingly the importance of Punjab's food grain production (Chand, 2008), yet due to uncertainty of weather conditions, the assured and stable food grains supplies of Punjab continue to serve the nation. Thus, the accomplishments of green revolution have been not only noteworthy but also commendable.

The accomplishments apart, Punjab agriculture has been reeling under serious crisis. The signs of crisis started emerging in the late 1970s and full-fledged crisis in the early 1980s. It was recognized that the potential of green revolution technologies was exhausted.

Several scholars pointed out with empirical evidence the slowdown in agriculture productivity and income of the farmers (Johl, 1986, Chand 2008 and Sidhu, Joshi and Bhullar, 2008). Apart from technological constraint, the long run sustainability of Punjab food grains dominated agriculture production was questioned on the ground of over exploitation of land and ground water resources (Swaminathan, 1996, Karte and Scheunert, 1986, and Johl, 1986). The burning of biomass, that is, paddy and wheat stubble, at a large scale results in air pollution after the harvesting of food grain crops. The rising cost of agriculture and falling income from agriculture production due to increasing input intensity especially after the economic reforms initiated since July 1991 broke the backbone of the small and marginal farmers. The changing weather conditions and uncertainty arising out of it to reap the returns from agriculture production landed major chunk of peasantry into debt trap (Sidhu, Joshi and Bhullar, 2008 and Singh, Bhangoo and Sharma, 2016). The consequence of it is the rising rate of farmers and agricultural labour suicides. The agriculture crisis was predicted by the scholars who have examined the situation of farming households in particular and Punjab agriculture in general (Bhalla and Chadha, 1983 and Chadha, 1986). They have argued that Punjab state has been over stayed in agriculture and stagnation in the transformation process of Punjab economy will increase the complications of the matter and recommended full-fledged industrialization to save Punjab from impending crisis and avoidance of middle income trap. Agricultural economists and policy makers have also understood the gravity of the situation of agriculture and suggested diversification of agriculture from low value added to high value added agriculture but this strategy failed to provide the desired impetus due to faulty design and unsustainable organizational arrangements as well as the apathy of the government (S. Singh, 2016 and Johl, 1986). The constraints of capitalist model of economic development of Punjab were examined intensively and alternative workable policy suggestions to take the economy out of structural stagnation have been envisioned by the scholars as early as in the late 1980s (Gill, 1988).

It is pertinent to point out here that the long over stay of Punjab economy in agriculture have specificities ingrained in the nature of polity, public policy and locational factors. In the post partition Punjab, the political leadership envisioned Punjab as a fertile ground for agriculture development and developed and implemented public policy for promoting agriculture production as priority number one. The food shortages were seen as a big hindrance in the process of industrialization strategy adopted by the national government. Since congress party was dominant in the political scenario of Punjab, the emphasis on agriculture investment and solving nation's problems was fundamental priority. But after green revolution and forming of Sikh majority state in 1966, there emerged religion based Shiromani Akali Dal as a custodian for matters related to Punjab. When Congress party was replaced from the government by the Shiromani Akali Dal in alliance with Jan Sang and leftist parties in 1967, Punjab was entered into political instability due to successively short lived governments (Gill and Singhal, 1984). Akali Dal has drawn power while developing base in the peasantry and championed the cause of Punjab peasantry in terms of facilitating them securing procurement of the agriculture production by the Union government, rise in the minimum support prices and other facilities and subsidies. In a way perpetuation of intensification of agriculture and pursuing religious agenda to marginalize the left and democratic forces in the polity of Punjab by the Shiromani Akali Dal has prolonged over stay of Punjab in agriculture. Since the political leadership as and when faced problems related to the stagnation of structural transformation of the Punjab economy, they diverted through raising religious concerns and movements against the long pending issues such as territorial disputes, transfer of Chandigarh- a capital city and river water sharing. This was suitable even to the congress party in power in the Union government of India and hence combined

together both the parties pushed Punjab in turmoil in the late 1970s and early 1980s and created crisis that lasted more than a decade. Punjab economy has thrown challenges before the political leadership of Punjab, but leadership learned and perfected the art of side tracking the main issue of economic transformation and successfully curbed the positive social democratic movements that were posing the challenge to bring main issue at the fore. Even during the post liberalization period and restoration of democratic rule, Punjab continued to remain in same mode of its production structure. Rather the wheat-paddy rotation perpetuated. Despite the 25 years of democratically elected governments (10 years' congress with interval in power and 15 years' Shiromani Akali Dal and BJP alliance in power), the public policy that perpetuate the existing production system has remained in the saddles. The lack of vision and will of the political leadership in economic transformation continued in not taking any long term and short term measures to shift the economy from agriculture to other higher stages of economic development. This is the fundamental cause of over stay of Punjab in an agrarian economy that has disastrous consequences. There are other historical factors such as long border (553 kms) with Pakistan and continuous threat of war and actual wars of 1965 and 1971 have generated a situation not conducive for heavy investment in industry. The recent order to clear 10 kms area adjoining to the border with Pakistan is the testimony of disturbed conditions and instability arising in the minds of entrepreneurs. Licensing policy and equity concerns of the central government have also played an important role of non-location of public industrial enterprises in the Punjab state (P. Singh, 2016). This kind of argument is also supported in a recent study by the India's prominent policy maker and provided evidence of transfer of fewer resources to the states such as Punjab (Ahluwalia, 2013). The hot cultural temperament and exploitation of religion for political purposes generated communal tension and consequent insecurity of life and property has been proving a great hindrance to invest in Punjab. The rent seeking behaviour of both the political leadership and bureaucracy has made Punjab unfriendly for industrial investment both of the diaspora and private corporate sector. These factors combined together played an important role to discourage industrialization in Punjab, despite having created all possible favourable conditions based on high productivity agriculture generated enough investible surpluses (L. Singh and N. Singh 2016).

Alternative Strategy for Envisioning 21st Century Punjab

Keeping in view the analysis conducted in the previous two sections, Punjab state direly needs economic transformation that not only to remove constraints on development but also make process of economic development more inclusive and sustainable. Therefore, an attempt is made in this section to outline strategy for change in the course of economic development to achieve the dual goal of inclusive and sustainable development. For the suggested strategy to succeed, there are preconditions that will enable the suggested strategy to succeed. Firstly, there is an increasing evidence of dysfunctional public policy and developmental institutional arrangements. The indicators of governance performance across Indian states shows that Punjab state has been slipped as per the governance performance index from number three to five during the period of 2001 to 2011. It is significant to note here that when this index is development adjusted, the rank of Punjab shifted to 7th. This evidently shows that Punjab state is deteriorating in terms of governance performance index compared with other Indian states (Mundle, Chowdhury and Sikdar, 2016). In terms of fiscal performance indicators, Punjab state is ranked number 17th in 2001 but was down in one position to 18th in 2011. This deteriorating fiscal situation in Punjab and bracketed with the bottom ranking states is a cause of serious concern. Since fiscal policy is an important instrument of public policy available for directing economic activities of the state's economy,

therefore, arresting the deteriorating secular movement of this trend is most important to resurrect the economy of Punjab. Secondly, the political leadership needs to develop frame of mind to consider the saner advice and input of the intellectuals working in public interest. They have to learn to use policy advice to reconcile their electoral interest and long term interest of the state and its future. These have been misaligned for a longer period of time and state has been marginalized in national and international reckoning and adjudged as a basket case required no attention. The political leadership is required to show will to take corrective measures in the larger interest and transformation of Punjab economy. However, the two party competition and switching of position in the last 50 years had made political leadership naïve and has remained without much challenge. However, recently the arrival of third political party in the political scene of Punjab (Am Admi Party-AAP). It has generated stimulating political environment for the older political leadership to come out of slumber and either perform or perish. This new political dynamism has generated a hope for the change of attitudes and openness to ideas with regard to changing economic scenario where Punjab can be rejuvenated.

Punjab is known for its entrepreneurial skills and its capacity to rise from the adverse circumstances. However, the current economic crisis and future transformation of the economy require human capital to comprehend the ongoing economic crisis and generate alternative economic opportunities for positive and gainful engagement of the workforce. That, too, in the high productivity high wage economic activities. At this moment the workforce skill base is rather very weak. In an intensive study (Brar, 2016), it is shown that Punjab is not only lagging far behind the other major Indian states in terms of skill base of its workforce but reading and arithmetic problem solving skills in the relevant age group of the workforce is also very low. This has happened due to investment paucity in this sector. Lack of infrastructure in the school education and non appointment of the trained teachers in the schools has weakened the skill base of Punjab's future human capital. This kind of situation persisted especially after the turmoil in the 1980s and public institutions were allowed to suffer and decay. Therefore, the educational infrastructure and curriculum that needs up gradation keeping in view the future challenges and opportunities. This requires public investment in education and regulation of the private sector educational institutions so that quality education to be imparted especially to the downtrodden population for generating inclusive, sustainable and healthy Punjabi society.

For rejuvenation of Punjab economy as a first step needs to increase investment-SDP ratio from present level to Asian tigers' level. This requires sustained efforts of the state government, union government and private corporate as well as small investors. It is well known that given the situation of Punjab being a border state tapping investment from external sources is difficult until political leadership of Punjab lobby for peaceful relationship with Pakistan and opening up further the border for trade and easing out difficulties of visa on both the sides for travel. It is also suggested that the state government should further impress upon the union government to either dismantle tax concessions to neighbouring states or even out these concessions so that Punjab state should not be put in disadvantage compared with the neighbour states. This will not only stabilize existing industrial investment but also will encourage the existing industry to expand and initiate new plans for investment. The industrial sector to assume the status of an engine of growth of Punjab economy requires technological upgradation. The existing industry is relatively small in size and cannot exploit the economies of scale and scope, therefore, it is important that the existing industry need to be shifted from low productivity-low wage to high productivity-high wage. Punjab state should encourage existing industry to establish collaboration with industry of East Asia for

transfer of technological know-how in the first place. For long term, technology generation at home is the only answer, thus to achieve this state government may take lead and invest in industrial technologies. The state may also generate incentive system to encourage the industrial units to invest in R&D in house and engage themselves in continuous innovations so that in a fierce competitive industrial environment they should be able to thrive. Therefore, it is suggested that state government should learn a lesson from East Asian countries to initiate R&D expenditure and gradually take it to 3 per cent of GDP. Technology production institutes should be established and managed in a manner to generate high level linkages between public research institutes (PRIs) and industry.

Another important feature of production structure of the Punjab economy is that it has very weak inter-sectoral linkages (I. Singh, 2016). In fact existing industrial sector neither generates demand at the local level nor uses local raw material of production of goods and services. The service sector is also stand alone and is not being absorbed in the production structure of the Punjab economy. The consequence of this kind of production structure is lack of interdependence. This kind of production structure generates crisis like situation and changes in the production structure are relatively difficult. Agriculture production is oriented towards food production and catering to national demand for food. A very small proportion of it is being processed. Therefore, agriculture-industry linkages are very weak. The agriculture sector is facing crisis like situation and small and marginal farmers and also agricultural labourers are continuously committing suicides. The small land holdings are increasingly becoming non-viable and highly indebted. The shrinking employment opportunities in agriculture sector rendering agricultural labourers surplus. In the absence of alternative remunerative employment opportunities both in vicinity of the village and also in the nearby urban centres, they are also in a dire strait and prone to suicides. Therefore, there is an urgent need to attend to this deepening economic crisis.

Punjab agriculture is facing multiple crises. It has not turned out to be remunerative for the majority of the small and marginal farmers due to high water intensity and chemical uses, it is also environmentally not sustainable. Therefore, agriculture sector needs to be diversified from the wheat-paddy rotation to alternative more sustainable agriculture. The agriculture policy needs to shift from emphasizing to increase food grain production to improve quality and enhance value addition. This two pronged strategy needs investment in agriculture innovation system to improve the quality of the existing crops and develop seed varieties for new crops so that process of the new crops and their shelf-life needs to be improved. One relevant suggestion to improve the environment and reduce the water consumption in Punjab agriculture is to go for crop area planning. The traditional cotton belt which has fast shifted to paddy crop needs to be shifted back with relevant incentive system. Farmers may be given incentive not to sow paddy crop and those sowing cotton may be supported with investment in two forms. One, water recharging system should be developed so that excess water during the rainy season can be used to recharge the water table. This will not only save the cotton crops when excess rain water stands in the cotton fields and destroys cotton crop but will also reduce moisture and save the cotton crop from pest attacks. Two, the government should install public tubewells and supply water for growing crops. It will not only distribute water equitably to the small and large farmers but also will not allow to over exploitation of water. Similarly, area cropping is desired in other parts of Punjab keeping in view the soil conditions and water level of the aquifer. Therefore, public investment is desired to make successful transition from existing production structure to alternative remunerative, more inclusive and sustainable agriculture.

It is thus suggested that the existing agriculture production, marketing and institutional system which was progressive at the early stage of green revolution has turned highly regressive and need overhauling. The agriculture innovation system is not only older and is wearing out but also dying a slow death. Punjab state should rise from slumber and change agriculture innovation system. Its direction should be to provide enabling environment especially to small holders. The rejuvenation strategy of agriculture innovation system may be geared towards harnessing new technological opportunities for alternative crops at least to paddy which is highly water consuming. To enable the farmers to shift to new crops with processing facilities located at the vicinity of the village that involve local labour to exploit newly created manufacturing opportunities. Although new private investment in agro-processing activities to be located in the villages be encouraged with a mandatory clause to higher local labour. The integration of agriculture with manufacturing activities along with capturing the value chains on pattern of Taiwan and other East Asian countries not only increase income level of the local community but generates environment of reinvesting the surpluses realized from the systemic change. However, the real benefits will flow in to the local community if the organization of the production, processing and marketing be changed from private to modern member based cooperatives. This will not only eliminate the intermediaries but create enough opportunities to save cost and realize the economies of scale and scope. This process will generate opportunities for the local and poor people for upward mobility in occupations. Consequently, the successful process of upward mobility will also change the social norms and further bring in the cultural transformation. Therefore, it is suggested that the successful transition both intra-sector and across sectors requires one time switching cost (N. Singh, 2015 & 2016). However, the ultimate success of this transition will depend on the involvement of the stock holders and their participation in the new form of economic activities (Gill, 2016). The suggested strategy has a capacity to solve long term environmental sustainability and making the process of economic development increasingly more inclusive and environmentally sustainable.

Conclusions

Punjab economy has been passing through a relative marginalization as compared with the dynamic Indian states in the post economic reforms period. It was occupying the first rank in early green revolution period that continued till the late 1990s but slipped to middle ranking states. This is the consequence of its over stay in agriculture sector that has stagnated and is facing crisis of serious magnitude. This paper has examined the evolution of the production structure with a view to identify the major causes of slowdown of Punjab economy and searching for alternative strategy for rejuvenation of Punjab economy.

This paper contributes to the existing literature on Punjab economy in terms of using political economy and evolutionary approach for identifying the fundamental constraints on the transformation of Punjab economy. Punjab economy despite generating enough agriculture sector surpluses has failed to transformation of its economy from agriculture to industrialization precisely because of endogenous factors. The political leadership of both the political parties of Punjab had functioned in a manner that has reconciled the national needs and goals of the food security of the nation. The competitiveness among them to capture political power generated political instability and drifted away from the economic transformation and developmental agenda. Political turmoil in Punjab during the decade of the 1980s made public policy and institutional arrangements dysfunctional. Therefore, the state's economy turned from a high investment to low investment-state domestic product ratio. The investment collapse continued to occur even after the two and a half decade of

peaceful democratic rule by the political parties, that is, Akali Dal-BJP and Congress. The turning of well-functioning and well governed state to poor governance state has allowed the state's economy to over stay in agriculture. The over stay of agriculture has pushed the small and marginal peasantry in crisis along with environmental disaster. These factors combining together have increased the rate of suicides in the rural areas of Punjab. An alternative strategy and constraining factors hindering for the transformation of the Punjab economy to achieve sustainable and inclusive economic growth is suggested.

It is argued in the paper that Punjab agriculture and economy needs diversification. This change needs to be evolved with matching institutional arrangements. Agriculture innovation system, area crop planning, agro-processing and organizational changes are suggested to move the economy from a low value added to high value added economic activity. New marketing strategy is also devised to capture the value chains for ploughing back the surpluses to improve upon the social indicators and human development. The long term strategy is to overcome systematically the constraints in the way of shifting workforce from agriculture to modern, safer and environmental friendly industrialization. This is usually called green growth. For ensuring the success of the alternative strategy, it is emphasized that the political leadership should reconcile the electoral interest and long term developmental needs of the state and its future. The arrival of another political party in the political sphere of Punjab has generated such a kind of possibilities. However, this will depend on participation of the people in the form of civil society that can force the political leadership to generate institutional arrangements and do the essential investment for the revival of Punjab economy. The suggested strategy has a capacity to generate such a kind of environment through which transformation of the economy for sustainable and inclusive growth can be achieved.

Notes:

1. Multidimensional Poverty Index (MPI) underlines the importance of non income indicators of poverty. This measure of poverty includes health, education and living standards dimensions and captures the severity of deprivation an individual suffers. Each dimension includes measurable indicators such as for health two indicators-child mortality and nutrition are included. Similarly education also includes two indicators-years of schooling and school attendance. Living standards has six indicators, that is, cooking fuel, toilet, water, electricity, floor and assets. This measure provides intensity of poverty through the number of deprivations is being experienced by an individual. Each dimension and each indicator within a dimension is equally weighted.
2. Balla and Chadha (1983) estimates of rural household income inequality shown by the gini coefficient were based on 1663 sampled cultivating households for the year July 1974-June 1975. The gini coefficient for household income was 0.336 for the overall sample from Punjab. The sample was further subdivided into three regions. The region I consist of districts of Amritsar, Jalandhar, Kapurthala, Ludhiana and Patiala was called central Punjab having household income gini coefficient of the order of 0.356. Region II (Southern-Western Punjab) consists of districts of Ferozepur, Fridkot, Bathindha and Sangrur recorded gini coefficient of lower than the central region and was of the order of 0.299. For the region III (Semi-hilly Areas) consists of Hoshiarpur, Ropar and Gurdaspur, the estimated value of gini coefficient was of the order of 0.289.

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