

Extent of Socioeconomic Crisis in Punjab : Causes and Policy Options

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Abstract

The agricultural sector in Punjab has witnessed substantial transformation under the impact of the Green Revolution since mid-1960s. However, the cropping pattern in Punjab has not witnessed any drastic change and has remained highly favourable towards wheat-paddy monoculture, which has produced various ecological problems in the state in the form of loss of soil fertility, water table depletion, and so forth. The present paper aims to evaluate the indicators of the current socioeconomic crisis in the state of Punjab. Looking at the deep crisis, the study suggests that there is an immediate need to diversify the overall economic base of the state, instead of attempting it only in terms of crop diversification. Furthermore, the results of the study revealed that there is a great prospect to diversify the entire economic base of Punjab.

Keywords: diversification, human capital formation, infrastructural development

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Punjab is predominantly regarded as an agrarian state which contributed around 109.56 lakh tonnes (38.7 %) of wheat and 77.30 lakh tonnes (22.1 %) of rice to the central pool during 2011-12. The economic growth in the state during the 11th five-year plan period stood at 6.73% against the target of 5.9%. The year wise growth rate, during the 11th five year plan, was 9.05% , 5.85% , 6.29%, 6.53%, and 5.94%. In spite of 6.73% growth during the 11th plan period, the growth rate of the state was the lowest as compared to the other states of the country. The 12th plan envisages an average growth rate of 6.4% for the state as against 8.2% for the country. The period since mid 1960s witnessed a spectacular transformation in the agricultural sector of the state led by success of the Green Revolution. Thanks to the Green Revolution, 95% of the net sown area is under irrigation and 98% is under HYV coverage, which is far above than what it is in any other state in the country. The farm economy of the State made notable progress under the impact of new seed-fertilizer technology, high-yielding varieties, and farm mechanization (Singh, 1986). As a result of the Green Revolution, the production and productivity trends of primary crops saw rising trends in the state during 1970s. The production of wheat increased from 7677 '000 M tonne in 1980-81 to 15551 '000 M tonne in 2000-01 and further to 179820 '000 M tonne in 2011-12 (QE). Similarly, the production of rice also increased from 4850 '000 M tonne in 1980-81 to 13735 '000 M ton in 2000-01 and further to 10541 in 2011-12 (QE). Not only production, productivity trends of these two crops also registered significant growth during the same period (Singh, Park, & Brown, 2011).

Punjab witnessed a continuous increase in the gross cultivated area under two principal crops, that is, wheat and paddy. For instance, 29.6% of the gross cultivated area was under wheat, which accelerated to 43.6% in 1990-91, and since then hovered around 45%. Similarly, for paddy, gross cropped area was 4.8% in 1960-61, which increased to 26.9% in 1990-91, and further rose to 35.85 % in 2010-11. Green revolution increased farmers' income, which further enhanced opportunities in other sectors of the economy. These rising incomes of the peasants resulted in the establishment of small scale industries (SSIs) in the state during 1970s. The agricultural development of the state is one of the success stories and a lesson for the other states of the country (Chand, 1999). Moreover, green revolution has made the agricultural sector in Punjab highly commercialized and mechanized. In fact, every third farming

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household in Punjab owns a tractor, and a third of the tractors in India are owned by Punjab farmers (Singh, 2000). However, the impact of green revolution was limited only to the farmers having larger access to big land holdings, which led to rising income inequalities and unemployment among the peasants of Punjab state. The transformation of agriculture from subsistence to a market-oriented economy in Punjab resulted in the emergence of a new set of problems in the state (Kumar & Grover, 2007). The cropping pattern in the form of wheat-rice monoculture has adversely affected the state's natural resources. It was estimated in a survey that most of the small and marginal farmers are leasing out their fragmented land holdings and have adopted other livelihood activities except agriculture. After they have left agriculture, controversy still prevails about the change in the economic well-being of these farmers. Moreover, overemphasis on mechanization of farm operations and slowing down of wheat-paddy productivity has adversely affected demand for agricultural labour in the state. Consequently, for most of the farmers, agriculture is no longer a lucrative activity as was in the early 1970s. It is now widely observed that in the present times, Punjab is plagued with severe socioeconomic crisis in the form of slowing down of agricultural growth rate, over exploitation of natural resources, rising debt burden, environmental pollution, farmers' suicides, and many more problems.

Objectives of the Study

Against the backdrop of the current scenario in the state of Punjab, the proposed paper is an attempt to examine the trends of agricultural growth in the state. More specifically, the major objectives of the paper are :

- i) To study the extent and factors accounting for the current socioeconomic crisis persisting in the economy of Punjab;
- ii) To provide policy perception in the direction of sustaining the growth of the agricultural sector with reference to the economy of Punjab.

Methodology

The results of the proposed study are based on various secondary data sources collected from different governmental and non-governmental reports, books, journals, articles, and so forth pertaining to different time periods. The figures for the occupational structure have been calculated from various Punjab census data reports pertaining to the years 1971, 1981, 1991, and 2001. For the data related with trends in production and area under principal crops in the state, Statistical Abstract of Punjab for different years was referred to. The data thus collected was arranged in tabular form and simple statistical tools like percentages and proportions were utilized to make the inferences about the collected data.

Results and Analysis

The present section is devoted to study the extent and nature of socioeconomic crisis in the state of Punjab. This section highlights the dimensions and major indicators of the current socioeconomic crisis in the state.

➤ **Declining Share of Agricultural Sector in Punjab :** The economy of Punjab has witnessed substantial structural transformation, particularly in its agriculture, over the past three decades. The share of the primary sector, which consists of agricultural and related activities, has been declining continuously. The Table 1 shows sub-sectoral distribution of gross state domestic product (GSDP) in the state of Punjab at 2004-05 prices. The results from the Table 1 reveal that the share of the primary sector in GSDP was 54.27% in 1970-71, which declined to around 47.63 % in 1990-91, and further declined to 32.67% in 2004-05. In 2011-12, the share of primary sector in GSDP stood at 23.04% . It is important to note that the rate of decline of share of the primary sector in GSDP was greater during 2000-2011 as compared to the previous decade. Such a dramatic decline in the share of GSDP of primary sector clearly reflects the declining importance of the primary sector among the peasants of Punjab. Not only the sectoral share, the primary sector also recorded a low growth rate during the recent past. According to an advance estimate published in

Table 1. Share of Primary Sub-sectors in Gross State Domestic Product (GSDP) in Punjab (At Constant Prices) (2004-05)

S. No.	Sub-Sector	2004-05	2005-06	2007-08	2008-09	2009-10	2010-11	2011-12(QE*)
1	Agriculture	21.19	19.58	17.51	16.99	15.93	15.12	14.59
2	Livestock	9.94	10.04	8.86	8.40	7.83	7.53	7.25
3	Forestry and Logging	1.23	1.20	1.05	1.03	1.02	0.98	0.96
4	Fishing	0.29	0.30	0.23	0.24	0.24	0.24	0.22
5	Mining and Quarrying	0.02	0.02	0.02	0.03	0.02	0.02	0.02
6	Sub-Total(Primary Sector)	32.67	31.14	27.68	26.69	25.04	23.89	23.04

Source: Statistical Abstract of Punjab, various years.

Note: * Figures are based on Quick Estimates.

Table 2. Sub-Sectoral Growth Rate in Punjab, 2007-2013

Sub-sector	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13 (AE*)
Primary	3.84	2.05	-0.32	1.67	2.22	-0.34
Secondary	16.61	4.22	8.79	6.28	3.11	3.54
Tertiary	7.52	9.57	8.63	9.45	9.82	8.95
Total	9.05	5.85	6.29	6.53	5.94	5.19

Source: Economic Survey of Punjab 2012-13

Note: * Figures are based on Advanced Estimates

Table 3. Occupation Diversification in Punjab, 1970-71 to 2000-01

Sr. No.	Year	Cultivators	Agricultural Labourers	Industrial Workers	Other Workers	Total
1	1971	1665153 (42.56)	786705 (20.11)	442070 (11.3)	1018664 (26.03)	3912592 (100.00)
2	1981	1767286 (35.86)	1092225 (22.16)	665442 (13.50)	1402806 (28.47)	4927759 (100.00)
3	1991	197210 (31.44)	1502123 (24.63)	749136 (12.28)	1929905 (31.65)	6098374 (100.00)
4	2001	2099330 (22.96)	1498976 (16.40)	769047 (8.41)	4774407 (52.23)	9141760 (100.00)

Source: Census of Punjab, 1971, 1981, 1991, and 2001.

the Economic Survey of Punjab 2012 (which consists of agriculture and allied activities), the growth rate was expected to decline to - 0.34% in 2012-13 (Table 2).

➤ **Slow Occupational Diversification :** The major drawback of the state's structural transformation has been noted to be the slow transfer of the labour force out of the agricultural sector and towards the non-agricultural activities. The Table 3 gives sector wise trends in employment in the state of Punjab during 1971 to 2001.

➤ **Poor Crop Diversification :** With the advent of the Green Revolution, the use of fertilizers, pesticides, and high yield variety seeds (HYVs) encouraged the farmers of Punjab to adopt the wheat-rice monoculture. The production trends of wheat and rice are given in the Table 4. The Table 4 revealed that the production of wheat in Punjab increased by roughly three and half times from 5145 thousand metric tonnes in 1970-71 to 17982 thousand metric tonnes in 2011-12. Similarly, the production of paddy increased by nearly sixteen times from 688 thousand metric tonnes to 10542 thousand metric tonnes during the same period. The overall contribution of food grain production jumped from 7,305 thousand metric tonnes in 1970-71 to 29,089 thousand metric tonnes in 2011-12, an increase of nearly four-fold between 1970-2012. Overemphasis of wheat-paddy monoculture has replaced the production of other crops in the state, which are recording a negative rate of growth since the 1990s. Besides production, both these crops also accounted for a large increase in area under cultivation. High use of chemical fertilizers, pesticides, and better irrigation facilities forced Punjab farmers to bring more and more cultivated land under these two principal crops. The Table 5 depicts the temporal pattern of area under the two principal crops, that is, wheat and rice (Singh, 2012). It can

Table 4. Year-wise Trends in Production of Paddy and Wheat in Punjab ('000 Metric tonnes)

S. No.	Year	Rice	Wheat	Total Food-grain Production
1	1970-71	688	5145	7,305
2	1980-81	3233	7677	11,921
3	1990-91	6506	12159	19218
4	2000-01	9157	15551	25,322
5	2008-09	11000	15733	27,326
6	2009-10	11236	15169	26,947
7	2010-11	10819	16472	27,846
8	2011-12(QE*)	10542	17982	29,089

Source: Statistical Abstract of Punjab, various issues.

Note: Figures are based on Quick Estimates

Table 5. Temporal Pattern of Area under Rice and Wheat Cultivation in Punjab, 1970-71 to 2011-12 (in'000 Hectares)

Sr. No.	Year	Rice	Wheat
1	1970-71	390 (6.87)	2299 (40.49)
2	1980-81	1183 (17.49)	2812 (41.58)
3	1990-91	2015 (26.86)	3273 (43.63)
4	2000-01	2612 (32.89)	3408 (42.92)
5	2008-09	2735 (34.57)	3526 (44.56)
6	2009-10	2802 (35.41)	3522 (44.72)
7	2010-11	2826 (35.85)	3510 (44.53)
8	2011-12(QE*)	2818	3528

Source: Statistical Abstract of Punjab, various issues.

Note: *Figures are based on Quick Estimates

be seen from the Table 5 that area under rice cultivation increased from 390 thousand hectares to 2818 thousand hectares in 2011-12 and for wheat, it rose from 2299 thousand hectares in 1970-71 to 3528 thousand hectares in 2011-12. Together, both these principal crops accounted for 80.38 % of the total cropped area in the state, which ultimately has discouraged the production of other crops in the state of Punjab.

🔗 **Looming Water Crisis :** With the continuation of the rice-wheat monoculture rotation by farmers, the ground water level in the state decreased drastically over a period of three decades. There is now little scope to further increase cultivation in the cropped irrigated area as about 98% of the cropped area sown is already under irrigation. Nearly 14 lakh tubewells (both diesel and electric operated) continuously suck ground water in the fields of Punjab, which has resulted in the depletion of water table in the state. Although the water crisis has spread throughout the state, Central Punjab is badly affected by the current water crisis.

According to Columbia Water Center Report, 2010 (Perveen et al., 2012), if trends of water depletion continue at the present rate, Punjab's ground water will be entirely exhausted in 15 to 20 years. The water table in 9,058 sq. kms of Central Punjab has gone down more than 20 meters during the last decade, and a similar trend is being observed in some other districts also. Sangrur, Barnala, and Moga districts of Malwa region have been more seriously affected. Plenty of factors can be accounted for such a scenario of water management in the state. As per Dynamic Ground Water Resources Report of Punjab, the utilization of water is more than its recharge rate, due to which 110 blocks out of 138 water blocks (as per Central Ground Water Board) of the state have been declared as over exploited, 3 blocks critical, 2 blocks semi critical, and only 23 blocks are safe. In 1984, there were only 53 "over exploited" blocks in the State. In addition, the Bikanar canal and Sirhind feeder passing through the south-western area of the state have created water logging and have degraded the water quality, which has led to a different set of problems (Economic

Survey of Punjab, 2012) (also refer to Table 6).

Table 6. Distribution of Blocks in Different Categories on the Basis of Underground Water Resources in Punjab

Year ↓	Category →	Over-exploited (Dark)	Critical	Semi critical	Safe
2000		73 (52.90)	11 (7.97)	16 (11.59)	38 (27.54)
2005		103 (75.18)	5 (3.65)	4 (2.92)	25 (18.25)
2010		110 (79.71)	3 (2.17)	2 (1.45)	23 (16.67)

Source: Economic and Statistical Organization Punjab. (2011). Environment statistics of Punjab. Retrieved from <http://pbplanning.gov.in/pdf/environment2011.pdf>

➤ **High Incidence of Debt on Farmers :** Depleting water tables and the rising cost of cultivation has forced peasants to accumulate a large amount of credit at exorbitantly high rates of interest from the money lenders. Regional rural banks (RRBs) and government financial institutions have failed to provide adequate, timely, and cheap credit to the small and marginal farmers in the state of Punjab (Gill, 1999). As per NSSO survey, the peasantry of Punjab is most heavily burdened in the country next to the peasantry in Andhra Pradesh and Tamil Nadu . The rural debt in Punjab is estimated to be more than ₹ 35000 crore, which has resulted in farmer suicides. As per the latest survey conducted by PAU, Ludhiana, about 5000 farmers and farm labourers have committed suicide during the last 10 years. The high debt burden on small and marginal farmers has destroyed many lives, and the farmers either had to sell or mortgage their land. This ultimately triggered instances of suicide by many farmers (Bharti, 2011).

➤ **Declining Sex Ratio :** Throughout the 20th century, and as evident from the last census data, India has been witnessing a sharp decline in the sex ratio. Sex ratio in India is defined as the number of females per thousand of population unlike internationally, where it is defined as the number of males per hundred population. The skewed sex ratio in India is mostly attributed to lower status of women, high mortality rates, illiteracy, and economic backwardness. In spite of being one of the most progressive and prosperous states with high per capita income and 70% literacy, Punjab has a skewed sex ratio, with a strong preference for sons, which is least expected from a state which boasts of a rich culture, heritage, and social values. From 1901 to 2011, sex ratio in Punjab remained quite low as compared to the national average, though it showed a slight improvement in the last census (Table 7).

➤ **Poor Industrialization Scenario in the State :** Although the Central and State governments have made significant efforts to provide healthy and adequate infrastructural facilities in the state, the economy of Punjab has failed to attract significant foreign direct investment, which has led to the failure of the industrialization process in the state. Adverse tax policies of the state government, rising cost of land, and ever increasing prices of essential raw materials have adversely affected growth of industries in the state. Currently, Punjab enjoys a share of about 1.5% of the total investment of the Central State investment. Most of the industries in the state are small and medium sized industries which are facing various technological and financial bottlenecks to absorb surplus labour force in the state.

➤ **Ever Rising Unemployment :** The problem of unemployment, more particularly among the youth, remains a major area of concern for the state. As on September 30, 2012, the number of unemployed candidates registered with the Department of Employment Generation and Training stood at 362541. It is pertinent to note that this figure did not include those youth candidates who did not register with employment exchanges. As per the 66th round of National Sample Survey, the rate of unemployment per 1000 is 42 in Punjab as compared to 25 at the all India level . It is 35 and 105 for males and females in Punjab vis-à-vis 22 and 33 for males and females at the all India level (Economic Survey of Punjab, 2012).

In net terms, it can be concluded from the above discussion that at present, the economy of Punjab is going through a severe socioeconomic crisis which has hampered the growth of the state.

Table 7. Trends in Sex Ratio in Punjab and India (1901-2011)

Sr. No.	Year	Punjab	India
1	1901	832	972
2	1911	780	964
3	1921	799	955
4	1931	815	950
5	1941	836	945
6	1951	844	946
7	1961	854	941
8	1971	865	930
9	1981	879	934
10	1991	882	927
11	2001	874	933
12	2011	893	940

Source: Census of India, various issues.

Policy Implications

The economy of Punjab has played a significant role in making the country self-sufficient in food grain production. Now, production and productivity of agriculture have reached a plateau. Over emphasis of wheat-paddy cultivation (with high use of chemical fertilizers and pesticides) has put an adverse impact on the bio-diversity of the state - the soil health has degraded, water table depletion has occurred, and so forth. In a nutshell, the peasant economy of Punjab is facing the real brunt of the crisis in the form of over utilization of the natural resource base, water table depletion, environmental pollution, rising debt burden, and so forth. Hence, efforts are required at various levels to pull the economy of Punjab out of severe socioeconomic crisis.

➤ **Introduce Pesticide Management :** To begin with, pesticides on rice need to be phased out under a time bound programme. The International Rice Research Institute (IRRI) in the Philippines has already accepted that "pesticides use on rice was a waste of time and effort". Knowing this, the Department of Agriculture should be directed to work out an alternative farming system using biological options.

➤ **Crop Diversification:** Crop diversification is a must to increase farm incomes and to address the environmental problems in the state of Punjab. Emphasis must be made to increase the production and productivity of other crops except wheat and paddy. More and more cultivated area needs to be brought under crops such as oilseeds, and so forth.

➤ **Formal / Institutional Credit Sources (Government and Private) Should be Increased :** A dearth of formal sources of credit vests immense power in the hands of the informal money-lenders. This power allows the vicious system of abuse to thrive that contributes to suicides. While informal money-lenders cannot be replaced quickly, more formal lending sources will help create healthy competition for the money-lenders as well as alert their borrowers to fair practices.

➤ **Support Price Mechanism:** The existing minimum support price mechanism is highly in favour of promoting cultivation of wheat and paddy while ignoring other agricultural products in the state. To ensure farmers' interest in the cultivation of alternative commercial crops, a minimum support price mechanism needs to be developed.

➤ **Promote Floriculture:** The Government of Punjab must make serious efforts to promote floriculture activities as India exports flowers worth more than ₹120 crore annually to several countries such as Holland, Germany, and USA, and also because domestic and international demand for Indian cut flowers has been increasing.

➤ **Promote Blue Revolution:** Punjab is now on a threshold of a 'Blue Revolution'. The Government of Punjab is making all possible efforts to bring more and more agricultural land under fish farming. For instance, over the past

three decades, around 10,000 hectare area has been brought under fish cultivation, which helped the state to achieve highest average fish production of 6000 kg/hectare against the national average of 3000 kg/hectare. Hence, for making fish cultivation more lucrative to the farmers, there is a dire need to provide quality fish seed of culturable varieties of fish, adopt more suitable village ponds under fish farming to ensure gainful self-employment opportunities.

↳ **Dairying** : Dairying is yet another alternative to diversify the economic base of Punjab. It has been found that Punjab holds the first position in the production of milk in the country, with daily production of 256.18 lakh kg and 944 gram per capita daily consumption of milk. Keeping in view the rising importance of dairying activities in the state, there is an urgent need to expand area under fodder crops to promote dairying activities in the state. Development of dairying coupled with related activities like poultry, piggery, and so forth could help in the generation of economically gainful employment and earnings, which in turn will sustain the economic well-being of the rural economy of Punjab.

↳ **Agricultural Infrastructure Must Be Enhanced** : Expenditure on public investment in real terms has declined at the rate of 2.65% per annum during the past two decades, which is the highest among all the major states. As a consequence of the sharp decline in public investment in the state, infrastructure like rural roads and markets are in a bad state. In order to create favourable conditions for long-term growth, the state should step up public investment for improvement in agricultural infrastructure.

↳ **Multi-faced Strategy**: A two-pronged strategy is required to come out of this embargo. One, the new technological evolution which has the capacity to raise the level of productivity manifold needs to be harnessed, which requires transfer of biotechnology from western countries. The transfer of technology and local adaptation are subject to massive investment in agricultural research and training of manpower (both of users and disseminators of knowledge). The biotechnological revolution has raised the level of intensity of skills required for the users of technology. Two, since the existing technology is scale intensive, therefore, change in the organizational pattern from individual small-scale farming to cooperative/ contract farming will not only increase the size and scale of operation, but also reduce the burden of capital intensity and promote economies of scale. The change in the organizational pattern will further reduce the scope for unscientific use of factor inputs and farm practices, which can reduce the escalating cost of production in agriculture.

↳ **Agribusiness Activities Must be Promoted**: Agricultural production should be linked with agribusiness activities. The big-push in agribusiness activities in the private and cooperative sector will not only transform the labour force from agriculture to industry, but will also generate the required dynamism for self-sustained overall economic growth of the economy. The enterprises in the first category, whose production should be encouraged at the small scale level, but throughout the state, include milk (dairying), pulses, and oilseeds. The second category should include moderately high value commodities like vegetables, potato, onion, cotton, basmati rice, and sugarcane. The third type of diversification strategy should focus on items like floriculture, 9 exotic vegetables, mushroom, and similar crops. Most of these commodities involve high use of capital and high risk, and the marketing generally requires locating suitable buyers and some sort of contract with the buyers.

↳ **Non-farm Activities Must Be Promoted**: The role and importance of non-farm activities have enhanced manifold during the past one and half decade. A large chunk of rural labour force is found engaging in different non-farm activities. Efforts are required to promote non-farm avenues at different levels. To this end, vocational training activities must be promoted to enhance the skill base of the rural labour force in the state.

↳ **Research and Development Activities Must Be Promoted**: The R & D in the state has focused mainly on wheat and paddy. Efforts should now shift to new and emerging crops and enterprises of future importance. Establishment of agro-based industries of small and medium size in rural areas away from urban places can be of great help in creating employment for rural youths and encourage diversification.

The above suggested policy options may be helpful to policy makers to bring the economy of Punjab out of the severe socioeconomic crisis.

Summary and Conclusion

Since the advent of the Green Revolution in mid-1960s, the state's farm economy has gone through the process of mechanization and commercialization. The poor cropping pattern and thereby high use of mechanization has adversely impacted the ecological scenario in the state of Punjab. The present study examines the nature and extent of socioeconomic crisis in the state of Punjab. Looking at the deep crisis, the study suggests that there is an immediate need to diversify the overall economic base of the state, instead of attempting it only in terms of crop diversification. Furthermore, the results of the study revealed that there is a great prospect to diversify the entire economic base of Punjab.

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