

An Analysis of Trends in growth of Capital Formation in Punjab under World Economic Recession

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Abstract: *Present paper examined the trend in growth of capital formation in Punjab during the World Economic Recession. On the basis of secondary data it was examined that growth of capital formation in Punjab was not remained favorable under world recession period. During this period the compound annual growth rate (CAGR) in percentage in the case of 'gross state domestic capital formation (GSDCF) by industry use' and 'gross state domestic capital formation (GSDCF) by type of assets' increased almost in all the major categories. But the overall growth rate of capital formation in Punjab remained very low. On the basis of study it can be said that the Government and other financial institutions should provide help to resolve the emerging issues and to restructure the policies, so that the growth of capital formation in Punjab can be recovered. Beside, the government should provide help to these sectors of Punjab in the form of subsidy on input cost, exemption from tax, etc. It will help in raising their profitability and would further boost up increasing the investment.*

Key Words: Gross State Domestic Capital Formation (GSDCF), Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR),

Capital formation is perhaps one of the keys to realizing the dream of high economic growth of a country. It is the addition to productive capacity of the economy. In a broader sense, the term 'capital formation' has been used to refer to saving drives, setting up financial institutions, fiscal measures, public borrowing, development of capital markets, development of secondary markets, etc.

Capital formation in India was low as 7.8 per cent of gross domestic product (GDP) in 1950s, which improved continuously during the next decades. Rise in capital formation has been particularly higher post liberalisation than that of began in early 1990s. In 2005, it rose to 30 per cent and has stayed there since then. Spurred by economic reforms and a favourable business environment for the private sectors, they lead in investments in the economy with 36 per cent share in total capital formation in 2010. (Dhanlaxmi Bank, 2011). The ratio of capital formation to GDP was 38.20 per cent in 2011-12 which decreased to 32.03 per cent in 2013-14. Growth Rate of gross capital formation (GCF) declined to negative rate (-4.0 per cent) in 2013-14 which was 2.6 per cent in 2011-12, while GDP growth increased from 5.1 per cent to 6.9 per cent (Government of India, 2015)

Punjab is the most important state of India in the terms of capital formation. The growth rate of capital formation in Punjab was negative i.e. -3.25 per cent after world financial crises in 2008-09, then after gradually increase it remained negative (-4.00) per cent in 2011-12. The gross state domestic product (GSDP) also decreased from 6.5 per cent in 2011-12 to a negative rate (-4.64 per cent) in 2012-13 as per pre estimate by the government (Government of Punjab, 2015)

Realising the importance of capital formation for economic growth, it has decided to conduct a study on growth of capital formation in Punjab during the World Economic Recession. The main object of the study is to examine the trend in growth of capital formation in Punjab. The whole study based mainly on the secondary. Time period was taken from 2005-06 to 2012-13 for evaluation of study. To know the growth rate of capital formation in Punjab, the Annual Growth Rate (AGR) and Compound Annual Growth Rate (CAGR) of capital formation has been calculated. The review of some relevant studies regarding the research has given as following:

Lewis and Arthur (2005) and Chung (2007), etc., have examined that capital formation can accelerate the rate of economic development through appropriate usage of available resources; Bordoloi (2008)

has found that an accurate measure of the domestic saving and capital formulation helps in formulation of the monetary and fiscal policy; Sethi and Sunaina (2009) have found that due to low rate of capital formation the productivity in agricultural sector of Punjab has started showing signs of stagnation and that small-scale sector in the state has been grossly wiped, as a result, the Punjab state has experienced a rapid deterioration in its financial health; Gupta (2009) has revealed that the fixed capital investment and production would experience significant growth during the lead time of thirteen years from 2007-08 to 2019-20; Mehta (2011) has suggested that more thrust may be given for boosting the capital formation in the economy in order to achieve high economic growth in Indian economy; Sahoo, Ranjan and Geethanjali (2012) have revealed that investment, infrastructure stock, and human capital play an important role in economic growth in China.; Kumar (2012) examined that capital formation in Punjab manufacturing sector remained negligible during the pre-reform period and it could pick up in the post reforms period; Hiteshkatyal & Sanjeet (2013) have found that Gujarat was the major state where companies have invested the capital. In the case of Himachal the growth was stagnant and in the case of Punjab the scenario was a bit reverse; Mehrara (2013) has traced that capital formation does not accelerate the growth of economy; rather growth induces subsequent capital formation; Komain Jiranyakul (2014) has examined that real GDP and capital formation are cointegrated, and capital formation imposes a positive impact on real GDP in the long run; Bathla (2014) has observed large variations in the magnitude of public and private investment across states in India over his study period. Further he found that public and private investments in agriculture are unevenly spread across the states and so is the farm income, but high capital intensity in agriculture have been observed to be inversely related to rural poverty; Gore and Shinde (2014) have examined that the share of agriculture and allied activities in the total development expenditure in the case of agriculturally important states such as Punjab, UP, Gujarat, Bihar and Karnataka is below the national average. They further found that inadequacy of new capital formation has slowed the pace and pattern of technological change and the infrastructural development with adverse effects on agricultural productivity.

Findings:

Table 1 shows the growth rate of gross state domestic capital formation (GSDCF) by industry of use in Punjab during 2005-06 to 2012-13. The data in the table reveal that the annual growth rate (AGR) in 'agriculture including livestock' was 2.90 per cent in 2005-06 after a drastically increase at 11.44 per cent, this rate found in fluctuations trend during the other years of given period. This rate in 'forestry and logging' was recorded negative (-75.55 per cent) in 2005-06, but almost remained in up and down trend during the other periods which is clear from the table. Almost the same trend was found in case of 'fishing' as in 'forestry and logging' was found. The annual growth rate in case of 'mining and quarrying' is concerned; it was remained in drastically changes in all the corresponding years. This rate came to be positive in 'manufacturing industries' during research years except 2008-09 and 2011-12. There was found a remarkable annual growth rate in 'construction industry' in all the concerning years except 2007-08, which is clear from the given table.

In the case of 'electricity, gas and water supply' are concerned, the annual growth in this industries was remained positive from 2005-06 to 2008-09, then it came to be negative up to 2012-13. This growth rate remained positive in 'transport, storage and communication' in all the period except 2006-07 and 2012-13. The annual percentage change in 'trade, hotels and restaurants' was found in negative trend in all other years except 2008-09, 2010-11 and 2011-12 which was remarkable high i.e. 44.42, 57.95 and 18.15, respectively. This rate was remained very low in 'banking and insurance' in all the corresponding years except 2009-10 and 2012-13, which was the recorded high i.e. 17.37 and 73.61, respectively.

The annual growth rate (AGR) in 'real estate, ownership of business service' came to be the very low but remained in positive trend in all the concerning years. This rate in 'public administration' and 'other service' came to be in large fluctuations trend which is clear from the given data. The annual growth rate of gross state domestic capital formation (DSDCF) by industry of use in the total of all industries was 4.21 per cent in 2005-06 after a drastically

positive change, it declined at negative (-4.63 per cent) in 2008-09 then increased gradually up to 2010-11. After a negative decline it was calculated 8.28 per cent in last year of this research. The proportion share of gross state domestic capital formation (GSDCF) to the gross state domestic product (GSDP) was 19.34 per cent in 2005-06, after increase at 20.24 per cent, this share decreased continuously at 16.17 per cent then remained in up and down trends during the remaining period, which is clear from the table.

The data in the table reveal that the compound annual growth rate (CAGR) in percentage in the case of gross state domestic capital formation (GSDCF) by industry use increased almost in all the major categories i.e. agriculture and livestock (3.34); fishing (1.25); electricity, gas and water supply (1.19); building and insurance (3.95); real estate, ownership of business service (2.91); and other services (4.40). Besides, this rate in construction (33.06); public administration (13.41); mining and quarrying (12.83); manufacturing (10.17); the transport, storage and communication (9.33); also experienced a remarkable growth.

However, besides some sectors like forestry and logging (-10.26); trade hotels and restaurants (-8.20) had negative growth rates. The overall growth rate in the state remained at 4.98 per cent during this period. The growth in percentage of Gross State Domestic Capital Formation (GSDCF) to Gross State Domestic Product (GSDP) was found to be the negative (-1.82 per cent) during the given period of 2005-06 to 2012-13 as has been shown in Table.

From the above analysis it can be concluded the annual growth rate (AGR) remained in large fluctuations trend. It may due to lack of proper investment policies by the government. The most industries was found remarkable growth of capital formation in 2008-09, it may due to the impact of world economic recession on Punjab economy after world financial crises. The compound annual growth rate (CAGR) of capital formation mostly remained very low in all the categories and in the total of all the categories in the state, but it was found recorded high in few sectors. The constructions sector was the highest remarkable growth than that of other sectors. It implies that requirement of building increases in Punjab for residence, dispensaries, canteens for staff, garages for vehicles, etc. Besides, it may due to the high demand of roads and bridges in the state.

Table 1: Growth of Gross State Domestic Capital Formation by Industry of Use in Punjab at Constant (2004-05) Prices.

Industry	(Per cent)								
	2005-06	2006-07	2007-08#	2008-09	2009-10	2010-11	2011-12	2012-13(P)	CAGR*
Agriculture including Livestock	2.90	11.44	0.00	3.83	-0.24	6.61	3.07	3.54	(3.84)
Forestry and Logging	-75.55	-62.15	0.00	184.67	-9.36	103.82	-32.48	27.95	(-10.26)
Fishing	-2.99	3.08	0.00	-4.48	-3.13	6.45	0.00	12.12	(1.25)
Mining and Quarrying	0.00	33.33	0.00	75.00	-42.86	0.00	-50.00	-50.00	(12.83)
Manufacturing	11.19	49.11	0.00	-19.95	30.68	17.45	-11.74	20.70	(10.17)
Construction	20.34	42.63	0.00	76.87	35.64	33.08	36.57	31.28	(33.06)
Electricity, Gas and Water Supply	28.29	10.76	0.00	53.17	-5.87	-3.64	-31.97	-18.15	(1.19)
Transport, Storage and Communication	15.85	-20.00	0.00	134.61	5.57	11.84	6.84	-25.58	(9.33)
Trade, Hotels and Restaurants	-8.23	-14.16	0.00	-44.42	-35.79	57.95	18.15	-3.87	(-8.20)
Banking and Insurance	4.69	-22.88	0.00	-17.32	17.37	0.98	-0.74	73.61	(3.95)
Real Estate, Ownership of Business Service	2.57	2.70	0.00	6.00	3.29	3.57	2.90	2.38	(2.91)
Public Administration	13.63	37.94	0.00	51.04	-5.35	2.68	1.67	16.95	(13.41)
Other Services	-2.25	37.15	0.00	56.24	-13.88	42.36	-49.50	8.85	(4.40)

State (Total)	4.21	15.33	0.00	4.63	6.58	16.16	-4.00	8.28	(4.98)
Percentage of GSDCF to GSDP**	19.34	20.24	20.24	16.72	16.17	18.21	16.48	17.05	(-1.82)

Source: Statistical Abstract of Punjab (various issues, 2005-06 to 2013-14)

1. * depicts Compound Annual Growth Rate in Percentage
2. ** depicts percentage of gross state domestic capital formation (GSDCF) to gross state domestic product (GSDP).
3. # depicts that due to non availability of data, it is assumed there was no annual change in capital formation in 2007-08.
4. (P) depicts pre estimate of gross state domestic capital formation.

Note: Figures in parentheses depict Compound Annual Growth Rate (CAGR) in percentage. Figures without parentheses depict Annual Growth Rate (AGR) in percentage.

The growth rate of gross state domestic capital formation by type of assets in Punjab from 2005-06 to 2012-13 has been worked out in Table 2. The data show that annual growth rate in 'building' was negative (-15.29 per cent) in 2005-06, after a drastically increase at 38.86 per cent it was found in large fluctuations during the other period which is clear from the given table. This rate also came to be in large fluctuations trend in case of 'road and buildings assets' are concerned during the given period. In case of 'other construction' this rate came to be the negative i.e. -6.97 per cent in 2005-06 then it arose at remarkable high rate i.e. 69.05 per cent in 2008-09. This change came to be in fluctuations trend during the remaining period. The annual growth rate in the 'total of all constructions assets' came to in up and down trend during given period which is clear from the table. Almost the same trend was found in case of 'plant and machinery' are concerned. The annual growth rate in 'transport equipments' was found to the positive in all the years except 2012-13, but it was also examined in fluctuations trend. This rate was calculated in positive trend in the total of 'plant and machinery' and 'transport equipments' during the given period.

The annual growth rate of total of gross state domestic capital formation by type of assets was 9.53 per cent in 2005-06 after a recorded high rate of 31.57 per cent in 2006-07, it was examined in down and up trends during the remaining years. This rate of growth in 'change in stock' was negative (-2.27 per cent) in 2005-06, after positive changes it came to be the recorded low at -45.77 per cent in 2008-09, then a drastically increase it declined gradually at negative rate in 2011-12, lastly it was found positive. The annual growth rate of 'gross domestic capital formation' was only 4.21 per cent in 2005-06, after a remarkable high at 20.19 per cent in 2006-07, it was found in fluctuation conditions in the other years.

The data in the table reveal that the compound annual growth rate (CAGR) in percentage in the case of gross state domestic capital formation (GSDCF) by type of assets was increased almost in all the major categories i.e. other constructions (6.03); Total of constructions (6.33); plant and machinery (6.28); total capital formation (7.49); total of gross state domestic capital formation (4.98) Besides, this rate in roads and bridges (33.89); transport equipments (13.57); total of plant & machinery and transport equipments (8.11) also experienced a remarkable growth. However, besides some sectors like buildings (2.23); change in stock (1.20) had very low growth rates.

From the above analysis it can be concluded the annual growth rate (AGR) of gross state domestic capital formation by type of assets in Punjab remained in large fluctuations trend in all the categories. It may due to lack of proper investment policies in these categories. The compound annual growth rate (CAGR) of capital formation remained positive in all categories and in the total of gross state domestic capital formation. The roads & bridges and transport equipments experienced a remarkable growth, but overall growth rate of gross state domestic formation remained very low in Punjab.

Table 2: Growth of Gross State Domestic Capital Formation by Type of Assets in Punjab at Constant (2004-05) Prices

(Per cent)

Asset	2005-06	2006-07	2007-08#	2008-09	2009-10	2010-11	2011-12	2012-13(P)	CAGR*
(a) Buildings	-15.29	38.86	0.00	-23.65	19.87	41.67	-39.00	8.64	(2.23)
(b) Roads and Bridges	34.51	661.39	0.00	-51.82	190.82	9.57	-12.35	0.80	(33.89)
(c) Other Construction	-6.97	42.07	0.00	69.05	-38.85	3.14	5.46	0.03	(6.03)
Total Construction	0.05	54.95	0.00	18.09	-12.13	17.53	-15.87	2.75	(6.33)
(a) Plant and Machinery	-2.96	15.42	0.00	13.34	1.96	5.44	-2.17	18.31	(6.28)
(b) Transport Equipments	82.49	28.27	0.00	70.48	12.39	12.27	7.51	-6.67	(13.57)
Total 'Plant & Machinery' and Transport Equipments	14.86	18.10	0.00	26.28	5.15	7.68	1.13	9.26	(8.11)
Total Capital Formation	9.53	31.57	0.00	22.62	-1.91	11.28	-5.44	7.02	(7.49)
Change in Stock	-2.27	6.30	0.00	-45.77	35.57	28.20	-0.92	10.85	(1.20)
Gross State Domestic Capital Formation	4.21	20.19	0.00	-4.63	6.58	16.15	-4.00	8.28	(4.98)

Source: Statistical Abstract of Punjab (various issues, 2005-06 to 2013-14)

- * depicts Compound Annual Growth Rate in Percentage
- # depicts that due to non availability of data, it is assumed there was no annual change in capital formation in 2007-08.
- (P) depicts pre estimate of gross state domestic capital formation.

Note: Figures in parentheses depict Compound Annual Growth Rate (CAGR) in percentage. Figures without parentheses depict Annual Growth Rate (AGR) in percentage.

Concluding Remarks:

The overall compound annual growth rate (CAGR) in percentage of gross state domestic capital formation (GSDCF) by industry use in Punjab remained very low. This rate almost increased in all the major categories. Besides, the transport, storage and communication, Trade hotels and Restaurants also experienced a remarkable growth. However, some sectors like public administration, services, besides forestry and logging had negative growth rates.

The annual growth rate (AGR) of gross state domestic capital formation by type of assets in Punjab remained in large fluctuations trend in all the categories. It may due to lack of proper investment policies in these categories by the government. The compound annual growth rate (CAGR) remained positive in all categories. The roads & bridges and transport equipments experienced a remarkable growth but the overall growth of gross state domestic capital formation by type of assets in Punjab had also remained very low.

On the basis of study it can be said that the Government and other financial institutions should provide help to resolve the emerging issues and to restructure the policies, so that the growth of capital formation in Punjab can be recovered. Beside, the government should provide help to these sectors of Punjab in the form of subsidy on input cost, exemption from tax, etc. It will help in raising their profitability and would further boost up increasing the investment.

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