

Capital Formation in Indian Agriculture in the Era of Economic Reforms

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Introduction

Capital Formation assumes paramount importance in the context of policy making by the State and Central Governments. It acts as an indicator in the measurement of economic growth of State. It reveals the potentiality of the investment in the public as well as the private sectors and gives net addition to the assets created during the year. This is more important in agriculture where we are faced with the task of increasing production to keep pace with the increase in population against the odds of the vagaries of monsoon. This paper studies the capital formation in the Indian Economy during post-reform period.

Objectives

The main objectives of the present study are

- To find the trend and pattern of capital formation in Indian Agriculture during post-reform period.
- To examine the share of capital formation in agriculture in the Gross Domestic Capital Formation share in Gross Domestic Product of Agriculture and its share in the Gross Domestic Product of the country during the post-reform period.
- To analyse the share of Gross Domestic Product of agriculture to Gross Domestic Product of the Country after the economic reforms.

Data and Methodology

For the present study, time series data have been obtained from National Accounts Statistics published by Central Statistical Organisation. Major variables taken for the study are Gross capital formation, Gross capital formation in agriculture, Gross Domestic Product, Gross Domestic Product of Agriculture. To analyse growth performance, semi-log linear models were built and simple percentage and ratio analysis were also used to know the pattern and share of capital formation in agriculture. The period of study is from 1990-91 to 2008-09.

Results and Discussion

Table 1
Share of GCFA in GCF and share of agriculture in GDP

Year	Share of capital formation in agriculture to gross capital formation (in %)	Share of agriculture to Gross Domestic Product (in %)
1990-91	13.44	24.94
1991-92	10.27	24.02
1992-93	11.55	24.41
1993-94	10.51	23.83
1994-95	8.34	23.46
1995-96	6.91	21.65
1996-97	8.19	22.14
1997-98	7.27	20.59
1998-99	7.81	20.68
1999-00	9.36	19.68
2000-01	9.04	18.76
2001-02	10.56	18.92
2002-03	9.28	16.72
2003-04	7.84	17.15
2004-05	6.57	16.04
2005-06	7.26	15.30
2006-07	6.29	14.48
2007-08	6.43	13.91
2008-09	8.39	13.19

It is found from the table1 that the share of capital formation in agriculture to gross capital formation was declining continuously from 1990-91 to 1998-99. After that it started to rise and then again it was declining from the year 2003-04. It was 8.39 % in the year 2008-09. It has to be noted that at the same period the share of gross domestic product of agriculture to gross domestic product was also declining and when there was an increase in the share of GCFA to GCF the share of agriculture to GDP was also increasing. It seems that there is a direct association between these two variables. It has also to be noted that the share of capital formation in Indian agriculture was not even 50 % of the share of the agriculture to GDP except in the year 1990-91. The share of capital formation in agriculture to GCF was only 6.29% in the year 2006-07 but at the same time the share of agriculture to GDP was 14.48%. There is a wide gap between these two variables though there is direct association between them.

Table 2
Share of GCFA in GDP and share of GCFA in agriculture GDP

Year	Share of gross capital formation in agriculture to gross domestic product (in %)	Share of gross capital formation in agriculture to gross domestic product of agriculture (in %)
1990-91	3.62	14.52
1991-92	2.46	10.22
1992-93	3.02	12.36
1993-94	2.42	10.17
1994-95	2.11	9.00
1995-96	1.93	8.92
1996-97	1.93	8.73
1997-98	1.95	9.45
1998-99	2.06	9.97
1999-00	2.80	14.21
2000-01	2.42	12.88
2001-02	2.97	15.69

2002-03	2.58	15.43
2003-04	2.26	13.15
2004-05	2.33	14.51
2005-06	2.62	17.13
2006-07	2.40	16.59
2007-08	2.59	18.61
2008-09	3.09	23.44

It is evident from the table 2 that though the share of agriculture to GDP was nearly 25% in the year 1990-91, the share of capital formation in agriculture to GDP was only 3.62%. It was started to declining from 1990-91 to 1996-97. After 1996-97, it started to rise at very meager level at every year. It reached 3.09 % in the year 2008-09 and it was 3.62% in the year 1990-91. It seems that the importance given to agriculture is declining year after year. The share of capital formation in agriculture to gross domestic product of agriculture is highly fluctuating and it reached the maximum level of 23.44% in the year 2008-09.

Table 3
Pattern of Capital Formation in Agriculture in India

Year	Share Private sector in the gross capital formation in agriculture (in %)	Share Public sector in the gross capital formation in agriculture (in %)
1990-91	19.10	80.90
1991-92	24.43	75.57
1992-93	20.80	79.20
1993-94	26.13	73.87
1994-95	30.64	69.36
1995-96	30.96	69.04
1996-97	27.28	72.72
1997-98	21.25	78.75
1998-99	19.76	80.24
1999-00	14.57	85.43
2000-01	14.80	85.20
2001-02	14.25	85.75
2002-03	14.17	85.83
2003-04	17.55	82.45
2004-05	22.06	77.94
2005-06	22.00	78.00
2006-07	25.22	74.78
2007-08	21.96	78.04
2008-09	16.81	83.19

Table 3 shows that the pattern of capital formation in Indian agriculture. It is evident that the share of public sector in the capital formation in Indian agriculture was at the declining trend. It seems that the withdrawal of the attention by the state from the agriculture by reducing the investment. It is to be noted that the private investment in agriculture is purely depend upon the public investment. This trend in agriculture leads to withdrawal of the private investment also and it led to deterioration in the agriculture sector in India.

Table 4
Compound Growth Rate of Major Variables in the Study

Variable	Regression Coefficients			Compound Growth Rate (in %)
	β_0	β_1	R^2	
Gross Fixed Capital Formation in Agriculture	10.27 SE (0.93) t (110.12)	0.063 SE (0.008) t(7.76)	0.78	15.6
Gross Capital Formation in Agriculture	10.276 SE (0.92) t (111.79)	0.064 SE (0.008) t(7.98)	0.79	15.9
Gross Capital Formation in Agriculture by Public Sector	8.85 SE (0.108) t (81.96)	0.049 SE (0.009) t (5.194)	0.78	11.9
Gross Capital Formation in Agriculture by Private Sector	9.92 SE (0.111) t (89.97)	0.068 SE (0.01) t (7.5)	0.74	16.9
Gross Domestic Product of Agriculture	12.695 SE (0.015) t (852.072)	0.027 SE (0.001) t (20.77)	0.96	6.4

Note: all the regression coefficients are significant at 5% level

The semi- log linear regression models was fit to find out the compound growth in the major variables under the present study. Table 4 shows the results of the models. It is revealed that all the coefficients in all the models were significant and the model fit were also good. The compound growth of the Gross Fixed Capital Formation in Indian Agriculture is 15.6%, at the same time the growth in the Gross Capital Formation in Indian Agriculture is 15.9% because the major part of capital formation in agriculture is fixed capital formation. The compound growth of private sector investment is 16.9% and which is higher than the public investment, the later was only 11.9% due to neglect of agriculture sector by the state after the economic reforms.

Table 5

Correlation matrix of the major variables under the study

	GFCF	GCF	GCFP	GFCFA	GCFA	GCFAPUB	GCFAPRIV	GDP	GDPA
GFCF	1.000	-	-	-	-	-	-	-	-
GCF	0.997	1.000	-	-	-	-	-	-	-
GCFP	0.848	0.842	1.000	-	-	-	-	-	-
GFCFA	0.934	0.932	0.812	1.000	-	-	-	-	-
GCFA	0.926	0.925	0.802	0.998	1.000	-	-	-	-
GCFAPUB	0.197	0.208	0.563	0.276	0.288	1.000	-	-	-
GCFAPRIV	0.912	0.908	0.682	0.966	0.965	0.025	1.000	-	-
GDP	0.994	0.987	0.861	0.933	0.925	0.198	0.911	1.000	-
GDPA	0.957	0.943	0.906	0.903	0.896	0.260	0.864	0.976	1.000

The above table shows that the correlation between the major variables in the present study. All the variables were highly associated except the public investment in Indian agriculture. GCFA by public sector has weak association with all the variables as it was at the declining rate and also loosed its reliability in Indian agriculture.

Major findings

The findings of the present study are

- The share of agriculture to GDP and share of Gross capital formation in agriculture to Gross Capital Formation were declining after the reforms.
- The share of Gross Capital Formation in Agriculture to GDP and its share to Gross Domestic Product of Agriculture were reducing year after year after 1990-91, yet started to rise in the last two years of the study period.
- The share of private investment started to rise after the reform period, yet the magnitude of change has been declining.
- Gross Fixed Capital Formation constitutes higher portion in the GCF. The growth in private investment is higher than the public investment during the study period.

Suggestions

- There is an urgent need to augment the capital formation in Indian agriculture

- The state need to spend more on agriculture in order to retain the people in the primary sector and to have sustainable agriculture.
- The target in agriculture sector to be fixed equal to the target of GDP by providing more importance to the agriculture in the Five Year Plans.

Conclusion

Though 70 percent of people depend upon agriculture directly or indirectly, India was not able to achieve 25% percentage share of GDP from the agriculture sector. Even though 23% percentage of share of GDP from agriculture sector, we were spent only 13% of GDP as capital formation in Indian agriculture in the year 2009-2010. It has to be raised at least by 25% in order to have sustainable agriculture and sustainable economic development in India.

References

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