

Public and Private Investment in Indian Agriculture – An Analysis

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Abstract

An attempt is made in this paper is to analyse the public and private investment in Indian agriculture in the country. The significant transformation over the past few decades has been viewed by Indian Agriculture. From new entries into the sector to new and improved technologies, farming became more mechanised, weather, soil and environmental changes, new markets and demand, and most importantly agriculture developing gradually from just a way of life to an involved into business, agribusiness, the changes are ranged. Unfortunately, these changes have not been accompanied by changes in the institutional and policy front. Even in instances where they have not necessarily been followed by variations on the organisational and institutional fronts where the amendments have been introduced on the policy front. This disconnect has reduced the growth potential of this vital sector.

Keywords: Agriculture Sector, Public and Private Investment.

Introduction

In India, the private sector looks initially at the prospective rate of return on its expenditures in conditions where risks can be managed. Since 1995, Terms of trade have been favourable to agriculture compared to the manufacturing sector almost reasonably. Unless wage costs were increasing even more sharply, which did not happen, popular movement regarding a trade for agriculture products would show relatively higher potential rates of return on investment in agriculture. Since the mid-nineties, on this basis, Indian agriculture should have been attracting significant investment.

Unfortunately, during the same period investment in agriculture as a share in total national investment increased from 7.5 per cent to 8.4 per cent and that of private investment declined from 11.9 per cent into 6.4 per cent.

Some dominant structural factors nullified the relative price advantage and constrained investment in the agriculture sector. It is seen that in irrigation, private investment has invariably gone for expanding the area under pump irrigation, using groundwater resources. Unfortunately, this has not been accompanied by sufficient public investment in recharging the aquifers and maintaining the underground reservoir.

This could not be expected from the private sector. With a dramatic drop in water tables and a resultant increase in irrigation costs, and especially in the context of highly erratic electricity supplies which make farmers dependent on diesel, private investment in even this form of irrigation has not increased. Moreover, this has created a complete hash of the irrigation regime that has been adopted since the Green Revolution.

Alternatively, a properly working private-public partnership could have resulted in achieving sustainable and more inclusive irrigation practices, based on improved consumption of continually recharged and sustainable groundwater resources, most possible given the annual rainfall.

An even more important structural impediment to attracting private investment has been the familiar presence of government in the sector. This extends to controlling foreign and domestic trade, regulating output and input prices, controlling the already distorted land market, its virtual monopoly over Research and Development and technology diffusion and a veto on new varieties, especially of genetically modified crops.

This has had two very negative consequences for the entry of private investment. First, the long and opaque regulatory and control regime, currently in place, generates a high degree of future scepticism for the investor. This pure uncertainty, very different from risk, is a failure for investment in any sector. Agriculture is no exception. Second, in sub-sectors like the mandis, warehousing or some services related to agriculture, the threatening presence of large public sector undertakings deters private sector entry.

While due to their systemic inefficiencies, these public sector agencies cannot manage with farmers demands and are in danger to corruptive influences, which, combined with administrative clout, prevent the entry of more efficient private suppliers. Unless the government is willing to take some decisions and effectively reduce its presence in the agriculture sector, prospects of attracting greater private investment will remain rather dim. A mere statement of good intent not accompanied by action on this front will certainly not adequate.

Trends in Agricultural Investment

Since 1960-6, the C.S.O series on public investment in agriculture available showed a rising trend till 1980-81, there was no flow at that level for 4-5 years and a decline after that. Awareness to this fact has been drawn by several scholars it has also been acknowledged by official sources (Economic Survey, 1993-94; Planning Commission, 1994).

This decline in public investment is attributed to various factors. One explanation for this is the diversion of resources from capital account to the current account to meet setting input subsidies in agriculture. As agricultural subsidies increased tremendously after 1980-81 (Gulati and Sharma, 1997), it put a massive strain on fiscal resources. Accordingly, the rise in allowances is recognised as a major constraint for raising public sector investment in agriculture (Gulati and Sharma, 1997; Hanumantha Rao, 1994). Some scholars attributed the decline in public investment in agriculture to the bias against agriculture in the policy (Kumar, 1992).

Another explanation for the observed behaviour of public investment in agriculture during the 1980s owes itself to the political economy of agricultural policies. At the beginning of the 1980s, under the pressure of farmer's interest groups, public financing of private sector capital formation became the priority concern. Federal funding of private investments increased from 35 per cent in the green revolution period to 60 per cent in the post green revolution period, and this did not leave much space for the state for public investments. Irrelevant forces like opposition to major and medium irrigation systems by environment groups and interstate disputes on water sharing also hurt public sector investment, which has been mostly for development of irrigation

As the public investment is meant for infrastructural development and it increased productive capacity, the level of public investment is crucial for the long-term growth of output. Accordingly, it has been pointed out that the decline in public investment in agriculture that set in during the early 1980s would have an adverse impact on the growth of agricultural output (Rath, 1989). Kumar (1992) predicted that the decrease in the share of agricultural investment in the total for the economy would cause a significant fall in agricultural GDP. Though during the decade of the 1980s, farm GDP and its growth rate did not fall following the decline in public investment, as predicted, there is no disagreement about the importance of public financing for long-run output growth.

Till 1979-80 there was a robust positive relationship between public and private investments in agriculture. Some studies inferred that there is a

high complementarity between public and private investment in agriculture. After 1980-81 the series on public and private investments started showing a different trend, and the association between the two sets turns out to be negative. During the 1980s, a robust positive association between the two games in the prior period turned out to be negative and significant. Based on this nature of association (positive or negative) between the two series depends on what period one chooses for estimating Mishra and Chand witnessed the relationship between public and private investments in agriculture. The study proved the claim of high complementarity between public and private investments in agriculture and concluded that private investment might be induced to an extent by public investment and partially autonomous.

Generally, investment planning literature at micro level deals with aggressive investment projects. However, there were many cases of complementary projects. Investment in field-channels, for example, is integral to a canal irrigation project, because, in the absence of the former, irrigation benefit from the latter cannot materialise.

Taking this case, it looks pertinent to point out that investment in field channels can come from a private source or public source. In case field channels are constructed using federal funds, as has been done in some states, it is a case of crowding out effect. The trend in public and private investments in agriculture since 1950-51 and phenomenon of complementarity has been examined thoroughly by Mitra (1997). The study observed that though, based on CSO series the complementarity hypothesis appears to stand refuted during the 1980s, this did not imply that the relationship could be one of substitution or independence between the two.

The debate shows that the severe disagreement on whether there is complementarity between public and private investments in Indian agriculture persists. However, the discussion has been quite useful to improve our understanding of the complex nature of the relationship between the public and private investments in agriculture.

Public and Private Investment Trends in Indian Agriculture

A great debate has been waging among agricultural economists of the country about the

ways in investment and the relationship between public and private investment in agriculture in the light of the decreasing trend in public investment in agriculture observed since the mid-eighties. The debate is mainly centred on the relationship between public and private investment in agriculture. Both investments in Indian agriculture had shown a rising trend until the end of the 1970s in India.

This made many researchers conclude that there is strong complementarity between public and private investment in Indian agriculture. These researchers emphasised the effect of “crowding in” of the public investment in agriculture in India. The other event of a rising mode in private investment and a decreasing trend in public investment in agriculture observed since the 1980s has made the issue much arguable. The operation of the “crowding in” hypothesis of public investment in Indian agriculture has been challenged by many scholars in recent years.

Public investment in agriculture has played a significant role in promoting the growth of agricultural output because it includes expenditures directed to agrarian infrastructure, research and development and education and training etc. It has been noted that since 1980s gross capital formation in agriculture in public sector started declining and continued falling till early 1990s while private investment followed this declining trend only up to 1996-97, but after that started rising and got accelerated from 2003-04 onwards. The reducing modes in public investment in agriculture in the decade of 1980s as well as in 1990s were improved since 2010-11.

On the other side, the private investment kept moving upward showing different movement in the two series since 1981-82. The ratio of gross capital formation in private sector to gross domestic product in agriculture persistently increased also with some fluctuations, while the rate of gross capital emergence in public sector to gross domestic product in agriculture continuously decreased in the whole period. In the 1990s and early-2000s, there has been a definite shift in the relationship between public investment and private investment in Indian agriculture. The details of Gross Capital Formation in Public and Private sector in agriculture about GDP in agriculture are given in table -1. The features include from 1990-91 to 2015-16 respectively.

Table Gross Capital Formation in Public & Private Sector in Agriculture about Gross Domestic Product in Agriculture (At 2004-05 prices) (Rs. Crore)

Years	GDPag	GCfagPU	GCfagPvt	GCfagPU as %of GDPag	GCfagPvt.as %of GDPag
1990-91	159293	7301	6932	4.58	4.35
1991-92	167723	7130	6949	4.25	4.14
1992-93	166577	7092	7437	4.26	4.46
1993-94	182498	7196	7529	3.94	4.13
1994-95	185186	6921	8027	3.74	4.33
1995-96	186570	6213	7919	3.33	4.24
1996-97	185363	5864	7844	3.16	4.23
1997-98	182899	6045	8204	3.31	4.49
1998-99	211184	5699	9063	2.70	4.29
1999-00	214315	4972	8452	2.32	3.94
2000-01	223114	4992	11424	2.24	5.12
2001-02	219660	4376	10589	1.99	4.82
2002-03	232386	4539	11602	1.95	4.99
2003-04	241967	4918	10331	2.03	4.27
2004-05	254090	5397	11388	2.12	4.48
2005-06	251892	4849	10841	1.93	4.30
2006-07	276091	4668	11508	1.69	4.17
2007-08	269383	3979	11963	1.48	4.44
2008-09	286094	3870	11025	1.35	3.85
2009-10	286983	4756	13083	1.66	4.56
2010-11	286666	4435	12980	1.55	4.53
2011-12	305263	5488	12250	1.80	4.01
2012-13	283393	4760	13881	1.68	4.90
2013-14	310611	5923	15261	1.91	4.91
2014-15	310486	6051	19668	1.95	6.33
2015-16	329168	6385	22424	1.94	6.81

Source: National Account Statistics, C.S.O., Government of India.

Private Investment and Agriculture Sector

Tamil Nadu ranked second, and Himachal Pradesh in the the third place. In Punjab, Karnataka and Haryana compared to all India average Rs. Four hundred seventy-one per hectare of net sown area in 2015-16, per hectare private investment, was also quite remarkable in 2001-02. Uttar Pradesh and Maharashtra also achieved the majestic increase in fixed capital formation in agriculture, but from 1991-92 to 2001-02, private investment in Haryana and Uttar Pradesh declined. In Jammu & Kashmir, the fixed assets in agriculture of the individual

investments showed a sharp decline where Himachal Pradesh continuously performed well and got the first place. Haryana was the second and Tamil Nadu in the third place.

From 2001-12 to 2015-16, private investment in Bihar, Karnataka, Maharashtra, Madhya Pradesh and West Bengal got down and remained below an average of the country. In Kerala, per hectare, private investment at constant prices remained almost the same in this period. Uttar Pradesh showed betterment rising from Rs.499 in 2001-02 to Rs. 575 in 2015-16.

Table State-wise Total and Per Hectare Private Capital Formation in Agriculture

States	Total FCFA At Current Prices (Rs. Crore)			Per Hectare of Net Sown Area at 2004-05 prices		
	1991-92	2001-02	2015-16	1991-92	2001-02	2015-16
Andhra Pradesh	110	283	684	362	307	347
Assam	12	19	44	163	83	88
Bihar	39	79	83	167	122	61
Gujarat	98	201	682	361	258	384
Haryana	82	169	761	802	577	1138
Himachal Pradesh	7	36	132	429	753	1299
Jammu & Kashmir	8	13	80	412	206	579
Karnataka	99	535	404	350	598	219
Kerala	54	157	328	868	839	809
Madhya Pradesh	112	716	911	210	443	332
Maharashtra	167	659	1292	326	445	399
Orissa	16	37	94	93	70	86
Punjab	129	198	597	1080	563	766
Rajasthan	99	499	1114	228	386	383
Tamil Nadu	89	382	692	586	799	821
Uttar Pradesh	267	685	1744	545	499	575
West Bengal	34	94	146	212	207	149
India	1445	4801	11622	363	406	471

Sources: All India Debt & Investment Survey, Reserve Bank of India, Bombay.

During the next year, the percentage of public investment increased to nearly 37 per cent, and that of private investment dropped down to about 63 per cent. During 2015-16, the investment in the public sector got momentum and reached a level of about 51 per cent, and that of the private sector remained less than 50 per cent. During 2016-17 (up to June), the public investment has not put forward, and the

entire proceed has been made by the private sector. On the whole, the share of private investment in total investment worked out to be 60 per cent and that of the public only about 40 per cent. Table – 3 analyses the trends in private and public investment in agricultural marketing infrastructure in India from 2013-14 to 2016-17 respectively.

Table Trends in private and public investment in agricultural marketing infrastructure in India: 2013-14 to 2016-17 (up to June)

Particulars	2013-14	2014-15	2015-16	2016-17	Overall
Private investment (in lakh Rs)	3704.85	23937.24	47329.67	19980.99	94952.74
Share in total investment (%)	99.19	63.16	49.27	100.00	60.23
Annual change (%)	0.00	646.11	197.72	-42.22	2562.93
Public investment (in lakh Rs)	30.41	13963.72	48735.88	0.00	62699.60
Share in total investment (%)	0.81	36.84	50.73	0.00	39.77
Annual change (%)	0.00	45918.18	349.02	0.00	206180.87
Total investment (in lakh Rs)	3735.26	37900.96	96065.55	19980.99	157652.34
Annual change (%)	0.00	1014.68	253.46	-20.80	4220.66
Ratio of private/ public investments	121.83	1.71	0.97	0.00	1.51

From the data collected from Directorate of Marketing & Inspection, Ministry of Agriculture, Govt. of India, The sector-wise rate of growth of investment can also be examined carefully. The annual percentage change implies that initially, it was more in public than private investment. Thus, from the analysis, it can be seen that investment in agricultural marketing infrastructure has been much higher by the private sector at the aggregate level. The results have noted that, on an average, on each rupee investment by the public sector, the private sector has invested Rs.1.51. It was not right at the starting stage when on investment of each rupee by the public sector; the private sector spent nearly 122 rupees. But during 2014-15, this ratio improved substantially for the public investment. In 2015-16 this got momentum and overtook the private placement and when this ratio became leaned towards the public sector.

State-wise Spread in Public and Private Investments

After finding the modes in investment, it became

needed to study the spread of investments in different states. Of the 24 reformed countries, only 13 states came front for placement in the agricultural marketing infrastructure. Of the total investment of Rs.1,57,652 lakh, Madhya Pradesh alone accounted for nearly 36 per cent share, Tamil Nadu (18%) and Andhra Pradesh (13.5%). West Bengal accounted for a low percentage. Amongst these states, three states, viz. West Bengal, Orissa and Sikkim, shares in the total investment were not even one per cent taken together and were much below half per cent as an individual state. Four states namely Kerala, Himachal Pradesh, Gujarat and Maharashtra, were among those states whose share in the total investment made in the agricultural marketing infrastructure was less than 5 per cent and another three states, viz. Chhattisgarh, Punjab and Rajasthan, had 5.0 and 7.5 per cent of share. The details of the state-wise spread of private and public investment in agricultural marketing infrastructure in India up to June 2017 are presented in table – 4.

Table State-wise spread of private and public investment in agricultural marketing infrastructure in India – Up to June 2017 (in lakh Rs)

States	Private sector	Percentage share	Public sector	Percentage share	Total investment	Percentage share
Andhra Pradesh	13960.39	14.70	7344.01	11.71	21304.40	13.51
Madhya Pradesh	26109.95	27.50	30070.43	47.96	56180.38	35.64
Punjab	10004.89	10.54	432.73	0.69	10437.62	6.62
Kerala	6840.76	7.20	259.50	0.41	7100.26	4.50
Tamil Nadu	16217.09	17.08	12183.47	19.43	28400.56	18.01
Rajasthan	11213.77	11.81	74.11	0.12	11287.88	7.16
Chhattisgarh	4057.82	4.27	5195.91	8.29	9253.73	5.87
Himachal Pradesh	512.62	0.54	3751.34	5.98	4263.96	2.70
Maharashtra	5877.00	6.19	0.00	0.00	5877.00	3.73
Orissa	87.36	0.09	0.00	0.00	87.36	0.06
Gujarat	10.66	0.01	2937.86	4.69	2948.52	1.87
Sikkim	60.42	0.06	389.42	0.62	449.84	0.29
West Bengal	0.00	0.00	60.82	0.10	60.82	0.04
Total	94952.74	100.00	62699.60	100.00	157652.34	100.00

The public and private sector Investments for the reformed states was also calculated. The maximum proportion came from the private and accounted for more than 60 per cent share. The state-wise spread of investment by the sector has revealed that investment was made by most of the private entrepreneurs in all the thirteen states, except West Bengal. The maximum investment was created by the private entrepreneurs of the state of Madhya Pradesh, followed by Tamil Nadu, Andhra Pradesh, Rajasthan and Punjab. The low-level investment was observed in the Gujarat state. In other countries, the proportion of expenditure to total private investment

was much below 10 per cent.

In the investment of the private, Madhya Pradesh, followed by Tamil Nadu and Andhra Pradesh states accounted for a notable share in the total public investment also, in the descending order of magnitude. The remaining ten countries accounted for nearly 21 per cent share in the entire public venture. The state-wise configuration of investment in agricultural marketing infrastructure, details are presented in Table - 5, reveals that the overall percentage of private investment was much higher (60.2%) as compared to the share of public expenditure.

Table State-wise composition of private and public investments in agricultural marketing infrastructure in India – Up to June 2017

States	Share of private investment, %	Share of public investment, %	Total investment (in lakh Rs)	Ratio of private to public investments
Andhra Pradesh	65.53	34.47	21304.40	1.90
Madhya Pradesh	46.48	53.52	56180.38	0.87
Punjab	95.85	4.15	10437.62	23.12

Kerala	96.35	3.65	7100.26	26.36
Tamil Nadu	57.10	42.90	28400.56	1.33
Rajasthan	99.34	0.66	11287.88	151.31
Chhattisgarh	43.85	56.15	9253.73	0.78
Himachal Pradesh	12.02	87.98	4263.96	0.14
Maharashtra	100.00	0.00	5877.00	0.00
Orissa	100.00	0.00	87.36	0.00
Gujarat	0.36	99.64	2948.52	0.00
Sikkim	13.43	86.57	449.84	0.16
West Bengal	0.00	100.00	60.82	0.00
Total	60.23	39.77	157652.34	1.51

Source: Compiled from the data collected from Directorate of Marketing & Inspection, Ministry of Agriculture, Govt. of India.

Conclusion

From the above analysis, it can be made to a conclusion that the overall ratio between public to private investments was 1.51, for the states of Rajasthan, Kerala, Punjab, Andhra Pradesh and Tamil Nadu, it came to know that it was above the average value. It made more cheerful and confident to note that in Rajasthan when the private sector invested nearly Rs.151.32, the public sector got inspired and made the decision to fund only rupee one. In Kerala and Punjab, the governments invested one rupee when the private sector invested Rs.23 and Rs.26 respectively. The recent development is the involvement of the private sector in Agriculture. Technologies in agriculture will come increasingly from the private sector, and India's private sector has the strength to multiply those technologies and to reach millions of farmers (big and small) in the fastest possible way. There is a need to channelise these sources in an orderly manner, so that in the process, apart from the profitability of the private sector, the farming community is also benefited. For reducing poverty, this will assist in pushing Indian agriculture to a higher and more sustainable growth which would be the most powerful engine. For areas where the private sector didn't show much interest such as rainfed areas, tribal areas, management of natural resources, pulses, millets, the role of public research system would continue to be critical.

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