

IMPACT OF SUBSIDIES ON INDIAN AGRICULTURAL SECTOR: AN ANALYSIS

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Abstract : The agricultural sector plays an important role in the development of the country. But Indian agriculture is lagging behind the global outlook. The government's effort subsidizes the agricultural sector for self-reliance in farmers, employment generation, small-scale producers adopting modern technologies and inputs, which is an integral part of Indian farmers today. Agricultural subsidies play an important role in the development of the agricultural sector in every country. In India, agriculture has been directly and indirectly subsidized by the government for the last several years. But how beneficial they are for the agricultural sector is a question even today. To know the answer to these questions, the researcher has studied about the factors contributing to the development of the agricultural sector, such as - agricultural finance, agricultural production, infrastructure, irrigation and technology, etc. In fact, agricultural subsidy is beneficial for the agricultural sector but due to mismanagement, corruption and middlemen in the distribution system, it is not able to provide complete benefits to the users. The study presented is based on secondary data published by the government and researchers.

Keywords: Agriculture, Subsidies, Finance, Production, Infrastructure, Irrigation, Technology.

INTRODUCTION

India is an agricultural country. 70 percent of its population is dependent on agriculture. Despite the concerted effort of industrialization over the last three decades, agriculture remains the backbone of the Indian economy. The agricultural sector plays an important role in the development of the country. But Indian agriculture is lagging behind the global outlook. The productivity per hectare here is much lower than other nations. Therefore, it is the responsibility of the government to take concrete steps for its development. It is in this context that the Government of India is playing a diverse and important role in the development of the agricultural sector. The government's effort supported agriculture for farmers' self-reliance, employment generation, small-scale producers adopting modern technologies and inputs that reduced price volatility and improved farmhouse incomes. For this, the government has taken important steps for the cost and availability of import-export policies and domestic policies such as price support programs, direct payments, and input subsidies such as credit, fertilizer, seeds, irrigation, etc. Input subsidy and product price support are most important for the upliftment of agriculture by the government. The World Bank (2008) has also stated that various benefits are cited in justifying input subsidies at economic, environmental and social levels. Input subsidies bring economic benefits to the society. In India, inputs such as fertilizers, irrigation, seeds and electricity account for a significant share of agricultural subsidies. These subsidies are very important for the development of farmers in India.

At present, agricultural subsidies are one of the biggest debates in the world. Every country gives subsidy in the form of assistance for the development of agricultural sector, which has improved the economic condition of farmers and increased agricultural productivity. But this agricultural subsidy is becoming a burden for the country's economy. As a result, every country is now trying to reduce the level of agricultural subsidies to reduce the burden on the economy. According to economists, this agricultural subsidy is harmful to the economy which should be reduced. In contrast, agricultural experts believe that agricultural subsidies are necessary and beneficial for the development of the agricultural sector and the upliftment of farmers. In the present article, the researcher has studied the effect of subsidy on the agricultural sector.

MEANING OF AGRICULTURAL SUBSIDY

Subsidy is derived from the Latin word 'subsidiium', which literally means to help from behind. Subsidies are often seen as a tax that is an instrument of fiscal policy. In fact, subsidy is a form of financial assistance given to an individual, business or economic sector to achieve certain objectives. That is, a monetary exchange that is not directly linked to paying for the service can be defined as a subsidy. Financial assistance in the form of subsidies can be received from a national or local government, but the term subsidy can also mean aid given by others, such as individuals or non-governmental institutions, although these are usually described as donations goes. When we talk of agricultural subsidies it is a government financial aid that is paid to farmers and people associated with agribusiness as a supplement to their income to support their work. There are two major forms of agricultural subsidies - first direct and second indirect.

PURPOSE OF AGRICULTURAL SUBSIDY

Agriculture input subsidy aim to make particular inputs, most commonly fertilizers, seeds, irrigation, power etc. available to potential users at below costs as a way of incentivising adoption, increasing agricultural productivity and profitability and ultimately reducing poverty and stimulating economic growth among farm households. Examples include tax exemptions, free provision of agriculture inputs, price subsidies where inputs are made available at lower prices to consumers or, as is common in many contemporary contexts, the provision of vouchers to farm households that they are free to redeem in local markets. Agriculture inputs that can be subsidies include seeds, fertilizers, pesticides, herbicides, animal feed, drugs, machinery and fuel. Subsidies are most often only targeted at a few inputs and are in many cases limited to fertilizers or seeds.

RATIONALE OF SUBSIDISING AGRICULTURE

The subsidies in agriculture are generally rationalised in the overall economic context that they play a crucial role in stimulating development of any country through increased agricultural production, employment and investment. Also that subsidies must be construed as more an instrument promoting risk-taking function of the farmers than anything else. Specifically,

subsidies are advanced either to promote the use of new inputs or to transfer income in favour of farming community, maybe to keep them in 'parity with non-farming communities. The use of subsidies to promote new inputs is generally the case with developing countries and transferring the income in favour of farming community is the case with developed countries.

There are two most common ways of subsidising agriculture – (i) governments may pay much higher prices for the agricultural products than what the farmers can obtain under free market environment, and (ii) by supplying the inputs at a price that is below the cost of supplying these especially in case of non-tradable inputs or below the price that would prevail in an open free trade environment (as in case of tradable inputs). Higher prices for farm products can be provided mainly by insulating the domestic markets from the world economy through a restrictive trade policy. On the other hand, vital inputs like fertilisers, irrigation water, credit, electricity used in the agricultural sector can be supplied to the farmers at prices which are below their would be open market prices. The prices of these inputs, therefore, do not reflect their true value, i.e., the real cost of supplying these inputs. But generally subsidies on inputs are preferred because it is believed that benefits of government expenditure can be derived by the farmers only in proportion to their use of inputs. Input subsidisation also avoids raising food and raw material prices, thus avoiding the plausible adverse effect on growing industrial sector or large mass of poor.

INVESTMENT IN AGRICULTURAL SECTOR IN INDIA

India has made significant progress on the agricultural front during the last decades, whose success should be largely attributed to the farming families of the country who are the backbone of Indian agriculture and economy. In the interest of these farmers, pro-agricultural policy, production strategies, public investment in infrastructure, research extension for better crop production, livestock and fisheries have greatly helped in increasing food production and its availability by the government. In recent years, capital investment in agriculture and allied sectors has been steadily increasing due to the efforts of the government. Gross capital formation (GCF) relative to Gross Domestic Product (GDP) in agriculture and allied sectors has increased from 13.5 percent in 2004-05 to 21.2 percent in 2012-13. This development has been possible due to the initiative taken by the government to make agriculture a sustainable business. Public sector investment includes irrigation works, command area development, land reclamation, development of forests and state farms. Private sector investments include land reclamation, construction of non-residential buildings, construction activities including farm houses, wells and other irrigation works. Capital investment is measured in terms of gross capital formation (GCF) relative to the country's gross domestic product (GDP). According to the annual report of the Department of Agriculture and Cooperation for the year 2011-12, the gross capital formation (GCF) in agriculture and allied sectors was Rs 76096 crore in 2004-05 which increased to Rs 162084 crore in 2012-13. The gross capital formation (GCF) in agriculture and allied sectors from 2004-05 to 2012-13 is shown in the following table 1.

Table 1 : Gross Capital Formation (GCF) in Agriculture and Allied Sectors at 2004-05 Prices (Rs. Crore)

Year	GCF	GDP	GCF as a % of GDP
2004-05	76096	565426	13.5
2005-06	86604	594487	14.6
2006-07	92057	619190	14.9
2007-08	105741	6,55,080	16.1
2008-09	127127	6,55,689	19.4
2009-10	133162	6,60,987	20.1
2010-11	132734	7,17,814	18.5
2011-12	157172	7,53,832	20.8
2012-13	162084	764510	21.2

Source: Annual Report, 2013-14, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India

The above table 1 shows that agriculture is one of the largest occupations in India. Every year the Government of India provides financial assistance in the form of subsidy - direct and indirect.

AGRICULTURAL SUBSIDIES AND DISTRIBUTION NORMS IN INDIA

Introduction of the High Yielding Varieties (HYV) seeds programme in the 1960s demanded a high priority to supplying irrigation water and fertilisers to the farmers, the government tried to ensure that they were accessible and affordable. Subsidy on fertilisers is provided by the Central government whereas subsidy on water is provided by the State governments. Centre's subsidy bill of the government stands at 258257 crore in 2014-15 which was 254631 crore in 2013-14. (table 2)

Table 2 : Centre's Subsidy Bill (2013-14 and 2014-15)

Items	2013-14	2014-15
Food	92000.00	117671.16
Fertilizer	67338.77	71075.62
Petroleum	85378.16	60268.82
Interest	8137.19	7632.28
Others	1777.72	1610.01
Total	254631.84	258257.89

Agricultural subsidies in India are given in many forms. Agriculture subsidy is mainly given on fertilizer subsidy, seed subsidy, credit subsidy, equipment, electricity subsidy, irrigation subsidy etc. Apart from this, another form which is intangible is not to be taxed on agricultural income. Subsidies can be distributed among individuals according to a set of selected criteria, namely (i) merit, (ii) income-level and (iii) social group etc.

This study reveals the huge magnitude of subsidy in the provision of economic and social services by the government. Even though merit subsidy is set aside, the remaining subsidies alone amount to 10.7 percent of GDP, with 3.8 percent and 6.9 percent of GDP, which are related to central and state subsidies respectively. The average all-India recovery rate for these non-merit goods/services is only 10.3 percent while a subsidy rate of about 90 percent. Table 3 shows the gross cropped area in India with fertilizer, electricity, irrigation and total subsidy between 1980-81 to 2008-09.

Table 3 : Distribution of Total Subsidies & Gross Cropped Area in India (1980-81 to 2008-09)

Subsidies/ Years	Fertilizers (Rs. Crores)	Electricity (Rs. Crores)	Irrigation (Rs. Crores)	Total Subsidies (Rs. Crores)	Gross Cropped Area (*000 hectares)
1980-81	471.88 (38.41)	357.56 (29.10)	399.10 (32.49)	1228.54 (100.00)	173324
1985-86	1804.80 (37.63)	1324.15 (27.61)	1667.21 (34.76)	4796.16 (100.00)	177526
1990-91	4638.56 (35.20)	4621.00 (35.07)	3917.41 (29.73)	13176.97 (100.00)	185403
1996-97	8148.41 (23.86)	15594.00 (45.67)	10404.73 (30.47)	34147.14 (100.00)	188601
2000-01	13724.05 (24.80)	26904.00 (48.62)	14711.71 (26.58)	55339.76 (100.00)	186565
2008-09	101180.68 (87.26)	14771.52 (12.74)	--	115952.20 (100.00)	175678

Note: Percentages are shown in parentheses

Above table 3 shows the total amount of subsidies is increases year by year. In 1980-81 total amount was Rs.1, 228.5 crore and in year 2008-09 is 1, 15,952.20 crore. In year 1980-81 gross cropped area was 1, 73,324 hectares, it was increase up to 1,88,403 hectares & again it was decrease in year 2006-07 up to 1,75,678 hectares. At same time population in India is increases in year 1980-81 was 68.52 crore, 84.39 crore in 1991, 102.70 crore in 2001 & 121 crore in 2012. These all things clearly show that agriculture subsidies increases from 1980-81 to 2008-09 & gross cropped area is likely to be same but population of country gradually increases.

IMPACT OF SUBSIDIES ON AGRICULTURAL SECTOR

A subsidy, by its very nature, involves a complex set of changes in economic resource allocations through its effects on costs and/or prices. By altering production and consumption decisions, subsidies have diverse economic, social and environmental incidence. In fact, it is attainment of select economic, social and environmental goals that underlie the very rationale for subsidies/support provision by the government. The quantification of costs and benefits of these individual effects, in terms of a common denominator, is often subjective and judgemental. This is especially true for the valuation of social and environmental costs and benefits, which are hard to assess through objective criterion. (UNEP/ IEA, 2002)

To the farming community, government provides support towards attainment of food security, protection against weather and fluctuations in world prices and preservation of rural society.

The effect of subsidy on the agricultural sector has been studied with the help of some important factors contributing to the development of the agricultural sector below.

Agricultural Finance: Agricultural credit has played a very important role in maintaining agricultural production in India. Although the outreach and amount of agricultural credit has increased over the years, several weaknesses have been revealed, affecting the viability and stability of these institutions. The Government of India finances agriculture at a subsidized rate for farming. This is helpful for farmers in India as about 11 percent of the people in India are farmers and of which 11 percent farmers have land but do not have sufficient finance for farming. Farmers are doing farming through subsidized finance. The agriculture sector mainly requires three types of finance. That is, short term, medium term and long term finance.

In agriculture, long-term investment includes the purchase of large machinery such as tractors with well-dug wells, land leveling, fencing, and trolleys with their attachments for permanent improvement on land. Mango, Cashew, Coconut, Sapota (Chiku), Orange, Pomegranate, Fig, Guava, etc. Its involvement with the establishment of fruit orchards is available through a nationalized bank. Medium-term finance consists mostly of finance for agricultural equipment and small machinery such as tractors, threshers and other equipment. In short term finance, the crop duration of this finance is from one year to two years and the percentage of interest is very low i.e. 2 percent to 4 percent. Agencies provide finance to farmers, private agencies are: (a) money lenders and landlords; (b) Commercial Bank and Public or semi-public agencies, (c) Cooperative Societies.

Table 4: The Following Table Gives Detail Information about Finance Towards Agriculture Sector (Rs. crore)

Years	Target	Achievement
2004-05	105000	125309
2005-06	141000	180486
2006-07	175000	229400
2007-08	225000	254658
2008-09	280000	287149
2009-10	325000	384514
2010-11	375000	468291
2011-12	475000	511029
2012-13	575000	308025
2013-14	700000	-

Source: Annual Report, 2013-14, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India

Table 4 clearly shows that the percentage of agricultural finance in India is increasing continuously. The target was Rs 105000 crore in 2004-05, which increased to Rs 575000 crore in 2012-13. While the achievement has increased from Rs 125309 crore in 2004-05 to Rs 308025 crore. This agricultural finance growth positively impacts the production of agricultural commodities in India.

Agricultural Production : India is one of the major producers of agricultural commodities in the world. Different crops are grown in India according to different geographical regions. India ranks second in wheat, rice, cotton, sugarcane, and groundnut

production. It is also the second largest harvester of vegetables and fruits, representing 8.6 percent and 10.9 percent of vegetable and fruit production worldwide.

Table 5 : Production of Major Crops During the 2005-06 to 2012-13 (Million Tonnes/Bales)

Years	Rice	Wheat	Pulses	Foodgrains	oilseeds	Sugarcane	Cotton*	Jute & Mesta**
2005-06	91.81	69.43	13.42	203.14	28.07	281.23	18.56	10.13
2007-08	96.69	216.01	14.76	230.78	29.75	348.19	25.88	11.21
2008-09	99.18	219.90	14.57	234.47	27.72	285.03	22.28	10.37
2009-10	89.10	203.45	14.66	218.10	24.88	292.30	24.02	11.82
2010-11	95.98	226.25	18.24	244.49	32.48	342.38	33.00	10.62
2011-12	105.31	242.23	17.09	259.32	29.80	361.04	35.20	11.40
2012-13	101.80	232.5	17.57	250.15	29.46	334.54	33.80	11.13

*(million bales of 170 kg each), **(million bales of 180 kg each)

Source: State of Indian Agriculture 2013-14, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, New Delhi

Agricultural production in India has been increasing continuously in the last year. The gross annual production of all crops is 973.27 million tonnes in the year 2007-08 and 1010.95 million tonnes in the year 2012-13. As we compare Table Nos. 4 and 5, we found that the amount of subsidy increases as well as the production level of agricultural commodities. This shows that subsidies help to increase agricultural productivity.

Irrigation : According to a report by the World Bank (2010), agricultural irrigated land refers to agricultural areas intentionally provided with water, including land irrigated by controlled flooding. The total agricultural irrigated land in India was 35.12 in 2009. The purpose of irrigation in India is to supply water from Indian rivers, tanks, wells, canals and other artificial projects for farming and agricultural activities. In a country like India, 64 percent of the cultivable land is dependent on the monsoon. India has improved irrigation in the last decade. There are more than 20 million irrigation wells in India. We add 0.8 million / year, increasing irrigation in the canal and tank command with pumped water. Every fourth farmer owns an irrigated well; Non-proprietary ground water depends on it. Agricultural irrigated land in India as of 2010 was 35.19. Its highest value in the last 9 years was 35.19 in 2010, while its lowest value in 2003 was 29.88.

The Central and State Governments of India provide large amounts of subsidies for agricultural irrigation. Generally 50% subsidy is available for agricultural irrigation in India. But in Karnataka, the percentage of subsidy on irrigation is up to 90%. This is very beneficial for the growth of agricultural sector in India.

Table 6 : The Percentage of Irrigation in Agriculture Sector

Year	% of Irrigation
Jan 2004	31.63
Jan 2005	32.92
Jan 2006	33.57
Jan 2007	34.34
Jan 2008	34.66
Jan 2009	35.12

Source: World Bank Indicators

The above table 6 shows that the percentage of irrigation in agriculture sector is increasing continuously. The percentage of irrigated land in India is 31.63 percent in the year 2004 and 35.12 percent compared to the total agricultural land in the year 2010.

Technology : Technology is one of the important factors in the development of any field. In the last few years, farmers are adopting new technology, leading to technological development in India. Most of the old farming method has been superseded by new and advance technology. For example, for the supply of water, instead of using traditional methods to farmers, most farmers now use water recycling for irrigation. The use of machinery for harvesting and sowing is increasing day by day.

Table 7 : Farm Machinery Availability in India

Agriculture Operation/Machine	No. of Lacks*		Command Area of Net Area Sown (in %)
	1992	2003	
Tractors	12.22	23.61	25
Seed-drill			
(i) Tractor drawn	3.9	73.5	11.15
(ii) animal drawn	51.03	23.77	12.06
Thresher			
(i) Wheat	10.76	7.26	17
(ii) Paddy	0.35	1.61	2.21
(iii) Multicrop	1.68	6.81	5.76
Plant Protection equipment	29.56	58.31	48.39

It is clear from the table that the advancement of technology is being used in agriculture. These changes are possible only through government subsidies available for the purchase of machinery required for agricultural production. The government provides up to 30 percent subsidy on the purchase of agricultural equipment in India. This benefit encourages farmers to buy more agricultural equipment for farming.

Basic Infrastructure in Agriculture : Infrastructure facilities in India lag far behind those of other countries. We have many challenges in terms of infrastructure facilities in the agricultural sector. But agricultural infrastructure has the potential to transform existing traditional agriculture or subsistence farming into the most modern, commercial and dynamic farming system in India. Adequate infrastructure increases agricultural productivity and reduces the cost of farming and its rapid expansion accelerates agricultural as well as economic growth. It plays a strategic role in creating large multiplier effects in the infrastructure

economy along with agricultural development. Agricultural infrastructure can be classified under broad based categories. Input-based infrastructure: Seed, fertilizer, pesticides, agricultural equipment and machinery, etc. Resource-based infrastructure: Water/irrigation, agricultural power/energy physical infrastructure: Road connectivity, transportation, storage, processing, conservation, etc. Institutional infrastructure: Agricultural research, extension and education technology, information And communication services, financial services, marketing, etc. The impact of infrastructure has accelerated the process of commercialization in agriculture and rural sector. Agricultural infrastructure is not only an important driver for total factor productivity (TFP) growth, but it also contributes to a substantial reduction in rural poverty. Infrastructure investment has a strong impact on rural income, and especially on small holders. A study by Bhatia (1999) showed that Indian States with the highest rural infrastructure index (a composite measure for rural electrification, roads, transport, health, irrigation, farm credit, fertilizer, agricultural marketing, research and extension) such as Punjab, Haryana and Tamil Nadu have the highest food grain productivity per hectare and the States with the lowest index such as Rajasthan, Bihar & Madhya Pradesh have the lowest food grains productivity per hectare; the rural infrastructure index explains about 68% of the variability in the yield in different States; and 10% improvement in rural infrastructure index in States with lower score would increase their food grains productivity by about 470 kg / ha on an average.

After independence, the country is constantly improving in this direction. In every five-year plan and annual budget, the government makes special arrangements for funds for the development of agricultural infrastructure. Table 8 shows the development of agricultural infrastructure in India a few decades after independence.

Table 8 : All India Expanded Stock of Infrastructure (1950-51 to 2014-15)

Year	Irrigated Area (Million Hectares)	Fertilizer Production (Million Tons)	Number of Regulated Wholesale Markets	Power Generation (Billion kwh)	Road Length (Km)	No. of Commercial Vehicles (Million)
1950-51	22.56	0.05	432	5.0	399942	0.116
1960-61	27.98	0.15	715	17.0	524,478	0.225
1970-71	38.19	1.05	1777	55.8	914979	0.437
1980-81	49.73	3.008	4158	110.8	1485421	0.701
1990-91	63.20	9.045	6250	264.0	2327362	1.744
2000-01	76.91	14.704	7139	500.0	3373520	2.221
2010-11	85.09	16.380	-	844.8	4676838	7.608
2014-15	96.47	16.515	-	1105.1	5472144	-

Between 1950-51 and 2014-15 in India, irrigated area increased to 96.47 million hectares, increased fertilizers production to 16.515 million tonnes, 7139 regulated wholesale markets (2000-01) were established, 1105.1 billion power was generated, 5472144 km of roads were built and added 7.608 million commercial vehicles (2010-11), which has marginally improved agricultural productivity and production and the process continues. The main things behind this development of the agricultural sector are possible with the help of the role of the government and subsidy to the agricultural sector.

Agricultural Land Fertility : Fertility of the land is an important factor for good agricultural production. But in the past, due to excessive use of chemical fertilizers, fertility of agricultural land is continuously decreasing. Farmers used excessive amounts of chemical fertilizers in the field for higher production, which led to better production but the opposite was that the fertility of the land was reduced. Due to the subsidy received by the government on fertilizer, the farmer started using nitrogen fertilizer in greater proportion in proportion to other nutrients for more production. Such unbalanced fertilizer use has exacerbated the problem of available nutrient deficiencies and led to a decline in soil fertility and crop productivity. As a result, the intensively cultivated soil of the area lacked phosphorus, potassium, sulfur and zinc] which is a matter of concern. For the continued health of the fields, balanced manure of nitrogen, phosphorus, potassium, sulfur and zinc as well as farm manure, green manure and bio-fertilizer are required to be used to maintain soil fertility.

Farmer : The agricultural subsidy received by the government increased the yield of crops, which increased the income of farmers and improved their standard of living. Subsidies are strengthening the economic condition of farmers in India. In India, it is difficult for farmers to do farming without subsidy, as crop yields depend mostly on the weather. Due to which sometimes dryness and sometimes flooding is encountered. The nature of weather cannot be measured by any one. But subsidies also have some adverse effects on farmers. This makes the farmer lazy. Indian farmers have a habit of government assistance, they cannot do anything on their own. They always depend on government facility. This is another negative effect of subsidies on the agricultural sector.

CONCLUSION

India has a very large arable area and plays an important role in the development of the country. There has been a lot of investment in agriculture in the last few years. The percentage of agriculture sector in GDP has been decreasing in the last few years but at the same time the production of agricultural sector is also increasing with investment. Agricultural subsidies play an important role in the development of agricultural sector in India. Development of agricultural sector without subsidy is very difficult. The study shows that subsidies have a positive impact on India's agricultural sector along with a negative impact. In fact, agricultural subsidy is beneficial for the agricultural sector but due to mismanagement, corruption and middlemen in the distribution system, it is not able to provide complete benefits to the users. Hence the government needs better implementation for this so that the benefits actually reach the needy. Also, funding should be made to improve agricultural techniques, educate farmers, create a better economic environment and infrastructure to promote trade and slow cuts on subsidies, as they impede growth and adversely affect the economy in the long run.

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