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Input Subsidies In Agriculture Viable? Some Macro Economic Concerns

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Input subsidies in Agriculture accounts a major share in total GDP of Agriculture. In the era of declining Public Sector Expenditure in Agriculture and growing fiscal deficit, there is need to review the subsidy policy of the Government of India. The paper is an attempt in this regard. The present paper is divided into two sections viz., Section A and Section B. The former section critically explores the structure of input subsidies in India. At larger level of generality, input subsidy like fertilizer comes under the purview of Central Government and subsidy on water is disbursed through state governments. A brief overview of the two covers the major part of the section. Section B questions the feasibility of input subsidies from various angles with major thrust on subsidy v/s investment debate. The present author opines that Public Investment in Agriculture is a better alternative than subsidy.

Introduction

Brief overview of input subsidies in Agriculture

The advent of input subsidies can be traced to the era in mid -1960s when with the advent of Green Revolution, many inputs became prerequisite so that a desired outcome is achieved. Since many of the necessary inputs were costly and unfamiliar to the existing farming sector, a proper mechanism of ensuring inputs to farmers at affordable prices became the major need of the day. Input subsidies in Agriculture mainly is mainly divided as subsidies provided to Fertilizers and Power, though the basket contains subsidies on other inputs like seeds, tools and machines. Subsidy on fertilizer comes under the purview of Central Government and Subsidy on water is provided to respective states by State Governments. Subsidy on water is further divide into two parts, viz., power subsidy and subsidy. Power subsidy is granted on power that is used to draw on groundwater and is provided to privately owned means of irrigation. Subsidy on irrigation implies subsidy on canal water usage. The excess of operating costs over gross revenue is treated as imputed irrigation subsidy.

The main rationale for input subsidy is to provide agricultural inputs to poor and marginal farmers at affordable prices and to develop the habit of usage of new and advanced agricultural inputs so that high yield cultivation is encouraged. Subsidies on manufacturers are provided so as to ensure an assured return on net-investment and to attract capital in the desired avenue.

Information on the subsidies and agricultural inputs is provided in Table 1.1. The table presents a picture of substantial increase in the amount of input subsidies disbursed to agriculture. In year 1999-2000, total subsidy on agricultural inputs amounted to Rs 33,591 crores in 1999-2000 which rose to Rs 1, 60,917 crore by 2008-09. Till 2005-06, the share of subsidy on electricity was more than fertilizers after which fertilizers subsidy has overtaken subsidy on electricity. In 2008-09, the share of fertilizer subsidy was 76,603 crore rupees in current price, share of electricity being 27,489 crore rupees, irrigation at 23,665 crore rupees and other subsidies[1] amounting Rs 33,160 crore rupees.

Table 1.1

Subsidy in agriculture (at current prices)

(Rs in crores)

Year	Fertilizer	Electricity	Irrigation	Other Subsidies	Total Subsidy
1999-00	13244	6033	11196	3118	33591
2000-01	13800	8919	13259	2733	38711
2001-02	12595	10410	13009	3234	35503
2002-03	11015	8521	12794	3173	41444
2003-04	11847	14544	10921	3640	49786
2005-06	15879	17977	12290	5647	57818
2006-07	18460	19431	14280	4764	67693
2007-08	26222	19729	19457	15100	87708
2008-09	76003	28489	23665	33160	160917
2011-12	70010	--	--	--	--
20012-13	65970	--	--	--	--

Source: Govt. of India, *Agricultural subsidies at a glance, 2009*)

Overview of input subsidies provided by State Governments

Dubash and Rajan (2001)[2] argues that power subsidy was introduced for the first time as a political tool in Andhra Pradesh in the elections of 1977-78 when the Congress led AP Government offered flat-rate tariffs to farmers as an election promise. Since then most of the states come up with some form of input subsidies on power and irrigation leading to a huge burden on state finances. Estimating the extend of power subsidy in 2000-01 , Gulati and Narayan found that the Average revenue tariff to agriculture consumer was only 28.42 paise

[1] ' Other subsidies' includes subsidy given to farmers on seeds, insurance, tools and machines , price support schemes etc

[2] Dubash, NK and SC Rajan(2001) : '*Power politics: Process of Power Sector Reforms in India'* , EPW, September,1

per KWH while average cost of supply was 303.44 paise per KWH thereby leading to subsidy of 275.44 paise per KWH. It is because of the presence of huge discrepancies in power sector that State Electric Boards were recovering only 9.35 percent of average unit cost in 2000-01. As far as irrigation subsidies are concerned, they arise because of the absence of rational pricing for canal water. They can be calculated as the difference between the cost of supplying irrigation water to the farmers and what the farmers pay for irrigation water as direct price. Gulati and Narayan [3] have estimated that the pricing of canal water did not cover more than 20 percent of operation and maintenance expenses in the mid- 1990s.

The main argument against power subsidy is the presence of free or pure flat rate system of pricing in Agriculture. Zero marginal cost of power to farmers is leading towards the excessive and inefficient usage which is termed as 'perverse incentives' to farmers. This non-responsive usage is going to adversely impact the very sustainability of agriculture development in future as water table is likely to drop drastically. There is also a problem of leakages and theft associated with power subsidy to agriculture as subsidy is being diverted to industry in many cases.

In case of irrigation subsidy, low pricing of canal water is inducing inefficiency and overexploitation. Further, there is severe problem of water logging and salinity associated with the way canal water is exploited. Gulati and Narayan (2003)[4] also opine that the subsidy policy in canal irrigation is adversely affecting public sector expenditure in agriculture. Lack of resources has also led to poor maintenance of irrigation projects and neglect of existing irrigation systems resulting in poor quality service.

Impact of Power subsidy: Case study of Punjab

In a survey conducted in selected areas of Ludhiana and Mansa district of Punjab in 2006 by Varinder Jain[5], presence of disparity in the flow of electricity between advanced and backward regions was found. The proportion of farmers having electricity connections in progressive area was found 51 percent higher in progressive areas than their counterparts in backward areas. As far as duration of electricity is considered, 83 percent of respondents in progressive area said that they were getting 10 hours of power per day while majority of farmers in backward area viewed of getting less than six hours of power a day. Only 40 percent of farmers in backward area perceive the view of the availability of uninterrupted electricity supply. Farmers in backaward area believe that their conditions in near future are not going to improve as there is lack age of necessary infrastructure essential for flow of electricity. The author opines that the OYT (Own your Pump) scheme of Punjab Government is a move towards polarization of subsidy scheme as the poor and marginalized farmers will be unable to bear the burden of full cost that comes with OYT scheme. The other important implication is that

[3] The argument is taken from Ashok Gulati and Sudha Narayan's paper in EPW ,2003 titled *the Subsidy Syndrome in Indian Agriculture*

[4] *Ibid.*

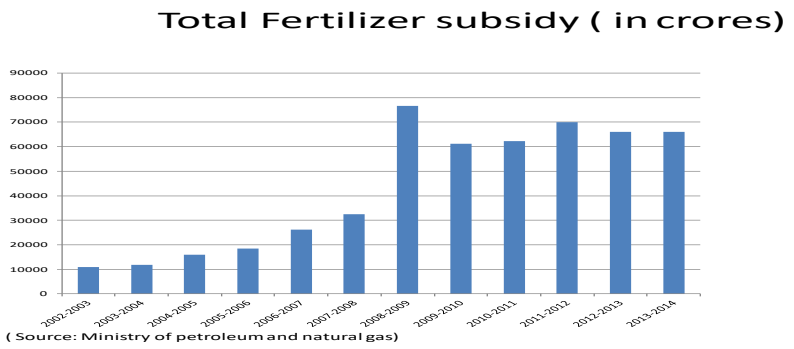
[5] Jain, Varinder (2006): *Political Economy of Electricity Subsidy: Evidence from Punjab.* Published in: Economic and Political Weekly , Vol. 41, No. 38 September 2006

under the conditions of deteriorating financial position of the State Electricity board, already existing network of electric wires assumes importance than new installations. The study found that large and already prosperous farmers were the real beneficiaries from power subsidies. This is against the very rationale of provision of subsidy as poor and marginalized farmers are not extracting the desired benefits.

Overview of fertilizer subsidy

Fertilizer subsidy in India started as an aftermath to World Oil crisis of 1973-74 when input costs in many industries including agriculture escalated. Rabbi (1986) [6]writes that subsidy on fertilizer started around March 1976 in phosphoric fertilizers and later extended to nitrogenous fertilizers. The fertilizer policy of the Government of India serves the twin purposes of making fertilizers available to the farmers at low and affordable prices to encourage high yielding cultivation and to ensure fair returns on investment to attract more capital to fertilizer industry. To achieve the former objective, the Government of India is trying to keep price of fertilizers low and static through Maximum Selling Price (MSP) so that demand of fertilizers be increased, the later is done via Retention Price Scheme (RPS) started in 1977. The extend of fertilizer subsidy increased from Rs 330 million in 1977 to Rs 45 billion by 1989-90 . In terms of the share of fertilizer subsidy in GDP, it went up from 0.06 percent to 1.17 percent during the time span thereby posing a huge fiscal burden of budget. Figure 1.0 presents the raising trend in fertilizer subsidy in the recent years. From 13,800 crore rupees, extend of subsidy increased to Rs 32490 crores in 2007-08. There has been a huge jump in the amount of subsidy disbursed in next year amounting Rs 76603 crores, the main reason being all time increase in world fertilizer prices in 2008-09 posing a huge subsidy burden. Extend of subsidy has remained in the range of Rs 6000-7000 crores thereafter.

Figure 1.1 Total Fertilizer subsidy (at current prices)



[6] Rabbi (1986) : *' Fertilizer Subsidy in India'* EPW October,11

As far as trends in the consumption of fertilizers are considered, there has been a huge bias towards Nitrogen based subsidies. The main reason attributed to this is decontrolling of the prices of phosphoric and Potassic fertilizers in August 1992 on the basis of the recommendations of the Joint Parliamentary Committee[7] on fertilizers. Table 1.2 below depicts the trends in NPK ratio since 1991-91. As against the ideal average nitrogen (N), Phosphate (P) and Potash (K) ratio of 4:2:1, the ratio was 5.9: 2.4: 1 in year 1991-92. Due to distortion of fertilizer policy in 1992, the ratio deteriorated to 9.7: 2.9: 1 in 1993-94. It is only in recent years that NPK ratio has improved showing the desirable ratio in 2010-11 when Nutrient based subsidy (NBS)[8] was implemented by Government of India . However, it further deteriorated in year 2011-12 to 6.9: 3.1:1 mainly due to the fact MRPs of many complex fertilizers increased sharply and the MRP of urea remained fixed.

Table 1.2

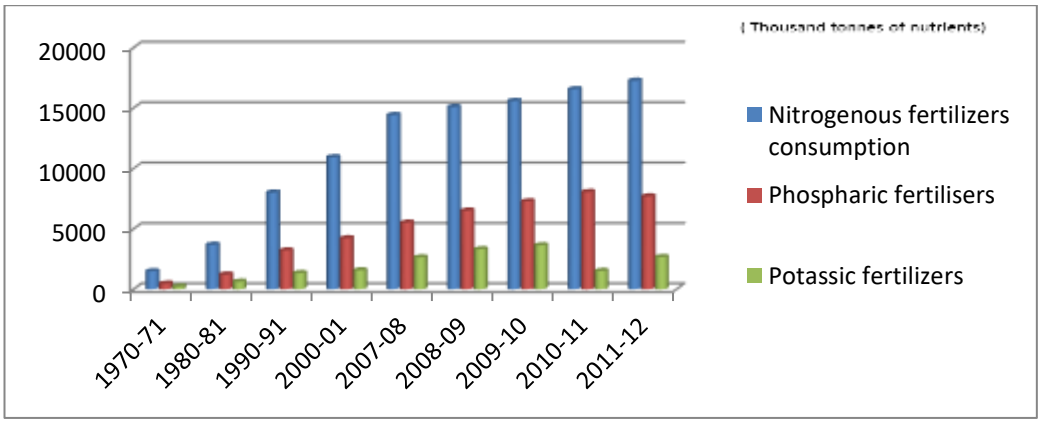
Year	**1991-92**	**1993-94**	**1996-97**	**2007-08**	**2010-11**	**2011-12**
NPK ratio	**5.9 : 2.4 :1**	**9.7 :2.9 :1**	**10: 2.9 :1**	**5.5 : 2.1 :1**	**4.7 :2.3 :1**	**6.9 :3.1: 1**

The following table (Table 1.3) depicts the individual share and growth of different categories of fertilizers over the decades. This also holds the argument that there is a biased growth of subsidy regime in fertilizers with high share to Nitrogen based fertilizers. Consumption of Nitrogenous fertilizers increases from 1892 thousand tonnes in 1970-71 to 16779 tonnes in 2011-12 while that of Potassic fertilizers is just over 2000 tonnes in 2011-12. Phospharic fertilizers accounts for about 8000 tonnes in 2011-12.

Table 1.3

[7] On the recommendations of the Joint Parliamentary Committee on Fertilizers, urea priced was reduced by 10 percent and Phosphatic and potassic fertilizers were decontrolled. The Government felt that the prices of these fertilizers should reflect their scarcity.

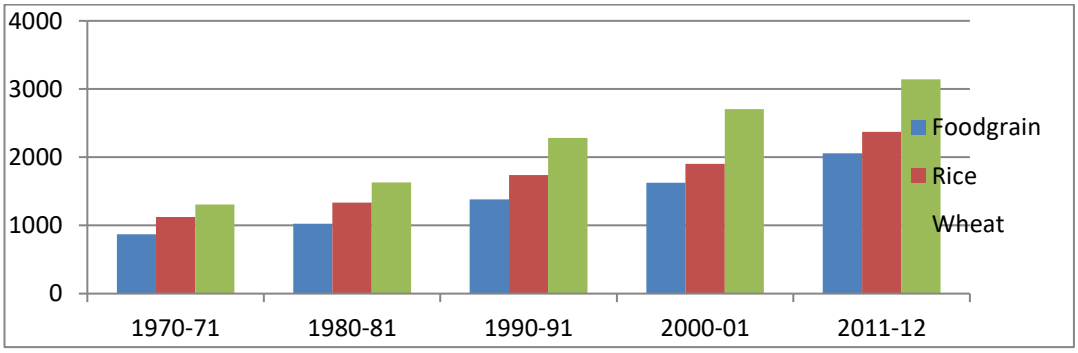
[8] Under the nutrient –based subsidy scheme, a fixed subsidy is announced on per kg basis nutrient annually. the Government has included seven new grades of complex fertilizers under the NBS



(Source: Ministry of Chemicals and Fertilizers, Dept. of Fertilizers**)**

The main argument behind fertilizer subsidy is to increase the yield of crops. The table below (Table 1.4) depicts the growth in yields in major crops over the entire time span since 1970s. In case of food grains, the yield increased from nearly 1000 kg per hectare to about 2000 kg per hectare in 2011-12. Individually, the share of wheat has increased the most to around 3200 kg per hectare by 2011-12 which was about 1300 kg per hectare in 1970-71, 2200 kg per hectare in 1990-91 and 2700 kg per hectare in 200-01. Fertilizers alone can't bear the growth in yield in near future as there are many other required inputs that required major thrust so that yield could be taken to that of agriculturally advanced economies. Too much of subsidy on fertilizers also hampers the usage of bio-manures that are rich in other form of nutrients; promotion of bio manures can also solve the lop-sided development of plant nutrients.

Table 1.4 - Yield of major crops (kg/hectare)



Source: Directorate of Economics and Statistics, Dept. of Agriculture and Cooperation

Are input subsidies in Agriculture a viable solution?

In the field of Agriculture, there is an increasing bias towards subsidies in Agriculture than the desired investment. Gross capital formation in agriculture is the opportunity cost of input subsidy which according to studies provides greater social benefits, have higher output elasticity. The 10th plan document highlighted the presence of trade-off[9] between input subsidies and public investment in agriculture. In the study published in 2006, Archana S. Mathur, Surajit Das and Subhalakshmi Sircar calculated the output elasticity of investment (Gross Fixed Capital Formation) and output elasticity of total subsidy[10]. The former was found to be 0.86 and later 0.75, thus GFCF is comparatively more effective in enhancing the value of agricultural production than total subsidy. The output elasticity of subsidy on fertilizer, irrigation and electricity were estimated around 0.65, 0.55 and 0.36 respectively. Raghbendra Jha (2007)[11] argued the dismal performance of agriculture in recent decades is attributed to stagnation of agricultural investment and abnormal rise in subsidies. Ramesh Chand , Raju and Pandey (2007) [12]states that capital formation by public sector in agriculture has declined or showed stagnation since the period after 1980s, thus fall in investment is the major concern before Agriculture and is the reason and cause behind poor performance of Agriculture specially in the era of Economic reforms. Figure 1.2 compares total input subsidy with Total Public sector investment in Agriculture. Public investment in agriculture shows little growth with almost less than twenty thousand crores investment. In real terms, the growth is constant. Input subsidy on the other hand is showing an increasing trend from 33591 crores in 1999-2000 to Rs 1, 60,917 crores in 2008-09. The Public Expenditure in agriculture was less than 20,000 crore rupees in 2008-09 thereby subsidy being eight times higher than public investment.

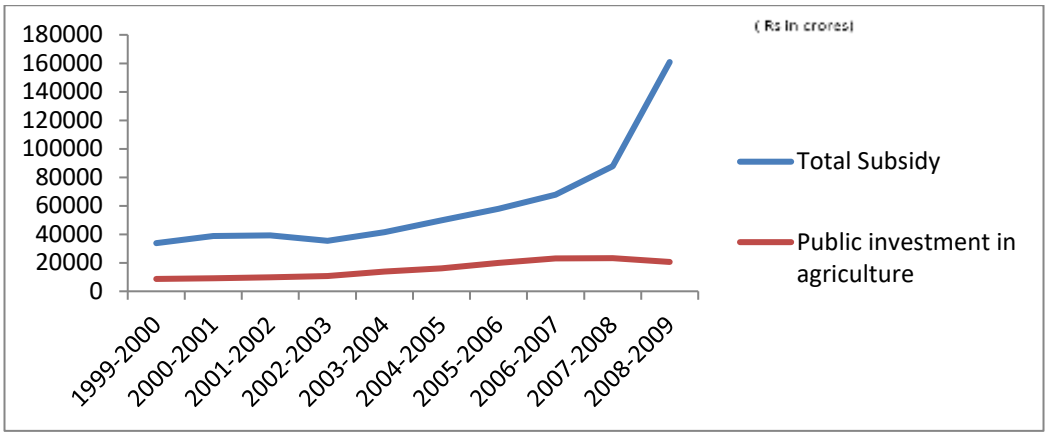
Figure 1.2 (Total input subsidy v/s Public investment in Agriculture at current prices)

[9] The presence of tradeoff between Public investment and subsidy is depicted by S. Mahendra Dev in his paper titled ' *A note on trends in Public Investment in India*' IGIDR Proceeding/ Project Series 2012, January

[10] Archana S. Mathur, Surajit Das and Subhalakshmi Sircar , '*Status of Agriculture in India', EPW ,* December 20, 2006

[11] Jha, Raghbendra (2007), ' *Investment and Subsidies in Indian Agriculture',* ASARC Working Paper 2007/03

[12] Ramesh Chand, S.S. Raju and L.M. Pandey '*Growth crisis in Agriculture : Severity and Options at National and State Levels*' , EPW, (June 30- July 6, 2007)



(Source: Computed from (1) Economic Survey, 2009-10 (2) Agriculture Subsidies at a glance, 2009

As regarding the argument that subsidizing fertilizers helps in increasing foodgrains production, it is seen from the studies conducted by various authors that investment in irrigation is a better option as the elasticity of foodgrains output to irrigation is much higher than that to fertilizers, and also that investment in irrigation is superior to subsidizing fertilizers from the point of view of raising food grains production. The other argument against subsidy is based on the Economic view that Subsidy distorts the working of free market price mechanism and optimal allocation of resources. The likely outcome of agricultural policies like provision of subsidy will lead to the oversupply of subsidized goods and creation of deadweight loss to society due to misallocation of resources. It is argued that input markets without subsidies are more likely to allow both governments and private firms to undertake more productive investments that results into higher returns. Subsidies also lead unsustainable usage of water, degradation of soils and imbalance in the use of plant nutrients. As far as price incentives are concerned, they are also highly biased and don't cover all crops thereby hampering the process of diversification. Farmer's interest groups have major role in deciding the course of agriculture policies, amount and direction of subsidies. The figures over the years also points that there is continuously increasing gap between the retention price and the sale price of fertilizers implying huge distortion in the economy. Removal of such imbalances is necessary for the healthy growth of the economy. A better option is to discontinue or substantially reduce subsidies on inputs, particularly on fertilisers and raise agricultural prices but with a sharp focussed public distribution programmes to ensure food security for the vulnerable sections of the society. In place of subsidy timely supply of inputs, viz., irrigation, fertilizers and credit could be achieved via proper investment that serves long term perspective. Subsidy in this regard serves only short term perspective and can't produce a long term solution.

Conclusion

Initially used as a short term measure, input subsidies in Agriculture have increased massively over the years causing huge burden on fiscal deficit. The main rationale for provision of subsidies, viz., supporting poor and marginal farmers and promoting new inputs was not properly achieved due to faulty mechanisms. Subsidy policy in India is politically influenced, biased against crops and regions and does not hold rational perspective. Subsidy on power and water is not serving the desired beneficiaries. Problems of leakages, inefficient usage, and depletion of ground water level, environmental impacts, and distortion in soil nutrients are some of the consequences of subsidy policy. There is trade- off between public investment and public expenditure. There is need to boost Public investment in Agriculture than subsidy. Subsidy serves short term perspectives while investment produce long term solutions.

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