

CHAPTER 7
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8.1 OUTLINE OF THE STUDY

Economic reforms and trade liberalisation has created both challenges and opportunities for the Indian farmers. Economic reforms under the structural adjustment programme have affected the agriculture growth rate through the trend in capital formation and subsidies. With the signing of World Trade Organisation (WTO), issues like export competitiveness of agriculture crops, efficiency of existing cropping pattern, subsidies to agriculture and the impact of trade liberalisation on the income of Indian farmers were debated during the 1990s. It was expected that India would be benefited by signing the General Agreement on Tariffs and Trade (GATT) due to its comparative advantage in the production of agriculture commodities in the early 1990s. However, the outcome of this agreement has not been as beneficial to India as was expected. The export competitiveness of Indian agriculture is getting reduced due to huge subsidies provided to the agriculture sector by the developed nations.

Though, India is not required to cut the input subsidy under WTO provisions, but the input subsidy given to the agriculture sector in India is financially unsustainable. Many studies on input subsidies have suggested for their phased withdrawal over a period of time on the basis of unsustained burden on the finances of the centre and the state governments, distortion in the cropping pattern in favor of water intensive crops, adverse environmental effects like water logging and salinity, interpersonal and interregional inequality etc. However, there are some questions which must be carefully answered before deciding on the withdrawal of these subsidies. The question of equity in the utilisation of input subsidy, the issue of effect of the withdrawal of input subsidies on the profitability of different crops (crop wise subsidy) and the agriculture sector as a whole, needs to be answered carefully.

It is noteworthy that most of the provisions of AoA apply at the national level. For example, the estimation of domestic support to various commodities is calculated for the

country as a whole. Nevertheless, these provisions have implications at the regional level also. These implications differ for different regions since India is a conglomeration of diversified agro-climatic regions with varied socio-economic features. In the present study, the implications of the trade liberalisation and the rationalisation of input subsidy has been analysed with special focus on the agriculture sector in Haryana. Agriculture sector in Haryana occupies a special place in the economy. This study examine the issues of competitiveness, domestic support to agriculture sector, inter-personal and inter-crop disparities in the utilisation of input subsidy and the implication of withdrawal of subsidy on the profitability of agriculture sector in Haryana.

To address the above issues related to agriculture sector in Haryana agriculture, the present study examined the following objectives:

1. To make a comparative analysis of the composition, magnitude and trend of the input subsidies (fertiliser, electricity and canal irrigation) at all India level and in Haryana during the period 1981-82 to 2004-05.
2. To quantify the magnitude of input subsidy across the different farm-size groups to analyse the equity issue related to the utilisation of input subsidy.
3. To estimate the crop-wise subsidy and evaluate the impact of withdrawal of input subsidy on profitability of different crops and overall agriculture sector across the different farm size groups.
4. To estimate the Aggregate Measurement of Support (AMS) given to the agriculture sector in Haryana (importable and exportable hypothesis) and its compatibility as per WTO provisions.
5. To examine the resource use efficiency and the competitiveness of the existing cropping pattern in Haryana.

Based on the objectives of the study and review of literature, the following hypothesis have been formulated for empirical verifications:

1. The growth rate of fertiliser, electricity and canal subsidy was relatively higher in the 1990s than in the 1980s.

2. The composition of agricultural input subsidy at all India level and in Haryana has changed during the last two decades.
3. The agriculture sector in Haryana receives more than proportionate share of input subsidy (fertiliser, electricity and canal) at all India level in comparison to its proportionate share in gross crop area (GCA) of India.
4. The utilisation of input subsidy across the different farm size groups and crops is inequitable.
5. The product and the non-product specific support to agriculture sector in Haryana are within the permissible limits of the WTO provisions.
6. Agriculture sector in Haryana has both domestic resource use efficiency and competitiveness under export and import hypothesis.

8.2 SUMMARY OF FINDINGS

Composition, Magnitude and Trend of Input Subsidies

The composition, magnitude and trend of input (fertiliser, electricity and canal irrigation) subsidies at all India level and in Haryana during 1981-82 to 2004-05 are presented in Chapter 2. Fertiliser subsidy is estimated on the basis of import parity methodology. Per ton fertiliser subsidy for different compounds of fertilisers is equal to the difference between the import price of these compounds and domestic price of fertilisers, plus dealer margins, pool handling and freight charges. Estimated per ton subsidy on compounds like Urea (46% N), D-ammonium Phosphate (18-46-0) and Muriate of Potash (60% K) is converted into their respective nutrient i.e. Nitrogen (N), Phosphorous (P) and Potash (K). The resultant subsidy on nutrient is multiplied by their respective consumption figure to obtain the total fertiliser subsidy to agriculture sector at all India level and in Haryana. About electricity subsidy, per unit subsidy to agriculture sector is estimated as the difference between average expenditure on per unit sold and recovery of electricity sold per unit to the agriculture sector. Multiplication of per unit subsidy and total unit consumed in agriculture sector provides total electricity subsidy to agriculture sector. In case of canal irrigation subsidy, it is computed as the difference between the gross

revenue and the working expenses (O&M expenses, depreciation and total interest on capital employed) on major, medium and minor irrigation projects.

The result of the estimated fertiliser subsidy at all India level and in Haryana has shown upward trend, but exhibit wide variations due to fluctuations in the import prices of fertilisers. The exponential growth rate of fertiliser subsidy during TE 1991-92 to TE 2005-06 was lower than the growth in 1980s. One of the reasons for low growth of fertiliser subsidy was the sluggish trend in consumption of fertilisers in the 1990s than in the 1980s. About the estimates of the farmers' share in total budgetary fertiliser subsidy during TE 1983-84 to TE 2005-06, result reveals that it was 68.88 percent and remaining share went to fertiliser industry. However, farmers' share was 121 percent in total budgetary subsidy in TE 2005-06. An estimate of more than 100 percent shows that not only the total budgetary subsidy going to farmers, but also that the fertiliser industry was being implicitly taxed. Per acre fertiliser subsidy to agricultural sector in Haryana is almost double of what agricultural sector at all India level receives. Agriculture sector in Haryana receives more than proportionate share of total fertiliser subsidy at all India level in comparison to its proportionate share in GCA of India. About the composition of the input subsidy, the major portion of the fertiliser subsidy at all India level and in Haryana was in the form of nitrogen (N), followed by phosphorous (P) and potash (K). Since the deregulation of P and K markets in August 1992, the price of N has been kept low relative to P and K, which resulted in distorted consumption ratio of fertiliser nutrients in favour of nitrogen at all India level and also in Haryana.

The electricity and the canal subsidy at all India level and in Haryana has shown upward trend, but their exponential growth rate during TE 1991-92 to TE 2004-05 was lower than the growth in 1980s. In case of electricity subsidy, the agriculture sector in Haryana receives more than proportionate share of total electricity subsidy at all India level when compared to its proportionate share in the GCA. However, per acre canal irrigation subsidy to Haryana agricultural sector in recent years is lower than the subsidy given to agricultural sector at all India level and Haryana enjoys less than proportionate share of

total canal irrigation subsidy at all India level with compare to its proportionate share in the GCA of India.

Total input subsidy (fertiliser, electricity and canal irrigation) at all India level and in Haryana has shown upward trend during TE 1983-84 to TE 2004-05. This trend is also observed in terms of per acre subsidy and as a percentage of agricultural GDP. However, the exponential growth rate of the total input subsidy during TE 1991-92 to TE 2004-05 was lower than the growth in 1980s. The composition of input subsidy has totally changed at all India level and in Haryana during the past two and half decade. At all India level, the canal irrigation subsidy was dominated in TE 1983-84 followed by the electricity and the fertiliser subsidy. However, a major portion of total subsidy in TE 2004-05 was in the form the electricity subsidy followed by irrigation and fertiliser subsidy. In the case of Haryana agricultural sector, the electricity subsidy was the dominant component of total input subsidy for the TE 2004-05 followed by the fertiliser and the canal irrigation subsidy, whereas in TE 1983-84, the electricity subsidy was followed by the canal irrigation and the fertiliser subsidy. Per acre total input subsidy to agricultural sector in Haryana is higher than subsidy given to agricultural sector at all India level and agriculture sector in Haryana receives more than the proportionate share of total canal irrigation subsidy at all India level with compare to its proportionate share in the GCA of India. Thus, the agricultural sector in Haryana is highly subsidised than the agricultural sector at all India level.

Farm Wise Input Subsidy

Chapter 3 is based on a cross sectional primary survey of the farmers in the state of Haryana and outlines sample design, methodology, socio-economic profile of sample households and estimated farm wise input subsidy. The objective of this chapter is to quantify the magnitude of input subsidy across different farm sizes to analyse the equity issue related to the utilisation of input subsidy. For the selection of sample households, a multi stage stratified random sampling method has been used. Three districts of Haryana namely Bhiwani, Panipat and Yamunanagar are selected on the basis of agro-climatic zone and cropping pattern. Sampled households are classified into three categories as

small (0-5 acres), medium (5-10 acres) and large (above 10 acres) according to the size of their land holdings. Overall, the study is based on the data collected from 324 households of three selected districts of Haryana. The reference year of the study is 2005-06.

The results of this chapter show the inequality in the utilisation of fertiliser and electricity subsidy across the different farm size groups. Per acre fertiliser and electricity subsidy was the highest for the large farm size group followed by the medium and the small farm size groups. For example, per acre electricity subsidy for large farm size group was 2.64 times of the subsidy given to the small farm size group. One of the reasons for inequality in the utilisation of electricity subsidy was the fact that the percentage of households, who owned the electrical pumpset, was higher for the large (59.25 percent) farm size group than the medium (50.00 percent) and the small (25.00 percent) farm size group. However at the aggregate level, the distribution of canal irrigation subsidy was equitable across the different farm size groups. About per acre total input subsidy, the utilisation pattern had shown inequalities across the different farm size group.

About the district-wise distribution of subsidy, per acre fertiliser and electricity subsidy to agriculture sector was highest in Yamunanagar district followed by Panipat and Bhiwani districts. However, per acre canal irrigation subsidy was lowest in Yamunanagar. It was due to the fact that out of four villages selected in Yamunanagar district, there was lack of canal water availability in two villages. Fertiliser subsidy was lowest in Bhiwani district because coarse cereals like bajra, jowar etc. were sown in significant area than the other districts and these crops not required heavy doses of fertiliser. Overall, per acre total input subsidy was highest in Yamunanagar district followed by Panipat and Bhiwani districts. In case of small size farm group, the composition of input subsidy shows that, the major portion of the input subsidy was in the form of fertiliser subsidy followed by canal and electricity subsidy. For the medium and the large farm size group, the highest share in total input subsidy was of fertiliser subsidy followed by electricity and canal subsidy.

In this study, input subsidy utilised by the sample households who owned electrical tubewell was also estimated. The result shows marginal inequality in the utilisation of input subsidy across different farm size groups (electrical pumpset owner). For example, per acre electricity subsidy for large farm size group was 1.12 times of subsidy to small farm size group. Per acre total input subsidy (fertiliser, canal and electricity) for small, medium, and large farm size was Rs. 1824.15, Rs.1936.80 and Rs.1990.05 respectively. The difference between small farm size and large farm size group (electrical pumpset owner) in the utilisation of per acre total input subsidy was Rs. 165.90. However, it was Rs. 350.69 for all the sample households (whether, they owned electrical tubewell or not). Per acre fertiliser and electricity subsidy to agriculture sector was highest in Yamunanagar district followed by Panipat and Bhiwani district. About the composition of input subsidy, the major share in total input subsidy was of fertiliser subsidy followed by electricity and canal subsidy.

It is noteworthy that, the share of different farm size groups in total input subsidy depends on two factors namely per acre input subsidy and gross cropping area. Above result shows the inequality in the utilisation of per acre total input subsidy. Now, if gross crop area of different farm-size groups is taken into consideration then inequality in the utilisation of input subsidy across different groups would be much higher.

Crop Wise Input Subsidy

Chapter 4 presents the crop-wise subsidy and evaluates the impact of withdrawal of input subsidy on the profitability of different crops and overall agriculture sector across the different farm sizes. Per acre input subsidy was highest for the paddy crop followed by sugarcane and basmati crop. These crops are water intensive and need heavy doses of fertiliser. Other major crops which utilised input subsidy in descending order were wheat vegetables, cotton, barley, pulses, gram and mustard. Due to low requirement of fertiliser and water, per acre input subsidy was lowest for bajra and fodder crops. For majority of the crops, fertiliser subsidy accounted for the major share of total input subsidy followed by electricity and canal subsidy.

The highest per acre profit after the withdrawal of input subsidy was highest for sugarcane followed by basmati and vegetables. Profitability of vegetables was higher than the major crops of Haryana i.e. common paddy and wheat. However, many sampled households across different farm size groups reported that vegetables were very risky due to high fluctuations in productivity and prices of vegetables. At the aggregate level, the sampled households registered losses in paddy, mustard, barley, pulses and gram. In the case of wheat, cotton, gram and fodder crops, the sampled households earned marginal profit.

About the profitability of agriculture sector (average of all crops), it was found that though farmers with different farm sizes had registered profit in all the three districts but, the magnitude of profit declined significantly after the withdrawal of subsidy on inputs. For the entire sample households, the input subsidy was 9.80 percent of the cost of cultivation (C2). Thus, withdrawal of input subsidy had significantly increased the cost of cultivation and adversely affected the profitability of agriculture sector. Average per acre profit (without subsidy) was highest in Yamunanagar district followed by Panipat and Bhiwani district.

Many sampled households reported the problems such as high price of fertiliser, low capacity to buy and long distance to access the fertiliser subsidy. In case of electricity subsidy, all the sampled households reported the problems of fluctuations in voltage and irregular supply of electricity in accessing subsidy. Due to this, many farmers owned both diesel and electrical pumpsets, which increased the cost of cultivation of different crops. All sampled households were totally dissatisfied with the poor quality of power which led to the high degree of motors burnouts. Many sampled households also mentioned cumbersome administrative procedure for a new electricity connection and high initial cost to install a new electrical tubewell. About canal subsidy, almost all the sampled households complained about the poor quality of service. Owing to this, many sampled households resorted to costlier alternatives like diesel pumpset or buying water from other farmers. All the sampled households agreed to pay high irrigation charges if the quality of service improves. It is due to the fact that canal irrigation is much cheaper than

the other alternative sources of irrigation like tubewell, diesel pumpset or buying water from other farmers.

WTO and Haryana Agriculture

The estimated Aggregate Measurement of Support (AMS) to Haryana agriculture sector is presented in chapter five. The results show that the product specific support to agriculture sector remained negative during 1981-82 to 2004-05 under both import and export hypothesis. It happened due to higher international prices than the minimum support prices of agricultural commodities during 1981-82 to 2004-05 except few years. However, the extent of negative product specific subsidy has reduced in recent years, owing to downward trend in the international prices of agricultural commodities on the one hand and upward trend in the minimum support prices on the other.

The non-product specific support (fertiliser, canal, electricity, seed and credit subsidy) to agriculture sector exceeded the 10 percent limit allowed under WTO provisions in recent years. The AMS, which is the sum of product specific and non- product specific support, remained negative during the last two decades. It means the farmers in Haryana were net taxed under WTO provisions during 1981-82 to 2004-05.

Competitiveness of Agriculture Sector in Haryana

Chapter 6 deals with resource use efficiency and competitiveness of the existing cropping pattern in Haryana. For this, four indicators of competitiveness i.e. Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC), Effective Subsidy Coefficient (ESC) and Domestic Resource Coefficient (DRC) are used to measure the competitiveness of four major crop of Haryana i.e. wheat, rice, cotton and sugarcane under importable and exportable hypothesis.

The result shows that under exportable hypothesis, wheat is not a competitive crop especially in recent years. Haryana is competitive in the production of rice as shown by the estimated NPC and DRC, but it became uncompetitive if the estimated EPC and ESC are used as a measure of competitiveness. Cotton is a competitive crop as per the

estimated NPC, EPC and DRC, but became uncompetitive in the case of estimated ESC. In case of sugar, Haryana is not competitive as shown by the estimated NPC, EPC and ESC. However, in terms of domestic resource cost, sugarcane is a competitive crop.

Under importable hypothesis, Haryana is not competitive in the production of wheat in recent years as shown by the estimated NPC, EPC, and ESC. But Haryana is an efficient producer of wheat as indicated by the estimated DRC. However, Haryana has comparative advantage in the production of rice and cotton. The estimated NPC, EPC and ESC indicate that Haryana is not competitive in the production of sugar. Though, the estimated DRC shows that sugar is a competitive crop.

The competitiveness is reduced in recent years as most of the indicators are approaching towards one. It happened due to an increase in the MSP overtime along with the fall in the international price of agricultural commodities in recent years. This trend in the international prices of agricultural commodities occurred due to huge domestic support and export subsidy provided by the developed countries to their agriculture sector. The above analysis also indicates that Haryana is competitive in real terms as the estimated DRC is less than one for most of the commodities. However, the agriculture sector in Haryana can efficiently exploit this opportunity if huge export subsidy and domestic support given by the developed countries to their agriculture sector is withdrawn, which leads to increase in the international prices of agricultural commodities and will thus further improve the competitiveness of agriculture sector.

8.3 GENERAL CONCLUSIONS

Based on the above summary of the study, the following general conclusions have been drawn:

1. Total input subsidy (fertiliser, electricity and canal irrigation) at all India level and in Haryana has shown upward trend during the last two decades. However, the exponential growth rate of the total input subsidy during TE 1991-92 to TE 2004-05 was lower than the growth rate in 1980s.

2. The agricultural sector in Haryana is highly subsidised than the agricultural sector at all India level. Per acre total input subsidy to agricultural sector in Haryana is higher than the subsidy given to agricultural sector at all India level and agriculture sector in Haryana receives more than proportionate share of total input subsidy at all India level when compared to its proportionate share in the GCA of India.
3. The utilisation of input subsidy has shown inequality across the different farm size groups. This inequality is much higher for the electricity and the fertiliser subsidy than the canal subsidy.
4. About the crop wise subsidy, the highest per acre input subsidy was consumed by water intensive crops like paddy and sugarcane, whereas the lowest per acre input subsidy was for low water intensive crops like bajra and fodder.
5. After the withdrawal of input subsidy, per acre profit was the highest for sugarcane followed by basmati and vegetables. Profitability of vegetables was higher than the major crops of Haryana i.e. common paddy and wheat. At the aggregate level, the sampled households registered losses in paddy, mustard, barley, pulses and gram.
6. About the impact of the withdrawal of input subsidy on the profitability of agriculture sector (average of all crops), it was found that though farmers with different farm sizes had registered profit, but the magnitude of profit had declined significantly.
7. Almost all the sampled households were totally dissatisfied with the poor quality of electricity and canal irrigation. Due to this, many sampled households had resorted to costlier alternatives for irrigation like diesel pumpset or buying water from other farmers.
8. The AMS to agriculture sector in Haryana was negative during the last two decades. Thus, the farmers in Haryana were net taxed under WTO provisions. However, the non-product specific support to agriculture sector exceeded the 10 percent limit allowed under the WTO provisions in the recent years.
9. The competitiveness of agriculture sector in Haryana has declined in recent years due to increase in the MSP overtime along with decline in the international price

of agricultural commodities. However, the estimated DRC shows that the agriculture sector in Haryana, in real sense, has comparative advantage in most of the crops.

8.4 POLICY IMPLICATION

- Input subsidies are utilised by all the farmers across the different farm size groups, but this utilisation pattern show inequality as the large farmers receive high input subsidies due to their resource base and large size of land holding. Thus, input subsidies should be properly targeted with special focus on small farm size group.
- In the case of canal irrigation and electricity, the recovery rate through tariffs is very low. Reasonable increase in tariffs of canal irrigation and electricity may be reviewed, provided the quality of service should be improved. For example, the cost to irrigate one acre of land under a crop (with four water intensity) by canal, electrical tubewell, diesel tubewell and hired tubewell is Rs.40-70, Rs. 90, Rs. 360 and Rs. 1200 respectively. Thus, irrigation by canal and electricity pumpset is much cheaper than other alternatives. However, result of the study show that many sampled households had resorted to costlier alternatives for irrigation like diesel pumpset or buying water from other farmers due to poor quality of service. With improved quality of canal and electricity, the state government can increase tariffs to a reasonable extent.
- The consumption ratio of fertiliser nutrients i.e. NPK is distorted in favour of nitrogen at all India level and also in Haryana. Therefore, the government should encourage the balanced use of fertiliser nutrients to achieve and sustain high agricultural growth.
- Concerted efforts should be made to encourage crop diversification. The result of the present study shows that the profitability of vegetables and basmati is higher than the major crops of Haryana i.e. wheat and common paddy. Shifting of some area from rice to other crops is essential for maintaining water balance and improvement of soil health especially in Bhiwani district, where all the sampled households reported the problem of soil salinity.

India along with other developing countries should pressurise the developed nations to withdraw huge domestic and export subsidies given by these nations to their agriculture sector, as it leads to downward pressure on the international prices of agricultural commodities.