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# factors on crops

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THE agricultural sector in Pakistan is usually divided into four main sub-sectors: crops, live-stock, fisheries, and forestry. The crop sector accounts for about 65 per cent of agriculture's share in the GDP.

There are four major crops: wheat, cotton, sugarcane, and rice, produced both by small and large farmers.

Wheat is the main staple food for the vast majority of the country's population and occupies a central position among food-grains. On an average, each household spends about 17 per cent of its total food expenditure on wheat and wheat flour. During the last three decades, there has been substantial efforts by the government to develop the wheat sector. Besides its subsidy programmes and non-price measures, support price policy has been an important element in its strategy.

The main objectives of the government's wheat support price policy are:-

- (i) to increase wheat production to achieve self-sufficiency;
- (ii) to provide a fair price (income) to wheat producers;
- (iii) to stabilise wheat prices in order to protect wheat farmers from abnormal fluctuations in market prices;
- (iv) to obtain a revolving reserve of wheat, and
- (v) to provide wheat flour at low prices to deficit areas and low-income consumers.

The government attempts to achieve these objectives by offering guaranteed minimum prices to producers and through its wheat procurement programme.

Rice is the second most important foodgrain as well as cash crop in Pakistan. On an average, each household in Pakistan spends about 3.8 per cent of its total food expenditure on rice and rice flour. The main objective of the government's price support policy for rice is to encourage farmers to produce exportable surpluses, particularly of basmati rice (a traditional variety), a high-value export crop because Pakistan has a comparative advantage and a very important position in basmati rice exports.

Cotton is the most important cash crop and earns the largest export revenues. It has been one of the major contributors to overall agricultural growth since the early 1980s. In addition to the lint, cotton seed for oil and meal accounts for about 80 per cent of the national oilseed production. The main objectives of the government's cotton policy are to encourage farmers to produce exportable surpluses and to ensure the availability of cheap raw material to the local

textile industry.

Sugarcane is another important cash crop. Since 1986, there has been a growing demand by the fast increasing urban populace for white sugar. The sugarcane support price policy has been an important tool used by the government with the objectives to achieve self-sufficiency in sugar production, to ensure adequate supply of sugarcane to the local mills, and fair returns to the growers.

At present, in seeking to boost the overall national economy through developing the agriculture sector, the government of Pakistan has initiated a series of policy reforms with the objective of improving agricultural productivity and to raise farm incomes. The fixing of farm-gate prices of major crops and providing support by official procurement is the key policy instrument used by the government to achieve these objectives. The liberalisation of agricultural input markets such as that of fertiliser is the other policy option used by the government. The extent to which farmers respond to economic incentives should, therefore, be of central concern to the policy-makers.

It is important to assess the impact of price and non-price factors and to understand to what extent the adopted policies affect agricultural production, and what possible adjustments can be made to improve the policy. This study is concerned with investigating the impact of economic incentives on the determinants of the supply of wheat, cotton, sugarcane, and rice in Pakistan. The main conclusions and policy implications are discussed in the paragraphs that follow.

The effect of pricing policies: Results show that farmers in Pakistan are responsive to output and fertiliser prices. The estimated positive own-price, and the negative cross-price and fertiliser price elasticities provide some insights into the effectiveness of the government policies. A price change in a single

crop affects the production of other crops in two possible ways, depending on whether crop production is competitive or complementary. A price change not only affects the allocation of land and other resources for that particular crop but also changes the land allocation for other crops. The impact of changes in the prices of different crops on the acreage allocation between these crops could help to determine an integrated structure of

increases because domestic cotton prices are already at the same level as the international prices, which do not leave any scope for further price increases. However, cotton supply could be increased by increasing domestic price but other policies like import levies would be required to maintain the artificially high domestic price. Development of irrigation schemes along with pricing policy seems to be a viable option in

increasing cotton production.

Existing sugarcane prices have made sugarcane a profitable crop. Freshly planted sugarcane can be kept for one to two years as a ratoon crop making it relatively profitable compared to other crops, i.e., for the ratoon crop, farmers save some of the costs of labour, land preparation, seed and sowing. The annual fixing of sugarcane prices on the basis of its cost of production being a single crop while ignoring ratoon sugarcane is the main reason of making sugarcane profitable. In fixing the sugarcane price, the ability to continue with the ratoon crop should also be considered, and the annual increase should not be at comparable rates to wheat

and cotton prices. An increase in the sugarcane price has negative effects on both wheat and cotton acreage. Given the comparative advantage and lower water requirements of cotton compared to sugarcane, a carefully designed price setting mechanism for cotton and sugarcane could improve the food situation in Pakistan and promote efficient water use.

For both the IRRI and the basmati rice, analysis suggests that reliance only on prices would not help in increasing production and farmers' income: both IRRI and basmati prices, which are set in line with international market prices, do not leave any scope for further increases without additional policy instruments like the one we discussed in case of cotton. Special investments in irrigation schemes



agricultural prices necessary for achieving an optimal crop-mix.

Results for wheat show that setting the wheat prices under the assumption that, being a sole rabi crop, it has no competition with the production of other (kharif) crops should now be reviewed since changes in the prices of cotton and sugarcane have significant negative effects on its production. As wheat prices in Pakistan are kept 40-50 per cent lower than international prices, a large quantity is smuggled to the neighbouring countries. So the government's current policy of fixing wheat prices equivalent to international market prices seems to be a logical step towards achieving self-sufficiency in wheat. For cotton, results suggest that further increases in production is not possible through price

th pricing policy seems an option for increasing ion.

ts also indicate that it is opriate to formulate a policy on the basis of a sinp in isolation since any in the supply of one crop ffects on acreages and of other crops. Therefore, : basis of these cross-, there is a need to develstematic and comprehenpproach on which price should be based which d the government in its ties for agricultural sup- In particular, own- and price elasticities suggest rices can be an effective o increase acreages under major crops.

ect of fertiliser pricing: ts also indicate that high ser prices have a negative on the supply of all major . This suggests that low fer- r prices may enhance pro- ion of all these crops. idising the fertiliser price be one way to increase crop ut. However, failure in ancing input supplies to : the additional demand cre- as a result of subsidising an it results in shortages, des causing disturbances in distribution system. This is ct now the case in respect of liser in Pakistan. Therefore, phasis should be given on viding sufficient quantities ertiliser rather than on pro- ing fertiliser at subsidised es. This can be achieved by moting competition among rate suppliers. The open mar- mechanism can improve the ess to input supplies, timely out availability, as well as ely application.

Effects of technology: Results licate that technology and igation in particular are portant non-price factors in plaining acreages and yields. is implies that to achieve the t goals (self-sufficiency in food oduction, producing an portable surplus and increas- g farmers income), the major rust should be on technologi- d improvements (i.e. develop- ent of irrigation schemes, rais- g productivity through the ntroduction of new high-yield- g varieties, improvements in roduction technology and prac- ces, education and extension) nd infrastructural development ith the price policy playing an nportant secondary role.

As a major part of wheat creage is sown with improved ut uncertified seeds with only 6 g/hectare of certified improved eeds against the recommended 0 kg/hectare being available to wheat farmers.

Thus, a very small percentage of the wheat acreage is sown with improved certified seeds. Our results suggest that an improved availability of certi- fied seeds to wheat farmers could result in increasing wheat production.