



Policy Brief



IMPACT OF MAJOR PUBLIC POLICIES ON COTTON PRODUCTION IN PAKISTAN

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INTRODUCTION

Pakistan having an agro-based economy with agriculture contributing around 19.2 % in the GDP and almost 39% in employment (GOP, 2019). Share of major crops in GDP is nearly 4.32 percent of which cotton accounts for 0.6 % to GDP and 3.1 % of total value addition in agriculture (GOP, 2021b). However, cotton has the longest value chain among all crops with major contribution in Pakistan's foreign exchange earnings. Pakistan exports \$836 million (4.7%) worth of raw cotton and yarn while cotton based products exports are \$9.5 billion making more than half of the total exports of the country (GOP, 2020). Though cotton is considered as the main cash crop in the country with its strong backward and forward linkages, yet past couple of decades have observed a dismal cotton performance on many instances whereas last five years can be considered as devastating in-terms of cotton area, production, and profitability.

The case of area replacement of cotton crop with its competitive Kharif crops i.e. Sugarcane, Maize and Rice primarily, has many interesting insights from policy perspective as well. There are diverging opinions at the policy level whether the downfall of the cotton crop is due to the adverse climatic conditions, development of pest pressure in cotton growing areas or prevalence of diseases in main cotton belt thus growing cotton and ensuring profitability has become very difficult. Though several causes of low cotton production have been reported in literature including increasing cost of production, climatic changes, pest attacks, poor seed quality, adulterated inputs, conventional farming practices (Aslam, 2016; Khan & Damalas, 2015; Zulfiqar & Thapa, 2018). There are several other reports / studies which have also indicated several policy divergences which have significant impact on the decision of the farmers to grow a specific summer (kharif) crop in specific context of Pakistan. These policies include certain incentives for the competitive crops including ensuring a consistent supply chain with the support to the private business forms to procure from the farmers, indicative / support price, subsidizing the input(s) etc. (GOP, 2019, 2018; UNDP & GOP, 2021).

A significant number of stakeholders do believe that there is a gradual drift of policy initiatives away from the cotton while supporting the competitive crops has actually resulted in developing less conducive environment and aggravating multiple stresses (both biotic and a biotic) including the reliance on out dated seed technology, meagre investments in agriculture especially for cotton



Policy Brief



(which is protected in major growing countries of the world), old chemistry for IPM, volatile farm prices, primitive ginning technology, less favourable terms of trade for cotton in comparison of its competitor crops like sugarcane, rice and maize etc. (Sadaf et al., 2022).

The objectives of the study are:

- To synthesise the major trends in the production (area and yield) of the cotton and competitive crops.
- To identify financial, and economic benefits/ profitability and costs associated with the production of cotton and its competitive crops in cotton-wheat zone.
- To evaluate the impact of production of cotton and its competitive crops on the economy.
- To evaluate the impact of major public policies related to the agriculture sector on the competitiveness of cotton and competitive kharif crops, comparative advantage / profitability for farmers and willingness to adapt new technology in cotton.
- To investigate the impact of various factors that affect farmers' crop choices.

APPROACHES AND RESULTS OF RESEARCH

Data and descriptive analysis

We have collected the data from 831 farmers of three provinces and five districts of Pakistan. Details are given in the table. The average education, age, farming experience, cotton cultivation experience is 5.42, 42.6, 23.5, and 22 years respectively in the study area. While the average distance from metaled road is 2.58 kilometers.

We have observed that 20.8% of the farmers are registered with agriculture department, and 35.5% of the farmers receive message from agriculture department through SMS. Only 14.4% of farmers have received training regarding agricultural practices and 30% of farmers have access to loan. It has been observed that availability of water, low-cost energy, and pest/ insect resistant varieties are important factors to enhance cotton area under cultivation.

We have observed that access to water and extension services are major issues reported in cotton production. While high prices of fertilizers, seed and energy are other important factors in producing cotton. Similarly, quality of seed and pesticides are causing hindrances in cotton production.

Table Province/ District/ Tehsil wise data collection (n=831)

Punjab				Sindh		Balochistan	
Muzzafargarh		Bahawalnagar		Mirpur Khas		Sukkar	
Kot Addu	Ali Pur	Chistain	Haronabad	Kot Ghulam Mohammad	Digri	Rohri	Kurak
122	125	105	99	115	115	95	55

Results of Research

We have estimated that cotton generates Rs. 40175/ha in terms of labour income and in total it injects Rs 100 billion rupees into rural economy. While Rice produces Rs. 37209/ha of labour income and it adds Rs. 113 billion to rural economy. Sugarcane generates Rs 57100/ha in terms of labour income and it injects Rs 416 billion into rural economy. Cotton is the crop that adds more to the rural economy in terms of per hectare of labour income generated

Competitiveness and Economic Efficiency Indicators of Cotton, Sugarcane, Rice and Maize Under Export Parity Prices

Policy Analysis Matrix provides some important indicators to analyse the competitiveness and efficiency of the economic systems which describes the degree of protection or (implicit) taxation resulting from country's overall policies towards the agriculture sector. These policies affect the input and output markets and trade of the sector. Some selected indicators are measured in this research.

The nominal protection coefficient (NPC) represents the unit domestic price (DP) and the foreign price ratio (PP), with both prices expressed in national currency. The value of NPC greater than 1 shows that policies regarding crop under consideration protect the farmers (implicit subsidy), vice versa. Table represents the NPC of 1.01, 1.41 and 1.05 for cotton, sugarcane and rice respectively. Which shows that cotton crop is least protected under the existing set of policies while sugarcane is highly protected crop. While level of protection of cotton among provinces is same. However, sugarcane is more protected in Sindh as compared to Punjab. While rice is equally protected in Punjab and Sindh.

The effective protection coefficient (EPC) is the measure of private value added (PVA) compared to the social or economic value added. If the value of EPC is greater than one, it shows that the producers generate a value added higher than under the optimal situation. Due to protection farmers are economically efficient, while the less than one shows that producers are implicitly taxed. Table 13 shows that cotton producers across Pakistan are not protected, while sugarcane and rice producers are protected under current set of policies.

The domestic resources cost (DRC) is the indicator of opportunity cost of the domestic resources and the social value added per unit of crop. Country has comparative advantage in the product under consideration if the value of DRC is lower than one, vice versa. Pakistan has comparative advantage in producing all the crops as the country has required resources for the farming with DRC of 0.47, 0.30 and 0.34 for cotton, sugarcane and rice respectively. In this scenario, sugarcane has less DRC which means it consumes PKR 0.3 of domestic resources to produce output worth about PKR 1. While we have observed DRC of 0.47, 0.75, 0.30 and 0.26 for Pakistan, Punjab, Sindh and Balochistan respectively. Which shows that Balochistan has more comparative advantage in producing cotton crop while Punjab has less comparative advantage.

Economic efficiency	Region	Cotton	Sugarcane	Rice
NPC	Pakistan	1.01	1.41	1.05
	Punjab	1.01	1.36	1.05
	Sindh	1.01	1.49	1.05
	Balochistan	1.00	-	-
EPC	Pakistan	0.94	1.55	0.98
	Punjab	0.89	1.45	1.17
	Sindh	0.97	1.57	1.07
	Balochistan	0.96	-	-
DRC	Pakistan	0.47	0.30	0.34
	Punjab	0.75	0.36	0.69
	Sindh	0.30	0.17	0.39
	Balochistan	0.26	-	-



Policy Brief



Cost of DR to earn/save Forex	Pakistan	80.5	52	57.9
	Punjab	126.7	64	117.1
	Sindh	51.6	30	66.7
	Balochistan	44.5	-	-

CONCLUSION AND RECOMMENDATION

The results of the study depict that cotton crop adds more to the rural economy per acre (Rs.40175) in terms of labour charges as compared to rice (Rs. 37209), maize (Rs. 25529) and sugarcane (Rs. 28500/6months). Based on Nominal protection coefficient cotton crop is least protected under the existing set of policies while sugarcane is highly protected crop in Pakistan. While level of protection of cotton among provinces is same. However, sugarcane is more protected in Sindh as compared to Punjab. While rice is equally protected in Punjab and Sindh.

Pakistan has comparative advantage in producing all the crops as the country has required resources for the farming with DRC of 0.47, 0.30 and 0.34 for cotton, sugarcane and rice respectively. In this scenario, sugarcane has less DRC which means it consumes PKR 0.3 of domestic resources to produce output worth about PKR 1. While we have observed DRC of 0.47, 0.75, 0.30 and 0.26 for Pakistan, Punjab, Sindh and Balochistan respectively. Which shows that Balochistan has more comparative advantage in producing cotton crop while Punjab has less comparative advantage. However, based on Effective Protection Coefficient, cotton producers are implicitly taxed in Pakistan while sugarcane producers are subsidized, same is the case with rice. Cotton producers have more implicit taxation Punjab as compared to Sindh and Balochistan. While sugarcane growers are more protected in Sindh as compared to Punjab.

As cotton producers are implicitly taxed so farm resources are transferred, in turn adversely affecting cotton producers' incentives, farm investments and rural growth in Pakistan and especially in Punjab. Since cotton, sugarcane and rice are important crops of Pakistan, the provincial Governments should make all-out efforts to ensure competition in the markets, improve marketing infrastructure and market intelligence to help farmers get better prices for their produce. Efforts also need to be directed to improve the processing of paddy and ginning of seed cotton so as to fetch higher prices in the world markets. Since rice and cotton are two most important exports, their domestic prices are bound to reflect the developments in world markets.

Excessive fluctuations in market prices, however, would have adverse implications for resource use and productivity, farm incomes and household welfare. Ways and means ought to be found and steps taken to insulate domestic producers from excessive fluctuations in market prices. However, this is predicated on the availability and development of institutional capacity to continuously monitor and analyze the developments in the domestic and world markets.

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Policy Brief



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