A Dynamic Welfare Analysis of Wheat Price Policy in Pakistan

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Abstract: Government wheat price policy in Pakistan affects both the supply and demand of this staple food. The wheat market has been established in a particular idiosyncratic manner in Pakistan, and a thorough appraisal of policy needs to take this into account. This paper uses simulation experiments with an econometric model to quantify the producer loss, consumer gain, government budget cost and overall efficiency loss that occurred due to government pricing interventions in the wheat market of Pakistan over the period 1971-1996. In the simulation it was assumed that the domestic price would have been increased by 50 per cent of the difference between the procurement price and the import parity price. The results of the study show that the net welfare loss to the economy of Pakistan was more than 415 million Rupees per year. The mean annual welfare losses were 1.58 per cent of real GDP from the agricultural sector for the comparison of price policy that would have been increased by 50 per cent of the difference between the procurement price and the import parity price with the import parity price.

Key words: Wheat price policy

Introduction

Wheat is an important agricultural commodity in Pakistan. Its share in total cropped area is around 36 per cent (Government of Pakistan 2000b). It is the most important food to low-income consumers. The population of Pakistan is estimated to be 137.5 million and it is increasing at an annual rate of about 2.3 per cent (Government of Pakistan 2000a). To meet the food needs of this burgeoning population, wheat availability will have to be increased. Despite increases in yield and production, Pakistan has not achieved self-sufficiency in wheat and significant quantities are imported. It is thought that new technologies, gradual development of irrigation and drainage facilities, reclamation of water-logged and saline soils, and institutional services such as credit and extension will bring about substantial increases in output in the future. In the short-term, however, price policy is being relied upon to provide incentives to farmers to expand wheat production.

Since independence, the wheat market has been subject to extensive government intervention. The government of Pakistan still intervenes in the system although derationing of flour occurred in 1987. The main purpose of government intervention is to provide price stability to the concerned parties (i.e. producers, consumers and traders). The procurement price for wheat is fixed annually by the government on the recommendation of the Agricultural Prices Commission. The procurement price is usually announced before the crop is sown. This is a price received by the farmers and private traders who sell their wheat to the government procurement centers. The procurement price acts as a floor price below which the free market price can not fall (Faruqee and Coleman 1996). The procurement of wheat is carried out by provincial and central governments.

Partly due to government pricing policies, Pakistan is a net importer of large quantities of wheat and imports have increased over time. Decisions regarding the total quantity of wheat imported, time of import and quality are taken by the Ministry of Food, Agriculture and Livestock, which considers various factors such as local procurement volumes, port capacity for handling wheat and the present stock position. The government has tried to keep the price of wheat below international levels to subsidise domestic consumers, thus involving a substantial subsidy (Hamid et al. 1991). National and international organisations are expressing the need for re-examination of the input and output pricing policies for wheat.

The objective of this paper is to quantify the producer loss, consumer gain, government budget cost and overall efficiency losses that occurred due to government interventions in the wheat market of Pakistan from 1971-96. It was assumed that producers would have received the price which has increased 50 per cent of the difference between the procurement price and the import parity price.

The materials and methods are in the second part of the paper followed by the results and discussion in part III. The conclusions are drawn in the final part of the paper.

Materials and Methods

This study follows the earlier work of Bale and Lutz (1981), Mohammad and Tahir (1988), and Barkley (1992). Prices received by farmers were assumed as the domestic price would have been increased by 50 per cent of the difference between the procurement and the import parity price. The world price was assumed to be the import parity price and was calculated by adding the unloading cost of wheat to inland freight charges and the C.I.F. price of wheat for each year of the sample period. Production and imports data were taken from Government of Pakistan (2000a and 2000b). The data series on GDP from agricultural sector was obtained from the World Bank's World Tables (1995) and Government of Pakistan (2000a).

An econometric model was developed for the wheat economy of Pakistan (Ashfaq et al. 1999, Ashfaq, Griffith and Parton 1999). The linear model consisted of ten equations and four identities. The period of estimation was from 1971-72 to 1995-96. The model was estimated simultaneously by using the TSP package. The supply and demand elasticities were calculated as 0.092 and -0.44.

Results and Discussion

Table 1 shows the results of comparisons of assumed price policy scenario with import parity price policy scenario in the dynamic context. The values of producer surplus, consumer surplus, government budget cost and

Table1: Dynamic Wheat Price Policy Results (Million 1971-72 Rs)

Years	Loss in producer Surplus	Gain in Consumer Surplus	Government Budget Cost	Net Welfare Loss	Welfare Loss of % of Ag. G.D.P
1973-74	957.16	67.24	(99.26)	790.66	4.01
1974-75	1163.94	(322.752)	(498.52)	988.17	5.33
1975-76	799.64	159.94	(230.43)	409.28	2.16
1976-77	564.55	239.77	(88.40)	236.38	1.21
1977-78	510.96	329.62	(2.15)	179.19	0.86
1978-79	642.00	290.94	(68.17)	282.89	1.36
1979-80	551.65	288.01	(61.49)	202.15	0.93
1980-81	862.61	302.30	(167.14)	393.17	1.66
1981-82	933.00	403.90	(143.66)	385.43	1.50
1982-83	794.32	417.87	(88.47)	287.98	1.09
1983-84	1329.51	265.39	(325.26)	738.86	2.84
1984-85	1080.50	480.11	(167.41)	432.97	1.52
1985-86	766.93	498.44	(44.95)	223.54	0.77
1986-87	1083.06	(139.97)	(507.43)	715.60	2.43
1987-88	1151.04	608.00	(189.07)	353.97	1.11
1988-89	1173.01	680.69	(94.09)	398.23	1.17
1989-90	1676.07	592.98	(315.02)	768.07	2.22
1990-91	728.33	541.97	(25.77)	160.59	0.44
1991-92	1083.94	748.21	(34.06)	331.66	0.81
1992-93	988.13	681.40	(23.20)	283.52	0.74
1993-94	427.83	395.21	38.16	70.77	0.17
1994-95	873.10	698.47	53.43	228.05	0.51
1995-96	1844.25	1057.57	(80.63)	706.05	1.53
Mean	955.89	402.40	(137.52)	415.97	1.58
Coeff. of Variation	0.365	0.742	-1.096	0.590	-
Standard Deviation	348.44	298.69	150.68	245.45	-

net welfare loss to the society vary from year to year. The values in parenthesis are negative values. Pakistan could have been a net exporter of wheat on average during the time period of study if assumed policy scenario had been practiced instead of the existing price policy. The average producer loss would have been 955.89 million of base year Rupees. Similarly, the consumer gain, government revenue from export of wheat and net welfare loss to the society would have been 402.40, 137.52 and 415.97 million Rupees in constant terms. Pakistan still would have been a net importer of wheat in years 1993-95. The average welfare loss to society would have been 1.58 per cent of GDP from the agriculture sector. The standard deviation shows the degree of variation from the mean values. The values of coefficient of variation show a great degree of variation in the series presented in Table 1.

Conclusions

The results of the dynamic welfare analysis showed producers loss, consumers gain, government budget costs and overall welfare losses to the society. The producer loss, consumer gain and government budget costs were highest in 1995-96. The overall welfare loss to the society was larger in 1974-75. The average annual welfare losses in real terms was 1.58 per cent of real GDP from the agriculture sector for the comparison of assumed price policy with the import parity price. The results are consistent with Barkley's (1992) study.

An increase in the domestic price of wheat would lead to Pakistan becoming self sufficient or even a net exporter of wheat. But there are many other predicted changes in the Pakistan wheat market which may not be acceptable by the government and the common man. A good policy might be a gradual increase in wheat price along with other institutional support in which case Pakistan may be marginally self-sufficient, i.e. a fluctuating situation between a net importer and a net exporter. Government can continue to play its role for price stabilisation. A gradual withdrawal from the market is desirable because during the process private sector will prepare itself to take over various activities such as stock holding.

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