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Recent Input-Output Price Policy in Pakistan's Agriculture: Effects on Producers and Consumers

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The paper analyses the impact of the input-output price policy in agriculture on producers and consumers. Trends in prices cause immense resource transfers from agriculture, with adverse consequences for investment, output, employment, and income distribution. To the extent that these transfers accrue to industrialists and the government, the poorest benefit the least. These deleterious effects can be minimised by assured world prices for agriculture and restoration of true competition in agricultural commodity and input markets. In agricultural input markets, elimination of corruption, excessive profiteering and overstaffing should serve as the basis of a cost reduction strategy and removal of input subsidies. In the specific case of irrigation water, equitable distribution, compatibility of water rate assessment and water supply bases, and elimination of overstaffing are the prime issues deserving immediate government attention.

1. INTRODUCTION

The pursuit of an appropriate input-output price policy in agriculture is important in many respects. First, in their usual allocative role, distortion-free prices are a means of consolidating maximum resource use efficiency. Second, the long-term trends in agricultural commodity prices relative to those of input prices influence expectations, investment, and technology, and hence the growth of agricultural production [Timmer (1988)]. Third, stable and remunerative prices of farm products are associated with the reduction of risk and uncertainty and augment the entrepreneurial skills of the farming community [Schultz (1978)]. Finally, movements in the inter-sectoral terms of trade set the trends in employment, wage goods prices, and income distribution, with widespread implications for the social welfare of the masses [Brown (1978); Mellor (1975)].

The above propositions point to the prime importance of appropriate and right prices in agricultural development and rapid growth of agricultural production. The non-price factors (technological and institutional), as a strong alternative to

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prices, are sometimes given equal importance in this respect [Byerlee and Sain (1986); Byerlee and Hussain (1992)]. Although the role of non-price factors is important, it must be placed second to prices as the former cease to operate in the absence of remunerative prices of agricultural commodities. There is considerable evidence in the literature in this regard. For example, Bale and Lutz (1981) highlight the fact that the level of agricultural production depends not so much on technical considerations but, in large measure, on what governments do to agriculture. According to Schultz (1978), whenever the farm product is underpriced, even though superior varieties are at hand, the adoption is at best partial. Arguing in the same vein, Johnston and Cownie (1969) have remarked that the application of chemical fertilizers will undoubtedly increase unless there is a marked deterioration of grain-fertilizer price ratios. With respect to institutional factors, Schultz (1965) categorically states that when the price of fertilizer is far above the prices of farm products, no extension programme can induce farmers to use additional quantities of fertilizer.

In view of the prime importance of prices in agricultural development, the purpose of the present essay is to review Pakistan's agricultural price policy and to study its effects on producers and consumers. In accordance with this objective, the paper extends to five sections. Section 2 provides a detailed overview of Pakistan's agricultural price policy since the 1950s. A quantitative analysis of the effects of price policy on producers and consumers is undertaken in Section 3. Due to limitations of data, however, the analysis is restricted to the recent years, beginning with 1984-85. The discussion in Section 4 pertains to available policy options, and Section 5 presents the summary and conclusions of the study.

2. AN OVERVIEW OF THE AGRICULTURAL PRICE POLICY

Since independence in 1947, Pakistan has constantly followed an interventionist price policy for agriculture. Depending on the interventionist measures in vogue, the levels of intervention, however, have varied considerably from time to time. In the 1950s, for example, most of the agricultural commodities were subjected to compulsory procurement at substantially less than world prices [Aresvik (1967)]. Inter-district movement and exports of major agricultural commodities, except cotton, were banned [Turvey and Cook (1976)]. Both the procured and imported quantities of wheat and sugar were subsidised for urban consumers [Alderman, Chaudhry and Garcia (1988)]. While there was no emphasis on modern inputs, a considerable overvaluation of the rupee was maintained to encourage industrial imports, with adverse effects on agricultural exports. This policy was considerably relaxed in the 1960s. Although the ban on exports and the movement

of grains as well as the overvaluation of the exchange rates continued, the government began to guarantee above-world prices of agricultural commodities, at least at the official exchange rate [Aresvik (1967)]. The policy of compulsory procurement was replaced by voluntary sales. A policy of liberal subsidies on fertilizers, pesticides, tubewells, tractors, and improved seeds of agricultural commodities was also instituted [Kuhnen (1989)].

A reversal of this somewhat favourable price policy towards agriculture occurred in the beginning of the 1970s, following the major devaluation of the rupee in 1972 [Haque (1993)]. As should be expected, the controlled prices of agricultural commodities fell immediately to less than world levels [Chaudhry (1980)]. Although the same should be expected with respect to input prices, a more than tripling of fertilizer prices was undertaken to curtail the burden of subsidies on the government exchequer. In view of the world energy crisis, similar though somewhat less pronounced increases in the prices of oil, electricity, and pesticides also occurred. Trade in agricultural commodities increasingly became an exclusive monopoly of parastatal organisations as they handled procurement, import, export, and distribution of agricultural commodities. Under the nationalisation programme, both the production and distribution of key agricultural inputs also rested with the government.

Beginning with 1980, a different set of conditions determined the fate of agricultural price policy. Under the World Bank/IMF structural adjustment programme, the government committed itself to bringing input and output prices closer to world levels, reducing public expenditure, and enhancing the role of the private sector [World Bank (1991)]. As a consequence, a number of policy decisions became inevitable. For example, subsidies on pesticides, seeds, and mechanisation were withdrawn in one step in the early 1980s and a phased programme of removal of fertilizer subsidy was instituted, which resulted in periodic increases in fertilizer prices. The rupee was further devalued and Pakistan moved from a policy of fixed exchange rate to a policy of managed float for determining from time to time the value of the rupee in relation to major world currencies. In view of the rising input costs, prices of major agricultural commodities were periodically adjusted to the cost of production estimates. The government also remained committed to enhancing the role of the private sector in the procurement and distribution of agricultural commodities and inputs. For example, the ration-shop system was dismantled in 1987 [Alderman, Chaudhry and Garcia (1988)]. Private traders were inducted in the export and import of agricultural commodities and the procurement of rice and cotton was opened up to the private sector. The distribution of pesticides was handed over to registered dealers. Similar steps were taken in the case of fertilizer, although the government remained the major distributor.

Despite the emphasis on structural adjustment reforms throughout the

Eighties, the creation of a distortion-free agricultural sector still remains in the offing. Although there is growing evidence that parastatal organisations are usually much more concerned with their own well-being rather than the welfare of the consumers and the interests of the farmers [Bale (1985)], these public sector corporations continue to intervene in agriculture. It was particularly noted in a World Bank study that government controls the external trade in all major agricultural commodities [World Bank (1991)]. To make such controls effective, the government continues to operate procurement, storage, and distribution of major agricultural inputs and commodities. In order to avoid the antagonism of politically powerful urban consumers and industrialists, the government has been adamant about not raising agricultural commodity prices to world levels. The evidence cited in a large number of studies is quite emphatic in indicating that underpricing of agricultural commodities relative to world prices in Pakistan was a common phenomenon throughout the Eighties [Ali (1992); Chaudhry and Kayani (1991); Dorosh and Valdes (1990); Ender (1992); Longmire and Debord (1993); John Mellor Associates and Asianics Agro-Dev International (1993); Nabi, Hamid and Nasim (1990); Nasim and Mukhtar (1991); Government of Punjab (1991) and Qureshi (1987)]. Apart from the underpricing of agricultural commodities, agriculture was also doubly squeezed through deteriorating terms of trade relative to the manufacturing sector [Haque (1993)] and by steeper increases in the prices of major agricultural inputs than those of agricultural commodities [Afzal *et al.* (1992)]. In order to sum up some of these relationships and to pinpoint the extent of the underpricing of agricultural commodities, Table 1 reports the relevant data for the more recent years.

Many conclusions follow from the time-series data reported in Table 1, depending on the deflator used and the crop under consideration. On the basis of the nominal protection coefficients[1] (NPCs), reflected in the ratios of domestic procurement and import-export parity prices, three conclusions are important. First, there has been no consistent intertemporal trend and the NPCs varied randomly. Second, with the exception of a few years in the case of coarse rice and sugarcane, the underpricing of agricultural commodities relative to world levels remains a common policy feature. Third, the overvalued exchange rates, as reported in Appendix Table-B, have been maintained so that the NPCs at the shadow exchange rates have been lower than those at the official exchange rates. As argued in two earlier studies [Cheong and D'Silva (1984); World Bank (1991)], the random fluctuations of the NPCs are inherently induced by fluctuating world prices despite an occasional

[1]The nominal protection coefficient is the ratio of the domestic prices to world prices. While domestic prices are equated to procurement prices, the world prices have been defined by corresponding f.o.b. or c.i.f. prices of various commodities, adjusted for any handling, distribution, and processing costs [Chaudhry and Kayani (1981)]. In common parlance, the prices so adjusted may alternatively be termed as farm-gate parity prices.

Table 1

Agricultural Commodity Prices Relative to World Prices
GDP Deflator and NPK (Fertilizer) Prices

Description and Commodity Prices	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
A. The Ratio of Procurement and Parity Prices at the Official Exchange Rate									
1. Wheat	0.524	0.648	0.533	0.544	0.539	0.478	0.682	0.597	0.615
2. Seed Cotton	0.694	0.878	0.930	0.568	0.639	0.423	0.470	0.632	0.645
3. Rice (Fine)	0.326	0.303	0.298	0.367	0.380	0.404	0.636	0.694	0.665
4. Rice (IRRI)	0.751	1.128	1.178	0.883	0.614	0.503	1.429	1.267	0.916
5. Sugarcane	1.721	1.193	1.528	1.848	1.438	0.582	0.740	0.859	0.896
B. The Ratio of Procurement and Parity Prices at the Shadow Exchange Rate									
1. Wheat	0.391	0.508	0.435	0.414	0.412	0.389	0.567	0.514	0.529
2. Seed Cotton	0.518	0.690	0.759	0.433	0.488	0.345	0.470	0.544	0.555
3. Rice (Fine)	0.243	0.238	0.243	0.280	0.290	0.329	0.528	0.397	0.572
4. Rice (IRRI)	0.560	0.886	0.961	0.672	0.469	0.410	1.188	1.085	0.788
5. Sugarcane	1.282	0.938	1.248	1.404	1.098	0.474	0.615	0.739	0.767
C. The Procurement Prices Index Relative to the GDP Deflator (1984-85=1.0)									
1. Wheat	1.000	1.108	1.061	1.019	0.949	1.007	1.038	1.043	0.997
2. Seed Cotton	1.000	0.991	0.949	0.884	0.803	0.824	0.842	0.878	0.890
3. Rice (Fine)	1.000	1.000	1.050	1.238	1.175	1.175	1.084	1.017	1.048
4. Rice (IRRI)	1.000	1.004	0.959	0.927	0.716	0.949	0.929	0.902	0.098
5. Sugarcane	1.000	0.970	1.125	1.048	1.021	1.048	1.025	1.023	0.976

Continued–

Table 1–(*Continued*)

Description and Commodity Prices		1984-85	1985-86	1986-87	1987-88
D. The Procurement Prices Relative to the NPK Prices (1984-85 = 1.0)					
1.	Wheat	1.000	0.956	0.956	0.920
2.	Seed Cotton	1.000	0.855	0.855	0.798
3.	Rice (Fine)	1.000	0.863	0.947	1.118
4.	Rice (IRRI)	1.000	0.867	0.865	0.837
5.	Sugarcane	1.000	0.837	1.014	0.946

Source: Appendix Table-A and [Government of Pakistan (1993)].

1988-89	1989-90	1990-91	1991-92	1992-93
0.866	0.786	0.746	0.825	0.578
0.733	0.643	0.605	0.695	0.510
1.072	0.917	0.779	0.805	0.608
0.836	0.741	0.667	0.714	0.521
0.932	0.818	0.737	0.810	0.585

increase in domestic agricultural commodity prices. This implies that government efforts at ensuring world prices for agriculture in Pakistan have thus far met with little successes.

Like the NPCs, the real prices of most of the agricultural commodities have fluctuated without any intertemporal trend, except in the case of coarse rice and seed cotton, where real prices fell more or less consistently between 1984-85 and 1992-93. Agricultural commodity prices as a percentage of the NPK fertilizer prices witnessed a fall with the passage of time. As a result of this progressive decline, agricultural commodity prices in 1992-93 were only 60 percent of those of the fertilizer prices. Although this analysis is based on the trends of agricultural commodity prices relative to the fertilizer prices, a study by Afzal *et al.* (1992) shows that increases in the price of other agricultural inputs were even steeper than those of fertilizer prices between 1986-87 and 1991-92. The conclusion is important for it points to the falling rates of profit in agriculture, a phenomenon shown empirically in recent studies [Afzal *et al.* (1993); Ahmed and Chaudhry (1987)].

3. EFFECTS ON PRODUCERS AND CONSUMERS

The previous section has shown that Pakistan has been in pursuit of a deliberate policy of underpricing of agricultural commodities. The depressed prices have many and varied deleterious effects on production, employment, and income distribution [Chaudhry and Kayani (1991); Dorosh and Valdes (1990); Mellor (1975)]. In general terms, low agricultural commodity prices retard the growth of agricultural production, accentuate urban-rural income disparities by transferring resources from low-income rural households to high-income urban households, and dislocate the labour from farms to urban slums [Bale and Lutz (1981)]. The nature and speed of the processes at work depend on the magnitudes of various effects on the producers and consumers of agricultural commodities.

Low Prices and Producers

A quantitative assessment of the various effects of low agricultural commodity prices can be undertaken on the basis of such information as the extent of underpricing of agricultural prices, the marketed surpluses of crops, official and shadow foreign exchange rates, supply elasticity with respect to prices, and employment elasticity of agricultural production. As is usual, the underpricing of agricultural commodities can be measured by the differences between world prices, defined here as import or export parity prices of various crops, and domestic procurement prices. The marketed surpluses for the purposes of this paper are equated to total output of cotton, procured tonnage of wheat, cane crushed by mills, and exported amounts of rice. The shadow foreign exchange rate is the equilibrium exchange rate that will

prevail in the absence of all trade distortions, and depicts the overvaluation of the rupee. In calculating the adverse effects of underpricing of agricultural commodities on agricultural output and employment, we make use of the aggregate price elasticity of supply reported in Ali (1990) and Haque (1993) and the employment elasticity of agricultural production calculated by Mellor (1988), respectively.

Low prices of agricultural commodities have often been associated with immense resource transfers from or implicit taxation of agriculture. Although subsidies on fertilizer, irrigation water, and institutional credit have operated concurrently, they have been either negligible or ineffective to reverse the outflow of resources from agriculture. While the detailed calculations of some of the resource flows are included in Appendix Table-A, a summary statement of resource outflows due to input-output price policy is given in Table 2.

The above table reveals several facts. First, the yearly resource outflow from agriculture averaged around Rs 35.00 billion, with extremes of Rs 17–72 billion. While low prices and overvalued exchange rate contributed more or less equally to gross outflows until 1988-89, price policy became increasingly important in this respect since 1989-90, and the contribution of the overvalued exchange rate fell to less than one-third of the total. Resource transfers were the lowest in 1985-86 and the highest in 1989-90, and varied directly with the trends in international prices.

By contrast, agriculture received little help from government exchequer. As such, subsidies on insecticides and agricultural machinery were abolished prior to 1984-85. However, certain kinds of fertilizers, irrigation water, and institutional credit were still subsidised. Although much is made of the remaining subsidies on agricultural inputs in most of the public meetings and research studies, total subsidies relative to implicit taxes seem to be considerably unimportant and never exceeded Rs 6.0 billion over the period under consideration. The same applies to the government's development expenditure for the agriculture and water sectors, which remained below Rs 10 billion for most of the years in the period. Thus, the net outflow of resources or implicit taxation due to the input-output price policy remains immense, with an average of Rs 21 billion per year and a range of Rs 4–60 billion for the same period. While the data in Table 2 suggest a rising trend in net resource outflows from agriculture, there seems to be little room for conclusions that hold that resource transfers out of agriculture have been on the decline in the Eighties [Khan (1994); Nabi, Hamid and Nasim (1990)]. Such conclusions can only be temporary, unless the government commits itself to a policy of a freely floating exchange rate and guarantees world prices to the farm sector.

Second, taken at their face value, subsidies on agricultural inputs tend to reduce the outflow of resources from agriculture. It has, however, been noted in different studies that a significant proportion of them may not be accruing to the farm sector at all. For example, the budgetary expenditure and receipts may not

Table 2

Annual Gross and Net Resource Transfers from Agriculture due to Price and Exchange Rate Policies 1984-85 to 1992-93

(Rs Million)

Kinds of Transfers from and to Agriculture	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
I. Gross Resource Transfers from Agriculture due to:									
1. Depressed Crop Prices*	9481	7592	9122	2165	1805	50968	41816	34724	29376
2. Overvalued Exchange Rate**	11065	9721	10916	18597	17074	21258	15798	16867	14978
Total	20546	17313	20038	40162	35059	72226	57614	51591	44354
II. Transfers into Agriculture									
A. Input Subsidies on:									
1. Fertilizer	1501	2408	1124	2170	2423	1170	1386	1224	810
2. Irrigation Water	827	1005	1234	352	1154	1028	1545	2781	3111
3. Institutional Credit	543	448	551	785	1009	1207	1526	1744	1993
4. Sub-total	2871	3861	2909	4307	4586	3405	4457	5749	5914
B. Public Sector Expenditure for:									
1. Agriculture	2920	4435	3221	3493	3990	3012	3042	3692	3461
2. Water	3541	4589	4129	4538	3389	5440	6815	5554	8461
3. Sub-total	6461	9024	7350	8031	7379	8452	9857	9246	11922
Total (A4+B3)	9332	12885	10259	12338	11965	11857	14314	14995	17836
III. Net Transfers from Agriculture (Total I-Total II)	11214	4428	9779	27824	23094	60369	43300	36596	26518

Source: Appendix Table-A and [Government of Pakistan (1993) and Government of Pakistan (1993b)].

* Sum total of transfers for wheat, rice, cotton, and sugarcane at the official exchange rate given in Appendix Table -A.

** Sum total of transfers for the above commodities at the shadow exchange rate minus transfers at the official exchange rate.

*** The subsidies on fertilizer, irrigation water, and institutional credit respectively equal the subsidies reported in official budgets, current expenditure minus receipts from irrigation, and the interest foregone, which have been obtained by multiplication of annual outstanding credit, with differences in market interest rates and those charged from agriculture.

reflect the benefits and costs of irrigation water to the farmers. There is always over-reporting of expenditures and under-reporting of irrigation receipts. Although no estimates of the degree of escalation of expenditure in Pakistan are readily available, the Indian experience with an irrigation system similar to that in Pakistan suggests that the actual irrigation expenditure may be only half of that reported in the government budgets [Wade (1982); Rao (1984)]. The provincial irrigation departments are overstaffed to the extent of 50 percent [Wolf (1986)] and would be responsible for excessive expenditure. Apart from overstaffing, the recent surges in irrigation expenditure must be attributed to growing illicit practices, steep increases in the maintenance costs of public tubewells, and multiple increases in the salaries and allowances of government employees. While the governments tend to treat any increase in expenditure as a subsidy to farmers, it is questionable whether the financing of such expenditures should be the responsibility of the farm sector.

The under-reporting of receipts follows from two sources. First, water rates were under-assessed by irrigation officials to the extent of 10 percent in the Punjab and the NWFP, 30 percent in Sindh, and 60 percent in Balochistan [Government of Pakistan (1990)]; and so were the irrigation receipts. Second, because of widespread corruption among irrigation officials, farmers are charged illegal gratifications, which do not appear anywhere in the budgets and accrue directly to irrigation staff [Ilyas (1994); Chaudhry, Majid and Chaudhry (1993); Wolf (1986)]. Due to these reasons, it is doubtful if the irrigation water in Pakistan was at all subsidised. In the case of fertilizers, the sub-standard production, under-bagging, and occasional black-marketing [Government of Pakistan (1993a); Government of Punjab (1991)] are common problems and leave little for the farmers to benefit from in terms of subsidies. Similar problems characterise the agricultural credit markets. Accounting for some of the above distortions in input markets, comparisons of effective and nominal protection coefficients for agricultural crops in Pakistan [Appleyard (1987); Longmire and Debord (1993)] reveal that agricultural inputs in aggregate received no subsidies and were in fact implicitly taxed to the extent of 5–10 percent throughout the Eighties.

A third effect of the underpricing of agricultural commodity prices appears in low agricultural production. Depending on the extent of underpricing and the price elasticity of output, the under-production in agriculture is likely to vary from time to time. Looking at the NPCs reported in Table 1, agricultural commodities in the 1990s were underpriced to the extent of nearly 40–60 percent. At an estimated aggregate elasticity of output with respect to prices of 0.6 [Ali (1990); Haque (1993)], it should be obvious that Pakistan suffered a loss of agricultural production of nearly 25–36 percent per year because of low prices. The findings of an independent study for the Eighties placed such annual losses at 30–40 percent of Pakistan's total agricultural production [Dorosh and Valdes (1990)].

Fourth, producers are also affected adversely in many other ways. For example, capital formation in agriculture may be anticipated to be slow due to three important processes: (1) low levels of agricultural production would be consistent with low agricultural incomes and low rates of savings, thus producing low investment in agriculture; (2) negative resource transfers lead to low investment; and (3) capital flees from agriculture to the industrial sector because of relatively high rates of profit on investment in industry. While the current estimates of the rates of return in agriculture hardly exceed 10 percent, and are even negative for rice [Afzal *et al.* (1992); Ahmed and Chaudhry (1987)], the same rates in the industrial sector vary between 25–125 percent and average around 50 percent [Government of Punjab (1991)].

Fifth, low production in agriculture is associated with underemployment in the sector. At the annual losses of 25–35 percent of agricultural production and an employment elasticity with respect to output of 0.6 [Mellor (1988)], the demand for labour in agriculture remains below its potential by a substantial margin of 15–21 percent.

Finally, apart from their deleterious effects on output, low prices of agricultural commodities tend to accentuate poverty and income differentials among the farmers. Being regressive in its effects, implicit taxation of commercial crops falls heavily on small farmers. As a result, the skewness in post-tax incomes is greatly increased. Similarly, the current system of charging irrigation water is highly inequitable. While the farm area is the basis of water supply, water rates are assessed on the basis of crop-land. As intensity of cropping varies inversely with farm size, the average charge per unit of water for some of the smallest farm size categories would be 2-3 times that paid by the largest category [Chaudhry, Majid and Chaudhry (1993); Ilyas (1994)].

Effects on Consumers

Consumers, in general, are the main beneficiary of low agricultural commodity prices and most of the transfers from agriculture accrue to a diverse group of non-agricultural urban consumers consisting of labourers, industrialists, traders, businessmen, government servants, and even the government itself. Low agricultural commodity prices affect the urban population in various ways. For example, the effect of low food prices on the urban population is to raise their real incomes, alleviate purchasing power constraints, and increase food intake; and also to reduce the malnutrition, hunger, and poverty, especially among the vulnerable low-income groups. Because non-food agricultural commodities are commonly used as industrial raw materials, the impact of their low prices is to reduce industrial costs and raise industrial profits. In the event of reinvestment of those profits, the likelihood of an

expanding industrial sector and, along with it, an expanding job market may be anticipated. If and when this happens, industrial workers may be the indirect beneficiary of low agricultural commodity prices. Apart from taxes on increased industrial profits, government intervention in agricultural commodity markets and trade may generate funds for the government exchequer. Finally, a biased price policy against agriculture, as it operates in Pakistan, can result in capital flight from agriculture to the urban industrial sector.

It is difficult, if not impossible, to quantify the exact impact of depressed agricultural commodity prices on various groups of consumers due to the lack of appropriate data. However, some idea of the potential beneficiaries can be had by looking at the transfers by commodities. The data in Appendix Table-A in combination with those in Table 2 indicate that out of the total transfers of Rs 44.4 billion from agriculture during 1992-93, Rs 9.4 billion, or 21 percent, accrued to wheat consumers. The remaining transfers of Rs 35.0 billion, or 79 percent, were shared among industrialists, traders, and the government's trading corporations. Since seed cotton is underpriced to the extent of 40 percent (Table 1) and the government imposes a duty of 20 percent on cotton exports [Mellor (1993)], the transfers from cotton amounting to Rs 28.8 billion would be shared more or less equally between the industrialists and the government. While the transfers of Rs 3.1 billion from sugarcane accrue solely to the sugar industry, those from rice, of almost equal magnitude, fall mainly into government hands. Thus, it would seem that the industrialists and the government are the main beneficiaries of underpriced agricultural commodities.

To the extent that government has the power to manipulate taxes, prices, and expenditure, the urban bias in government policy may be somewhat more protracted than that shown above. Against the less-than-world-prices for agricultural commodities, most of the industrial output enjoys positive protection with an average margin of nearly 70 percent over and above the world prices [Government of Punjab (1991); Kemal (1993)]. While indirect taxes accounted for more than 85 percent of the government revenue of Rs 250 billion during 1992-93 [Government of Pakistan (1993)], the tax incidence studies in Pakistan indicate that agriculture contributed a rising share to such taxes, and its contribution in the mid-eighties was in excess of 40 percent [Qureshi (1986)]. Against such taxes, government's annual development expenditure of Rs 120 billion in 1992-93 allocated only Rs 14.4 billion to the agriculture and water sectors and the rest was reserved for the development facilities heavily concentrated in the urban areas [Government of Pakistan (1993)].

The low prices of agricultural commodities may be harmful to consumers from the food security point of view. Due to shortfalls in production, they may encourage the growing dependence on food imports and add to consumer misery if such imports are not forthcoming. The low prices may also result in smuggling

across the open borders, with limited and uncertain supply of food for domestic consumers [Haque (1993)].

4. POLICY RECOMMENDATIONS

In the light of the analysis and discussion above, it should be clear that the agricultural price policy pursued in Pakistan has adverse consequences for investment, production, employment, and income distribution in agriculture. In view of the heavy dependence of national economy on agriculture and the importance of some of the above variables, an indefinite pursuit of such a policy is neither desirable nor sustainable and must be discontinued.

The current price policy needs to be modified in at least three important respects.

First, rather than seeking guidance from discretion and cost of production studies, the fixation of agricultural commodity prices must be undertaken on the basis of corresponding import and export parity prices of various commodities. Since parity prices tend to be higher than procurement prices, favourable incentive effects of the recommended policy on investment, production, trade, employment, and income distribution would become obvious. Although higher domestic prices of food may be hard on some consumers, they should not unnecessarily tax urban consumers as they are the minimum prices which would prevail in the country in the absence of domestic production. However, as parity prices are likely to vary directly with highly volatile world prices, the stability of agricultural commodity prices at home can be ensured if they are determined by the trend lines of past parity prices. This way domestic prices would be higher than parity prices in the years of low world prices, and lower than them in the years of high world prices. As cyclical fluctuations around the trend would be cancelled out over time, it is not difficult to see that this recommendation would conspicuously be marked by the absence of any implicit taxation of agriculture.

Second, government intervention in agricultural commodity markets serves no useful purpose. In fact, most of the parastatal organisations suffer from gross inefficiencies, with immense costs to producers, consumers, and the government exchequer. In order to save on these costs and to promote the cause of privatisation, the government would be well-advised to desist from active and direct engagement in procurement, storage, distribution, and external trade on a massive scale and leave these tasks to the private sector.

While restrictive trade policies such as the licencing and the ban on the inter-regional movement of commodities should be discontinued, severe penalties backed by law should be imposed on illicit trade practices. The government in its new role must be watchful of private sector activities, ensure competition in agricultural commodity markets, and buy and sell in the major commodity markets to safeguard

against monopolistic tendencies, excessive profiteering, and rising and unstable commodity prices.

Third, most of the agricultural input markets are still in their infancy in Pakistan and suffer from even greater fundamental problems than the commodity markets. For example, they are typically characterised by monopoly positions of one kind or another; quality is no consideration; and almost any product is saleable at the asking price. These problems are particularly acute in the modern input markets, such as those dealing in seeds, insecticides, and fertilizer, with only a few exceptions in the irrigation water and credit markets. Apart from being admixtures of all varieties, seeds supplied by seed agencies have doubtful viability. The seeds being admixtures, there is hardly any justification for premium prices for seed. Rather than emphasising the mushroom growth of seed agencies and the quantities of seed marketed, quality should be the main consideration, with clear seed agency labels testifying to the variety of seed, its viability, and the date when the seed was tested for germination. Any inconsistent results at the farm level should be punishable by fines, which must recover for reimbursement to affected farmers all costs associated with seed purchases, preparatory tillage operations, and efforts foregone in acquiring seed. Similar policy action may also be suggested to check the production and marketing of sub-standard, fictitious, and underbagged fertilizers and insecticides. To break up the monopoly of registered dealers and to promote competition, the government should withdraw from fertilizer production, its trade as well as distribution, in favour of free sales in the open market by interested parties and individuals. In the case of irrigation water, the need for equitable distribution of water among outlets and canals, elimination of overstaffing, and precise alignment of the water rate assessment base with the water supply base can hardly be over-emphasised.

While all three recommendations would be consistent with stepped-up water use or cost efficiency, the latter should also protect the small farmers from the onerous burdens of current intensity-borne water rates. The unlimited powers of irrigation officers should be carefully balanced by granting some powers to irrigation associations of the farmers to wipe out corruption from the irrigation departments. The credit market also needs to be made more competitive, with the same terms and conditions for agricultural credit as those for other loans. While the demand-creation strategies lead to much waste, effective supply management with a view to reducing the cost of loans to government should serve as the basis of the future credit strategy in agriculture.

In a nutshell, the emphasis of the government policy should be to minimise the cost of its programmes, ensure efficiency of resource use in agriculture, and, so far as possible, discourage corruption and unnecessary intervention in agriculture. Although the private sector can deliver many services to agriculture, its unbridled growth based on excessive profits and without specification of the rules of the game

would be equally undesirable.

5. SUMMARY AND CONCLUSIONS

The study was undertaken in order to review the input-output policy in Pakistan's agriculture, study its possible effects on producers and consumers, and make policy recommendations for rapid agricultural development and hence enhanced welfare of the consumers. On the basis of the evidence produced here, it can be concluded that government policy in recent years was heavily biased against agriculture. As a result of government intervention, agricultural commodity prices in general remained well below their corresponding world prices, input prices rose at a faster pace than commodity prices, and agriculture witnessed falling rates of profit against rising and high rates of profit in the industrial sector. Such a state of affairs resulted in immense resource transfers from agriculture, with all kinds of deleterious effects on investment, production, employment, and income distribution in that sector and elsewhere in the economy. In order to reverse these trends, and to ensure rapid transformation of Pakistan's economy in general, and of agriculture in particular, there is a need for halting active government intervention and for promoting the role of the private sector in the marketing, trade, and distribution of agricultural inputs and commodities. While the supremacy of the private sector must be upheld, the rules of the game must be clearly defined and the breach of law must be punishable by heavy penalties. As a step towards right prices, agricultural commodity prices should be fixed on the basis of the trend lines of past parity prices. As such, there is little need for subsidising the inputs. In fact, stable and even falling prices of most of the agricultural inputs can be assured if the government takes note of the corruption and excessive profiteering and decides to pursue a cost-reduction strategy. In the specific case of irrigation water, an equitable distribution of water, the compatibility of water delivery and water rate assessment bases, and the elimination of overstaffing are the prime issues that require immediate government attention.

Appendix Table-A

Calculating the Resource Transfers from Agriculture*

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
A. Wheat									
1. Import Parity Price per Ton (Rs)									
a. At the Official Exchange Rate	3337	3087	3754	3793	3940	5026	4106	6192	5285
b. At the Shadow Exchange Rate	4476	3940	4602	4982	5155	6163	4941	6034	6142
2. Procurement Price per Ton (Rs)	1750	2000	2000	2062	2125	2400	2800	3100	3250
3. Wedge between Import Parity and Procurement Prices (Rs)									
a. At the Official Exchange Rate	1587	1087	1754	1731	1815	2626	1306	2092	2035
b. At the Shadow Exchange Rate	2726	1940	2602	2930	3030	3763	2141	2934	2892
4. Marketed Output (M. Tonnes)	2.27	2.53	5.03	3.97	3.49	4.31	4.41	3.16	3.25
5. Transfers (M. Rs)									
a. At the Official Exchange Rate	3602	2750	8023	6872	6456	10845	5759	6611	6614
b. At the Shadow Exchange Rate	6270	4908	13088	11632	10575	15537	9442	9271	9399
B. Seed Cotton									
1. Export Parity Price per Ton (Rs)									
a. At the Official Exchange Rate	6516	5266	4971	8136	7277	11990	12498	10684	11636
b. At the Shadow Exchange Rate	8739	6703	6093	10687	9520	14702	15039	12417	13523

Continued–

Appendix Table-A–*(Continued)*

2. Procurement Price per Ton (Rs)	4525	4625	4625	4625	4650	5075	5875	6750	7500
3. Wedge between Export Parity and Procurement Prices (Rs)									
a. At the Official Exchange Rate	1991	641	316	3511	2627	6915	6620	3934	4136
b. At the Shadow Exchange Rate	4214	2078	1468	6062	4870	9627	9144	5667	6023
4. Marketed Output (M. Tonnes)	3.03	3.63	3.93	4.41	4.29	4.38	4.92	6.54	4.77
5. Transfers (M. Rs)									
a. At the Official Exchange Rate	6033	2327	1242	15484	11270	30288	32570	26122	19729
b. At the Shadow Exchange Rate	12768	7543	5769	26733	20892	42166	41176	37062	28730
C. Rice Basmati									
1. Export Parity Price per Ton (Rs)									
a. At the Official Exchange Rate	6767	7504	8386	8698	8740	8741	5806	5494	6479
b. At the Shadow Exchange Rate	9076	9552	10280	11425	11435	10718	6986	6385	7530
2. Procurement Price per Ton (Rs)	2207	2276	2498	3196	3319	3530	3690	3813	4311
3. Wedge between Export Parity and Procurement Prices (Rs)									
a. At the Official Exchange Rate	4491	5228	5588	5502	5421	5211	2116	1681	2163
b. At the Shadow Exchange Rate	6869	7276	7782	8229	8116	7188	3296	2572	3219
4. Marketed Output (M. Tonnes)	0.23	0.61	0.25	0.30	0.29	0.60	0.62	0.74	0.70

Continued–

Appendix Table-A–(*Continued*)

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
5. Transfers (M. Rs)									
a. At the Official Exchange Rate	1033	3189	1397	1651	1572	3127	1312	1244	1513
b. At the Shadow Exchange Rate	1580	4438	1946	2469	2354	4313	2044	1903	2253
D. Rice Coarse									
1. Export Parity Price per Ton (Rs)									
a. At the Official Exchange Rate	1640	1131	1081	1496	2353	3168	1235	1490	2251
b. At the Shadow Exchange Rate	2200	1440	1325	1965	3078	3885	1486	1732	2616
2. Procurement Price per Ton (Rs)	1232	1276	1273	1321	1444	1592	1765	1888	2061
3. Wedge between Export Parity and Procurement Prices (Rs)									
a. At the Official Exchange Rate	408	–145	–193	175	709	1576	–530	–398	190
b. At the Shadow Exchange Rate	968	164	52	644	1634	2293	–279	–156	555
4. Marketed Output (M. Tonnes)	0.73	1.41	1.44	1.61	1.13	0.99	1.61	2.02	1.55
5. Transfers (M. Rs)									
a. At the Official Exchange Rate	298	–204	–278	282	801	1560	– 853	–804	294
b. At the Shadow Exchange Rate	767	231	75	1036	1846	2270	– 449	–315	860
E. Sugarcane									
1. Import Parity Price of Cane per Ton (Rs)									
a. At the Official Exchange Rate	140	202	191	158	219	591	515	488	490

Continued–

Appendix Table-A–(*Continued*)

b. At the Shadow Exchange Rate	188	257	234	208	287	725	620	567	570
2. Procurement Price per Ton (Rs)	241	241	292	292	315	344	381	419	438
3. Wedge between Import Parity and Procurement Prices (Rs)									
a. At the Official Exchange Rate	–101	–39	–101	–134	–96	247	134	69	52
b. At the Shadow Exchange Rate	–53	16	–58	–84	–28	381	239	148	132
4. Marketed Cane Output (M. Tonnes)	14.70	12.02	14.48	20.33	21.71	20.84	22.60	24.80	23.58
5. Transfers (M. Rs)									
a. At the Official Exchange Rate	–1485	–470	–1262	–2724	–2084	5148	3028	1551	1226
b. At the Shadow Exchange Rate	–779	193	–840	–1708	–608	7940	5401	3670	3112

Source: Chaudhry and Kayani (1991) and calculations based on the information in Government of Pakistan (1993, 1993b).

* Transfers for individual commodities were obtained by multiplication of the wedge between parity and procurement prices with the respective marketed surplus.

Appendix Table-B

Official and Shadow Exchange Rates (Rs per US$)

Period	Official Exchange Rate	Shadow Exchange Rate	Ratio of Shadow to Official Exchange Rate
1984-85	15.151	20.038	1.3412
1985-86	16.139	20.553	1.2729
1986-87	17.179	21.058	1.2258
1987-88	17.599	23.116	1.3135
1988-89	19.215	25.139	1.3083
1989-90	21.445	26.295	1.2262
1990-91	22.242	26.981	1.2033
1991-92	24.844	28.875	1.1622
1992-93 (July-March)	25.639	29.798	1.1622

Source: [Kemal (1993); Mahmood (1992); Government of Pakistan (1993a)]

Note: Shadow exchange rates are equilibrium exchange rates between 1984-85 and 1990-91 and effective exchange rates for 1991-92 and 1992-93.

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