8

Agriculture

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The development of capitalist agriculture in the Indus basin has over time transformed peasants into wage labour. This is clearly visible, both in the field and in official statistics. The feudal relations between the landlord and tenants and sharecroppers, and the subsistence economy of small landowning peasants have been steadily disintegrating. The subdivision of small holdings has been accompanied by a concentration at the upper end of the size distribution. Agricultural output has contributed significantly to economic growth in Pakistan. But the process of diversification has revealed both instability and serious commodity imbalances and inter-regional disparities. The role of the state has been crucial in creating and distributing the agricultural surplus. This chapter focuses on the processes of agricultural transformation that have taken place in the previous few decades.

Agricultural Growth and Fluctuations

The Gross Domestic Product (GDP) of Pakistan grew at annual rates of over 5 per cent only in periods when agricultural production

expanded by at least 3 per cent. Though the importance of agriculture has been declining in the overall process of economic growth in the country, it is still the largest single economic activity, contributing about one-quarter of the GDP and over half the export earnings (Table 8.1). Its real contribution to GDP would be even greater if allowances were made for distortions in prices. Its share in exports would be much larger if agro-based raw materials and goods were taken into account. It absorbs one-fifth of the spending on imports. A vast majority of rural people—about 70 per cent of the country's population—depend on agriculture for their income; half the country's labour-force still works in this sector.

TABLE 8.1
Importance of Agriculture in Pakistan

Year	*Per cent share of agriculture*				*Per cent rural population*
	GNP	*Exports*	*Imports*	*Labour force*	
1950	53	80	21	66	82
1960	46	72	26	63	77
1970	39	63	19	57	75
1980	29	59	15	53	72
1988	24	53	19	49	69

Note: The shares have been estimated from the data in various issues of *Pakistan Statistical Yearbook*, *Pakistan Economic Survey*, and *Labour Force Survey*.

Agricultural output has grown at a modest annual rate of around 2.8 per cent barely keeping pace with the growth of population (Table 8.2). Production has not stabilized at levels where variation in natural conditions and changes in government policies can be absorbed without major shocks to the economy. Indices of agricultural production also show limited growth on a per capita basis (Table 8.3).

In the 1950s, adjustments after Partition, including the cross-border movement of millions of people and their settlement, increased incidence of waterlogging and salinity, and adverse public policies relating to agricultural prices and provision of infrastructure led to a slow growth of agricultural output. In the 1960s agriculture experienced its most robust growth, with production

TABLE 8.2
Average Annual Growth Rates of GNP and Agricultural Output in Pakistan

Period	*Growth rate of GNP (%)*	*Growth rate of agricultural output (%)*
1950–55	3.39	1.35
1955–60	3.05	2.11
1950–60	3.22	1.70
1960–65	6.77	3.80
1965–70	6.80	6.35
1960–70	6.78	5.07
1970–75	4.47	0.83
1975–80	6.46	3.90
1970–80	5.46	2.37
1980–85	6.62	3.45
1985–88	5.55	4.35
1980–88	6.22	3.79

Notes: GNP and agricultural output are in constant prices of 1959–60. The growth rates are estimated from the data in *Pakistan Economic Survey 1987–88*. Bad agricultural years were: 1970–71 (disruption due to war with India); 1973–74 (floods); and 1983–84 (drought).

TABLE 8.3
Changes in Agricultural Production in Pakistan, 1950–88 (1959–60 = 100)

Year	*Value of agricultural output*	*Output of all crops*	*Output of food crops*	*Value of agricultural output per capita*	*Output of foodgrains per capita*
1949–50	87	97	86	110	125
1954–55	88	86	90	102	96
1959–60	100	100	100	100	100
1964–65	128	120	120	105	106
1969–70	186	177	163	124	138
1974–75	187	183	170	110	122
1979–80	239	245	205	115	143
1984–85	275	265	241	115	131
1987–88	312	279	274	119	128

Note: These indices are based on the data from *Pakistan Economic Survey 1987–88*.

increasing to just over 5 per cent annually. This was facilitated by the development of water resources in the private and public sectors; incentives through price support and subsidies on inputs like fertilizers; and the spread of new seeds of wheat and rice.

There may also have been some effect of the land redistribution policies of the early 1960s, which favoured capitalist agriculture and threatened feudal tenancy arrangements.

The growth process was disturbed in the first half of the 1970s due to the weakening impact of new seeds, political turmoil and the impact of civil war, drought followed by floods, and widespread nationalization of industry. The land reform of 1972 may have also introduced some degree of uncertainty in traditionally asymmetrical landlord–tenant relations.

Agricultural growth since the mid-1970s has been at rates of around 4 per cent per year. There were significant policy changes with respect to agriculture in the period 1979 to 1981, including an upward adjustment in prices of outputs and inputs, a transfer of major activities from the public to the private sector, and reorientation of public investment from large-scale projects to improvement of research, extension and infrastructure. The rapid expansion of credit from public sector institutions for mechanical technology and the investment in large-scale private farming and processing have also been important factors in the growth process.

Pakistan's agriculture consists mainly of crops and livestock products with fishing and forestry accounting for less than 2 per cent of the total value-added. Major crops include all cereals (wheat, rice, maize, sorghum, millet, and barley), gram, cotton, sugarcane, tobacco, rapeseed, mustard and sesamum. Minor crops include pulses (lentils), vegetables and fruits. Livestock products (mainly eggs, meat and milk) are contributed by cattle, sheep, goats and poultry.

The growth in agriculture has come mainly from the major crops (Table 8.4). This sub-sector has dominated the agriculture sector and the national economy with wheat, rice, cotton and sugarcane still playing the dominant role. Minor crops have shown a more significant and sustained process of growth than that experienced by the major crops. They have escaped the government's procurement policies and have responded well to relatively sharper price increases in the open and unregulated markets. The increasing demand for some fruits and vegetables in the domestic and Middle East markets has been another important factor, leading to an expansion of areas used for orchards and vegetables. Their production levels have also increased significantly since the mid-1970s.

TABLE 8.4
Structural Change in Agricultural Output in Pakistan

Period	*Per cent share in value of agricultural output*			
	Major crops	*Minor crops*	*Livestock*	*Fishing and forestry*
1950–55	49.0	13.1	36.8	1.1
1955–60	50.3	11.9	36.7	1.1
1960–65	51.8	11.6	35.2	1.4
1965–70	55.4	12.4	30.5	1.7
1970–75	58.0	12.0	28.5	1.5
1975–80	56.8	13.5	28.5	1.2
1980–85	56.5	13.0	29.1	1.4
1985–88	54.9	12.6	31.0	1.5

Note: The shares are estimated from the data in *Pakistan Economic Survey 1987–88*.

Livestock accounts for almost one-third of the value-added in agriculture. Its annual growth rate has increased from about 2 per cent in the period from the 1950s to the early 1970s, to over 4.5 per cent since the early 1980s. The industry has not done badly, despite the fact it is still fragmented and unorganized. Sharp price increases of livestock products and increased area for the fodder crops have been the two main indicators of development in this sub-sector. Recent changes in government policy have shifted emphasis to development of large cattle farms. The dairy and meat industries are apparently now responding to the rapid growth of demand for their products. A well organized and efficient poultry industry has already emerged in the urban parts of the country since the late 1970s.

Self-sufficiency in basic foodgrains has been achieved since the late 1970s, though small quantities of wheat are imported in some years to maintain a stable supply at reasonably low prices (Table 8.5). However, increased dependence on imported edible oils, milk products and sugar since the mid-1970s continues to reflect serious imbalance between the rapidly growing demand and the slow response of supply in the domestic market. The problems on the supply side include inefficient production (including poor quality of seeds/breeds and inferior management), and inadequate price and non-price support policies.

Yield levels of major crops are still quite low. All crop yields

TABLE 8.5
Imports of Major Agricultural Commodities in Pakistan

Period	*Wheat*		*Edible oils*		*Sugar*	
	Amount imported ('000 mt)	*Per cent of local output*	*Amount imported ('000 mt)*	*Per cent of local output*	*Amount imported ('000 mt)*	*Per cent of local output*
1970–75	4,907	13.5	637	64.9	317	14.1
1976–80	5,575	11.9	1,565	85.1	227	6.6
1981–85	2,332	4.0	3,268	117.4	221	3.8
1986–88	2,638	6.6	2,232	133.3	1,243	31.5

Note: The data are from *Pakistan Economic Survey 1987–88*.

either remained stagnant or fell in the 1950s, followed by some increase in the early 1960s (Table 8.6). Wheat and rice yields have shown considerable and somewhat sustained growth, particularly after the adoption of new seeds in the late 1960s. Cotton yield was growing at a modest pace until the mid-1970s and then fell for about 10 years. Its unprecedented growth since the mid-1980s has been one of the bright spots. Sugarcane remains an expensive crop for the national economy: its yield level has been stagnant since the late 1960s after a decade of some growth. What little increase in output has occurred, has been due to the expansion in area of cultivation, either at the expense of some other crops or on the waterlogged and saline lands unsuitable for other crops.

Increased production comes from a combination of additional quantities of farm inputs and technical change. The effects of these two are different in that the first causes movement along the same production curve but the second shifts the curve upward. An index of total productivity can be constructed by dividing the index of value-added by the index of all physical inputs used in agriculture. The rate of growth of the factor productivity index is then the difference between the rates of growth of real output and inputs. In Pakistan, the factor productivity index grew at negative rates in the 1950s, the early 1970s and 1980s (Table 8.7). Most of the additional value-added came from increased inputs and not technical change. The latter contributed strongly only in the late 1960s and 1970s.

Evidence on technical change can also be seen in the changes in

TABLE 8.6
Average Annual Levels of Output and Yield of Various Crops

Period	*Total output*				*Yield level*				
	Foodgrains ('000 mt)	*Cotton ('000 bales)*	*Sugarcane ('000 mt)*	*Oil crops ('000 mt)*	*Wheat kg/ha*	*Rice kg/ha*	*Cotton kg/ha*	*Sugarcane mt/ha*	*Oil crops kg/ha*
1950–55	5,156	1,519	7.193	182	778	883	212	29.2	379
1955–60	5,733	1,675	10,318	237	781	848	213	28.2	409
1960–65	6,572	2,102	15,849	220	832	929	255	33.6	456
1965–70	8,813	2,811	22,238	229	978	1,151	289	38.3	480
1970–75	11.023	3,815	21,646	279	1,216	1,530	340	35.7	539
1975–80	13,869	3,205	27,994	259	1,448	1,571	286	37.0	579
1980–85	16,509	4,456	33,580	238	1,596	1,685	343	37.5	645
1985–88	18,106	7,938	29,674	225	1,775	1,640	543	37.7	710

Sources: *Pakistan Economic Survey* and *Agricultural Statistics of Pakistan*, various issues.

TABLE 8.7

Growth Rates of Indices of Agricultural Value-added, Aggregate Inputs and Factor Productivity (1959–60 = 100)

Period	*Index*			*Average annual rate of growth*			*Per cent share in growth of value-added*	
	Value-added	*Aggregate inputs*	*Total factor productivity*	*Value-added*	*Aggregate inputs*	*Total factor productivity*	*Growth of inputs*	*Technical change*
1954–55	91	84	108	—	—	—	—	—
1959–60	100	100	100	1.98	3.80	−1.48	175	−75
1964–65	126	125	101	5.20	5.00	0.20	96	4
1969–70	187	133	141	9.68	1.28	8.12	16	84
1974–75	191	156	122	0.43	3.46	−2.70	728	−628
1979–85	252	195	129	1.54	2.67	−1.03	167	−67
1984–85	252	195	129	1.54	2.67	−1.03	167	−67

Source: The indices are from Qureshi, Sarfraz K., *Agricultural Pricing and Taxation in Pakistan*, Table A-3.20, Islamabad: Pakistan Institute of Development Economics, 1987. Other computations have been made by the author.

certain key productivity indicators, e.g., the average value-added per agricultural worker and per unit of land, and the land–worker ratio. The average productivity of workers rose at impressive rates in the 1960s, fell in the first half of the 1970s, and has been rising at rates of 1 to 2 per cent per year since the late 1970s (Table 8.8). The average return from the cultivated area has been rising at annual rates of 3 to 4 per cent since the mid-1970s. The rate of growth of the agricultural labour force has far outstripped the growth of cultivated area in the country since the late 1960s. More significantly, since the 1970s, the average value-added per hectare has been rising at a much higher rate than the productivity of labour.

TABLE 8.8

Some Agricultural Productivity Indicators in Pakistan

Period	*Average annual growth rate of*		
	Agricultural value-added/ agricultural worker	*Agricultural value-added/ cultivated hectare*	*Cultivated area per agricultural worker*
1960–65	3.79	1.24	2.47
1965–70	6.21	6.37	0.00
1970–75	−1.05	0.50	−1.47
1975–80	1.16	3.38	−3.40
1980–85	1.95	3.07	−1.01
1985–88	2.08	3.84	−1.55

Note: Estimates are based on data in *Pakistan Economic Survey 1987–88*.

Land Tenure

Pakistan inherited a mix of two land tenure systems in 1947, with regional variations in tenurial arrangements in the layers of intermediaries on land and in the degree of land concentration.[1] At that time, the dominant system was that of 'zamindari' or landlord–tenant: the other system comprised peasant–proprietors or small owner–operators. There were thus two basic classes involved in the cultivation of land: a small minority of zamindars who did not

cultivate land but depended on rent, and a vast majority of cultivators who either acted as the sharecropping tenants for landlords or owned small landholdings based on family labour. Capital and wage labour were at best present in rudimentary form.

In the zamindari system, land was cultivated by the sharecropping tenants. Zamindars included 'jagirdars' who paid no land revenue to the state, because their estates were originally granted to the families by the British in lieu of services rendered. These jagirdars collected part of the produce as rent from the occupancy tenants who were called 'maurusi muzaraeen' in the Punjab and North-West Frontier Province (NWFP) and 'mukhadims' in Sind. Over time, these tenants had acquired permanent, heritable and even transferable rights to cultivate jagir lands. In many areas in Sind, they did not themselves cultivate land, but engaged tenants–at–will or 'haris' who had no legal rights. Another group of landlords paid part of the produce as revenue to the state. They used both occupancy tenants and tenants–at–will to cultivate their lands.

There were two basic features of the landlord–tenant relationship: the 'batai' (sharecropping) system, and the temporary tenure a tenant held at the pleasure of his landlord, who regulated the tenancy by rotating parcels of two to four hectares (five to ten acres) among his haris. In the batai system, crop shares were first distributed between the landlord and tenant on a 50:50 or 40:60 basis. Second, a zamindar usually charged his tenants various abwab and haboob (levies and perquisites), which ranged in number from 5 to 20. Their total claim on a tenant's share varied from about 5 to 30 per cent. Many tenants–at–will were also required to provide 'begar' (free labour) to the zamindar on demand. In the disputes arising from the batai system, no legal protection existed for the landless tenants in any area. Like much else, the batai system was regulated by the power of zamindars. The transfer of surplus from the tenant to his landlord was ensured by the social and political power enjoyed by landlords in the society, buttressed by the legal and administrative structure of the state.

The other tenure on land was of peasant–proprietors or 'ryots', who enjoyed proprietory rights and used their family labour to cultivate the land they owned. The land parcels could be owned individually or jointly within the family or community. Similarly, land revenue was paid by these owners directly to the state, either individually or collectively at the village level. Ryots played an

important role only in the newly settled areas of the Punjab and in the irrigated valleys of NWFP. In the Punjab however, many of them lost their lands to moneylenders in the early period of settlement (1880 to 1900) when no legal protection existed against land alienation through mortgage. Those who survived faced an increasing fragmentation of holdings due to the rising pressure of population on land and the operation of the Muslim customary law of inheritance. In some areas, many of these small landowners could not sustain their families by their holdings alone. Their existence, without supplementary income, was only slightly less precarious than that of the landless tenants.

Most of the agricultural population in 1947 consisted of landless tenants and ryots. The majority of farms in Sind were operated by the haris, while much of the cultivated area in the Punjab and the NWFP was operated by the muzaraeen. Landownership was highly concentrated. Owners of holdings of over 40 hectares (100 acres) constituted less than 1 per cent of all landowners in the Punjab and NWFP, though they owned nearly one-quarter of the area. In Sind, 8 per cent of all landowners claimed more than 50 per cent of the land. Landowners with holdings of more than 200 hectares (500 acres) owned nearly 30 per cent of the area in Sind, although they accounted for about 1 per cent of the landowning class. They owned about 10 per cent of all land in the Punjab and NWFP.

The rural scene in Pakistan was dominated by two factors. Power was concentrated in the hands of a few whose only contribution to agricultural output was that they owned and controlled most of the land. Most peasants were landless tenants and small owner–operators. The tenure of the landless tenant remained precarious and the existence of the small owner was only marginally better. The asymmetrical relations in this system were maintained and reinforced by the monopoly power of the absentee landlords, supported by the state. The landless tenants as direct producers suffered a low economic and social status, with a large part of their surplus passing on to the zamindars as the dominant class.

The agrarian structure has undergone several changes since the late 1950s. Some changes reflect various tenancy and land reform acts, but most have been brought about by rapid population growth, laws of inheritance, new technologies and the forces of markets, rural to urban migration and flow of remittances, and government policies of support prices, input subsidies and credit. The tenancy

acts gave legal protection to occupancy tenants and tenants–at–will, but did not alter the asymmetry of their relationship with the zamindars. Though jagirs were abolished the land reforms of 1959, the high ceiling on individual holdings did not alter the highly skewed distribution of landownership. On the other hand, the land reforms of 1972 were significant in that they redefined the tenancy contracts and provided unprecedented security of tenure to the haris in Sind and to the muzaraeen in the Punjab and NWFP.

Landownership, as shown by individual land records, is still quite concentrated, although the number of owners and the area of small landholdings (less than five hectares or 12.5 acres) has somewhat increased. The proportion of large landowners (with more than 20 hectares or 50 acres) has gone down from 2.7 to 2.0 per cent and their share in the total area has fallen from 26 to 23 per cent. In Pakistan, about 96 per cent of the owners claim to have less than 10 hectares (25 acres), but own 64 per cent of the total area. The highest concentration of landownership is in Sind. Small landowners (with less than two hectares or five acres) are preponderant in the Punjab (80 per cent) and NWFP (93 per cent), but they own only 36 and 55 per cent of the area in the two provinces. They comprise 40 per cent of all landowners in Sind and own less than 10 per cent of the area. The large landowners (with more than 20 hectares or 50 acres) own 38 per cent of land in Sind, and 20 and 14 per cent in the Punjab an NWFP respectively.

Three major changes in the ownership of land seem to have occurred since the late 1960s. First, the ownership and area under very small holdings have increased mainly due to the subdivision of holdings by the laws of inheritance and population growth, though some of it may be the result of the distribution of land to the landless following the land reforms of 1972. Second, there has been a significant decline in the numbers and area of the very large holdings due to the intra-family land transfers in anticipation of and in response to the land reform acts. Finally, the middle-size holdings (10 to 40 hectares or 25 to 100 acres) have gained, especially in Sind, both in numbers and area.

Of course, not all landowners cultivate the land, either their own or anyone else's, and not all cultivators own land. There are several kinds of tenancy arrangements for cultivation purposes. The access to land is reflected in the distribution of farms (operational holdings) by size and tenure. Land use concentration is

lower than the concentration of landownership only in Sind, reflecting the importance of the sharecropping system. Land concentration first declined in all provinces in the 1960s, but has since then apparently gone up in the Punjab and Sind. The highest concentration is in the NWFP (Table 8.9). The proportion of small farms (less than five hectares or 12.5 acres) has increased to three-quarters, but their share in the total area remains less than one-third. At the other extreme, the share of large farms (more than 20 hectares or 50 acres) has not changed either in numbers or area. The middle-size farms (five to 20 hectares or 12.5 to 50 acres) have lost their share in both numbers and land area. It should also be pointed out that the average size has increased only among the very large farms; the other sizes have remained almost unchanged.[2]

Small farms (one to three hectares or 2.5 to 6.5 acres) are largely owner-operated in the Punjab and NWFP. They have been increasing both in numbers and area. The proportion of owner–operated farms has increased significantly in recent years from 42 to 55 per cent and in area from 40 to 52 per cent. Sharecropping is still the major form of tenancy, especially in Sind. Sharecropped farms are mainly in the range of two to five hectares (five to 12.5 acres), but they have declined sharply in numbers and area: their share in numbers has fallen from 24 to 19 per cent and in area from 31 to 26 per cent. A similar reduction has taken place the case of the owner–cum–tenant farms. They are so called because a part of these farms is owned by the cultivator and the other part is rented from someone else. Large farms have been increasing. The tendency away from sharecropping is also reflected by the significant reduction of the tenant–operated area. Nearly three-quarters of all landholdings are operated by their owners. Even large landholdings dependent on tenants have sharply reduced their tenant–operated area.[3]

The transition from the feudal to the capitalist mode has made the land tenure system even more differentiated than it was before the 1960s. The capitalist farmer has emerged from the ranks of landlords and rich peasants. Labour is increasingly provided by landless agricultural workers, who could be from among the poor peasants (family farmers) and sharecroppers evicted or displaced as the landlords transform themselves into capitalist farmers by extending their 'self-cultivated' area. However, not all of the landless labour is absorbed in the capitalist sector of agriculture. Increasing

TABLE 8.9
Changes in Land Concentration in Pakistan, 1950–81

Year	Landowners and owned areas				Operational holdings and area			
	Pakistan	*Punjab*	*Sind*	*NWFP*	*Pakistan*	*Punjab*	*Sind*	*NWFP*
1950	0.64	0.62	0.66	0.49	—	—	—	—
1961	—	—	—	—	0.62	0.59	0.51	0.73
1972	0.57	0.53	0.59	0.41	0.52	0.49	0.43	0.64
1976	0.55	0.52	0.58	0.41	—	—	—	—
1981	0.53	0.49	0.55	0.38	0.53	0.51	0.47	0.57

Note: These ratios are the Gini coefficients for landownership and land use. The data for ownership are from the Federal Land Commission based on individual land records. The data for land use (farms and farm area) are from the agricultural censuses of 1960, 1972 and 1980.

numbers of unattached workers migrate from the village to towns and cities.

The dissolution of the feudal and peasant systems has revealed several interesting features. In the landlord–tenant system, landlords have not entirely been in favour of evicting their sharecroppers. This is partly to avoid legal problems which a large-scale tenant eviction could cause. The more important reasons are perhaps economic. Subsidized inputs, including tractors and other machines, since the late 1970s, have raised private profits which the landlords are unwilling to share with their tenants. Some landlords have therefore adopted the policy of sharing the cost of all 'modern' inputs with the sharecroppers, including those which weaken their bargaining position by making the cost of animal power high to maintain. Also, landlords have expanded their self-cultivated area, mainly by reducing the size of parcel they give to each sharecropper. These policies increase the pool of dependent and relatively cheap labour without increased dependence on seasonal wage labour, the supply of which may be uncertain and costly.

In the peasant system, migration of a part of the household labour has become a desperate necessity for the poor and even middle peasants since it brings in additional income for survival. Non-agricultural incomes, particularly remittances from outside rural areas, have become a source for acquiring additional land which can be leased or bought from the other poor peasants who cannot evidently survive on their incomes from the small plots they own. Addition to one's landholding means increased chances of survival in farming, with reduced vulnerability to competition from rich farmers, or even joining the ranks of capitalist farmers. The peasant system at the lower end can thus extend its life-span and remain a contending force to the rapid development of capitalist agriculture.

The growth of wage labour is an indicator of changes in agrarian structure. Despite the decline in the proportion of labour working in agriculture, from over 60 per cent in the mid–1960s to around 50 per cent in the mid-1980s, the absolute numbers are still rising. The level of demand for labour and the conditions of employment are directly affected by the organization and performance of the sector itself. The use of labour in agriculture is determined more specifically by the adoption and spread of new technologies (including mechanization), cropping patterns, cropping intensities,

crop yields, intensity of labour, and changes in the structure of farms by size and tenure.

The rural population consists of farm and non-farm households. The former comprise mostly owner–operators and tenants and the latter include the landless wage workers, artisans, petty traders, state employees and professionals. Non-farm households have increased more rapidly in the last 20 years. Rough estimates of landless agricultural workers show that their numbers increased from less than one million in 1960 to nearly two million in 1972, and were around four million in the mid-1980s.[4] The rapid growth of agricultural labour dependent on wages has been due to changes in the agrarian structure, in which the small landowners and tenants have been losing their hold on land. The other source of wage labour in agriculture is the non-farm households of artisans etc. Some of these workers may find their way to urban areas or even abroad, but most of them remain dependent for jobs and income on agriculture or related industries in rural areas.

Employment in agriculture is of two types: self-employment as household labour on farms cultivated by small owners and tenants, or hiring out of labour by the households of landless non-farm workers, tenants and small landowning peasants. Labour is hired on a permanent or temporary (casual or seasonal) basis. Most of the hired labour is on a temporary basis, depending on the specific crop activity or season. Several significant changes have occurred in the composition and use of labour in the last 20 years. The use of family labour on small farms has not declined by much, but its use on larger farms has certainly fallen. While permanent hired labour was used mostly on large farms, fewer farms are now reporting its use. An increasing proportion of farms now hire casual labour: its share in wage labour has increased from 30 to nearly 50 per cent. The use of temporary labour has increased across farms of all sizes, including those with less than five hectares (12.5 acres). Pakistani farmers no longer depend entirely on family workers and most of them engage some outside workers, at least for some of the time during the crop season.[5]

Changing Institutions, Technologies and Policies

Governments have played an active role in agriculture in a variety of ways, e.g. readjusting the agrarian structure, providing physical

infrastructure and inputs, regulating domestic and foreign trade, intervening with producer and consumer prices, and using fiscal and monetary policies. These have affected the incentives for farmers, the distribution of benefits between classes and the terms of trade of agriculture with the industrial sector. Their exact impact is not easy to measure because of the complex interactions among them. Certain policies have not been used or followed through because of political constraints, even when the objectives were well-defined and generally regarded as desirable. These constraints reflect the highly unequal distribution of economic power within agriculture and the conflict between the agricultural (rural) and industrial (urban) elites about the inter-sectoral transfer of resources in the development process. In attempting to overcome these problems, the government has often adopted policies that were counter-productive. Often policies and actions of the government have not been consistent with one another or with the goals set. Another major constraint has been the inadequate management capacity of the public sector institutions.

Land Redistribution and Tenurial Adjustments

The tenancy reforms of the 1950s enacted in the three provinces had little impact on the contractual arrangements between landlords and sharecroppers. The first visible pressure on the larger landlords came with the Land Reform Act of 1959, after the first Martial Law in the country in October 1958. The 1959 Act abolished jagirs without compensation and imposed a ceiling on what had been unlimited individual landholdings. However, there is evidence that the 1959 Act did not significantly alter the concentration of landownership, because the ceiling on individual holding remained quite generous and there were substantial intra-family land transfers and even outright evasion of the ceiling requirement on individual holdings. Consequently the landless and near-landless peasants received little land. A high proportion of the beneficiaries were the small and medium landowners. The Act did not include changes in the existing tenancy laws of what was then West Pakistan.

The second land reform act was passed by the Pakistan People's Party (PPP) in 1972, soon after the separation of East Pakistan. The Land Reform Act of 1972 was seemingly more radical than

the 1959 Act. Though the impact of the 1972 Act on land redistribution was far more limited than the 1959 Act in terms of the area resumed by the state, its tenancy legislation apparently had a favourable effect on the legal position of the sharecroppers. The third land reform act was introduced by the PPP a few months before it lost power in 1977. Its major provision was to reduce the ceiling on individual holdings to 40 hectares (or 80 hectares unirrigated). After the imposition of Martial Law in July 1977, little progress was made in implementing the Land Reform Act of 1977. In fact, the military government made several important amendments to that act in 1982 in order to promote the development of large-scale private (mainly livestock) farms in Pakistan.

Under the three land reform acts, the government resumed about 1.61 million hectares and redistributed 1.33 million hectares to 272,371 beneficiaries (Table 8.10). About two-thirds of the resumed and distributed areas were under the 1959 Act. It should be noted that a substantial part of the distributed land was not of high quality. Secondly, not all beneficiaries were sharecroppers: a high proportion of the recipients in the 1959 Act were already landowners. As for landless agricultural workers, they did not benefit directly from past land reform measures in the sense of gaining land for cultivation. The aggregate impact of land redistribution programmes was obviously not large, since the total redistributed area is only 6 per cent of the country's cultivated area. Less than three-quarters of the redistributed area was under cultivation in any case. A more important factor explaining the relative failure of these reforms was the absence of a follow-up support system.

TABLE 8.10
Redistribution of Land under the Land Reforms in Pakistan

Land reform act	*Land resumed*		*Land distributed*		*Number of beneficiaries*
	Million hectares	*Million acres*	*Million hectares*	*Million acres*	
1959	1.01	2.50	0.93	2.30	183,371
1972	0.53	1.30	0.36	0.90	76,000
1977	0.07	0.18	0.04	0.09	13,000
Total	1.61	3.98	1.33	3.29	272,371

Source: Federal Land Commission, Islamabad, 1988.

In the absence of systematic micro-level studies of the impact of land reforms on productivity, employment and income distribution, it is difficult to make quantitative judgements. However, general observations on the basis of the available evidence suggest that: (*a*) the resumption and distribution of land under the three land reform acts were greatly diluted by numerous exemptions and allowances included in the acts, and evasion and concealment during the implementation process. The administrative structure for implementation was seriously deficient in countering the social and political strength of the landlords. (*b*) There was no follow-up support system, providing protection to the new landowners from their former landlords and giving them access to the inputs needed to increase production. On the contrary, it seems that a deliberate and systematic policy was followed against the organizations supporting the small landowners, sharecropping tenants and landless wage workers. (*c*) The small parcels transferred to the new owners generally had a positive impact on the level of productivity and employment, given the more intensive use of family (and even hired) labour and the introduction of new inputs on their farms. (*d*) While the tenancy laws in the Act of 1972 provided for a far greater security of tenure than existed before—by expanding the occupancy rights and defining the division of produce and costs of inputs—there still remain several problems in the sharecropping system which create new pressures on the tenant. These have increased with the introduction of new technology and the increased tendency toward self-cultivation of land by its owners at the expense of sharecroppers. A fixed–rent capitalist tenancy would not suffer from many of the problems inherent in the sharecropping system. However, the leasehold system can only work to the benefit of both parties if the tenant has access to the required resources to take all the risks himself and pay a fixed amount to the landowner at the end of each season or year. Most sharecroppers and small landowning tenants lack the support system of credit and farm inputs necessary to enter into a fixed–rent tenancy successfully. Therefore, leasehold tenancy in Pakistan is increasing only among the medium to large landowners who lease land in from those small and marginal landowners who cannot make a living on the land alone and must supplement their income by securing employment elsewhere.

It seems that the land reform efforts so far have not made a

major contribution in redirecting the process of differentiation observed in the agrarian structure of Pakistan. On the contrary, they have perhaps helped in hastening the transformation already underway. There are three basic features of this process: (*a*) In Sind, Punjab and NWFP, a high concentration of land in large estates in the hands of a relatively small number of households co-exists with a 'feudal' tenancy system in which land is rented out to a large number of the landless tenants on a sharecropping basis. (*b*) The decline in feudal tenancy has been observed mainly in the irrigated districts, and it is being replaced by farming based on hired labour and machines. This has resulted partly from the resumption of land from tenants, such that the tenant-operated farms have declined and the use of land has become more concentrated. At the same time, a capitalist tenancy system has developed, in which land is leased on a fixed–rent basis and cultivated with capital and labour. (*c*) While the number of small and marginal owner–operators has increased, their declining land base makes it necessary for them to offer their labour for wages and even to join the ranks of the landless tenants and wage workers. More of them are renting their lands out to the middle and rich class of (capitalist) farmers.

The duality of the land system affects all interactions in the marketplace or in the public sector between the contending groups. The asymmetry between the landlord and his tenant, and the rich capitalist farmer and marginal owner–operator is largely responsible for the observed inefficiency and inequity. Public policies in providing infrastructure and inputs (e.g. water and credit), price support and subsidies, services of research and extension, etc. have not been as favourable to the small owner–operators and the landless tenants as to the landlords and rich farmers. Since landownership is still highly concentrated, the control of land confers upon the large landowners considerable economic and political power. They have successfully exercised this power to use the machinery of the state in promoting their own interests.

Changes in Agricultural Technology and Credit

Technical progress in Pakistan's agriculture has gone through in two phases. The first phase was of the Green Revolution, starting with the development of water resources in the early to mid-1960s

and use of fertilizer with the new seeds of wheat and rice in the late 1960s. The process of adopting this technology had run its course by the early 1970s with the introduction of pesticides on major crops on a wide scale. The second phase is of mechanical technology, which began in the mid-1970s and has since become a dominant feature in at least the Indus basin. There has been further diffusion of the packages of technology containing water, quality seeds, chemical fertilizers, and pesticides with advanced cultivation practices and improved on-farm water management. In both phases, two factors have played a central role in the adoption of the new technology and in the distribution of its benefits. One is the role of the state in providing necessary infrastructure and incentives (through price and non-price policies). Another has been the agrarian structure or the distribution of land and tenurial arrangements.

Irrigation water from the Indus river system is the lifeline of agriculture. The 'barani' or rainfed areas give ample evidence of the absolute constraint that water imposes on all farmers, but its consequences on small farmers are often devastating. Dependence on uncertain rainfall, as in the barani areas of the Punjab and NWFP, or inadequate canal water without tubewells, as in the south and south–eastern parts of Sind, has been a major barrier to the use of new seeds and fertilizers, resulting in increased disparities between the various regions. The canal irrigation system in the early 1950s—inherited from the British administration and concentrated mainly in the plains of the Punjab and Sind—was inadequate in meeting the water requirements of even the traditional cropping patterns. Further, the water losses from the canal system were no less serious, partly because of poor drainage and partly due to poor management on the farm. Vast national resources were required to expand the surface irrigation system and to alleviate the menace of waterlogging and salinity. A rapid expansion of water resources was initiated in the late 1950s in order to expand the cultivated area and to improve the yield levels after the stagnation of agriculture in the 1950s. It was in the 1960s in the plains of the Punjab that installation of private tubewells as a supplementary source of water became profitable.[6] The development of private tubewells in the central and eastern districts of the Punjab had become impressive and its results manifest by the late 1960s.

Private tubewells have provided additional water and at the time most needed for optimum plant growth. New crops could now be grown, which required more water, and the use of fertilizers became profitable. It also facilitated the adoption of the high-yielding seeds of wheat and rice introduced in the late 1960s. Four important aspects of the development of private tubewells are: (*a*) Private tubewells have been installed mainly in the plains of the Punjab. They are not economical in mountainous areas because of the depth at which water is available. Similarly, they have not been developed in Sind because of the depth and poor quality of water. This uneven development of groundwater has been an important factor in explaining some of the inter-regional disparities observed in the country. (*b*) Tubewells have been installed mostly by landowners with holdings of 10 hectares or more. Given the indivisible and large capacity of the diesel and electric tubewells, even the middle peasants cannot afford their fixed and variable costs. Therefore, there is a high concentration of tubewell ownership. This has two associated problems. For one thing, while a market for tubewell water has developed, it has not been easy for non-owners to buy water at reasonable rates and at the time when they need it most. This has created increased uncertainty, which acts against innovation. The other problem is that the concentration of tubewells has provided added incentive to large landowners to lease their neighbours' land or buy it. (*c*) The inducement to invest in tubewells has been provided by handsome public subsidies on fuel, installation and maintenance costs. In fact, these subsidies have become an important component in transferring public tubewells (which were installed in the Indus basin to alleviate the problems of waterlogging and salinity) to private ownership. (*d*) Private ownership of tubewells has been advanced by a credit policy in which loans have not only been readily available, given the collateral of land, but are also at low rates of interest and with convenient terms of repayment.

An expanded water supply from the canal system can be a major source of changes in the use of land. However, availability of water has been constrained by several factors, some at the regional and others at the village level. Water acts as a major constraint because its management at the canal and farm levels is very poor, caused by inadequate physical infrastructure and the low level of water charges, and its distribution generally discriminates against

the tail-enders and small farmers because of the unequal power of the small and large landowners in the village. In view of the chronic shortage of canal water in the country, the regions at the tail-end of the system are handicapped in adopting new crop varieties and adjusting the cropping patterns. Sind, in particular, is adversely affected as it lacks supplementary underground water.

Additional and assured supply of water was a major factor in raising the private profitability of fertilizers and new seeds of wheat and rice. Farmers started using chemical fertilizers in the early 1960s. The total consumption was then 33,000 metric tons of urea and related fertilizers. This rose to 283,000 metric tons in 1971, and was around 1.7 million metric tons or nearly 83 kilograms per hectare in 1988. Several factors have contributed to the increasing use of fertilizers: increased and assured supply of water, expansion of cropped and cultivated area, especially of major crops, fertilizer-responsive varieties of grains and other crops, and public sector support in the distributional facilities, price subsidy and expansion of credit.

The use of fertilizers and new seeds has been accompanied by serious inter-regional and inter-farm disparities. The regional disparities have simply been due to the shortage of water, particularly in the areas dependent on rain or without good quality groundwater. The inter-farm disparities have been observed between poor and rich farmers because of the unequal access to the fertilizer–credit markets. Small owner–operators were late in adopting the Green Revolution technology and the process of catching up has not been easy and is still far from complete. There is evidence that the fertilizer application rate and proportion of the area fertilized are generally higher on larger than smaller farms. Small peasants have clearly indicated that an insufficient and uncertain supply of water with inadequate cash or credit militated against increasing the level of fertilizer use and coverage of the crop area. The credit problem was aggravated by the unequal access to public sector research and extension services, which are supposedly the carriers of applied (and profitable) knowledge about new technology.[7]

There is debate about how the size and tenure of farm can affect the level of farm productivity and the distribution of benefits resulting from the new technology.[8] There is however no dispute that land is the primary factor determining the access to other factors in agriculture. Smaller farms exhibit higher intensities of

land use, labour and animal power. The traditional superiority enjoyed by the small owner–operator was premised on his intensive use of family labour and animal resources on land. However, with the unequal spread of the Green Revolution technology—small farmers were latecomers and have faced greater constraints in getting the new inputs—the size–productivity relationship seems to have been reversed. Small farmers have not been able to compete effectively with the large landowners either for public sector resources or for resources in the marketplace. This has constrained their capacity to rapidly innovate and earn profits.

The second phase of technical progress in Pakistan's agriculture began in the mid-1970s with the rapid expansion of tractors and mechines like threshers. Their impact has been controversial.[9] Most of the tractors are between 33 and 55 HP, and are owned by farmers with holdings of more than 10 hectares. The case for tractorization was first made in the early 1960s. It was argued that tractors would increase crop yields, reduce the cost of farm power by replacing draught-animals, increase cropping intensity by hastening the pre-sowing and post-harvest operations, and lead to more, and not less, demand for labour, so that the net employment effect would be positive. There were, however, doubts about some of these effects, particularly on the yield level and on multiple cropping. Some have contended that tractorization would result in labour displacement and tenant eviction, and expansion of holdings which were already large.[10] Implicit in this was the notion that rich peasants and landlords would increasingly encroach on lands which were earlier available for cultivation to small owner–operators and landless tenants.

The government encouraged import of tractors by following a cheap credit policy and maintaining an overvalued exchange rate. These policies did not, however, lead to a rapid expansion of the demand for tractors and related machines until the early 1970s. One important reason for this was that the increased demand for labour that the new technology apparently induced could be met by the existing supply of labour. This led to some increase in the real wage rates in several areas of the Indus basin, especially the irrigated districts of the Punjab.

The large landowners opted for increased use of tractors mainly because with the displacement of tenants that had already begun in the late 1960s, they encountered difficulties in hiring labour and

using the animal power during short periods. However, with the spread of mechanized implements like tractors, harvesters and threshers, the displacement of labour became even more serious, as reflected in the resumption of land from the sharecropping tenants and lower demand for short-term workers. In the labour market, the response was increased migration to the cities and abroad, resulting in periodic and actue labour shortages during the peak demand seasons. The overall demand for labour in rural areas increased mainly because of the impact of remittances from the migrant workers.

Some generalizations about tractors in Pakistan can be made.[11] They have had little or no positive effect on crop yields. Their ownership by large landowners has led to an increase in the average size of the already large holdings, by leasing the land from marginal and small landowners and by resuming land from the sharecroppers for self-cultivation. There is thus a general increase in the size of farms at the upper end of the size distribution of operational holdings. Cropping intensity with tractors has increased only if there is an additional supply of water. Tractors do not provide incremental power but tend to substitute for the power of draught-animals. Private returns on tractor ownership are high because of the subsidies for credit and fuel costs.

There is also no conclusive evidence that tractors have created more employment, but there is considerable evidence that they have weakened the position of the tenant and also reduced dependence on outside labour. Tractors and other machines give greater control over the labour required in agriculture. The adoption of tractor-powered threshers and other machines and the spread of machine-hiring services are producing labour-saving effects on all types of farms.

Farm credit can be a major source of acquiring new technology for efficient and profitable agriculture. Farmers have been greatly constrained by the inadequacy of the credit market. Private debts are usually under-reported among the sharecropping tenants whose relationship with their landlords almost always involves significant borrowing. Some of the under-reporting is because most households borrow in small amounts from friends and relatives and they are unwilling to reveal these sources of debt. Most of the credit acquired by small farmers comes from non-institutional sources, including friends, relatives, moneylenders, traders, commission

agents and landlords. Until the 1960s, the involvement of the institutional sources was minimal. There were limited 'taccavi' (distress) loans in case of crop failure etc. extended by the provincial governments, and equally limited funds available through the Federal Agricultural Bank and the Agricultural Development Finance Corporation. The role of the credit cooperatives was not significant either. The private commercial banks kept to the industrial sector and urban areas. Farmers, particularly those with small holdings, were considered high risk borrowers with limited collateral and low incomes.

In the early 1960s it was realized that inadequate agricultural credit was inhibiting the commercialization of agriculture. The first response was to establish the Agricultural Development Bank of Pakistan (ADBP), which remained the only major source of farm credit until the early 1970s. The five private commercial banks were induced into lending for agriculture after their nationalization by the PPP government in 1972. The cooperative system was restructured under the Federal Bank of Cooperatives (FBC). The government maintained interventions in the rural credit market by regulating the activities of ADBP, commercial banks and FBC under the umbrella of the State Bank of Pakistan.

The growth of institutional credit has been quite impressive since the early 1970s, with the ADBP and commercial banks accounting for most of the institutional lending. Institutional credit is given only for production-related activities, although a sizeable part of it apparently gets channelled into consumer spending. There is some division of labour between the various lending institutions.

The commercial and cooperative banks distribute loans for seasonal inputs like seeds, fertilizers, pesticides, etc. The transaction costs of getting the 'pass book', introduced in 1973, depend on one's influence with the revenue officials. The result is that only a very small proportion (one-quarter) of small farmers have managed to obtain pass books. The introduction of interest-free loans in the early 1980s to farmers with less than five hectares (12.5 acres) has encouraged 'proxy' borrowing: landlords use their tenants and other large landowners tinker with land records to qualify for such loans.

The cooperative system is still very weak in terms of its ability to extend loans to farmers, to recover these loans and manage its

affairs efficiently. The absence of multi-level societies and the dominance of the provincial bureaucracy does not encourage participation by small farmers. Consequently, the large farmers tend to dominate the apex level of the cooperative organizations. Development or investment lending is done by ADBP. Almost three-quarters of its loans go to farmers with holdings of more than five hectares (12.5 acres), and about two-thirds of the value of all loans is used for purchasing tubewells, tractors and other machines.

There are no estimates of the total demand for agricultural credit, based on the rate of return, level of technology and financial conditions. Since the supply of institutional credit is rationed and rates of interest are much below equilibrium, there is always excess demand for loans. A bias in favour of large landowners and farmers is built into the credit system because of risk minimization through the collateral requirement, low administrative cost and convenience, and influence of large landowners and similar urban-based groups. These constraints militate against the landless, who must depend entirely on non-institutional sources. Sharecroppers also have no direct access to institutional credit. Their major credit source is their landlord, who also acts as a conduit for seasonal loans when they are available. The cost of loans acquired from the landlord is difficult to measure, but it is never insignificant if account is taken of the relationship between the landlord and his tenants.

Non-institutional sources remain important for small peasants. Friends and relatives cannot always be a stable and adequate source of loans to meet the investment requirements for profitable farming. Acquiring credit from the moneylenders and merchants may be convenient, but the debt charges can easily exceed the total cost of procuring credit from the institutional sources. For most of the small landowners and sharecropping tenants, credit from non-institutional sources also provides cash for consumer spending and expenses between seasons. It is often these consumer needs of the peasants which explain their dependence on moneylenders and discourage investment spending or innovation.

A substantial subsidy implied in public loans for agricultural production has been transferred to a small number of large landowners and farmers. Small farmers, who constitute three-quarters of the farming population, have to depend on non-institutional sources to meet their cash needs for the household. They cannot

get loans for developing or improving their land, although these investments would make a big difference in the level of production on small farms. They do not usually require large amounts of money to acquire seasonal inputs. Since the hidden cost and inconvenience of acquiring public loans for seasonal inputs are high, they either go to non-institutional sources or do without the inputs required to increase their productivity and income levels. This, in turn, adversely affects their capacity to survive as productive farmers. The increasing subdivision of small farms makes their survival even less likely.

Price Support and Input Subsidies

There are several aspects of price support and input subsidies in the context of agricultural growth and income distribution in Pakistan. The public sector participates through price fixing, procurement and distribution of several major commodities. The private sector operates through the regulated and unregulated markets in almost all commodities. Private markets are neither adequate to service all areas or products, nor very efficient. Government has given several reasons for its intervention: it maintains producer incentives; it ensures supply of essential commodities at reasonable prices; it protects the domestic market from price instability in the international markets; it improves the efficiency of private markets; and it provides additional revenues to the government.

The major concerns in the 1950s were to transfer agricultural surplus to the industrial sector and to maintain regional balances in food supply. A foodgrain zoning system and compulsory sale of grains to the government at less than market price were part of the regulatory system. Several products were subject to price ceilings and profit control. These controls on domestic distribution and exports were lifted only in 1959, followed by the lifting of direct controls on the movement of wheat and its price in 1960. A buffer stock system was initiated to regulate the ceiling price of wheat. In addition, the government established support/procurement prices for several commodities. In varying combination, producer prices of major crops (wheat, rice, cotton and sugarcane) have been regulated or controlled through the procurement programmes.

The public sector regulation of the domestic and export trade has undergone many changes since the late 1960s. The PPP government established a monopoly on export trade in cotton and rice in the early 1970s. It has been used to make profits by the difference in the international and domestic price paid to farmers, which has often been much lower (especially for basmati rice) than the international price. In the internal markets, government maintains support prices for wheat, rice, cotton, sugarcane, onions, potatoes and vegetable ghee. It also regulates the price of milk and meats. The support or procurement prices for the major crops are now announced well in advance of the sowing season. These prices are established on the advice of the Agricultural Prices Commission (established in 1981) and in consultation with the representatives of the farm lobby. One of the major effects of procurement of wheat, rice, cotton and sugarcane has been the downward pressure on the marketing margins in the private (open) markets, particularly for wheat and rice.

The marketable surpluses have been rising rapidly since at least the mid-1970s, e.g., rising from 33 to 67 per cent for wheat, from 53 to 95 per cent for rice, and from 75 to 96 per cent of sugarcane. Small farmers now market about 28 per cent of their wheat, 50 per cent of rice and 20 per cent of maize. There are no observed differences in the marketed surplus of sugarcane and cotton between large and small farmers: they sell 95 to 99 per cent of the crop to the ginning factories and sugar mills. That small farmers still produce staple crops mainly for their own needs is only part of the explanation for the low levels of grains sold by them in the market. It also reflects the problems encountered by small farmers in marketing their grains through the government procurement centres. It should be noted that the marketed surplus of small farmers accounts for a significant share of the national output.

Successive governments have used a complex system of price setting for both outputs and inputs to subsidize and tax the agriculture sector since at least the early 1960s. They have also maintained various forms of direct and indirect taxes to generate revenues. While direct taxes on agriculture have been minimal, several implicit and sometimes inefficient and inequitable taxes have been used to extract the agricultural surplus. The precise impact of taxes (explicit and implicit) and subsidies is difficult to measure.[12] For one thing, subsidies are often hard to define, and several indirect

taxes are equally difficult to estimate. They undoubtedly affect incentives to expand production and their distributive effects are perhaps no less significant within the sector itself.

Several generalizations can be made about the changes in price incentives for agricultural producers since the early 1960s.[13] All crop prices have increased significantly, but the support prices of major crops have increased at different rates (Table 8.11).

TABLE 8.11
Price Indices of Selected Crops and Urea for Farmers in Pakistan (1970–71 = 100)

Year	*Wheat*	*Basmati rice*	*IRRI 6 rice*	*AC 134–NT cotton*	*Sugar-cane*	*Urea*
1960–61	79	75	—	75	71	79
1970–71	100	100	100	100	100	100
1980–81	318	399	281	372	327	326
1987–88	453	729	397	457	400	449

Note: These indices are for the procurement (support) prices of crops and retail price of urea. Price data are from *Pakistan Economic Survey 1987–88*.

The change in crop prices has been largely in line with the change in the price of major inputs (e.g., fertilizers), except that the ratio has increased in favour of basmati rice and against cotton. Prices of wheat and sugarcane have also changed favourably in relation to the prices of inputs (Table 8.12).

The barter terms of trade for agriculture fell in the 1950s, rose in the early to mid-1960s, fell again in the late 1960s, improved in the 1970s, and have fallen since the early 1980s. But the income terms of trade improved throughout the 1960s, slowed down somewhat in the early 1970s, and have consistently improved since the late 1970s. This shows that the purchasing power of farmers has gone up in most of the period since the early 1960s (Table 8.13).

The ratios of domestic to international prices have improved significantly, except for basmati rice (Table 8.14). The prices of wheat, high-yielding rice and cotton are now close to if not better than their prices in the international market. The extent of price discrimination or implicit tax, at least for wheat, IRRI rice and cotton, seems to have fallen as a result of a deliberate domestic price policy and the low international prices. The domestic price of sugar has always been much higher than its border price. This has been to protect the sugar industry, which includes the sugarcane growers and sugar mills.

Table 8.15 shows the price subsidies on farm inputs, mostly fertilizer, canal water and institutional credit. The issue is complex

TABLE 8.12
Changes in Purchasing Power of Crop Output for Urea Fertilize

Year	*Amount of urea (in kg) purchased by one kg of*				
	Wheat	*Basmati rice*	*IRRI 6 rice*	*Sugarcane*	*Cotton seed*
1959–60	0.74	1.37	—	0.09	—
1965–66	0.72	1.50	—	0.12	—
1970–71	0.80	1.51	0.98	0.13	—
1975–76	0.73	1.77	0.79	0.11	2.46
1980–81	0.78	1.84	0.85	0.13	2.15
1985–86	0.78	1.71	0.84	0.10	1.81
1987–88	0.81	2.44	0.87	0.12	1.81

Note: These ratios are of procurement prices of crop and retail price of urea. Seed cotton is of the AC 134–NT variety. The price data are from *Pakistan Economic Survey 1987–88*.

TABLE 8.13
Terms of Trade for Agriculture in Pakistan

Year	*Net barter terms of trade*	*Income terms of trade*	*Factoral terms of trade*	*Index of agricultural production (1959–60 = 100)*
1951–54	99.3	83.6	109.2	87.0
1954–57	94.2	82.8	95.8	90.7
1957–60	100.9	94.7	98.6	95.3
1961–64	106.9	120.5	104.0	114.3
1964–67	104.5	146.0	115.5	128.3
1967–70	96.6	186.2	138.3	170.3
1971–74	108.7	224.5	156.3	189.0
1974–77	108.8	225.2	145.9	196.3
1977–80	105.6	255.9	145.0	222.3
1981–84	95.4	277.6	137.0	270.3

Note: These data are from Qureshi, Sarfraz K., *Agricultural Pricing and Taxation in Pakistan*, Table III.1, Islamabad: Pakistan Institute of Development Economics, 1987.

TABLE 8.14
Ratios of Domestic to Border Prices of Selected Commodities

Year	*Domestic price as % of international price*				
	Wheat	*Basmati rice*	*IRRI rice*	*Cotton*	*Sugar*
1970–71	—	—	—	—	—
1971–72	—	—	—	—	—
1972–73	—	—	—	—	—
1973–74	34	47	35	62	—
1974–75	58	41	46	46	—
1975–76	56	62	77	102	—
1976–77	72	99	97	82	—
1977–78	85	95	75	117	—
1978–79	73	52	75	130	—
1979–80	61	55	74	97	—
1980–81	64	65	70	87	—
1981–82	102	66	94	113	165
1982–83	98	68	97	95	206
1983–84	103	67	95	112	200
1984–85	90	54	118	76	257
1985–86	120	55	115	114	228
1986–87	112	66	125	110	169

Source: World Bank, Country Reports on Pakistan, 1983, 1986 and 1989.

and controversial. Price support can give farmers a 'fair' deal through its effect on their incomes and stability of prices in the marketplace. A major advantage is that it will benefit the small producers at least as much as large landowners. Small farms account for about two-thirds to three-quarters of the cropped area of major crops and their cropping intensity is 30 to 40 per cent higher than that of large farms. Consequently, a price incentive on output would tend to affect the small farmers more favourably. The problem is the observed difference in the marketed surplus of grains between small and large farmers. If governments help alleviate the storage and marketing (procurement) problems of small farmers, a higher proportion of the farm (grain) output would be marketed. This would tie in well with the gains in terms of the larger output that the smaller farmers would provide to consumers at reduced unit cost.

A price support system can work only if governments take into account the factors that affect prices in the domestic and international markets. Among these factors, the most important are

TABLE 8.15
Subsidies on Agricultural Inputs in Pakistan

Year	*Subsidies in million rupees*							*Total*	
	Fertilizer	*Protection*	*Seeds*	*Tubewells*	*Canal water*	*Electricity*	*Credit*	*Amount*	*As per cent of value-added in agriculture*
1961	—	—	—	—	37	20	15	72	0.9
1971	98	47	3	—	5	40	20	213	1.3
1975	326	112	6	16	150	155	34	799	2.4
1980	2,452	218	29	22	361	−16	116	3,182	5.1
1985	1,501	—	—	16	1,069	103	661	3,350	3.1
1987	2,026	—	—	18	1,811	375	1,064	5,294	4.1

Note: The data are compiled from *Pakistan Economic Survey 1987–88*; Pakistan, Ministry of Food and Agriculture, *Report of the National Commission on Agriculture*, Islamabad, March 1988; and Qureshi, Sarfraz K. *et al.* 'Taxes and Subsidies in Agriculture as Elements of Intersectoral Transfer of Resources', paper at the 5th PSDE Annual Conference, Islamabad, January 1989.

domestic resource costs or the crop parity ratios, border or international prices, relative prices of major farm inputs and manufactured goods, and domestic demand conditions.[14] All of these factors have played a role in establishing support prices in Pakistan since the early 1980s.[15] However, large farmers have insisted that the support prices cover their 'cost of production', in which they include all kinds of items (e.g. land rent) which are themselves affected by the prices of goods.

An argument against reliance on a price support policy as a substitute for subsidies on inputs has been that the former is likely to raise directly the prices of food and raw material paid by the urban consumers and the growing industrial sector. The experience in Pakistan shows that the support prices of almost all major crops have not been higher than their border prices. Urban consumers of grains and sugar were protected by a rationing system until the mid-1980s. The increased agricultural production in response to the price incentive may allow governments to terminate the consumer subsidy and release revenues for transfer to the poor through improved government services in urban and rural areas. The industrial sector, as a user of raw material, needs no protection as long as the domestic price of raw material is not above the border price and also reflects a fair return to the agricultural producer. It is unreasonable to tax the raw material producers through low prices, when the industrial producers in Pakistan have been so well protected through subsidies, tax breaks, import controls and the overvalued exchange rate.

The case against subsidies on farm inputs is based on several important arguments. (*a*) There is evidence that the distribution of subsidies on inputs has discriminated against small farmers, since the access to major farm inputs depends on the size and tenure of landholdings. There is also evidence that the use of these inputs is higher on larger than smaller farms, although there is no equally credible evidence that the former are the more efficient users of these inputs.[16] (*b*) The price elasticity of demand for water and fertilizer is quite low, hence the negative price effect is more than offset by the positive income effect. The positive income effect of water, fertilizers and machines has been demonstrated by the continued private profitability of these inputs. (*c*) The price subsidy on certain inputs not only encourages waste of a scarce resource (e.g. water), but also leads to a substitution of other inputs with

negative impact on income and employment, offsetting the private profitability of the subsidized input. This argument is clearly relevant in the case of machines and labour. (*d*) The cost of certain inputs, like water and fertilizers, even without a subsidy, may be a very small proportion of the total cost of production of crops. Removal of the subsidy would, therefore, put little additional burden on the producer. What is even more important is that the unit cost of water and fertilizers and some other inputs is demonstrably lower than the value-added by them with the support prices for crops.[17] (*e*) Reduced subsidies in the economy would release substantial resources for providing improved services to farmers, e.g. maintenance and operation of watercourses, research and extension services, and institutional credit.

The real problem is that these interventions have been used to meet contradictory objectives. Rather than restructure the land tax system, the government has taxed the agriculture sector through price and subsidy policies as a soft option. Several forms of indirect taxes with few if any positive effects have been imposed on the agriculture sector. The dependence on a variety of indirect taxes is a reflection of the failure of governments to make taxes flexible and progressive. They have transferred the agricultural surplus to other sectors, without at the same time returning to producers the benefits of investible resources for their own development and well-being.