

86256



# Agriculture Trade and Price Policy in Pakistan

*Alberto Valdés*

**Policy Paper Series on Pakistan**  
**PK 17/12**  
**March 2013**

---

---

These papers are a product of the South Asia Poverty Reduction and Economic Management Unit. They are part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions in Pakistan and around the world. Policy Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [atavaldese@puc.cl](mailto:atavaldese@puc.cl).

## Abstract

This policy paper focuses on the incentive framework for Pakistani agriculture, with emphasis on trade and price policies. It first presents a synthesis of major trends in the performance of the sector and analyzes Pakistan's extraordinarily complex, opaque and discretionary, and continually-changing trade regime. It presents a disaggregated analysis of the border measures for the selected products (trade and price interventions vary by product), and estimates the joint effect of trade and procurement policies on farm prices, captured by direct price comparison. It concludes by providing policy recommendations emphasizing on the revision of trade regime to eliminate quantitative restrictions and to modify tariffs in the direction of greater equality, a positive, moderate and uniform tariff on imports across the board as the only border measure for import competing products.

The Policy Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development / World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

# **Agriculture Trade and Price Policy in Pakistan**

**Alberto Valdés**

This policy paper was prepared by Alberto Valdés with the assistance of Mehwish Ashraf, Ashraf Khan and Muhammad Waheed. The author would like to thank John Nash, Daniel Lederman and Jose Lopez Calix for their comments on previous versions of this report.

## Table of Contents

Executive Summary	2
Brief Background: Structure & Performance of Pakistan Agriculture Sector	9
Trade and Pricing Policies related to Agriculture	14
Distortions to Agricultural Incentives	20
Conclusion and Policy Recommendations	29
Policy Matrix	33
Annexure	34

## Figure

Figure 1	Historical Growth Rates for Pakistan's Agriculture Sector, by decade	11
Figure 2	Y-to-Y Changes to value-added (%) by agriculture subsector in Pakistan	11
Figure 3	Irrigation Water Availability in Pakistan	12
Figure 4	Pakistan food exports (US\$ millions) by selected product groups	13

## Tables

Table 1	Net food and agricultural trade position of four South Asian countries	12
Table 2	Summary of Pakistan's MFN and WTO bound tariffs.	16
Table 3	Summary of Pakistan MFN applied import duty ranges	16
Table 4	Profile of Pakistan MFN applied import duties by product group	18
Table 5	Basic Pakistan customs duties & taxes (%) on selected agricultural products	19
Table 6	Tax exemptions for selected inputs in the poultry industry	19
Table 7	Pakistan export policies related to selected agricultural products	20
Table 8	Calculation of ERP for Basmati rice from Punjab	23
Table 9	Calculation of ERP for wheat from Punjab	25
Table 10	Calculation of NRP and ERP for sugar	26
Table 11	Pakistan imports of cotton in 1000 metric tons	27
Table 12	Calculation of NRPs and ERP for cotton	28

## Boxes

Box 1	How to calculate the total rate of protection at the border from various taxes.	15
-------	---	----

## **Executive Summary**

1. This paper focuses on the incentive framework for Pakistani agriculture, with emphasis on trade and price policies. The direct and indirect impacts of such policies are often underappreciated. Possible trade and price policies reforms, in the context of a highly tradable activity such as agriculture, by altering returns, would likely affect the performance of the whole sector by influencing the returns on infrastructure and other investments; and this in turn would have impact on factor markets, such as for labor, land and water. Changes to the incentive structure due to changes in trade and price policies certainly would more directly affect the reallocation of labor, land and water to higher valued uses.

2. The paper first presents a synthesis of the major trends in the performance of the sector, providing a broader context in which to view the functioning of agricultural trade and price policies. It then turns to Pakistan's extraordinarily complex, opaque and discretionary, and continually-changing trade regime. There are also direct interventions by parastatals in procurement and sales price determination for the major crops. The paper presents a disaggregated analysis of the border measures for the selected products (trade and price interventions vary by product), and estimates the joint effect of trade and procurement policies on farm prices, captured by direct price comparison.

3. Despite certain loss in dynamism, agriculture remains central to Pakistan's development and growth. About two-thirds of Pakistan's population resides in rural areas, depending mainly on agriculture for household livelihoods. Agriculture contributes approximately 21 percent of Pakistan's national GDP, employing 45 percent of the total labor force. The decline in the agricultural share has occurred in spite of significant growth in agricultural output (see below). The sector contributes to around 80 percent of export earnings directly and indirectly through forward linkages to agro-based industries (i.e. textiles). Labor productivity in agriculture is below the average for the rest of the economy. The sector's labor share is much greater than its share in national value added implying that value added per worker in agriculture is very low. This observation further supports the policy recommendation of reducing overall protection of tradable inputs for agriculture (reflected in the negative ERPs faced by some crops).

4. Agricultural growth affects both rural and urban economic growth. Beyond the farm gate, Pakistan's agriculture is a major source of raw materials for the manufacturing industry, contributing over 50 percent of basic inputs to downstream industries. On the demand side, the sector is a large market for industrial products such as fertilizers, pesticides, machinery and equipment.

5. Over the last two decades, there has been a structural shift within agriculture. The crop sub-sector gradually declining from 65 percent of agricultural value added in 1990-91 to 42 percent in 2010-11. Livestock's share of agricultural value added increased from 30 to 55.1 percent over this period. Fishing and forestry have remained steady, accounting for only 2.9 percent. Together with livestock, cotton, wheat, sugarcane, and rice are the back bone of rural economy, and are sources of foreign exchange earnings for Pakistan. Currently wheat contributes about 2.7 percent of GDP, cotton 1.4 percent, rice 0.8 percent and sugarcane 0.9 percent. About 50 percent of agricultural exports are due to cotton and 16 percent to rice,

6. Overall, the agricultural sector's growth rate has declined gradually over the past three decades. Declining growth rates (see above) of 5.4 percent in the 1980s, 4.4 percent in the 1990s, and 3.2 percent in the 2000s are relatively high compared to many countries. The decline in output growth rates has been particularly pronounced in crops, in spite of higher world prices during the late 2000s. The reasons for this slowing of growth are due to several factors, including limited investment in irrigation systems, the slowing of the adoption of new technologies, a weak extension service, and perhaps the effect of changes to trade and price policies on agricultural investment. The availability of irrigation water is highly variable, and not increasing, although demand from agricultural production should be rising.

7. Pakistan has been and remains both a net food importer and a net importer of agricultural goods, with a negative balance of sector trade. The largest agricultural import is vegetable oil; other major imported agricultural products include long staple cotton, fertilizers, sugar, pulses, tea, milk and milk products, and dry fruits. Although Pakistan is a net food importer, it would be unlikely that Pakistan would face a foreign exchange constraint in food imports given the low share of such imports relative to total export revenues and workers' remittances. In 2010-11, total imports were US\$ 40 billion, total exports US\$ 25 billion and total remittances were approximately US\$ 11 billion. Latest figures from Pakistan Bureau of Statistics show that Pakistan's agricultural imports for 2010-11 amounted to US\$ 6 billion or about 16 percent of the total value of merchandise imports.

8. For 2010-11, total agricultural imports amounted to approximately US\$ 6 billion and total agricultural exports amounted to approximately US\$ 4.8 billion, numbers that are small compared to the size of the larger economy and to the importance of the agricultural sector, which, given the size of the population, is mainly geared to the domestic market. There is a notable concentration of both imports and exports in very few products, sugar and palm oil making up almost 43 percent of all agricultural imports, and rice being by far the largest export item and generating nearly half of farm export earnings.

9. Pakistan's current agricultural trade and price regime is complex, opaque and hard to predict. By 2003 Pakistan's trade liberalization (which had began in 1996) had simplified the tariff structure, nearly eliminating all quantitative restrictions, and lowering rates; and state trading monopolies had been abolished for agricultural products. But beginning in 2006, exceptions were introduced, and there was a reversal of a number of the more important liberalizing reforms in agriculture, notably related to wheat, sugar and fertilizer policies. In 2008 the government introduced several Regulatory Duties, in addition to the expanded use of SROs—Statutory Regulatory Orders—which, since 2006, had been used both to give both partial (sometimes full) exemptions to normal tariffs, in some cases, and to increase tariffs, in others.

10. Significant tariff exemptions are akin to vested interest. Most SROs are aimed at specific firms, not generally available for all importers, and they are primarily on inputs. These exemptions are yet another complication to a highly discretionary and continually changing trade regime, made all the more complex by preferential trade agreements (with China and other south Asian countries). In addition to the uncertainty produced by the trade regime's discretionary nature, the complexity of various tariffs, regulatory duties, and SROs, generates a variety of dispersed price impacts across both products and inputs, which in turn lead to a higher dispersion of effective rates of protection—that is, the incentives for resource allocation. This is clear in the case of agriculture.

11. Thus, Pakistan's import policy is deliberately complicated, with its large number of different tariffs and para-tariffs, while its high dispersion for specific products remains highly discretionary. It invites lobbying groups to attempt persuasion, with the risk of encouraging corruption. De facto, the current system of formal tariffs with SRO exemptions and regulatory duties, has become a mechanism of concessional rates and import licensing, something the member countries had agreed to remove under the GATT-WTO Uruguay Round Agreement. Trade preferences introduced by bilateral FTAs are a different matter, although they offer the risk of trade diversion and they contribute to a greater dispersion in total rates of protection from all sources of tariffs and taxes.

12. A simple diagnostic of the trade regime based on tariff information would only tell part of the story with respect to the real impacts of trade policy on incentives. The varied profile of tariffs and para-tariffs—SROs, regulatory duties, tax withholdings, export bans, and subsidies on some exports and inputs—requires a deeper analysis at the product level that would capture the effects of the trade regime on returns. Indeed, the agricultural trade regime has six basic types of taxes:

1. The Customs Duty (CD), the standard tariff assessed on an import's CIF value.
2. A Regulatory Duty (RD), a special Federal Government border tax, which is applicable to the CIF value, applicable in some cases to exports.
3. The Federal Excise Duty, FED, and the Special FED on CIF value.
4. The Provincial Excise Duty (PED) on CIF value.
5. The Sales Tax (ST) on the duty paid value.
6. The Withholding Tax (WHT) on duty and the sales tax paid value.

13. In addition, there are various exemptions to taxes detailed by Special Regulatory Orders (SROs), which are particularly relevant for agriculture and discussed in the text. SROs are the mechanism by which the Pakistan executive via the Ministry of Commerce and/or the FBR can alter border taxes without recourse to the Parliament. SROs exempt many agricultural products, which are also exempt from sales taxes. On the export side, Pakistan has few restrictions to trade, the most important being bans on some "essential" products, ostensibly to ensure local availability; and the government requires official approval for exports in some cases. Export commodities are not subject to export taxes, with some exceptions subject to regulatory duties.

14. Two measures of the effect of government policy on agricultural incentives widely used in the literature are the nominal and effective rates of protection (NRP and ERP). The NRP is the price received by producers relative to that price which would otherwise prevail in the absence of policy interventions. The nominal rate accounts only for effects on producers prices received for product sales. And so another measure has been developed to more closely reflect the effects of policy on net income, which is, after all, the basis of farmer welfare. The ERP is the per-ton net returns to farmers relative to those returns which would otherwise prevail in the absence of policy interventions. The relevant comparisons are made using observed border prices (fob for exports and cif for imports) and hypothetical prices to represent the non-intervention case.

15. To determine the nominal rates of protection at the farmgate on the four products examined (wheat, rice, sugar and cotton, which represent approximately half of total farm production value), an estimate was made of the farmgate price of the product that would

have otherwise prevailed in the absence of interventions, such as tariffs, taxes and quotas at the border, and direct price intervention in domestic sales by state agencies. An NRP reflects output price distortions—relevant to buyers and consumers—but not the full effects of the policy mix on farmer income, because interventions might also influence input prices and costs, thereby affecting net farm returns.

16. To estimate the effective rate of protection (ERP), one must account for the effects of the trade regime and other policies on costs (purchased inputs) as well as output price. Tradable inputs considered in this study are fertilizer, agrochemicals, seeds and equipment and machinery. NRPs for input prices were calculated and, in the case of fertilizer, adjusted upward by removing a significant subsidy. The Ministry of Finance notes that over the last four years the government has spent Rs. 110 billion on fertilizer subsidies and it was recently reported that the government had spent around Rs. 45 billion as fertilizer subsidy during last 10 months of the current fiscal year aimed at boosting agriculture and achieving its targets.<sup>1</sup> For the tradable inputs, fertilizers were subsidized heavily, but other tradable inputs less so. For non-fertilizer inputs, the resulting hypothetical prices in the absence of the trade regime are lower in the order of 2% to 7%. Compared to the border price, the subsidy rate on fertilizer, however, is on the order of 35%, and, consequently, the costs per ton of production would increase considerably in the absence of intervention. Overall the ERPs for the four crops are negative, representing an implicit tax on farm income, although there are some exceptions for some years.

- In the case of basmati rice, the implicit NRP on the product at the farm level was negative except for 2010-11. In 2010-11 there was a decrease in the implicit subsidy on tradable inputs, but a notable increase in the farmgate price. The negative ERPs for rice for the years 2008-09 and 2009-10 mean that farm income, as measure by value added would have been 40% higher in 2008-09 under a no-intervention policy and 21% higher in 2009-10. These implicit taxes should have had, all other things being equal, a significant impact in reducing basmati rice production.
- For wheat, the ERP fluctuated from -20% to +13% to -23% over the three years examined, explained primarily by the swings in the implicit NRP on the product price, which was negative over the three years, but small in 2009-10. The implicit NRP on tradable input costs was negative (subsidizing farmers) and relatively stable compared to that on output price. In spite of the large volatility in border prices, both wholesale and farmgate wheat price appear to be relatively stable; which suggest that government interventions, through Federal procurement target of PASSCO and Provincial Food Departments, are absorbing the impacts on domestic prices of shocks to world prices. Such intervention has the effect of dampening the price transmission from border to domestic prices that would otherwise prevail in open markets. This price stabilization role is perhaps one reason that wheat stocks have risen in the recent past, which lately has led to exports at subsidized prices. The negative ERP in 2008-09 accompanies a subsidy to consumers via the 'issue price' of wheat at which the government releases grain to flour mills. During 2008-09 the cost of imported wheat was about Rs 26,000 per ton (not including handling charges and other costs, including significantly storage) while the issue price was Rs 18,750. Even ignoring additional costs, the implicit subsidy to consumers (by selling at a price less than that

<sup>1</sup>Pakistan Today, 5 June 2012

based on imported wheat) was at least 28%. Including additional costs, the API estimates that the total subsidy to consumers merely on wheat during 2008-09 was Rs 50.3 billion, or approximately US\$ 650 million.

- The significant increase in the world price of refined sugar increases the import-parity price, but the increase in the general sales tax applied to sugar offsets higher border prices. The NRP on sugarcane at the farmgate is negative and high—the import-parity prices are approximately double the observed farmgate price. Again, as in the case of other products considered, the decrease in tradable input costs in sugar production due to fertilizer subsidy more than offsets the increase due to tariffs. That is, tariffs on inputs increase production costs but fertilizer subsidies decrease production costs, such that the net effect is to reduce production costs. Despite the net subsidy on tradable inputs, the wedge driven between the import-parity price and farmgate price of the product sold results in a negative effective protection—that is, an implicit tax on sugarcane production.
- In the case of cotton, again the fertilizer subsidy dominates the NRP for tradable inputs, the cost of tradable inputs ranging from 10% to 20% less than what it would be in the absence of both the subsidy and the tariffs. Overall, the impact of interventions on cotton farmers' income as measured by the ERP is highly volatile because the border price is volatile. As in the case of other products examined, the impact of trade regime and fertilizer subsidies on cotton reduces the negative impacts of the wedge between the farmgate price and the non-interventionist price that would otherwise prevail. That a large proportion of Pakistan's cotton growers are small farms raises complex questions of the political economy of dealing with the efficient transmission of price signals in the context of such high price volatility.

17. Specific policy recommendations on possible agricultural trade policy reforms:

- The tariff schedule should be reformed to reduce dispersion and to remove the implicit tax on agriculture. The current tariff and duty system is not transparent, but complex, hard to understand and to interpret.
- Pakistan should move toward a uniform and low tariff, with the tariff as the only border measure, no exceptions and no other taxes. A uniform tariff would not preclude sales taxes, as long as they are uniformly applied to imports and domestic production. Uniform tariffs, as the normal rule guiding trade policy, would not preclude the prudent and occasional use of transparent contingency measures, such as safeguards, anti-dumping and countervailing duties, which are all WTO legal. At the provincial level as well, taxes should not discriminate between domestic and foreign supplies.
- Given the high volatility of wheat and sugar prices in world markets and the political sensitivity of these import-competing crops, a price band policy with price floors and ceilings might be an attractive option to evaluate. There is an ongoing debate in many countries over what might governments do to deal with the recent increase in volatility of commodity prices, especially of food prices. Governments could accumulate stocks during low-world-price periods and sell stocks during high-world price periods in order to reduce domestic price increases. But such an approach has

proven to be costly and usually unsustainable. Another more promising policy that does not require government control of stocks is to use a type of variable tariff based on moving averages of world prices. When world prices rise in short term, the tariffs would fall, cushioning the negative impacts on domestic buyers. When world prices fall, the tariffs would increase, cushioning the negative impacts on domestic producers. Such a possibility would have to be exceptional and administered with a credible commitment to focus this deviation from tariff uniformity on these few import-competing products only, with pre-established and transparent rules. Wheat and sugar are two possible candidates for this type of intervention to reduce price volatility. A price band policy, restricted to these two products, could be based on moving averages of border prices, and would have to be unrelated to domestic prices; otherwise, such a policy would fit the category of a variable levy, an instrument forbidden under the Uruguay Round of GATT/WTO.<sup>2</sup> The characteristics of Pakistan's cotton sector would likely require a different approach. Cotton is an industrial input, not a food crop, and is an input into a successful export industry. Tariffs would not be relevant for reducing price volatility. A variable export tax is, in principle, a possible tool to counter volatility. When world prices would increase, an increased export tax on raw cotton would harm small cotton farmers, but benefit domestic industrial buyers, not poor urban consumers. When world prices would decrease, a lower export tax would indeed benefit small farmers, and harm large buyers to some degree. With the two import-competing food crops, when small farmers are prevented from taking advantage of high world prices, poor urban consumers are nevertheless protected, and vice versa. In the case of cotton, when small farmers do not benefit from high world prices, it is the industrial buyer who benefits.

This asymmetry of the benefits of volatility reduction in the case of cotton suggests that a targeted approach to aiding small farmers, likely the most vulnerable, would be more appropriate. A possible volatility-reducing policy could be the use of option contracts that would put a price floor on the per-unit output value of a farmer's sales. Support for covering the cost of put options contracts (in international commodity exchanges) could be targeted according to farm size. But the use of options contracts, which in principle are attractive, would require an institutional commitment on part of the Government to design and implement such a policy. It would be a challenge to coordinate thousands of small producers and to maintain a cost-efficient operation.

- Because the fertilizer subsidy is a major driver of the ERPs and a significant fiscal cost, in parallel to the move toward reduced and uniform tariffs, the Government of Pakistan should consider eliminating this subsidy gradually. Before making radical

---

<sup>2</sup> Variants of price bands have been used in several Latin American countries ostensibly to stabilize prices of importables between a moving floor and a ceiling, both of which typically are attained by adjusting tariffs annually according to moving averages of past world prices. This is done only with tariff adjustments, no storage schemes, and—to be WTO legal—cannot be based on domestic target price. For example, in Chile, where price bands started in early 1980s, the moving average for wheat was based on 60 months. Such a scheme implies a moving floor price level that would trigger tariff increases; and a moving price ceiling that would trigger a reduction or elimination of tariffs. The analytical justification of price bands has been based on stabilization *per se* rather than on the avoidance of extremely low price events. (For example in the case of Chilean sugar, there were periods in which the floor price in dollars exceeded the price ceilings in previous periods.) Price bands have been applied in Colombia, El Salvador, Ecuador, Peru and Venezuela. As applied in some countries, such as Colombia, the proliferation of the band policy to excessive number of products introduces much uncertainty and almost impossible management problems.

changes to the present fertilizer policy, however, one should evaluate the cost effectiveness of the present programs in terms of the opportunity costs of taxpayer funds, examining the possible impacts on fertilizer use across various products, on the use of other inputs, on per-acre yields, and on the income of farmers, especially of the small farmer.

- Finally, with respect to exports, the recommendation would be to maintain the present system of low or no export taxes, and to eliminate all other quantitative restrictions on exports. One should note, however, that there might be political economy justifications for export restrictions. For instance, downstream industries could benefit from the reduced domestic price of the exportable commodities affected by the export restrictions. The case of cotton and textiles is a likely case.

## **Brief Background: Structure & Performance of Pakistan's Agricultural Sector<sup>3</sup>**

18. This policy paper focuses on the incentive framework for Pakistani agriculture, with emphasis on trade and price policies. The direct and indirect impacts of such policies are often underappreciated. Possible trade and price policies reforms, in the context of a highly tradable activity such as agriculture, by altering returns, would likely affect the performance of the whole sector by influencing the returns on infrastructure and other investments; and this in turn would have impacts on factor markets, such as for labor, land and water. Changes to the incentive structure due to changes in trade and price policies certainly would more directly affect the reallocation of labor, land and water to higher valued uses.

19. The paper first presents a synthesis of the major trends in the performance of the sector in terms of production, employment and foreign exchange generation, the structural shifts within agriculture, changes in the output mix, the evolution of Pakistan's net trade position in agriculture and food products, and other elements. This provides a broader context in which to view the functioning of agricultural trade and price policy, which is presented in the second section.

20. The approach taken is to measure the impact of both explicit border measures and domestic price interventions. The effect of explicit border measures is addressed by a detailed analysis of the various tariffs and para-tariffs (and their exceptions). The effects of domestic interventions are addressed by a comparison of the border price equivalent at the farmgate level; that is by direct price comparison (adjusting for transport and other margins, quality differences etc.). As the reader will appreciate, Pakistan has an extraordinarily complex, opaque and discretionary, and continually changing trade regime, in addition to direct interventions by parastatals in procurement and sales price determination for the major crops. The paper presents a disaggregated analysis of the border measures for the selected products (trade and price interventions vary by product), and estimates the joint effect of trade and procurement policies on farm prices, captured by direct price comparison. Given the time and resource constraints, the project on which this paper is based did not undertake the difficult task of decomposing in quantitative terms the partial impacts of various parastatals, such as PASSCO and others, on farm prices, separating such impacts from other government policies and the perhaps uncompetitive behavior of local private traders.

21. Agriculture contributes a substantial share of national GDP, approximately 21 percent of national income, and the sector employs 45 percent of the total labor force. About two-thirds of Pakistan's population resides in rural areas, and rural household primary depends on agriculture for their livelihoods. The average farm size is 3.1 hectares; but small farms (of about 1.4 hectares or fewer) make up 87 percent of all farms and cultivate 38

---

<sup>3</sup> During the last three decades several important studies have been published covering the agricultural economy of Pakistan. With respect to agricultural trade and pricing policies, one should note the studies by Dorosh and Salam (2000), Hamid, Nabi and Nasim (1992), Dorosh and Valdes (1990), Pursell, Khan and Gulzer (2011), Amjad (2011), Chaudhry (2011), various reports by the Agricultural Policy Institute (API), Salam (2001), Orden, Salam, Dewina and Minot (2005) and Ahmad (2003). The latest study with measures of the effect of agricultural trade and price interventions covers the situation until 2004. Although unrelated directly to foreign trade, the World Bank study on Rural Factor Markets in Pakistan (2004) is relevant for understanding the underlying institutional issues and constraints affecting agricultural growth.

percent of all cropland. Large farms (of about 145 hectares or more) represent only 6% of all farms, but occupy 45 percent of total cultivated land. Beyond the farm gate, Pakistan's agriculture is a major source of raw materials for the manufacturing industry, contributing over 50% of basic inputs to downstream industries. On the demand side, the sector is a large market for industrial products such as fertilizers, pesticides, machinery and equipment.

22. Pakistan national accounts consider the agricultural sector to include crops, livestock, fishing and forestry. Currently, of the major cash crops, wheat contributes about 2.7 percent of total GDP, cotton 1.4 percent, rice 0.8 percent and sugarcane 0.9 percent. Oilseeds, pulses, potatoes, onions, chilies and garlic are other notable crops. Over the last two decades, with development and shifting consumption patterns, there has been structural shift within agriculture, the crop sub-sector gradually declining from 65 percent of agricultural value added in 1990-91 to 42 percent in 2010-11. Livestock's share of agricultural value added increased from 30 percent to 55.1 percent over this period. Note that the other subsectors, fishing and forestry, have accounted for only 2.9 percent of the agriculture sector's value added.

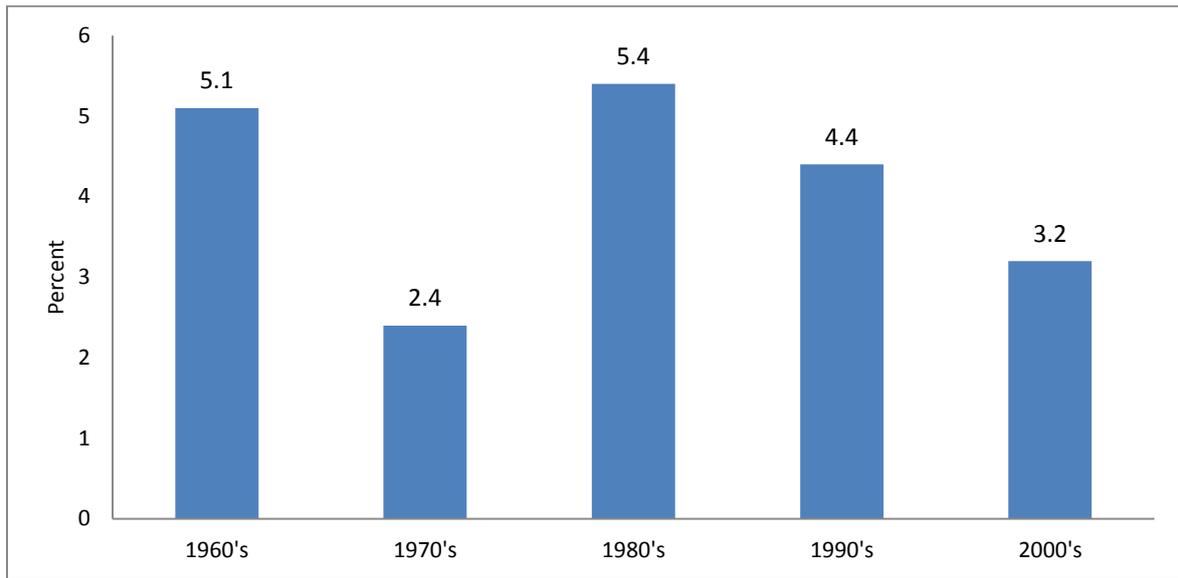
23. Overall, the agricultural sector's growth has declined gradually over the past three decades, as shown in Figure 1. In more recent years, changes in value added by subsector have been particularly more pronounced in case of crops, major and minor (Figure 2). And there is some evidence that agricultural growth has been slowing since early 2000s. The causality behind this decline is uncertain, but possible factors include the inequality in farm sizes, limited investment in irrigation systems, the slowing of adoption of new technology and techniques, a weak extension service, and perhaps the effect of changes to trade and price policies on agricultural investment.

24. The variable performance of agriculture, especially of crops, depends on the weather and on the availability of irrigation water, which in turn is limited by infrastructure. An IMF study<sup>4</sup> confirms that rainfall has had a major impact on agricultural production, in part explaining the high year-to-year variability in output. Agricultural growth since the 1960s can be attributed in large part to the introduction of improved cereal varieties and increases in water availability due to investments in tube wells, canals and dams. In the past decade, however, there may have been a reversal in this trend, with limited investments in water storage and with sedimentation of existing reservoirs. The availability of irrigation water is highly variable, and not increasing (Figure 3), although demand from agricultural production should be rising.

---

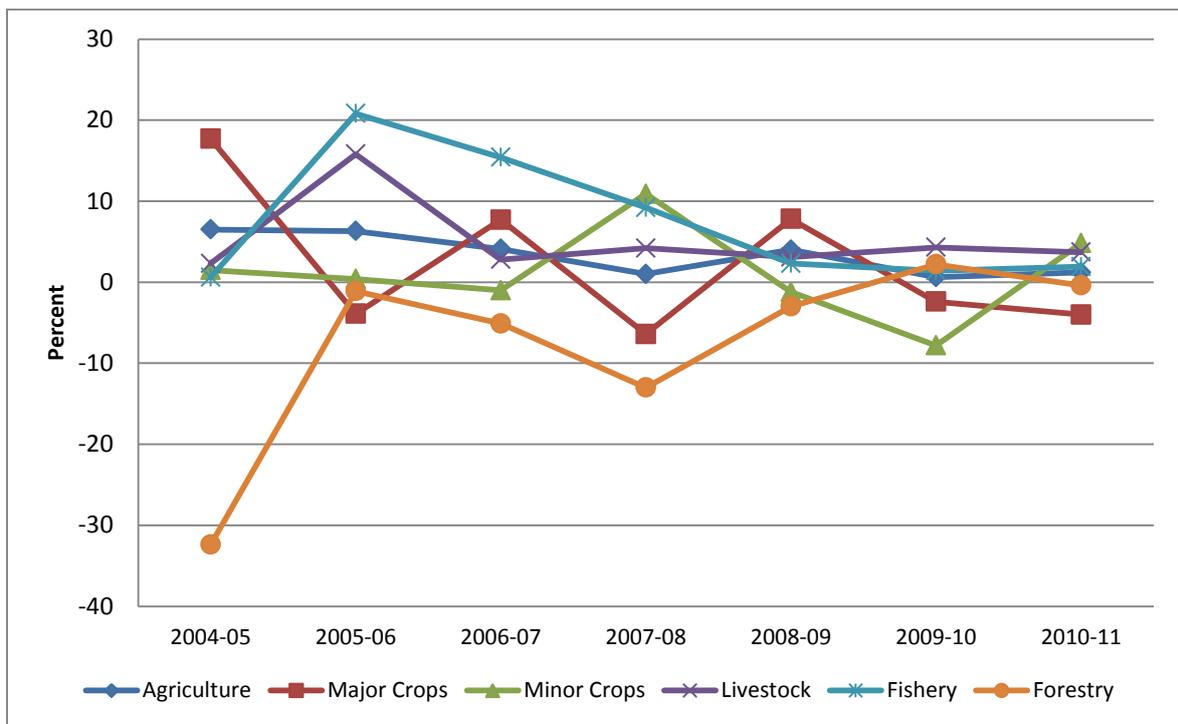
<sup>4</sup>Pakistan: Selected Issues and Statistical Appendix. 2005. International Monetary Fund (IMF).

**Figure 1** Historical Growth Rates for Pakistan's Agriculture Sector (by decade)

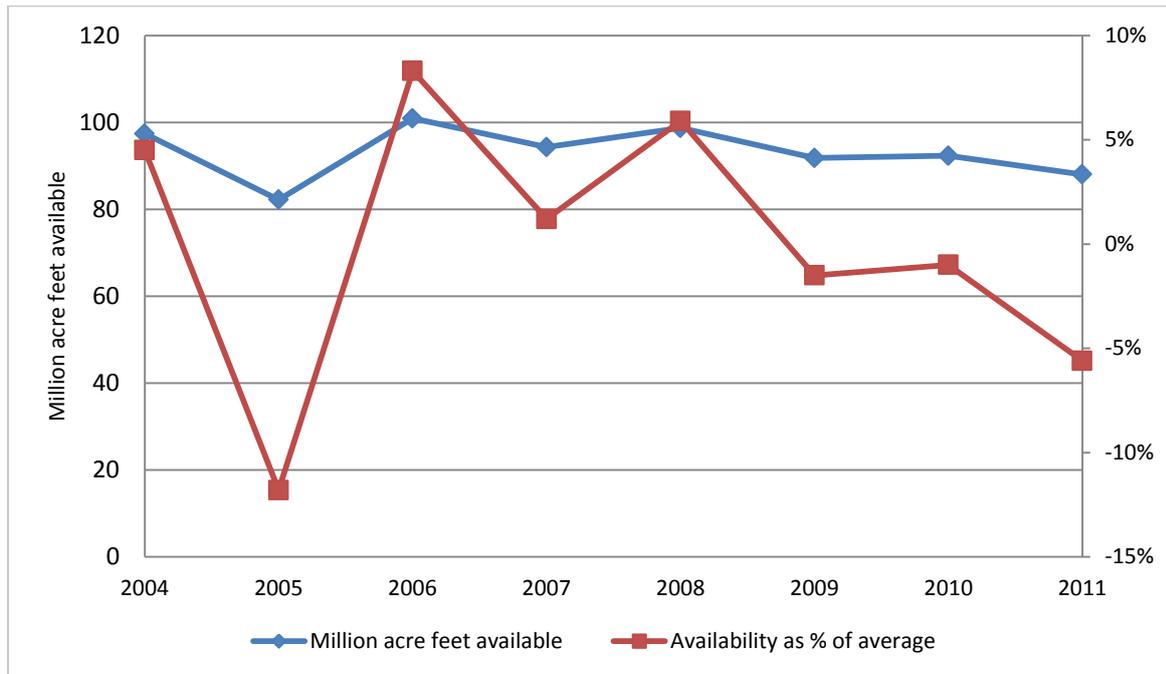


Source: Federal Bureau of Statistics, Government of Pakistan

**Figure 2** Year-to-Year Changes to Value added (%) by Agricultural Subsector in Pakistan (2004-11)



Source: Economic Survey of Pakistan 2010-11, Government of Pakistan

**Figure 3** Irrigation Water Availability in Pakistan, 2004-11

Note: The average availability of water in 2004-11 was 93.2 million acre feet.

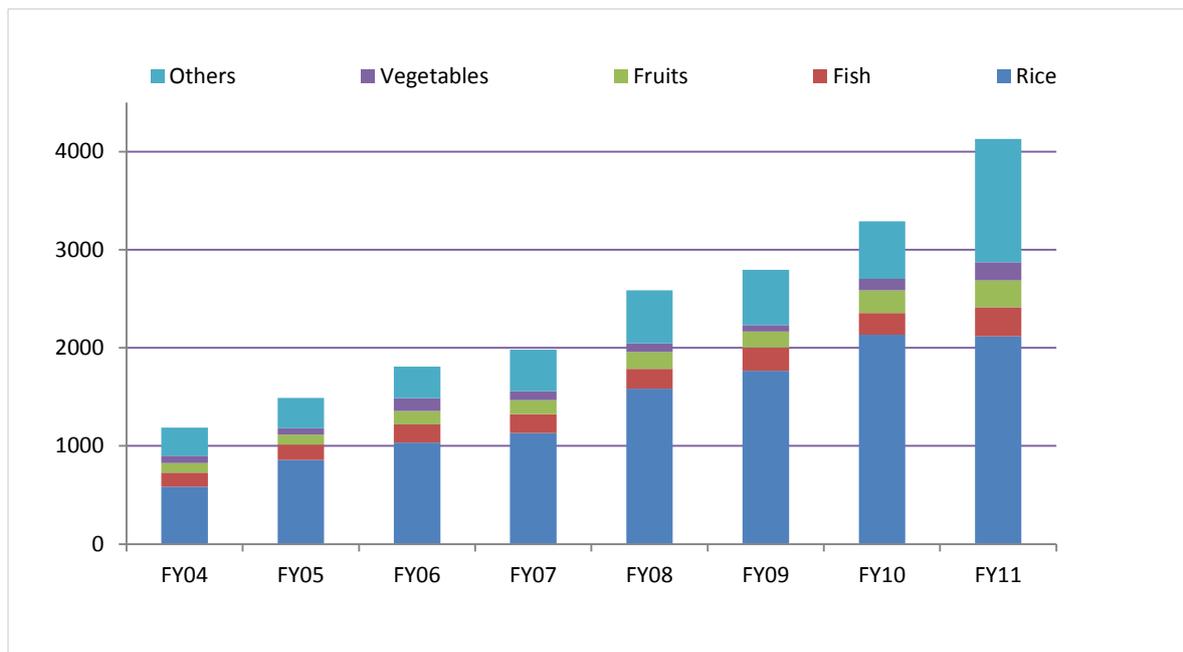
Source: *Economic Survey of Pakistan 2010-11*, Government of Pakistan.

**Table 1** Net Food & Agricultural Trade Position of 4 South Asian Countries (US\$)

Countries	World Bank Income Classification	1995-1999		2005-2009	
		Net Food Importer or Exporter	Net Agricultural Importer or Exporter	Net Food Importer or Exporter	Net Agricultural Importer or Exporter
Bangladesh	Low	NFIM	NAIM	NFIM	NAIM
India	Lower middle	NFEX	NAEX	NFEX	NAEX
Pakistan	Lower middle	NFIM	NAIM	NFIM	NAIM
Sri Lanka	Lower middle	NFIM	NAEX	NFIM	NAEX

Note: Food here is defined to include cereals, meats, dairy and eggs, edible oils and sugar. NFIM = Net Food Importer. NFEX = Net Food Exporter. NAIM = Net Agricultural Importer. NAEX = Net Agricultural Exporter.

Source: Author's computation based on FAOSTAT.

**Figure 4** Pakistan Food Exports (US\$ millions) by Selected Product Groups, 2004-11.

Source: Author's calculations from Ministry of Commerce, Pakistan

25. The major field crops—notably cotton, wheat, sugarcane, and rice—are the back bone of rural economy, and are sources of foreign exchange earnings for Pakistan. About 44 percent of agricultural exports are due to rice and 20 percent due to wheat and cotton (see Figure 4). Leather, leather products and carpets account roughly for 4 percent of total exports. A rough estimate suggests that, over all, agriculture contributes to around 80 percent of export earnings directly and indirectly through forward linkages to agro-based industries (such as textiles). The largest agricultural import is vegetable oil; other major imported agricultural products include long staple cotton, sugar, pulses, tea, milk and milk products. For 2010-11, the food group, textile group and agricultural & other chemicals group accounted for roughly US\$ 14.2 billion of imports (35 percent of total).

26. Despite the contribution to exports, Pakistan has been and remains both a net food importer and a net importer of agricultural goods (Table 1). As a direct source of foreign exchange, agriculture's balance of trade has been negative during the period 1995-99 and the period 2005-09. For 2010-11, total agricultural imports amounted to approximately US\$ 6 billion and total agricultural exports amounted to approximately US\$ 4.8 billion. To put these numbers into perspective, Pakistan's total merchandise exports during 2010-11 amounted to US\$ 25.4 billion, and total imports to US\$ 40.4 billion (Annex Table A1 presents Pakistan's main agricultural imports and Annex Table A2 the main agricultural exports for 2010-11). There is a notable concentration of both imports and exports in very few products. On the import side, sugar and palm oil made up almost 43 percent of all agricultural imports in 2010-11. On the export side, rice is by far the largest item, generating nearly half of agricultural export earnings.

27. Although Pakistan is a net food importer, it would be unlikely that Pakistan would face a foreign exchange constraint in food imports, given the low share of such imports

relative to total export revenues and workers' remittances. For example, workers' remittances in 2009-10 were US\$ 8.9 billion and US\$ 11.2 billion in 2010-11.

## **Trade and Pricing Policies related to Agriculture**

28. By 2003 Pakistan's trade liberalization, which began in 1996, had simplified the tariff structure, nearly eliminating all quantitative restrictions, and lowering rates; and state trading monopolies were abolished for agricultural products. Beginning in 2006, however, exceptions were introduced, and—according to the IGC report of June 2011—there was a “reversal of a number of the more important liberalizing reforms in agriculture, notably of wheat, sugar and fertilizer policies.” In 2008 several Regulatory Duties were introduced, in addition to the expanded use of SROs—Statutory Regulatory Orders—which, since 2006, had been used to give both partial or full exemptions to normal tariffs, in some cases, and increased tariffs, in others. Tariff exemptions influence agriculture primarily through inputs; and most SROs are aimed at specified firms, not generally available for all importers. Such exemptions are yet another complication to a highly discretionary, and continually changing, trade regime, made all the more complex by preferential trade agreements (with China, Sri Lanka and other South Asian countries<sup>5</sup>). In addition to the uncertainty produced by the trade regime's discretionary nature, the complexity of various tariffs, regulatory duties, and SROs, generates a variety of dispersed price impacts across both products and inputs, which in turn leads to a dispersion of effective rates of protection—that is, the incentives for resource allocation.

29. In what follows the paper addresses the trade regime for four major agricultural products, which receive the most attention of government policy makers. It takes into account that simple customs duties—as reported, say, by the WTO—only tell a part of the story with respect to trade policies' real impacts on incentives. The varied profile of tariffs and para-tariffs—SROs, regulatory duties, tax withholdings, export bans, and subsidies on some exports and inputs—requires an analysis at the product level that would capture the effect of the trade regime on returns.

### **Import Taxes**

30. The trade regime has six basic types of taxes:

1. The Customs Duty (CD), the standard tariff assessed on an import's CIF value.
2. A Regulatory Duty (RD), a special Federal Government border tax, which is applicable to the CIF value, applicable in some cases to exports.
3. The Federal Excise Duty, FED, and the Special FED on CIF value.
4. The Provincial Excise Duty (PED) on CIF value.
5. The Sales Tax (ST) on the duty paid value.
6. The Withholding Tax (WHT) on duty and the sales tax paid value.

31. Note that withholding tax is an 'advance tax' charged at the time of import (or export) and subsequently is credited when traders file a final return to the tax authorities. The sales tax should be paid on transactions involving goods derived both from domestic and foreign

---

<sup>5</sup>There is also an agreement with India, but with bans on the import of several products

sources; and so conceptually should not be involved in calculations of protection of domestic products. There are various exemptions to taxes detailed by Special Regulatory Orders (SROs), which are particularly relevant for agriculture and discussed below in reference to the calculation of protection rates. SROs are the mechanism by which the Pakistan executive via the FBR can alter border taxes without recourse to the Parliament. SROs exempt many agricultural products, which are also exempt from sales taxes.

**Box 1** **How to Calculate the Total Rate of Protection at Border from Various Taxes**

There are two ways to calculate rates of protection: comparisons of border prices (adjusted to the farmgate) and actual farm prices, and using information only at the border. To calculate the total rate of protection at the border, we employ the following simple formulas. Combining taxes 1, 2, 3 and 4 (these duties are levied on the CIF value of the product), one derives the “duty paid value” of the product by the importer:

$$\text{CIF} + \text{duties paid} = \text{CIF} + \text{CIF} \cdot \text{CD} + \text{CIF} \cdot \text{RD} + \text{CIF} \cdot \text{FED} + \text{CIF} \cdot (\text{Special FED}) + \text{CIF} \cdot \text{PED} = \text{CIF} (1 + \text{CD} + \text{RD} + \text{FED} + \text{Special FED} + \text{PED}) .$$

The Sales Tax (ST) is applicable on the duty paid value, to yield the ‘sales tax paid value’:

$$\text{CIF} + \text{duties paid} + \text{sales taxes} = \text{CIF} (1 + \text{CD} + \text{RD} + \text{FED} + \text{Special FED} + \text{PED}) (1 + \text{ST})$$

Transport costs are adjusted for in the direct price comparisons. Withholding Tax (WHT) is paid on the duty and sales tax paid value, to yield the ‘final tax paid value’:

$$\text{CIF} + \text{duties paid} + \text{sales taxes} + \text{withholding tax} = \text{CIF} (1 + \text{CD} + \text{RD} + \text{FED} + \text{Special FED} + \text{PED}) (1 + \text{ST}) (1 + \text{WHT}).$$

Note that tariff and tax exemptions are captured by this formula. To calculate an NRP at the border, for example, one would take the CIF price with duties and taxes relative to the CIF alone (which would result without interventions). That is

$$\text{NRP} = \frac{\text{CIF} + \text{duties paid} + \text{sales taxes} + \text{withholding tax}}{\text{CIF}} - 1$$

$$\text{NRP} = (1 + \text{CD} + \text{RD} + \text{FED} + \text{Special FED} + \text{PED}) (1 + \text{ST}) (1 + \text{WHT}) - 1.$$

32. One should note the complexity of the border tax system as shown in the accompanying Box, and that the various taxes can vary by product, and can vary over time as executive regulatory decisions change. Moreover SROs can create exemptions, introducing even more possible dispersion both in nominal tariff rates and—even more difficult to anticipate—in the effective rates of protection.

33. Turning to the actual values of border taxes, we first note that Pakistan’s customs duty framework has relatively high bound tariffs under the WTO but relatively moderate MFN applied tariffs (Table 2). Tariffs on agricultural goods have both a higher average bound tariff and a higher average MFN tariff, when simply summing over tariff lines, but averaging the MFN applied tariffs weighted by trade value, agricultural goods have a slightly lower MFN than non-agricultural goods, in part due to the number of tariff lines (mainly on edible oils) subject to specific duties and not an ad valorem rate. Again note that we are

referring to MFN applied tariffs and not the true duties paid, which would include exemptions and other taxes. Note also, as seen in Table 3, that there are many tariff lines where the MFN applied is 'duty free' although the bulk of agricultural imports enter as tariff lines with duties in the range of 5% to 25%. Interestingly the bulk of non-agricultural imports enter as tariff lines with duties in the range of 0% to 10%.

**Table 2** Summary of Pakistan's MFN and WTO Bound Tariffs

		All Products	Ag	Non-Ag
Simple average final bound		59.9	95.6	54.6
Simple average MFN applied	2010	13.9	17.0	13.4
Trade weighted MFN applied average	2009	9.8	9.1	9.9
Value of Imports in billion US\$	2009	31.7	4.2	27.5

Source: Authors elaboration based on data from the World Trade Organization

34. Table 4 shows a disaggregation of the average of MFN applied rates by tariff lines for various product groups. Note that, in terms of the share of total import value, agricultural goods make up about 13 percent, and that edible oils are by far the most important agricultural import. Within this product group, 'oilseed, fats and oils,' the lines entering MFN duty free are subject to specific duties. (In contrast, many petroleum products enter duty free with no specific duties.) With respect to basic foods, cereals make up only 1.4% of total imports, suggesting that food security as a matter of import capacity should not be a concern. Edible oils are the only food group of some significance.

**Table 3** Summary of Pakistan MFN Applied Import Duty Ranges

Frequency Distribution		Duty-free	0 ≤ 5	5 ≤ 10	10 ≤ 15	15 ≤ 25	25 ≤ 50	50 ≤ 100	> 100	Non ad valorem
		% of tariff lines or % of import value								% of lines or value
<b>Agricultural products</b>										
<b>Final bound</b>		0	3.3	0	0.3	0.1	0.5	90.3	1.8	0.1
<b>MFN applied</b>	<b>2010</b>	13.9	19.6	15.7	13.8	14.5	20.1	2.4	0	5
<b>Import value</b>	<b>2009</b>	34.8	4.1	17.4	21.6	19.6	2.2	0.2	0	32.6
<b>Non-agricultural products</b>										
<b>Final bound</b>		0	1.9	0	1.8	14.9	18.3	62.3	0	0
<b>MFN applied</b>	<b>2010</b>	5	38.4	13	6.7	31.6	4.9	0.3	0	0.1
<b>Import value</b>	<b>2009</b>	36.1	25.3	18.7	3.8	11.8	2.7	1.7	0	0.9

Note: The table shows counts of tariff items and an import value referring to the value of imports coming in under tariff lines with MFN rates within a specific range. But other taxes (and exemptions) and charges on imports might apply, so that imports coming in under a duty-free MFN could be subject to other para-tariffs. Non ad valorem refers to those items that could enter without an ad valorem tariff; for example, with a specific duty. Most notable non-ad-valorem products are edible oils.

Source: Authors elaboration based on data from the World Trade Organization

35. Many agricultural products, however, are exempt from both customs duties and sales taxes, as shown in Table 5. A more complete list and recent values of different taxes applicable to tradable agricultural products and inputs is found in Annex Tables A4 and A5. The use of SROs to exempt various goods from custom duties should be accounted for in estimating effective rates of protection. Using WTO MFN applied rates would tend to bias

the profile of relative incentives from the perspective of the impact of border measures on the value added of domestic industry as reflected in effective rates of protection.

36. The impact of the trade regime on the estimate of the effective rate of protection for an industry and on the prices paid by individual importers depends on whether or not the importer of reference is eligible for certain exemptions. Consider the example of poultry, as illustrated by Pursell, Khan and Gulzar (2011). The final product, poultry meat, has an MFN customs duty of 25%, except from Sri Lanka with a tariff of zero, and from Malaysia with a tariff of 20% (prohibited from India). But many of the significant inputs in chicken production are exempted from duties (SRO 567), if their imports are authorized by the Ministry of Food, Agriculture and Livestock (MINFAL), as shown in Table 6. Note that for maize there is a preferential duty of 6.2% for imports from the SAFTA non-LDCs, except imports from India which pay an additional Regulatory Duty of 25% (for total duty of 31.2%). Soybean meal has the same SAFTA non-LDC preferential rate and this applies to imports from India as well.

37. This poultry example illustrates well the complicated nature of Pakistan's import policy, with its large number of different tariffs and para-tariffs, high apparent dispersion difficult to anticipate for specific products, highly discretionary, and an invitation to various lobbying groups to attempt persuasion, with the risk of encouraging corruption. In order to limit the imports of exempted goods, which otherwise would lead to the irrelevancy of the structure of customs duties, some degree of control must be exercised. The current system of formal tariffs with SRO exemptions and regulatory duties, is becoming a form of concessional rates and import licensing, something that should have been removed in past under the GATT-WTO Uruguay Round Agreement. Trade preferences are a different case, although their risk of trade diversion increases with the higher level and dispersion of the total rate of protection, including all sources of tariffs and taxes.

**Table 4** Profile of Pakistan MFN Applied Import Duties by Product Group, 2010

Product	MFN applied duties			Imports	
	AVG	Duty-free	Max	Share %	Duty-free
		in % of tariff lines		of total imports	% of tariff lines
Animal products	14.6	20.9	25	0.0	45.3
Dairy products	30.0	0	35	0.2	0
Fruit, vegetables, plants	18.2	12.2	70	1.9	73.1
Coffee, tea	12.8	0	30	0.8	0
Cereals & preparations	18.8	5.1	35	1.4	11.2
Oilseeds, fats & oils	8.8	12.3	25	6.1	20.3
Sugars and confectionery	17.2	0	35	0.6	0
Beverages & tobacco	52.5	0	90	0.1	0
Cotton	7.0	20.0	10	1.5	99.8
Other agricultural products	6.7	28.9	30	0.7	49.3
Subtotal agriculture				13.3	
Fish & fish products	10.6	0	20	0.0	0
Minerals & metals	12.4	7.2	35	14.7	50.1
Petroleum	10.7	36.1	25	26.0	71.0
Chemicals	9.6	2.0	35	14.4	5.6
Wood, paper, etc.	15.5	22.1	35	2.0	32.1
Textiles	16.7	2.1	35	3.4	9.8
Clothing	24.8	0	25	0.1	0
Leather, footwear, etc.	14.9	26.7	35	1.2	38.4
Non-electrical machinery	9.3	2.6	35	10.0	6.3
Electrical machinery	14.7	0.8	35	7.9	17.5
Transport equipment	24.7	2.1	100	4.7	24.3
Manufactures, n.e.s.	13.1	1.8	35	2.3	6.2

Note: These counts and shares reflect MFN duties only, and not effective rates finally applied, which differ due to SROs adjustments, regulatory duties, withholding taxes, and other possible changes.

Source: Authors elaboration based on data from the World Trade Organization

**Table 5** Basic Pakistan Custom Duties & Taxes (%) on Selected Agricultural Products, 2010

Product	Customs duties		Sales tax		Withholding tax
	Statutory	Applied	Statutory	Applied	
Wheat	10	0	16	0	5
Cane sugar	25	0	16	0	5
Milk	25	0	16	0	5
Rice seed	0	0	16	0	5
Rice seed	10	0	16	0	5
Cotton not carded	0	0	16	0	5
Cotton carded	5	0	16	0	5
Farm equipment	5	0	16	0	5
Insecticides	5	0	16	0	5
Tractors	5	0	16	0	5
Fertilizers	0	0	16	0	5

Note: Duties and sale taxes of 0% actually applied are due to exemptions. This is more detailed than 'applied' tariffs as reported by the WTO.

Source: Information gathered by author for the project

**Table 6** Tax Exemptions for Selected Inputs in Poultry Industry under SRO 567(I) of 2006

Selected inputs	Duties paid according to importer status		
	Imports authorized by MINFAL	All other importers	Imports with preferential agreements
Maize grain	0%	10	6.2
Soybean meal	0%	10	6.2
Vitamin B12 (feed grade)	0%	20	16.8
Vitamin H2 (Biotin) (feed grade)	0%	20	16.8
Fish Feed 0%	0%	20	16.8
Poultry feed preparation	0%	20	16.8
Growth promoter premix	0%	20	16.8
Vitamin premix	0%	20	16.8
Choline Chloride	0%	20	16.8
Mineral premix	0%	20	16.8

Source: Pursell, Khan and Gulzer, pp.45

## Export Policy

38. Pakistan's export policy introduces few restrictions to trade; the most important being bans on some 'essential' products ostensibly to ensure local availability and official approval for exports in some cases. Export commodities are not subject to export taxes, with some exceptions subject to regulatory duty: molasses has a regulatory duty of 15%, wheat flour (and other wheat products) is subject to 35% duty. Exporters are also required to pay a withholding tax of 1% of the sale proceeds, and commission agents pay 5% of commissions. Table 7 lists some important agricultural products and inputs and their export status. Note that rice dominates exports from Pakistan, but both wheat and cotton show large increases in exports during 2010-11. Note that wheat has been an import-competing crop historically.

**Table 7** Pakistan Export Policies related to Selected Agricultural Products

Products	Status
Rice	Exports subject to procedures of the Ministry of Commerce. Obligatory pre-shipment inspection by Quality Review Committee. Trade with Europe by the Trading Corporation of Pakistan which conducts PSI.
Wheat	Since 2011 exports of wheat freely allowed.
Wheat, Flour, Suji and Maida	Export is permissible in accordance with the Ministry of Commerce procedures.
Sugar	Banned for export, but in 2011, 100,000 MT allowed for exports, allocated on a first-come basis (5,000MT limit).
Urea	Banned for export except with the permission of Economic Coordination Committee (ECC) of the cabinet.
DAP, NP, and other Fertilizers	Banned for export. These products imported by UN and other relief agencies are permissible for re-export to Afghanistan.
Cotton	Exports subject to (a) registered contract with Trade Development Authority of Pakistan (TDAP) against 1% of the value of contract as security, (b) an irrevocable letter of credit with the TDAP to be opened within 35 days of the registration of the contract, the failure of which leads to the security deposit confiscated, and (c) exports shall be allowed against type as well as grade.
Milk and Dairy Products	Freely exportable.

### Distortions to Agricultural Incentives: Measuring nominal and effective protection for agriculture (2008-11)

39. The cornerstone of agricultural policy reforms in countries all over the world is that the prices paid by farmers for inputs, and the prices paid for their products, should be similar to the real value of those goods or resources to the economy as a whole. That is, for products that can be traded internationally, they should pay and receive prices that are close to international prices for imports and exports, as well as for inputs and services. For this reason, as a counterfactual scenario, we focus on the effect of the prevailing policies in any given year relative to world prices (at the border) of outputs and tradable inputs (given the exchange rate). In this we do not address the question of whether or not there is some degree of misalignment in the exchange rate.

40. There are essentially two types of support policies directed towards agriculture. The first are price interventions and government expenditures. These interventions are reflected in the difference between the domestic and the border price of a product of similar quality. This support, when positive, does not necessarily imply explicit government outlays. And when support is negative, referred to as taxation, it does not necessarily imply fiscal revenues are being earned by the government. Some government interventions imply transfers between some groups, sometimes explicitly from and to taxpayers to producers and consumers, but more often in the case of agriculture policies, transfers are implicit and flow between consumers and producers via distortions in prices.

41. The second type of support policies are government budget transfers or subsidies, at the national and regional level. These support policies include subsidies for capital investment, land improvements, direct payments and others, and do not directly affect prices received or paid by farmers.

42. We examine two indicators that have been used to measure agricultural support in specific production activities in various country studies, the nominal rate of protection (NRP) and the effective rate of protection (ERP), which capture the direct effects of agricultural price and trade policies on the sector. The NRP is the simplest and most widely used indicator of the difference between the domestic and the border prices, measured by direct price comparison between the border and the farm gate price, in most cases expressed as the ad valorem ‘tariff-equivalent’ of tariffs, para-tariffs and non-tariffs barriers and subsidies.

43. The NRP is the price received by producers,  $P_d$ , relative to that price which would otherwise prevail in the absence of policy interventions. This hypothetical price would be equivalent to the border price,  $P_w$ , times the exchange rate,  $E$ . That is:

$$NRP = \frac{P_d}{E \cdot P_w} - 1$$

Note: These prices should be ‘at the farmgate’—that is, the prices should account for domestic transport, marketing margins and quality differences.<sup>6</sup>

44. The nominal rate accounts only for effects on producers prices received for product sales. And so another measure has been developed to more closely reflect the effects of policy on net income, which is, after all, the basis of farmer welfare. The ERP is the per-ton net returns to farmers relative to those returns which would otherwise prevail in the absence of policy interventions. The relevant comparisons are made using observed border prices (fob for exports and cif for imports) and hypothetical prices to represent the non-intervention case.

45. The ERP measures the joint effects of trade barriers and price interventions on value added (returns to non-tradable factors, including land, labour and capital) via the impact of such intervention on both output and tradable input prices. Tradable inputs include agro-chemicals, machinery and equipment, and fuel. In the absence of interventions, the ERPs would be approximately equal to zero. The calculations of ERPs require data on farm-level cost of production, in order to estimate the share of the cost of inputs in terms of output value.

---

<sup>6</sup> Sometimes authors compute the NRP and the ERP based only on border interventions alone, without a direct price comparison of border and farmgate prices, adjusted for transport costs, quality etc. Direct price comparisons allow for the effects of quantitative restrictions, direct price interventions by local marketing agencies, and any other non-tariff policy driving a wedge between domestic and border prices. The NRP and ERP in this study using direct price comparison represent what economists call ‘ad valorem tariff equivalent’.

46. The ERP is calculated as the percentage difference between the value added per unit using the hypothetical farmgate prices (of outputs and inputs) without intervention (using border prices as in the NRP),  $VA_w$ , and the observed value added per unit,  $VA_d$ :

$$ERP = \frac{VA_d}{VA_w} - 1$$

47. The value added is a function of government interventions, such as tariffs, taxes and, importantly in the case of Pakistan, subsidies on fertilizer prices.

48. In this study we focus on four activities, wheat and sugar as import-competing activities, and rice and cotton as exportables for the period between 2008 and 2011. In the case of cotton there has been some trade reversal (importable in some years and exportable in others).

### **Nominal and Effective Rates of Protection in Agriculture**

#### *Rice Basmati*

49. To determine the NRP on the product, we estimate the farmgate price of the product that would have otherwise prevailed in the absence of interventions. We compute the border price equivalent at the farm level by taking the FOB price and adjusting for port-and customs-related charges, observed wholesaler margins between mill and wholesale point, and millings costs (and quality adjustments, if they apply). The export marketing expenses include export and purchase incidentals as well as insurance and financial expenses as documented by the Agriculture Policy Institute (API). We are using the border price as the basis for the counterfactual. In the case of rice, there are no export taxes, but there may be implicit restrictions and even subsidies that drive a wedge between prices observed domestically and the border price. The observed wholesale price of rice is converted into a paddy-equivalent price using the standard paddy-to-rice conversion rate of 0.65. The wholesalers' margin is calculated in rupees from the difference between the observed wholesale price (paddy equivalent) and the estimated price of paddy leaving the mill. The estimate mill gate price is simply the observed per-unit value at the farmgate plus estimated milling charges in rupees.

50. Comparing the three years of interest, one observes fluctuations in both the border and farmgate price. The border price in US dollars was \$1088/ton for 2008-09, \$830 for 2009-10 and \$828 for 2010-11. The per-kilo prices in rupees at the border and at the farmgate were Rs 85 and Rs 19 in 2008-09, Rs 70 and Rs 24 in 2009-10, and Rs 70 and Rs 28 in 2010-11. Note that in 2008-09, when world price were experiencing sharp increases, the farmgate price was at its lowest of the three years. Translating the border price into a farmgate equivalent leads to a NRP of -35 percent for 2008-09 and of -20 percent for 2009-10. The NRP was positive 3 percent for 2010-11.

51. To estimate the ERP, one must account for the effects of the trade regime on costs as well as output price. Tradable inputs for rice are fertilizer, agrochemicals, seed and

equipment and machinery.<sup>7</sup> There are import tariffs on the tradable inputs and a fertilizer subsidy. We calculate a hypothetical input price by using the observed farm-level cost per unit, adjusting downward by removing the effective NRP rate (using the tariff and tax equation presented above) and, in the case of fertilizer, adjusting upward by removing the subsidy rate. For the tradable inputs, except fertilizer, the resulting hypothetical prices in the absence of the trade regime are lower in the order of 2% to 7%. The subsidy rate on fertilizer, however, is on the order of 35%, and, consequently, the costs per ton of production would increase considerably in the absence of intervention.

52. The ERPs for the three years reflect the percent changes at the farm level in the value added over tradable costs per ton due to the removal of taxes and implicit barriers to export on product, the removal of tariffs and taxes on inputs, and the end of the fertilizer subsidy. As seen in Table 8, the implicit NRP on rice at the farm level was negative except for 2010-11 when the farmgate price increased, although the border price equivalent at the farmgate did not. And despite the decrease in the implicit subsidy on tradable inputs, the increase in the farmgate price dominated, leading to a positive ERP for rice in 2010-11. The negative ERPs for the years 2008-09 and 2009-10, which represent a significant tax on production, are consistent with the large and negative Nominal Rates of Assistance (NRAs) estimated by Dorosh and Salam (2008) for basmati for the last two decades until 2005. Interestingly, Dorosh and Salam find positive NRAs for IRRI rice since 1995. Farm income, as measured by value added would have been 40% higher in 2008-09 under a no-intervention policy and 21% in 2009-10. These implicit taxes should have had, all other things being equal, a significant impact on basmati rice production. These calculations suggest scrutiny of two contributors to the negative impact during 2008-10. The first is the barrier to exports reflected in the NRP at the farmgate. The second is the barrier to imports of tradable inputs.

**Table 8** Calculation of ERP for Basmati Rice from Punjab, 2008-10

Item	2008-09	2009-10	2010-11
Border price per kilo US\$ Karachi	1.09	0.83	0.82
Exchange rate	78.5	83.8	85.5
Marketing expenses Rs/kg	5.00	5.00	5.63
Wholesale price Rs/kg	64.27	55.40	65.84
Mill gate price Rs/kg	21.30	25.98	30.21
Farmgate price per kilo	19.17	23.75	27.83
Border price farmgate equivalent per kilo	29.69	29.68	27.08
Implicit NRP on product at farmgate	-35%	-20%	3%
Observed costs per kilo of tradable inputs	6.96	6.85	8.67
Hypothetical costs per kilo of tradable inputs	9.18	8.27	10.03
Implicit NRP on tradable inputs	-24%	-17%	-14%
Observed value added net of tradable inputs	12.21	16.90	19.16
Hypothetical value added net of tradable input	20.51	21.41	17.06
ERP	-40%	-21%	12%

Source: Author's Calculations (Details in Annex Table A5)

<sup>7</sup>The reader might note that there are possible additional interventions in the form of irrigation subsidies—mainly through energy subsidies—which are left unexamined in the following computations.

### *Wheat*

53. Punjab is the principal wheat province in Pakistan, growing 75% of total domestic production on average for the three years of study. Punjab data on costs of production using tradable inputs are used in order to calculate the nominal and effective rates of protection. As before, effective import tariffs on wheat and trade-able inputs are calculated using the tax equation presented above. Note that SRO 567 waives the customs duties and sales taxes for wheat, and therefore the price wedge between the border price and domestic price due to tariffs and taxes is small (2.82% for 2008-09 and 5.84% for 2009-10 and 2010-11).

54. The NRP calculation compares the wholesale post-harvest price of Punjab (May–June) with the import price, based on the CIF Karachi. The border price equivalent at the farm-gate is calculated by first calculating a border price equivalent at domestic wholesale in Karachi, which takes the CIF price plus import taxes plus charges related to letters of credit, port handling, and inland insurance. The border price equivalent at the farmgate is this wholesale price less the wholesaler margin.

55. Table 9 shows the basic information to calculate the effective rates of protection for wheat as an import-competing activity for the three years of interest. Note that 2008-09 had a relatively high border price, which then fell substantially the following year, then to rise again in 2010-11, although not to its former peak. The wholesale price, however, remained stable. The farmgate price rose at about 11% per year in nominal terms, and about 6.3% per year in dollar terms. It is notable the large changes, and changes in sign, of the ERP, from–20% to +13% to -23% over the three years. This is explained primarily by the swings in the implicit NRP on the product price, which was negative over the three years, but small in 2009-10.

56. The implicit NRP on tradable input costs was negative (in effect, a subsidy to farmers) and relatively stable compared to that on output price. This negative NRP on the input side is due to the fertilizer subsidy, the elimination of which would overwhelm the removal of tariffs and taxes on the inputs. In spite of the large volatility in border prices, both wholesale and farmgate appear to be relatively stable; which implies that government interventions, through Federal procurement targets of PASSCO and Provincial Food Departments, are absorbing the price transmission that would otherwise prevail in open markets. This price stabilization role is perhaps one reason that stocks have risen in the recent past, which lately has led to exports at subsidized prices. The negative ERP in 2008-09 accompanies a subsidy to consumers via the ‘issue price’ of wheat at which the government releases grain to flour mills. During 2008-09 the cost of imported wheat was about Rs 26,000 per ton (not including handling charges and other costs, including significantly storage) while the issue price was Rs 18,750. Even ignoring additional costs, the implicitly subsidy to consumer—and the domestic price-suppressing effect to farmers—was at least 28%, that is  $\text{Rs}(26,000 - 18,750)/26,000$ . Including additional costs, API (2009) estimates that the total subsidy to consumers during this year just on wheat was Rs 50.3 billion, or approximately US\$ 650 million.

### *Sugar*

57. Pakistan grows about million hectares of sugar cane and beets, and sugar represents the second largest agro-industry (following textiles). But domestic sugar production

fluctuates significantly and thus imports also. The NRP and ERP calculation are based on API parameters for sugar and sugarcane in the province of Punjab. The NRP calculation, as shown in Table 10, compares the observed farmgate price with the parity price of CIF Karachi refined sugar adjusted to its farmgate equivalent in Punjab. Import tax, margins, handling and transport costs are from the data shared by the Trade Corporation of Pakistan (TCP).

**Table 9** Calculation of ERP for Wheat from Punjab, 2008-10

Item	2008-09	2009-10	2010-11
Border price per ton US\$ Karachi	330	261	304
Exchange rate	78.5	83.8	85.5
Wholesale price Rs/kg	22.93	22.55	23.18
Farmgate price Rs/kg	16.46	18.67	20.26
Border price farmgate equivalent Rs/kg	20.99	19.41	24.64
Implicit NRP on product at farmgate	-22%	-4%	-18%
Observed costs per kilo of tradable inputs Rs/kg	9.50	10.05	11.23
Hypothetical costs per kilo of tradable inputs Rs/kg	12.32	11.80	12.90
Implicit NRP on tradable inputs	-23%	-15%	-13%
Observed value added net of tradable inputs Rs/kg	6.95	8.63	9.03
Hypothetical value added net of tradable input Rs/kg	8.67	7.61	11.73
ERP	-20%	13%	-23%

Source: Author's Calculations (Details in Annex Table A6)

58. The significant increase in the world price of refined sugar increases the parity price, but the increase in the general sales tax applied to sugar offsets higher border prices. The NRP on sugarcane at the farmgate is negative and high—the parity prices are approximately double the observed farmgate price, which contrasts with positive and high NRP and NRA estimates at the wholesale level until 2004 (see Dorosh and Salam, 2008). One explanation for this contrast could be that support-price policy is not effective in practice. Indeed, the USDA GAIN report noted in 2010 that the decrease in sugarcane area and lower production during the last couple of years are attributed to the non-transparent government sugar policies, significant increase in minimum support prices for competing crops (e.g. wheat and rice), dwindling water resources, and higher input costs. Internal disputes between Pakistan's sugar growers and processors also plague the industry. Procurement practices used by sugar processors such as delaying the crushing season, buying cane at less than the support price, and withholding payments hurt the farmers' profitability. On the other hand, sugar processors complain that farmers grow unapproved varieties that produce low sucrose content resulting in lower sugar production and recovery rates. As a result of the fluctuations in quantity and quality of raw material, sugar mills have been required to operate at 50 percent of their installed capacity. Furthermore, the lower sugarcane supplies have also forced most of the mills in cane producing areas to close 1-2 months earlier than normal.

59. Note also the negative NRP for tradable inputs. Again, as in the case of the other products considered, the decrease in tradable input costs due to the fertilizer subsidy more than balances the increase due to tariffs. Despite the net subsidy on tradable inputs, the wedge between the parity price and farmgate price of the product results in a negative effective production—that is, an implicit tax on sugarcane production.

**Table 10** Calculation of ERP for Sugar, 2008-10

	2008/9	2009/10	2010/11
(a) C&F Karachi US\$/ton	510	679	739
(b) Exchange rate Rs/US\$	78.5	83.8	85.5
(c) C&F Rupees/ton [(a)*(b)]	40,034	56,890	63,179
(d) Marine insurance/ton	493	701	778
(e) Import value/ton [(c)+(d)]	40,527	57,591	63,957
(f) Incidentals/ton	2528	3106	3322
(g) Ex mill equivalent cost Rs/ton [(e)+(f)]	43,055	60,697	67,278
(h) Processing cost /ton	6,071	6,796	8,072
(i) General sales tax [(g)*20%]	7,860	11,474	12,810
(j) Net value raw cane [(g)-(h)-(i)]	29,124	42,427	46,397
(k) Recovery (11.22) [(j)/11.22]	2595	3780	4134
(l) Parity price sugar farmgate cane 40kg [(k)/1000*40]	104	151	165
(m) Molasses additional per 40 kg of cane	11	11	11
(n) Parity price farmgate cane 40kgs [(l)+(m)]	115	162	176
(A) Parity price farmgate per kg [(n)/40]	2.9	4.1	4.4
(B) Farmgate per kg	1.5	1.73	2.39
NRP product at farmgate [(A)/(B) – 1]	-47%	-57%	-46%
(C) Observed tradable input costs per kg	0.49	0.42	0.55
(D) Hypothetical tradable input costs per kg	0.69	0.54	0.66
NRP of tradable inputs at farmgate [(C)/(D) – 1]	-29%	-21%	-16%
ERP {[(B)-(C)]/[(A)-(D)] – 1}	-52%	-63%	-51%

Note: For 2009/2010 some of parameters are from the API publication, "Presentation on Agriculture Policy Institute," July 2009. C&F Karachi is taken from the London average sugar price during year plus approximately 13% freight charges and other transport costs. General sales tax was 16% in 2008/09 and 17% in 2009/10 & 2010/11.

Source: Author's Calculations

### Cotton American

60. Pakistan is the fourth largest producer of cotton in the world, and the rapidly-growing domestic textile industry not only absorbs internal producer but has led to substantial imports of long-staple, high-quality cotton. The government places no tariffs or quantitative restrictions on cotton imports, although some taxes might apply to exports. Table 11 presents the estimated NRPs and ERPs for the three years of interest, as well as the basic information to compute these estimate. The farmgate information for seed cotton is for the province of Punjab, where most domestic production takes place. Ex-gin gate price was arrived at using ginning charges observed from API documents. The parity price of imports at the farmgate is derived from the US spot price equivalent for lint cotton in Karachi. Margins and marketing expenses are the Agriculture Policy Institute (API), Pakistan's publications on Cotton Policy. The farmer produces seed cotton, which is ginned to produce lint and seeds, both of which should be taken into account in the process of comparing the international lint cotton price with the per-unit revenue of Pakistan farmers. The price of seed cotton is also likely influenced by import tariffs on vegetable oils, but this analysis did not examine what would happen if such tariffs were removed. Pakistan once exported much cotton, but today imports dominate, although they have declined recently (Table A1 and A2, and Table 11). In 2009 imported cotton lint amounted to US\$ 615 million and exports amounted to US\$ 83.5 million, or about 14% of export value.

61. Recently, international cotton prices have been highly volatile, but, although the border price has been volatile the reader should note that the domestic farmgate price has been more stable, drifting upward on average. Between April of 2009 and December of 2010, for example, the USDA quoted spot price of cotton lint rose from 55 cents to 168 cents per pound. Even between April of 2009 and April of 2010 the USDA spot quote increased about 60%, while the estimated farmgate price in Pakistan increased by only 16% in dollar terms between the two growing years. The farmgate parity prices would be therefore highly sensitive to the selection of the month in which we observe the relevant border price. Note that cotton imports are exempt from tariffs and border taxes, which raises the question, what might explain the wedge between farmgate and border equivalent prices, as reflected in the NRPs on the product in Table 12? Is it due to government intervention, monopolistic behavior of the textile industry, or a combination of internal market structure and policy? In any event the NRPs are volatile, with the NRP in 2009/10 being near zero (-3 percent), but in the other two years highly negative when world price were at high levels. Given the stability of the domestic price, this suggests that the cotton marketing chain or the government (or both) has been absorbing the recent volatility upward of world cotton prices.

62. Again, as in other crops, the fertilizer subsidy is most influential in determining the NRP for tradable inputs. The cost of tradable inputs ranges from 11% to 21% less than what it would be in the absence of the subsidy but also without tariffs. Overall, the impact on farmers' income as measured by the ERP is highly volatile because the border price is volatile. The ERP captures the effects on farmer income of a larger set of policies, which is hidden by simply examining the export or import parity prices as reflected in the NRP. As in the case of the other products examined, the impact of the trade regime and fertilizer subsidies on cotton reduces the negative impacts of the price wedge between the farmgate and the border. This border price wedge, however, could be very large and negative, as shown in the final column of Table 12, where the parity price using the December 2010 USDA quote is more than double the farmgate price; and so the fertilizer subsidy does relatively little to compensate for this implicit tax. That a large proportion of Pakistan's cotton growers are small farms raises complex questions of the political economy of best dealing with the efficient transmission of price signals in the context of such high price volatility.

**Table 11** Pakistan Imports of Cotton in 1,000 Metric Tons

Year	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
1000 MT	272.1	461.1	886.8	397.2	342.8	344.6

Source: Federal Board of Revenue, Government of Pakistan

**Table 12** Calculation of NRPs and ERPs for Cotton, 2008-11

	2008/9	2009/10	2010/11	
			Using April 2010	Using December 2010
(a) US cotton price US cents/pound spot April	75.41	55.34	88.09	168.22
(b) Grade and staple discount US cents/pound	6.1	4.5	7.2	13.7
(c) Discount inland transport US cents/pound	7.5	5.5	8.8	16.7
(d) Parity price Karachi US cents/pound [(a)-(b)-(c)]	61.8	45.34	72.2	137.8
(f) Or Rupees per 40kg [(d)*(e)/0.453592*40/100]	4277	3351	5442	10392
(e) Exchange rate	78.50	83.8	85.50	85.50
(g) Marketing expenses per 40kg	280	320	700	700
(h) Ex-gin price lint 40kg [(f)-(g)]	3997	3031	4742	9485
(i) Ex-gin value of 80kg cotton seed	1484	1854	1854	6482
(j) Ginning charges for 120 kg seed cotton	350	500	500	500
(k) Value of 120 kg seed cotton [(h)+(i)+(j)]	5131	4385	6096	15674
(l) Seed cotton for 40 kg farmgate price [(k)/120*40]	1710	1462	2032	5225
(A) Parity farmgate price seed cotton per kilo [(l)/40]	42.8	36.5	50.8	130.6
(B) Farmgate Price	31.3	35.6	42.3	42.3
NRP at farmgate for product [(B)/(A) – 1]	-27%	-3%	-17%	-68%
(C) Observed tradable input costs per kg output	15	15	18	18
(D) Hypothetical tradable input costs per kg output	19	18	20	20
NRP at farmgate of tradable inputs [(C)/(D) – 1]	-21%	-15%	-11%	-11%
ERP $\{[(B)-(C)]/[(A)-(D)] - 1\}$	-32%	9%	-20%	-78%

Note: For 2009/2010 some of parameters are from the API publication, Cotton Policy Analysis for 2009-10 Crop, June 2009. Average spot price in US for Upland cotton (color 41, leaf 4, staple 34) from USDA Market News.

Source: Author's Calculations

## **Conclusion and Policy recommendations**

63. Pakistan's agricultural sector contributes significantly to the country's economic development both in terms of its growth and in terms of income generation for the rural poor and poverty reduction. About two-thirds of Pakistan's population reside in rural areas and depend primarily on agriculture for its livelihood; overall, agriculture contributes approximately 21 percent of Pakistan's national GDP, employing 45 percent of the total labor force. Beyond the farm gate, agriculture is a major source of raw materials for manufacturing industry, contributing over 50 percent of basic inputs to downstream industries. The major subsectors are livestock, cotton, wheat, sugarcane, and rice, serving as the back bone of rural economy and as sources of foreign exchange earnings for the country as a whole.

64. Rice represents 44 percent of agricultural export earnings. Agricultural exports, however, amount to only approximately US\$ 4.8 billion, a value that is relatively small compared to the size of the larger economy and to the importance of agriculture in total income generation. The total agricultural import bill by contrast is approximately US\$ 6 billion, the largest import being vegetable oils.

65. Overall, the agricultural sector's growth rate has declined gradually over the past three decades, with the most notable decline in output growth rates being in crops in spite of higher world prices during the late 2000s. The reasons for this slowing of growth are uncertain, but possible factors include limited investment in irrigation systems, the slowing of the adoption of new technologies, a weak extension service, and perhaps the effect of changes to trade and price policies on agricultural investment.

66. Labor productivity in agriculture is below the average for the rest of the economy. The sector's labor share is much greater than its share in national value added implying that value added per worker in agriculture is very low. This observation further supports the policy recommendation below of reducing overall protection of tradables inputs for agriculture (reflected in the negative ERPs faced by some crops).

67. By 2003 Pakistan's agricultural trade liberalization had simplified the tariff structure, nearly eliminated all quantitative restrictions, lowered tariff rates, and ended state trading monopolies. But beginning in 2006, exceptions were introduced, and there was a reversal of a number of the more important liberalizing reforms in agriculture, notably related to wheat, sugar and fertilizer policies: the government introduced Regulatory Duties, expanded use of Statutory Regulatory Orders which manipulated normal tariffs. Tariff exemptions are important to agriculture, because they are primarily on inputs; most SROs are aimed at specific firms, and not generally available for all importers. Such exemptions are yet another complication to a highly discretionary, and continually-changing, trade regime, made all the more complex by preferential trade agreements (with China and other South Asian countries). In addition to the uncertainty produced by the trade regime's discretionary nature, the complexity of various tariffs, regulatory duties, and SROs, generates a variety of dispersed price impacts across both products and inputs, which in turn lead to a dispersion of effective rates of protection – that is, the incentives for resource allocation.

68. One of the most obvious aspects of Pakistan's import policy is its complicated nature: a varied profile of tariffs and para-tariffs – SROs, regulatory duties, tax withholdings, export

bans, and subsidies on some exports and inputs. With its large number of different tariffs and para-tariffs there is apparently a high effective dispersion to supports, which are difficult to anticipate for specific products. The import policy is highly discretionary, inviting various lobbying groups to attempt persuasion, with the risk of encouraging corruption. The current system of formal tariffs with SRO exemptions and regulatory duties, is becoming a form of concessional rates and import licensing, something that should have been removed under the GATT-WTO Uruguay Round Agreement. With respect to exports, Pakistan imposes few restrictions, the most important being bans on, or official approvals for, the export of some “essential” products ostensibly to ensure local availability. Export commodities are not subject to export taxes, with some exceptions subject to regulatory duties.

69. This study presents estimates of nominal rates of protection (NRPs) and effective rates of protection (ERPs) at the farmgate for four products: wheat, rice, sugar and cotton. The border price equivalent of the products at the farm level is estimated using direct price comparison (FOB or CIF price), adjusting for port-and-customs-related charges and observed marketing margins. The NRPs for tradable inputs (fertilizer, agrochemicals, seeds and equipment and machinery) are estimated by taking observed costs per unit with and without border protection levels. In the case of fertilizer, the NRP also accounted for the input’s subsidy. The subsidy rate on fertilizer is on the order of 35 percent, and, consequently, the costs per ton of production would increase considerably in the absence of intervention.

70. Overall, the ERPs for the four crops indicate an implicit tax on farm income, although there are some exceptions for some years. In the case of rice, the implicit NRP on the product at the farm level was negative except for 2010/11, when there was an increase in the observed farmgate price relative to the border price. The negative ERPs for rice for the years 2008/09 and 2009/10 indicate that farm income, as measured by value added would have been 40 percent higher in 2008/09 under a no-intervention policy and 21 percent higher in 2009/10. These implicit taxes should have had, all other things being equal, a significant impact in reducing basmati rice production.

71. For wheat, the ERP fluctuated from -20 percent to +13 percent to -23 percent over the three years examined, explained primarily by the swings in the implicit NRP on the product price, which was negative over the three years, but small in 2009/10. The NRP on sugarcane at the farmgate is negative and high – the parity prices are approximately double the observed farmgate price. Again, as in the case of the other products considered, the decrease in tradable input costs in sugar production due to the fertilizer subsidy more than balances the increase due to tariffs. Despite the net subsidy on tradable inputs, the wedge between the parity price and the farmgate price of sugar results in a negative effective protection—that is, an implicit tax on sugarcane production.

72. In the case of cotton, again the fertilizer subsidy dominates the NRP for tradable inputs, the cost of tradable inputs ranging from 11 to 21 percent less than what it would be in the absence of both the subsidy and the tariffs. Overall, the impact on cotton farmers’ income as measured by the ERP is highly volatile because the border price is volatile. As in the case of the other products examined, the impact of the trade regime and fertilizer subsidies on cotton reduces the negative impacts of the price wedge between the farmgate and the border. That a large proportion of Pakistan’s cotton growers are small farms raises complex

questions of the political economy of best dealing with the efficient transmission of price signals in the context of such high price volatility.

73. One should note that even equal tariffs across various products will result in different rates of effective protection, because there is a variation in the cost shares of tradable inputs and because there are different levels of tariffs (and subsidies) across inputs. The only way to guarantee against major variations in effective protection rates—that is, returns over non tradables—is to make the rates of nominal protection uniform across all products, including raw materials, capital goods and other tradable inputs. When all nominal rates of protection are equal, all effective rates are equal to this nominal rate.

74. Specific policy recommendations that follow from this study and previous experiences with trade-policy reforms:

1. The aim of modifications of the tariff schedule should be toward greater equality, and a removal of what is effectively a tax on agriculture via tariffs and other explicit taxes, which this study has shown by the high and negative ERPs for wheat, cotton, basmati rice and sugar.
2. From an examination of the current tariff and para-tariff regime, one observes a variety of instruments and a high degree of discretion: Pakistan should consider moving toward a uniform and low tariff, with the tariff as the only border measure, without exceptions and without other import taxes. A uniform tariff would not preclude sales taxes, as long as these are uniformly applied to imports and domestic production. Uniform tariffs, as the normal rule guiding trade policy, also would not preclude the prudent and occasional use of transparent contingency measures, such as safeguards, anti-dumping and countervailing duties, which are permissible tools under the WTO.<sup>8</sup>
3. The estimates in this study show a volatility to protection (or effective tax) rates on the import-competing crops of cotton, wheat and sugar, due to the high volatility of prices in world markets. Given the political sensitivity of food crops—both with respect to the welfare of consumers and producers—a price band policy with price floors and ceiling might be an attractive option to evaluate. Such a possibility would have to be exceptional and administered with a credible commitment to focus this deviation from tariff uniformity on only these two products and with pre-established and transparent rules. A price band policy, restricted to these two products, could be based on moving averages of border prices, and would have to be unrelated to domestic prices; otherwise, such a policy would fall into the category of a variable levy, an instrument forbidden under the Uruguay Round of GATT/WTO.
4. The study finds that the fertilizer subsidy is a basic driver of the effective rates of protection, offsetting the taxes on tradable inputs and the relatively low protection on outputs. But the fertilizer subsidy represents a significant fiscal cost, as well as an

---

<sup>8</sup>For a systematic discussion of the rules that apply to agriculture, with particular emphasis to South Asia, see *Implication of the Uruguay Round Agreement for South Asia: The Case of Agriculture*, edited by B. Blarel, G. Pursell and A. Valdes for the World Bank and the FAO. Although this publication is from 1999, the rules under the WTO have not since changed.

invitation to corruption.<sup>9</sup> With the move toward the uniformity and the reduction of tariffs, the government of Pakistan should move to eliminate the fertilizer subsidy as well. But, the focus of this paper was not on the mechanics of fertilizer subsidy—in fact, the ERP approach does not incorporate substitution effects. Therefore, before making radical changes to the present fertilizer policy, one should evaluate the cost effectiveness of the present programs in terms of the opportunity costs of taxpayer funds, examining the possible impacts on fertilizer use across various products, on the use of other inputs, on per-acre yields, and on farm income, especially of the small farmer.

5. Finally, with respect to exports, rice and cotton, the basic recommendation is to maintain the present system of low or no export taxes, and to move toward the elimination of all other quantitative restrictions on exports. One should note, however, that there might be political economy justifications for export restrictions. For instance, downstream industries could benefit from the reduced domestic price of the exportable commodities affected by the export restrictions. The case of cotton and textiles is a likely case.

75. A summary recommendation here is to revise and consider an overhaul of the trade and price regime, to eliminate quantitative restrictions and to modify tariffs in the direction of greater equality, a positive, moderate and uniform tariff on imports across the board as the only border measure for import competing products. Some patterns of trade restrictions are far worse than others. The ERP approach shows that the same tariff on a final product can imply very different amounts of effective protection; a uniform nominal protection on all goods (including inputs) is the only way to guarantee against large variations in ERPs.

76. As a final note, economists can always identify arguments in favor of preferential treatment for some activities; but in our judgment economic history provides ample evidence that in most cases the preferential treatment is captured by powerful lobbies, rather than by the sectors with the greatest growth potential.

---

<sup>9</sup>Over the last four years, the Pakistan government has provided total subsidies amounting to Rs. 110 billion on fertilizer, or averaging 27 billion per year (Ministry of Finance, Pakistan Economic Survey 2011-2012). Pakistan Today recently reported, "The government has spent around Rs. 45 billion as fertilizer subsidy during last 10 months of the current fiscal year aimed at boosting agriculture and achieving its targets." On corruption charges related to the fertilizer subsidy, see, for example, "Fertilizer subsidy: Prime Minister urged to order probe into alleged fraud" in The Business Recorder, 13 January 2012. (<http://www.brecorder.com/agriculture-allied/183/1142139/>)

## Policy Matrix

Objectives	Short Term (1 year)	Medium Term
Enhance competitiveness of agricultural sector and reduce anti-export bias.	<p>Initiate trade policy reform that aims to reduce the dispersion and levels of tariffs and para-tariffs on imports, including tradable inputs.</p> <p>Advance towards eliminating export restrictions</p>	<p>Move to a simplified tariff regime of uniform tariffs, no exemptions and no para-tariffs.</p> <p>Eliminate all export restrictions.</p>
Reduce fiscal costs	Design a program of lowering fertilizer subsidies.	Move toward eliminating fertilizer subsidies.
Alleviate the problems of food price risk management.	<p>Evaluate the transitional use of adjustable-tariffs to effect price bands on wheat and sugar. Floor and ceiling prices to following moving average of world prices, with no domestic targeting.</p> <p>Simultaneously begin evaluation and design of cash-based safety-net policies to protect low income consumers from food price spikes.</p>	<p>Implement the price band scheme for a period of up to 10 years.</p> <p>Begin a pilot targeted, cash-based safety-net program.</p>

## Annexure

**Table A1** Pakistan's Main Agricultural Imports, 2010-11

Rank	Commodity	Quantity (tons)	Value (1000 \$)	Unit value (\$/ton)
1	Palm oil	1,943,894	2,012,411	1,035
2	Wheat	8,901	5,158	579
3	Cotton lint	344,599	976,654	2,834
4	Dry Fruits	109,207	86,543	792
5	Tea	119,792	334,141	2,789
6	Spices	110,502	103,676	938
7	Soybean oil	66,427	66,940	1,008
8	Milk and Cream incl. Baby Food	64,947	165,762	2,552
9	Sugar Refined	1,032,639	685,883	664
10	Jute	93,141	71,542	768
11	Pulses	627,093	401,509	640
12	Rubber Crude	82,756	201,425	2,434

Source: PBS

**Table A2** Pakistan's Main Agricultural Exports, 2010-11

Rank	Commodity	Quantity (tons)	Value (1000 \$)	Unit value (\$/ton)
1	Rice Milled	3,657,507	2,118,156	579
2	Fruits	655,335	274,674	419
3	Seeds, Nuts & Kernels	17,351	18,475	1,065
4	Vegetables	812,716	185,253	228
5	Tobacco	6,685	26,249	3,927
6	Cotton lint	142,313	309,587	2,175
7	Meat and Meat Preparations	51,661	188,701	3,653
8	Molasses	135,344	15,023	111
9	Wheat	1,738,954	491,483	283
10	Sugar	540	428	793
11	Cotton carded, combed	23,001	156,238	6,793
12	Spices	15,789	29,102	1,843

Source: SBP

**Table A3** Import Tariffs & Taxes, Adjusted for Exemptions, Selected Agricultural Products, 2008-10

Tariff and taxes	Import-competing commodities and seeds					
	Wheat and seeds for wheat, sugarbeets, cotton and rice			White Crystalline Cane Sugar		
	2008-09	2009-10	2010-11	2008-09	2009-10	2010-11
CD	0%	0%	0%	0%	0%	0%
FED	0%	0%	0%	0%	0%	0%
Special FED	0%	0%	0%	1%	1%	1%
RD	0%	0%	0%	0%	0%	0%
Provincial Excise Duties	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Discount by PTA/FTA	0%	0%	0%	0%	0%	0%
ST	0%	0%	0%	0%	0%	0%
WHT	2%	5%	5%	2%	5%	5%
NRP	2.82%	5.84%	5.84%	3.84%	6.89%	6.89%
Tariff and taxes	Exportables					
	Basmati Rice			Cotton, American		
	2008-09	2009-10	2010-11	2008-09	2009-10	2010-11
CD	10%	10%	10%	0%	0%	0%
FED	0%	0%	0%	0%	0%	0%
Special FED	0%	0%	0%	0%	0%	0%
RD	0%	0%	0%	0%	0%	0%
Provincial Excise Duties	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Discount by PTA/FTA	0%	0%	0%	0%	0%	0%
ST	0%	0%	0%	0%	0%	0%
WHT	2%	5%	5%	2%	5%	5%
NRP	13.02%	16.34%	16.34%	2.82%	5.84%	5.84%

Note: The NRPs in this table are not from direct price comparisons between border and farmgate, but they have been calculated using only the information at the border. See the final equation defined in the box titled 'How to calculate the total rate of protection from various taxes.'

Source: Pakistan Customs Tariff (Volume-I and II), Federal Board of Revenue, Government of Pakistan, various issues

**Table A4** Import Tariffs & Taxes, Adjusted for Exemptions; Agricultural Inputs (Except Seeds) 2008-10

Tariff and taxes	Fertilizer			Pesticides/Weedicides & Machinery		
	2008-09	2009-10	2010-11	2008-09	2009-10	2010-11
CD	0%	0%	0%	0%	0%	0%
FED	0%	0%	0%	0%	0%	0%
Special FED	0%	0%	0%	1%	1%	1%
RD	0%	0%	0%	0%	0%	0%
Provincial Excise Duties	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Discount by PTA/FTA	0%	0%	0%	0%	0%	0%
ST	0%	0%	0%	0%	0%	0%
WHT	1%	1%	1%	2%	5%	5%
NRP	1.81%	1.81%	1.81%	3.84%	6.89%	6.89%

Note: The NRPs in this table are not from direct price comparisons between border and farmgate, but they have been calculated using only the information at the border. See the final equation defined in the box titled 'How to calculate the total rate of protection from various taxes.'

Source: *Pakistan Customs Tariff (Volume-I and II), Federal Board of Revenue, Government of Pakistan, various issues*

**Table A5 Calculation of ERP for Basmati Rice from Punjab, 2008-10**

Item	Calculation/Explanation
(a) Border price per kilo US\$ Karachi	f.o.b. price at Karachi Port
(b) Exchange rate	period average (Rs/US\$) during each fiscal year
(c) Marketing expenses Rs/kg	export & purchase incidentals, insurance & financial expenses for each fiscal year
(d) Wholesale price Rs/kg	Source: PBS/provincial governments database
(e) Mill gate price Rs/kg	farmgate price of paddy plus milling costs
(A) Farmgate price per kilo	Cost of production of paddy at farm with land rent, Source: API
(B) Border price farmgate equivalent per kilo	$\{[(a) \times (b) - (c)] \times 0.65 - \text{milling costs} - [(d) \times 0.65 - (e)]\}$ , 0.65 is the standard paddy-to-rice conversion rate
Implicit NRP on product at farmgate	$[(A)/(B) - 1]$
(C) Observed costs per kilo of tradable inputs	Cost of all tradable inputs with interventions
(D) Hypothetical costs per kilo of tradable inputs	Cost of all tradable inputs without interventions
Implicit NRP on tradable inputs	$[(C)/(D) - 1]$
(E) Observed value added net of tradable inputs	Farmgate price- Cost of all tradable inputs with interventions
(F) Hypothetical value added net of tradable input	Border price farmgate equivalent- Cost of all tradable inputs without interventions
ERP	$[(E)/(F) - 1]$

Note: Hypothetical farmgate price is that which would prevail in the absence of interventions, and would correspond to the border price in rupees adjusted for marketing expenses, conversion ratio of paddy into rice, wholesale markup and milling costs. Tradable inputs include fertilizer, weedicides, seeds and machinery. "Observed" value added calculation takes into account actual tariffs and subsidies, etc. while "hypothetical" assumes no tariff and subsidies.

**Table A6** Calculation of ERP for Basmati rice from Punjab, 2008-10.

Item	Explanation/Calculation
(a) Border price per ton US\$ Karachi	c.i.f. price at Karachi Port
(b) Exchange rate	period average (Rs/US\$) during each fiscal year
(c) Wholesale price Rs/kg	Source: PBS/provincial governments database
(A) Farmgate price Rs/kg	Cost of production at farm level, Source: API
(B) Border price farmgate equivalent Rs/kg	$[(a) \times (b)] + \text{Stevedoring, clearing, handling, wharfage, weightment, inland insurance, survey \& pre-shipment charges and provision for unforeseen losses} + \text{LC opening charges, TCP commission \& bank markup} - [(c) - (A)]$ , Source: API, TCP
Implicit NRP on product at farmgate	$[(A)/(B) - 1]$
(C) Observed costs per kilo of tradable inputs Rs/kg	Cost of all tradable inputs with interventions
(D) Hypothetical costs per kilo of tradable inputs Rs/kg	Cost of all tradable inputs without interventions
Implicit NRP on tradable inputs	$[(C)/(D) - 1]$
(E) Observed value added net of tradable inputs Rs/kg	Farmgate price - Cost of all tradable inputs with interventions
(F) Hypothetical value added net of tradable input Rs/kg	Border price farmgate equivalent - Cost of all tradable inputs without interventions
ERP	$[(E)/(F) - 1]$

## References

- Agriculture Policy Institute (API).Ministry of Food and Agriculture. various studies
- Amjad, R. 2011. "Food security in South Asia: Strategies and programs for regional collaboration." *Pakistan Journal of Agricultural Economics*. Vol. 7 (September): pp. 1-37.
- Ahmad, M. 2003. "Agricultural product markets in Pakistan". Unpublished background paper. World Bank. Washington DC
- Blarel, B., G. Pursell and A. Valdes (eds.). 1999. *Implication of the Uruguay Round Agreement for South Asia: The Case of Agriculture*. World Bank and the FAO, Allied Publishers, New Delhi.
- Chaudhry, A.R. 2011. "Pricing mechanism for agricultural commodities." *Pakistan Journal of Agricultural Economics*. Vol. 7 (May): pp. 17-20.
- Dorosh, P. and A. Salam. 2000. "Pakistan," chapter in K. Anderson and W. Martin (eds.) *Distortions to Agricultural Incentive in Asia*. World Bank.
- Dorosh, P. and A.Valdes. 1990. "Effects of Exchange Rate and Trade Policies on Agriculture in Pakistan". Research Report 84, IFPRI.
- Hamid,N., I. Nabi, and A.Nasim.1992. "Pakistan," chapter in A. Krueger, M. Schiff and A. Valdes (eds.) *The Political Economy of Agricultural Pricing Policy*. Johns Hopkins University Press.
- Pakistan: Selected Issues and Statistical, Appendix. 2005. International Monetary Fund
- Orden,D., A. Salam, R. Dewina, H. Nazli, and N. Minot.2005. "The impact of global cotton markets on rural poverty in Pakistan". Pakistan Poverty Assessment Update, Background Paper Series, Asian Development Bank, Islamabad
- Pursell,G., Khan, A., and Gulzar,S.. 2011. "Pakistan's trade policies: Future directions." International Growth Centre, LSE, London.
- Pakistan Federal Bureau of Statistics (formerly Federal Bureau of Statistics) (<http://www.pbscommerce.gov.pk>).
- USDA, GAIN Report System. 2010.
- Salam, A. 2001."Support price policy in Pakistan: Rationale, Practice, and Future Options", APCOM Series 196, Agricultural Prices Commission, Pakistan.
- World Bank.2004. "Pakistan: rural factor markets—policy reforms for growth and equity". November 19, 2004, Washington DC