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# Prospects of Wheat and Sugar Trade between India and Pakistan: A Simple Welfare Analysis

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## 1. Introduction

Due to a long history of strained political relations between India and Pakistan, trade possibilities between the two neighbouring countries have rarely been studied [Nabi and Nasim (2001), Mukherji (2004)]. However, the recent thaw in India-Pakistan diplomatic ties and the stated need for confidence building measures (CBMs) between the two nuclear neighbours has generated a lot of interest in discovering possibilities of opening up of trade in more sectors at the levels of the two governments and the business communities.

Moreover, the agreement on South Asian Free Trade Area (SAFTA), signed by seven member countries of South Asian Association for Regional Cooperation (SAARC) in January 2004, envisages expanding intra-regional trade, which is another driving force for studying extended trade possibilities between the two countries. Since then, India-Pakistan trade has become the subject of intensive discussions between trading bodies of the two countries, and a focus for policy oriented research.

The first wave of economic concern, from the stakeholders in Pakistan, called attention to welfare loss associated with trade diversion from producers in Pakistan to producers in India. This concern was further intensified on account of protection granted by India to its agriculture and industry, and non-tariff barriers and restrictive trade policies in place in India. In the past couple of years, however, there is an increasing recognition that a more logical approach is needed in dealing with bilateral trade issues, including tariff and non-tariff barriers, quality standards, market access and procedural matters. These trade issues call for more coherent planning and policy making in order for bilateral trade to generate positive impact on collective welfare in a country.

While trade between India and Pakistan can be classified into various sectors and sub-sectors, an extremely important sub-sector is wheat and sugar trade for both the countries. Food grain production, in general, and production of wheat, in particular, carries great significance in the agriculture sectors of India and Pakistan. Similarly, sugar industries in the two countries also have great importance for their contribution to the GDP in respective countries. Currently, India not only is the second largest producer and the second largest consumer of wheat in the world, but she is also the world's leading producer of sugar and second largest producer of sugarcane after Brazil. Seemingly, both India and Pakistan are expected to benefit from trading with each other in these sub-sectors; however, this area has not been explored recently. Thus, it is important from a policy point of view to determine whether there are trade possibilities, and if so, whether there are significant welfare gains associated with India-Pakistan trade in wheat and sugar sectors.

This paper asks how the opening up of wheat and sugar trade between India and Pakistan would affect welfare in the two countries. The main focus of this paper is to

document whether trade possibilities exist between India and Pakistan in the sub-sectors of wheat and sugar. After an overview of these sub-sectors in the two countries, the paper conducts a partial equilibrium analysis to simulate welfare implications of trade between the two countries under three alternative trade regimes: a) under a free trade agreement between India and Pakistan, b) under SAFTA, and c) under the 'most-favoured nation' (MFN) clause.

The layout of the paper is as follows. Section 2 explains the size and structure of the economies of India and Pakistan. Section 3 discusses the prospects of wheat trade between India and Pakistan by describing the relative competitiveness of the two countries in the light of their relative costs of production, and simulates the welfare affects of opening wheat trade under three scenarios and comes up with policy implications of the welfare analysis for wheat trade policy in Pakistan. Finally, Section 4 offers a comparative analysis of sugar sectors of the two countries, discusses their sugar trade and distortions, and simulates and draws policy lessons and implications of the welfare analysis.

## 2. Size and Structure of the Economies of India and Pakistan

India is the second most populous country in the world, its population is seven-times more than the population of Pakistan. Large and a buoyant Indian economy offers a huge market potential for its trading partners. Since the economic reforms of 1992-93, India has successfully maintained an average GDP growth rate of more than 6% per annum, which is remarkable if compared with its pre-reform growth experience. Pakistan, on the contrary, has experienced a period of slack in GDP growth in the 1990s before embarking on a high growth trajectory during the past three years. Along with high GDP growth, India has experienced a significant decline in absolute poverty from 51.3% in 1977-78 to less than 25% in 2004-05 while poverty levels in Pakistan, after experiencing an initial fall from more than 45% in 1960s to less than 20% in late 1980s, has significantly gone up to about 35% in late 1990s. After a long period of dreary performance, Pakistan's foreign exchange reserves rose to US$13 billion in 2004-05, which are still lower than its total external debt of about US$35 billion. By contrast, India's foreign exchange reserves at US$129 billion in February 2005 were in excess of India's total external debt of US$114 billion at end-September 2004.

Even though the share of trade in Pakistan's GDP has improved to 30%, it warrants further improvements by broadening its trade horizon. Pakistan's merchandise trade is heavily dependent on the performance of the textile and clothing sector. Trade deficit has surged to US$4.3 billion in 2004-05, which is the largest trade deficit in Pakistan's history. A comparison with India shows that during the past three years, growth in merchandise exports in India has surpassed 20% per annum with the manufacturing sector taking the centre stage.[1]

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[1]High export growth in India was driven by five sectors of engineering goods: gems & jewellery, textiles, chemicals and related products, and petroleum products.

India's major trading partners are ASEAN + 3 (China, Japan and Korea) accounting for 19.9% of merchandise trade, EU and North America with 19% and 12.9% shares, respectively indicates broadened trade horizon of a buoyant Indian economy.

*2.1 Share of Agriculture Sector in the Two Economies:*

Agriculture sector is a major contributor to the economies of India and Pakistan, accounting for nearly 23% and more than 24% share in GDP, respectively. It provides employment to 42% of the labour force in Pakistan and 60% in India. Figure 3.1 shows that wheat and cotton occupy a dominant position in agricultural production in Pakistan, accounting for 37.2% and 28.2% share, followed by shares of rice and sugarcane at 15.4% and 9.7%, respectively. These major crops also account for 34% of total value added in the agriculture sector in 2004-05.

Even though the volume of agricultural exports from India at US$6.7 billion is about seven times larger than Pakistan's export of US$0.99 billion, the two countries are equally dependent on their agriculture sectors for export earnings, as indicated by the share of agricultural exports in total exports accounting for 13% in India and 10% in Pakistan. By contrast, the share of agricultural imports in Pakistan at 14% is much larger than only 5% share in agricultural imports of India. While rice has the largest share (46%) in Pakistan's agricultural sector exports (Fig. 3.2) followed by wheat and wheat flour (13%), and molasses (7%), major agricultural sector exports of India (Fig. 3.3) consist of marine products (22%), rice (19%), sugar and molasses (6%) and wheat (5%). Edible oil, cotton lint, tea and rapeseed are major agricultural import items in Pakistan (Fig. 3.4) while wheat imports are 3% of the total. In India, edible oil and pulses are major import items consuming 87% of agricultural import bill (Fig. 3.5).

*2.2 India-Pakistan Trade Relations:*

Pakistan's trade with India up until 1948-49 was quite large. At that time, exports to India accounted for 56% of total exports while 32% of Pakistan's imports also came from India, which made India a major trading partner of Pakistan [Nabi and Nasim (2001)]. However, import restrictions in later years led to a substantial fall in trade between the two countries. The 1965 war between the two countries led to a new era of hostility culminating into a virtual end of trade relations between the two from 1968-69 to 1973-74, before resumption of government-to- government commercial relations in 1974, and resumption of shipping services in 1975, which were followed by trade relations between the private sectors of the two countries [Nabi and Nasim (2001)]. The governments of Pakistan and India failed to make headway in expanding trade relations during the period 1979 – 86 before Pakistan agreed in 1986 to allow import of 42 items from India, which were expanded to 577 items by 1989. This so-called positive list has continued to expand till 2005. More often than not, Pakistan has enjoyed a trade surplus with India up until 1992-93 thereafter this trade balance has largely shifted in favour of India.

The changing significance of India-Pakistan bilateral trade can be gauged in comparison with the overall trade volume of the two countries with the rest of the

world. For instance, as compared with Pakistan's 56% share of exports to India in 1948-49, its total exports to India in 2003-04 at US$ 93.8 million accounts for only 0.76% of its exports. Similarly, as compared with 32% imports originating from India to Pakistan in 1948-49, imports from India in 2003-04 at US$ 382.2 million account for 2.45% of Pakistan's total legal imports in that year.

## 3. Prospects of Wheat Trade between India and Pakistan

*3.1 Wheat Production and Consumption Structures – A Comparative Analysis:*

Since wheat is a temperate zone crop needing low temperature, it is not surprising that its production in India and Pakistan has a narrow base mostly concentrated in the north. Major wheat growing provinces of Pakistan (Punjab and Sindh)[2] share much in common with major wheat growing states in India (Punjab, Haryana and Uttar Pradesh).[3] They have similar agro-climatic zones, farm technologies, and consumption habits. However, differences have emerged overtime in the level of development of their respective agriculture sectors, which influence the present competitiveness of the two countries and their current status in external trade in wheat.

The share of wheat in total calories consumed in Pakistan is 41.2%, but only 20% in India.[4] Given higher share of wheat in total calories, it serves as a major food source in Pakistan with per capita wheat consumption of 126 kg in 2002.[5] In India, however, per capita wheat consumption is only 58kg, or less than half of per capita wheat consumption in Pakistan. Therefore, it turns out that despite a seven-fold difference between the populations of India and Pakistan, wheat demand in India (due to lower per capita consumption) is only 3.3 times more than Pakistan. As compared with India's 3.3 times greater wheat needs over Pakistan in 2002, wheat production in India was 3.8 times greater than wheat production in Pakistan indicating an apparent surplus of 1.04 million MT in India. About 5% of net surplus wheat (0.364 million MT) was exported by India in the same year while the rest was used to maintain government wheat stocks.

Growth in wheat production in both countries is explained, on the one hand, by expansion in area and, on the other hand, by rising wheat yields. There was nearly a five-fold increase in wheat production in Pakistan from 3.8 million metric tons in 1960-61 to 19.8 million metric tons in 2003-04 (Table 3.1). In the same period, wheat production in India increased by over six-fold (from 11 million metric tons in 1960-61 to 72 million metric tons in 2003-04). As compared with five-fold increase in wheat

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[2] Wheat production in Pakistan is concentrated in Punjab with 80% share in total production while the rest is being shared by Sindh (11%), NWFP (6%) and Balochistan (3%).

[3] Major wheat growing states in India are Uttar Pradesh (35%), Punjab (20%) and Haryana (13%) while the rest shared by other states.

[4] Food consumption in Pakistan is dominated by three vegetable products (namely, wheat, rice and sugar and sweeteners) along with animal products accounting for 60% of total calories consumed [FAO (2002)].

[5] Calories consumed from vegetable products in India account for 92.3% (wheat, rice, sugar and sweeteners, and pulses, 68.4%) of total calories. Rice with 33.6% share in calories is the dominant food grain in India as compared with only 8% share for rice in Pakistan [FAO (2002)].

production, wheat area in Pakistan has less than doubled while in India for over six-fold increase in production, wheat area has about doubled. Average wheat yields per hectare were quite similar in the two countries by 1960-61, but India took lead in wheat yields in the later period. Wheat yield in India has increased from 851 kg/ha in 1960-61 to 2640 kg/ha in 2003-04 while in the same period wheat yield in Pakistan has increased from 823 kg/ha in 1960-61 to 2419 in 2003-04.

After a promising beginning in late-1960s and throughout the seventies, growth in per hectare yield in Pakistan slowed down in 1980s before a recovery in 1990s while in the same period India kept on advancing per hectare yields (Table 3.1). In India, relatively higher growth in per hectare yield started in late-sixties with the on-set of the green revolution, which continued up until the eighties followed by deceleration in more recent period.

Faster growth in wheat production and yield in the earlier phase in India created a significant wedge between per hectare yield in India and Pakistan. However, average wheat yield in Pakistan was catching-up during the last more than a decade (Table 3.1). The slowing down of yield growth in India may be attributed to expansion of area to marginal lands, lower partial factor productivity of farm inputs, and lack of agricultural research [Gandhi et al. (2004)]. However, a comparison of national average production and yield may appear misleading if we take into account the differences in agro-climatic zones and suitability of land.

Being a temperate zone crop needing low temperatures, wheat has a narrow geographical base in India on account of predominantly tropical nature of the country. Hence major wheat growing states in India producing marketable surplus are in the north.[6] Moreover, wheat yields substantially vary across states with Punjab and Haryana having highest per hectare yields at 3853 kg/ha and 3660 kg/ha in 1998-99 (about 55% higher than the national average yield in Pakistan in 2003-04), which are comparable with wheat yields in developed countries. Overall, the Indian state of Punjab, which borders Pakistan's Punjab province and the state of Haryana produce about 22 million metric tons of wheat annually that is equal to Pakistan's total wheat production in 2004-05. Due to spatial gaps between demand and supply of wheat across states, about 75% of Indian wheat procurement takes place from Punjab and Haryana while only 16% is contributed by Uttar Pradesh in procurement, despite producing 36% of total wheat.

### 3.2. Wheat Markets, Procurement and Prices:

Historically, Pakistan and India have protected their urban consumers through various wheat subsidy programmes, and made use of the procurement/support prices to encourage domestic production of wheat, and to maintain adequate buffer stocks. However, the price support mechanisms in the two countries have recently been called into question on account of their negative impact on consumer prices for wheat and wheat flour.

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[6] For example, in 1997-98, about 87% of Indian wheat was grown in Uttar Pradesh (36%), Punjab (19%), Haryana (11%), Mahachal Pradesh (11%) and Rajasthan (10%) states.

## A. *From Market Interventions to Reforms in Pakistan*

There is a long-standing policy of wheat procurement and support, which since 1959 has dominated wheat market activity in Pakistan. Until 1987, the main rudiments of the procurement system included the announcement of a procurement price (before the sowing started) at which the government purchased surplus wheat from producers and an issue price at which the flour was sold to urban consumers through the ration depots. Moreover, the government also used to de*termine the targets for whea*t procurement and import (mostly from the US under the PL-480 extended credit scheme) to overcome likely deficits of the provinces.[7]

In the eighties, however, many began to question the efficacy of large-scale procurement and buffer stocks [Cornelisse and Kuypers (1985), Pinckney (1986) and Cornelisse and Naqvi (1989)]. Even though the abolition of ration shop channel in March 1987 was termed as a significant policy change, the government continued its policy of fixing wheat price ceiling and making bulk purchases through Agricultural Marketing Supplies Limited and PASSCO. Nevertheless, due to government procurement operations there were inadequate marketing margins for private trading agents to create additional storage demand for wheat [Khan and Burki (2005)]. In December 2001, under a loan arrangement with the Asian Development Bank, the government of Pakistan introduced wheat market reforms and decided to reduce procurement of wheat to one million tons in 5-years; provide incentives to the private sector for storage of wheat; and to phase-out all government departments involved in procurement, sale import and export of wheat, except those needed for procurement of strategic reserves. Initial evidence shows that in a short period of two to three years these reforms have brought about significant incentives for private traders to procure and market wheat [Khan and Burki (2005)]. For the same reason, private traders are now actively involved in import/export of wheat.

## B. *Market Interventions and Public Food grain Distribution in India*

While India faced chronic food deficits before 1960s, the adoption of new technologies in mid-1960s based on high yielding varieties of wheat and rice provided a ray of hope for them to raise grain production to tackle food shortages. Therefore, government intervention in food grain market was meant to provide favourable incentive environment to farmers. The other objective of their policy was to make food available to the consumers at reasonable prices. The twin objectives of the government policy were fulfilled by: a) a price support mechanism that determined minimum support prices (MSP) implemented through compulsory procurement; b) a system meant for inter- and intra-year price stability by using open market operations; c) an elaborate system of maintaining buffer stocks, and food grain distribution through the public distribution system at reasonable prices.

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[7] The procured/imported wheat was released at pre-determined prices to flour mills in each district according to their milling capacity as well as milling needs of the government. The mills used to release wheat flour at higher fixed price, set by the government, to ration depots registered with the mills.

These interventions at the market place together with other price and non-price incentives to the farmers in the green revolution and post-green revolution period have played a key role in transforming the rural economy and in bringing about a positive impact on farm income, especially in the irrigated areas. Most of the wheat is procured from only three states namely, Punjab, Haryana and Uttar Pradesh. For example, Gandhi et al. (2004) have reported that in 1998-99, 55% of the procurement was done from Punjab, 30% from Haryana and only 10% from Uttar Pradesh.[8] Due to large spatial deficits or surpluses across India in supply and demand of wheat, maintaining farmer interests and food security always remains a challenge.[9]

Before 1990s, MSP was mainly determined on the basis of cost of production while no or little weight was given to international price situation with the consequence that MSP always remained less than the international price. This gap between MSP and international price widened further in 1991 when, as part of structural adjustment program, Indian rupee was devalued. Due to pressure from farmer lobbies arguing that MSP was out of line, and for consistency with the policy of integration of Indian economy with global economy, the government raised MSP of wheat by more than 20% consecutively for three years from 1990-91 to 1992-93 at much higher rates than justified by the cost of production. Further increase in MSP took place on an annual basis even when international prices of wheat had started falling. Since revisions in MSP were also accompanied by similar revisions in the issue price, these policies are believed to have deprived poor consumers from the basic food while "a large portion of the output is diverted from the market to government warehouses" [Chand (2005)].

*3.3. An Overview of Wheat Trade in India and Pakistan:*

*A. Wheat Trade in Pakistan*

Pakistan has a long history of being an importer of wheat. In 1950s and 1960s, due to severe price controls wheat price remained stagnant in the country thus negatively impacting the general profitability of agricultural production and wheat supplies. In turn, the deteriorating food supplies led to gaps between the supply and demand, which was met by food imports under PL-480. During the green revolution and post-green revolution periods, wheat production did increase at a faster pace, but the demand for wheat grew faster than domestic supply due to which import of wheat became a regular phenomenon. Part of the problem was that producer price of wheat was fixed at much lower than the border parity prices, which made wheat production relatively less profitable.

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[9] For example, Gandhi et al. (2004) have reported that in 1998-99, 55% of the procurement was done from Punjab, 30% from Haryana and only 10% from Uttar Pradesh.

As part of commodity liberalization policies, wheat price in recent years has gradually moved closer to the border parity price, exceeding it for the first time in 2002.[10] Data compiled since 1987/88 in Table 3.2 shows that Pakistan has been a net importer of wheat, except for a break from this trend between 2000/01 and 2003/04. Even though farmers' overall supply response depends on relative profitability of competing crops and the weather conditions, rising support price of wheat seems to have generated enough incentives for the farmers leading to surplus wheat production. As shown in Table 3.2, the highest wheat import by Pakistan in recent years was 4.1 million tons in 1997/98 while the magnitude of Pakistan's wheat export has remained much smaller (mostly to Afghanistan) except in 2001/02 and 2003/04 when 1.3 million and 1.1 million tons of wheat was exported, respectively. In subsequent period, falling wheat stocks and rising market prices of wheat forced the government to allow wheat imports.

Even though bound tariffs under Agreement on Agriculture on wheat in Pakistan are 100%, the applied duty rates have always remained at zero percent. This is because wheat has always been imported by the public sector under the auspices of the Trading Corporation of Pakistan. The only exception was in FY2006 when the government for the first time allowed private traders to import wheat at zero duty.

## B. Wheat Trade and Distortions in India

India, since 1947, has followed a policy of a virtual ban on import of all agricultural products except cereals, pulses and vegetable oils. While import of pulses was freely permitted, edible oil was imported through the monopoly granted to the State Trading Corporation. Until the mid-1990s quantitative restrictions were in place for import of cereals and vegetable oils through a state trading monopoly. Import of cereals was given to the Food Corporation of India, which did not require a license or payment of duty for making import transactions. Ironically, India implemented zero import duties on wheat, rice, maize and milk under its commitment made with the GATT in 1947, but the low level of duties on wheat and rice were practically made ineffective due to the quantitative restrictions on flow of these quantities imposed by the monopoly of the Food Corporation of India. Big chunk of domestic supplies of wheat (up to 42%) in early sixties came from the US under the food aid programmes. However, this dependence on imports rapidly came down due to the policy of self-sufficiency in later years. Nevertheless, India resorted to large scale import of wheat only in 1974-76 and 1983 while in all other years, imports as a percentage of domestic availability of wheat have never exceeded 3%.

Despite market orientation and gradual liberalization of import policy in India under fiscal and trade policy reforms of 1990, the policy on agriculture saw little change

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[10]The institutions involved in procurement, and distribution system include the Commission of Agricultural Costs and Prices (CACP), which suggests minimum support price; Food Corporation of India (FCI) procures food grain (rice and wheat) at pre-determined price, arranges storage, transportation and release; and state civil supplies corporations or departments distribute food grain through over 400,000 fair price shops in rural and urban areas. State governments distribute food grain to ration cardholders through fair price shops, and determine the target groups, the size of the ration and the price of rationed food grain.

from the 1960s when the policy objective was to promote the green revolution through the use of subsidized inputs and to provide support prices to farmers through a procurement and distribution system. Even though agriculture subsidies in recent years climbed to more than Indian Rs.300 billion in 1993-94 constant prices [Gulati and Narayanan (2003)], India actually became an exporter of rice and wheat in 1990s belying some earlier forecasts, which suggested that it would be an importer of food grain in the 1990s.

Due to the relative neglect of the agriculture sector in the reform process, import restrictions on foodstuffs took much longer to be phased-out. The pre-reform era restrictions on edible oil were the first to go, when trade of edible oils was liberalized in 1994 followed by elimination of state trading monopoly. Moreover, non-tariff barriers were replaced with tariffs under commitment with the WTO. However, restrictions on cereal import were phased out much later in 2002. While the bound tariff on wheat import in India under the Agreement on Agriculture of the WTO was set at 100%, the applied duty rates until recently were at 50%. In India until March 1997, wheat exports were not only restricted, but were also subject to minimum export price. Later these restrictions were relaxed so as to allow export against license subject to quantitative ceilings announced by the government from time to time. Similarly, wheat imports remained canalized and were permitted only through state trading agencies till March 1999 when roller flourmills were allowed to import wheat for milling purposes at zero duty.

For the first time since 1947, India became a net exporter of wheat and rice in 1978 (see Table 3.3). Since then India has emerged as a significant exporter of rice, but there is much uncertainty prevailing in the case of wheat trade. Despite the need to liquidate its bulging wheat stocks reaching 63 million tons in 2002, wheat consumption in India has declined partly due to inadequate purchasing power in the hands of the poor and partly due to changing consumption patterns toward high-value agricultural goods. Total procurement of wheat has almost doubled from less than 10 million MT in 1990/91 to more than 20 million in 2001/02 (Table 3.3).

Even though India's trade in wheat is small it depicts a volatile pattern. For instance, all significant wheat export years were followed by wheat imports in the succeeding years.[11] Moreover, the Indian experience of exporting wheat has not been encouraging because of selling of wheat in international market for about half of the cost price to the Food Corporation of India, which amounts to a loss on exported wheat. This should not come as a total surprise because the equilibrium market price of wheat in India, like that in Pakistan, is somewhere between the importable and the exportable price. Therefore, wheat can neither be exported nor imported without an element of subsidy.

One of the reasons for India to dispose-off massive wheat stocks at below market prices in the export market is lack of trading opportunities in neighbouring countries and other alternative channels to dispose-off massive wheat stocks that India has accumulated over the past few years. If India releases these stocks domestically, they would negatively affect supply response of growers, and would depress marketing

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[11] Like Pakistan, support price of wheat in India has also gradually risen since mid-1990s but the price in Pakistan has always remained above the wheat price in India, except for 2001 and 2002.

margins of private wheat traders. The repercussions of these effects could be more damaging for the long-run sustainability of the Indian wheat economy.

*3.4. Cost of Production of Wheat and Relative Competitiveness of India and Pakistan:*

During the last six of the eight years, the direction of net exports (positive or negative) in Pakistan and India has remained unidirectional (Figure 3.1). This trend may be explained at two levels: 1) there are similarities in agro-ecological nature of the major wheat growing areas of the two countries; 2) the procurement and storage policies meant for ensuring food security in respective countries may be similar during this time period, resulting in similar surplus/deficit creation. One obvious implication of this trend may be that trade possibilities between the two countries may not exist or would be limited to only those years when surpluses are available.

A true source of determining the relative competitiveness of a country in international trade is the costs of production of goods and services. These costs are influenced partly by government policies in place in input and output markets, and partly by the international trade regime in vogue at that particular point in time. The distortions in input and output prices resulting from government interventions at the market place in respective countries, however, can blur this picture and thus obscure true competitiveness. This is true in the case of Pakistan-India trade in agricultural commodities, which is discussed below in more detail.

To evaluate relative competitiveness in wheat trade, we examine cost of production of wheat in the two countries without factoring in government subsidy structures. For cost of production of wheat in Pakistan, we make use of two estimates from Punjab province, which account for 80% of total wheat produced in Pakistan. The first estimate on cost of production of wheat under average conditions and resources is taken from the Department of Agriculture of the Government of the Punjab, Pakistan. This estimate is supplemented by cost of production estimates obtained from LUMS Farmer Survey, 2003/04.[12] For India, the Commission on Agricultural Costs and Prices (CACP) regularly evaluates cost of production of wheat by conducting survey of farmers to determine support prices for wheat growers. The cost of production estimates for Pakistan and India are summarized in Table 3.4 and Table 3.5. The cost of production of wheat in Pakistan is in the range of Rs.269 (in LUMS Survey) and Rs.310 (in Punjab Agriculture Department estimates).[13] The cost of production of wheat in India substantially varies across states mainly due to productivity differentials.

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[12]Chand (2001) has argued that "wheat exports exceeding 0.5% of domestic production led to massive imports in the immediate succeeding year", which he attributes to the "transitory nature of export surpluses" requiring imports to stabilize domestic prices. Moreover, for all exports exceeding 0.1 million metric tons, the export price received by India has always remained lower than the international price of wheat.

[13]A field survey of wheat farmers, private traders, and flour mills was conducted in May – June 2004 by Lahore University of Management Sciences (LUMS) in connection with a World Bank funded study on "The Wheat Industry in Pakistan: Policy Liberalization, Economic Efficiency and Poverty Impacts." In this regard, a purposive sample of 331 farmers, 178 private traders, and 100 flourmills was drawn from seven districts of Punjab further guided by the five agro-climatic zones for data collection. The farmer's questionnaire contained detailed questions on the cost of cultivation of major crops including marketing expense.

This cost is lowest in major wheat producing Indian states of Rajasthan, Haryana, Punjab and Uttar Pradesh ranging from Pak Rs.206 to Rs.235 per 40 kg. Similarly, the cost of production in Indian states of Chhatishgarh, Himachal Pradesh and Bihar is highest, which indicates that these states are relatively not very competitive. More specifically, average cost of production of wheat in India at Pak Rs.266 per 40 kg is significantly lower than the estimates of Punjab Agriculture Department of Pak Rs.310 per 40 kg. All Indian states have lower cost of production than Rs.300, except Chhattisgarh. Since CACP cost estimates are also based on periodic survey of farmers in India, their comparison with LUMS Farmer Survey estimates of costs seems more meaningful. A comparison of LUMS Survey costs with India shows that wheat production in Punjab, Pakistan is more cost efficient than all Indian states, except major wheat growing states of Rajasthan, Haryana, Punjab and Uttar Predesh. However, as discussed below, a completely different picture emerges on relative competitiveness of the two countries when the element of subsidy is accounted for.

*3.5 Simulating Wheat Trade between India and Pakistan: A Simple Welfare Analysis*

Since net exports from India and Pakistan have remained unidirectional during the last six of the eight years, the real possibility of wheat trade between the two countries is limited to the years when one country is importing and the other is exporting. In this sub-section, we simulate net welfare implications of a free trade arrangement between India and Pakistan by taking the year 2004-05 for this exercise when Pakistan was a net importer of wheat while India was a net exporter. We discuss possibility of wheat trade between India and Pakistan under three scenarios to highlight the impact on consumers, producers and the government in Pakistan. Moreover, impact of trade on government revenue in India is also discussed. The first scenario is a free trade agreement, which implies zero tariffs. Then we move on to evaluate the implications of SAFTA arrangement. Finally, we also examine the impact of granting MFN status to India on trade in wheat. In addition to these three scenarios, we also discuss the impact of removal of wheat subsidies in India on the direction of wheat trade between the two countries.

*A. The Initial Equilibrium in Pakistan's Wheat Market*

As shown in Table 3.6, wheat production in Pakistan in 2004-05 was 21 million MT while domestic consumption was 21.5 million MT. The deficit of 0.5 million was met by imports. The Trading Corporation of Pakistan imported wheat at US$205 per MT[14], which turns out to be Pak Rs.490 per 40 kg at market exchange rate of Pak Rs.59.82 for a US dollar.

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[14]Unlike LUMS Survey costs, the estimates of the Punjab Agriculture Department are not based on a survey of farmers. Instead, these numbers are based on best guess or approximations based on numbers from the previous years about various components of the costs. May be for the same reason, the cultivation costs of Punjab Agriculture Department are relatively higher if seen in the light of per acre yields of 24.46 per 40 kg. It is well known that farmers who incur higher cultivation costs usually achieve higher per acre yields, which is not the case here.

Since the market price of wheat approximated at Pak Rs.410 in FY2005, it implies that effective government subsidy on imported wheat amounted to Pak Rs.80 per 40 kg. During the same year, exportable surplus of wheat in India was 4.6 million MT at the prevailing wholesale price of Pak Rs.393 per 40 kg.[15] Some of the wheat surplus in India was exported to such countries as Bangladesh and Iraq at an approximate price of US$140 per MT, which amounts to Pak Rs.335 per 40 kg at the exchange rate of Rs.59.82. In the wake of trade policy reforms of 1990s, while lifting export controls India introduced a range of export subsidies to provide incentives to private traders. More specifically, this includes an internal transport and freight subsidy of IRs.1000 per MT, IRs.350 per MT for ocean freight and IRs.500 per MT for handling and marketing charges [Pursell (2004)].

We depict a state of no wheat trade between India and Pakistan in Figure 3.7 where we start at the equilibrium market price of Pak Rs.410 with 0.5 million tons of imports in Pakistan from the rest of the world at a CIF price of Pak Rs.490 per 40kg. For food security concerns, the government does not want market price of wheat to go up due to the prevailing deficit. Therefore, the government run Trading Corporation of Pakistan imports deficit wheat from the rest of the world and sells it through the flourmills at subsidized prices. In this situation, in Figure 3.7 the area GHFE indicates import subsidy of the government to consumers in Pakistan. The initial equilibrium in India is shown by panel (b) of Figure 3.7. It shows that market equilibrium price prevailing in India for 2004-05 is Pak Rs.393 per 40kg, which is higher than the export price of Pak Rs.335 for India.[16] To make wheat export possible through private exporters, the Government of India gives export subsidy equal to area KLJI in Figure 3.7. It is interesting to note that the wholesale price of wheat in India and Pakistan lies between importable and exportable price, indicating that there are significant fiscal implications in the form of subsidies for both countries in the case of either imports or exports.

### B. Free Trade Agreement between India and Pakistan

A free trade agreement between the two countries would allow duty free import of wheat into Pakistan. In order to simulate the effects of free trade, we need information on responsiveness of demand and supply functions of wheat in both the countries. For the case of Pakistan, we use demand elasticity of -0.447 obtained from Chaudhary et al. (1999) and supply elasticity of 0.228 obtained from Ali (1990). India being a large economy, exports from India to Pakistan are not expected to influence market price of wheat in India because import demand of Pakistan is much smaller relative to the size of the Indian wheat economy. Due to smaller size of imports (to Pakistan) and exports (from India), both the countries can be termed small countries or price takers in trade with the rest of the world. In effect, a free trade agreement between the two countries would not affect international wheat market price.

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[15] According to State Bank's Third Quarterly Report for FY2005, the July-March 2005 price of un-milled imported wheat was US$205 [State Bank of Pakistan (2005), Table 6.8].

[16] The wholesale price of wheat in India is based on wholesale price prevailing in Delhi in 2004-05 as reported in Government of India (2005).

Given the actual equilibrium described for India and Pakistan, both countries would have incentive in bilateral trade in wheat if trade occurs at a price between Pak Rs.335 (India's export price) and Pak Rs.490 (Pakistan's import price from the rest of the world). If trade between India and Pakistan takes place at a price between Pak Rs.335 and Rs.393, India would require export subsidy to its private exporters while Pakistan would still benefit from this arrangement. On the other hand, at any price between Rs.393 and Rs.490 India would not require export subsidy while Pakistan still benefiting. However, if trade takes place through private traders in India and Pakistan, then wheat imports would only be feasible when import price is less than Pak Rs.410. At what price trade transactions are made would depend on the bargaining position of traders in the two countries. It is highly likely that trade would occur at a price in the neighbourhood of wholesale price of wheat in India (i.e., Pak Rs.393) assuming that the transportation cost is negligible.[17]

Free trade between India and Pakistan would affect three categories of economic agents namely, consumers, producers, and the government in Pakistan. Due to fall in wheat price in Pakistan, consumer surplus would increase by Pak Rs.14.7 billion while loss in producer surplus would be Pak Rs.14.2 billion (Table 3.6). However, the government will save Pak Rs.1.6 billion in subsidies resulting into a total welfare gain of Pak Rs.2.1 billion to Pakistan's economy. The Indian government would save Pak Rs.10.7 billion in export subsidies.

If we also include incentives to private traders in the form of profits, the price prevailing in Pakistan would be in the neighbourhood of Rs.410 in which case there would be no impact on consumer or producer surplus. However, saving in the form of subsidies to the two governments would remain the same.

### C. South Asian Free Trade Agreement (SAFTA)

Under SAFTA arrangements import tariff on wheat from India would be set at a maximum of 5%. In the present situation discussed above, a 5% tariff on wheat would make wheat imports by private traders infeasible at import price of Pak Rs.393. Hence to make this trade happen the two parties would need to set tariffs on wheat at zero rates, which has already been discussed.

### D. Most Favoured Nation (MFN) Scenario

By granting MFN status to India, Pakistan would be unable to discriminate against India while importing wheat from the rest of the world. While the bound tariff on wheat is 100%, the state trading corporation imports wheat at zero tariff rates. If private wheat traders were allowed to import from India at 100% bound rate like the rest of the world, no trade of wheat would take place because it would not be feasible.

### E. Impact of Wheat Subsidy on Direction of Trade

The simulation conducted above does not take into account the distortions prevailing in the Indian agriculture sector, especially in wheat trade. The fact remains that India

gave subsidies to the tune of Pak Rs.180 billion to its wheat farmers in the form of farm inputs such as electricity, fertilizer, and irrigation in 2002-03. This subsidy amounts to approximately Pak Rs.110.58 per 40kg of wheat. If these subsidies are phased-out under a negotiated SAFTA settlement, the relative competitiveness of India disappears in favour of Pakistan. More specifically, the present average cost of production worked out for Indian states at Pak Rs.266.5 per 40kg would shoot up to Pak Rs.377 per 40kg.

In the event of phasing out of input subsidies to wheat farmers in India, higher cost of production would imply that the supply function of wheat would shift up, which in turn would result into trade deficits. In such a scenario, India is likely to become an importable rather than exportable country. In other words, the direction of wheat trade in the long-run may be reversed whereby farming community in Pakistan would have a clear comparative advantage.

### 3.6 Policy Implications of the Welfare Analysis for Wheat Trade Policy in Pakistan:

In this section we examined the prospects of wheat trade between India and Pakistan using partial equilibrium analysis. The following major points emerge from our analysis. Firstly, it appears that there is no clear comparative advantage to either India or Pakistan in the event of wheat trade between the two countries. Despite similarities in agro-climatic nature of the major wheat growing areas of the two countries, favourable weather conditions play a critical role in generating surpluses in both the countries. The simulation analysis given above is based on wheat surpluses in India and wheat deficits in Pakistan in FY2005, which may get reversed in other years if weather conditions become favourable to Pakistan (shifting supply function of wheat to its right) and not so favourable to India (shifting supply function of wheat to its left).

Secondly, trade under free-trade agreement would be beneficial to both the countries. Under this arrangement there would be net gain to both the countries mainly coming from saving in the form of subsidies (export/import subsidies) to the two governments. Our analysis also shows that there are least trading possibilities under SAFTA or under MFN status to India. From the above analysis, it is clear that trade between the two countries can best be utilized for deficit/surplus management in either country. Finally, unlike Pakistan, India maintains huge input subsidies to its farmers. Our analysis shows that if India removes these subsidies, the current competitive edge to Indian wheat farmers even in most cost effective wheat producing states of Rajisthan, Punjab and Haryana would disappear. Therefore, as part of SAFTA negotiations, the Government of Pakistan may want to demand elimination of distortions in the Indian agriculture sector for a level playing field.

## 4. Pakistan and India Sugar Trade: Possibilities and Implications

### 4.1 Background:

The sugar industry is the second largest industry in Pakistan accounting for 8% of total value added in large scale manufacturing industries. In 1999, the sugar industry had an estimated capacity to produce 5 million metric tons (MMT) of sugar per annum,

with consumption hovering around 3.15 MMT, which created an exportable surplus of 1.85 MMT. Although, Pakistan since the 1990's has become self sufficient in this important household consumption item, yet the periodic sugar surpluses have not been effectively utilized for export purposes as most are stocked by the mills and private traders to release at opportune times.

In the past two years a subsidy of $100 to $120 per MT has allowed sugar exports to range from 100,000 metric tons (MT) to 300,000 metric tons (MT). In order to protect the local industry from cheaper imports the Government of Pakistan (GOP) has imposed a tariff on imported refined sugar, which till last year stood at around 25%. However, in 2005 the duty on imported refined sugar has been completely abolished by the GOP.

The sugar sector, not only, is one of the major sources of employment and income in both the rural and the urban sector, but has also been a periodic source of foreign exchange for Pakistan's economy. Moreover, the importance of sugar to the average consumer cannot be under-stated, as it comprises an average of 5.4% of consumption expenditure on food. Sugar has always been regarded as an essential commodity, and shortages and price hikes in the past have provoked strong consumer reactions.

The size of the Indian sugar sector, both in terms of agricultural and industrial production, is far larger than Pakistan's. For instance, the level of sugar production in India for the year 2003 was approximately 20.1 MMT. Table 4.1 captures the difference in scale of this sector in the two countries. Although, local production in India has also recently been hit by the regional drought the level of output remained unaffected due to the release of buffer stocks by the Indian government, which it had accumulated in the past years of record high sugar production. Strong domestic production and lower prices have led India to explore the export market in recent years. There have been periodic positive net exports of sugar directed towards, not only the neighbouring countries such as Bangladesh and Sri Lanka, but also to the Middle East and Africa. The sugar sector in India is heavily protected as sugar imports are blocked by a tariff of 60% plus countervailing duty of Indian Rs.850/ton. On top of this a range of export incentives and subsidies have been provided by the Indian government allowing the export prospects to improve considerably. The estimated sugar exports of India for the year 2002/03 were around 1.7 MMT.

Given the pertinent role of the sugar sector in the Pakistan economy, and its importance in the consumption basket, it is imperative to analyse the possible effects, which the opening of sugar trade with India would have on the consumer, the grower of sugar cane and the manufacturer of refined sugar in Pakistan. Therefore, in the following sub-sections we first provide a detailed overview and comparison of the structure, policies and main issues of the sugar sectors of both Pakistan and India. Then the relative cost competitiveness of the sugar sector in the two countries is analysed. This is subsequently followed by a simulation exercise aimed to ascertain the static Vinerian welfare effects on Pakistan if trade were to open in sugar under three different regimes: an FTA, under SAFTA, and finally under the MFN clause. The last section provides some policy suggestions in the light of the welfare analysis.

*4.2 The Sugar Sector of India and Pakistan – A Comparative Analysis*:

In this sub-section, we give an overview of the sugar sector of Pakistan and India from the sugar cultivation stage, to production, and finally trade. Here we analyse and compare the characteristics and structure of sugar production in both the countries, and discuss the main policies and pertinent issues, which are relevant at different stages of production, moving from the agricultural end to the manufacturing, and finally towards trade.

*A. Sugarcane Cultivation in India and Pakistan*

Sugar cane cultivation in Pakistan currently occupies approximately 5% of total cropped area and accounts for 17% of gross value added by all crops. In 2003/04, the area under sugar cane cultivation in Sindh was about 245 thousand hectares while in the Punjab it was around 700 thousand hectares. Although, Pakistan ranks fifth in the world in terms of cane acreage, its average yield per hectare in 2003-04 was around 50 tons/ha, well below the world average of 64.4 tons/ha. The reasons behind the low yields are several, but those most emphasized are inefficient usage of irrigation, poor seed quality, and a distorted and sub-optimal regional pattern of sugar cane cultivation.[18]

In India, sugar cane occupies about 4.36 million hectares of agricultural land, which is about 3% of the total cultivated area. The level of sugarcane production for the year 2003/04 was approximately 285 MMT contributing around 7.5% of the gross value of agricultural production in the country. There are an estimated 50 million farmers in India whose livelihoods are dependent on sugarcane cultivation while another 50 million agricultural labourers are involved in the cultivation process.

The cultivation of sugar cane in India is not specific to a region, in fact it is spread all over the country and can be divided into two agro-climatic regions, i.e., sub-tropical and tropical. In the sub-tropical belt, the major share of cultivation is in Uttar Predesh, Uttaranchal, Bihar, Punjab and Haryana. In the tropical zone the States of Maharashtra, Andhra Pradesh, Tamil Nadu and Gujarat contribute extensively to the national aggregate. Across India about 60% of all sugarcane produce is utilized for the production of sugar while 30% is used for the production of gur and Khandsari. The recent drought conditions in the region resulted in a decrease in the annual sugar cane production in India. However, as shown in Figure 4.1, India on average has both a relatively higher yield per hectare and a higher recovery rate than Pakistan.

*B. Policy Interventions in India and Pakistan*

The first and foremost difference in terms of policy between the sugar sectors of India and Pakistan is the variant agricultural subsidy structure. In Pakistan, since the 1990s, the government on account of IMF and World Bank structural adjustment programme has gradually phased out subsidy provision to the agricultural sector.

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[17] It is pertinent to note that there is a wedge between wheat export price of India and wheat import price of Pakistan due to international freight and other transaction costs.

[18] According to some informal estimates, the transportation cost between Atari and Lahore is Pak Rs.5 per 40 kg.

In the past, the GOP provided irrigation/tube well and fertilizer subsidy to the farmers, which now has been completely abolished. In contrast to Pakistan's consistent trend of liberalization reforms, the policy makers in India have historically followed a more heterodox economic policy approach. Successive Indian governments have protected the agricultural sector on the grounds of food security concerns for the country, in general, and to safeguard the economic interests of small farmers and the rural economy, in particular. Although, in recent years, there has been a move toward liberalization and de-regulation within the Indian economy, agriculture still enjoys the protective umbrella of government subsidies.

The Central Government Fiscal expenditures in India include a range of input subsidies to the farmers with an aggregate disbursement of approximately Indian Rs. 455 billion in 2003-04. The principal input subsidies for agriculture and therefore also for sugarcane farming are fertilizer, canal irrigation, electricity for pump sets and credit. As sugar cane cultivation is highly water intensive the under pricing of canal irrigation water (below its opportunity cost) is by far the largest indirect subsidy [Pursell (2004)].

The GOP has a price support mechanism in place for sugar cane as it does for other major crops in the country.[19] The support price is announced prior to cultivation and the millers are legally bound to pay the farmer the announced price at the factory gate.[20] In principal, the price support is meant to provide a cushion to the farmer from production led price shocks and resultant income volatility[21]. In the absence of any input subsidies to the farmers, the support price is currently the only prevalent distortion at the sugar cane cultivation stage. The price support has been a contentious issue and the Pakistan Sugar Mills Association (PSMA) has consistently pressured the government to abolish this in favour of market-determined prices.

Although, the sugar producers/millers are legally bound to pay the support price, the situation on the ground is quite to the contrary. Till recently, the GOP along with the support price had established specific sugar cane production zones or 'catchment areas' around sugar mills across the country. The zoning rule entailed that a grower within the zone could only sell the harvested sugar cane to the sugar mill in that particular zone. This rule along with the fact that the quality of sugar cane deteriorates very quickly once harvested, gave monopsonistic powers to the sugar mills.

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[19] Within Pakistan a comparison of sugar cane yields and recovery rates over time clearly shows Sindh to have always been the most productive region, however, in terms of aggregate acreage it is far behind Punjab. Sugar cane is a water intensive crop and its yield per hectare is highly sensitive to optimal water allocation along with appropriate weather conditions. The agro-ecological conditions in Sindh such as longer growing season and a humid climate are best suited for sugar cane plantation. Except for the last couple of years when drought conditions across the country led to a fall in sugar cane productivity all over and in Sindh in particular, the yield per hectare and the recovery rate has always been higher on average in Sindh relative to that in the Punjab. However government agricultural policy over the years has prioritised Sindh as a cotton-growing region hence diverting the incentive structures away from sugar cane cultivation.

[20] In the absence of direct government procurement of sugar the support price is more of an 'advised price' announced by the GOP every year.

[21] The support price in the past three years has remained at Pak Rs. 42.50 per 40 kg, which comes to around $1.8 per quintile.

Although the GOP has officially abolished zoning, high transportation costs to a certain extent preserve the monopsony of the mill located at the closest proximity to a farmer.[22]

In India there is also a price support mechanism similar to that of Pakistan. The support price given to the farmer in India on average has been consistently lower than their counterparts in Pakistan.[23] This Statutory Minimum Prices (SMPs) for cane has to be paid by the mills, but the major cane producing states set their own minimum 'State Advised Prices' (SAPs), which on average have been 30 to 50% higher than the SMPs. Another important difference between pricing policies in India and Pakistan is that the SMP in India is based on a sucrose recovery rate of 8.5% with a premium for higher recovery or extraction rates. This has the positive effect of creating incentive for the farmer to adopt methods of production, which raise the quality of sugarcane.

Although local production in India has also been recently hit by the regional drought, the level of sugar output remained relatively stable due to the release of buffer stocks by the Indian government, which it had accumulated in the past years of record sugar production. Moreover, the Government of India has adopted a proactive role in helping the sugar cane cultivators in coping with the loss in output and income. These include one time settlement of debts of small farmers and the raising of credit by state governments from the private sector in order to help sugar factories pay their cane price arrears to the farmers [Government of India (2004)].

Also, zoning laws or 'catchments areas' are still prevalent in India and similar to Pakistan there are cases of deferred and reduced payments, however, unlike Pakistan, the Government of India has taken active steps to ensure timely and full payment to the farmer. According to the recommendations of the Mahajan Committee[24] the mills should be required to pay a minimum of 80% of the advance price determined by the Sugar Board within fifteen days of the supply of sugarcane by the growers while the remaining amount has to be paid within fifteen days of the announcement of the final price.

### C. Sugar Production and Consumption in India and Pakistan

The sugar industry of Pakistan today plays a vital role in the economy, as it is the

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[22] The support price in theory also acts as an instrument to limit the monopsony powers of the mills especially in areas where the farmer has few alternative crops to cultivate. If farmers have a range of viable alternative options then in that case the monopsony power of the miller would be substantially lower and in fact there would be an incentive for mills to offer competing rates so as to ensure a regular supply of sugar cane.

[23] In times when sugar cane production is high the mills exploit their monopsonistic powers by either deferring payments indefinitely or slashing down the price much below the government guaranteed support price creating disincentives for farmers to cultivate sugar cane in the future. The response of the farmer in the following season is to cut back sugar cane cultivation. The resulting shortages tend to break miller cartels by inducing individual mills to renege and pay a price higher than the agreed upon price or the GOP support price. Given last period's relatively higher sugar cane prices the typical supply response of the farmer is to increase sugar cane acreage the following season hence inadvertently causing a production cycle.

[24] In terms of Clause 3 of the Sugarcane (control) order 1966, the Central Government of India fixes a factory-wise Statutory Minimum Price in respect of each sugar season with regard to: i) cost of production of sugarcane; ii) return to the growers from alternative crops and the general trend of prices of agricultural commodities; iii) availability of sugar to consumer at a fair price; iv) price at which sugar produced from sugarcane is sold by sugar producers; and v) recovery of sugar from sugarcane. Also, under Clause 5A the farmer is entitled to an additional payment out of the price realization by the factories [Government of India (2004)].

second largest industry in the country accounting for 8% of total value added in large scale manufacturing sector. As mentioned before, the eighties and early nineties heralded the era of economic liberalization and within the sugar sector this translated into an unprecedented 60% increase in the number of sugar mills in the country. There are a total of 78 sugar mills in the country out of which 65 have an operational status. However, the location of these sugar mills was not guided by any economic policy principle or criteria such as optimal sugar cane producing areas. Instead, new and existing mill owners were able to get concessional loans from the government (public sector commercial banks) resulting in a concentration of mills in the Punjab.

As sugarcane is the primary input in the production process of sugar the aggregate sugar production in the country follows the cyclical pattern of sugar cane cultivation discussed earlier. The total sugar production across the country stood at 3.5 MMT in 2003-04. Although the installed capacity of sugar production in Pakistan is 5.5 million metric tons, the industry has been running with an excess capacity of almost 45 to 55%, as a result of shortages in sugarcane supply during the last few years. Over and above the recent drought conditions the FAO report on the Pakistan Sugar sector lists competition with non-centrifugal sugar or gur as a major contributor to the existing excess capacity as it diverts substantial sugarcane supply from the mills [FAO (1997)]. Another important issue in sugar cane production is the deterioration of sugarcane quality, which results in low extraction rates. According to FAO (1997), after de-zoning, farmers have tended to market their sugar through middlemen who then seek out the highest bidder regardless of the distance and time of transportation thus adversely effecting extraction rates.

Sugar takes up a significant share in the consumption basket, comprising an average of 5.4% of consumption expenditure on food of an average Pakistani consumer. Historically, the major increase in per-capita sugar consumption occurred after de-rationing in 1983. From 1977 to 1988, sugar consumption grew at 10% per annum resulting in an increase in consumption per capita sugar consumption from 8.1 kg in 1979-80 to 17.5 kg in 1987-88 [FAO (1997)]. This rise in sugar consumption was accompanied by a consistent decline in the consumption of gur – a close substitute. The estimated per capita consumption of white sugar in Pakistan is now 22 kg per annum while the consumption of gur is 2.5 kg per annum.

Since the early eighties, the GOP abandoned the formal maintenance of buffer stocks; however, the Trading Corporation of Pakistan (TCP) procures sugar from the manufacturers for export purposes, and at the direction of the government does release strategic stock periodically to regulate sugar prices. The government, especially in the past couple of years of shortages in sugar production, has resorted to imports of both raw and refined sugar in order to meet domestic demand and to regulate sugar retail prices.[25]

India, by far is the world's largest producer of sugar, and the second largest producer of sugarcane after Brazil. The level of sugar production in India, for the year 2003/04, was around 18.8 MMT, which is approximately 6 times higher than in Pakistan.

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[25]The Mahajan Committee was set up by the Government of India to recommend policy changes and modifications for the development and growth of the Indian Sugar sector [Government of India (1998)].

In contrast to Pakistan's privately owned sugar industry, the ownership structure of sugar industry is much more diverse in India. Presently, there are about 507 sugar mills in the country of which 174 are in the private sector, 33 in the public, and there are 300 cooperatives, which are owned by farmers but managed by the government. The large share of the public and semi-public sector companies (cooperatives) entails that the 'sick' or bankrupt units are kept afloat through continued lending from public sector banks and state government subsidies.[26] The level of consumption per capita of sugar at 15.5 kg in India is still substantially lower than 22 kg in Pakistan.

As was pointed out earlier, the SAP of sugar cane in the primary sugar producing states is normally higher than the SMP set by the central government. The high input price in the last couple of years accompanied by a fall in the retail price of sugar have resulted in declining margins causing a major financial crunch in the sugar manufacturing sector (Figure 4.2).[27]

The Government of India requires sugar mills to supply a specified proportion of their sugar output to the Ministry of Food and Civil Supplies at a controlled low price. This sugar supply is then sold at the subsidized price to the public through the fair price shops of the Public Distribution System. In the past decade the Indian government has reduced the required proportion significantly from 40% to 10%. This has been achieved through restricting access to the fair price shops and making these exclusive for households, which are categorized as falling below the poverty line. After selling the mandatory 10% at the subsidized price the mills are allowed to sell the remaining quantity of their produce at the market price or 'free sale' price.[28]

## D. Sugar Trade and Distortions in India and Pakistan

Due to the cyclical nature of sugar production, Pakistan has never been a consistent net exporter of both sugarcane and refined sugar. The Trading Corporation of Pakistan under the direction of the government buys a certain amount of sugar from the mills each year for the purpose of export. The primary export destinations have been Afghanistan and Central Asia.

Figure 4.3 shows net exports of refined sugar of Pakistan and India. It is interesting to note that though trade between the two countries in this particular commodity has been minimal over the years, both countries in six out of the nine years shown have had an opposite net flow of sugar trade. In a year when Pakistan has been a net exporter of sugar to the rest of the world, India has been a net importer, and vice versa. Although

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[26]In FY2005-06, the GOP has allowed duty free import of refined and raw sugar from India in order to stabilize the market price of sugar, which registered an upward trend due to domestic shortages.

[27]In India the licensing controls over expansion and the setting up of new factories were abolished in the 90s and since then there have been mergers and acquisitions however unlike Pakistan industrial concentration in the sector is fairly low. The market share of the company with the largest sales among 126 companies analysed by CMIE in 2002/03 was only 2.48% indicating the relatively high competitiveness of the sugar-manufacturing sector (Pursell (2004).

[28]The resultant effect of the financial difficulties faced by the manufacturing sector was felt by the farmer in the form of large sugarcane payment arrears. However active central government intervention in the form of credit subsidies prevented an impending disaster in the sugar sector [Pursell (2004)].

this does not suggest any particular pattern or direction of trade between the two countries, it, however, indicates the opportunity of trade, which can exist between the two countries.

As mentioned previously, since the eighties there has been a complete removal of price and distributional controls by the GOP on refined sugar accompanied by the abolishment of public sector monopoly in the supply of imported sugar. In comparison to the highly protected and heavily subsidized sugar sectors of both developed countries (such as the US and the EU) and developing countries (such as India), the sugar trade regime of Pakistan as it is today is far more liberal. The only trade distortion present in Pakistan is that in the past two years an export subsidy of $100 to $120 per MT has allowed sugar exports to range from 100,000 MT to 300,000 MT. Duty on imported refined sugar has also been drastically reduced over the past decade. Last year it was at 25% while this year, even after the strong opposition by the PSMA, the government has completely abolished the duty on sugar.

In India, high domestic production and resulting lower prices in recent years have allowed it to venture in the export market. Although, Indian prices are still relatively higher vis-à-vis the world price, sugar exports have been directed towards not only the neighbouring countries, such as Bangladesh and Sri Lanka, but also to the Middle East and Africa. The estimated sugar exports of India for the year 2002-03 were around 1.7 MMT. However, the pattern of sugar trade in India has not been consistent and, like Pakistan, the country in some years has been a net exporter of sugar while in others a net importer. Since 1990-91, there have been gradual trade policy reforms in India. Before the reforms sugar exports were a legal monopoly of the State Trading Company, which determined and monitored the export of surplus sugar in the country each year. These export controls have now been lifted and the government has introduced a range of export subsidies. These subsidies include, Duty Exemption Pass Book[29] at 4% of the fob value of the exported sugar, an internal transport and freight subsidy of Indian Rs.1000/MT, a further Rs.350/MT for ocean freight, and finally Rs.500/MT for handling and marketing charges [Pursell (2004)].

Similar to exports, before the reforms in the nineties, the import of sugar was also controlled by a government import monopoly. This was replaced by import licensing, which allowed private sector firms to import. From 1994 to 1998, when the world sugar prices were high, India allowed duty free import of sugar although it maintained quota restrictions on the imports. Currently sugar imports in India are blocked by a tariff of 60% plus countervailing duty of Indian Rs. 850/ton. In order to ensure sugar price stability within the country, duty free imports of raw sugar are allowed by the government of India, but with the requirement of export of an equivalent quantity of refined sugar in the following two years. The tariff on raw sugar is currently 15%.[30]

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[29] In order to keep the market price of sugar stable the government through the Sugar Controllers office regulates the quantity and timing of the sale. The mills have to obtain a release order from the Controllers office before they can sell the sugar in the market creating incentives for unrecorded sale and thus a flourishing 'black' market [Pursell (2004)].

[30] Meant to compensate exporters for import duties on raw material, e.g., sugarcane required for the production of exported commodity such as refined sugar.

*4.4 Comparison of Cost Competitiveness in the Sugar Sector:*

In order to ascertain the relative competitiveness within the sugar sector and hence the probable direction of trade between India and Pakistan, it is imperative to compare the relative cost of production in both the countries at the two stages of sugar production: the sugarcane cultivation stage, and the sugar production stage.

*A. Sugar Cane Cultivation Stage*

Table 4.2 and Table 4.3 give estimates of costs of production at the sugarcane cultivation stage in the largest sugarcane growing province of Pakistan, the Punjab, and selected sugarcane growing states of India. For Punjab, Pakistan there are two sources of data, which have been utilized. The first data column in Table 4.2 has entries taken from the Department of Agriculture, Government of Punjab and the second column is from a LUMS farmer survey conducted in 2003-04. Before a comparison is made between the Pakistan and Indian costs, it would be worthwhile to comment on the two sources of data. As is evident from Table 4.2, the cost of cultivation of sugarcane per 40/kg is Pak Rs.44.05 in the Punjab estimates, which is significantly higher than Pak Rs.31/kg, estimated by the LUMS primary farmer survey. Given the fact that the sugarcane support price for the year 2003-04 was Pak Rs.40 per 40/kg it is highly unlikely that the farmers in Pakistan would have cultivated sugarcane at all if the actual cost of production per 40 kg was the GOP estimated Pak Rs.44.05, higher than the government guaranteed support price. Therefore, for the purpose of comparison we would use the seemingly more reliable costs estimated by the LUMS survey.

The cost estimates for India, in Table 4.3, have been taken from the Commission on Agricultural Costs and Prices (CACP), which regularly evaluates costs of production of sugarcane in order to determine the minimum guaranteed support price. As the costs of sugarcane at the state level in India have been estimated at a base recovery rate of 8.5%, the cost in Punjab Pakistan, with an average recovery rate of 9.01% had to be adjusted downwards accordingly to a comparable Pak Rs.29.16 per 40 kg. Moreover, the input subsidies given to the Indian farmer are nested in these estimates and hence artificially lower the Indian costs of production.

Given these costs it is evident that except for Andhra Pradesh and Uttar Pradesh, the other four Indian states have a relative cost advantage in the cultivation of sugarcane over the Punjab province of Pakistan. Although, the difference in cost advantage of Maharashtra, Karnatka and Tamil Nadu is quite large relative to the Punjab, it has to be noted that Uttar Pradesh, which contributes 42% of the Indian sugarcane production, and is, therefore, the largest sugarcane growing state in the country has a slightly higher cost of production than in Punjab, Pakistan. Also, the estimates for Pakistan do not include Sindh, which has both higher yields per hectare and higher recovery rates. Thus, it would be expected that the costs of production in Sindh would be fairly competitive relative to those in India. However, the first obvious reason behind the cost advantage in the four states can be attributed to the nested production or input subsidies, which are still prevalent in the Indian agricultural sector. The second might be because of higher sugarcane productivity in India, which is reflected by both a greater on average yield per hectare and also a higher sugar recovery rate.

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## B. Sugar Production Stage

Table 4.4 gives cost of production comparison of sugar manufacturing in India and Pakistan. According to the cost estimates, on average, the total cost of production in Pakistan is shown to be lower than that in India. The items in which Pakistan seems to have an advantage are raw and packaging material, labour and overheads. The major component in the cost of production of sugar is the raw material – sugarcane. In India, the support price of sugarcane has consistently been lower than in Pakistan, and the government of India in times of domestic shortages allows the import of duty free raw sugar in order to keep the production and price of refined sugar stable. Therefore, compared to Pakistan the manufacturing sector in India at least in theory should be purchasing sugar at a relatively lower cost. However, as was mentioned earlier, the MSP in India is lower than the SAP, the rate at which the mills procure sugarcane. Thus the higher SAPs might be the reason behind this rather unexpected cost differential.

Moreover, the estimates also show labour costs in Pakistan to be lower than in India. This might have to do with the fact that the sugar-manufacturing sector of India has a large public sector share in the form of both government or state owned sugar mills and government and grower partnerships that are the cooperatives.[31] Now, generally the minimum wage laws are more binding on state owned companies and the strength or bargaining power of labour unions within public sector enterprises in developing countries also tends to be greater. Furthermore, the level of employment in state owned enterprises is normally higher and hence sub-optimal than in privately owned companies resulting in overly high labour costs on average. Therefore, in comparison with an entirely privately owned sugar manufacturing sector of Pakistan, where labour laws such as minimum wages are just on paper and hiring is fairly optimum, it is not surprising that labour costs are relatively lower than in India.[32]

Thus overall the comparative cost analysis of the sugar sector is not very clear-cut. Some of the states in India have a significant cost advantage in sugarcane cultivation, but the largest sugar grower, Uttar Pradesh has slightly higher costs than Pakistan's largest grower, the Punjab province. At the production end, the estimates provided by the Industrial Research Service indicate that the predominantly private sugar-manufacturing sector in Pakistan has an edge over the large public and semi-public Indian sugar producers. However, as Figure 4.2 shows, except for the years 1999 and 2004 the 'free sale' price of Indian sugar over time has been consistently lower than the retail price of sugar in Pakistan, which is in apparent contradiction to the cost estimates, assuming obviously that these are non spurious.

The reason behind the relative price difference between the countries might be attributed to the varied industry structure in the two. In Pakistan, the sugar-manufacturing sector is entirely in the domain of the private sector.

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[31]Also, since 2003 the Essential Commodity Act (ECA) was re-invoked as an indirect non-tariff mechanism for import restriction. The ECA requires importers to obtain permission to resell imported sugar on the grounds that they compete with the local sugar mills and thus should be subject to the same release order restrictions [Pursell (2004)].

[32]In India 60% of the sugar mills are cooperatives, 35% are in the private sector and 5% are in the public sector.

These mills form a cartel under the Pakistan Sugar Mills Association and are able to keep domestic sugar prices on the higher side maximizing there profit margins. On the other hand, the sugar-manufacturing sector of India is divided into three categories: private, public and cooperatives. The diversity in the pattern of ownership does not allow the formation of any significant cartel. Moreover, the cooperatives, which are 60% of the total number of mills, are individually small to have any market power and being semi-public is not entirely driven by the profit motive. Therefore, the structure of the sugar industry in the form of a large public sector involvement and a low industrial concentration ratio[33] make the sugar manufacturing sector of India relatively more competitive resulting in relatively lower 'free sale' prices and also profit margins than in Pakistan. Therefore, given the consistent price differential of sugar we can safely assume that India at the sugar price end has a comparative advantage over Pakistan. From here we can assume that in a year when there is a sugar shortage in Pakistan, which has to be met by imports, the country has an alternative option of importing from neighbouring India, provided that in that period India has the necessary exportable surplus.

*4.5 Simulating Sugar Trade between India and Pakistan – A Simple Welfare Analysis:*

As shown in Figure 4.3, India and Pakistan have both been net exporters and net importers of refined sugar. The ability of both the countries to export sugar in a particular year rests primarily on total yield of sugarcane, and hence the level of sugar production in that year. As sugarcane is a water-intensive crop, the monsoons in the sub-continent play a vital role in production of sugarcane and consequently sugar. In the years 1998-99 to 2002-03, the Indian sugar production benefited from good monsoons resulting in high sugar production, accumulation of stocks and exportable surpluses. In Pakistan, however, 2000-02 were years of drought resulting in low sugar production and deficits, which were met by sugar imports from Brazil and the European Union.

We simulate the net welfare impact on Pakistan if the deficit in the year 2000/01 was met instead by import of sugar from India. The choice of 2000-01 as the year for which we conduct the simulation exercise rests upon the fact that in this particular year Pakistan was a net importer of sugar while India was a net exporter. In subsequent years, the direction of sugar trade in both the countries was the same thus not allowing a simulation exercise. The simulation exercise of trade between India and Pakistan in the year 2000-01 is conducted under three scenarios or trade regimes. The first scenario is that of a free trade area, which implies zero tariffs on sugar. The second is that of SAFTA with a 5% duty on sugar, and finally we simulate the welfare impact of Pakistan granting India the MFN status.

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[33]Also, there is substantial literature in India, which explicitly mentions the cooperatives as being largely inefficient production units and recommends their closure. The large public sector involvement in sugar production and the resultant inefficiencies especially within the cooperative sector might well be the reason behind the higher burden of overhead costs in India relative to those in Pakistan.

## A. The Initial Equilibrium

In the year 2000-01, the production of sugar in Pakistan, given a domestic price of Rs.24.4 per kg, was 3.156 MMT while consumption was around 4.02 MMT. The resultant deficit of 0.864 MMT was met by imports. The import price that year was $270.2/MT, which in Pakistani Rupees comes to Rs.15.57.[34] Now with the 25% custom duty, traders premium, and local taxes plus domestic transportation costs, the import price approximates to the domestic price of Pak Rs.24.4 per kg [PSMA (2005)]. In India, during that year, there was a large exportable surplus of 3.476 MMT at the prevailing wholesale price of Pak Rs.17.17 per kg. A large portion of the surplus was kept as stock by the government while 1.087 MMT was exported at an approximate price of Pak Rs.14 per kg. The difference in the wholesale price and the export price in India is accounted for by the wide range of export subsidies provided in India, which had the effect of increasing the exportable surplus.

To evaluate the impact of opening-up of trade on Pakistan we use sugarcane demand and supply elasticity of -0.495 and 0.487, respectively estimated by Chaudhary et al. (1999). The sugar supply function in the study has been derived from the input demand or sugar cane demand function of mills in Pakistan, assuming a fixed proportion technology in the production of sugar. While the demand function was estimated using a time series data on prices and consumption of sugar in Pakistan.

As the sugar economy in Pakistan is relatively much smaller than that in India, the import demand (or excess demand) of sugar in Pakistan, which is just a fraction of the Indian exportable surplus, is likely to have a negligible effect on the Indian whole sale and export price. Therefore, Pakistan is treated as a small country and hence a price taker in trade with both the rest of the world and India. On the other hand, although India is the highest producer of sugar in the world, its high level of total domestic consumption entails a small fraction of exports compared to the aggregate world exports.

In the year 2000-01, the share of Indian exports to world exports was a mere 4%. Thus we can safely assume that because Indian sugar exports are small compared to the rest of the world, its export supply function is unlikely to have any effect on the world sugar prices making India a world price taker.

## B. Free Trade Agreement (FTA)

Given the actual equilibrium described above in both markets, we now assume a Free Trade Agreement between the two countries, which allows duty free imports from India to cater for the entire sugar deficit in the Pakistani market. Now India would have an incentive to export to Pakistan if it exports sugar at a price greater than Pak Rs.14.1/kg - the export price in 2000-01 to the rest of the world. On the other hand, if Pakistan were assumed to maintain its duty structure on imports from the rest of the world such that the relevant domestic price is the prevailing price of Pak Rs.24.4/kg then it would be willing to import from India at any price less than that.[35]

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[34]The highest market share within the sugar-manufacturing sector in India in the year 2001 was 2.48 percent.
[35]The conversion has been done using the 2000/01 exchange rate of Pakistani Rs.58.4378 per US dollar.

We assume that the price of the imported sugar in Pakistan is approximately the same as the prevailing domestic Indian price of Pak Rs.17.7/kg.[36]

In Figure 4.4, we can see that duty free imports from India are at a lower price than the domestic price (import price plus tariff and other charges) in Pakistan before the opening of trade with India. This results in an increase in trade (import) volume from the 0.864 MMT to 1.915 MMT. The lower price imports from India generate an increase in consumer surplus of Pak Rs. 31.2 billion and a decrease in producer surplus by Pak Rs.21.2 billion in Pakistan.[37] There is also a complete loss in the tariff revenue generated by the government and the rents earned by traders of Pak Rs.7.6 billion. The net gain in welfare in Pakistan in an FTA regime with India is, therefore, a positive Pak Rs.2.42 billion.

## C. South Asian Free Trade Agreement (SAFTA)

Under SAFTA the import tariff on commodities from member countries would be reduced to 5% (see Figure 4.5). Assuming the initial equilibrium situation of year 2000-01 and also that all the imports of sugar to Pakistan originate from India, Figure 4.5 captures the effect of this particular trade regime. The 5% tariff on Indian sugar now results in the domestic price in Pakistan to be equal to Pak Rs.18.03 per kg with imports from India at 1.785 MMT. The consumers' surplus gain in this case is Pak Rs.27.26 billion while the loss in producer surplus is Pak Rs.18.82 billion. As the domestic price is higher due to the 5% tariff, the producer surplus loss in not as much as in the FTA scenario. However, the higher than FTA prices also reduce the consumer gain. The government and traders lose revenue, but the government is partially compensated through the revenue generated from the increase in imports at the 5% tariff rate. The net loss in revenues is, therefore, much less than the FTA case, and is around Pak Rs.590 million. The net welfare gain from SAFTA is thus Pak Rs.2.3 billion, which is slightly less than the FTA regime.

## D. Most Favoured Nation (MFN)

Under the MFN clause Pakistan would not be able to discriminate against India in its import duties, that is, it would have to impose the same duty as it does on other trading partners - at the 25 % rate (see Figure 4.6). This would entail an import price of Indian sugar of around Pak Rs.21.46/kg, which is still lower than the price at which Pakistan was importing from the rest of the world hence increasing import volumes relative to the initial equilibrium to 1.237 MMT.

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[36]If we assume that Pakistan were to lift the 25% duty on imported sugar from the rest of the world the domestic price would be Pak Rs.20.5/kg which is still greater than Pak Rs.17.17/kg the price at which it could alternatively import from India. Therefore, opening trade with India would not cause a trade diversion effect.
[37]Given that India exports sugar to Pakistan at a price greater than Pak Rs.14.1/kg we are assuming here that the costs of handling, transportation and importers premium in Pakistan result in the import price of sugar to be equal to Pak Rs.17.17/Kg same as the Indian whole sale prices. This assumption is fairly consistent with the actual events currently. It is interesting to note that with the recent opening of sugar trade with India the import price of Indian sugar is Pak Rs.24/kg in Pakistan, which is the same as the prevailing wholesale price in India of Pak Rs.24/kg.

However, this level of imports is less than the previous two trade scenarios with India, owing to the higher tariff rate. The resultant increase in consumer surplus is only Rs.12.1 billion because of the marginal difference in price from the initial equilibrium. Likewise, the producer surplus loss is also of a lower magnitude, around Rs.9 billion. The interesting effect is on government revenue, which unlike the two previous cases registers, an increase of Rs.218 million. This is due to the relatively higher imports than the initial equilibrium, which are taxed at the initial equilibrium tariff rate of 25%. However, net increase in welfare under the MFN scenario is only Pak Rs.766 million, primarily due to the marginal difference in prices before and after trade with India resulting in a fairly nominal gain in consumer surplus. As the difference in the two prices is fairly marginal, the gains from the MFN status would also be relatively less. These results are summarized in Table 4.10.

*4.6 Policy Lessons and Implication of the Welfare Analysis for Sugar Trade Policy in Pakistan:*

In this simulation analysis, we have seen that if trade were allowed between India and Pakistan in the year 2000-01, when Pakistan had a sugar deficit then in all scenarios considered, there would have been a net welfare gain for Pakistan. As is evident from the analysis, the highest welfare gain accrues from having an FTA with India, followed by SAFTA, and then finally MFN.

Now before taking these results on their face value, there are a few points, which need to be highlighted. First, trade data of refined sugar for both the countries shows that the pattern of trade is not uniform in either. In some years Pakistan and India are net exporters of sugar, while in others they are net importers. In addition, it was also shown in this section that there was no clear cost advantage to either India or Pakistan at both the cultivation stage of sugarcane, and the manufacturing stage of sugar. The only indication of the possible direction of trade came from the Indian wholesale and 'free sale' prices of sugar, which were relatively, lower than the retail price of sugar in Pakistan. However, over the years the prices in both countries have tended to converge thus casting greater doubts on the presence of a definite comparative advantage of one country over the other in sugar production.

Therefore, the favourability of weather conditions, which effect domestic production of sugarcane and also subsequently refined sugar, play a vital role in determining whether the country in question would export or import sugar in a given year. In this simulation analysis, we have seen that in times of domestic shortages Pakistan instead of importing sugar from the international market, can fill its deficits and prevent domestic prices from rising by importing the same quantity at a lower price from India.[38]

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[38]In the year 2000/01 Pakistan had to import 800,000 tons of sugar from India, which depressed local prices and had a negative impact on the local industry (decrease in producer surplus). However according to a recent press report traders are of the opinion that, "sooner or later Pakistan will buy from India because the alternatives are costly. Cargoes from Brazil take 45 days to arrive and come with high freight charges, which would do nothing to contain domestic prices." (Dawn, 7th July, 2005).

This deficit management policy, in terms of static economic welfare analysis, was shown to always increase domestic welfare under all the three trading scenarios or regimes considered. The same positive welfare effects would hold true for India, in times of domestic shortages if it reduces its prohibitive tariffs on sugar imports from Pakistan. Thus mutually beneficial trade is a possibility in this sector, if viewed or treated as a mechanism for domestic deficit and surplus management by both the countries.

Furthermore, in both India and Pakistan the sugar-manufacturing sector suffers from problems of excess capacity. The main reason behind this is attributed to shortages in supply of sugarcane. India, given this problem, has a policy, which allows duty free import of sugarcane, provided that the mills export the same amount within 24 months. Instead of exploring the international markets, the two countries can fill in their sugarcane or raw sugar shortages through bilateral trade, given that the agro-climactic diversity in the two countries prevents weather related shortages in sugarcane to strike at the same time in both the countries.

Another important factor, which can potentially affect the pattern of sugar trade over time, between India and Pakistan, is the subsidy provision to the sugarcane growers and sugar manufacturers in India. Total subsidy on sugar, according to the estimates of Mullen et al. (2005) in 2002, was around Indian Rs.24.4 billion, which is approximately Indian Rs.1214 per ton or Pak Rs.1.59 per kg. The provision of this subsidy has positive effects on the overall supply function of sugar and, therefore, its removal is likely to shift the Indian sugar supply schedule to the left increasing the domestic sugar prices in India. Given the fact that with the existing subsidies in India the degree of comparative advantage of either country is not very obvious, it might well be the case that if these subsidy provisions were lifted, there would be a reversal of the trade scenario analysed in this section.

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[39] Currently, this is precisely the situation as Pakistan has allowed duty free import of sugar in order to stabilize the surging domestic sugar prices.

**References**

Ali, M. (1990). The Price Response of Major Crops in Pakistan: An Application of the Simultaneous Equation Model. *Pakistan Development Review,* 29(3&4), 305 – 325.

Chand, R. (2001). Wheat Exports: Little Gain. *Economic and Political Weekly*, 36, 2226 – 2228.

Chand, R. (2005). Whither India's Food Policy? From Food Security to Food Deprivation. *Economic and Political Weekly,* 40, 1055 – 1062.

Chaudhary, M.A., Eatzaz Ahmad, Abid A. Burki and Mushtaq A. Khan (1999). Income and Price Elasticities of Agricultural, Industrial and Energy Products by Sector and Income Groups for Pakistan. A Research Report prepared for the Planning Commission, Government of Pakistan, Islamabad.

Cornelisse, Peter A., and B. Kuijpers (1985). On the Optimal Size of a Buffer Stock: The Case of Wheat in Pakistan. *Pakistan Development Review*, 24 (3&4), 335 – 346.

Cornelisse, Peter A., and S.N.H. Naqvi (1987). The Wheat-marketing Activity in Pakistan. Islamabad: Pakistan Institute of Development Economics and Rotterdam: Centre for Development Planning, Erasmus University.

FAO (Food and Agriculture Organization) (1997). Report on the Sugar Sector of Pakistan. New York: Food and Agriculture Organization. Also available at (http:www.fao.org/docrep).

FAO (Food and Agriculture Organization) (2002). Food Balance Sheets, computer files.

Gandhi, Vasant P., Zhang-Yue Zhou, and J. Mullen (2004). India's Wheat Economy: Will Demand Be a Constraint or Supply? *Economic and Political Weekly*, 39, 4737 – 4746.

Government of India (1998). Mahajan Committee on Sugar Industry. New Delhi.

Government of India (2003). Reports of the Commission for Agricultural Costs and Prices. New Delhi: Ministry of Agriculture, Department of Agriculture and Co-operation.

Government of India (2004). Report of the Committee on Revitalization of Sugar Industry. New Delhi: Ministry of Food, Consumer Affairs and Public Distribution.

Government of India (2005). *Economic Survey*, *2004-05*. New Delhi: Ministry of Finance, Economic Division (various issues).

Government of Pakistan (2005). *Economic Survey*, *2004-05*. Islamabad: Economic Adviser's Wing, Finance Division (various issues).

Gulati, A., and S. Narayanan (2003). *Subsidy Syndrome in Indian Agriculture*. New Delhi: Oxford University Press.

IRS (Industrial Research Service) (2002). Sugar Industry in Pakistan – II. IR Report No.838, Karachi.

Khan, Mushtaq A., and Abid A. Burki (2005). Wheat Market Reforms, Marketing Margins and Food Security in Pakistan. Paper presented in the South Asia Regional Conference of International Association of Agricultural Economists (IAAE) on Globalisation of Agriculture in South Asia: Has it made a Difference to Rural Livelihoods? Hyderabad, India: March 23 – 24.

Mukherji, Indra Nath (2004). South Asian Free Trade Area and Indo-Pakistan Trade. *Pakistan Development Review*. 43(4), Part II, 943 – 958.

Mullen, K., D. Orden, and A. Gulati (2005). Agricultural Policies in India: Producer Support Estimates 1985 – 2002. MTID Discussion Paper No. 82. Washington, D.C.: International Food Policy Research Institute.

Nabi, I., and A. Nasim (2001). Trading with the Enemy: A Case for Liberalizing Pakistan-India Trade. In Sajal Lahiri (ed.) *Regionalism and Globalisation: Theory and Practice*, London: Routledge Publishers.

PSMA (Pakistan Sugar Mills Association) (2005). Annual Report 2004. Islamabad.

Pinckney, Thomas C. (1986). Stabilizing Pakistan's Supply of Wheat: Issues in the Optimisation of Storage and Trade Policies. *Pakistan Development Review*, 25(4), 451 – 466.

Pursell, G. (2004). Free Trade between India and Bangladesh? A Case Study of the Sugar Industry. Washington, DC: The World Bank. Draft paper.

State Bank of Pakistan (2005). The State of Pakistan's Economy, Third Quarterly Report for the year 2004-2005 of the Central Board of the State Bank of Pakistan. Karachi: State Bank of Pakistan.

Table 3.1: Patterns of Wheat Production in India and Pakistan

|  | India | | | Pakistan | | |
|---|---|---|---|---|---|---|
|  | Area (Million ha) | Production (Million MT) | Yield (Kg/ha) | Area (Million ha) | Production (Million ha) | Yield (Kg/ha) |
| 1950-51 | 9.8 | 6.5 | 663 | -- | -- | -- |
| 1960-61 | 12.92 | 10.99 | 851 | 4.63 | 3.81 | 823 |
| 1970-71 | 18.24 | 23.83 | 1307 | 5.97 | 6.47 | 1084 |
| 1980-81 | 22.27 | 36.31 | 1630 | 6.98 | 11.47 | 1643 |
| 1990-91 | 24.16 | 55.13 | 2282 | 7.91 | 14.56 | 1841 |
| 2000-01 | 25.73 | 69.68 | 2708 | 8.18 | 19.02 | 2326 |
| 2001-02 | 26.34 | 72.76 | 2762 | 8.05 | 18.22 | 2263 |
| 2003-03 | 24.88 | 65.12 | 2617 | 8.03 | 19.18 | 2389 |
| 2003-04 | 27.30 | 72.06 | 2640 | 8.17 | 19.76 | 2419 |
| Annual Growth Rates | | | | | | |
| 1966/67-2000/01 | 1.57 | 4.54 | 2.96 | 1.26 | 3.70 | 2.45 |
| 1980/81-2000/01 | 0.89 | 3.42 | 2.53 | 0.87 | 2.95 | 2.08 |
| 1990/91-2000/01 | 1.32 | 3.05 | 1.73 | 0.46 | 2.92 | 2.46 |

Source: Government of Pakistan (2005), and Government of India (2005)

Table 3.2: Pakistan's Trade in Wheat, 1987/88 – 2004/05

| Year | Production (Million tons) | Export (Million tons) | Import (Million tons) | Net Export (Million tons) | Procurement (Million tons) | Procurement Price (Pak Rs./40kg) |
|---|---|---|---|---|---|---|
| 1987/88 | 12.67 | 0.006 | 0.601 | 0.595 | 3.98 | 82.50 |
| 1988/89 | 14.42 | 0.002 | 2.171 | 2.169 | 3.49 | 85 |
| 1989/90 | 14.32 | 0.002 | 2.047 | 2.045 | 4.14 | 96 |
| 1990/91 | 14.56 | 0.002 | 0.972 | 0.97 | 4.41 | 112 |
| 1991/92 | 15.68 | 0.003 | 2.018 | 2.015 | 3.16 | 124 |
| 1992/93 | 16.16 | 0.004 | 2.868 | 2.864 | 3.25 | 130 |
| 1993/94 | 15.21 | 0.008 | 1.902 | 1.894 | 4.12 | 160 |
| 1994/95 | 17.00 | 0.004 | 2.717 | 2.713 | 3.64 | 160 |
| 1995/96 | 16.91 | 0.008 | 1.968 | 1.96 | 3.74 | 173 |
| 1996/97 | 16.65 | 0.005 | 2.500 | 2.495 | 3.45 | 240 |
| 1997/98 | 18.69 | 0.009 | 4.088 | 4.079 | 2.73 | 240 |
| 1998/99 | 17.86 | 0.009 | 3.240 | 3.231 | 3.98 | 240 |
| 1999/00 | 21.01 | 0.061 | 1.048 | 0.987 | 4.07 | 300 |
| 2000/01 | 19.02 | 0.835 | 0.149 | 0.686 | 8.58 | 300 |
| 2001/02 | 18.23 | 1.280 | 0.267 | 1.013 | 4.08 | 300 |
| 2002/03 | 19.18 | 0.64 | 0.267 | 0.373 | 4.04 | 300 |
| 2003/04 | 19.50 | 1.14 | 0.148 | 0.992 | 3.51 | 350 |
| 2004/05 | 21.11 | 0.006* | 1.50* | -1.494 | 4.73 | 400 |

Sources: Government of Pakistan (2005), and Food Balance Sheets, FAOSTAT, electronic data files.
* Indicates data was obtained from USDA Electronic Data Base.

Table 3.3: India's Trade in Wheat, 1987/88 – 2004/05

| Year | Production (Million tons) | Export (Million tons) | Import (Million tons) | Net Export (Million tons) | Procurement (Million tons) | Procurement Price (Pak Rs./40kg) |
|------|------|------|------|------|------|------|
| 1987/88 | 12.67 | 0.006 | 0.601 | 0.595 | 3.98 | 82.50 |
| 987/88 | 46.17 | 0.275 | 0.021 | 0.253 | 7.9 | -- |
| 1988/89 | 54.11 | 0.016 | 1.792 | 1.777 | 6.6 | -- |
| 1989/90 | 49.85 | 0.012 | 0.033 | 0.021 | 8.9 | 86 |
| 1990/91 | 55.14 | 0.14 | 0.064 | 0.076 | 11.1 | 90 |
| 1991/92 | 55.69 | 0.66 | 0 | 0.660 | 7.8 | 110 |
| 1992/93 | 57.21 | 0.038 | 1.364 | 1.326 | 6.4 | 132 |
| 1993/94 | 59.84 | 0.004 | 0.242 | 0.238 | 12.80 | 140 |
| 1994/95 | 65.77 | 0.092 | 0.001 | 0.091 | 11.90 | 144 |
| 1995/96 | 62.10 | 1.091 | 0.009 | 1.082 | 12.33 | 152 |
| 1996/97 | 69.35 | 1.848 | 0.613 | 1.235 | 8.16 | 190 |
| 1997/98 | 66.35 | 0.022 | 1.486 | 1.464 | 9.30 | 204 |
| 1998/99 | 71.30 | 0.004 | 1.804 | 1.800 | 12.65 | 220 |
| 1999/00 | 76.38 | 0 | 1.366 | 1.366 | 14.14 | 232 |
| 2000/01 | 69.69 | 0.813 | 0.004 | 0.809 | 16.35 | 244 |
| 2001/02 | 72.80 | 2.649 | 0.001 | 2.648 | 20.63 | 248 |
| 2002/03 | 65.10 | 3.671 | 0 | 3.671 | 19.05 | 248 |
| 2003/04 | 72.06 | 4.093 | 0.004 | 4.089 | 15.80 | 252 |
| 2004/05* | 73.5 | 1.50 | 0.02 | 1.48 | 16.79 | 256 |

Source: Government of India (2005), various issues.
* Indicates data was obtained from USDA Electronic Data Base

Table 3.4: Cost of Production of Wheat in Pakistan Punjab, 2003/04

|  | Punjab Government Estimates | LUMS Farmer Survey Estimates |
|---|---|---|
| Net cultivation cost, including land rent (Rs.) | 7341.85 | 8453.00 |
| Yield per acre (kg) | 24.46 | 32.05 |
| Cost at farm level (Rs. per 40 kg) | 300.17 | 263.74 |
| Marketing expenses (Rs. per 40 kg) | 10.00 | 5.13 |
| Cost (Rs. per 40/kg) at Mandi gate | 310.17 | 268.87 |

Note:    We subtract mark-up on investment from the cost of production estimates provided by the Government of Punjab to make numbers comparable with LUMS Farmer Survey 2003/04 and CACP Cost of Production Estimates for wheat in India reported in Table 3.11.
Source:  Government of Punjab, personal communications

Table 3.5: Cost of Production Estimates for Wheat in India, 2003/04

| Indian State | Cost in Indian Rs. (per 40 kg) | Cost in Pak Rs. (per 40 kg) |
|---|---|---|
| Bihar | 231.38 | 290.33 |
| Chhattisgarh | 272.00 | 341.31 |
| Gujrat | 228.65 | 286.91 |
| Haryana | 170.63 | 214.11 |
| Himachal Pradesh | 235.30 | 295.25 |
| Jharkhand | 230.48 | 289.21 |
| Madhya Pradesh | 218.82 | 274.58 |
| Punjab | 176.12 | 221.00 |
| Rajasthan | 164.30 | 206.16 |
| Uttarachal | 221.24 | 277.61 |
| Uttar Pradesh | 187.75 | 235.59 |
| Average | 212.42 | 266.55 |

Note:    The cost of production estimates reported in this table is based on C2 cost per quintal obtained from Reports of the Commission For Agricultural Costs and Prices (CACP) (converted into cost per 40kg), which includes interest on value of owned capital assets (excluding land). To make these numbers consistent with cost of production estimates from Pakistan, C2 cost is adjusted by subtracting interest on
value of owned capital assets obtained from Government of India (2003).
Source:  Government of India (2003).

Table 3.6: Impact of Opening-up of Wheat Trade with India, 2004-05

|  | Before Trade | After Trade |
|---|---|---|
| Production (million MT) | 21.00 | 20.80 |
| Consumption (million MT) | 21.50 | 21.93 |
| Imports (million MT) | 0.50 | 1.13 |
| Wholesale price (Rs. per kg) | 410 | 393 |
| in consumer surplus (Pak Rs. million) | -- | 14710.5 |
| in producer surplus (Pak Rs. million) | -- | 14212.0 |
| Saving of subsidy to govt. of Pakistan (Pak Rs. million) | -- | 1600 |
| in net welfare (Pak Rs. million) | -- | 2098.5 |
| Saving of subsidy to govt. of India (Pak Rs. million) | -- | 10672.5 |

Note:    The numbers in this table are based upon supply elasticity of 0.228 computed by Ali (1990) and demand elasticity of 0.447 taken from Chaudhary et al. (1999).

Table 4.1: The Sugar Industry in India and Pakistan: Some Comparisons in 2002/03
(Million metric tones)

|  | India | Pakistan |
|---|---|---|
| Sugarcane production | 285 | 52 |
| Sugar production | 20.1 | 3.6 |
| Sugar consumption | 18.2 | 3.4 |
| Number of operating sugar mills | 453 | 65 |

Source: PSMA (2004) and Pursell (2004)

Table 4.2: Cost of Production of Sugarcane in Pakistan Punjab, 2003/04

|  | Punjab Government Estimates | LUMS Farmer Survey Estimates |
|---|---|---|
| Net cultivation cost, including land rent (Rs.) | 23125.04 | 18250.43 |
| Yield per acre (40 kg) | 550 | 679.92 |
| Cost at farm level (Rs. per 40 kg) | 42.05 | 26.84 |
| Marketing expenses (Rs. per 40 kg) | 2.00 | 4.38 |
| Cost (Rs. per 40/kg) at Factory gate | 44.05(41.15)* | 31.22 (29.16)* |

Note: We subtract mark-up on investment from the cost of production estimates provided by the
      Government of Punjab to make numbers comparable with LUMS Farmer Survey 2003/04
      and CACP Cost of Production Estimates for sugarcane in India reported in Table 4.5.
*Adjusted for 8.5% recovery rate.
 Source: Government of Punjab, personal communications

Table 4.3: Cost of Production Estimates for Sugarcane in India, 2003/04

| Indian State | Cost in Indian Rs. per 40 kg | Cost in Pak Rs. per 40 kg |
|---|---|---|
| Andhrapradesh | 25.95 | 32.57 |
| Karnataka | 18.57 | 23.30 |
| Maharashtra | 18.53 | 23.25 |
| Haryana | 22.12 | 27.76 |
| Tamil Nadu | 19.36 | 24.30 |
| Uttar Pradesh | 24.05 | 30.19 |

Note: The cost of production estimates reported in this table are based on C2 cost per quintal obtained
      from the Reports of the Commission for Agricultural Costs and Prices (converted into cost
      per 40kg), which includes interest on value of owned capital assets (excluding land). To
      make these numbers consistent with cost of production estimates from Pakistan, C2 cost is
      adjusted by subtracting interest on value of
      owned capital assets obtained from Government of India (2003).
Source: Government of India (2003).

Table 4.4: Production Cost of Sugar, 2002

|  | Pakistan | | India | |
|---|---|---|---|---|
|  | Pak Rs/tonne | Percent | Pak Rs/tonne | Percent |
| Raw & Packaging Material | 11645 | 85.0 | 14007 | 83.4 |
| Stores and Spares | 594 | 4.3 | 569 | 3.4 |
| Fuel and Power | 203 | 1.5 | 191 | 1.1 |
| Labour | 1082 | 7.9 | 1426 | 8.5 |
| Other Overheads | 171 | 1.3 | 601 | 3.6 |
| Total | 13695 | 100.0 | 16794 | 100.0 |

Source: IRS (2002).

Table 4.5: Impact of Opening Up of Trade of Sugar with India (FTA), 2000-01

| Pakistan | Before FTA | After FTA |
|---|---|---|
| Production (000 MT) | 3156 | 2701 |
| Consumption (000 MT) | 4020 | 4616 |
| Imports (000' MT) | 864 | 1915 |
| Wholesale price (Rs. per kg) | 24.40 | 17.17 |
| in consumer surplus (Pak Rs.) | -- | Rs.31.22 billion |
| in producer surplus (Pak Rs.) | -- | Rs 21.17 billion |
| in revenue (govt + trader) (Pak Rs.) | -- | Rs 7.6 billion |
| in net welfare (Pak Rs.) | -- | Rs. 2.42 billion |

Table 4.6: Impact of opening-up of free-trade of sugar with India (SAFTA), 2000-01

| Pakistan | Before SAFTA | After SAFTA |
|---|---|---|
| Production (000 MT) | 3156 | 2755 |
| Consumption (000 MT) | 4020 | 4540 |
| Imports (000' MT) | 864 | 1785 |
| Wholesale price (Rs. per kg) | 24.40 | 18.03 |
| in consumer surplus (Pak Rs.) | -- | 27263.60(Rs.27.26 billion) |
| in producer surplus (Pak Rs.) | -- | 18826.54 (Rs.18.83 billion) |
| in revenue (govt. + trader) (Pak Rs.) | -- | -590.34(Rs.590 million) |
| in net welfare (Pak Rs.) | -- | 2343.05 (Rs.2.3 billion) |

Table 4.7: Impact of opening-up of free-trade of sugar with India (MFN), 2000-01

| Pakistan | Before MFN | After MFN |
|---|---|---|
| Production (000 MT) | 3156 | 2971 |
| Consumption (000 MT) | 4020 | 4208 |
| Imports (000' MT) | 864 | 1237 |
| Wholesale price (Rs. per kg) | 24.40 | 21.46 |
| in consumer surplus (Pak Rs.) | -- | 12095.16 (Rs 12.1 billion) |
| in producer surplus (Pak Rs.) | -- | -9006.69 (Rs 9 billion) |
| in revenue (govt + trader) (Pak Rs.) | -- | 217.77 (Rs 218 million) |
| in net welfare (Pak Rs.) | -- | 766.08 (Rs 766 million) |

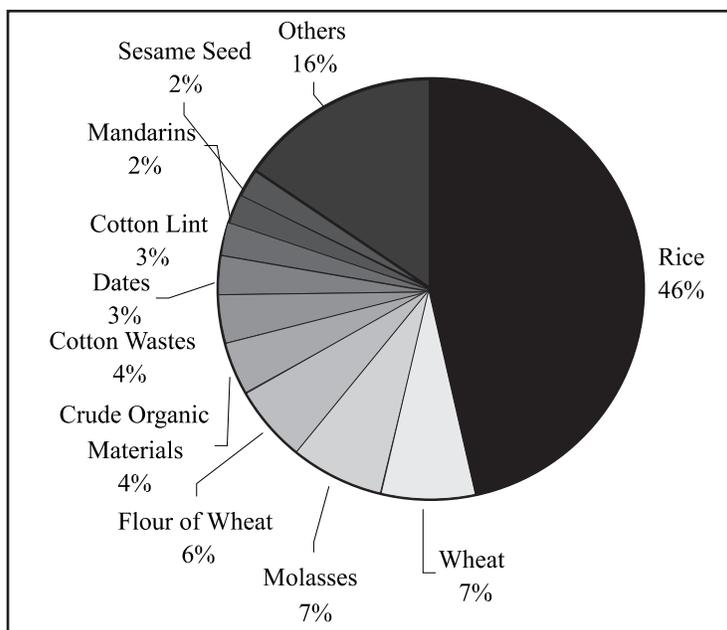Table 4.8: Welfare effect of trade under three regimes - Summary

| Effect on Welfare of Pakistan: | FTA | SAFTA | MFN |
|---|---|---|---|
| Increase in Consumer Surplus (Pak Rs.) | Rs31.22 billion (gain) | Rs27.26 billion (gain) | Rs 12.1 billion (gain) |
| Loss in Producer Surplus | Rs 21.17 billion (loss) | Rs 18.83 billion (loss) | Rs 9 billion (loss) |
| Change in Revenue (Government and Traders etc.) (Pak Rs.) | Rs 7.6 billion (loss) | Rs 590 million (loss) | Rs 218 million (loss) |
| Net Welfare Change (Pak Rs.) | Rs. 2.42 million (gain) | Rs 2.3 million (gain) | Rs 766 million (gain) |

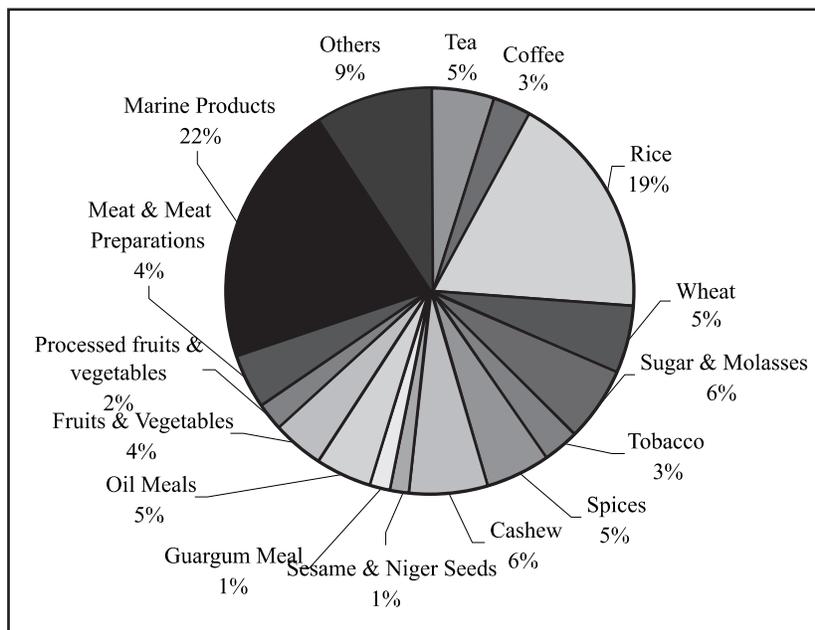Figure 3.1: Share of Major Agricultural Crops in Pakistan, 2004-05
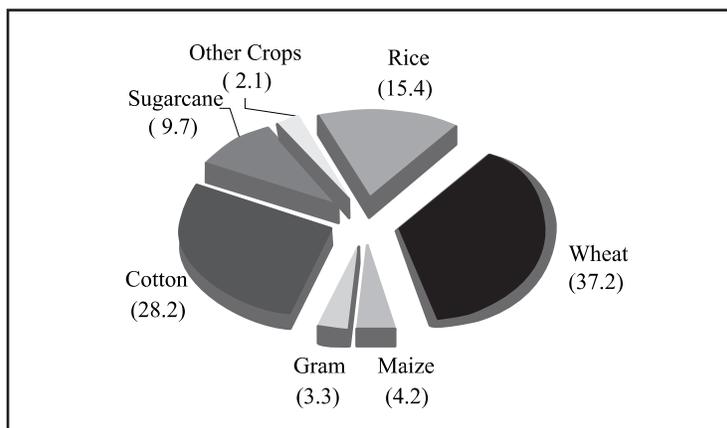


**Source: Government of Pakistan (2005)**

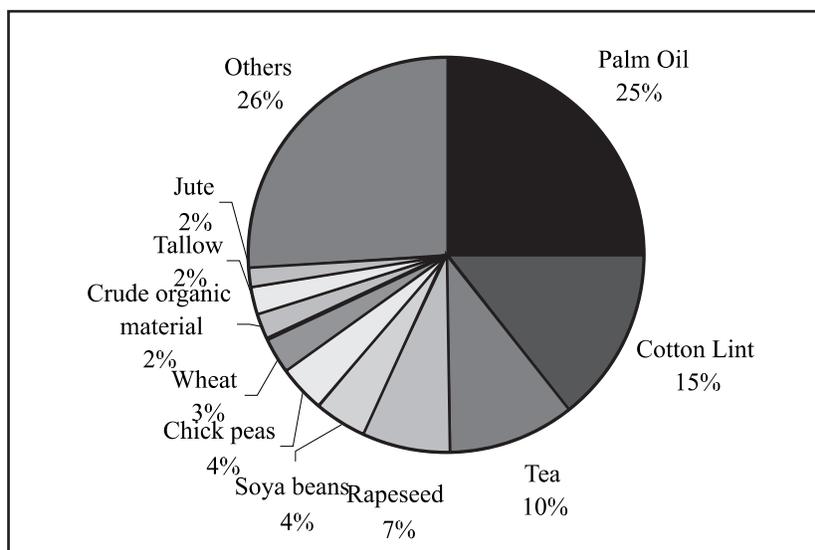Figure 3.2: Major Agricultural Exports of Pakistan, 2002-03



**Source: Government of Pakistan (2005)**

39

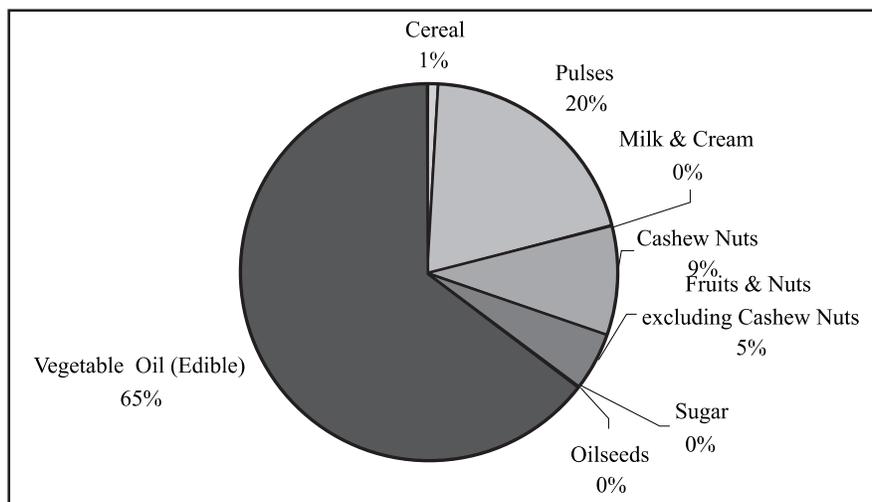Figure 3.3: Major Agricultural Exports of India, 2002-03

Others
9%

Tea
5%

Coffee
3%

Marine Products
22%

Rice
19%

Meat & Meat
Preparations
4%

Wheat
5%

Processed fruits &
vegetables
2%

Sugar & Molasses
6%

Fruits & Vegetables
4%

Tobacco
3%

Oil Meals
5%

Spices
5%

Guargum Meal
1%

Sesame & Niger Seeds
1%

Cashew
6%

**Source: Government of India (2005)**

Figure 3.4: Major Agricultural Imports of Pakistan, 2002-03

Others
26%

Palm Oil
25%

Jute
2%

Tallow
2%

Crude organic
material
2%

Cotton Lint
15%

Wheat
3%

Chick peas
4%

Soya beans
4%

Rapeseed
7%

Tea
10%

**Source: Government of Pakistan (2005)**

40

Figure 3.5: Major Agricultural Imports of India, 2002-03



**Source: Government of India (2005)**

**Figure 3.6: Net Export of Wheat by India and Pakistan**



| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| NET EXPORTS (IND) | 624228 | 533219 | -1485781 | -1802266 | -1367452 | 809268 | 2648030 | 3671254 | 4092624 | 1480000 |
| NET EXPORTS (PK) | -2616581 | -1965637 | -2500203 | -2516071 | -3235759 | -1025031 | 204167 | 375403 | 990368 | -1494000 |

YEARS

**Source:FAOSTAT, electronic data files**

Figure 3.7: Impact of Opening-up of Wheat Trade with India

**Pakistan**

**India**

Price, P

$S_P$

$S_I$

Quantity, Q

Quantity, Q

$D_P$

$D_I$

490
416
393

20.99  21.99  21.59  21.52

Imports from India

77.62  73.02

Export Surplus

Saving of subsidy to Pakistani govt. (A+B+E+F)

Saving of subsidy to Indian govt. (G+H+I+J)

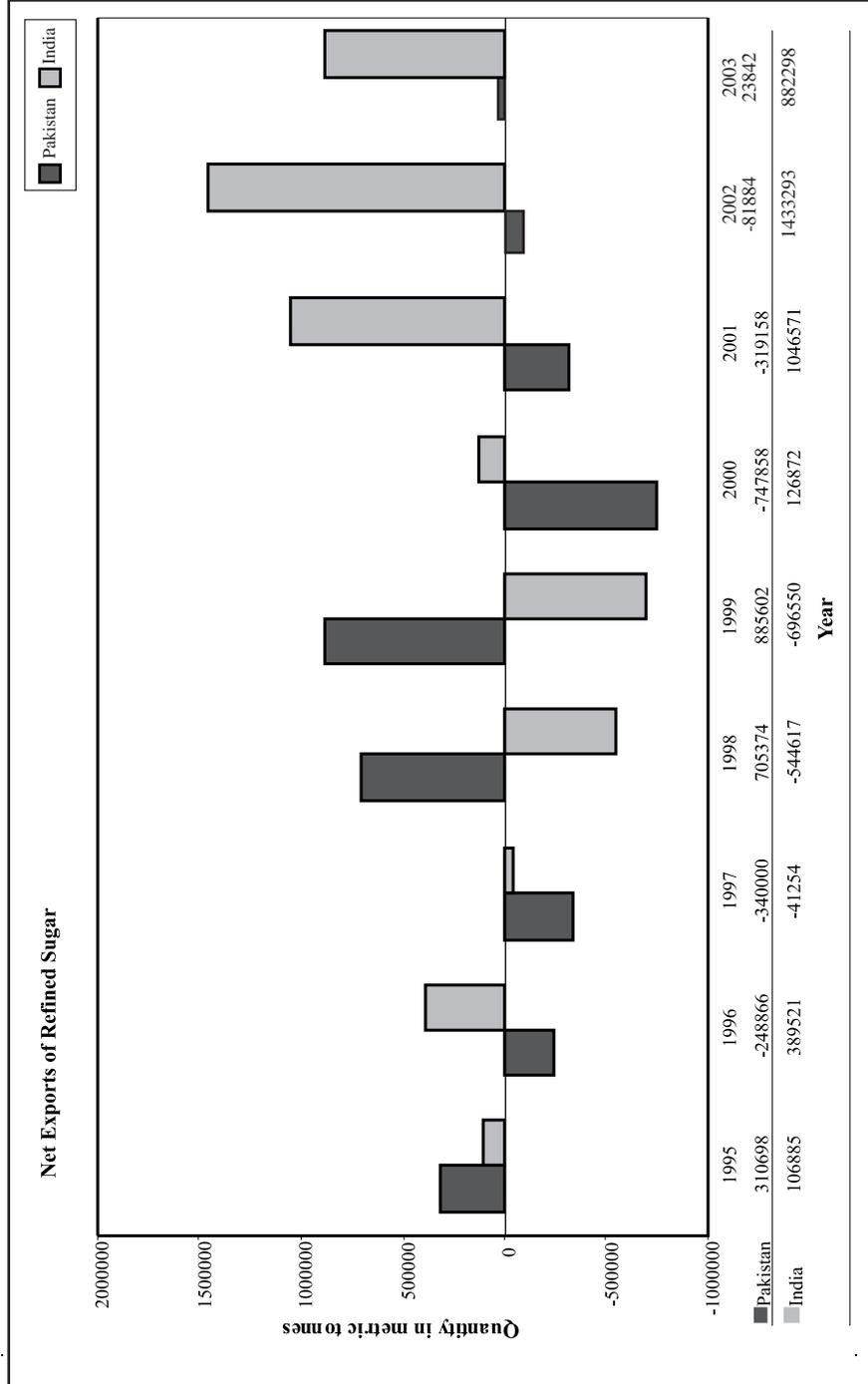Figure 4.1: Comparison of Yield and Recovery of Sugarcane in Pakistan and India



Comparison of Yield and Recovery of Sugarcane in Pakistan & India
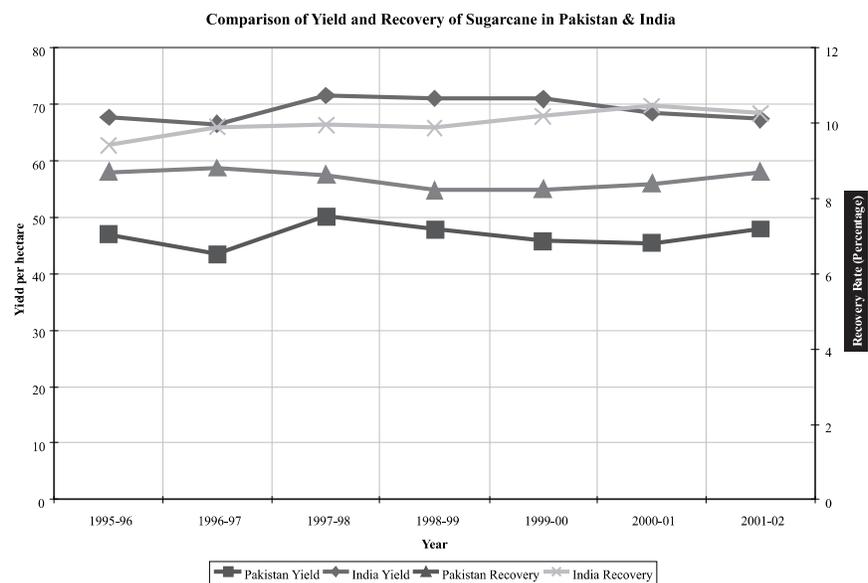
Source: PSMA (2005), and Pursell (2004)

Figure 4.2: Comparison of Sugar Prices for Pakistan and India
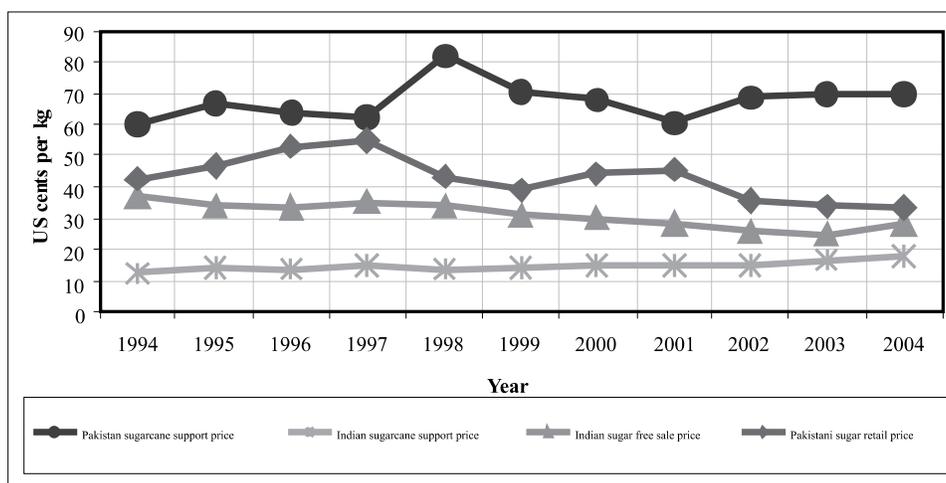


**Source: PSMA (2005), and Pursell (2004)**

Figure 4.3: Net Exports of Refined Sugar by Pakistan and India



**Source: FAOSTAT, electronic data files**
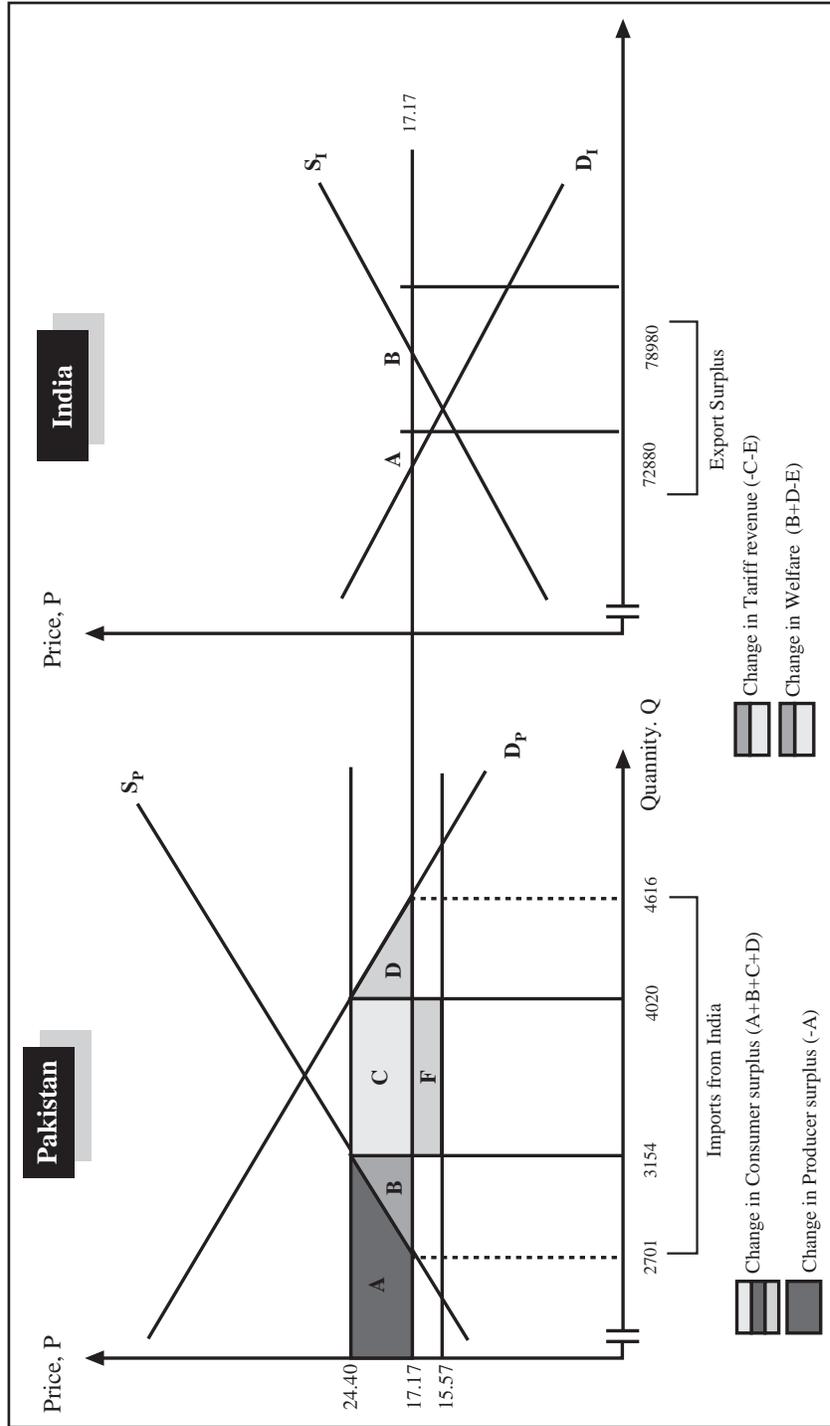
Figure 4.4: Impact of Opening-up of Free Trade of Sugar with India

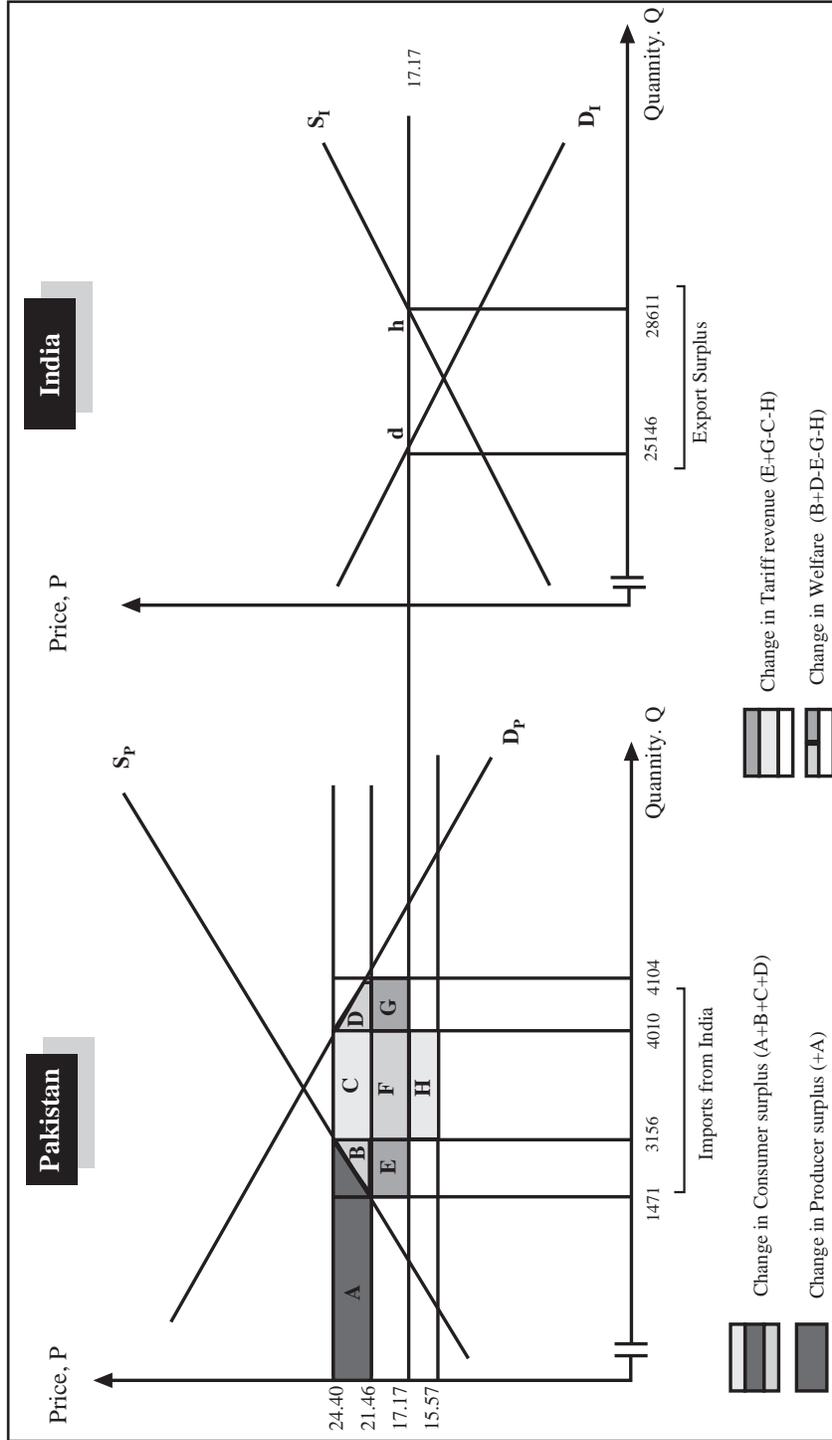Figure 4.5: Impact of Opening-up of Trade Under SAFTA
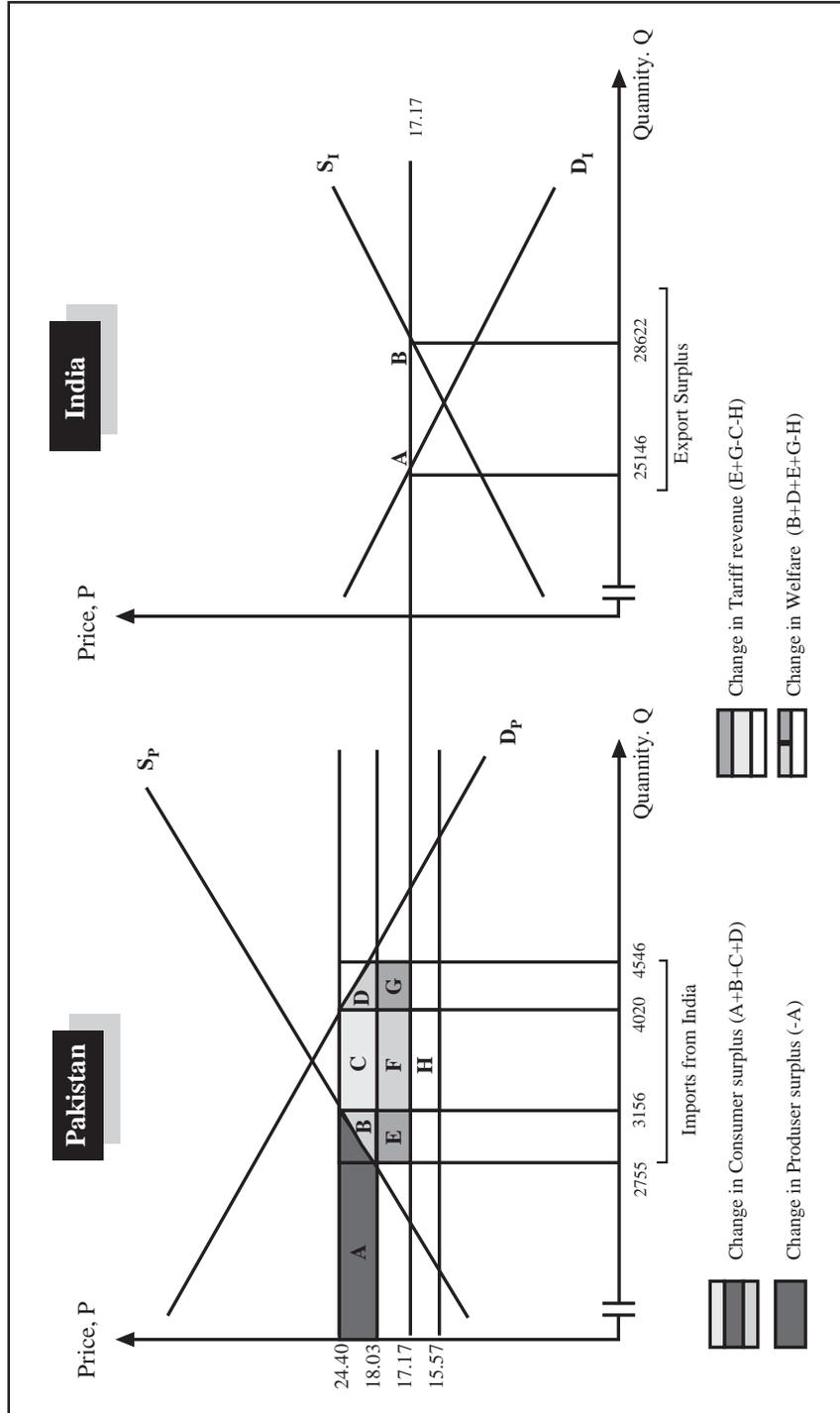
Figure 4.6: Impact of Opening-up of Trade of Sugar Under MFA

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*Abstract*

This paper asks how opening up of wheat and sugar trade between two nuclear neighbours, India and Pakistan, would affect welfare in the two countries. We conduct a partial equilibrium analysis to simulate welfare implications of trade between the two countries under three alternative trade regimes: a) under an FTA between India and Pakistan, b) under SAFTA, and c) under a grant of 'most-favoured nation' (MFN) to India by Pakistan. We conduct simple welfare analysis for wheat, on the basis of real world data of FY2005, and for sugar, based on data for FY 2000-01. In both these years, India had a net surplus and Pakistan had a net deficit for both wheat and sugar. We show that among other things, favourable weather conditions play a critical role in generating these surpluses, which are most likely to get reversed in years when weather conditions become more favourable to Pakistan. While we find there would be net gains to both countries, in case trade happens, the highest welfare gains accrue to both countries under free trade agreement. Further analysis reveals that if subsidies to Indian wheat farmers are removed, their competitive edge disappears in favour of wheat farmers in Pakistan.