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Welfare and Economic Impact of Food and Financial Crisis in Pakistan

Saira Ahmed[1]

Abstract

This paper aims to looks at the impact of food and financial crisis in Pakistan. We use a linked computable general equilibrium and microsimulation model to study the decline in exports, rise in import price of food and increase in remittances during the crises period. Our results reveal that the decline in exports was particularly harsh for the high income earners however led to an increased availability of food supply domestically which ultimately increased food consumption. On the contrary, import price of food led to a general increase in prices across the board, which drastically deteriorated the consumption and nutritional status of the poor. The persistent increase in remittances during the times of high food inflation provided some relief with poverty increasing less than half of what it would have been otherwise. The paper also discusses the policy response required in order to cushion the impact of future crises.

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I. Introduction

In many parts of the developing world, global financial crisis (which followed food and oil price crisis) wiped out the gains made towards the achievement of Millennium Development Goals (MDGs). By 2008 the first goal which emphasises on the eradication of poverty and hunger was low on priority as most developing countries now focused more on macroeconomic stabilisation and recovery. According to the Global Monitoring Report 2009, the present crisis is the severest since the Great Depression. The crisis is hitting the developing countries hard through trade and financial market channels. These countries are also not able to fully provide the necessary social safety nets in order to protect the vulnerable segment of the population. The pace of global poverty reduction has slowed as the official aid and private capital flows have decreased.

For 2009 the World Bank[2] projected the global economy to shrink by 1.7 percent and GDP growth in developing countries to fall to 2.1 percent. The number of people living in extreme poverty increased by 155 million between 2005 and 2008 and by 2009 it is projected that another 53 million will fall in poverty. The global unemployment rate was 6 percent in 2008. The number of unemployed is now estimated to go beyond 190 million in 2009. The increasing food deprivation remains a major concern in most low income food deficit countries[3]. In 2008 the number of people suffering from hunger stood at 963 million. Apart from the food insecure people this number includes those with poor intake of micro-nutrients. The number of underweight children will be around 125 million by 2010. Anaemia in pregnant women has carry over effects on newly born children. Currently 50 million women in the developing world are anaemic and this number is now expected to reach 1.2 million as the crisis persists.

The East Asian crisis of 1990s offers some lessons, however it was different from the present crisis. The Asian crisis was characterized by a decline in domestic demand, credit crunch, rise in input costs due to currency depreciation, and increase in interest rates. The 2008 financial crisis again witnessed a credit crunch and declining domestic demand but this time combined with falling global demand, currency appreciation, and lower interest rates. The Asian crisis started from the emerging markets, however

[2] Global Economic Prospects 2009.
[3] See UNCTAD (2009), Mittal (2009).

the present crisis was triggered by the collapse of the financial sector in developed economies.

The pass-through channels by which the external and macroeconomic changes impact poverty, malnutrition and hunger include remittances, official development assistance (ODA), private capital flows, and exports. The import prices also determine domestic prices, input costs, and household consumption. Similarly the export prices also influence factor returns. The most vulnerable sectors in the present crisis are labour-intensive and export-oriented industries. The cost of capital has greatly increased in terms of interest rates and shorter repayment periods. The absence of venture capital and insistence on increased collateral requirements has led to lack of timely financing (Qian 2009).

The World Bank and independent forecasts show that remittance flows to developing countries will decline if crisis persists. These flows may be more uncertain if the developed economies see volatility in the value of their currencies. This gloomy milieu is not helped by the fact that global private capital flows to developing countries are also expected to decline by more than 50 percent in 2009. The weak employment projections in the developed countries implies anti immigration sentiments which will further reduce the flow of workers from poor countries.

According to the Global Development Finance 2009 net private capital inflows to developing economies were $1.2 trillion in 2007. However this figure is projected to fall in 2009 to around $363 billion. In South Asia's case this will imply reduced foreign investment particularly FDI. The global exports will also decline in 2009 for the first time since 1982. The WTO estimates the exports to decline by 10 percent for industrial countries and 3 percent for developing economies. On the aid front IMF now expects ODA to decline for the poorest 71 countries by 25 percent (FAO 2009). The food crisis made the world realize the need for increased investment in agriculture. However this may not be possible soon due to the decreased availability of capital during the global financial crisis (Braun 2008, Lin and Martin 2009). For discussion on regional outlook in particular the contraction in exports from South Asia, see Pandey (2009). For impact of crisis on employment in South Asia, see Siegmann (2009).

As the pass-through effect gets transmitted at the micro level, the household members are forced to cut back their current consumption standards. The coping strategies include: a) reduction in food consumption (leading to

malnutrition), b) reduction in expenditure on education and health[4], c) seeking multiple occupations and working more number of hours, d) increased child labour, and e) women giving less time to their children (see Sanogo 2009). The precise incidence of these coping strategies differs across households depending upon the initial endowment level, pre-crises occupational choice, number of dependents in the households, and skill set including educational attainment of members. However we may generalize the above mentioned coping strategies at least for people living in extreme poverty.

The governments across the world have tried to come up with multi-pronged rescue packages for the poor. In order to protect a minimum level of jobs, export-oriented industries have been allowed tax breaks. In order to share the consumption burden, subsidies have been allowed on food items and in some cases food rationing programmes have been initiated. The governments have also expanded public sector investments in education and health so that the gains made towards the MDGs are not reversed. For infrastructure sector, public investment is being geared towards labour intensive projects. All these programmes will require increased monetary financing of fiscal deficits, in turn possibly leading to some inflation. In order to stimulate the supply-side the central banks are easing monetary policy and cutting interest rates for commodity producing sectors[5]. The coverage of social protection programmes is being expanded along with a more efficient targeting of vulnerable groups that are usually most affected. These groups include female headed households, agriculture and non-agriculture wage earners and casual labour (WFP 2009). In the medium term it will be essential that developing countries focus on increasing agricultural productivity in order to ensure food security at the national level.

In Pakistan the real GDP growth rate declined from 6.8 percent in 2007 to 2 percent in 2009. During the same period the investment to GDP ratio declined from 22.5 percent to 19.7 percent. The preliminary impact of global economic slowdown was seen in FDI inflows which decreased by 27.6 percent in 2009 compared to 2007 level. Similarly portfolio investment declined by 128 percent. Both exports and imports decreased by 13 and 5.3 percent respectively. The foreign loans (that include bilateral and multilateral arrangements) declined by 61.3 percent. The combined effect of reduced inflows resulted in a decline in foreign exchange reserves of around 41.6 percent. Due to the decreased volume of imports the amount of taxes collected in the form of customs duty also declined and customs duty to GDP ratio fell by 14.8 percent. This worsening macroeconomic milieu should be

[4] See WHO (2009).
[5] This did not happen in Pakistan due to the already high inflation.

analysed keeping in view that this dismal performance was also a result of food and oil price increase and not just the global financial crisis which came later. The data from household survey indicates that poverty headcount ratio increased from 22 to 35 percent during 2007 and 2008[6]. During same time period the inequality rose by 20 percent. Some increase was observed in workers' remittances from abroad. This is attributed to: a) Pakistani expatriates sending supplementary amounts in order to protect their families in Pakistan, and b) laid-off workers coming back with their accumulated savings.

In this paper we aim to study the impact of changes in food prices, exports, and remittances on the socio-economy of Pakistan. Section II provides a review of literature linking crises with poverty and nutrition. Section III and IV explain our methodological details. Section V will describe the macro and micro data sources. Section VI interprets and explains the macroeconomic results followed by results on consumption, poverty, inequality and nutrition level. The final section concludes along with the policy response to crises.

II. Crises, Poverty and Nutrition

In September 2007 Vietnam, the world's third biggest rice exporter, restricted rice exports in order to curb domestic food inflation. This was followed by Argentina in December 2007 and China in January 2008 restricting grain exports. China, the world's biggest grain producer started to issue export permits for the overseas selling of wheat, corn and rice. In the same month Egypt banned rice exports followed by India in March halting export of non-basmati rice and extending the export ban on minor crops such as peas and beans. By April 2008 the World Bank forecasted that 33 countries would soon face serious social unrest as the food crisis had reached "emergency proportions[7]". In the same month Kazakhistan, the world's sixth largest wheat producer banned its exports of wheat and Indonesia, the world's third largest rice producer declared that it will hold back surplus rice.

In April 2006 oil prices crossed $75 per barrel amid fears of supply disruptions in Nigeria and Iran and gas shortages in the United States. However the reduced demand response on account of higher prices brought down the prices by 20 percent until September. This prompted the OPEC in October to approve a cut in crude oil output by 1.2 million barrels per day. In January 2007 Russia cuts oil supplies to Poland, Germany and Ukraine in

[6] Report by the Panel of Economists, Planning Commission of Pakistan.
[7] As termed by U.N. Secretary-General Ban Ki-moon.

order prevent Belarus from illegal siphoning of oil. In June, Iran announced fuel rationing anticipating that West could impose sanctions on its petrol imports that in turn could criple its economy. By November the oil prices in Singpore had reached $99 per barrel amid weak dollar and speculations that U.S. would further cut interest rates. The price doubled in 2008 (over the average in 2007) and by May 2008 the prices were hovering around $135 a barrel as U.S. supplies of crude were falling. These record high oil prices were now also pushing up fuel, energy and food expenditures. In June the U.S. President called for an end to 27 year ban on drilling for oil in the U.S. coastal waters to reduce dependence on imported oil. By September, the price had reached $147 per barrel and rising.

In Februrary 2007 with the U.S. house prices declining, the subprime mortgage industry collapsed and more than 25 subprime lending firms declared bankruptcy with some big corporations following suit. This marked the beginning of global financial crisis. By August, for the first time since 9/11 central banks around the world coordinated to inject liquidity into credit markets[8]. A year later in October several European countries nationalize troubled banks and increase the liquidity for their markets. A meeting of world's Group of Twenty (G-20) leaders gathered in Washington in order to vow against a panic-driven drive towards protectionism. By February 2009 governments had collapsed in Iceland, Belgium and Latvia due to domestic financial turmoil. The U.S. created a $787 billion stimulus package aimed to boost the economy and also finance energy and health sectors. At the London meeting in April the G-20 countries decide to triple funding for the International Monetary Fund, direct additonal money towards trade financing and improve internatonal financial regulatory framework.

As the GDP growth rates decreased and unemployment rates increased around the world, emerging and poor economies saw their prospects of meeting the MDGs grow bleak. The developing countries now faced a decline in their exports, official capital inflows and FDI. These countries were now facing triple hit from food, fuel and financial crisis with the number of malnourished people expected to grow by 50 million. The World Bank commited around $60 million in 2009 to help countries facing a reversal in poverty trends.

In the past literature there has been quantiative estimations of the impact of previous crises at the macro and micro levels in the developing countries. Robilliard *et al.* (2001) using a CGE model simulate the impact of Indonesia's financial crisis of 1997 through real devaluation, foreign and domestic credit

[8] Council on Foreign Relations: http://www.cfr.org/publication/18709/.

crunch. The results indicate a decline in the wages for skilled and unskilled labour of around 24 and 21 percent respectively. Poverty and Inequality increase by 93 and 5.5 percent respectively. Similarly for Indonesia, Bourguignon *et al.* (2003) show that a 30 percent decrease in foreign savings under savings-driven investment and flexible government spending leads to a decline in skilled and unskilled wages of around 11 and 25 percent respectively. Poverty and inequality deteriorate by 37 and 2 percent respectively.

Block *et al.* (2004) while discussing the impact of Indonesia's financial crisis of 1997 on child nutrition explain that despite a rise in food prices which significantly altered the nutrition profile, the child weight-for-age remained constant throughout the crisis. This is primarily because within the households, children's caloric intake was buffered by mothers which in turn resulted in increased maternal wasting. There was a reduction in consumption of high quality foods which resulted in increased prevalence of anaemia for both mothers and children.

Poverty, malnutrition and hunger are deeply integrated. Poverty is a leading cause of hunger which is referred to as food deprivation and malnutrition in turn results from food deficiencies (FAO 2008, Taylor 1977). Bhutta *et al.* (2008) also show food and economic crisis leading to significant deterioration of health and nutrition among mothers and children in poor communities in the short term. Authors find that if unaddressed the current financial crisis could increase rates of maternal anemia by 20 percent, prevalence of low birth weight by 10 percent, childhood stunting by 7 percent, and wasting by 16 percent. These predictions can in turn challenge the country-specific ability to reach the MDGs as the external sources of development financing decline and domestic fiscal space is squeezed.

It has already been discussed in Haddad *et al.* (2003) that income growth alone will not be sufficient to halve the prevelance of underweight children by 2015 and investments in direct interventions will be required (See also Alderman *et al.* 2006). Examples of some effective nutrition and health interventions are discussed in Allen and Gillespie (2001); Gillespie and Haddad (2001). These findings were also highlighted earlier in Berg (1981) and Reutlinger (1976) who explained that malnutrition can persist even in a phase of rapid income growth if no direct measures are initiated.

Martin-Prével *et al.* (2000) discuss the effects of the 1994 develuation of the African Financial Community (CFA) franc on the nutritional status of the populations in two districts of Brazzaville, Congo. The overall nutritional situation deteriorated with greater levels of stunting and wasting among

children, mothers with lower body mass index, and infants with reduced birth weights. The increased food prices decreased the quality of first complementary foods offered to infants e.g. less use of special transitional foods and imported flours of higher nutritional quality. Gitau *et al.* (2005) also show for the Southern African drought, increased stunting among infants whose mothers experienced high maize prices while pregnant. A direct intervention in this case such as the provision of micronutrient supplements even to those who are less food-insecure could have reduced the incidence of price increase.

Lokshin and Ravallion (2002) studied the welfare impacts of the 1998 financial crisis in Russia and the response of the public safety net. There was a general deterioration in the welfare levels during the crisis period with expenditures contracting more than incomes as the households expected worse times ahead. The poverty rate as meaured by the expenditures increased by almost 50 percent. However the response of safety net fell short of what was needed to preserve living standards particularly for the poor. The targeting of safety net is instrumental in the success of these programmes, however the paper indicates that even without better targeting, a 10 percent increase in cash benefits would have avoided higher income poverty. The role of safety net programmes has also been discussed in Ravallion (2009) and Suci (2006). In the wake of prolonged Indonesian financial crisis the Indonesian government in 1998 launched a social safety net programme to protect the poor segment. The programme increased both potential and realized access of children to health services via succesful distribution of health cards to the poor.

During crisis times that lead to a contraction of expenditures, many slide down from 'balanced or good' food to 'acceptable' food (see Chapman-Novakofski 2009). This implies that even if the poor may preserve the overall caloric intake by concentrating the consumption of foods with higher calories, the nutritional quality will decline as the consumption of other foods containing important micronutrients have now become unaffordable[9]. Friedman and Levinsohn (2001) show that during the Indonesian financial crisis the distributional consequences remain the same whether we allow the households to substitute towards relatively cheaper goods or not. While every household was adversely impacted by the crisis, the urban poor faced the worst consequences. The poor rural households remained relatively less affected due to their ability to produce food. Even with in the urban and rural areas the geographical location and structure of families mattered with households having younger children facing relatively higher adverse impact.

[9] See hierarchy of food needs in Satter (2007).

Recently several countries came up with fiscal programmes in order to stimulate the economies out of the crisis. However countries that were capital constrianed had to resort to IMF for obtaining the necessary foreign savings[10]. It has been discussed in the literature that IMF programmes usually end up in reduced fiscal space for social sector funding in for example health and general population welfare. Stuckler and Basu (2009) explain that there is sufficient evidence to indicate that IMF programmes have been significantly associated with declining health care, reduced effectiveness of health-focused development aid, child and maternal mortality. Such IMF tranches (which are primarily aimed at meeting the balance of payments requirements) can limit the progress towards MDGs.

The impact of financial crisis on remittances and migration will be critical to countries like Pakistan where remittances were 56 percent of net current transfers in 2008. Martin (2009) explains that remittances should be less sensitive to recession than deployments. This is because remittances to developing countries depend more on the stock of migrants abroad than the flow. During and following the crisis, new deployments of migrants are likely to slow down. Under a prolonged crisis increased lay offs can ultimately decrease remittances and reverse migration. See Abella and Ducanes (2009) for the effect of crisis on Asian migrant workers, Wilson (2009) for crisis leading to declining remittances in Mexico and Ahmed *et al.* (2009b) on why the remittances and migration increased in Pakistan even during the crisis.

III. Methodology: Macro-Micro CGE Analysis

In the past literature the impact of crises has been studied using various quantitative techniques. For CGE approach see (Robilliard *et al.* 2001, Bourguignon *et al.* 2003). For macroeconometric methods sees (Weeks 2009). The CGE models have extensively been used to study the impact of price shocks, supply constraints and economic crises. See Yeldan (1998) on structural source of the 1994 Turkish crisis, Robilliard *et al.* (2001) and Bourguignon *et al.* (2003) on the impact of Indonesia's financial crisis of 1997, Valenzuela (2007) on assessing global CGE model validity using agricultural price volatility, Storm (1999) on using variable trade levies on agricultural trade to stabilize food grain prices in India in response to exogenous shocks, Nouve and Woden (2008) on the impact of rising rice prices in Mali, and

[10] Examples include Pakistan and Turkey.

Ahmed *et al.* (2009b) on the impact of possible changes in remittance levels under a prolonged global financial crisis.

CGE Model

The basic specifications of this model (see Appendix 1 for mathematical details) are from Ahmed *et al.* (2009), Cororaton and Orden (2007). This framework is based on EXTER convention. See Decaluwe, Dumot, Robichaud (2000). The production block of the model combines the intermediate inputs and value added to give the final output, which is then either exported or domestically sold. The imported inputs are combined with the domestic goods to provide the composite goods. The export transformation has been specified using a CET function and the import to domestic good relation has been specified using a CES function. The value addition is being derived from four different sources (specified using a CES function) namely; skilled labour, unskilled labour, capital and land. Due to the considerations of Pakistan being a developing country having a substantial contribution from the agriculture sector in the overall GDP, the unskilled labour is further sub-divided into farm labour and unskilled workers represented using a CES function. Land, capital and unskilled labour are combined using a CES function to give agriculture sector's value addition. For the case of non-agriculture sector land is replaced by unskilled labour while other two factors of production remain the same.

The model specifies consumption using a linear expenditure system (LES). This is in line with the standard tradition used in many CGE models. The overall consumption at the household level is the difference between the disposable income and household savings. There is a fairly detailed specification on the investment side where demand for capital by destination is determined (amongst other factors) by the ratio of return to capital and user cost of capital. The summation of this demand for capital by destination then gives us the overall real investment which is multiplied by the price of investment in order to obtain overall nominal investment. Finally we can calculate the investment demand by origin. This is done by multiplying the ratio of nominal total investment to composite price of commodity with the investment shares given in the base data.

Output price is a weighted combination of export and local price. The later is different from the domestic price due to indirect taxes. These taxes are also added with world price of import (multiplied by exchange rate) and tariff rate

to give the domestic import price. The export price is determined by world price of exports (multiplied by exchange rate) and export subsidies[11].

Closure Rules

The sectoral treatment of factor market is such that in agriculture sector, capital and land are fixed and in non-agriculture sector only capital is fixed. Unskilled labour is allowed mobility across sectors, while skilled labour can only move between non-agriculture sectors. The supply of skilled, unskilled labour and farmers is fixed. Supply of land is also fixed.

Supply in goods market is equated with sum of intermediate demand, household and government consumption to give goods market equilibrium. Total investment is equal to total savings which in turn comprise of household, firm, foreign and government savings.

Real government consumption is fixed, allowing government income and savings to vary. Savings of firms are fixed. A rise in firm's income therefore will imply increased dividends to households but not an increase in retained earnings of the firms.

The weighted value added price is considered as a numeraire. The nominal exchange rate is kept flexible, which implies that foreign savings as measured by the domestic currency is also flexible. Thus the external account is cleared by the exchange rate given that the foreign savings in terms of foreign currency is fixed. Most of these closure rules are similar to Ahmed *et al.* (2009) and Cororaton and Orden (2007) allowing an extension of analysis on Pakistan's economy[12].

Microsimulation Model

We develop an income generation model following Alatas and Bourguignon (2000). As explained in the following section this approach has already been followed in numerous studies[13]. For general discussion of this micro model see Bourguignon *et al.* (1998), Bourguignon *et al.* (2001). For applications where this specification is used for subsequent linkage with a CGE model, see Robilliard *et al.* (2001), Bussolo and Lay (2003) and Hérault (2005). We

[11] Not in present specification of this model.

[12] Ahmed *et al.* (2009) conducted simulations that include: a) increasing general sales tax (GST) rate by 33 percent, b) 10 percent GST on presently zero-rated goods, c) Increasing GST rate by 33 percent + bringing services in to the tax net, and d) Increasing GST rate by 33 percent + bringing services in to the tax net + levying a 5 percent flat tax on agricultural incomes. Cororaton and Orden (2007) conducted simulations that include: a) impact of increase in foreign savings, b) increase in world prices of cotton lint, c) improvement in total factor productivity, d) production subsidy.

[13] An earlier version of this paper provides results on multi-logit occupational choice and Heckman estimations.

followed the standard form shown in Bourguignon *et al.* (2003), which is a companion paper of Robilliard *et al.* (2001) however the later provides a much more detailed CGE model to study the impact of financial crises in Indonesia. We link CGE model with the microsimulation model using the top-down approach given in Bourguignon *et al.* (2003).

The CGE and microsimulation models have been linked across the literature using different methodologies, however most of them having a focus on distributional outcomes of policy reforms and exogenous shocks[14]. Bourguignon *et al.* (1989) use a macro-micro model to quantify the effects of stabilization policies on the distribution of income and wealth. Dorosh and Sahn (2000) use a similar framework and examine the poverty impacts of macroeconomic policies in the Cameroon, The Gambia, Madagascar and Niger. Cogneau and Robilliard (2000) study the micro impact of different economic growth policies, such as increase in factor wages, increase in total factor productivity and a change in the world price of tradeable goods. Cockburn (2001) studies for the case of Nepal, the micro level effects of replacing the production tax (which varies across sectors) with a relatively less distortionary VAT. Following a similar model structure Cororaton and Cockburn (2005) see the general equilibrium and poverty impacts of trade reforms in Philippines. Robilliard *et al.* (2001) show the impact of 1998 financial crisis on the changes in income distribution for the case of Indonesia. This approach has also been followed by Lay *et al.* (2006), Herault (2005), Columbo (2006), and Ahmed *et al.* (2009). Savard (2003) used a CGE-microsimulation model that incorporates the methodology by Magnac (1991) of using segmented labour markets with waited unemployment.

From the quantitative aspect three main approaches for linking CGE and microsimulation models can be identified in the literature namely: a) Integrating real households from micro data into a CGE model (see Cockburn 2001), b) sequential (top-down) linkage (see Bourguignon *et al.* 2003), and c) iterative (top-down / bottom-up) approach (see Savard 2003).

IV. Methodology: Food Consumption and Nutrition in Micro Model

Following Alatas and Bourguignon (2000) we estimate the wage income as a function of personal characteristics of earning members of the households thus allowing for heterogeneity of earnings within the wage groups. We retain the same wage grouping as explained above in the CGE model. The

[14] There may be other objectives as well. See PACE-L model (Clauss and Schubert 2009).

heterogeneity may be due to differences in for example educational profile, area of residence and experience. See mathematical details of the model at Appendix 2.

The self employment income of the households is estimated as a function of household members associated with the business activity as well as the household characteristics such as region, type of experience, size of land ownership, and schooling of head of households. Using an accounting identity we sum the wage income of households members, earnings of members involved in self employment and the non-labour income of household which in Pakistan's case may include remittances, Zakat[15], and miscellaneous. Any direct taxes paid by the household may be deducted. In order to obtain the real household income we deflate the amount with a household specific consumer price index. This index is calculated as the sum of all budget shares multiplied by the price of goods.

The occupational choice available with an individual is then determined in a discrete fashion (using a multi-logit model). The value for inactivity is set to zero and the values for wage or self employment are functions of household characteristics. The individual will choose for example self employment if the value associated with this choice is greater than other alternatives.

The total expenditure is obtained by subtracting household savings from total nominal income. This expenditure multiplied by the observed budget shares gives us the monetary value of commodity-wise consumption. As we have to approach towards the calculation of caloric intake therefore it is essential to divide the value of consumption of food items with their unit market prices to get the quantity of each item[16]. Next we divide these total quantities with the number of households to get the per capita quantity consumed for each food item. Finally we obtain the item-wise nutritional value (calories) associated with each food item from the food composition table[17] of Pakistan. The caloric values were multiplied by the quantities consumed (per person) to get the total caloric intake of each household member per day.

The food composition table for Pakistan provides details of about 200 food commodities. Major micronutrients include iron, iodine, Vitamin A, zinc as well as regular nutrients such as protein, carbohydrate, fat and fiber. Table 1 exhibits the nutritional content of various food items listed in Household Integrated Economic Survey (HIES). This information has been disaggregated into cereals, meat and fish, milk products, sugar products, fruits, vegetables,

[15] An obligatory contribution which every wealthy Muslim is required to pay to the state, or to distribute amongst the poor.
[16] Alatas and Boruguignon (2000) did not focus on the nutritional aspects.
[17] Nutrition Section, Planning Commission of Pakistan.

fats and oils. They are reported in terms of calories per 100 gram intake. For details on more disaggregated food items see Planning Commission (2001)[18]. In February 2009 the report by the Taskforce on Food Security[19] adopted the benchmarks provided by the World Food Programme Survey for the Vulnerability Analysis and Mapping Unit. This survey indicates that up to March 2008 there were 77 million people who were food insecure. A person was considered food insecure if they are consuming less than 2350 calories per day[20].

V. Data

Macro Data

The Social Accounting Matrix (SAM) for our CGE model has been derived from Dorosh *et al.* (2004). This SAM has been furnished from 5 different data sources namely; the input-output table providing information mainly on the activities and commodity accounts, the national accounts data 2001-02 used to compile information about the value addition in fifteen main sectors, HIES 2002 for disaggregation of consumption, Pakistan Rural Household Survey 2001 for disaggregating household incomes and Pakistan Economic Survey 2002, providing sector-wise and commodity-wise data on production, prices and trade.

On the activities side the matrix includes payments and receipts for 34 sectors of the economy which includes: 12 agriculture, 16 industrial and 6 services sectors. Similar sectoral detail follows in the commodity accounts. Factor accounts include labour, land and capital with labour disaggregated into 10 different categories. This disaggregation is based on the criterion of farm size, agriculture and non-agriculture wage, unskilled and skilled labour. Land again is disaggregated according to the farm size (in different provinces). Capital is categorised into livestock, other agriculture, informal and formal capital. The household accounts are distributed into rural and urban with rural households being further classified into 17 categories based on; farm size, rural poor and rural non-poor. Urban households have been classified into poor and non poor. Other institutions in the SAM include enterprises, government and the rest of the world.

[18] For Pakistan's case Akmal (2003) uses food composition values from FAO.
[19] Taskforce on Food Security, Planning Commission, Government of Pakistan, February 2009.
[20] The report by the Taskforce stated that "…the level of poverty had declined from 34.4% of the population in 2001 to 28 % in 2005-06, but due to the high food inflation in the last three years, this ratio has gone back to 33% pushing at least 11 million people below the poverty line". The report further stated that "…if no policy action is taken,….an additional 22 million people will be impoverished over the next four years".

The SAM data indicates that 6 percent of overall household incomes are derived from land, 39 percent from labour activity, 9 percent from agriculture capital, 21 percent from informal capital, 6 percent from transfers and 19 percent from other activities. A further disaggregation of labour income reveals that agricultural labour force contributes around 2 percent while the rest 37 percent comes from non-agricultural labour. The annual per capita income for 2002 stands at Rs 23900 (USD 389) with rural at Rs 15000 (USD 244) and urban population earning Rs. 46200 (USD 752). On the production side around 23 percent of value addition is contributed by agriculture sector, 20 percent from industry and 57 percent from services sector. The agriculture sector contributes 4 percent to total exports with industry's share at 79 percent and services sector at 17.5 percent. The imports are dominated by industrial goods and the share of industry in overall imports is around 92 percent followed by 4.9 percent for services sector and 3 percent for agriculture.

Micro Data

The main data source for the microsimulation model is HIES 2002. A total of 16400 households were interviewed in this survey. The sample of household was drawn from 1150 primary sampling units out of which 500 are urban and 650 are rural[21].

According to the observed data the national average household size is 6.96 members with rural size at 7.0 and urban at 6.87. According to the provincial disaggregation the household size is highest in Baluchistan (7.37) and lowest in Punjab (6.54). The average number of earners per households is 2.13 with urban 1.96 and rural 2.21. The distribution of earners by employment status reveals that 41.1 percent are paid employees, 26.75 percent are self employed, 1 percent is employers, 28.3 percent are unpaid helpers[22] and 3 percent are economically inactive. The average monthly consumption expenditure per household is Rs 6714 where urban is Rs 8997 and rural is Rs. 5766. The consumption share of food group is highest (48.3 %) followed by housing (13.2 %) fuel (7.9 %) apparel, textile and footwear (6.6 %) transport and communication (3.9%) and education (3.62%). Amongst the major food items the monthly expenditure on milk is highest (16 %) followed by wheat (15.8 %) vegetable (7.5 %) and sugar (6.7 %).

[21] After some data cleaning we randomly selected a sample of 15000 households for the microsimulation exercises.

[22] Unpaid family helper is a member of the family who works for the family enterprise without being paid in monetary terms. Although they are not paid, their efforts result in an increase in the household income; therefore they are considered employed persons.

The commodity-wise prices and monthly per capita consumption in quantity terms for 2002 are given in Table 2. Amongst the cereals, wheat is consumed the most at around 9 kgs per person per month. This is followed by rice with 1.7 kgs. In the pulses; gram, mash and masur have the largest share in quantities consumed. The consumption of fresh and boiled milk stands around 5.8 liters per person per month. At a price of Rs. 40.7 per kg the consumption of vegetable oil is 0.63 kgs per person per month. In the meat and fish category beef consumption is 0.30 kgs per person per month at a price of Rs. 55.1 per kg. This is followed by mutton with 0.1 kgs per capita at a price of Rs. 102.4 per kg. The low-fat protein needs are also met by chicken and fish whose consumption was 0.14 and 0.05 kgs respectively. In the vegetables group, monthly per capita consumption of potato is highest at 1.08 kgs followed by onion and tomato at 0.96 and 0.36 kg respectively.

Some differences can be noticed in the rural and urban consumption patterns. The traditional items such as gur, shakkar, chillis, butter and most of the cereals are consumed in greater quantities in rural regions. However the transformed or value added items such as biscuits, packed milk products, and glucose are consumed more in urban areas. The commodity items requiring higher purchasing power are also consumed in greater quantities in urban area. Fish may be seen as one such example.

In Table 3 we give the food group-wise budget shares, monthly expenditures and per capita calories consumed per day. Cereals have the highest budget share of 20.4 percent, followed by milk products (21.1 percent) oil and fats (8.6 percent) sugars (8.1 percent) vegetables (7.5 percent) meat and fish (6.1 percent) and fruits (3.4 percent). The rural population has a greater budget share for cereals, milk products, sugar, oil and fats. The urban population has a greater budget share for fruits, vegetables, meat and fish.
The per capita monthly expenditure is highest for milk products (Rs 718) followed by cereals (Rs. 697). For rural areas however the monthly expenditure is greater for cereals (Rs 738) followed by milk products (Rs 708). The total per capita expenditure per month for 2002 is Rs 3410 where urban and rural expenditures are Rs. 3612 and 3326 respectively[23]. The total calories consumed per person per day are around 2507 with rural caloric intake higher at 2575 compared to urban at 2319. The rural calories are higher due to concentration in cereals, milk and sugar products. The cereals group constitutes around 54 percent in the overall caloric intake followed by 21 percent from milk products, 9 percent from oils and fats and 7.3 percent from sugar products. The consumption share of some high quality foods still remains low. The share of meat and fish for example stands around 1.3

[23] Rural population has less per capita expenditure but concentrated in high calorie foods.

percent. Similarly the share of pulses which is an important source of protein is around 1.2 percent.

VI. Results-I: Macroeconomic Changes

In this section we focus on how the changes in food prices, exports and remittances impact the macroeconomic indicators. One should consider that a substantial amount of welfare loss came through the increase in food prices even before the financial crisis had actually begun. The increase in global food and oil prices not only wiped out the foreign exchange reserves Pakistan had accumulated since 2002, but it also increased the government deficit as the government was trying to maintain the subsidies in order to protect the poor from a sudden increase in prices. A welcome relief came from workers' remittances from abroad which were on the rise between 2006 and 2009.

In our experiments we try to see the impact of:

a) 10 percent decline in exports (Sim-1)
b) 25 percent increase in import price of food (Sim-2)
c) 25 percent increase in import price of food and 20 percent increase in remittances (Sim-3)
d) 20 percent increase in remittances (Sim-4).

All simulations are conducted under the same closure rules discussed earlier. The magnitude of simulations has been kept close to the actual changes seen in these variables during the food and financial crisis[24].

In our first experiment a 10 percent fall in overall exports leads to a 1.56 percent decline in real GDP and 2.6 percent decline in real investment (Table 4). In the factor market the wages for skilled and farm labour decline by -5.4 and -2.3 percent respectively. The return to land also decreases by -4.9 percent. However wages for unskilled labour and return to capital increase by 1.5 and 2.0 percent respectively. This is partly because in our closure rules unskilled labour is allowed mobility across sectors, which implies that this segment of labour force can exit the declining sectors and move to sectors better off after the shock.

[24] Actual trends may be seen in: a) Economic Survey of Pakistan, b) State Bank of Pakistan Annual Report, and c) Planning Commission Annual Plan 2009-10.

The consumer prices for food and services decline by 9.5 and 5.8 percent respectively. In case of food products it is easier to justify given the decrease in exported value and subsequent greater supply of food available domestically. The prices of durables increase by 26.2 percent. This can be due to a combination of declining raw material imports such as oil, rising wages of skilled labour, decline in real investment and increased domestic prices for energy and other manufacturing sectors. There is an increase in most import categories except petroleum refining whose imports decline by -3.7 percent. The increased imports widen the trade deficit however at the same time increase tariff revenues by 22.5 percent. Indirect taxes which comprise of sales and excise taxation also increase by 8.7 percent. Due to a decline in GDP components such as investment and consumption the direct tax revenues (which comprise of income, corporate and withholding taxes) decline by 1.6 percent. The increase in tariff revenue to some extent compensated for the loss of direct taxes. There is an overall increase in government revenue by 5.9 percent.

The various segments of wages and consumer prices were transmitted to the microsimulation model whose results soon follow. At this stage we explain in greater detail the changes in consumer prices across 34 sectors in the model. As explained above that a 10 percent decrease in exports led to a general decline in the prices of food items. The largest decrease is seen for rice (basmati) which declined by 18 percent (Table 5). The price for the highly consumed cereal, wheat (irrigated) declined by 1.6 percent (price of non-irrigated wheat declining by 0.8 percent). The fall in prices is also partly attributable to the decrease in agricultural exports. In the agriculture sector cotton crop has the highest interaction with exportable sectors. Textile-based exports constitute around 60 percent of Pakistani exports, with in which there is a substantial share of cotton-based exports. The consumer price for cotton increased by 5.6 percent. An increase is also seen for yarn and textile sector (overall). This could in turn have implications for the future competitiveness and demand for Pakistani products abroad. The energy prices which remain of crucial importance to the industrial sector increase by 27 percent. The prices of manufactured items increased by almost 7 percent. On the services side there is a decline in the consumer prices in public services. This to some extent is due to the increase in government revenues. The prices in the construction sector remain unchanged.

In our second simulation we see the impact of a 25 percent increase in import price of food items. The imports of food group decline where wheat imports fell by 39 percent and other major crops (excluding rice) see a decline of

around 37 percent[25]. Food prices increase by 16.5 percent. The prices also increase in other sectors with durable goods' and services sector prices rising by 6.2 and 7.8 percent respectively. The wages for farm and unskilled labor increase by 25 and 8.5 percent respectively. The return to land inceases by 25 percent while that of capital decreases by 13 percent. Due to the increase in imports (in value terms) the tariff revenue sees a sharp increase along with increases in indirect taxes which increase by 8.9 percent. A general sales tax with statutory rate of 16 percent is charged on the listed items at the import stage. The overall government revenue increases by almost 26 percent.

A sector-wise analysis of increase in import price of food reveals sharp increases in the prices faced by the domestic consumers. In the food items the largest increase is seen for rice (around 30 percent) followed by wheat (16.7 percent), fruits and vegetables (16.1 percent) and livestock (8.3 percent). The overall increase in prices can impact the competitiveness of Pakistani exports abroad. The consumer prices for yarn and textile increased by 26.7 and 12 percent respectively. An increase in prices of intermediate inputs of industrial sector is also expected as prices of chemicals, petroleum refining and energy increase by 25.3, 26.8 and 11.5 percent respectively. The prices for public and private services also increase by 9.1 and 10.2 percent respectively. However in our case the exchange rate effect (explained later) is stronger which ultimately boosts exports in key sectors.

The share of food in the overall imports stands around 6 percent according to 2007 statistics. The food imports mainly included grains, pulses and flour (Rs 18.7 billion), edible oils (Rs 58 billion), sugar (Rs 15.7 billion), tea (Rs 13 billion). While the general equilibrium impact of this simulation led to a fall in food consumption, the exchange rate effect led to an increase in exports of textile, rice, leather, and cement sectors[26]. The imports also declined which further narrowed the trade deficit. Despite the across the board increase in prices, the income effect proved to be stronger and some increase in consumption is seen. The rising wages led to increased consumption particularly in non-food categories. The value of GDP and real investment increased by 1.45 and 6.0 percent respectively. As it is the high income group that benefits under this scenario therefore we will later explain a rise in inequality.

If one looks at the historical data around 2006-07 import prices were rising and so were the workers' remittances from abroad. In our third experiment

[25] Major crops include Wheat, Rice, Cotton, Sugarcane, Barley, Jowar, Bajra, Maize, Gram, Sesamum, Tobacco, Rapeseed and Mustard.
[26] Some sectors not shown in table.

we combine a 25 percent increase in import price of food with a 20 percent increase in remittances (Sim-3). The direction of change in most macroeconomic variables remains the same if compared to Sim-2, however the magnitude of change is greater. Hence we conduct a fourth experiment in order to see the impact of a 20 percent rise in remittances only (Sim-4).

As remittances increase there is an exchange rate effect that makes exports expensive. The exports of all items decline particularly the textile (-2.5 percent) and yarn (-1.0 percent). The imports however increase and there is a widening of trade deficit. The consumer prices decrease for food group (-0.8 percent) durables (-0.4 percent) and services (-0.4 percent). While the wages for unskilled labor remain unchanged, there is however a decline in the wages for farm labour (-1.3 percent) and skilled labor (-1.1 percent). Although government revenue declines by 0.2 percent, the increase in the return to capital (0.6 percent) provides some increase in direct taxes[27] (0.5 percent). The real investment increases by 2.63 percent and there is also an increase in consumption of all income groups which is discussed later in detail.

The increased availability of foreign exchange reserves allows an increase in imports which ultimately brings down consumer prices in most sectors particularly the export-oriented sectors. We observe that prices decline for cotton (-2.5 percent), yarn (-2.1 percent), textile (-1.3 percent). The prices also decline for commodities extensively used in industry such as chemicals (-2.0 percent), petroleum refining (-1.9 percent), energy (-1.0 percent) and transport (-0.5 percent). On the agriculture side the prices of major crops decrease however livestock and poultry prices increase by 1.2 and 1.5 percent respectively.

VII. Results-II: Consumption, Poverty and Inequality

A 10 percent fall in exports leads to a decline in the overall consumption level of relatively high income earners (Table 6). For the presentation of our results we retain the same household classification as seen in SAM. Households that face the highest decline in consumption are large and medium farmers followed by urban non-poor. Due to the decline in food and services sector prices, consumption levels increase for households having larger budget share of necessity items. These include rural landless agriculture workers, rural non-farm poor, rural non-farm non-poor and urban poor. There is no change in the consumption level of small farm landless renters. The urban non-poor see a decline in their consumption of 1.6 percent as this segment is

[27] In the form of corporate taxes.

more prone to shocks from exporting sectors. The declining exports also contribute to rising poverty and inequality (Table 7). The poverty headcount ratio increases by 7.3 percent and inequality as measured by Gini coefficient increases by 1.7 percent.

An increase in food price has a two-pronged effect: a) direct impact, where real income declines and expenditures on non-essential categories such as health and education suffers, and b) indirect effect, where hunger and malnutrition (amongst other indictors) worsens as there is a reduction in the caloric intake. The impact of increase in import price of food has a regressive impact on consumption. The high income groups particularly those with land ownership see an increase in their consumption levels. However the lower income groups see a reduction in their budget. These include rural landless agriculture workers, small farmers, and rural non-farm households. Under this exogenous shock, poverty increases by a greater magnitude i.e. 7.6 percent and inequality increases by 2.6 percent.

When we see the combined effect of increase in import price of food and increase in remittances the direction of change in terms of household consumption remains the same as seen for the previous simulation (Sim-2) for the case of large, medium and small farmers. The magnitude of change is greater i.e. these households gain more under the combined effect. Only this time rural landless workers see an increase in their consumption by 1.2 percent. Similarly the consumption of rural non-farm non-poor also increases marginally. The poverty and inequality levels now rise by a much lower magnitude. The headcount ratio and Gini coefficient increase by 3.7 and 0.4 percent respectively. This clearly indicates the poverty-reducing effect of remittances from abroad which was more important under rising import prices.

In order to deepen our understanding of how remittances impact household consumption we see in Sim-4 the impact of a 20 percent increase in remittances only. While all segments of the population see positive gains, the non-agricultural population in particular the landless workers see the most increase in their welfare level. There is some redistributive effect which is more clearly seen for the urban region. While the consumption of urban non-poor increases by 0.6 percent, the urban poor see an increase of 1 percent. Even in rural areas, large farmers have the least gains.

VIII. Results-III: Financial Crisis and Nutrition Intake

Pakistan despite being the 6th largest wheat producer, 5th largest dairy milk and date producer and having a substantial share in global production of basmati rice still remains unable to fulfil its nutritional demands[28]. According to WHO (2009), 24 percent of the population is under the calorie based food plus non-food poverty line and more than 41 percent children less than 5 are underweight. Over half the children are affected by stunting and about 9 percent by wasting[29]. According to FAO food security dataset 2009, prevalence of child malnutrition is at 37.8, depth of hunger 280 and number of undernourished persons is around 4 million[30]. The estimated cost of malnutrition in Pakistan is around Rs. 200 billion (USD 3.3 billion[31]) or 5 percent of GNP. This cost is in the form of deaths, disability and lost productivity (Hussain 2004). For Pakistan see also Alderman and Garcia (1993), Rashid (2001), Butt and Mahmood (1987), Knowles (1984), Hazarika (2000), WHO (2008) and PC-UNICEF (2004).

A reduction in the value of overall exports that led to a reduction in food prices boosts the food consumption in quantity terms (Table 8). This is primarily due to increased supply of food now available domestically. The exchange rate effect also led to an increase in the import of major crops. The highest increase is seen for pulses (14.7 percent) and cereals (14.3 percent). The total increase in quantity consumed is 6 percent. The quantity of major sources of protein also increases. These include milk products (1.6 percent), meat and fish (1.5 percent). The only decline is seen for oil and fats whose consumption declines by 3.5 percent.

In Table 9 we present results of our simulations across (income) quartiles number 1 to 4 representing the richest to poor quartiles. In case of increase in exports the richest quartiles (1 and 2) see the largest increase in per capita food consumption (11.5 and 12.9 percent respectively). Although food prices decreased however there was no substantial impact on the overall consumption of poor because wages decreased for both, farm labour (-2.3 percent) and skilled labour (-5.4 percent). However this does not imply that poorest did not gain by the price and quantity changes within the food basket. Given the increase in consumption of cereals, pulses, milk and meat products we see that the caloric intake of the 4th quartile increases (7.2 percent). The rural caloric intake increases by 8.7 percent. Amongst the provinces, Baluchistan (poorest in welfare terms) gains the most (9 percent). The overall caloric intake at the national level increases by 8.4 percent.

[28] See Suleri (2009) for detailed analysis on wheat crisis in Pakistan.
[29] Pakistan MDG Report 2006. Centre for Poverty Reduction and Income Distribution, Planning Commission of Pakistan.
[30] For a regional comparison see Pandey and Adhikari (2009).
[31] Using exchange rate for the year 2002.

A 25 percent increase in the import price of food leads to a reduction in quantity consumed by 12.4 percent. We had discussed earlier that under this simulation the consumer price of food group had increased by 16.5 percent. The highest decline is seen for beverages[32] (-14.4 percent) followed by fruits and vegetables (-13.9 percent), oil and fats (-12.9 percent), tea, coffee and energy drinks (-14.3 percent), milk products (-7.2 percent), sugar products (-6.7 percent), meat and fish (-7.7 percent).

A marginal increase is seen in the consumption of cereals (0.5 percent) and pulses (0.6 percent) which may be due to a substitution effect where households cut back their consumption in order to divert the now reduced budget towards foods that fall under the necessity or staple category[33].

In terms of income quartiles, the poorest see the most decline in the food consumption (-16.7 percent) while the consumption for richest decreases by less than half. This is justified on the grounds that poor already allocate the largest budget share to food. However due to the positive increase seen in the consumption of cereals and pulses the caloric intake increased for the poorest quartiles by 1.6 percent. The intake for the rest of the quartiles declines. Amongst the provinces the highest decline in caloric intake is seen for Punjab (-3.9 percent) which hosts majority of Pakistan's poor. The calories decline for urban and rural regions by 4.2 and 3.4 percent respectively. The overall caloric intake at the national level declines by 3.6 percent.

As the remittances increased (Sim-4) some mixed changes in the consumption quantities are observed. The food consumption increases by 0.7 percent mainly contributed by increases in cereals (0.1 percent) pulses (0.2 percent) oil and fats (1.3 percent) fruits and vegetables (0.8 percent). The consumption declines for milk products (1.5 percent) meat and fish (1.2 percent) and sugar products (0.5 percent). The main gainers are the recipients of remittances who are mainly in the top quartiles (1 and 2) and their consumption quantities increased by 6.2 and 7.4 percent respectively. The lower quartiles mainly lose on account of decrease in wages. The consumption level decreased for quartile 3 (-4.4 percent) and quartile 4 (-5 percent). The overall caloric intake decreased marginally by 0.1 percent, where the rural and urban intake decreases by 0.1 and 0.03 percent respectively. All except quartile 4 see a decline in caloric intake. In all simulation an interesting result appears, where the poorest quartile preserve their caloric intake by concentrating on staple

[32] This sector uses imported content whose prices increased globally.
[33] Some improvement is seen in rice sector whose exports also increased by 12.8 percent (explained earlier).

foods with high calories. We can observe that the quantity consumed of these foods increased even when the overall prices of food group were increasing[34]. However the overall quality of nutrition declines.

IX. Conclusion and Policy Response

The combination of lower incomes due to financial crisis and high food prices has drastically impacted the welfare of the poor across the world. The food, fuel and financial crises have created an opportunity for supporting or building effective social safety nets which are permanent and automatic (See Ravallion 2009). Such safety nets should come into play not only at the time of the crisis but also carry through to ensure that crisis-hit population smoothly sails out of the danger zone in the medium-term with provisions such as health and education. It is likely that many countries feel the need during the current crisis to make this permanent safety net an integral part of their poverty strategy programmes, where the budgetary costs need not be very high, remaining variable depending upon the risk involved. Such costs may seem trivial if associated with longer-term efficiency gains to the economy.

Global investment in agriculture will remain essential in the medium to longer-term. High economic growth is bound to increase the food prices not so much due to the increased demand for food but via demand for energy. Economic growth will lead to an increase in demand for crops as biofuel feedstocks (Alexandratos 2008). Promotion of pro-poor agriculture growth should be complimented by reducing agricultural market volatilities that create price bubbles (Braun 2008) and market-based agriculture-related infrastructure development.

The overall nutritional challenges in Pakistan incude poor household food security, low birth weight, childhood undernutriton, child feeding malpractices, and micronutrient deficiencies. Besides the overall recovery and improvement in household incomes, an integrated approach for improving nutrition in Pakistan will require direct interventions to address regional food insecurities, focus on children feeding practices, improving education levels of mothers, investment in nutrition education and micronutrient supplements and more importantly regular surveillance at the national level (See Hussain

[34] Even in a food secure household, inequitable allocation of food can lead to malnourishment (Alderman and Garcia 1993). So food security is necessary but not sufficient for maintaining a desired or recommended nutritional status (Gillespie and Mason 1990). Since quantity of food has been used to quantify the calories therefore one should bear in mind that we are ignoring the quality of food and related aspects.

2004). It is now recommended that measures to enhance direct access to food may be integrated with the overall social safety programmes (see Stamoulis and Zezza 2003). Such an arrangement may take the form of targeted direct feeding programmes (e.g. school meals), food-for-work programmes, income-transfer programmes (e.g. food stamps).

It is also essential to address food security from four main dimensions i.e. physical *availability* of food, economic and physical *access* to food, food *utilization* and *stability* of the above three dimensions overtime. At the same time strategies for food insecurity should clearly distinguish between choronic (long-term and persistent), seasonal (cyclical pattern of inadequate availablity of food) and transitory (short-term and temporary) food insecurity (see FAO 2008).

The greatest challenge during and after the crisis will be to enable developing economies to withstand global slowdown, identify new avenues for vulnerable groups and put the economy on high growth trajectory which once sustained will ensure efforts towards the MDGs.

This paper indcates that a fall in exports in Pakistan led to a decrease in GDP, real investment, wages of skilled and farm labour, prices of food and services. The overall poverty and inequality deteriorated. The impact of financial crisis was particularly harsh on the higher income groups whose consumption levels declined by a greater magnitude. Due to the decrease in food exports and greater availability in the domestic market, the consumption of food actually increased. The increase in import price of food was relatively harsh for the poor as the domestic prices of food, durables and services increased. The consumption for the rural poor was negatively affected with food consumption declining sharply and inturn also decreasing the caloric intake. The overall poverty and inequality deteriorated by a much greater extent if compared to the decline in exports. The rise in remittances however to some extent neutralised the adverse impacts of increased food prices.

As for future research, there is a need to see the long term implications of our results on for example capital accumulation through a dynamic general equilibrium framework. In order to see detailed labour market impact, employment effects should be studied in alternate closure settings. The gender dimension of crises show that the economic fall out has different impacts on male and female. This also requires due attention. It is known that recession under globalization is bad for poorest of the poor (see Narasimhan 2009). Given the presently reduced frequency with which economic crises are occuring[35] there is an urgent need to study the possibility of permanent social

[35] Fuel, food and financial crises in 2000s. Currency and bank-run crises in 1990s.

safety nets having a specific component of emergency food banks for the poor.

X. Tables and Figures

Table 1: Nutrition Content of Various Food Items[36]

[36] Nutrition Section, Planning Commission of Pakistan.

Name of Commodity	Calories per 100 Gram
Wheat	290
Rice	330
Maize	330
Other Cereals	290
Gram	276
Other Pulses	260
Meat	
Beef	240
Mutton	212
Chicken	149
Edible Offal	143
Eggs	159
Fish	149
Milk Cow	64
Buffalo	101
Other Milk	70
Sugar	
Refined	390
Gur Raw Sugar	310
Fruit and Vegetables	
Fruit	70
Vegetable	50
Other Seeds	
Ground Nut	579
Fats and Oil	
Ghee	890
Vegetable Oil	900

Table 2 Per capita food consumption and unit prices (2002)

Food Groups	Unit	Price per unit (Rs.)	Per Capita Quantities (month)		
			Overall	Rural	Urban
Cereals					
Wheat & wheat flour	kg	8.7	8.88	9.46	7.46
Rice & rice flour	kg	17.6	1.17	1.17	1.16
Other cereal products	kg	6.0	0.38	0.42	0.26
Baked & fried products					
Biscuits	Gm	0.1	21.65	19.49	28.21
Bread & other products	No.	6.7	3.38	3.42	3.26
Pulses					
Gram (whole)	Kg	37.9	0.04	0.03	0.05
Gram (split)	Kg	30.0	0.13	0.13	0.12
Mash	Kg	38.3	0.04	0.04	0.05
Moong	Kg	34.3	0.07	0.07	0.08
Masoor	Kg	38.5	0.05	0.04	0.06
Other pulses	kg	31.8	0.03	0.03	0.02
Milk & milk products					
Milk (fresh & boiled)	Ltr	13.7	5.77	5.48	6.47
Milk (packed)	Ltr	30.2	0.04	0.01	0.09
Milk (dry & condensed)	kg	147.7	0.01	0.00	0.01
Butter	gm	0.1	44.90	57.40	13.58
Other milk products	kg (yougart)	17.6	0.95	1.04	0.72
Edible oils & fats					
Vegetable ghee	kg	49.7	0.63	0.65	0.59
Edible oils	Ltr	54.2	0.09	0.03	0.23
Ghee (desi)	kg	179.9	0.03	0.04	0.01
Meat & fish					
Mutton	kg	102.4	0.10	0.08	0.17
Beef	kg	55.1	0.30	0.26	0.39
Fish	kg	63.0	0.05	0.04	0.06
Poultry					
Chicken	kg	79.1	0.14	0.11	0.22
Eggs	No.	2.7	1.66	1.43	2.19
Fruit & dry fruits					
Banana	no.	1.4	1.65	1.17	2.84
Orange	kg	1.4	1.17	1.07	1.36
Apples	kg	24.4	0.11	0.08	0.20
Dry fruits	Gm	0.1	8.15	7.90	8.75

Food Groups	Unit	Price per unit (Rs.)	Per Capita Quantities (month)		
			Overall	Rural	Urban
Other fruits	kg	16.8	0.55	0.45	0.79
Vegetables					
Potatoes	kg	9.7	1.08	1.05	1.13
Tomato	kg	11.8	0.36	0.31	0.46
Onion	kg	7.0	0.96	0.95	0.98
Other vegetables	kg	8.9	1.74	1.68	1.89
Condiments & spices					
Salt (simple)	kg	3.2	0.26	0.27	0.23
Salt (iodised)	kg	7.9	0.04	0.02	0.07
Chillies	gm	0.1	78.45	81.51	71.49
Other spices	gm	0.1	114.18	97.44	154.74
Gur, Sugar Preparations					
Sugar, mill/desi	kg	26.2	1.26	1.32	1.12
Gur & shakkar	kg	25.3	0.15	0.18	0.06
Honey	gm	0.2	1.31	1.27	2.10
Glucose/energile	gm	0.1	3.84	3.05	6.00
Other sugar products	kg	66.6	0.03	0.02	0.05
Tea, coffee, soft drinks					
Tea, black & green	gm	0.3	56.71	55.55	59.23
Coffee	gm	0.3	0.16	0.00	0.34
Energy drinks	gm	0.3	0.15	0.00	0.33
Squashes	ltr	28.9	0.09	0.06	0.16
Non-Carbonated	ltr	66.0	0.03	0.02	0.05
Juices	ltr	9.3	0.03	0.01	0.08
Tobacco & chewing products					
Cigarettes	No.	0.6	15.82	15.64	16.40
Pan	No.	2.5	0.46	0.21	1.08
Other tobacco	no.	0.3	20.97	25.67	9.26

Authors own calculation, HIES 2001-02.

Table 3 Food Expenditure and Nutrition Intake

Food Groups	Budget Shares			Average Monthly Values (Rs.)			Percapita Calories per day			% of total Calories
	Overall	Rural	Urban	Overall	Rural	Urban	Overall	Rural	Urban	
Cereals	20.4	22.2	16.6	697	738	598	1354	1436	1152	54.0
Pulses	2.4	2.4	2.5	83	79	90	31	30	34	1.2
Milk Products	21.1	21.3	20.5	718	708	740	527	537	502	21.0
Oils & fats	8.6	8.8	8.4	295	291	302	223	215	243	8.9
Meat & fish	6.1	5.1	8.2	208	171	295	33	28	46	1.3
Fruits	3.4	2.8	4.7	116	93	170	48	41	63	1.9
Vegetables	7.5	7.5	7.6	257	249	276	69	67	74	2.7
Sugars	8.1	8.7	6.8	276	289	245	183	193	158	7.3
Others	22.3	21.3	24.8	1024	960	1174	39	29	46	1.6
Total	**100**	**100**	**100**	**3410**	**3326**	**3612**	**2507**	**2575**	**2319**	**100**

*Authors own calculation, HIES 2001-02, Planning Commission of Pakistan.

Table 4 Percentage change in macroeconomic variables

Variables	Sim 1*	Sim 2	Sim 3	Sim 4
Real GDP	-1.56	1.45	0.98	0.50
Real Investment	-2.57	6.0	9.2	2.63
Government Revenue	5.9	25.8	27.9	-0.2
Tariff	22.5	163.6	177.1	0.4
Direct Tax	-1.6	6.1	7.3	0.5
Indirect Tax	8.9	8.9	9.1	-0.6
Wages				
Farm Labour	-2.3	24.9	26.2	-1.3
Unskilled	1.5	8.5	9.1	0.0
Skilled	-5.4	15.1	14.6	-1.1
Capital Returns	2.0	-13.0	-13.4	0.6
Land Returns	-4.9	24.9	26.5	-1.0
Consumer Price Index				
Food	-9.5	16.5	17.3	-0.8
Durables	26.2	6.2	6.4	-0.4
Services	-5.8	7.8	7.9	-0.4
Exports				
Wheat	-11.4	-13.6	-20.5	-4.5
Rice	-10.3	12.8	12.0	-2.6
Other major crops	-8.6	-37.1	-42.9	-2.9
Cotton yarn	-10.0	-16.0	-16.8	-1.0
Textile	-10.0	54.1	55.3	-2.5
Chemicals	-10.6	-11.7	-10.6	-2.1
Imports				
Wheat	6.5	-38.7	-35.5	3.2
Other major crops	9.7	-33.9	-32.3	3.2
Chemicals	1.7	-9.7	-9.1	1.1
Petroleum refining	-3.7	-6.4	-5.8	0.9
Private services	9.5	-28.0	-26.8	4.6

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad, Sim-4: 20% increase in remittances.

Table 5 Percentage change in Consumer Price Index

Commodity Groups	Sim 1*	Sim 2	Sim 3	Sim 4
Wheat irrigated	-1.6	16.7	17.6	-0.9
Wheat non_irrigated	-0.8	16.2	17.4	-0.5
Paddy IRRI	-12.9	30.6	31.0	-2.3
Paddy basmati	-17.9	28.1	28.5	-1.9
Cotton	5.6	36.6	37.6	-2.5
Sugarcane	-1.3	7.7	10.8	1.4
Other major crops	-1.6	19.4	20.0	-1.4
Fruits_ vegetables	-1.7	16.1	17.1	-0.8
Livestock	-1.5	8.3	10.3	1.2
Poultry	-1.5	7.8	9.8	1.5
Forestry	-2.9	17.0	16.7	-2.0
Fishing Industry	-1.1	13.0	13.4	-0.9
Mining	-3.8	25.0	24.8	-2.0
Vegetable oil	3.6	14.8	15.1	-1.3
Wheat milling	-0.8	12.3	13.1	-0.4
Rice milling IRRI	-0.7	14.6	14.9	-1.3
Rice milling Basmati	-0.7	13.9	14.4	-0.9
Sugar	-0.7	7.2	8.5	0.5
Other food	-9.6	16.7	16.9	-1.5
Cotton lint_yarn	27.5	26.7	27.1	-2.1
Textiles	7.9	11.9	12.0	-1.3
Leather	-0.7	-6.7	-5.7	0.4
Wood products	-1.1	-1.5	-2.8	-1.3
Chemicals	-3.4	25.3	25.3	-2.0
Cement_bricks	-0.6	-5.5	-1.6	4.6
Petroleum refining	-4.2	26.8	27.0	-1.9
Other manufacturing	6.8	-41.2	-46.2	-2.0
Energy	26.9	11.5	11.1	-1.0
Construction	0.0	-4.6	-4.4	0.7
Commerce	2.6	7.3	7.7	-0.1
Transport	-21.8	4.5	4.5	-0.5
Housing	2.5	-1.0	2.8	3.5
Private services	0.6	9.1	9.8	-0.1
Public services	-4.6	10.2	9.7	-1.0

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad, Sim-4: 20% increase in remittances.

Table 6 Percentage change in household consumption (value)

Households	Sim 1*	Sim 2	Sim 3	Sim 4
Large Farmers_Sindh	-2.3	12.8	15.1	0.0
Large Farmers_Punjab	-1.6	8.5	10.6	0.7
Large Farmers_Other Pakistan	-1.0	5.2	7.2	1.0
Medium Farmers_Sindh	-1.7	9.4	11.6	0.5
Medium Farmers_Punjab	-0.7	4.5	6.2	0.8
Medium Farmers_Other Pakistan	-1.8	10.1	12.1	0.6
Small Farmers_Sindh	-0.2	1.5	2.9	0.9
Small Farmers_Punjab	-0.1	3.0	4.6	0.9
Small Farmers_Other Pakistan	0.5	-1.2	0.3	1.1
Small Farm Renters_landless_Sindh	0.0	3.4	5.1	1.0
Small Farm Renters_landless_Punjab	0.0	3.0	4.6	0.9
Small Farm Renters_landeless_Other	0.0	2.1	3.5	1.4
Rural agricultural workers_landless_Sindh	1.5	0.5	2.0	1.5
Rural agricultural workers_landless_Punjab	1.4	-0.3	1.2	1.1
Rural agricultural workers_landless_Other	2.2	-6.7	-5.6	2.2
Rural non_farm non_poor	1.4	-1.4	0.1	1.2
Rural non_farm poor	1.5	-4.3	-3.0	1.3
Urban non_poor	-1.6	6.1	7.3	0.6
Urban Poor	1.3	5.6	7.4	1.0

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad, Sim-4: 20% increase in remittances.

Table 7 Percentage change in Poverty and Inequality

	Sim 1*	Sim 2	Sim 3
FGT 1**	7.3	7.6	3.7
FGT 2	7.8	8.7	2.7
FGT 3	7.3	8.3	2.1
Gini	1.7	2.6	0.4

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad

** FGT (0) Headcount Ratio (proportion poor), FGT(1) average normalized poverty gap, FGT(2) average squared normalized poverty gap.

Table 8 Percentage change in food consumption (Quantity)

Food Groups	Sim 1*	Sim 2	Sim 4
Milk products	1.6	-7.2	-1.5
Meat & fish	1.5	-7.7	-1.2
Fruits & vegetables	1.7	-13.9	0.8
Sugar products	0.7	-6.7	-0.5
Beverages	12.5	-14.4	1.6
Cereals	14.3	0.5	0.1
Pulses	14.7	0.6	0.2
Oil & fats	-3.5	-12.9	1.3
Tea, coffee and energizers	12.4	-14.3	1.5
Total	6.0	-12.4	0.7

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad, Sim-4: 20% increase in remittances.

Table 9 Percentage change in per capita food consumption (quantity) by income quartiles

Simulations	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Sim 1*	11.5	12.9	0.6	0.1
Sim 2	-7.6	-7.4	-17.0	-16.7
Sim 4	6.2	7.4	-4.4	-5.0

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad, Sim-4: 20% increase in remittances.

Table 10 Percentage change in caloric-intake

	Sim 1*	Sim 2	Sim 4
Overall	8.4	-3.6	-0.1
By region			
Urban	7.8	-4.2	-0.03
Rural	8.7	-3.4	-0.10
By province			
Punjab	8.0	-3.9	-0.14
Sind	8.3	-3.8	-0.07
NWFP	8.5	-3.6	-0.01
Baluchistan	9.0	-3.2	0.02
By income quartile			
Quartile 1	2.0	-8.9	-6.0
Quartile 2	3.0	-7.8	-5.0
Quartile 3	8.5	-3.5	-0.1
Quartile 4	7.2	1.6	17.7

*Sim-1: 10% fall in overall exports, Sim-2: 25% increase in import price of food, Sim-3: 25% increase in import price of food and 20% increase in remittances from abroad, Sim-4: 20% increase in remittances.

XI. References

Abella, M., & Ducanes, G. (2009). The Effect of the Global Economic Crisis on Asian Migrant Workers and Governments' Responses. Bangkok: ILO Bangkok Regional Office.

Ahmed, S., Ahmed, V., & Abbas, A. (2009). Taxation Reforms: A CGE-microsimulation analysis of Pakistan. Poverty and Economic Policy Working Papers.

Ahmed, V., Sugiyarto, G., & Jha, S. (2009). Remittances and Household Welfare: A Case Study of Pakistan. ADB Economics Working Paper Series .

Alatas, V. and F. Bourguignon (2000) The evolution of the distribution of income during Indonesian fast growth: 1980-1996. Mimeo. Princeton University.

Alderman, H., & Garcia, M. (1993). Poverty, Household Food Security, and Nutrition in Rural Pakistan. Washington D.C. : International Food Policy Research Institute.

Alderman, H., Hoogeveen, H., & Rossi, M. (2006). Reducing child malnutrition in Tanzania: Combined effects of income growth and program interventions. Economics and Human Biology , 4, 1-23.

Alexandratos, N. (2008). Food Price Surges: Possible Causes, Past Experience, and Longer Term Relevance. Population and Development Review , 34 (4), 663-697.

Allen, L. H., and S. R. Gillespie. 2001. "What Works? A Review of the Efficacy and Effectiveness of Nutrition Interventions." ACC/SCN Nutrition Policy Paper

Berg, A. 1981. Malnourished People: A Policy View. Poverty and Basic Needs Series. Washington, DC: World Bank.

Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, Haider BA, Kirkwood B, Morris SS, Sachdev HPS, Shekar M. What works? Interventions

for maternal and child undernutrition and survival. Maternal and child undernutrition 3. Lancet, 371:417-440.

Black R, Allen LH, Bhutta Z, Caulfield L, et al. Maternal and child undernutrition: global and regional exposures and health consequences. The Lancet 2008; 371: 243-60.

Bourguignon, F., F. Ferreira, and N. Lustig (1998) The microeconomics of income distribution dynamics, a research proposal. The Inter-American Bank and the World Bank, Washington.

Bourguignon F., M. Fournier, and M. Gurgand (2001) Fast Development with a Stable Income Distribution: Taiwan, 1979-1994. Review of Income and Wealth (June).

Bourguignon, François, Anne-Sophie Robillard, and Sherman Robinson (2003) Representative versus Real Households in the Macro-economic Modelling of Inequality. DELTA Working Paper N◦ 2003-05.

Braun, J. v. (2008). Food and Financial Crises: Implications for Agriculture and the Poor. CGIAR Annual General Meeting. Maputo, Mozambique: International Food Policy Research Institute.

Bussolo, Maurizio & Lay, Jann 2003. "Globalisation and Poverty Changes in Colombia," OECD Development Centre Working Papers 226, OECD, Development Centre.

Butt, S. A., & Mahmood, T. (1987). Food and Nutrition in Pakistan (A Cross-regional Study). The Pakistan Development Review , XXVI (4).

Caesar B. Cororaton & John Cockburn, 2005. "Trade Reform and Poverty in the Philippines: a Computable General Equilibrium Microsimulation Analysis," Cahiers de recherche 0513, CIRPEE.

Chapman-Novakofski, K. (2009). The Economic Crisis—What Is the Role for Nutrition Educators? Journal of Nutrition Education and Behavior , 41 (1).

Cockburn, J. (2001), Trade Liberalisation and Poverty in Nepal: A Computable General Equilibrium Micro Simulation Analysis, Discussion paper 01-18, CREFA, Universite Laval, October 2001.(http://www.crefa.ecn.ulaval.ca/cahier/0118.pdf)

Cogneau, Denis & Robilliard, Anne-Sophie, 2000. "Growth, distribution and poverty in Madagascar," TMD discussion papers 61, International Food Policy Research Institute (IFPRI).

Cororaton, C. and D. Orden (2007) Inter-sectoral and Poverty Implications of Cotton and Textile Policies: A CGE Analysis. Working paper, IFPRI, Washington D.C.

Dorosh, Paul A. & Sahn, David E., 2000. "A General Equilibrium Analysis of the Effect of Macroeconomic Adjustment on Poverty in Africa," Journal of Policy Modeling, Elsevier, vol. 22(6), pages 753-776, November.

FAO. (2008). An introduction to the basic concepts of food security. FAO.

Friedman, J., & Levinsohn, J. (2001). The Distributional Impacts of Indonesia's Financial Crisis on Household Welfare: A "Rapid Response" Methodology. Ann Arbor, Michigan: School of Public Policy, The University of Michigan.

Gillespie, S., & Mason, J. (1990). Nutrition-relevant actions in the eighties: Some experience and lessons from developing countries. Background paper for the ACC/SCN Ad Hoc Group Meeting on Policies to Alleviate Underconsumption and Malnutrition in Deprived Areas, Geneva.

Gillespie, Stuart & Haddad, Lawrence James, 2001. "Effective food and nutrition policy responses to HIV/AIDS," FCND discussion papers 112, International Food Policy Research Institute (IFPRI).

Gitau, R., Makasa, M., Kasonka, L., Sinkala, M., Chintu, C., Tomkins, A., et al. (2005). Maternal micronutrient status and decreased growth of Zambian infants born during and after the maize price increases resulting from the southern African drought of 2001-2002. Public Health Nutrition , 8 (7), 837-843.

Haddad, L. Alderman, H. S, Appleton, L. Song and Y. Yohannnes. 2003. Reducing malnutrition: How far can income growth take us? World Bank Economic Review. 17(1).

Hazarika, G. (2000). Gender Differences in Children's Nutrition and Access to Health Care in Pakistan. Journal of Development Studies , 37 (1), 73-92.

Hérault, N. (2005) Building and Linking a Microsimulation Model to a CGE Model: The South African Microsimulation Model. IFReDE DT/114/2005. http://ced.u-bordeaux4.fr/ceddt114.pdf .

Hussain, A. (2004). An overview of food and nutrition situation in Pakistan. Intercountry Technical Consultation on National Food based Dietary Guidelines. Cairo: WHO-EMRO.

Knowles, J. C. (1984). Interactions between malnutrition and disease: A simultaneous equations model applied to data from a low-income area of Karachi. Pakistan Journal of Applied Economics , III (2), 107-138.

Lin, J. Y., & Martin, W. (2009). The financial crisis and its impact on the global agricultural landscape. International Association of Agricultural Economists. Beijing.

Lokshin, M., & Ravallion, M. (2000). Welfare Impacts of the 1998 financial crisis in Russia and the response of the public safety net. Economics of Transition , 8 (2), 269-295.

Lokshin, Michael & Ravallion, Martin & Lokshin, Michael, 2002. "Rich and powerful? Subjective power and welfare in Russia," Policy Research Working Paper Series 2854, The World Bank. Published as: Lokshin, Michael & Ravallion, Martin, 2005. "Rich and powerful?: Subjective power and welfare in Russia," Journal of Economic Behavior & Organization, Elsevier, vol. 56(2), pages 141-172, February.

Magnac, Th, 1991. "Segmented or Competitive Labor Markets," Econometrica, Econometric Society, vol. 59(1), pages 165-87, January.

Martin, P. (2009). Recession and Migration: A New Era for Labor Migration? International Migration Review , 43 (3), 671-691.

Martin-Prével, Y., Delpeuch, F., Traissac, P., Massamba, J. P., Adoua-Oyila, G., Coudert, K., et al. (2000). Deterioration in the nutritional stutus of yound children and their mothers in Brazzaville, Congo, following the 1994 devaluation of the CFA franc. Bulletin of the World Health Organization , 78 (1).

Mittal, A. (2009). The 2008 Food Price Crisis: Rethinking Food Security Policies. United Nations Conference on Trade and Development.

Narasimhan, S. (2009). Gender dimensions of global financial crisis: Case study of India. SDPI Twelfth Sustainable Development Conference (SDC) 2009. Islamabad.

Nouve, K., & Wodon, Q. (2008). Impact of Rising Rice Prices and Policy Responses in Mali: Simulations with a Dynamic CGE Model. Policy Research Working Paper 4739, The World Bank.

Pandey, P. R. (2009). Global Economic Crisis and South Asia. South Asia Watch on Trade, Economics and Environment.

Pandey, P. R., & Adhikari, K. (2009). Food Security Agenda for South Asia. Trade Insight , 5 (1), pp. 18-21.

PC-UNICEF. (2004). National Nutrition Survey. Islamabad: Planning Commission and UNICEF.

Qian, Y. (2009). SME Financing in the Asia-Pacific Region: Crisis and Countermeasures. Presentation to Shanghai National Accounting Institute.

Rashid, S. (2001). Malnutrition: Food Intake and Poverty Problems in Rural/Urban Pakistan. Indian Journal of Quantitative Economics , 16 (1-2).

Ravallion, M. (2009). Bailing Out the World's Poorest. Challenge , 52 (2), 55-80.

Reutlinger, Professor Sholomo (1976). Malnutrition and Poverty: Magnitude and Policy Options (World Bank) (Paperback - Oct 1, 1976).

Robichaud, V. and Decaluwé, B., J. Dumot (2000), "MIMAP Training Session on CGE Modeling. Volume II: Basic CGE Models". Available at: www.pep-net.org ("MPIA", "training material").

Robilliard, A.-S., F. Bourguignon and S. Robinson (2001) Crisis and Income Distribution: A Micro-Macro Model for Indonesia. Paper presented at the OECD Development Center Conference, 9-10 December 2002, Paris, France. Savard, Luc 2003. "Poverty and Income Distribution in a CGE-Household Micro-Simulation Model: Top-Down/Bottom Up Approach," Cahiers de recherche 0343, CIRPEE.

Sanogo, I. (2009). Rapid Assessment of the Impact of the Global Financial Crisis in Bangladesh. World Food Programme, VAM Food Security Analysis.

Satter, E. (2007). Hierarchy of Food Needs. Journal of Nutrition Education and Behavior , 39 (5), 187-88.

Siegmann, K. A. (2009). The financial crisis in South Asia: From jobless growth to jobless slump? SDPI Twelfth Sustainable Development Conference. Islamabad.

Stamoulis, K., & Zezza, A. (2003). A Conceptual Framework forNational Agricultural, Rural Development, and Food Security Strategies and Policies. Rome: Agricultural and Development Economics Division, FAO.

Storm, S. (1999). Foodgrain Price Stabalisation in an Open Economy: A CGE Analysis of Variable Trade Levies for India. The Journal of Development Studies , 36 (2), 136-159.

Stuckler, D., & Basu, S. (2009). The International Monetary Fund's Effects on Global Health: Before and After the 2008 Financial Crisis. International Journal of Health Services , 39 (4), 771-781.

Suci, E. (2006). Child Access to Health Services During the Economic Crisis: An Indonesian Experience of the Social Safety Net Program. Social Science and Medicine , 63, 2912-2925.

Suleri, A. Q. (2009). Can Pakistan manage the food crisis? Trade Insight , 5 (1).

Taylor, L. (1977). Research directions in income distribution, nutrition, and the economics of food. Food Research Institute Studies , XVI (2).

UNCTAD. (2009). Food Security in Africa: learning lessons from the food crisis. Geneva: United Nations Conference on Trade and Development.

VALENZUELA, E., HERTEL, T. W., KEENEY, R., & REIMER, J. J. (2007). Assessing Global Computable General Equilibrium Model Validity Using Agricultural Price Volatility. Amer. J. Agr. Econ. , 89 (2), 383–397.

Weeks, J. (2009). The impact of the global financial crisis on the economy of Sierra Leone.

WHO. (2008). Impact of food crisis on health. World Health Organization.

WHO. (2009). The finanical crisis and global health. World Health Organization.

Wilson, T. D. (2009). Economic Crisis and the Decline of Remittances to Mexico. Anthropological Quarterly , 82 (2), 587–598.

Yeldan, E. (1998). On structural sources of the 1994 Turkish Crisis: A CGE modelling analysis. International Review of Applied Economics , 12 (3), 397-414.

XII. Appendix

Appendix 1: Computable General Equilibrium Model

Model Equations with explanation

Endogenous Variables	
X	Output
VA	Value Added
USL	Unskilled labour
WK	Unskilled workers
FR	Unskilled farmers
SL	Skilled labour
K	Capital
LW	Land
CI	Intermediate input
Mat	Inter-industry matrix
D	Domestic demand
E	Exports
Q	Composite demand
M	Imports
CT	Total consumption of households
CH	Commodity consumption of households
INV	Investment demand by origin
IND	Demand for capital by destination
INTD	Intermediate demand
GC	Sectoral real govt. consumption
GT	Nominal total govt. consumption
TINV	Nominal total investment
TINV_R	Real total investment
YSL	Income from skilled labour
YLWK	Income from unskilled workers

YLFR	Income from farmers
YLW	Land income
YK	Capital income
YH	Household income
DYH	Disposable income
YF	Firm income
YG	Government revenue
TMREV	Tariff revenue
DTXREV	Direct tax revenue
ITXREV	Indirect tax revenue
SAVH	Household savings
SAVF	Firm savings
SAVG	Government savings
Er	Nominal exchange rate
Pl	Local prices
w_{sk}	Wage for skilled labour
w_{usk}	Average wage for unskilled labour
w_{fr}	Wagr for farm labour
w_{wk}	Wage for workers
rlw_{ag}	Return to land
Pm	Import price
Pe	Export price
Pq	Composite price of commodity
Px	Output price
Pd	Domestic price
Pva	Value added price
R	Return to capital
Pinv	Price of investment
U	User cost of capital

Exogenous Variables	
Pindex	Weighted value added price

Pwm	World import prices
Pwe	World export prices
ir	Real interest rate
dep	Depreciation rate
DIV_H	Total dividend income of households
TRGOVH	Govt. transfers to households
YFOR	Foreign income of households
GRANT_FOR	Foreign grant to government
PAYGV_FOR	Debt service payment of government
DIV_FOR	Dividends paid to foreigners
CAB	Foreign savings
dtxrh	Income tax rate for households
dtxrf	Income tax rate for firms
itxr	Indirect tax rates
tm	Tariff rate
SLS	Supply of skilled labour
WKS	Supply of workers
FRS	Supply of farm labour

1. $X_j = \min\left[\frac{CI_j}{io_j}, \frac{VA_j}{v_j}\right]$

2. $VA_{ag} = \kappa.\left(\omega_{usk}.USL^{-\rho_{va}} + \omega_k.K^{-\rho_{va}} + \omega_{lw}.LW^{-\rho_{va}}\right)^{\frac{-1}{\rho_{va}}}$

3. $VA_{nag} = \kappa.\left(\omega_{sk}.SL^{-\rho_{va}} + \omega_{usk}.USL^{-\rho_{va}} + \omega_k.K^{-\rho_{va}}\right)^{\frac{-1}{\rho_{va}}}$

4. $SL = VA_{nag}.\left(\frac{Pva.\omega_{sk}}{w_{sk}.\kappa^{\rho_{va}}}\right)^{\frac{1}{1+\rho_{va}}}$

5. $USL = VA_{ag}.\left(\frac{Pva.\omega_{usk}}{w_{usk}.\kappa^{\rho_{va}}}\right)^{\frac{1}{1+\rho_{va}}}$

6. $USL = \kappa_{usl}.\left(\omega_{wk}.WK^{-\rho_{usl}} + \omega_{fr}.FR^{-\rho_{usl}}\right)^{\frac{-1}{\rho_{usl}}}$

7. $FR = USL.\left(\frac{w_{usk.}.\omega_{fr}}{w_{fr}.\kappa_{usl}^{\rho_{usl}}}\right)^{\frac{1}{1+\rho_{usl}}}$

8. $LW = VA_{ag}\left(\frac{pva.\omega_{lw}}{rlw_{ag}.\kappa^{\rho_{va}}}\right)^{\frac{1}{1+\rho_{va}}}$

9. $CI_j = io_{ij}.X_j$

10. $mat_{ij} = aij_{ij}.CI_j$

11. $Ct_h = Dyh_h - Savh_h$

12. $C_h = C_{\min,h} + \frac{\alpha}{Pq}\left(Ct_h - \sum pq.C_{\min,h}\right)$

13. $INTD = \sum mat_{ij}$

14. $INV = \tau.\frac{TINV}{Pq}$

15. $TINV = TINVR * Pinv$

16. $TINVR = \sum IND$

17. $\frac{IND}{K} = \lambda\left(\frac{r}{u}\right)^2$

18. $GC = \upsilon.\frac{GT.Pindex}{Pq}$

19. $YSL = \sum w_{sk}.SL$

20. $YLFR = \sum w_{fr}.FR$

21. $YLWK = \sum w_{wk}.WK$

22. $YK = \sum r.K$

23. $YLW = \sum rlw.LW$

24. $YH = YSL.Sh\_SL + YLFR.Sh\_FR + YLWK.Sh\_WK + YK.Sh\_K + YLW.Sh\_LW + DIV\_H.Sh\_DINV.Pindex + TRGOVH.Pindex + YFOR.Sh\_YFOR.er$

25. $DYH = YH(1 - dtxrh)$

26. $YF = YK.(shf\_K).(1 - dtxrf)$

27. $TMREV = \sum tm.M.er.Pwm$

28. $DTXREV = \sum dtxrh.YH + \sum YK.(Shf\_K).(dtxrf)$

29. $ITXREV = \sum itxr.D.Pl + \sum itxr.M.er.Pwm.(1 + tm)$

30. $YG = TMREV + DTXREV + ITXREV + YLW.Shg\_LW$

31. $SAVH = aps.DYH$

32. $SAVF = YF - DIV\_H.Pindex - er.DIV\_FOR$

33. $SAVG = YG - GT.Pindex - \sum TRGOVH.Pindex - er.PAYGV\_FOR$

34. $X = \mu.\left(\theta.E^{\rho_e} + (1-\theta).D^{\rho_e}\right)^{\frac{1}{\rho_e}}$

35. $E = D.\left[\frac{Pe}{Pl}.\frac{1-\theta}{\theta}\right]^{\sigma_e}$

36. $Q = \xi.\left(\delta.M^{-\rho_m} + (1-\delta).D^{-\rho_m}\right)^{\frac{-1}{\rho_m}}$

37. $M = D.\left[\frac{Pd}{Pm}.\frac{1-\delta}{\delta}\right]^{\sigma_m}$

38. $CAB = \sum Pwm.M + DIV\_FOR + PAYGV\_FOR - \sum Pwe.E - \sum YFOR - GRANT\_FOR$

39. $Pm = Pwm.er.(1 + tm).(1 + itxr)$

40. $Pe = Pwe.er$

41. $Pq.Q = Pd.D + Pm.M$

42. $Px.X = Pl.D + Pe.E$

43. $Pd = Pl.(1 + itxr)$

44. $Pva = \dfrac{Px.X - \sum mat_{ij}.pq}{VA}$

45. $Pinv = \prod \left(\dfrac{Pq}{\tau} \right)^{\tau}$

46. $Pindex = \sum w\_va.Pva$

47. $r_{ag}.K = Pva.VA_{ag} - W_{uskl}.USL - rlw_{ag}.LN$

48. $r_{nag}.K = pva.VA_{nag} - w_{sk}.SL - w_{uskl}.USL$

49. $w_{usk}.USL = w_{fr}.FR + w_{wk}.WK$

50. $u = Pinv.(ir + dep)$

51. $Q = INTD + \sum C_h + GC$

52. $TINV = \sum SAVH + SAVF + SAVG + CAB.er$

53. $SLS = \sum SL$

54. $FRS = \sum FR$

55. $WKS = \sum WK$

Appendix 2: Microsimulation Model

Variables	Explanation[37]
w_{mi}	Wage income of member *i* of household *m*
x_{mi}	Personal characteristics
v_{mi}	Residual term
y_m	Self employment income of household *m*
Z_{mi}	Household characteristics
N_m	No. of households in business activity
Y_m	Total real household income
y_{0m}	Non-labour income
P_m	Consumer price index
P_k	Price of consumption good *k*
s_{mk}	Budget share
S_m	Savings of household *m*
mps_m	Marginal propensity to save
Exp_m	Total budget of household *m*
C_{mk}	Household expenditure on *k*
Q_{mk}	Quantity of *k* consumed by household *m*
$Pcq_{k_{mi}}$	Per capita quantity of *k* consumed by member *i* of household *m*
$npers_m$	Numbers of persons in household *m*
Cal_{mi}	Total caloric intake of member *i* of household *m*
ca_r	Calories in food item *r*

[37] The notations for the income generation modules have been kept the same as in Bourgenion *et al.* (2003) for ease of reference.

$$\log w_{mi} = \alpha_{g(mi)} + x_{mi}\beta_{g(mi)} + v_{mi} \qquad i = 1,.....,k_m \tag{1}$$

$$\log y_m = \gamma_{f(m)} + Z_m\delta_{f(m)} + \lambda_{f(m)}N_m + \eta_m \tag{2}$$

$$Y_m = \frac{1}{P_m}\left(\sum_{i=1}^{k_m} w_{mi}IW_{mi} + y_m Ind\left(N_m > 0\right) + y_{0m}\right) \tag{3}$$

$$P_m = \sum_{k=1}^{K} s_{mk}P_k \tag{4}$$

$$IW_{mi} = Ind\left(a^w_{h(mi)} + z_{mi}b^w_{h(mi)} + u^w_{mi} > Sup\left(0, a^s_{h(mi)} + z_{mi}b^s_{h(mi)} + u^s_{mi}\right)\right) \tag{5}$$

$$N_m = \sum_{i=1}^{k_m} Ind\left(a^s_{h(mi)} + z_{mi}b^s_{h(mi)} + u^s_{mi} > Sup\left(0, a^w_{h(mi)} + z_{mi}b^w_{h(mi)} + u^w_{mi}\right)\right) \tag{6}$$

$$S_m = mps_m\left(\sum_{i=1}^{k_m} w_{mi}.IW_{mi} + y_m Ind(N_m > 0) + y_{0m}\right) \tag{7}$$

$$Exp_m = \left(\sum_{i=1}^{k_m} w_{mi}.IW_{mi} + y_m Ind(N_m > 0) + y_{0m}\right) - S_m \tag{8}$$

$$C_{mk} = s_{mk}.Exp_m \tag{9}$$

$$Q_{mk} = \frac{C_{mk}}{P_k} \tag{10}$$

$$pcq_{k_{mi}} = \frac{Q_{mk}}{npers_m} \tag{11}$$

$$Cal_{mi} = \sum_{r=1}^{R_{mi}} ca_r\ .pcq_{r_{mi}} \tag{12}$$

Taxation Reforms: A CGE-microsimulation analysis for Pakistan

Saira Ahmed[38]

Abstract

This paper provides an *ex ante* assessment of taxation reforms being considered in Pakistan in order to widen the tax base and rationalise the rate structure of different taxes. Amongst the main proposals those focusing on sales tax and agricultural direct taxes seem relatively more attractive. The former has the highest share in indirect taxes and is also easier to collect, and the later is intended to bring the presently exempted agricultural incomes in to the tax net. In the first step we study the general equilibrium effects of existing taxes by removing them one at a time from the system. In the second step we study the micro-macro impacts of 4 policy experiments: a) Increasing VAT rate by 33 percent, b) 10 percent VAT on presently zero-rated goods, c) Increasing VAT rate by 33 percent and bringing services sectors in the VAT net, and d) Increasing VAT rate by 33 percent, bringing services sectors in the VAT net and imposition of a 5 percent flat tax on agricultural incomes. In the third step we calculate the lost revenue due to evasion and avoidance. Results from experiments indicate the tough choices for policy makers trying to improve the currently low tax to GDP ratio in Pakistan. Almost all simulations result in a decrease in investment levels, reduced consumption and increase in poverty. We recommend a gradual approach that can make the adjustment process less painful.

Keywords: Taxation, Trade, Microsimulation, General Equilibrium, Poverty, Inequality, Progressivity, Redistribution.

JEL Classification: H22, D58, C51, C81, I32

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1. INTRODUCTION

The taxation system in developing countries usually suffers from a narrow tax base, complex rate structure and high compliance costs. Achieving goals related to progressivity and redistribution become further difficult due to the challenges related to the structure of income earners. In a country like Pakistan where 68 percent population lives in rural areas and around 30 percent of households are below the poverty line, the scope of direct (income) taxes is not attractive[39]. To meet the rising government current and development expenditure needs, indirect taxes account for a major chunk of overall revenue collections. However under the WTO commitments tariffs, excise duties and surcharges are being gradually phased out due to their distortionary impacts. The general sales tax (GST) in VAT mode has a leading contribution amongst the indirect taxes in Pakistan. These taxes are preferred by the revenue administrators as they are difficult to evade[40].

The economy has witnessed substantial capital inflows during the period 2002-07, which in turn boosted domestic investment and consumption, ultimately keeping the GDP growth rate at an average of around 6 percent. However this economic growth could not be translated into higher revenue collection given the inelastic nature of taxes. Although in absolute terms all taxes showed a rising trend, however as a percentage of GDP the trend remained stagnant (explained later in detail). It was under this milieu that a comprehensive tax reform agenda was put forward by the Government which included: a) first generation reforms (rationalizing tax brackets and rates), and b) second generation reforms (focusing on the administrative capacity of tax machinery in Pakistan).

While these efforts were underway, the economy started to feel the financial crunch posed by the rising twin deficits largely due to: a) rising global oil and food prices (and hence a higher import bill), b) burden of subsidies allowed for electricity, oil, wheat, fertilizer and textile research and development, and c) depreciating value of domestic currency. Given these predicaments it became very difficult for the public sector to continue its ambitious development expenditure on medium to long term infrastructure and social sector projects. Consequently the size of Public Sector Development Program (PSDP) was slashed, and resources diverted to more immediate needs of the

[39] This section draws from Ahmed *et al.* (2008).
[40] This paper assumes that the current structure of GST has been transformed in to a full VAT.

economy in order to avoid an increase in inflation, unemployment and poverty levels.

To bridge the twin deficits the economy required external help through multilateral and bilateral arrangements. Under both these avenues the donors are demanding a more aggressive fiscal effort in order to raise domestic mobilization levels. Put simply they want to see Pakistan's tax to GDP ratio improved (which has averaged a meagre 10.6 percent between 2002 and 2008). This will indeed be the only way Pakistan can payback the expensive debt it will procure at this stage. In this background several tax policy options have surfaced. International Monetary Fund (IMF) has been suggesting an increase in GST rate and widening of tax base. The sales tax currently does not cover various services sub-sectors. World Bank (WB) has advised on the initiation of direct taxation in agriculture sector, which remains exempt since the country's independence in 1947. Federal Board of Revenue (FBR) has also been focusing on widening of tax bases through adjustments in threshold and withdrawal of exemptions. In its annual review for the year 2003-04, FBR has reported that out of a population of 151 million, only 1.3 million are tax payers. After the clearance of claims submitted for rebates this number reduces to 0.9 million. Even with in this group there are difficulties such as evasion and under reporting of earned income and profits.

The rural areas (although transforming at a fast pace) still lack financial infrastructure. There is little record of consumer transactions in rural regions. Therefore the government cannot fully benefit by taxing consumption as approximately 70 per cent population of Pakistan still lives in these rural areas where the economy remains undocumented.

There is also a grave issue of duplicity of taxes. The Chambers of Commerce in Karachi, Lahore and Islamabad have been registering their concerns with the authorities regarding this problem. There are many taxes that are charged by the Federal Government and are also levied by the provincial or local Governments using the same or a similar name. Toll taxes are a common example of this phenomenon. On the administrative side the foremost issue is that of tax compliance. Only 50 percent of the registered persons and businesses file returns. The poor relationship between the tax payer and tax administration is the major cause of such a milieu. The promotion of a friendly tax culture requires the automation of tax filing process and eliminating the role of public officials. Educating the tax payers to use the on-line filing system can at least curb the objections on the government institutions in the context of corruption and mutual evasive practices.

The purpose of this paper will be to study the *ex ante* effects of proposed reforms. We will use a CGE-microsimulation framework in order to obtain macro, meso and micro level results of our policy simulations. Section 2 gives an overview of tax reforms in Pakistan. Section 3 explains the specifications of the model and datasets used in this study. We also discuss the considerations that went into the design of our simulations. Most of these experiments are in line with the current proposals under discussion with the IMF and other multilateral donors. In section 4 we interpret our results. We study the general equilibrium impact of present form of taxes. Estimates of revenue loss due to evasion are also given. We focus on macro-micro impact of reforms primarily due to changes in VAT rate/structure, direct and indirect tax mix. Finally there is an assessment on the possibility of taxing agriculture sector incomes.

2. TAX REFORMS IN PAKISTAN

Pakistan has shown dismal performance in increasing its tax revenues. The tax system suffers from complexity (difficult to administer and comply with), inelasticity (unresponsive to economic growth), inefficiency, and inequity (GoP 2003). As outlined earlier, the tax to GDP ratio in Pakistan is amongst the lowest. Table 11 gives a comparison for the year 2005 in a cross-section of countries. Pakistan with a 10.5 percent tax to GDP ratio is well below other Asian countries like Sri Lanka (16.5%), India (14.1%), and Philippines (12.6%).

Table 11: Tax/GDP ratio in selected countries

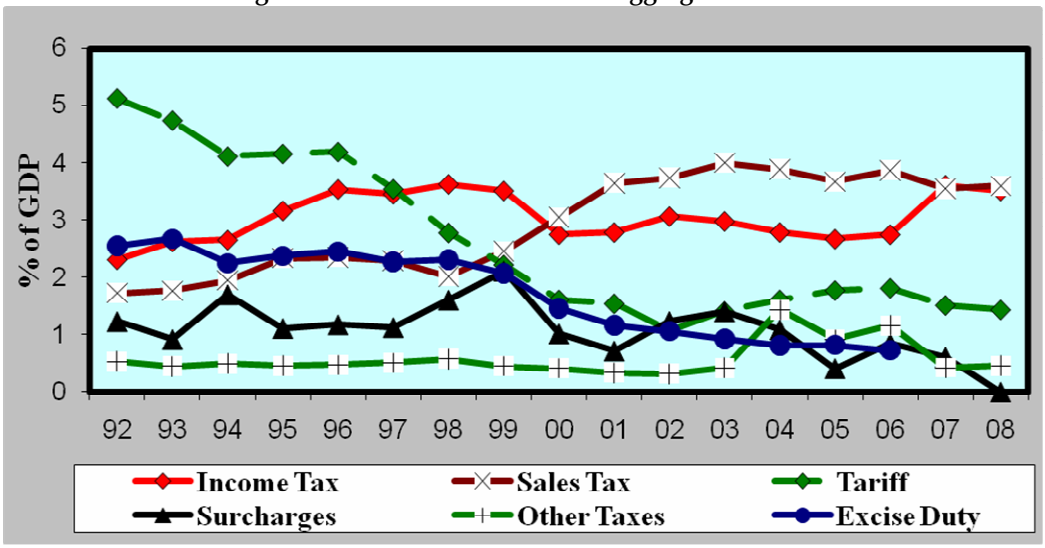
Country	2005
India	14.1
Pakistan	10.5
Sri Lanka	16.5
Mexico	19.0
Egypt	14.1
Korea, Rep	24.6
Thailand	16.4
Malaysia	16.1
Philippines	12.6
Turkey	31.3
Sweden	50.4

Recent tax policy reforms in Pakistan can be classified into first and second generation reforms. The first generation reforms focused on aligning the tax rates and structure with the overall economic growth in the country (see Yusuf 2007). Main measures included widening of tax base through adjustments in threshold, reforming VAT on the lines of VAT, reducing reliance on excise duties, rationalizing customs duties, uniform rate structure for corporate taxation and gradual reduction in income tax rates. The second generation reforms focused on administrative changes. In 2001 with collaboration of WB, Pakistan initiated the implementation of reforms in the area of tax administration and management. The objective of these reforms was to minimize tax avoidance

and evasion through simplification of procedures, self-assessment schemes, and focusing on buoyancy of different type of taxes and improved overall organizational management.

The federal government is responsible for the collection of: a) direct taxes, which include income tax, corporation tax, capital value tax, capital asset tax, workers welfare fund; and b) indirect taxes, which include VAT, at the production, retail and import stage, excise duty on selected manufacturing sector items, and custom duties. The tax to GDP ratio for disaggregated taxes is given in Figure 1. Between 1992 and 2006, the highest decline is in revenue collected through tariffs (or customs duty). This has been compensated through increase in revenue from VAT. The revenue from income tax (as percent of GDP) shows a stagnant trend.

Figure 1: Tax to GDP ratio for Disaggregated Taxes



While the administrative capacity of the tax authorities still remains constrained, it is however important that as growth rate climbs up, the additional wages and rents should be brought under the tax net. In case of Pakistan it may be noted that the incomplete reforms in the areas of income and sales tax have not been able to fully compensate for the decline in tariffs and excise duty (Ahmed 2008). In order to chalk out a medium term framework for tax policy reforms it is essential that an agenda based on transparency, equality and simplicity should address the required caveats in the areas of: documentation of economy, automation of business processes and capacity building of human resources involved in tax administration. With this spirit FBR initiated its Tax Administration Reforms Project (TARP)

in 2005 aimed at achieving greater efficiency and productivity in tax collection. The World Bank was also involved in 2007 for helping the tax authorities to learn from best practices of other countries and subsequently a Tax Policy Programme was initiated with technical assistance from Andrew Young School of Policy Studies.

The fiscal effort from the provinces has been minimal. There is negligible amount of tax collected from avenues falling under the provincial domain which includes: agricultural incomes, capital gains on tangible assets, services and urban property.

The still pending compliance issues point towards the complexity of tax assessment which needs regular attention. Sometimes it is the pursuit of progressivity that makes the taxation process more complex. However Martinez-Vazquez (2006) explains that there seems to be low progressivity in the overall tax structure in Pakistan. To some extent the low progressivity (or vertical equity) is primarily due to the already high burden of taxes on poor.

Figure 2 Structure of Federal Tax Revenue

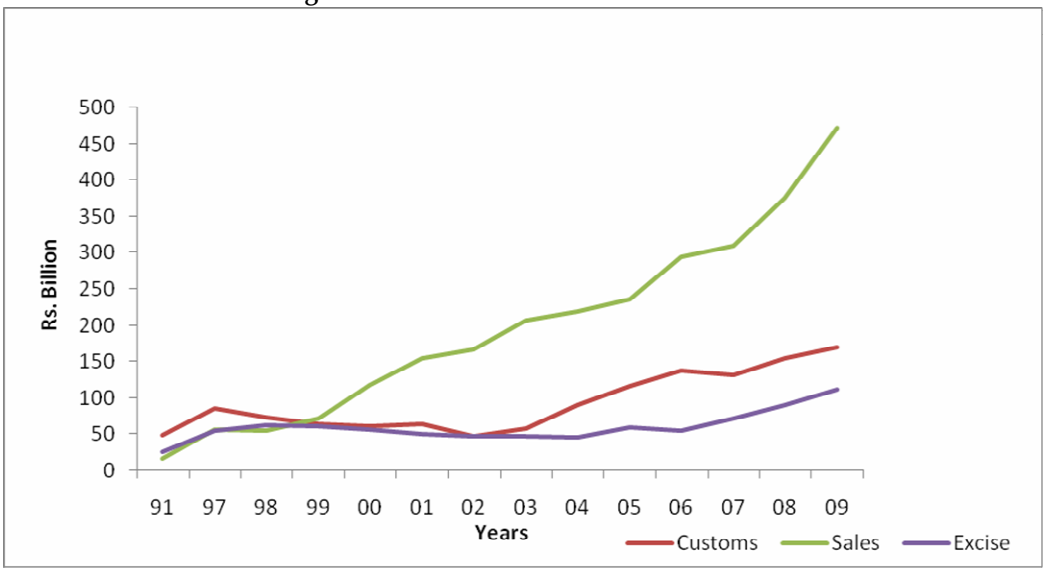
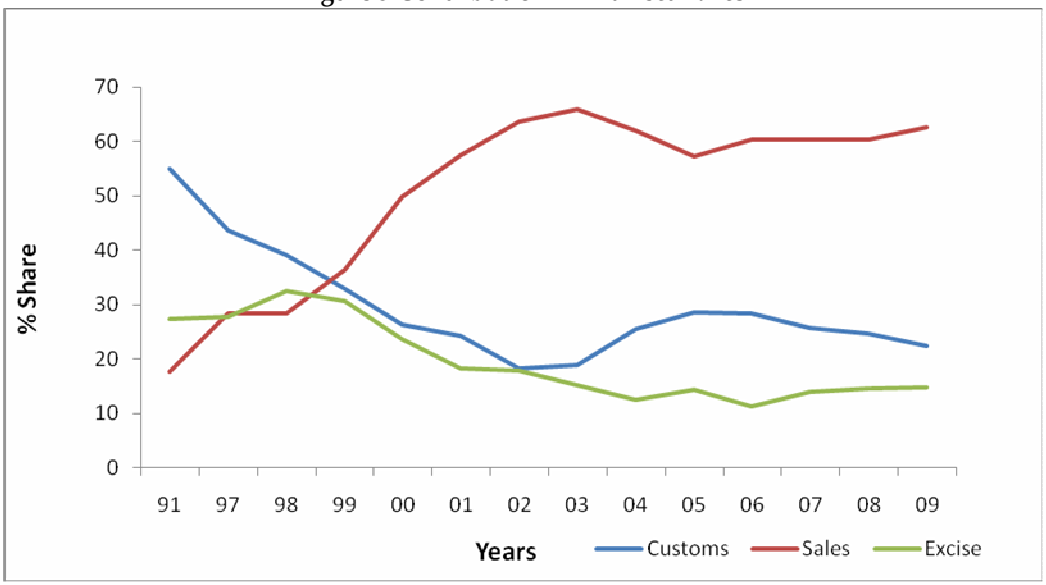


Figure 2 exhibits the indirect tax trend between 1991 to 2009. In the early 1990s customs duty contributed the highest amount (Rs. 62 billion in 1992) followed by excise duty (Rs. 31 billion) and sales tax (Rs. 21 billion). However with a view to remove distortions subsequent Governments gave increased importance to sales tax in VAT mode whose collection increased to Rs. 295 billion in 2006 followed by customs duty (Rs. 138 billion) and excise duty (Rs. 59 billion).

Figure 3 Contribution in Indirect Taxes



This is also seen in Figure 3 which exhibits the percentage share of individual taxes in the overall indirect tax collection. The sharp decline in the contribution of customs duty reflects WTO related commitments towards trade liberalization.

3. DATA, MODEL AND SIMULATION DESIGN

Datasets

The Social Accounting Matrix (SAM) for our CGE model has been derived from Dorosh, Niazi and Nazli (2004)[41]. This SAM comprises of information from five different data sources. The Input-Output table provides information on the activities and commodity accounts. This table has been published by the Federal Bureau of Statistics for the year 1990-91. The national accounts data 2001 is used to compile information about the value addition in fifteen sectors. For consumption-related information, Pakistan Integrated Household Survey (PIHS) 2001 is used. Pakistan Rural Household Survey 2001 is used to disaggregate household incomes and finally Pakistan Economic Survey 2001-02, provides sector-wise and commodity-wise data on production, prices and trade.

On the activities side this SAM includes payments and receipts for 12 agriculture sectors, 16 industrial sectors and 6 services sectors (Table 12).

[41] This section draws from Ahmed, V. (2007).

Similar sectoral detail follows in the commodity accounts. Factor accounts include labour, land and capital with labour disaggregated into 10 different categories. This categorical disaggregation is based on the criterion of farm size, agriculture/non-agriculture wage, and unskilled/skilled labour. Land, again is disaggregated according to the farm size (in different provinces). Capital is categorised into livestock, other agriculture, informal and formal capital. The household accounts are distributed into rural and urban with rural households being further classified into 17 categories based on; farm size, rural poor/rural non-poor. Urban households have been classified into poor and non poor. Other institutions in the SAM include enterprises, government and the rest of the world.

Table 12 Pakistan Macro SAM ***Rs. Billion***

	ACT	COM	FAC	HOU	ENT	GCUR	ROW	CAP	Total
Activities	0	7201	0	0	0	0	0	0	7201
Commodities	3823	0	0	2699	0	409	678	534	8143
Factors	3377	0	0	0	0	0	0	0	3377
Households	0	0	3377	0	0	0	185	0	3562
Enterprises	0	0	0	0	0	0	0	0	0
Government	0	252	0	146	0	0	0	0	398
Indirect taxes		204							204
Import duties		48							48
Direct taxes				146					146
Rest of world	0	691	0	0	0	0	0	0	691
Saving	0	0	0	717	0	-11	-171	0	534
Total	7201	8143	3377	3562	0	398	691	534	23906

Source: Dorosh *et al.* (2004)

The details about household budget are obtained from Household Income and Expenditure Survey 2001-02. This is a representative survey of 16400 households. The sample of household was drawn from 1150 primary sampling units out of which 500 are urban and 650 are rural. Details for profits accruing and inputs used in business were also available which makes it easier to for example estimate an agriculture profit function.

CGE Model Specifications

The basic specifications of this model are from Cororaton and Orden (2007). This framework is based on EXTER convention. See Decaluwe, Dumot, Robichaud (2000). The production block of the model combines the intermediate inputs and value added to give the final output, which is then either exported or domestically sold. The imported inputs are combined with

the domestic goods to provide the composite goods. The export transformation has been specified using a CET function and the import to domestic good relation has been specified using a CES function. The value addition is being derived from four different sources (specified using a CES function) namely; skilled labour, unskilled labour, capital and land. Due to the considerations of Pakistan being a developing country having a substantial contribution from the agriculture sector in the overall GDP, the unskilled labour is further sub-divided into farm labour and unskilled workers represented using a CES function. Land, capital and unskilled labour are combined using a CES function to give agriculture sector's value addition. For the case of non-agriculture sector land is replaced by unskilled labour while other two factors of production remain the same.

The model specifies consumption using a linear expenditure system (LES). This is in line with the standard tradition used in many CGE models. The overall consumption at the household level is the difference between the disposable income and household savings. There is a fairly detailed specification on the investment side where demand for capital by destination is determined (amongst other factors) by the ratio of return to capital and user cost of capital. The summation of this demand for capital by destination then gives us the overall real investment which is then multiplied by the price of investment in order to obtain overall nominal investment. Finally we can calculate the investment demand by origin. This is done by multiplying the ratio of nominal total investment to composite price of commodity with the investment shares given in the base data.

Output price is a weighted combination of export and local price. The later is different from the domestic price due to indirect taxes. These taxes are also added with world price of import (multiplied by exchange rate) and tariff rate to give the domestic import price. The export price is determined by world price of exports (multiplied by exchange rate) and export subsidies[42].

Closure rules

The sectoral treatment of factor market is such that in agriculture sector capital and land are fixed and in non-agriculture only capital is fixed. Unskilled labour is allowed mobility across sectors, while skilled labour can only move between non-agriculture sectors. The supply of skilled labour, farmer and workers is fixed. Supply of land is also fixed.

[42] Not in present specification of this model.

Supply in goods market is equated with sum of intermediate demand, household and government consumption to give goods market equilibrium. Total investment is equal to total savings which in turn comprise of household, firm, foreign and government savings.

Real government consumption is fixed, allowing government income and savings to vary. Savings of firms are fixed. A rise in firm's income therefore will imply increased dividends to households but not an increase in retained earnings of the firms. Most of these closure rules are similar to Cororaton and Orden (2007) allowing an extension of analysis on Pakistan's economy[43].

The weighted value added price is considered as a numeraire. The nominal exchange rate is kept flexible, which implies that foreign savings as measured by the domestic currency is also flexible. Thus the external account is cleared by the exchange rate given that the foreign savings in terms of foreign currency is fixed.

Microsimulation Model

We develop an income generation model following Alatas and Bourguignon (2000). Due to its ease of estimation and transparency this approach has been followed in numerous studies[44]. For general discussion of this micro model see Bourguignon, Ferreira and Lustig (1998), Bourguignon, Fournier and Gurgand (2001). For applications where this specification is used for subsequent linkage with a CGE model, see Robilliard *et al.* (2001), Bussolo and Lay (2003) and Hérault (2005). We followed the standard form shown in Bourguignon, Robilliard and Robinson (2003), which is a companion paper of Robilliard *et al.* (2001) however the later provides a much more detailed CGE model to study the impact of financial crises in Indonesia. We link CGE model with the microsimulation model using the top-down approach given in Bourguignon *et al.* (2003).

4. INTERPRETATION OF RESULTS

General Equilibrium Impact of Existing Taxes

[43] Cororaton and Orden (2007) conducted simulations that include: a) impact of increase in foreign savings, b) increase in world prices of cotton lint, c) improvement in total factor productivity, d) production subsidy.

[44] An earlier version of this paper provides results on multi-logit occupational choice and Heckman estimations.

In order to study the general equilibrium impact of existing taxes, we start by removing them one at a time and see their macroeconomic impact in Table 13. In the case where income taxes are not present real investment increases by 6.1 percent. Overall household consumption increased by 5 percent, within which households belonging to farm sector are the highest gainer (7.3%) followed by urban non-poor household (3.6%) and rural workers (2.7%). However urban poor households faced a decline in consumption by 0.4 percent. This increase in consumption may partly be responsible for the hike in prices of food items (8.0%), and durable items (1.4%). Prices decline for services by almost 7.0 percent and this may have come about as a result of decline in government revenue and services sector output declining by 8 percent while agriculture and industrial output rose by 1.03 and 1.8 percent respectively. Decline in services sector output may also be the reason for the decline in wages of skilled labour by 15.7 percent. The wages for farm and unskilled labour increased by 12.6 and 2 percent respectively. On the revenue side while direct taxes decline by 100 percent there is an increase in tariff and indirect tax revenue by 2.9 and 3.7 percent respectively. The increase in these taxes is through the channels of increased investment, household consumption and output in commodity producing sectors.

In the second case where GST rate is kept zero the increase in most macroeconomic economic variables is greater than the previous simulation, due to the greater income and substitution effects. Investment increased by 23.8 percent, household consumption increased by 9 percent where farmers and rural workers are the main gainers having an increase in consumption by 14.8 and 5.2 percent respectively. The consumption of both urban non-poor and urban poor declines primarily due to the increase in consumer prices of durable items and services. The decline in government revenue partially impacts urban services. This reduction in public sector's revenue may also explain decrease in wages of rural workers (1.8%) and skilled labour (29%). The wages of farmer and unskilled labour increase by 27 and 4.4 percent respectively. The direction of change in wages is similar to the case without income taxes however the magnitude of change is greater. In terms of sectoral output agriculture and industry see an increase while services sector faces a decline. Due to the removal of GST the consumer prices of durable items fell by 6 percent and services sector consumer prices decreased by 16.3 percent. It seems that increases in wages and consumption of rural households pushed the food prices higher by 11 percent.

In the third case removal of tariff has a much lower impact on the macroeconomic variables however the direction of change remains the same as in case of removal of income taxation and GST. This lower magnitude can be justified given that the share of trade taxes (according to 2005 figures) in

tax revenues is 18 percent. As a percentage of GDP tariff collection is almost 2 percent thus having lesser income side linkages. It is interesting to note pro-poor effects of removal of tariffs on household consumption. The household breakup indicates that farmer, rural worker and urban poor see increased consumption levels while for the urban non-poor household consumption declines by almost 2 percent. This also has inequality reducing implications and can also be seen from the increase in wages, which increase for both unskilled and farm labour. Such a scenario goes in favour of trade liberalisation via reduction in price-based restrictions (such as tariffs).

Our estimates for evasion show that if statutory rates are applied instead of the effective rates, then; a) customs duty revenue increases by 6.4 percent, b) direct tax revenue increases by 20.2 percent and c) indirect tax revenue, which includes revenue from VAT, excise and surcharges increases by almost 40 percent. The evasion in case of indirect taxes may be even greater however this may depend on how correctly we estimate the size of the informal and undocumented portion of the economy.

Taking a lead from the recent discussions between FBR, Ministry of Finance and multilateral organizations, we focus on 4 main policy proposals for tax policy changes. These include;

Sim-A: Increasing VAT rate by 33 percent[45]

Sim-B: 10 percent VAT on presently zero-rated goods

Sim-C: Increasing VAT rate by 33 percent + bringing services in to the tax net

Sim-D: Increasing VAT rate by 33 percent + bringing services in to the tax net + levying a 5 percent flat tax on agricultural incomes

The impact of these experiments should be seen in terms of their socio-economic costs and benefits. These are not necessarily comparable with each other. However we retain same closure rules and elasticities for all simulations.

Result-I: Increasing VAT rate by 33 percent

[45] From its current revenue-equivalent in terms of GST (@16 percent).

This policy change leads to a decline in overall investment by 5.6 percent (Table 14). While government income increases by 15.4 percent, firm incomes however decrease by 1.5 percent. The return to factors indicate a decline in case of land (-7.1%) and capital (-1.5%), where as labour returns show mixed results. The wages decrease for farm labour by 6.5 percent, increase for skilled labour by 8.9 percent and change negligibly for unskilled labour.

How does the increase in VAT rate impact the consumer prices? This is exhibited in Table 15 where the prices decrease for agricultural goods however they increase in case of industrial goods. The reason for this can be explained from the tax base selected for the imposition of VAT. The agricultural goods particularly staple food items are exempt from any form of taxation in Pakistan. Therefore the entire burden of increased VAT rate is faced by industrial sector which includes large scale manufacturing, small scale manufacturing, mining, electricity, gas, and construction. Similar explanation can be seen in Refaqat (2003) in the context of social incidence of VAT in Pakistan.

In case of agriculture largest decrease is seen for sugarcane (-9%), cotton (-6%) and rice (-4%). In case of industry the highest increase in consumer prices is seen for food manufacturing (11.3%), petroleum refining (9.3%), and transport (3.6%). For the services sectors the prices for both private and public services increase by 2.3 and 7.1 percent respectively. This change in the consumer prices can at this stage also be explained by the underlying changes in the factor prices.

In agriculture sector the wages for farm labour have declined and so have the returns to land. In Table 16 we see that the land returns decline in all agriculture sub-sectors with highest decline seen in sugarcane (-15.2%), cotton (-13.2%), wheat (-7.8%) and rice (-7.3%). The return to capital (Table 17) decreases for some industrial sectors having backward linkages with the agriculture sector. These include livestock (-4.3%), food processing (-3.5%) and fisheries (-2.4%). The activities showing increase in their return to capital include leather (11.9%), housing (1.7%), rice (4.5%) and wheat milling (2.5%).

What is the impact of changes in goods and factor prices on exports? We see this in Table 18 where key exporting sectors lose substantially as indirect tax burden is increased. The textile sector exports having more than 60 percent share in overall exports of Pakistan, decline by 6.2 percent. Other sectors facing a decline include chemicals (-2.1%), manufacturing (-1.5%), transport (-2%) and cotton yarn (-1%). There is a general decline in imports shown in Table 19. However textile and private services show an increase of 1.8 and 2.3 percent respectively.

The changes in production and trade can impact the sectoral employment levels. According to our closure rules, the sectoral treatment of factor market is such that in agriculture sector, capital and land are fixed and in non-agriculture only capital is fixed. Unskilled labour is allowed mobility across sectors, while skilled labour can only move between non-agriculture sectors. The supply of skilled labour, farmer and workers is fixed. Supply of land is also fixed. We can observe in Table 20 that the employment of unskilled labour declines in cotton, sugarcane, paddy, textile and other manufacturing. However there is an increase in wheat and rice milling, leather and private services. The skilled labour declines in all sectors except public services where employment expands by 8.5 percent indicating government's capacity to employ more given the increase in tax revenues.

Most of the welfare indictors show some deterioration. The change in household consumption given in Table 24 indicates a decline for farmers, farm renters, rural workers and urban poor. The consumption of urban non-poor increases by 2.8 percent which indicates that in consumption terms such a policy change has been regressive. Our microsimulation results show an increase in poverty headcount by 2.1 percent (Table 25). There is also an increase in poverty gap (2.4%) and poverty severity (2.6%). The highest increase in poverty is seen in Sindh province (4.9%) followed by NWFP (1.4%). The inequality also worsens (Table 26) as the Gini coefficient increases by 0.6 percent.

Result-II: 10 percent VAT on presently zero-rated goods

Under the IMF stand-by arrangement Pakistan is now expected to start work on the implementation of value added tax which will replace the existing VAT. This step will in turn imply withdrawing the presently available zero-rated facility to key exporting industries. These include textile, leather, sports, surgical and carpets. The zero-rated goods facility has been in place since 2005-06. If such a policy change takes place, what precisely will be the economy-wide impacts? We discuss these in our second experiment by imposing a 10 percent VAT on presently zero-rated goods.

The real and nominal investment is expected to decline by 10.3 and 8.5 percent respectively (Table 14). The government income as a result of increased tax revenues increases by 39.4 percent. Due to declining imports the revenue from customs duty declines by 0.4 percent however the direct and indirect tax revenues increased by 7.7 and 77.6 percent respectively. It is the enterprise sector now bearing higher burden of taxes which slashes the overall firm incomes by 4.1 percent. The overall returns for factors of production decline accept for skilled labour. The returns for capital decline by

4.1 percent and land by 18.2 percent. The wage for farm labour decline by -16.1 percent while there is a negligible increase for unskilled labour.

In Table 15 we see how the removal of zero-rated facility impacts the consumer prices. The price level in key export-oriented sectors see a sharp increase (which decreases the competitiveness of domestically produced goods vis-à-vis foreign exports). The textile sector prices increase by 17.9 percent, leather by 19.9 percent and rice by 10.7 percent. Some of the items that form a part of core inflation in Pakistan also increase. For example petroleum refining sector sees an increase in price level by 4.9 percent while overall energy prices increase by 7.3 percent. While the prices in the industrial sectors rise, there are substantial reductions in the prices in agricultural activities. Apart from the fact that these activities are VAT exempt, the decline in prices can also be explained through the changes in underlying factor prices. We observe in Table 16 that land prices decline for major crops namely wheat (-18.2%), rice(-22%), cotton (-25%) and sugarcane (-33%). As industrial activities are relatively more capital-intensive therefore the increase in their prices is related to the price of capital. In Table 17 the capital returns increase for cotton yarn (6.7%), rice milling (5.8%), leather (3.6%), energy (6.3%) and petroleum refining (4.1%).

We can now quantify the impact on exports (Table 18). The textile sector exports decline by 13.5 percent, leather by 9.7 percent, food processing by 4.8 percent, chemicals by 3.2 percent and other manufacturing by 2.9 percent. Given that Pakistan's economy is heavily reliant on imported raw material and machinery, it is important to note that a slow down in export growth will in turn imply lesser availability of foreign exchange reserves. This will make affordability of imports difficult and can certainly have detrimental impact on sustaining the overall macroeconomic stability and pro-poor development agenda. A prudent alternative may be the gradual removal of zero rating facility (commodity by commodity) which will make the sectoral adjustment process less painful. In Table 19 we see that manufacturing sector exports decline by 4.9 percent, chemical by 1.5 percent, and cotton yarn by 13.7 percent. In agriculture, wheat sector imports decline by 7.1 percent which may raise food security issues domestically.

The changes in employment are exhibited in Table 21. While the unskilled labour employment reduces in textile (-10%), manufacturing (-6.6%) and livestock (-17.5%), it increases in cotton yarn (12.5%), rice milling (14.3%) and construction (4.6%). The farmer's employment declines in paddy (-15.4%), cotton (-7.3%) and sugarcane (-14.3%) and increases in fruits/vegetables (6.2%) and forestry (14.3%). The employment of skilled labour declines in all

industrial activities except public services, where employment expands by 18.4 percent.

As seen in the first simulation, increase in indirect taxes leads to a decline in household consumption of all segments of the population except urban non-poor (Table 24). The largest decrease is seen in the consumption levels of large and medium scale farmers in all provinces. This is in fact the decline in wages of farmers explained above which translates in to lower consumption levels. In percentage terms the poverty headcount in Punjab and Sindh increases by more than 3 percent (Table 25). The overall poverty headcount ratio increases by 4.7 percent. As the consumption of urban non-poor increases one could expect a rise in inequality. In Table 26 the Gini coefficient increases by more than 1 percent in Punjab, Sindh and NWFP.

Result-III: Increasing VAT rate by 33 percent and bringing services in to the tax net

In Table 14 real investment declines by 14.6 percent. The government income increases by 65.3 percent however firm income decreases by 4.6 percent. Services sector contributes around 50 percent of overall GDP in Pakistan. Given the substantial scale of transaction in this sector the indirect tax revenue increases by 130 percent. The direct tax revenue increases by 9 percent and tariff revenue decreases by 1 percent. All factors of production see a decline in their returns however the wage for skilled labour increases by 28.8 percent.

After bringing the services sector in to the tax net the consumer price of private services increase by 17.7 percent and public services by 34.5 percent (Table 15). Other services that see an increase in their price level are commerce (13.4%), transport (6.5%), and housing (3.0%). Given the increased rate of VAT the industrial sector prices also increase. The highest rise is seen in food processing (14.5%) followed by textile (8.4%) and leather (7.2%).

While factor prices are impacted in the same manner as seen in the previous simulation; only this time the magnitude is higher. In case of land prices largest decrease is seen for sugarcane (-39.1%) followed by cotton (-30.3%). See Table 16 for other agricultural sectors. The capital returns given at Table 17 indicate that the change in petroleum sector under this simulation turns negative (-1.9%). It is interesting to note that two export-oriented sectors having similar production structure change in different directions. For textile sector the capital returns decrease by 1.7 percent however for leather the returns increase by 26.2 percent.

The exports of most sectors face a decline (Table 18). Most notably textile exports decrease by 14.5 percent, leather by 1.9 percent and food processing by 6.4 percent. The rice sector exports however expand by 3.8 percent. In case of imports (Table 19) all sectors see a negative change except textile and private services whose imports increase by 5.4 and 5 percent respectively. The rise in imports of private sector can be explained in the context of increased relative price of domestic services that in turn make foreign services more attractive.

Given the above macro level impacts, the micro level changes indicate an increase in consumption inequalities. While the consumption of urban poor decreases by 1.7 percent, urban non-poor in fact gains by 9.1 percent (Table 24). The consumption of households associated with the farm sector face a sharp decline. Both rural non-farm poor and rural non-farm non-poor see a 3.2 and 2.7 percent decline respectively. The channel through which this simulation impacted the welfare levels are two pronged. First the prices of services increased which in turn raise the costs related to transport, storage, distribution, wholesale and retail marketing. Second the increased rate structure of VAT adds to the existing burden of taxes and directly curbs the purchasing power.

The zero-rated sectors however are not completely insulated given the knock-on impacts from the services sector taxation. The employment level of skilled labour given in Table 22 declines in all sectors particularly private services (-24.7%), however given the increased revenue available with the government, the employment in public services increases by 22.4 percent. The unskilled labour employment also increases in some sectors such as private services (5%), energy (4.3%), rice (20%), cotton (12.5%), and leather (33.3%).

The poverty headcount ratio increases by 5.6 percent with both gap and severity increasing by 5.1 and 5.7 percent respectively (Table 25). The Gini coefficient also increases by 1.3 percent indicating an increase in overall inequality across households.

Result-IV: Increasing VAT rate by 33 percent, brining services in to the tax net and levying a 5 percent flat tax on agricultural incomes

In our fourth experiment we combine first and third simulations with an agriculture income tax. This policy change represents all three proposals currently being viewed as necessary by the IMF for increasing the tax to GDP ratio in Pakistan.

In response to such a change government income increases by 77.6 percent (Table 14) contributed by an increase in indirect taxes (131%) and direct tax (46%). The increased burden of taxation depressed the real investment by 15.8 percent. The firm incomes also see a decline of 5.4%. The farm labour loses the most in this simulation and their wages decline by 22.3 percent. The return to land also comes down by 24.5 percent.

The impact of these changes on consumer prices is very similar to the third experiment. The agriculture tax does not significantly add to the existing burden of price increase as this is a direct tax proposal and not an indirect tax which is in fact easier to pass-on to the consumers. Similarly the direction of price of factors (Table 16 and Table 17) is very similar to the previous experiment, however the magnitude of change is higher.

There is a substantial change in the export of textile and manufacturing which decline by 16.4 and 5.9 percent respectively (Table 18). Similarly due to decreased investment levels and decline in firm income the imports given in Table 19 also show a decrease in sectors such as cotton yarn (-12.3%), manufacturing (-7%) and chemicals (-2.4%).

In Table 24 we observe the impact on household consumption which declines sharply for the farming segment. The worst affected are large and medium scale farmers in Sindh whose consumption drops by 22.7 percent. The consumption for landless farm renter decreases by 9.2 percent and that of landless farm worker by 3.2 percent. The increased revenue which now becomes part of government consumption in fact boosts the welfare level of skilled labour in public services, due to which one could see the consumption of urban non-poor increasing by 11 percent. This can be explained from the changes in employment shown in Table 23 where the employment level of skilled labour working in public services increases by 25.6 percent. The employment of unskilled labour also increases in sectors such as private services (6.6%), rice (20%), cotton yarn (12.5%), energy (4.3%) and construction (5.4%).

This policy change leads to an almost 14 percent increase in poverty (Table 25) where headcount ratio in Sindh and Punjab provinces being the worst affected, increases by 8.2 and 7.5 percent respectively. In contrast to the previous experiments, here we observe that poverty also increases in Baluchistan province by 6.9 percent. The overall inequality level rises by 1.5 percent (Table 26).

5. CONCLUSION AND POLICY RECOMMENDATIONS

This paper provides an *ex ante* assessment of taxation reforms being considered in Pakistan in order to widen the tax base and rationalise the rate structure of different taxes. Amongst the main proposals those focusing on VAT and agricultural direct taxes seem more attractive. The former has the highest share in indirect taxes and is also easier to collect, and the later is intended to bring the presently exempted agricultural incomes in to the tax net. In the first step we study the general equilibrium effects of existing taxes by removing them one at a time from the system. In the second step we study the micro-macro impacts of 4 policy experiments related to VAT and agriculture taxation.

Given the inelasticity of taxes in Pakistan, the options to increase government revenue through taxes are very limited. Increased fiscal effort was required during high growth period 2002 – 2007. There were absolute increases in almost all forms of taxes, however the trend seems stagnant vis-à-vis economic growth and increased production activity. Given that direct taxes will not be forthcoming in the short-term, the increase in tax revenue has to come from the side of indirect taxes. With in the indirect taxes, VAT will be the preferred option given its less distortionary nature. A better move would be to convert the existing VAT in to a full VAT. Our experiments indicate that all options regarding increase in VAT rate and widening of its base will hurt investment and consumption, however the policy conclusion should now be based on the question: *which option hurts less?*

Following policy conclusions may prove less painful for future tax policy:

- **Lesson from Sim-A**: A differential VAT rate may be more equitable. A structure encompassing further reduction in rates for pro-poor consumption items may make the existing VAT relatively more progressive.
- **Lesson from Sim-B**: Instead of full removal of zero rating facility a more prudent approach will be gradual removal that may take the form of: a) introduction of a reduced VAT in the beginning, or b) introduction of VAT commodity by commodity over a medium term period. The gradual removal of zero-rated facility will make the sectoral adjustment in the export-oriented sectors less painful.
- **Lesson from Sim-C**: Public sector services having direct social incidence may be kept tax-exempt.
- **Lesson from Sim-D**: A flat agriculture tax will be relatively regressive. A basic income threshold may be adopted in order to bring some progressivity in the system.

This extensive work on reforming indirect taxation and agricultural taxation remains work in progress. The way forward for research in this area possibly using the model structure adopted here may take the following form:

- Extending the model to take account of over-time capital accumulation i.e. developing a dynamic CGE model. It will be interesting to see how the increased tax revenue as a result of policy changes described above translates over time in to public sector investment in education, health and related social sectors.
- Further disaggregation of services sub-sectors will be required in order to optimally study the impact of indirect taxation on public and private services.
- A bottom-up CGE-microsimulation model may allow us to study the agriculture taxation in greater detail. The tax-benefit microsimulation model will allow setting an allowance for households in farming and then subjecting them to non-linear rates allowing for progressivity and redistribution.

6. TABLES & FIGURES

Table 13: Impact of present taxation structure (% change over base)*

	Ytax=0	VAT=0	Tariff=0
Real Investment	6.1	23.8	3.1
Revenue			
Tariff revenue	2.9	2.7	-100.0
Direct tax revenue	-100.0	-9.6	-1.7
Indirect tax revenue	3.7	-100.0	0.8
Wages			
Farm labour	12.6	27.1	4.1
Rural worker	-1.3	-1.8	-0.2
Skilled labour	-15.7	-29.2	-5.5
Unskilled labour	1.71	4.37	0.71
Output			
Agriculture	1.03	1.92	0.50
Industry	1.76	5.11	0.58
Services	-7.87	-20.31	-3.11

Consumer Prices			
Food	8.0	10.9	8.1
Durables	1.4	-5.9	-0.7
Services	-6.8	-16.3	-2.5
Household Consumption	4.76	8.65	1.50
Farmer	7.29	14.78	2.35
Rural worker	2.68	5.17	1.09
Urban non-poor	3.64	-9.51	-1.65
Urban poor	-0.35	-0.52	0.17

*ytax=0 → removal of income tax, gst=0 → removal of VAT, tariff =0→ removal of tariff.

Table 14: Impact of proposed tax reforms (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Real Investment	-5.6	-10.3	-14.6	-15.8
Government Consumption	20.0	48.3	78.3	91.0
Government Income	15.4	39.4	65.3	77.6
Firm Income	-1.5	-4.1	-4.6	-5.4
Tax Revenue				
Tariff revenue	-0.6	-0.4	-1.0	-2.1
Direct tax revenue	2.8	7.7	9.0	46.0
Indirect tax revenue	30.6	77.6	129.7	130.9
Wage				
Farm labour	-6.5	-16.1	-18.4	-22.3
Skilled labour	8.9	23.8	28.8	34.9
Unskilled labour	0.1	0.1	-1.3	-1.6
Land return	-7.1	-18.2	-20.3	-24.5
Capital return	-1.5	-4.1	-4.6	-5.4

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 15 Percentage change in consumer prices for selected items (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Wheat irrigated	-2.9	-7.3	-8.4	-10.9
Wheat non_irrigated	-3.2	1.8	-9.1	-11.8
Paddy IRRI	-3.5	-11.9	-11.5	-14.5
Paddy basmati	-4.0	-10.0	-13.0	-16.4
Cotton	-6.0	-12.5	-14.8	-17.7
Sugarcane	-9.0	-20.4	-24.0	-28.9
Other major crops	-4.1	-10.2	-11.3	-14.1
Fruits_ vegetables	-2.1	-4.3	-5.7	-7.6
Livestock_cattle_dairy	-2.1	-0.6	-6.6	-9.8
Poultry	-0.8	2.9	-2.4	-3.6
Forestry	-1.4	6.9	-4.0	-5.3
Fishing Industry	0.6	9.7	1.1	0.9
Mining	5.1	3.4	7.2	7.2
Vegetable oil	1.4	3.0	3.5	2.9
Wheat milling	-0.3	0.0	-0.6	-1.9
Rice milling IRRI	0.2	10.7	0.7	0.0
Rice milling Basmati	-0.3	9.9	-0.7	-1.7
Sugar	1.3	0.7	2.1	0.9
Other food	11.3	4.2	14.5	14.5
Cotton lint_yarn	3.3	-1.8	3.5	2.9
Textiles	3.0	17.9	8.4	9.0
Leather	1.2	19.9	7.2	6.6
Wood products	0.5	3.4	2.9	3.2
Chemicals	1.8	3.2	3.8	3.6
Petroleum refining	9.3	4.9	13.2	13.3
Other manufacturing	2.1	2.8	3.9	3.7
Energy	5.0	7.3	11.0	12.5
Construction	0.4	0.0	0.5	0.7
Commerce	1.3	13.1	13.4	14.0
Transport	3.6	3.8	6.5	6.5
Housing	1.8	4.6	3.0	5.7
Private services	2.3	5.4	17.7	18.6
Public services	7.1	17.4	34.5	39.0

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 16 Percentage change in return to land (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Wheat irrigated	-6.8	-18.2	-20.6	-25.4
Wheat non_irrigated	-7.8	-20.7	-23.2	-28.4
Paddy IRRI	-6.8	-22.0	-21.5	-26.2
Paddy basmati	-7.3	-33.0	-23.6	-28.9
Cotton	-13.2	-25.3	-30.3	-35.1
Sugarcane	-15.2	-33.3	-39.1	-46.5
Other major crops	-6.2	-16.4	-17.7	-21.5
Fruits_ vegetables	-3.9	-10.9	-13.4	-16.5
Forestry	-1.0	-1.8	-3.1	-4.0

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 17 Percentage change in capital returns in selected sectors (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Livestock_cattle_dairy	-4.3	-22.5	-16.1	-21.7
Poultry	-1.3	-15.7	-6.9	-8.3
Fishing Industry	-2.4	-6.9	-6.6	-7.2
Mining	-3.5	-2.4	-7.1	-8.1
Vegetable oil	-1.8	-0.9	-4.3	-5.1
Wheat milling	2.5	4.7	4.5	3.7
Rice milling IRRI	4.5	9	11.4	13.4
Rice milling Basmati	4.5	5.8	12	13.9
Sugar	2.5	7	6.4	6.3
Other food	-3.5	-1.3	-6	-5.8
Cotton lint_yarn	0.3	6.7	5.9	7.2
Textiles	-2.3	-6.7	-1.7	-1.7
Leather	11.9	3.6	26.2	34.6
Wood products	-4.4	-6.4	-10.3	-11
Chemicals	-4.2	-5.7	-11.9	-13.9
Petroleum refining	-3.4	4.1	-1.9	-2.1
Other manufacturing	-9	-12.2	-20	-21.8
Energy	1	6.3	5.9	7.5
Construction	0.3	3.2	1.2	1.9
Commerce	-0.5	-3.4	-2.8	-3.4
Transport	0	2.1	0.2	-0.3
Housing	1.7	5.2	2.7	6
Private services	2.6	6.7	2.6	3.5

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 18 Percentage change in selected exports (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Fruits_ vegetables	4.2	11.3	12.7	15.5
Poultry	1.9	11.4	6.0	7.4
Fishing Industry	0.0	2.6	1.3	1.3
Mining	-1.9	-5.7	-7.5	-9.4
Vegetable oil	-3.0	-2.4	-5.8	-5.3
Rice milling Basmati	1.3	1.9	3.8	5.0
Other food	-2.4	-4.8	-6.4	-7.1
Cotton lint_yarn	-0.7	3.3	-1.2	-1.3
Textiles	-6.2	-13.5	-14.5	-16.4
Leather	1.9	-9.7	-1.9	0.0
Chemicals	-2.1	-3.2	-5.3	-5.3
Other manufacturing	-1.5	-2.9	-4.9	-5.9
Transport	-2.0	-1.4	-3.3	-3.9
Private services	-0.4	-0.1	-2.8	-3.2

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 19 Percentage change in selected imports (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Wheat irrigated	-3.2	-9.7	-12.9	-12.9
Fruits_ vegetables	-2.2	-5.9	-6.7	-8.1
Livestock_cattle_dairy	-2.8	-12.5	-8.3	-11.1
Fishing Industry	-0.8	-5.0	-2.8	-2.9
Mining	-2.5	-3.6	-5.3	-6.0
Vegetable oil	0.0	-2.5	-1.7	-2.9
Wheat milling	-2.4	-7.1	-8.3	-10.7
Sugar	-3.6	-3.6	-7.1	-7.1
Other food	-1.8	-0.9	-1.8	-1.8
Cotton lint_yarn	-4.1	-13.7	-11.0	-12.3
Textiles	1.8	0.6	5.4	5.4
Chemicals	-0.6	-1.5	-1.9	-2.4
Petroleum refining	-0.3	0.3	0.0	-0.3
Other manufacturing	-2.7	-4.9	-6.4	-7.0
Private services	2.3	4.1	5.0	6.4

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 20 Aggregated employment changes under Sim-A (% change over base)*

	Unskilled labour	Farmer	Skilled labour
Wheat irrigated	-1.4	0.6	
Paddy IRRI	-7.1	0.0	
Cotton	-6.6	-4.9	
Sugarcane	-9.1	-5.7	
Other major crops	-0.6	0.7	
Fruits_ vegetables	1.3	3.1	
Livestock_cattle_dairy	-3.2		
Fishing Industry	-1.8		
Mining	-10.0		-9.3
Vegetable oil	0.0		-16.7
Wheat milling	3.7		-10.0
Rice milling IRRI	14.3		0.0
Rice milling Basmati	6.7		-5.3
Sugar	6.1		-9.0
Other food	-5.1		-15.9
Cotton lint_yarn	0.0		-11.5
Textiles	-4.3		-14.9
Leather	33.3		0.0
Wood products	-4.0		-5.7
Chemicals	0.0		-5.3
Cement_bricks	-16.7		-17.9
Petroleum refining	0.0		-5.7
Other manufacturing	-3.9		-8.6
Energy	0.0		-3.8
Construction	0.3		-11.5
Commerce	-0.3		-4.4
Transport	-0.1		-10.3
Private services	3.2		-7.2
Public services			8.5

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 21 Aggregated employment changes under Sim-B (% change over base)*

	Unskilled labour	Farmer	Skilled labour
Wheat irrigated	-4.7	-0.6	
Wheat non_irrigated	-11.1	0.0	
Paddy IRRI	-7.1	0.0	
Paddy basmati	-18.8	-15.4	
Cotton	-10.5	-7.3	
Sugarcane	-18.2	-14.3	
Other major crops	-2.7	1.1	
Fruits_ vegetables	2.1	6.2	
Livestock_cattle_dairy	-17.5		
Poultry	-12.5		
Forestry	11.8	14.3	
Fishing Industry	-5.4		
Mining	-10.0		-16.7
Vegetable oil	0.0		-33.3
Wheat milling	7.4		-22.0
Rice milling IRRI	14.3		-11.1
Rice milling Basmati	6.7		-21.1
Sugar	12.1		-20.5
Other food	0.0		-28.6
Cotton lint_yarn	12.5		-19.8
Textiles	-10.0		-34.5
Leather	0.0		-20.0
Wood products	-4.0		-13.2
Chemicals	0.0		-10.5
Cement_bricks	-22.2		-28.2
Petroleum refining	0.0		-5.7
Other manufacturing	-6.6		-16.0
Energy	2.2		-7.1
Construction	4.6		-23.9
Commerce	-1.8		-11.8
Transport	2.4		-21.6
Private services	8.3		-17.0
Public services			18.4

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 22 Aggregated employment changes under Sim-C (% change over base)*

	Unskilled labour	Farmer	Skilled labour
Wheat irrigated	-4.7	-0.6	
Wheat non_irrigated	-11.1	0.0	
Paddy IRRI	-7.1	0.0	
Paddy basmati	-6.3	-7.7	
Cotton	-13.8	-9.8	
Sugarcane	-22.7	-17.1	
Other major crops	-1.8	2.2	
Fruits_ vegetables	2.1	6.7	
Livestock_cattle_dairy	-11.5		
Poultry	-4.2		
Forestry	11.8	14.3	
Fishing Industry	-3.6		
Mining	-10.0		-22.2
Vegetable oil	0.0		-33.3
Wheat milling	7.4		-28.0
Rice milling IRRI	14.3		-22.2
Rice milling Basmati	20.0		-15.8
Sugar	12.1		-25.6
Other food	-5.1		-38.1
Cotton lint_yarn	12.5		-26.0
Textiles	-1.4		-33.3
Leather	33.3		0.0
Wood products	-4.0		-17.0
Chemicals	0.0		-15.8
Cement_bricks	-33.3		-38.5
Petroleum refining	0.0		-11.4
Other manufacturing	-9.2		-21.6
Energy	4.3		-9.2
Construction	3.8		-30.3
Commerce	-0.8		-13.3
Transport	2.0		-27.2
Private services	5.0		-24.7
Public services			22.4

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 23 Aggregated employment changes under Sim-D (% change over base)*

	Unskilled labour	Farmer	Skilled labour
Wheat irrigated	-6.0	-1.1	
Wheat non_irrigated	-11.1	0.0	
Paddy IRRI	-7.1	0.0	
Paddy basmati	-12.5	-7.7	
Cotton	-15.8	-10.6	
Sugarcane	-27.3	-22.9	
Other major crops	-2.4	2.6	
Fruits_ vegetables	2.5	7.8	
Livestock_cattle_dairy	-15.5		
Poultry	-4.2		
Forestry	11.8	14.3	
Fishing Industry	-5.4		
Mining	-10.0		-24.1
Vegetable oil	0.0		-33.3
Wheat milling	7.4		-34.0
Rice milling IRRI	28.6		-22.2
Rice milling Basmati	20.0		-21.1
Sugar	12.1		-30.8
Other food	-5.1		-41.3
Cotton lint_yarn	12.5		-29.2
Textiles	0.0		-37.5
Wood products	-4.0		-18.9
Chemicals	-6.7		-21.1
Cement_bricks	-33.3		-41.0
Petroleum refining	0.0		-14.3
Other manufacturing	-10.5		-24.1
Energy	4.3		-10.9
Construction	5.4		-34.3
Commerce	-0.9		-15.4
Transport	1.7		-31.6
Housing			
Private services	6.6		-28.2
Public services			25.6

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 24 Percentage change in household consumption (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Large Farmers_Sindh	-5.2	-12.2	-14.0	-22.7
Large Farmers_Punjab	-4.2	-10.7	-12.0	-20.5
Large Farmers_Other Pakistan	-4.1	-9.3	-10.3	-19.6
Medium Farmers_Sindh	-4.2	-10.6	-12.0	-20.5
Medium Farmers_Punjab	-3.4	-8.7	-9.8	-18.0
Medium Farmers_Other Pakistan	-4.1	-10.9	-12.1	-20.7
Small Farmers_Sindh	-2.7	-7.1	-8.0	-16.1
Small Farmers_Punjab	-2.7	-6.9	-8.0	-15.9
Small Farmers_Other Pakistan	-2.2	-5.6	-6.6	-14.3
Small Farm Renters_landless_Sindh	-2.7	-6.5	-7.7	-9.2
Small Farm Renters_landless_Punjab	-2.5	-6.2	-7.3	-8.9
Small Farm Renters_landeless_Other Pakistan	-2.1	-6.3	-7.0	-9.2
Rural agricultural workers_landless_Sindh	-0.5	-1.5	-2.5	-3.0
Rural agricultural workers_landless_Punjab	-0.6	-1.7	-2.6	-3.2
Rural agricultural workers_landess_Other Pakistan	-1.1	-2.2	-3.3	-4.4
Rural non_farm non_poor	-0.7	-1.8	-2.7	-3.3
Rural non_farm poor	-0.9	-2.4	-3.2	-3.8
Urban non_poor	2.8	7.7	9.1	11.0
Urban Poor	-0.2	-0.5	-1.7	-2.1

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 25: Poverty impact of proposed tax reforms (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Overall Pakistan				
FGT(0)	2.1	4.7	5.6	14.2
FGT(1)	2.4	4.9	5.1	6.5
FGT(2)	2.6	5.4	5.7	7.1
Punjab Province				
FGT(0)	0.9	3.7	4.7	7.5
FGT(1)	0.3	0.8	0.8	1.0
FGT(2)	0.2	0.5	0.5	0.7
Sindh Province				
FGT(0)	4.9	4.9	4.9	8.2
FGT(1)	9.3	10.2	10.3	10.8
FGT(2)	10.5	11.1	11.1	11.4
N.W.F.P				
FGT(0)	1.4	1.4	1.4	5.8
FGT(1)	0.2	0.5	0.7	0.8
FGT(2)	0.2	0.4	0.4	0.5
Baluchistan Province				
FGT(0)	0.0	0.0	0.0	6.9
FGT(1)	0.4	0.8	0.8	1.1
FGT(2)	0.2	0.4	0.4	0.5

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

Table 26: Inequality impact of proposed tax reforms (% change over base)*

	Sim-A	Sim-B	Sim-C	Sim-D
Overall Pakistan				
Gini	0.6	1.0	1.3	1.5
GE(1)**	1.0	1.8	2.3	2.8
GE(0)	1.2	2.2	2.8	3.4
GE(2)	0.8	1.5	2.2	2.7
Punjab Province				
Gini	0.5	1.0	1.3	1.5
GE(1)	0.9	1.9	2.5	3.1
GE(0)	1.0	2.2	2.7	3.4
GE(2)	1.1	2.2	3.0	3.7
Sindh Province				
Gini	1.0	1.7	1.9	2.3
GE(1)	1.7	2.9	3.3	3.9

GE(0)	2.1	3.5	4.0	4.7
GE(2)	1.4	2.4	2.9	3.5
N.W.F.P				
Gini	0.5	1.0	1.5	1.8
GE(1)	1.0	2.0	3.0	3.6
GE(0)	1.1	2.2	3.2	3.8
GE(2)	1.2	2.3	3.6	4.3
Baluchistan Province				
Gini	-0.2	-0.4	-0.3	-0.3
GE(1)	-0.5	-1.0	-0.8	-1.0
GE(0)	-0.1	-0.1	0.2	0.3
GE(2)	-0.9	-1.9	-1.9	-2.3

*Sim-A: Increasing VAT rate by 33 percent, Sim-B: 10 percent VAT on presently zero-rated goods, Sim-C: Increasing VAT rate by 33 percent + VAT on services, Sim-D: Increasing VAT rate by 33 percent + VAT on services + 5 percent flat tax on agricultural incomes

** GE ranges from zero (complete inequality) to infinity. See Cowell (1995). An increase in GE parameter implies less sensitivity towards inequality at the lower end of the distribution. GE(1) is Theil index of inequality that gives equal weight to the entire income distribution. GE(0) is the mean log deviation, giving higher weight to income differences at the lower end of distribution. GE(2) is one half the squared coefficient of variations and gives more weight at the upper end.

7. REFERENCES

Ahmed, V. (2007) Welfare Impact of External Balance in Pakistan, Working Paper, Department of Economics, National University of Ireland Galway.

Ahmed, V. and C. O. Donoghue (2008) Redistribution in personal income taxation in Pakistan, Working Paper, Department of Economics, National University of Ireland, Galway.

Ahmed, V. and C. O' Donoghue (2007) Using CGE and Microsimulation Models for Income Distribution Analysis. Department of Economics, National University of Ireland Galway, working paper 0089.

Ahmed, R. (2008) Tax Reforms in Pakistan. FBR Quarterly Review Jan – Mar 2008.

Alatas, V. and F. Bourguignon (2000) The evolution of the distribution of income during Indonesian fast growth: 1980-1996. Mimeo. Princeton University.

Bourguignon, F., (1979) Decomposable Income Inequality Measures. Econometrica, Vol. 47, No. 4, Jul-1979.

Bourguignon F., C. O'Donoghue, J. Sastre-Descals, A. Spadaro and F. Utili, (1997) Eur3: a Prototype European Tax-Benefit Model, Microsimulation Unit Working Paper. Euromod working paper MU9703.

Bourguignon, F., L. Pereira da Silva and N. Stern (2002) Evaluating the Poverty Impact of Economic Policies: Some Analytical Challenges. March 2002, http://www.imf.org/external/np/res/seminars/2002/poverty/ns.pdf .

Bourguignon, François, Anne-Sophie Robillard, and Sherman Robinson (2003) Representative versus Real Households in the Macro-economic Modelling of Inequality. DELTA Working Paper N◦ 2003-05.

Bourguignon, F. and A. Spadaro (2006) Microsimulation as a Tool for Evaluating Redistribution Policies. Society for the Study of Economic Inequality, Working Paper 2006 – 20. http://www.ecineq.org/milano/WP/ECINEQ2006-20.pdf .

Bussolo, M. and J. Lay (2003) Globalization and Poverty Changes in Colombia. OECD Development Centre, Working Paper No. 226.

Bourguignon, F., F. Ferreira, and N. Lustig (1998) The microeconomics of income distribution dynamics, a research proposal. The Inter-American Bank and the World Bank, Washington.

Bourguignon F., M. Fournier, and M. Gurgand (2001) Fast Development with a Stable Income Distribution: Taiwan, 1979-1994. Review of Income and Wealth (June).

Cockburn, J. (2002) Trade Liberalization and Poverty in Nepal: A Computable General Equilibrium Micro Simulation Analysis, CSAE WPS/2002-11, CREFA, Universite Laval. http://www.csae.ox.ac.uk/workingpapers/pdfs/2002-11text.pdf .

Cockburn, J., B. Decaluwe and V. Robichaud (2006) Trade Liberalization and Poverty: Lessons from Asia and Africa. Poverty and Economic Policy, Micro Impact of Macro and Adjustment Policies (MIMAP) Project.

Cogneau, D., Anne-Sophie Robilliard (2000) Growth, Distribution and Poverty in Madagascar: Learning from a Microsimulation Model in a General Equilibrium Framework, TMD Discussion Paper No. 61, International Food Policy Research Institute, Washington, D.C.

Cororaton, C.B., J. Cockburn (2007), Trade Reform and Poverty in the Philippines: A Computable General Equilibrium Microsimulation Analysis. CIRPEE Working Paper 05-13.

Cororaton, C. and D. Orden (2007) Inter-sectoral and Poverty Implications of Cotton and Textile Policies: A CGE Analysis. Working paper, IFPRI, Washington D.C.

Decaluwe, B., M. C. Martin, and M. Souissi (1996) Ecole PARADI de modelisation de Politiques Economiques de Development. Quebec, Universite Laval.

Decaluwe, B., Dumot, J., Robichaud, V. (2000) MIMAP Training Session on CGE Modelling. Volume II: Basic CGE Models. www.pep-net.org

Dorosh, P., M. K. Niazi, H. Nazli (2004) A Social Accounting Matrix for Pakistan, 2001-02: Methodology and Results. Working Paper, Pakistan Institute of Development Economics.

Dorosh, P.A. and D.E. Sahn (2000) A General Equilibrium Analysis of the Effect of Macroeconomic Adjustment on Poverty in Africa. Journal of Policy Modelling 22(6):753-776 (2000).

GoP (2003) Economic Survey of Pakistan 2003-04, Finance Division, Islamabad.

GoP (2004) Trade Policy of Pakistan 2003-04, Issued by Ministry of Commerce in Islamabad, 2004, http://www.phdeb.org.pk/download/TradePolicy2003-04.pdf.

GoP (2006) Economic Survey 2005-06. Government of Pakistan, Finance Division, Islamabad, Pakistan.

Hérault, N. (2005) Building and Linking a Microsimulation Model to a CGE Model: The South African Microsimulation Model. IFReDE DT/114/2005. http://ced.u-bordeaux4.fr/ceddt114.pdf .

Martinez-Vazquez, J. (2006) Pakistan: A Preliminary Assessment of Federal Tax System. International Studies Programme, Working Paper 06-24, 2006, Andrew Young School of Public Policy.

Refaqat, S. (2003) Social Incidence of the General Sales Tax in Pakistan. IMF working paper 03/216.

Robilliard, A. S., F. Bourguignon and S. Robinson (2001) Crisis and Income Distribution: A Micro-Macro Model for Indonesia. Paper presented at the OECD Development Center Conference, 9-10 December 2002, Paris, France.

Robilliard, A.-S., F. Bourguignon and S. Robinson (2001) Crisis and Income Distribution: A Micro-Macro Model for Indonesia. Paper presented at the OECD Development Center Conference, 9-10 December 2002, Paris, France.

World Bank (1992) Pakistan: Changes in Trade and Domestic Taxation for Reform of the Incentive Regime and Fiscal Adjustment. Report no 9828-Pak.

World Bank (1999) Agriculture Taxation in Pakistan. WB Report no. 18935-Pak, South Asia Region, June 1999.

World Bank (2002) Pakistan Private Sector Strategy. Pakistan Country Assistance Strategy.

World Bank (2003) A User's Guide to Poverty and Social Impact Analysis. Poverty Reduction Group, The World Bank.

World Bank (2004) Trade Policies in South Asia: An Overview. World Bank.

World Bank (2004b) Pakistan: Tariff Rationalization Study, World Bank.

World Bank (2006) Pakistan: Growth and Export Competitiveness, Report No. 35499-PK, World Bank.

Yusuf, Abdullah (2007) Pakistan: Reform Process in Tax Administration, 17th Tax Conference, Tokyo, Japan.

Evaluation of Trade Agreements
A Case Study of Pakistan – Sri Lanka FTA

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I. Abstract

The report titled: "Evaluation of FTAs: A Case Study of Pakistan and Sri Lanka" assesses the pre and post FTA trends in bilateral trade. The study uses a multi-pronged methodological approach which includes: a) analyzing the country-specific gains using global trade model (GTAP), b) understanding the implications of negative lists and concessions through WITS-SMART model, c) evaluation of comparative advantages and complimentarities in production and export structures using trade indices, and d) analysis based on a perception survey of key stakeholders.

The results from our simulated experiments reveal an increase in welfare and efficiency for both, Pakistan and Sri Lanka. Overall bilateral trade increased for both countries in the post – FTA milieu. However in order to optimally utilize the concessions, there is a need to go beyond the traditional export items and pursue untapped markets. The perception survey reveals a lack of understanding on the part of Pakistan's exporter community regarding the benefits of this FTA. The business chambers and trade associations revealed that there was no pre-signing mechanism to involve the producer community which could have helped in revealing preferences for the negative and concessionary lists. The study recommends a cross-section of institutions that may be involved in a bottom-up consultative process in order to make the FTA beneficial for producers and exporters, and at the same time making the FTA less painful for the government in terms of the lost revenue.

II. Introduction and Background

In the wake of recent failures of multilateral trade agreements, regional trading arrangements have gained immense popularity. The later is not only viewed as an integral part of economic policy but also as an instrument of

foreign policy (Mastel 2004). Regionalism today plays a very important role in defining the national trade policies. Over 50 percent of global trade now occurs within trading blocs and almost every country is a member of some regional integration agreement. While most FTAs still focus on the movement of goods, however deeper forms of integaration such as common markets and economic unions allow for free movement of factors of production and harmonization of national economic policies respectively. Most regional agreements also put forward discriminatory stance for non-members and are certainly contradictory to the principles of the WTO. The economic and in particular the development effects of regional agreements have to be understood in terms of trade creation[47], trade diversion[48] and transfers[49]. Ironically in the politically economy context the resistance is highest for (preferential) regional agreements that result in trade creation where imports replace domestic production. The adverse impact of trade diversion can be neutralised by pursuing deeper integration. A North-South regional integration agreement is usually regarded as superior in comparison to South-South agreement (Hoekman and Schiff 2002).

This study comes out at a critical juncture in the global economic history. The principles of free market economy have been once again challenged by the on-going global financial crisis. The WTO has failed to find a new role for itself after the fall of Doha round. While the debate on multilateralism versus

[47] Trade creation takes place when a member country of the regional agreement (Country A) increases its imports from its partner country (Country B) without a reduction in Country A's imports from the rest of the world.

[48] Trade diversion takes place when imports from the rest of the world are replaced in Country A by more expensive imports from Country B (because goods from Country B do not pay tariff while goods from the rest of the world do.

[49] Transfers occur between member countries of the trade bloc because removal of tariffs between them means that exports obtain better prices in the partner's markets (positive transfer), while the costs of imports net of tariffs increase (negative transfer).

regionalism is still underway, there is a substantial increase in the number of FTAs being signed globally.

Table 27 indicates the growth in under negotiation and concluded FTAs between 1975 to 2009. The total number of agreements has grown from 1 in 1975 to 216 in 2009, the main rise taking place after late 1990s. Out of the total 216, around 45 FTAs presently stand proposed, 16 are at the signing stage, 46 are under negotiation (where framework agreement is under negotiation) 27 are signed and concluded, and 82 are under implementation. The increase in the number of proposed and under implementation FTAs point towards an increased preference for regionalism at the global level and a reduced confidence in the multilateral negotiations[50]. Out of the total 216 FTAs, 166 are bilateral i.e. preferential trading agreement involving only two parties and 50 are plurilateral i.e. preferential trading agreement involving more than two parties (

Table 28).

Table 29 exhibits bilateral FTAs by geographic area. Within the sub-region, highest number of agreements are in Central and West Asia (17) followed by agreements between South Asian Countries (8). If one looks at the number of FTAs across sub-regions, the highest number of agreements are between East and South East Asian Countries (12) followed by South East and South Asia (11). With in non-Asian Countries, East Asia and non-Asia have signed the highest number of agreements (24) followed by South East and non-Asia (23) Central, West and non-Asia (19). The total number of notified and not notified

[50] This may not be regarded as a generalized result over time.

bilateral FTAs (with in sub-region, across sub-region, with non-Asian Countries) stood at 26 in the year 2000 and it rose to 166 in 2009.

The FTA status by country for selected Asian economies is given in Table 30. The highest number of under negotiation and concluded FTAs by 2009 originated from India (32) followed by Pakistan (26) Thailand (24) and China (23). Thailand and China have 9 concluded and under implementation FTAs which is highest in our selected sample. Pakistan and Sri Lanka have 6 and 4 FTAs respectively.

There's growing realization in South Asia regarding the importance of trade and its significance as a contributing factor in lifting the region's per capita income' and raising its standard of living. Growth spurted in early phase of this decade enabled protective economies of this region in equipping them with competitive niches; thus paving way for their prospects to compete with the rest of Asia and world in general. Having gone through the world's fastest growth rates, South Asian countries have concluded bilateral and multilateral FTAs within the region and rest of the world. Out of the 24 arrangements (conceived and concluded) so far; 17 involve India while Pakistan holds just 6 (3 still being processed). Cautious but affirmative; Pakistan is gradually embracing economic integration while contemplating the prospects of regional cooperation.

This report assesses the impact of Pakistan-Sri Lanka Free Trade Agreement (PSFTA) in stimulating trade performance. It analyzes the pre and post-agreement milieu by systematically comparing indicator systems to evaluate the FTA and its contribution in country's GDP, export and welfare. It highlights comparative advantages of the economies while figuring out the extent to which gains have been substantiated out of the structure of concessions granted from both sides. A combination of qualitative and

quantitative approach is used to gauge and validate various conclusions. The study tries to identify sectors and actors on the gaining and losing ends. This endeavor then intends to pull out proposals for optimizing gains from PSFTA.

As Pakistan is engaged in negotiations for furthering such arrangements, assessing the effects of already concluded up agreements holds significant importance. The deteriorating long run terms of trade, rising trade deficit and its constant escalation draws attention to a load of unattended predicaments while highlighting stack of opportunities that are incessantly being wasted. A recursive mechanism needs to be put into place that could spot glitches, identify causes, come up with solutions and insure their implementation. Such studies would not only help in rectifying the bottle necks impeding factual regional assimilation but would pave way in bringing business communities of both the countries on board in formulating mechanisms, that would let reaping of benefits for the betterment of both nations.

III. Evaluation of Regional Trade Agreements with Specific Reference to South Asia

The Rise of Regionalism

The growth in FTAs in most parts of the world indicates that regionalism is now here to stay and the focus of policy makers should be towards reducing the cost of FTAs and maximizing their benefits. Kawai and Wignaraja (2009) discuss if the multiple overlapping FTAs in East Asia add to the business costs. In a survey of 609 firms, 27 percent of responding firms said that multiple rules of origin significantly add to costs of doing business. This impact is likely to be greater as the currently under negotiation FTAs are implemented and the overall complexity of multiple rules increases. The

authors suggest: encouragaing most favoured nation liberalization, rationalization of rules of origin, increased awareness of FTA provisions, improving business participation in FTA consultations, and support to small and medium – sized entreprises. The issue of restrictive (negative) lists used by partner countries in order to negotiate has the potential of distoring trade beneifts. The coverage of agricultural products for example, has been low in Asian FTAs due to domestic political and social sentiments which ignore the consumer welfare in the long run. See also Kawai and Wignaraja (2009b). Agricultural products have been a contentious issue for developed countries as well. For example during the negotations of Australia – US FTA the dairy industry in US strongly opposed the propects of allowing preferential access to Australian dairy products (Alston 2006).

Today it is known that trade agreements have significant impacts on the welfare of a country in particular the developing countries. The design of these agreements has been argued to be very constraining on development goals of poor countries. Thrasher and Gallagher (2008) discuss the implications of trade agreements for long run development policy. Authors argue that the current global trade regime curtails the ability of poor countries to exercise control over various policies that are meant for the achievement of objectives related to pro-poor growth and inclusive development. At the same time this paper also highlights the fact that due to a globalized economic milieu no national issue can truly be termed domestic. For example the issue of product certifications, industry standards, and licenses may fall under the domestically enforced law however they clearly impact foreign governments via foreign firms.

Several national level policies that are instrumental in trade-development nexus are discussed in Kumar and Gallagher (2007) who also provide a checklist for tools available for correction of market failures associated with trade. The market coordination failures can be addressed through: export subsidies, tariff sequencing, tax drawbacks, clustering, and infrastructure provision. The informaton externalities can be addressed through: administrative guidence, subsidized credit tariff sequencing, subsidized entreprenuership, and selective permission of patents. The scale economies

and technological dynamism can be targeted through: tariff sequencing, technology transfer requirements, joint ventures, public research and development, compulsary licencing, selective permission of patents, and government procurement rules. The various aspects of human capital formation are augmented through: public education, employment of local personnel, and ensuring mobility of labour.

Keeping the above checklist in perspective Thrasher and Gallagher (2008) indicate that there are various design – related differences between WTO, US, EU and South – South agreements. For example the EU and not US agreements may contain tax export incentives, establishment duty, movement of natural persons, technology transfer, high disclosure requirements, local production requirements and parallel imports.

It has long been recognized that firms have a greater interest in regional trade liberalization and deeper integration when large returns to scale exist and there are prospects for production sharing. For this NAFTA stands as a good example which not only provides for free trade but also rules for FDI, treatment of foreign corporations and intellectual property rights (Chase 2003).

Are preferential trade agreements (PTAs) building or stumbling blocks for multilateral trade liberalization? Saggi (2006) solves for an infinitely repeated tariff game between three countries engaged in intraindustry trade under oligopoly. The results indcate that when countries are symmetric, FTA undermines multilateral tairff cooperation by adversely affecting the cooperation of non-memebers. However when countries are asymmetric as regards their market size or cost, there exits possibilites where PTAs facilitate multilateral tariff cooperation.

Most of the trade literature on quntification of trade barriers focuses on static effects. However the dynamic effects are of more importance in the context of trade agreements and their potential to bring about economic development. Some of the key dynamic effects include: economies of scale, technology transfer, foreign direct investment (and capital accumlation) and structural policy reforms (ADB 2008).

The support to developing coutuntries for trade facilitation is as important as market access. Using a panel of bilateral trade flows from 1988 to 2002, Francois and Manchin (2007) show that export performance in particular and participation in global trade in general depends upon institutional quality, access to well developed transport and communications infrastructure. This dependence is more important than tariff variation in explaining the sample variations in North-South trade[51]. The aid for trade programme was also geared to a large extent in the direction of increasing capacity of developing countries in providing facilitation to trade community and in general an enabling infrastructure for doing business. See Page (2007) for details. For specific reference to Asia see ADB (2009).

Intra-regional and extra-regional trade in South Asia

South Asia is seen as one of the least integrated regions in the world. There is plenty of research to show that by reducing the inefficiencies at the borders of South Asian countries, significant trade gains can be achieved (Weerahewa 2009). The formation of SAARC followed by SAPTA and SAFTA had been attempts to realize common goal of bridging gaps and promoting socio-economic gains. In a multitude of bilateral, regional and multilateral arrangements that South Asia is engaged in, the essence of SAFTA as a mere political thrum or a promising concord is yet to be seen. This review highlights current trading patterns prevailing within the SAARC community while gauging the region's external trade in retrospect of its total trade volume with the rest of world. It also addresses South Asian preferential treatments and their implications as contributor in broadening regional homogenization. This prospect is looked at in the backdrop of cynicism prevailing in region's literature while evaluating the use of SAFTA vis-à-vis other regional trade paradigms.

South Asia is home to more than one fifth (22%) of the world's total population contributes less than 2% in the global GDP and that makes it poorest and the most segregated region in the world. The World Bank classifies two of the eight SAARC members as Lower Middle Income

[51] Also see Maur (2008).

Countries (LMIC) while the rest as Low Income Countries (LIC). SAARC merchandise exports to the world as of 2008 stood at 1.45% and commercial services at 2.9%. The region despite of cherishing SAFTA and several independently driven FTAs lag behind in flaring regional commercial activity. It draws low volume of intra-regional trade (5.3% as compared to region's total trade with rest of the world) under the sentry of high trade barriers. Larger countries like India and Pakistan have a trading volume of 5% to 2.5% respectively with the South Asian countries (Table 31).

Despite the lowering of tariffs over the past years the non-tariff barriers (NTBs) pose a challenge for expansion in trade in this region. Examples include: transactions costs, long delivery time, payment delays, burgeoning domestic taxes, differential tariff treatments, regulatory requirements and restrictive FTAs. SAFTA built on the essence of SAPTA tends to broaden the scope of trade liberalization by moving towards a negative list approach along with the promotion of trade facilitation measures. There has been past research on potential gains from improved trade in South Asia. See Govindan (1994), DeRosa and Govindan (1996) and Weerahewa (2007). For impact of improved facilitation on trade see Wilson *et al.* (2005). See also Wilson *et al.* (2003) and World Bank (2007).

Bandra and Yu (2003) using a static general equilibrium model explain that even full elimination of trade barriers among SAARC members wouldn't do much in mending region's welfare index that would increase by just 0.2% in case of India, Sri Lanka by 0.03 and 0.1% for Bangladesh[52] . Welfare of the whole region is expected to decrease if this arrangement is extended to ASEAN but would inflate if concluded with NAFTA or EU. Srinivasan (1994) forecasted the effects of zero tariff on SAFTA's own members by using bilateral trade flows as a dependent variable and concludes; Nepal and Bangladesh gaining the most while India, Pakistan and Sri Lanka securing only marginal gains. On the contrary McCombie and Thirlwall (1997) and Paulino and Thirlwall (2004) established a robust economic growth under

[52] The GTAP database (old version) used in the paper includes Bangladesh, India, and Sri Lanka as individual countries and an aggregator named Rest of South Asia

more liberalized trade regime and with more or less similar export profile. The trading partners within South Asia are expected be better off without trade barriers and NTBs[53].

The rules of origin and port specific destinations 'necessary to curb illegal flow of trade, increase the costs of trade. Though such arrangements in PTA and FTAs help determine products for tariff preferences but the manner in which they are implemented in South Asian economies, gives an overall protectionist outlook (Sawhney, Kumar, 2007). Within the SAFTA, 53% of the items are subjected to negative list that are subjected to restrictive duty free access and varying degree of tariffs, all hanging around sensitive commodities like agriculture (high as 41.6% for Bhutan to low 14.9% for Nepal). Weerakoon and Thenakoon (2006) argue that such a limited and constrictive sectoral coverage would dissipate real essence of free trade. Regulatory framework in South Asia imposes NTBs that includes Para Tariffs[54] in addition to basic custom duties; such measures give rise to cascading effect for imported products that engender spike in prices more than actually warranted.

Cynicism Vs. Optimism in SAFTA Literature

The still high tariffs, NTBs, non-conducive MFN, odds of trade diversion, parallel comparative advantages and region's disproportionate size of economies instill pessimism in SAFTA literature. In order to test trade diversion and unequal sharing of benefits at disaggregate sectoral level there has been little research on the benefits of SAFTA. Studies conducted by Bandra and Yu (2003) used CGE model for evaluation of SAFTA to show that significant benefits are slanted in favor of India while Pitigala (2005) and Baysan *et al.* (2006) showed prevalent threat of trade diversion due to the relatively high barriers[55]. These results are in contrast to Hirantha (2003) that showed trade creation while showing no signs of diversion with rest of the

[53] For further study on trade liberalization, economic growth and poverty reduction see (Raihan-2007, 2008), Razzaque *et al.* (2003), Annabi *et al.* (2005), Cockburn and Decaluwe (2005), Khonreker *et al.* (2008), Siddiqui and Kemal (2006), Raihan and Razzaque (2008), Cockburn *et al.* (2006).
[54] Para tariffs refer to duties and taxes that are over and above the 'border tariffs'. Normally, these include domestic taxes charged either by the Central Government or the State Governments
[55] For a review of CGE models used for FTA analysis see Kawai & Wignaraja (2007).

world. As Srinivasan (2002) observed about the low indices of trade complementarity to be "reflective in part of the barriers that countries have imposed on their trade, which were intended to change the trade pattern away from what would emerge were they to allow their true comparative advantage to dictate their trade", the problem addressed for such indices is their dependence on the old historical data that potentially makes them unreflective of dynamic trade gains[56].

Inducement for greater South Asian integration stems from four distinctive determinants; pure economic gains by efficient use of capital and resources, non-traditional gains through the flow of FDI, emergence of a common platform for multilateral trade negotiations and finally regional integrated approach helping in promotion of developmental and environmental efficiency gains. Newfarmer (2004) and Kemal (2005) defend South Asian intra-regional trade to be an inevitable outcome given a set of limited range of products making up their export profile. Banik (2006) explains the resemblance of SAFTA members in terms of economic configuration as "the region possesses almost identical savings to GDP ratio, demographic profile, percentage of industrial sector (just over twenty five percent), population's urban drive"; economic blueprint so similar tends to hurl similar export profile that in turn prompts industrial, services and agricultural sectors to cooperate in order to attain economies of scale. This necessity he says would herald the overall integration process. Though otherwise captious and disapproving of potential gains from SAFTA, Baysan *et al.* (2006) asserts positive outcome if regional barriers be lowered to five percent along with relaxing of the otherwise restraining rules of origin.

Based on trade data of 1996-2002, Seekkuwa (2004) conducted gravity analysis to review SAPTA's progression and then contemplation of SAFTA; the study showed impressive trade creation effect while finding no evidence of trade diversion with rest of the world. It envisaged ushering of an era of impressive economic activity with transcending intra-regional trade, provided tariff ceilings be brought down. Studies conducted by Sriniavasan and Cananero

[56] This statement cannot be generalized.

(1993) and Batra (2004) suggest tariff removal would lead trade generation that accounts for 3% of GNP for India, 7% for Pakistan, 21% for Bangladesh, 36% for Sri Lanka, and 59% for Nepal. The study also indicates benefits from unilateral trade liberalization that weighs more compared to preferential liberalization moves[57].

Pigato *et al.* (1997) contradicts these results by upholding that benefits emanating from unilateral trade liberalization would go in favor of India while preferential liberalization being fruitful for the rest of South Asia. Batra (2004) while analyzing India's trade with 145 countries discovers her greatest potential in SAARC region exist with Pakistan. Govindan (1994) calculates the price elasticity of demand in food sector within the scheme of trade liberalization and suggests an increase in welfare gains through food trade expansion within the region. De Rosa and Govindan (1995) crafted further modeling for the manufacturing goods, predicting that proliferation of trade and welfare gains could be augmented by increased regional economic integration with the rest of world or Asia Pacific. Sengupta and Banik (1997) predict intra-SAARC trade to expand by 30 to 60% if all illegal trade through direct and indirect medium be routed through official channels.

As most of South Asian countries are dependent on the outside world for their imports thus a positive spillover effect would further promote SAARC's intra-regional trade. There lies a need for further gravity analysis by incorporating such elements like the logistics of this region and its effects on regional bilateral trade flows (Raihan 2008).

There has yet to be some concrete research on the ex ante gains, if SAFTA is used as a common platform for negotiating collective FTAs with other regions. Examples of such arrangements exist in case of EU and ASEAN. For the latter see Calvo-Pardo (2009). See also Laurenceson (2003). The rise of trading blocks has also impacted the various industries differently. For the impact of regionalization of textile trade in the context of EU, NAFTA, AFTA, and SAPTA, see Tsang (2008).

[57] Raihan (2008) calculated the stretch of trade creation versus trade diversion in SAARC region under the context of SAFTA. For a discussion on how FTAs bring about trade creation or diversion see also Girma (2008).

Export Similarity and Intra-regional Trade in SAARC

The SAARC region exhibits symmetrical economic activity (Banik *et al.* 2006) which can be explained as a long run movement in real output. Such a tendency exists due to similarity of common supply side factors. Similar structural base makes close-knitted region vulnerable to supply shocks. Kenen (1969) explained this scenario as "countries trading in similar commodities increases synchronicity of their output, this further insinuate their parallel economic activity with analogous aforementioned long term movement that leads to lesser contradiction in conceiving internal and external macroeconomic policies". Such an argument leads us to understand that SAARC holds potential for further integration beyond SAFTA to the extent of common market or economic union. Closely examining SAARC's trading trend reveals condensation of its members around a fraction of potential markets, 'with whom they possess historical relations' while ignoring the rest. This biasness could become a major stumbling block towards the formation of South Asian Custom and Economic Union (Hirantha 2003).

Like the stalled WTO talks, SAFTA's inability to take off intra-regional trade has prompted many of its members to engage (some times by overlapping) in regional PTA and FTAs. Significance of SAFTA in light of its engagement with other preferential agreements emanates from the fact that; political–economic strategy of emerging power houses in promoting regionalism and their attempts in seeking outside alliances prompts region's smaller countries in forging such arrangements on their own. Nevertheless despite of following such trajectory; emergence of economic powers like India depends upon renaissance of its own backyard thus raising stakes in the success of regional integration mechanisms. Likewise full implementation of SAFTA is going to help this region in laying groundwork for multilateral trade liberalization. SAFTA may work as a stepping stone in locking countries into trade reforms that manifests positive signals to investors by communicating the 'change is happening' impetus (Fernandez 1997, Hossain and Duncan 1998).

As far as trade patterns are concerned, most of the South Asian countries shoulder more trade with non-regional partners even though the barriers with rest of the world remain steeper as compared to its own region. Kumar (2007) shows that its drive towards ASEAN as part of natural liberalization process would generate smaller trade flow benefits as compared to NAFTA and EU. Tariffs are already low for South Asian goods thus a reduction as proposed would have minimal effect on SAFTA exports because of the low sensitivity that persists towards this region's tariff structure. In comparative terms SAFTA plus NAFTA stirs the largest increase in trade flows while subsequently decreasing the trade balance. Major impact in trade flows with NAFTA would be 80% growth in exports however this would have second lowest impact on customs revenue. This impact evokes SAFTA's expansion as a general tradeoff between trade flows, custom revenues and trade balances. Simulations conducted for measuring the effects of custom revenue exhibits that SAARC plus NAFTA would pilot lowest revenue losses except for bigger countries like India and Pakistan, while its effects are more likely to be heterogeneous. However a factor that needs to be looked into is the structure of import and export of ASEAN and SAFTA; whether the trading bloc makes each other complement or substitute[58]? On the global stage regional blocs extend bargaining power to countries, strengthening their leverage to negotiate, hence allowing them to identify common grounds to engage in the otherwise highly polarized and pressured multilateral forums.

Trade between Pakistan and India

Trade between the two neighbours holds importance not only for the betterment of two nations but in spelling long lasting impact for the entire region. The studies undertaken to assess bilateral trade and its real potential between two neighbours have rarely been able to account for the multifarious challenges and opportunities. In order to analyze trade possibilities in the South Asian region some studies (including Kemal *et al.* 2002) have calculated revealed comparative advantage and trade complementarity indices. The

[58] Bandara and Yu (2003) use a similar argument to explain the welfare decrease that a South Asia plus ASEAN trade agreement would have for South Asian countries

results of such studies show India enjoying advantage in 49 items while Pakistan in 25, however such indices do not take into account the services sector (a burgeoning sector in both the economies). Batra (2004) by using the gravity model estimates potential trade between two countries to be around $ 6.6 billion i.e. 10 times above the current level. See also Naqvi and Schuler (2007).

Informal Trade: Taneja (2004) estimates Indo-Pakistan informal trade at $2 billion, out of which half routes through a third country (mostly Dubai) while the rest seeps through porous borders (Economist 1996). Government of Pakistan estimates this value to be between $100 to $500 million after sifting through the smuggled goods in markets and interviewing customs officials.

Obstacles: No provision for the movement of containerized cargo from Amritsar, antiquated containers, delays in unloading, enactment of 1974 protocol prohibiting third country vessels to carry intra-bound cargo restrains the already encumber cargo (delayed majorly due to low efficiency of port operations on both sides if steered through legal channels). Despite of being neighbours, transaction costs remains high both in terms of time and money; transportation routes are limited, list of tradable items is restricted, shipping protocols are intricate. There is non-availability of rail wagons and customs procedural clearances. Bribes add significant amount to such costs that range from 30% for direct sea route to 15% for direct land and 5% via third country. Time consumed on such routes spans from a day and a half for Dehli-Attari and Mumbai-Karachi while it takes a total of 6 days coming via Dubai.

Recommendations: Trade can be facilitated by removal of positive list approach, better exchange of information, establishing trade on MFN basis, streamlining banking procedures (facilitating L/Cs), deposing visa restrictions, erection of system for applying SBS and TBT standards to Indian exports, removal of third country vessel restrictions for conducting intra country trade.

India – Sri Lanka FTA

The India – Sir Lanka FTA (ISFTA) was signed in 1998 and came into effect in March 2000. The initial negotiation process was painfully slow due to the huge uproar on both sides. However both Governments remained committed to the single objective of increasing comprehensive bilateral economic integration. In order to safeguard the domestic interest in the commodity producing sectors, the negotiations focused on the negative list, with Sri Lanka entitled to less than full reciprocity not only in the tariff concessions but also in the context of rules of origin and schedule of phasing out the trade barriers.

Since ISFTA's inception the matter of increased concern has been the prevalent NTBs. For example Sri Lanka's tea exports were allowed entry on TRQ basis in only two states of India which were themselves tea growing regions and posed visible and invisible restrictions from port to market. The State taxes in India were another example that led to increased resentment from the Sri Lankan exporter community. See Kelegama and Mukherji (2007), See also Weerakoon and Thennakoon (2007).

In 2002 both countries decided to move beyond the standard conventions laid down in the FTA and towards framing a Comprehensive Economic Partnership Agreement (CEPA). This agreement is intended to boost the ties between the two countries in the areas of cooperation in investment and trade in services. The design of such deeper FTAs have the potential to alter the decisions of foreign investments and hence the reason for understanding better the channels between trade and investment in order to optimally gain from the finally decided upon agreement. To see how investment decision change after bilateral FTAs see Bukley (2007).

The trade data since 2000 indicates that exports of Sri Lanka to India have substantially increased. At the same time if one looks at the basket of exportable items that Sri Lanka has to offer to India, not much change has come about. The two main items i.e. vegetable fats/oils, and copper still remain the main exports of Sri Lanka. Having concentration of exports in a few commodities implies restricting the sustainability of long run growth in

exports. The negative lists still remain large, which will be an intensive topic of discussion as CEPA moves forward. Nevertheless both countries feel that ISFTA has led to more deepening trade ties between the two countries then it would have been otherwise possible under the existing state of SAFTA. For trends in India – Sri Lanka trade between 2002 to 2008 see Table 32.

IV. Objectives of Pakistan – Sri Lanka FTA

The Pakistan – Sri Lanka FTA was signed in Colombo on 1st August 2002. The rules for this agreement came into force with effect from 12th June 2005. Both parties agreed to establish a free trade area for the purpose of free movement of goods and services between their countries through elimination of tariffs on the movement of goods and services.

The broad objectives as identified in the agreement are as follows:

- To promote through the expansion of trade in goods and services the harmonious development of economic relations between Pakistan and Sri Lanka,
- To provide fair conditions of competition for trade in goods and services between Pakistan and Sri Lanka,
- To contribute in this way, by the removal of barriers to trade in goods and services, to the harmonious development and expansion of bilateral as well as world trade.

The parties also agreed to eliminate all non-tariff barriers on the movement of goods and services and not to make any increase in the existing para tariffs or introduce new or additional para tariffs without mutual consent[59]. The para tariffs as defined in the agreement imply boarder charges and fees other than tariffs, on foreign trade transactions of a tariff-like effect which are levied solely on imports, but not those indirect taxes and charges, which are levied

[59] The legal information is drawn from the agreement document. See Ministry of Commerce – Pakistan website.

in the same manner on like domestic products. Import charges for specific services rendered are not considered para tariff measures.

The NTBs in the agreement imply any measures, regulation or practice other than tariffs and para tariffs. These measures restrict imports or distort trade. All products covered by the agreement shall be eligible for preferential treatment if they satisfy the Rules of Origin as defined in the agreement.

Since the Sri Lanka-Pakistan Free Trade Agreement (FTA) became operational in 2005, trade between the two countries has doubled during the last few years. After the FTA was signed, trade between the countries has increased from US $ 170 million in 2005 to US $ 270 million in June 2007.

Some of the reasons that help partner countries to invest more in Sri Lanka originate from the notion that Sri Lanka has the most liberalized investment regime in the South East Asian Region. Sri Lanka is the regional trading hub with one of the best ports in South East Asia. Sri Lanka has strategic access to the Indian Market which can help Pakistan to reach Indian market more easily. Also, Sri Lankan economy has transparent investment laws with investment protection agreements.

There is an ample goodwill for expansion of trade and establishment of joint ventures between the two countries in agro-based products including sugar production, seafood processing; value-added textiles and garments; tea and its plantation; electronics; metal fabrication and light engineering; pharmaceutical products; dehydration, preservation and canning of fruits and vegetables etc.

Pakistan and Sri Lanka are lucrative investment destinations for exporters of both countries as on the one hand Pakistan is a gateway to resource-rich Central Asian States while on the other hand Sri Lanka enjoys duty-free access to huge European Union and Indian markets.

Currently, Pakistan receives 0.8 per cent of Sri Lankan exports and 1.0 per cent of Pakistani exports are destined to Sri Lanka. Despite Sri Lanka and Pakistan not being major trading partners, for specific products, their

respective export markets are crucial. For example, Pakistan is an important export market for tea, followed by copra, rubber, betel leaves and tamarind; similarly, for Pakistan, Sri Lanka is an important market for textiles, pharmaceuticals, machinery and agricultural items. Major Sri Lankan exports have been granted preferences by the FTA. It allows duty free entry for 10,000 tons of tea per year. Pakistan is the third largest tea importing nation in the world. Since Pakistan-Sri Lanka FTA has completed its 3 years in which tariffs were eliminated by Pakistan, the analysis of this FTA is done at this stage to analyze whether Pakistan has benefitted from this arrangement and what were the areas that were neglected. A longer timeframe has been established for the Sri Lankan side for tariff liberalization. Pakistan, as decided, has allowed complete duty free access from June 2008. On the other hand, Sri Lanka will follow suit by in terms of full liberalization by June 2010.

The negative lists (or no-concession lists) do not include sensitive or strategic items. However, only restricted concession has been given on certain important items. As for Pakistan, the negative list of Pakistan includes plastics, electrical machinery, vehicles, iron and steel, animal and vegetable fats and oils (including coconut oil), alcoholic beverages and cosmetics.

The Rules of Origin criterion has been applied in the agreement to prevent transhipment of goods. This is via the mechanism that; in order to get preferential duty rates under the FTA, exports from Sri Lanka call for 35 per cent domestic value addition. Apart from that, a sound review and consultation mechanism has been put in place in order to facilitate settlement of disputes.

The PSFTA fully recognizes the asymmetries between the two countries and negotiations were finalized with Sri Lanka on a less than reciprocal basis. Sri Lanka only offered 102 items after the FTA on a duty-free basis compared to Pakistan's 206 items. Similarly Sri Lanka was allowed 5 years to phase out the tariffs while Pakistan has completely phased out in 3 years that ended in 2008. The negative list set by Sri Lanka contains 697 items compared to Pakistan's 540 items. By the end of 2010, it is expected that the tariffs will be eliminated from 69 percent of the goods traded between the two countries.

At the time of signing of agreement Sri Lanka viewed Pakistan as an important export destination for tea, copra, rubber, betel leaves and tamarind, while Pakistan viewed Sri Lanka as an important destination for exporting textiles, pharmaceuticals, machinery and agricultural items. Pakistan being the third largest team importing country, allowed an import of 10,000 tons of tea (at nil duty) per year from Sri Lanka on TRQ basis. The other TRQs provided from Pakistan to Sri Lanka include 1200 tons of betel leaves at a preferential margin of 35 percent, three million pieces of apparel items again at a preferential margin of 35 percent, ceramic tiles and tableware at a preferential margin of 20 percent. Sri Lanka has also granted TRQs for the export of kino (at nil duty), long grade basmati rice (6000 tons annually), and potatoes (1000 tons annually).

The agreement incentivizes the process of value addition in the manufacturing processes of the two countries by requiring 35 percent value addition and tariff lists at HS-6. This will increase the flexibility available for Sri Lankan and Pakistani investors to acquire their raw materials and related inputs from third countries and manufacture the product themselves for bilateral exports (See Masood 2009).

Pakistan has long streamlined its objectives for pursuing regional preferential and free trade agreements for achieving greater market access, facilitating trade in particular with investment and economic growth in general, seeking better value for exportable surplus, and benefiting from the overall effects of technical cooperation in the medium to long term horizon. Following the FTA with Sri Lanka, negotiations are also underway with other regional countries such as Nepal and Sri Lanka.

V. Economic and Trade Profiles of Pakistan and Sri Lanka

Pakistan

Pakistan today is the fifth largest country in population terms and has the 25th largest economy in the world. The average annual economic growth rate since

1960s has remained around 5.5 percent. During the 1960s GDP grew at an annual average of 6.8 percent, followed by 4.8 percent in 1970s, 6.5 percent in 1980s and 4.6 percent in 1990s. From 2001 to 2008 the average annual GDP growth rate was 5.6 percent. In 2008 the GDP growth rate of 5.8 percent was contributed by agriculture (21.3 percent), industry (25.7 percent) and services (53 percent). This growth was leveraged by 22 percent investment to GDP ratio which in turn was financed by 13.5 percent national savings to GDP ratio (which is low in comparison to other regional countries and leads to increased dependence on foreign financing).

The Pakistani exports grew at an annual average of 11.9 percent during 2000 to 2008. The imports however grew faster during the same time period at 18.4 percent on account of rising global commodity prices as well as increased demand for import of raw material and machinery by the industrial sector (in particular large scale manufacturing and construction). In 2008 Pakistan's exports at around $20.2 billion were 12.2 percent of GDP. The imports at around $35.1 billion were 21.5 percent of GDP.

In terms of the economic classification of trade, exports of manufactured goods in 2008, was Rs 897 billion followed by semi – manufactured (Rs 127 billion) and primary commodities (Rs 171.7 billion). The imports in 2008 were dominated by petroleum and petro – products (Rs 724 billion) followed by machinery (Rs 416.5 billion), chemicals (Rs 256.6 billion), transport equipment (Rs 137.7 billion), iron and steel (Rs 105.5 billion), edible oils (Rs 108.4 billion), grains pulses and flours (Rs 71 billion), and fertilizers (Rs 55 billion)[60].

Table 33 exhibits the major destinations for Pakistani exports in 2008. The United States remains the leading export destination for Pakistan with a share of 19.5 percent. This is followed by UAE (10.9 percent) Afghanistan (6 percent) UK (5.4 percent) and Germany (4.3 percent). The share of Sri Lanka in overall Pakistani exports stands at 1.1 percent. Pakistan has been slow in the achievement of its export diversification goals in the context of both regional and product diversification. Due to the greater market access

[60] The total import of tea in Pakistan (of particular interest to Sri Lanka) was Rs 12.7 billion in 2008. A major chunk of tea is imported from Kenya.

available to competitor countries[61] it is now imperative that focus should also be reinforced on the export sophistication of existing exportable goods.

Currently the average tariff bound for all products is 52.4 percent[62]. In case of agriculture and industrial products the rate is 97.1 and 35.3 percent respectively. The average tariff applied for all products is 11.42 percent which indicates that Pakistan is well below its bound limits. In case of agriculture and industrial products the average tariff applied is 17.4 and 11.0 percent respectively. As a result of the overall trade liberalization process tariffs have drastically been slashed over the years. In 1980 the revenue collected from tariffs was around 38.8 percent of overall tax revenues. By 2003 this ratio had fallen to 13.2 percent.

Sri Lanka

The size of the Sri Lankan economy in 2008 was around $28 billion with a per capita GDP of $4700. The major contributors to GDP included tourism, tea, apparel, textile, rice and various agricultural products. The economy maintained an above 5 percent growth rate between 2003 and 2007 with agriculture contributing 10.8 percent (in 2007), industry and services contributing 18 and 55 percent respectively. During the early 1990s the economic growth hovered around an annual average of 5.5 percent which declined to 3.8 percent in 1996 due to fears regarding drought and internal security. However a revival was witnessed between 1997 and 2000 when the average growth rate was around 5.3 percent. By 2007 Sri Lanka had the second highest per capita income in South Asia after Maldives. See ADB (2008) for further analysis on Sri Lankan economy.

[61] GSP+ not available to Pakistan during 2009.
[62] 2008 statistics.

Sri Lanka compared to other South Asian economies liberalized its trade regime much earlier. Like many other developing countries Sri Lanka followed the import substitution strategy throughout 1960s and early 1970s. However from late 1970s trade liberalization regime was introduced in a gradual manner. There were very less quantitative restrictions by the end of 1980s and these too were completely removed by 1998. Despite of high growth seen in exports and imports, Sri Lankan trade pattern still suffers from the lack of product and regional diversification. Recently exports grew largely on account of apparel and agricultural products such as tea. However as seen in many other countries, imports grew faster given the increased global commodity prices.

We show the major destinations for Sri Lankan exports for the year 2008 in

Table 34. Like Pakistan, Sri Lankan exports are more concentrated in the US market. The share of US in the overall exports of Sri Lanka is 28.8 percent followed by UK (14.3 percent), Germany (6.4 percent), India (5.8 percent), Belgium (5.8 percent) and Italy (5.1 percent). The share of Pakistan in the overall exports of Sri Lanka stands around 0.8 percent.

Currently the average tariff bound for all products is 29.8 percent[63]. In case of agriculture and industrial products the rate is 49.7 and 19.3 percent respectively. The average tariff applied for all products is 8.9 percent which indicates that Sri Lanka is well below its bound limits. In case of agriculture and industrial products the average tariff applied is 28.4 and 7.4 percent respectively. As a result of the overall trade liberalization process tariffs have drastically been slashed over the years. In 1983 the revenue collected from tariffs was around 20.3 percent of overall tax revenues. By 200 this ratio had fallen to 12.8 percent. In comparison to Pakistan, Sri Lanka's applied rates are higher for agriculture and lower for industrial products.

[63] 2008 statistics.

Pre and Post – FTA Trade between Pakistan and Sri Lanka

Traditionally the trade volume between Pakistan and Sri Lanka has remained low, however both economies have enjoyed good ties which have yet to materialize in to a greater integration at production and trade levels. Balance of trade between the two countries is in favour of Pakistan, increasing annually every year since 2002. Pakistan's exports to Sri Lanka increased from $76 million in 2003 to $214 million in 2008 (Table 35). The total export value between 2003 and 2008 stood around $904 million. The highest percentage share of export to Sri Lanka in overall Pakistani exports was seen in 2007 at around 1.2 percent (when Pakistan's total exports were $16.9 billion).

On the other hand Sri Lanka's exports to Pakistan increased from $28.8 million in 2002 to $72.2 million in 2008 (

Table 36). The exports to Pakistan witnessed a decline between 2006 and 2007 from $58.9 million to $55.5 million. The highest percentage share of exports to Pakistan in overall Sri Lankan exports was observed in 2006 at 0.86 percent. The total value of exports to Pakistan between 2003 and 2008 was around $305 million. The overall exports of Sri Lanka did show an impressive growth during this time period, increasing from $4.7 billion to $8.4 billion in 2008 (an increase of 78 percent).

The total trade as percent of GDP (trade openness) increased for Pakistan from 29 percent in 2002 to almost 41 percent in 2008 (Table 41). Similarly trade growth as measured by the percentage change in the value of total trade (export plus import) relative to the previous year increased from 9 percent in 2002 to 16.2 percent in 2008. The total trade as measured by the sum of the

value of exports and imports grew from $21 billion to $68 billion during the same time period.

The trade openness in case of Sri Lanka declined from 62.6 percent to 57.4 percent between 2003 and 2008. The total trade (exports and imports) grew from $10.7 billion to $22.7 billion during the same time period. In percentage terms the growth in trade was 2.4 percent in 2002 rising up to 19.4 percent in 2008 (

Table 42).

Pakistan's bilateral trade with Sri Lanka grew from 1.3 percent in 2002 to 14.2 percent in 2008 (Table 43). The value of total trade between this period increased from $103 million to $245 million. The trade intensity as measured by the ratio of trade share of a country to the share of world trade with a partner declined from 6.3 to 5.7 percent. An index of more than one indicates that trade flow between countries is larger than expected given their importance in world trade. The trade share of Pakistan's bilateral trade with Sri Lanka which stood at 0.49 percent in 2002 also declined to 0.37 percent. The trade share is measured by the percentage of trade with a partner to total trade of a country. A higher share indicates a higher degree of integration between partner countries.

Sri Lanka's bilateral trade with Pakistan grew from -4.2 percent in 2002 to 14.2 percent in 2008 (Table 44). In 2004 the bilateral growth in trade grew by 36.8 percent. The total trade during the 7 years period grew from $95 million to $267 million with trade intensity index rising from 5.43 percent to 6.04 percent. Similarly the trade share also witnessed a growth from 0.88 to 1.17 percent.

Table 45 exhibits the tariffs applied by Sri Lanka in 2009 on: a) imports from Pakistan, and b) imports from the trading partner having highest share in percentage terms i.e. US. The comparison between the two reveals that even after FTA, applied tarrifs were still high for Pakistan in case of food and beverages (36 percent with 255 tariff lines), footwear, headgear etc. (22.3 percent with 53 tariff lines), animal and vegetable fats/oils (15 percent with 57 tariff lines), and animal products (12.8 percent with 281 tariff lines). An overall sectoral comparison reveals that Pakistan faced an average applied tariff of 10.73 percent compared to 15.06 percent of US in agricultural products. For industrial products average applied tarrif was 4.3 percent for Pakistan compared to 6.78 percent on goods from US.

The applied tariffs of Pakistan for 2009 are indicated in table 18. Similar to Sri Lanka's case we compare tariffs applied on imports from Sri Lanka and US. The tariffs still remain on the higher side for: a) transport equipment (35 percent with 287 tariff lines), footwear and headgear (19.3 percent with 53 tariff lines), food and beverages (13.8 with 229 tariff lines), animal or vegetable fats/oils (16.29 percent with 54 tariff lines), animal products (8.9 percent with 248 tariff lines). The similarities between the still relatively restricted product groups is representative of similarities in the export structure of the two countries.

An overall sectoral comparison reveals that Sri Lanka faced an average applied tariff of 6.3 percent compared to 13.7 percent by US on agricultural products. For industrial products average applied tariffs was 6.7 percent for Sri Lanka compared to 11.5 percent for US.

There is an ample goodwill for business community for expansion of trade and establishment of joint ventures between the two countries in agro-based products including sugar production, seafood processing; value-added

textiles and garments; tea and its plantation; electronics; metal fabrication and light engineering; pharmaceutical products; dehydration, preservation and canning of fruits and vegetables etc. Pakistan and Sri Lanka are lucrative investment destinations for exporters of both countries as on the one hand Pakistan is a gateway to resource-rich Central Asian States while on the other hand Sri Lanka enjoys duty-free access to substantial European Union and Indian markets.

Despite Sri Lanka and Pakistan not being major trading partners, for specific products, their respective export markets are crucial. For example, Pakistan is an important export market for tea, followed by copra, rubber, betel leaves and tamarind. Similarly, for Pakistan, Sri Lanka is an important market for textiles, pharmaceuticals, machinery and agricultural items. All major Sri Lankan export sectors have been granted preferences in the FTA. It allows duty free entry for 10,000 tons of tea per year. Pakistan is the third largest tea importing nation in the world.

Table 47 exhibits Pakistan's exports to Sri Lanka, total Sri Lankan imports and total Pakistani exports to the world. The table reveals an increase in Pakistani exports to Sri Lanka in the post-FTA period. In 2002 the exports were around $65.9 million which rose to $216.7 million in 2008. In terms of total exports the share increased from 0.72 percent in 2002 to 1.07 percent in 2008. Although cotton still occupies the most share in Pakistan's exports to Sri Lanka, however its export in value terms has been decreasing. In 2006 cotton exports to Sri Lanka were $110 million which declined to $99.2 million in 2008. Between the same period a decrease was also seen for exports of: plastics, electrical equipment, edible fruit, vehicles[64], sugars, oil seeds, articles of apparel, woven and tufted fabric, manmade filaments, cutlery, footwear, oils, perfumes, cosmetics, leather, cereal, flour, milk preparations, copper, rubber, ceramic products, and lead articles. However the exports increased for goods with comparatively larger percentage share such as: cereals, edible vegetables, knitted fabric, made up textile articles, iron and steel, pharmaceutical

[64] Other than railway.

products, paper and paper board, aluminum, inorganic and organic chemicals, vegetable fats and oils, cement, furniture and lighting.

Table 48 exhibits Pakistan's imports from Sri Lanka, latter's total exports and Pakistan's imports from the world. In 2002 Pakistan's imports from Sri Lanka stood around $28.8 million which rose to $66.2 million in 2008. However there has been a decrease in the total exports of Sri Lanka to Pakistan in the post FTA period. In 2006 the value of Sri Lankan exports to Pakistan was $71 million which declined to $66.2 million in 2008. The value was much lower in 2007 at around $60 million. The leading export items include Rubber ($27.4 million), oil seed/fruits/grains ($10.5 million), and vegetable products ($8.5 million). Other items whose exports increased in the post FTA period include: vegetable textile fibers, paper yarn, paper and paperboard, furniture and lighting, inorganic and organic chemicals, articles of apparel accessories, cereal/flour/milk preparations, iron and steel, and pharmaceutical products. However Sri Lankan exports to Pakistan declined in sectors such as edible fruits, coffee/tea, wood, plastics, vegetable fats and oil, electrical/electronic equipment, aluminium, chemical products, soaps and lubricants, sugars and sugar confectionery.

Table 35 exhibits Pakistani exports to Sri Lanka and the world in total. Between 2003 and 2008 the overall exports of Pakistan increased by 71 percent. Between the same time period the exports of Pakistan to Sri Lanka increased by 182.3 percent. However exports to Sri Lanka as a percentage of overall exports to the world has shown little increase. From 0.7 percent in 2003 the share of exports to Sri Lanka only increased to 1.1 percent in 2008. A similar scenario is seen in

Table 36 giving the exports of Sri Lanka to Pakistan and the overall World. Between 2002 and 2008 the exports of Sri Lanka to the World increased by 80.3 percent. Between the same period the exports of Sri Lanka to Pakistan increased by 150.8 percent. The share of Sri Lankan exports to Pakistan in the overall exports only increased from 0.6 percent in 2002 to 0.85 percent in 2008.

In fact the share actually declined from 0.73 percent in 2003 to 0.70 percent in 2005 before picking up again to around 0.86 in 2006 but again dipping to 0.72 in 2007.

The product group – specific shares for Pakistan's import from Sri Lanka are given in Table 37. The product group with the highest weight sees a decline between the period 2003 to 2008. The import of vegetable products had a percentage share of 63.8 percent (in overall imports of Pakistan from Sri Lanka) in 2003 which declined to 46 percent in 2008. On the contrary, rubber and plastics group had a share of 21.1 percent in 2003 which increased to 40.4 in 2008. Other products whose shares increased during the period include: textiles (from 3.4 percent in 2003 to 4.7 percent in 2008), wood and wood articles (from 1.0 percent in 2003 to 2.62 percent in 2008). These are also complimented by sectors presently not having a large share in the overall imports. To some extent it can be claimed that as a result of this FTA the exports of Sri Lanka increased for non-traditional exports.

Table 38 indicates the overtime change in product group – specific change in exports of Pakistan to Sri Lanka. Textile and textile articles having the largest weight in Pakistan's exports to Sri Lanka registered an increase in export share from 50.7 percent in 2003 to 59.5 percent in 2008. Other groups whose share increased include: vegetable products (increasing from 17.97 percent in 2003 to 19.77 percent in 2008), prepared foods and beverages (increasing from 1.52 percent in 2003 to 2.03 percent in 2008), base metals (increasing from 2.76 percent to 5.7 percent during the same period). Minor increases were also seen in the shares of machinery and appliances, pulp, paper and paper board. The product groups whose shares decreased include live animals, animal products, chemical products, rubber, plastics, and footwear.

For Sri Lanka's exports we see some change in the value terms as regards the importance of individual sectors (Table 39). The vegetable products remained on top in the pre and post FTA period followed by plastics and rubber, textiles and textile articles. However base metal which out of all product groups had 4th largest share in Sri Lanka's total exports to Pakistan slided to 9th position. Similarly the machinery and appliances group declined from 5th

to 7th in ranking. The chemical products that stood 6th in pre FTA ranking, came 5th in post FTA milieu. The wood and wood articles had 9th position earlier which improved to 4th in the post – FTA period. The mineral products improved from 10th to 6th in the overall ranking.

In case of Pakistan (Table 40) textile's share in Pakistan's exports to Sri Lanka remained on top, followed by vegetable products. The live animal and animal products group was 3rd before the FTA however slided to 5th by 2008. The chemical sector maintained its 4th position. The plastics and rubber group slided from 5th to 7th. The exports of base metals improved and its ranking in exports shares increased from 6th to 3rd.

VI. Methodology

In this paper we use a multi-pronged approach in order to evaluate the impact and potential of Pakistan – Sri Lanka FTA. We enlist the approach in terms of methodological detail as follows:

- Analysis on direction of pre and post – FTA trade
- Global CGE model (GTAP) used to see the static effects of FTA on Pakistan, Sri Lanka and rest of the world
- Using WITS-SMART model based on UNCTAD-TRAINS database to see the trade diversion / creation effects
- Using trade indices in order to evaluate competitiveness and complimentarities.
- Conducting a perception survey of various stakeholders

The global CGE model (GTAP) uses the Social Accounting Matrix (SAM) described below, however also allows for other regions to interact. The GTAP database version 7 used in this study contains complete bilateral trade

information, transport and protection information on 113 regions and 57 commodities. The GTAP version 7 uses 2004 as the reference year i.e. for all countries the data has been updated to 2004. For a detailed mathematical specification of the global CGE model see Hertel (2007).

The SAM for our CGE model has been derived from Dorosh, Niazi and Nazli (2004)65. This SAM comprises of information from five different data sources. The Input-Output table provides information on the activities and commodity accounts. This table has been published by the Federal Bureau of Statistics for the year 1990-91. The national accounts data 2001 is used to compile information about the value addition in fifteen sectors. For consumption-related information, Pakistan Integrated Household Survey (PIHS) 2001 is used. Pakistan Rural Household Survey 2001 is used to disaggregate household incomes and finally Pakistan Economic Survey 2001-02, provides sector-wise and commodity-wise data on production, prices and trade.

On the activities side this SAM includes payments and receipts for 12 agriculture sectors, 16 industrial sectors and 6 services sectors (Table 12). Similar sectoral detail follows in the commodity accounts. Factor accounts include labour, land and capital with labour disaggregated into 10 different categories. This categorical disaggregation is based on the criterion of farm size, agriculture/non-agriculture wage, and unskilled/skilled labour. Land, again is disaggregated according to the farm size (in different provinces). Capital is categorised into livestock, other agriculture, informal and formal capital. The household accounts are distributed into rural and urban with rural households being further classified into 17 categories based on; farm size, rural poor/rural non-poor. Urban households have been classified into poor and non poor. Other institutions in the SAM include enterprises, government and the rest of the world.

[65] This section draws from Ahmed, V. (2007).

We use the GTAP methodology in order to see the potential impact of PSFTA. Now that it has already been 4 years since this agreement was operationalized and current along with provisional data is available on the actual impact, therefore it will be interesting to see these results in retrospect and ask what might have been lost if such an agreement was not in place.

The GTAP consists of: a fully documented, publically available, global data base; a standard general equilibrium modelling framework; and software for manipulating the data and implementing the standard model. For a detailed description see Hertel (1997).

The System of Market Analysis and Restrictions on Trade (SMART) a partial equilibrium model is a fully integrated module in World Integrated Trade Solutions (WITS). This model is used to simulate the partial equilibrium impact of a tariff reduction for a single market[66]. WITS by default allows the user to access data from COMTRADE, TRAINS, IDB and CTS datasets. Commodity Trade (COMTRADE) Data Base that contains Exports and Imports by Commodity and Partner Country. Values are recorded in US Dollars along with a variety of quantity measures. The Data Base includes information for over 130 countries, some of which have been reporting these types of statistics to the United Nations since 1962.The data are recorded according to six internationally recognized trade and tariff classifications[67].

Trade Analysis Information System (TRAINS) that contains information on Imports, Tariffs, Para-Tariffs and Non-Tariff Measures for 119 countries. The data on tariffs, para-tariffs and non-tariff measures are available at the most detailed commodity level of the national tariffs (i.e., at the tariff line level). The data are recorded according to three internationally recognized trade and tariff classifications.

[66] See: http://wits.worldbank.org/witsweb/download/docs/Using_SMART_in_WITS.pdf
[67] Information drawn from: http://wits.worldbank.org/witsnet/StartUp/Wits_Information.aspx

The WTO's Integrated Data Base (IDB) that contain Imports by Commodity and Partner Country and MFN Applied Tariffs for over 80 countries at the most detailed commodity level of the national tariffs; and, the Consolidated Tariff Schedule Data Base (CTS) that contains WTO Bound Tariffs, Initial Negotiating Rights (INR) and other indicators. The CTS is the official source for bound tariffs which are the concessions made by countries during a negotiation (e.g., the Uruguay Round of Multilateral Trade Negotiations). The data are recorded according to two internationally recognized trade and tariff classifications.

In line with related studies such as Winters (2009) we used trade indices to obtain an assessment regarding; specialization – induced comparative advantages, intra – industry trade and revealed comparative advantage. We used the following specific formulas for the calculation of each of the above mentioned indices.

Trade specialization index (TSI)

$$TSI = (x_i - m_i)/(x_i + m_i)$$

x_i = and exports of the ith commodity
m_i = imports of the ith commodity

TSI has a range between -1<*TSI*<1, *+1* signifies exporters comparative advantage and *-1* implies comparative advantage of the trading partner.

Grubel-Lloyd (GL) index

The Grubel-Lloyd (GL) index is a widely used indicator measuring the extent of intra industry trade:

To compute *GL* index we have used the:

$$GL = 1 - \{(|x_i - m_i|)/(x_i + m_i)\}$$

GL ranges between 0< *GL*< 1, where 0 indicates no intra-industry trade and 1 shows a high degree of intra-industry trade.

Revealed comparative advantage (RCA)

The *RCA* provides an easy to interpret indicator for ascertaining relative trade performance of countries trading in a particular commodity.

RCA index estimated across time can point to the general direction in which the pattern of comparative advantage is moving.

$$RCA = (E_{ij} / E_{it}) / (E_{nj} / E_{nt})$$

Where;

E	*Exports*
i	*Country index*
j	*Commodity index*
n	*Set of countries*
t	*Set of commodities*

$$\frac{\frac{Export\ of\ x_{pk}}{Total\ Exports_{pk}}}{\frac{Export\ of\ x_{World}}{Total\ Exports_{World}}}$$

If RCA > 1, then there is comparative advantage in the commodity under consideration, and if RCA < 1, then there is comparative disadvantage.

But since we are computing for the bilateral trade between Pakistan and Sri Lanka we will be using the term BRCA (Bilateral Revealed Comparative Advantage). The formula will be the same i.e.

$$BRCA = (E_{ij} / E_{it}) / (E_{nj} / E_{nt})$$

In explanation it will be

BRCA for country A's product k =

$$\frac{\text{Product k's share in country A's exports}}{\text{Product k's share in the total exports of both countries}}$$

if:

$BRCA_A^{2003} - BRCA_B^{2003} > 0$, then Country A enjoys static comparative advantage in product *k* in relation to Country B.

Moreover, if the following three conditions are fulfilled;

$$\left(BRCA_A^{2007} - BRCA_B^{2007}\right) - \left(BRCA_A^{2003} - BRCA_B^{2003}\right) < 0$$

and:

$$\left|\left(BRCA_A^{2007} - BRCA_B^{2007}\right) - \left(BRCA_A^{2003} - BRCA_B^{2003}\right) / \left(BRCA_A^{2003} - BRCA_B^{2003}\right)\right| > 20\%$$

and:

$$BRCA_A^{2007} / BRCA_B^{2007} > 20\%$$

Then Country B enjoys dynamic comparative advantage in relation to Country A.

For further analysis of Pakistan trade structure based on trade indices see also MoC (2008).

A perception survey was carefully designed to take in to account the stakeholders' views. Separate questionnaires were designed for exporters, importers and trade organizations. Most of the exporting firms interviewed were also producers and employed over 1500 employees with at least 5 percent of their total exports destined for Sri Lanka, for at least 5 years including the pre and post FTA period.

VII. Competitiveness Analysis

In order to analyze the impact of Pakistan-Sri Lanka FTA, we use disaggregated commodity-wise imports and exports data since 2003. The data available for such an analysis has certain limitations. For example the import and export data available for Sri Lanka is up to 2005 however for our analysis the post-FTA analysis would optimally require data for 2008. Since data for Pakistan's imports is available up to 2008 it was easy to use it as mirror data for unavailable period of Sri Lankan goods.

The mirror statistics provide only a second-best solution, and are certainly better than having no data at all. However, there is the problem of transhipments, which may hide the actual source of supply and also, mirror statistics invert the reporting standards by valuating exports in Cost, Insurance and Freight[68] (CIF) terms (i.e. inclusive of transport and insurance) and imports in Free On Board[69] (FOB) terms (exclusive of transport and insurance cost). So we can say that the mirror statistics give an idea of the direction of trade but not necessarily the precise magnitude.

The control totals for Pakistan and Sri Lanka are taken from UN COMTRADE database. The product-wise data was also derived from statistics provided by the Federal Bureau of Statistics at HS-8 level. However for the computations of most indices here is performed at HS-4 and in some cases HS-2 level.

At first we conduct an analysis based on descriptive statistics of both Pakistan and Sri Lanka's overall trade and their bilateral trade figures to get the

[68] Cost, Insurance and Freight (CIF)**:** A trade term requiring the seller to arrange for the carriage of goods by sea to a port of destination, and provide the buyer with the documents necessary to obtain the goods from the carrier

[69] Free On Board (FOB)**:** A trade term requiring the seller to deliver goods on board a vessel designated by the buyer. The seller fulfils its obligations to deliver when the goods have passed over the ship's rail.

overview of the situation. To analyze trade specialization of both countries trade specialization index (TSI) is used. Differences in the level of technology and human capital can lead to intra-industry trade even in products with identical factor input requirements. In order to check where there exists potential for intra-industry trade Grubel Lloyd Index (GLI) is used. Last but not least for country-wise comparative advantage at the product - level Revealed Comparative Advantage (RCA) is used.

Percentage Change in Export Share of Pakistani Commodities (World)

Pakistan to some extent has lost its competitiveness in the core area of its export to its regional players (Table 50). Bangladesh over the same period strengthened its position substantially in percentage terms of its export basket while India also gained ground in value terms. Pakistan though gaining in value terms lost 9 percent as share of its exports. This transformation might point to the manifestation of other sectors moving forward (seen later). In terms of specialization and value addition Pakistan's textile sector has been lethargic in enhancing rather maintaining its specialization (that has actually decreased) or incorporating value addition, the later now getting increasingly skewed towards other two textile competitors with in the SAARC region (Bangladesh and India) apart from China and ASEAN. Other sectors that show some promise of increased exports include: vegetables, base metals, beverages, tobaccos, mineral products etc.

G-L Index

GL index identifies the trade in similar but differentiated products between the industries of two countries. According to Grubel and Lloyd, such a trade takes place when the difference in level of technology and human capital

exists even in products with identical factor input requirements. In light of the importance of intra-industry trade in bilateral and regional cooperation it has become critical to gauge the extent of such flows. The index varies between and 0 and 1, where 0 indicates no intra-industry trade and 1 shows a high degree of intra-industry trade. Table 51 reports the GL index for Pakistan's top products using HS-2 commodity classification. For Pakistan, among the top commodity groups with significant intra-industry trade are articles of ores slag and ash, fruits and nuts, tobacco, jewellery and precious stones, tools and cutlery of base metal, ropes and cables, headgear and other parts, ships and other floating structures, and man-made staple structure.

In contrast, intra-industry trade of Sri Lanka takes place in copper articles, stones, tobacco, precious stones, animal products, antiques and other art pieces, ceramic products, animal feed, miscellaneous edible preparations and mattresses and quilts. The intra-industry trade can provide new basis for enhancing bilateral trade between Pakistan and Sri Lanka. The prospects of vertical integration can flourish trade even between the countries that lacks strong complementarities. According to Yeats (1998), production sharing arrangements have contributed to a high level of intra-industry trade within various regional trading blocs. Such a mechanism would allow trading partners to specialize in varying production processes within a specific industry, thus achieving the advantages of specialization and economies of scale.

Trade Specialization Index (TSI)

TSI measures the pattern of trade between two countries. The index varies between +1 and -1; a value closer to +1 signifies Pakistan's comparative

advantage and a value closer to -1 implies comparative advantage of the trading partner i.e. Sri Lanka. Pakistan has exhibited comparative advantage in cotton, cereals, arms and ammunition, beverages, spirits and vinegar, inorganic chemicals and precious metals, vehicles, ores, slag and ash, lac, gums, resins, vegetable saps and extracts, footwear, gaiters and the like, and Miscellaneous articles of base metal.

Similarly, Sri Lanka enjoys comparative advantage in organic chemicals, musical instruments and parts and accessories, vegetable plaiting materials and vegetable products, vegetable textile fibers, paper yarn and woven fabric, manufactures of plaiting material, basketwork, pulp of wood, fibrous cellulosic material, waste etc, bird skin, feathers, artificial flowers, human hair, rubber and rubber articles, wood and articles of wood, wood charcoal and albuminoids, modified starches, glues and enzymes.

Table 52 reports the trade specialization indices of Pakistan computed at HS2 commodity classification and the change that occurred between 2003 and 2007. Most of the top products stood their ground over a period of time while maintaining specialization in the fields of cotton, cereals, arms and ammunition, beverages, spirits and vinegar, vehicles, lac, gums, resins, vegetable saps and extracts, footwear, articles of base metal, articles of leather, mineral fuels, oils, distillation products, pearls, precious stones, metals, tobacco and manufactured tobacco substitutes, zinc, copper, fish, crustaceans, mollusks and other aquatic invertebrates, knitted or crocheted fabric, edible vegetables and certain roots and tubers, articles of iron or steel, pharmaceutical products, vegetable, fruit, nuts, food preparations, articles of apparel, accessories, not knit or crochet, toys, games, sports requisites and sugars and sugar confectionery. This group of products holding ground

before and after the PSFTA oscillates in a very narrow range while the rest of commodities either gained or lost their positions.

Table 53 show products in which Pakistan substantially gained including iron and steel, live tress plants, bulbs, aluminum articles, vegetable plaiting materials, salt, sulphur, earth, lime and cement, manmade staple fibers, optical and photo, mechanical apparatus, impregnated and laminated textile fabrics, inorganic chemicals, precious metal compound and glass and glassware. Table 54 shows the list of products in which Pakistan lost specialization over the same period' that includes albuminoids, modified starches, glus and enzymes, cereal, flour, starch and milk preparations, carpets and other textile floor coverings, articles of apparel and accessories.

Regional Revealed Comparative Advantage (RRCA)

Regional Revealed Comparative Advantage identifies those areas between Pakistan and Sri Lanka where expansion in trade could be further explored. Table 55 reports RCA calculated for such products, which suggest that Pakistani exports following strong RCAs are mainly concentrated in the textiles, clothing, and electrical equipments consisting of sound recorders, telecommunication equipments, and nuclear reactors, boilers and mechanical appliances and to a lesser degree in usually expected value added products. At the HS-2 level Pakistan's RCA reduces in base metals, machinery, mechanical and electrical appliances, optical and cinematographic apparatus, travel goods etc., thus revealing that Pakistan's export potential in these particular areas is low due to the lack of comparative advantage as compared to other regional economies.

We have used RCA to find out the products with static comparative advantages of both countries in the bilateral trade. On the basis of results obtained from RCA, we can say that whether Sri Lanka's products whose static comparative advantage in relation to Pakistan's products is declining i.e. when Pakistani products enjoy dynamic comparative advantage over Sri Lanka. Similarly, we can also say that the Pakistani products whose static comparative advantages in relation to Sri Lanka are diminishing i.e. when Sri Lankan products enjoy dynamic comparative advantage over Pakistani products. An RCA index with value greater than 1 indicates a comparative advantage in the sector, while a value less than 1 indicates a comparative disadvantage.

Almost all top Pakistani products at the HS-2 level, having higher RRCA with Sri Lanka in terms of trade volume enjoy static comparative advantage. This is illustrated in Table 56 that shows a comparatively decreasing trend in the value of indices over a period of time. Highest comparative advantage that might also be called static advantage lies in the field of electrical machinery and parts containing recorders etc. Out of the 1000 products calculated at HS-4 level for RRCA, almost half of them enjoy static comparative advantage whereas the dynamic comparative advantage of Pakistan over Sri Lanka as shown in Table 56, is possessed by few products mainly in sugar, confectionaries, pharmaceutical, spices and some vegetables products.

Pakistani Sectors Enjoying Export Potential Overall Sri Lanka

The Pakistani products with static comparative advantage (in year 2007) over Sri Lanka are following (Table 58):

- Agricultural products – Meat; fish; dairy produce; vegetables; cereals; lac and gums, milling industry products; sugar and sugar confectionaries; fruits; tobacco;
- Mineral products - ores; salt; sulphur; stone;
- Chemicals - Pharmaceutical products; organic/inorganic compounds of precious metals; plastic and plastic products; photographic goods;
- Leather products - Raw hides and skins, leather; leather products, handbags;
- Textiles - Cotton yarn & fabrics; Knitted fabrics; textile made-ups; clothing accessories; hand-made fabrics; special yarns & ropes;

Pakistani products with dynamic comparative advantages over Sri Lanka include (

Table 59):

- Agricultural products - vegetables; fruits; seeds; sugar; animal fat; flour; starch; cocoa and cocoa preparations;
- Mineral products - ores;
- Chemicals – Salt; Sulphur; stone; Pharmaceutical products; oils and perfumery; cosmetic or toilet preparations; starch; glue; enzymes; plastic and plastic products;
- Leather Products – Raw hides and skins;
- Wood and wood products; wood charcoal; printed books etc;

- Textiles – textile made-ups; clothing accessories; hand-made filaments; special woven fabrics; articles of apparel and clothing accessories;

Sri Lankan Sectors Enjoying Export Potential Over Pakistan

Sri Lankan products with static comparative advantages over Pakistan include (Table 60):

- Agricultural products – meat; dairy products; products of animal origin; coffee; tea; vegetables; preparations of meat or fish; preparations of vegetables or fruits; miscellaneous edible preparations;
- Chemicals – mineral fuels; organic chemicals; miscellaneous chemical products; oils and perfumery; cosmetic or toilet preparations; starch; glue and enzymes; dyes and dyeing extracts; soap; rubber and rubber articles;
- Wood and wood products; wood charcoal;
- Pulp of wood; Paper, paperboard and articles thereof;
- Textiles - carpets and other textile flooring; vegetable textile fiber;
- Mineral Products – ceramic products; lead and lead articles; aluminum; iron and steel;
- Miscellaneous products - musical instruments, parts & accessories; miscellaneous manufactured articles; furniture,

The products of Sri Lanka with dynamic comparative advantages over Pakistan include (Table 61):

- Agricultural products – coffee; tea; mate spices; live trees and other plants; vegetable plaiting materials; residue from food industry;
- Chemicals - miscellaneous chemical products; organic chemicals; dyes and dyeing extracts; soaps and waxes;
- Wood and wood products; wood charcoal;
- Pulp of wood; Paper, paperboard and articles thereof;
- Textiles - carpets and other textile flooring; vegetable textile fiber;
- Mineral Products – ceramic products; lead and lead articles; aluminum; iron and steel;
- Miscellaneous products - musical instruments, parts & accessories; miscellaneous manufactured articles; furniture

One of the possible implications of this FTA may be when the raw materials are sourced from Pakistan the domestic value addition percentage is at a very lower level. This will enable manufacturers to source raw materials into Sri Lanka from Pakistan on a duty free basis and export manufactured products to Pakistan under duty free/duty concessions offered under the Agreement.

In view of the above it can be seen that Pakistan has superiority in most of the products over Sri Lanka. This advantage that Pakistan is having is due to various reasons as Pakistan has more productive resources (larger economies of scale) and enjoys greater technology orientation. However the analysis based on the indices above exhibits that Pakistan still has more capacity to move towards attaining absolute advantage.

VIII. Survey Results

A detailed perception survey was carried out which included exporting and importing sectors such as textiles, clothing, leather, food, beverages etc. The stakeholder perceptions were sequenced in three different questionnaires designed for: a) exports, b) imports, and c) trade organizations. We now look at the sector-specific responses below.

Exporters

Most of the exporting firms interviewed were also producers and employed over 1500 employees with at least 5 percent of their total exports destined for Sri Lanka, for at least 5 years including the pre and post FTA period. While most firms reported some level of familiarity with Pakistan and vindicated its importance for their future business – Sri Lanka FTA, they however complained about the lack lustre role of TDAP in creating awareness about the FTA. One of the main reasons cited for non – utilization of this FTA opportunity was the difficulty in obtaining certificate of origin and no substantial help provided by the governmental trade bodies in solving this issue. The average time taken for exporters for each stage that included: obtaining export codes, acquiring and revalidation of licences, processing of shipping bills, obtaining various refunds, customs clearances, and final dispatch of export consignment, was around 10 days which is higher in comparison to competitor economies such as China and East Asia.

The exporters in yarn and fabric reported that many Sri Lankan importers place their orders with local bank guarantees which are difficult to obtain in Sri Lanka. This in turn forces the exporters not to take the risk and enter into the transaction. Several occasions were reported where Sri Lankan importers

have yet to honour the accounts payable since the past 6 months (after the delivery of consignment). The fabric sector reported an average of 0.3 percent increase in export receipts in the post – FTA period. There is a need to increase coordination between; a) trade associations of Sri Lanka and Pakistan, and b) governmental trade bodies of the two countries.

This sector also expects rising competition from China and India in future for which increased government support is required in the form explained below in detail. The enterprises dealing in grey fabric had already requested to coordinate and arrange from the Sri Lankan counterpart the contact details of interested importers (post FTA), however no action was taken. Further negotiation is also required on the part of TDAP in order to reduce the excessively high fees charged by Sri Lanka. The role of commercial councillors was also stressed upon.

The spinning and weaving enterprises interviewed had an average of 7 to 8 percent exports to Sri Lanka before the signing of FTA which has now decreased to 6 percent. This according to the respondents is due to a host of factors including an FTA which Sri Lanka has signed with India. The domestic regulatory requirements in Sri Lanka were termed complicated which ultimately act as non tariff barriers. Increased effort is required on part of Sri Lankan government trade bodies in order to create awareness about FTA with Pakistan and to help in illuminating domestic importers regarding the superiority of Pakistan's weaving industry over other regional competitors. The sea freight companies have long been overcharging. There is also a need to increase the frequency of sea vessels.

The enterprises dealing in leather were found very familiar with the terms and conditions laid out in the PSFTA. Those interviewed had an average 13.5 percent of their total exports destined to Sri Lanka and most of them had branches abroad. However no changes were reported in the share of exports in the pre and post FTA period. It was asked that Government should initiate its trade related diplomatic efforts with Sri Lanka in order to ease the strictness observed regarding the acquiring of Certificate of Origin. It was further emphasized that even errors related to punctuation cost greatly in the form of Sri Lanka charging penalties.

The enterprises falling in the category of food, beverages and tobacco reported an average 13 percent increase in their share of exports to Sri Lanka after the FTA. Apart from the concessions allowed under the immediate concession list of Sri Lanka the increase in food exports are also attributed to increased per capita incomes in the country and a projected rise in demand for future. This industry has however been facing increasing domestic costs owing to a general rise in container and handling charges in Pakistan. The items perishable in nature are required to be on the shelf with in a stipulated time period decided upon at the time of placement of import order. Any transportation related delay costs dearly not only to the importer but also to the exporter in Pakistan who fails to comply by the food packaging and handling requirements.

The iron, steel, and metal product enterprises reported no change in their share of exports to Sri Lanka after FTA. This sector asked for a more aggressive effort on part of TDAP particularly as far as execution of initiatives such as exhibitions is concerned. This sector was also due to gain from liberalization under SAFTA which however did not materialize in the manner

in which it was earlier envisaged. There are prospects for regional vertical integration in this sector which have yet to materialize. The respondents felt that there is a need to lessen the burden of documentation on this sector. The various data clearance and supportive text materials required at the ports, airports, border crossing points and other official clearances inside Sri Lanka increase the costs to exporters.

The chemical and chemical products sector has been included in the immediate concession list of Sri Lanka. The respondents from this sector particularly those dealing in Benzene and Toluene reported no increase in the share of exports to Sri Lanka in the post FTA milieu. The main reasons for this sector in not utilizing the provision provided under the FTA include: a) Sri Lanka being a very small market, and b) difficulty in obtaining certificate of origin. Like the food and beverages sector this sector has special container and packaging requirements which in Pakistan are faced with rising costs and declining infrastructure. FBR had previously been charging excess duty from this sector and it was decided in legal decree that FBR will refund the excess amount. However it took almost two years for the FBR to execute these court orders which cost the producers and traders in this sector dearly.

On the production side exporters were concerned about the rising input costs, excessively regulated markets and lack of standard information and information about changes in rules. In the textile sector, respondents who are producers as well as exporters reported closure of production units and factories due to the above mentioned issues. Major problems were also reported in case of moving freight with in Pakistan. The costs of railways and road transport were termed high in comparison to regional countries including India and Sri Lanka.

The occasions that included container vehicles were also termed risky in terms of the timely delivery of consignments. In sea transportation, with only one gate at port Qasim, perishable items are often vulnerable for not meeting the quality standards desired by the importers particularly when under this FTA there is a limit of 40 containers only. The KPT electronic care system has also been termed frustratingly slow. Rice stands exempted from customs care system, and it was felt by the respondents that other perishable items in the food category should also be exempted with a view to improve the shipment time of consignment and avoid unnecessary delays.

In order to avoid the incidence of above mentioned costs, the small and medium enterprises in the textile sector tried to enter in joint ventures with foreign firms that included investors from Dubai, China, Bangladesh etc. This was also accompanied by a drive towards mergers in order to achieve some financial consolidation. However the prospects of joint ventures dried out in the wake of global financial crisis and there were no investment guarantees provided by the Government that could have reduced the risk factors and saved the future export prospects. Several exporters also reported financial loss due to non repayment of accounts receivables amid the liquidity crunch faced by foreign buyers.

Importers

Most of the importers interviewed while expressing a fair level of familiarity with the terms and conditions of this FTA stressed upon the need to create increased awareness about this FTA and observed that it will lead to increased trade volumes in future. They however stressed on the need to lessen the time required for filing of documentation and related paper work.

The average time taken for each stage including: obtaining import codes, licences, processing of shipping bills, obtaining refunds, and customs clearances, comes to around 3 weeks.

The Pakistani importers in the food and beverages sector reported a 2 percent decrease in imports from Sri Lanka in the post – FTA period. The respondents felt that tariff preference in FTA is too small. Transport firms in Sri Lanka are still not properly equipped due to which occurrences of mishandling are common from warehouses to ports. The climate conditions of Sri Lanka also have a role to play in the decrease in imports. The transport firms do not properly safeguard food items against humidity which ultimately reduces the shelf life of consignments. One of the respondents reported a recent loss of 3 containers in which Rs. 4 million worth of consignment was lost due to moist copra. The efficiency of FTA is also lost to some extent when smuggling goes unchecked. It is has been reported that copra is being smuggled from India through Kashmir border. While it is being imported from Sri Lanka at Rs 3600 per 40 kilograms, the smuggled copra from India finds entry at Rs 2800 per 40 kilograms (without custom duty).

There is an increased need for prior inspection and specimen validity at Sri Lankan ports and there should be a third party supported by Government in order to help, support and facilitate all along the completion of transaction. On the domestic front respondents from palm oil sector asked for increased interaction and coordination between trade bodies, ministry of commerce and importers in order to address the grievances of importers in this sector.

The rubber and plastics product sector reported an increase of 10 percent in imports in the post – FTA period, however still asked for removal of certain items of this sector from the negative list. Many non – registered entities are involved in the import operations of this sector. There is an immediate need to only allow registered importers to operate and enjoy preferences under the FTA.

In the electrical and electronic equipment sector, importers reported an average of around 5 percent increase in their imports from Sri Lanka since 2005. The respondent informed that although the number of documents has been decreased, there still exit complex filing requirement in the remaining documents. There is a need for increased simplification on part of both Sri Lanka and Pakistan. Increased trade diplomacy may also be required to decrease the items in negative list. For example in case of electrical imports while sockets are covered under FTA's immediate concession list, switches are not. Given that both these items are complimentary goods in many cases, there is ultimately very little decrease in preferences. The language used in FTA has been termed difficult in many cases and that Government should make an effort to increase awareness about the provisions for this sector under the FTA.

The chemical and chemical products sector reported an average increase of 15 percent since the signing of FTA with Sri Lanka. However in this sector the freight forwarding companies are not as efficient as desired. The movement of several chemical products requires complete insurance against physical risks. However the documentation related to insurance is difficult to understand and complex to comply with. At times when urgent orders cannot be entertained through sea transport due to the low frequency of vessels and

therefore expensive means such as air transport are used which ultimately add to the overall product cost thus making it unattractive for the importer. There is also a need for improved customs facilitation, pre and post delivery checks at the port and at the same time facilitating better storage facilities at the port.

The rubber and plastics product sector reported an average increase of 5 percent in the post – FTA regime. The sector is however charged a comparatively high sales tax rate at the import stage. Currently there is a no sales tax on this sector's imports in Malaysia, Indonesia and Vietnam which therefore become more lucrative business destinations for Sri Lankan exporters. Instances were also reported where due to low levels of checks and balances, substandard rubber was exported by Sri Lanka in violation of the consignment orders. In this regard it was suggested that trade offices aboard should play an instrumental role in registering protests with local trade bodies. Similar reservations were observed from respondents from tyre, tube, and bicycle traders who reported no change in their import volume in the pre and post FTA period.

Trade Organizations

The various trade bodies / offices interviewed in Pakistan included: TDAP, Karachi Chamber of Commerce and Industry, Lahore Chamber of Commerce and Industry, Pakistan Commodities Importers and Traders Association and Counsel General of Sri Lanka. The FTA was perceived as a success for Pakistan as its exports to Sri Lanka increased. It is felt that Sri Lanka is an emerging market and Pakistani exporters must explore further possibilities to increase their market share. While trade counselling and facilitation is underway from both sides, there is however an increased need to improve the

dispute settlement mechanism for which both Governments are also required to increase coordination of their relevant trade organizations. The arbitration process remains slow and related fees are high.

The role of advocacy within the private sector cannot be ignored. The various trade associations need to arrange awareness programmes tailored according to their own needs for their members. The Government may in this regards play a supportive role. The FTA in its present form was termed "not aggressive" and there remains a need for both sides to come closer and further relax the terms in the agreement.

The chambers of commerce and industry reported that there still remains a need to reconsider the tariff lines under this FTA. There is a need to increase the tariff lines for Pakistan which will require some future renegotiation. Government should set up a facilitation bureau with regards to the operations under regional agreements. The chambers were not brought on board for any consultative session during the days leading up to the final negotiation of this FTA. In future the negotiation team sent by the Government should include representatives from the private sector (producers, exporters, and traders).

The state carrier PIA does not operate regular flights to Sri Lanka in all seasons. Pakistan embassy in Sri Lanka is not perceived receptive to the needs of Pakistani exporters and importers. All associations should be brought on the platform for the ex ante evaluation of future FTAs. These associations should be teamed with exporters and importers. Issues of medium to long term visa issuance needs to be addressed by the foreign office on both sides.

Finally the private sector demands increased involvement in framing and accessing the rules and regulations of public sector trade institutions.

From the Sri Lankan side the FTA has been termed a general success however there were some complaints on account of Pakistan not fulfilling its obligations in certain spheres. For example it was reported that coconut oil is still placed on the negative list where as Pakistan had agreed to provide concession. There has also been a delay in the agreed upon duty phase out (of 2007) on surgical gloves, soya meat, and chip board. There is an immediate desire that Pakistan should address all NTBs at the same time create a general awareness about this FTA.

IX. Comparative Static Analysis

a. Results from Global CGE Model

The results from the global CGE model are exhibited in Table 62, where a static general equilibrium framework shows the changes in macroeconomic variables under full trade liberalization between Pakistan and Sri Lanka. This in our simulation implies slashing the tariff rate by 95 percent. The results indicate that the real GDP increases for Pakistan by 0.054 percent however decreases for Sri Lanka by -0.001 percent. While the volume and value of imports and exports increase for both countries, the terms of trade deteriorate for Sri Lanka by 0.013 percent. Similarly household consumption for Pakistan increases by 0.058 percent but decreases for Sri Lanka by 0.011 percent. The investment levels in Pakistan and Sri Lanka increase by 0.012 and 0.036 percent respectively.

The overall incidence of macroeconomic results translates in to greater welfare and allocative efficiency gains for both countries (Table 63). The welfare (as measured by equivalent variation) increases for Pakistan ($10.8 million) and Sri Lanka ($8.6 million) but decreases for the rest of the world (that does not enjoy the preferences allowed under this FTA) by $4.7 million. The allocative efficiency not only increases for Pakistan ($2.6 million) and Sri Lanka ($8.74 million), but also for the rest of the world ($3.3 million). This scenario in general explains that full liberalization of trade between the two countries will lead to welfare and efficiency gains however may lead to some decline in the output registered in Sri Lankan economy.

Keeping the above results in perspective we now see a second simulation where only partial liberalization is allowed i.e. cutting all tariffs by 50 percent. In this case the real GDP increases for both Pakistan (0.027 percent) and Sri Lanka (0.004 percent). Under this scenario the decline in household consumption for Sri Lanka is lesser (-0.001 percent) however the increase is investment for Sri Lanka is greater than Pakistan i.e. 0.02 percent compared to 0.006 percent (Table 64). As seen in the previous simulation welfare and allocative efficiency increase for both countries. The rest of the world has a declining welfare, terms of trade and investment (Table 65).

Finally in Table 66 we see the sector-wise impact of full trade liberalization between two countries on the export levels. The sectors in which Sri Lanka gains in terms of increased export value include: vegetables and fruits, grain crops, animal products, cattle, livestock, food, textile, wood, metal products, chemical, rubber, plastics, mineral and mineral products. The sectors in which Sri Lanka loses include: paper products, manufacturing, mining and extraction.

Pakistan although has some similarities to Sri Lankan portfolio of exports but the cost structures and underlying determinants of competitiveness certainly differ. The exporting sectors in which Pakistan gains include: heavy manufacturing, chemicals, rubber, plastics, textiles and clothing, wood, paper, food products, beverages, mining and extraction, animal products, grain crops, vegetables and fruits. The sectors in which Pakistan shows a loss include: cattle, livestock, processed food, metal products, and mineral products.

It is important to note that under our CGE simulations we have introduced across the board cuts in tariffs. This analysis has the limitation of not taking in to account the impact of negative lists which we try to address in the next section where we use a partial equilibrium model.

b. Trade Creation under PSFTA

Using the WITS – SMART model we calculate the partial equilibrium estimates for trade creation under PSFTA. An FTA is termed welfare enhancing if its net effect (i.e. after taking in to account any trade diversion) results in trade creation[70]. Table 67 shows the potential changes in country – specific exports (based on 2004 data i.e. pre – FTA data) due to concessions given by Pakistan to Sri Lanka. These gains are only in HS codes put on the concession list by Pakistan. The highest gains are seen for Canada followed by South Africa. In case of Sri Lanka there is an increase in exports of 8.8 percent. Countries that lose their exports include Bangladesh (-3.7 percent), Malaysia (-

[70] In case two low-cost producers of a tradable good enter in to a FTA, there will be no trade diversion effect. See Raihan (2008).

1.7 percent), Vietnam (-1.1 percent) and Slovenia (-5.6 percent). Sri Lanka's exports in the HS codes allowed under the concessions list were 28.5 million before the FTA which potentially rise to 31 million after 100 percent phasing out envisaged in the agreement.

The commodity-specific increase in imports by Pakistan is given in Table 68. There is a 3.2 percent increase in the imports of items allowed in the concession list. There is however a 20 percent loss to the government in the form of tariff revenue which declines by $4.6 million. There is a positive incidence of lower tariffs and increased imports on the welfare as measured by consumer surplus which in turn rises by $0.6 million. The highest gains are seen for copra, meat preparations, organic surface – active agents, rubber thread, twine, fabrics (knitted or crocheted), lighting equipment, lamps and sealed beam units. The total trade effect is given in Table 69 which indicates an average decline of -20.4 percent in the overall weighted tariff rate by Pakistan on Sri Lankan goods. The concessions given by Pakistan under this FTA led to a trade creation amounting to $6 million (Table 73). Interested readers are welcome to request for the country-specific and commodity-wise results on trade diversion and creation.

The changes in exports as a result of concessions provided by Sri Lanka are calculated in

Table 70. Pakistan's exports under the allowed HS-codes increase by 24.3 percent. The countries that face a decline include: Australia (82.3 percent), China (42 percent), India (90 percent), UAE (71 percent), Turkey (23.5 percent), USA (27.5 percent) and South Africa (12 percent).

Sri Lankan imports under the specified HS codes increase by 0.7 percent and the loss of tariff revenue amounts to $0.6 million. Due to a very large negative list still in place from the Sri Lankan side the consumer surplus (welfare) as a result of FTA only amounts to $0.06 million (Table 71). The highest gains are seen for oranges, juices, seeds, spices, mandarins, apples, chickpeas, and sanitary ware. The total trade effect as a result of Sri Lanka's decrease in tariffs amounts to $0.4 million with weighted tariff rate declining from 13.7 percent to 11.3 percent (Table 72). The trade creation effect is much lower as compared to Pakistan's case. The combined potential trade creation effect of this FTA amounts to $6.4 million.

X. Conclusion

There has been an increase in bilateral trade between Sri Lanka and Pakistan in the post – FTA milieu. Today Pakistan is the second largest trading partner of Sri Lanka amongst South Asian economies. There have been some concerns about the negative trade balance for Sri Lanka however the lower prices have resulted in an increase in welfare for both countries. The negative trade balance for Sri Lanka can also be justified on the account that a significant proportion of Sri Lankan imports from Pakistan constitute raw material and related intermediate inputs that in turn lead to efficiency gains. Most noticeable are the over 30 percent imports from Pakistan, currently being used as raw material in Sri Lankan apparel sector. This industry making use of cheaper imports from Pakistan, in turn exports apparel to destinations that include US and EU.

Some concerns have also been raised from Pakistan side asking for a revision of export quotas of agriculture products from Pakistan. Currently Sri Lanka is importing apples, apricots, dates and other fruits at much higher prices from destinations such as US and Middle East.

Both countries have also been slow to find out markets for non-traditional exports even after the concessions provided under the FTA. This points out to the productive capacity of developing countries who find it challenging to purse a policy of product diversification due to their own domestic structural constraints faced by the commodity producing sectors. Sri Lanka for example, continues to export primary commodities having nominal value added content in the post – FTA period. There is also an opportunity to regain lost markets. Sri Lankan tea is an example of how competitive advantages are lost over time. Around the signing of this FTA Sri Lanka's share in Pakistan's import of tea had fallen to around 3 percent compared to over 65 percent in early 1970s. However this will require efforts beyond the availing of concessions and moving pro-actively towards integrated supply chain systems.

Pakistan still has potential to fill in the demand in Sri Lanka particularly in sectors such as textile, leather, sports goods, surgical instruments, pharmaceuticals, iron, steel, kitchenware, and cutlery. There is a need to evaluate how Sri Lanka may be used as a lead destination to penetrate the Indian markets. Pakistani manufacturers may need to study the feasibility of having branched – out units in Sri Lanka in order to benefit from the India – Sri Lanka bilateral FTA.

After the full implementation of FTA and keeping in view the success achieved, both countries now need to move quickly towards a comprehensive economic partnership as there still exists further potential for cooperation in areas such as education, technology, tourism, and science. While Pakistan is at the cross-roads of key regional axis with close geographical proximity to Central Asian states, Sri Lanka enjoys duty free access in EU and India. While the trade balance is at this time in favour of Pakistan given the natural

comparative advantages, Sri Lanka can gain further by promoting the FTA more at the national and local levels.

XI. References

ADB. (2009). *Aid for Trade in the Asia and the Pacific: An Update.* Manila: Asian Development Bank.

ADB. (2008). *How to Design, Negotiate, and Implement a Free Trade Agreement in Asia.* Manila: Asian Development Bank.

ADB. (2008). *Quantification of Benefits from Economic Cooperation in South Asia.* Manila: Asian Development Bank.

Alston, J. M., Balagtas, J. V., Brunke, H., & Sumner, D. A. (2006). Supply and demand for commodity components: implications of free trade versus the AUSFTA for the US dairy industry. *The Australian Journal of Agricultural and Resource Economics , 50*, 131-152.

Agosin, M. (1991). Trade Policy Reform and Economic Performance: a Review of the Issues and Some Preliminary Evidence, UNCTAD Discussion Papers, No. 41 (Geneva, UNCTAD).

Anderson, J. E., and E. van Wincoop, 2004, "Trade Costs," Journal of Economic Literature,Vol. 42, No. 3, pp. 691–751

Aparna Sawhney: Associate Professor, Jawaharlal Nehru University, New Delhi, India;

Armington, P., 1969, "A Theory of Demand for Products by Place of Production," Staff Papers, International Monetary Fund, Vol. 16, No. 1, pp. 170–201.

Baier, S. L., and J. H. Bergstrand, 2005, "Do Free Trade Agreements Actually Increase Member's International Trade," Federal Reserve Bank of Atlanta Working Paper 2005–3.

Baldwin, R., 1994, Towards an integrated Europe, Centre for Economic Policy Research, London.

Bandara, J. S., and W. Yu, 2003, "How Desirable is the South Asian Free Trade Area? A Quantitative Assessment," World Economy, Vol. 26, No. 9, pp. 1293–1323.

Baysan, T., A. Panagariya, and N. Pitigala, 2006, "Preferential Trading in South Asia," World Bank Policy Research Working Paper No. 3813 (Washington: World Bank).

Bhagwati, J., and A. Panagariya, 1996, "The Theory of Preferential Trade Agreements: Historical Evolution and Current Trends," American Economic

Review, Vol. 86, No. 2, pp. 82–87.
Baldwin, R., 1994, Towards an integrated Europe, Centre for Economic Policy Research,
London.
Banik, N., B. Biswas and P. Saunders (2006). "An optimum currency area in South Asia: is it plausible?", Journal of World Trade, vol. 40, pp. 387-405.
Banik, N. (2001). "An analysis of India's exports during the nineties", Economic and Political Weekly, 3 November, pp. 4222-4230.
Buckley, P. J., Clegg, J., Forsans, N., & Reilly, K. T. (2007). A Simple and Flexible Dynamic approach to foreign investment growth: The Canada - United States relationship in the context of free trade. *The World Economy* .
Calvo-Pardo, H., Freund, C., & Ornelas, E. (2009). *The ASEAN Free Trade Agreement: Impact on Trade Flows and External Trade Barriers.* World Bank.
Chuang, C. (1998). "Learning by doing, the technology gap, and growth", International Economic Review, vol. 39, pp. 697-721.
Chaturvedi, S., 2007. "Trade facilitation measures in South Asian FTAs: An overview of initiatives and policy approaches", pp. 83-115, Chapter III in ESCAP, *Trade facilitation beyond the multilateral trade negotiations: Regional practices, customs valuation and other emerging issues – A study by the Asia-Pacific Research and Training Network on Trade*, (United Nations, New York)
Chase, K. A. (2003). Economic Interests and Regional Trading Agreements: The Case of NAFTA. *International Organization , Winter* (57), 137 - 174.
DeRosa, & Govindan, K. (1996). Agriculture, trade, and regionalism in South Asia. *Journal of Asian economics , 7* (2), 293-315.
Daniel, J., 2007, "SAFTA: Living in a World of RegionalTrade Agreements IMF Working Paper No. 07/23(Washington: IMF)
Eichengreen, B., and D. Irwin., 1998, The role of history in bilateral trade flows, In
Jeffery Frankel ed: Regionalization of the World Economy, University of Chicago Press,
Chicago, 33-64.
Feenstra, R., 1998, Integration of trade and disintegration of production in the global
economy, Journal of Economic Perspectives 12(1), 31-50.
Feridhanusetyawan, T., 2005, "Preferential Trade Agreements in the Asia-Pacific Region," IMF Working Paper No. 05/149 (Washington: IMF)
Francois, J., & Manchin, M. (2007). *Institutions, Infrastructure, and Trade.* Institute for international and development economics.
Ghani, E. and M. Din. (2006). Regional Trade Integration in South Asia: Rationale, Impediment and the Way Forward, ARTNeT Policy Brief No. 7, July, available at <www.unescap.org/tid/artnet/pub/polbrief7.pdf >.
Gilbert, J., R. Scollay, and B. Bora, 2001, "Assessing Regional Trading Arrangements in the Asia-Pacific," United Nations Conference on Trade and

Development, Policy Issues in International Trade and Commodities, Study Series No. 15.
Greenway, D., 2000, Multilateralism, Minilateralism and Trade Expansion, in D. Das (ed.) Asian Exports.
Girma, S., Kneller, R., & Pisu, M. (2008). Trade Creation, Replacement, and Destruction inRegional Trade Agreements: Micro-level Evidence for the UK. *Review of International Economics , 16* (1), 142-158.
Govindan, K. (1994). *A South Asian preferential trading agreement: Implications for agricultural trade and economic welfare.* Robert Mc Namara Fellowship. Washington, D.C.: World Bank.
Hertel, T., McDougall, R., & Walmsley, T. (2007). *GTAP Model Version 6.2a.* Purdue: Global Trade Analysis Project.
Hoekman, B., & Schiff, M. (2002). Benefiting from Regional Integration. In B. Hoekman, A. Mattoo, & P. English (Eds.). The World Bank.
Hassan, M.K., 2001, Is SAARC a viable economic block? Evidence from gravity model, Journal of Asian Economics 12, 263-290.
Helpman, E. and P. Krugman (1985). Increasing Returns, Imperfect Competition, and International Trade (Cambridge, MIT Press).
Hirantha, S.W. 2003, Regional economic integration: South Asia, Mimeo, Department of Economics, Nagoya University, Japan.
Hirantha S.W. 2005, From SAPTA to SAFTA: Gravity Analysis of South Asian Free Trade, Association of International Education, Japan.
Kenen, P. (1969). "The theory of optimum currency areas: an eclectic view" in R. Mundell and A. Swoboda, eds., Monetary Problems of the International Economy (Chicago, University of Chicago Press).
Kemal, A.R., M. Din, K. Abbas and U Qadir, (2002). "A Plan to Strengthen Regional Trade Cooperation in South Asia", in T. N. Srinivasan ed. *Trade, Finance and Investment in South Asia*, Social Science Press, New Delhi: 239-319.
Kemal, A.R., (2005). "SAFTA and Economic Cooperation", web address: http://www.southasianmedia.net/conference/Regional_Conference/safta.htm.
Kohli, U. (1991). Technology Duality and Foreign Trade (Ann Arbor, University of Michigan Press).
Kawai, M., & Wignaraja, G. (2007). *ASEAN+3 or ASEAN+6: Which way forward?* ADB Institute Discussion Paper No. 77, ADB Institute.
Kawai, M., & Wignaraja, G. (2009b). *Asian FTAs: Trends and Challenges.* Asian Development Bank Institute.
Kawai, M., & Wignaraja, G. (2009). The Asian "Noodle Bowl": Is It Serious for Business? *ADBI Working Paper Series* (136).
Kelegama, S., & Mukherji, I. (2007). *India - Sri Lanka Bilateral Free Trade Agreement: Six Years Performance and Beyond.* New Delhi: RIS.
Kumar, N., & Gallagher, K. P. (2007). Relevance of 'Policy Space' for Development: Implications for Multilateral Trade Negotiations. *Research and*

Information System for Developing Countries Discussion Paper. Tufts University (120).
Laurenceson, J. (2003). Economic Integration between China and the ASEAN-5. *ASEAN Economic Bulletin , 20* (2), 103-111.
Masood, A. (2009, December 14). PAK-SRI LANKA FREE TRADE AGREEMENT: A step forward in the right direction. *The News, Pakistan* .
Mastel, G. (2004). The Rise of the Free Trade Agreement. *Challenge , 47* (3), 41–61.
Maur, J.-C. (2008). *Regionalism and Trade Facilitation: A Primer.* Policy Research Working Paper 4464, The World Bank, Development Research Group.
MoC. (2008). *JOINT PROGRAM FOR COMPREHENSIVE ECONOMIC AND TRADE COOPERATION.* Joint study by Minstries of Commerce in China and Pakistan.
Page, S. (2007). *The potential impact of the aid for trade initiative.* United Nations.
Raihan, S. (2008). *SAFTA and Bangladesh Economy: Assessment of Potential Implications.* South Asian Network on Economic Modeling.
Saggi, K. (2006). Preferential Trade Agreements and Multilateral Tariff Cooperation. *International Economic Review , 47* (1), 29 - 57.
Thrasher, R. D., & Gallagher, K. P. (2008). 21st Century Trade Agreements: Implications for Long-Run Development Policy. *The PARDEE Papers, The Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University* (2).
Tsang, V. W.-Y., & Au, K.-F. (2008). Regionalization of textile trade: Evidence from EU, NAFTA, AFTA and SAPTA. *THE INTERNATIONAL TRADE JOURNAL , XXII* (4).
Weerahewa, J. (2009). Impact of Trade Facilitation Measures and Regional Trade Agreements on Food and Agricultural Trade in South Asia. *Working Paper Series. Asia-Pacific Research and Training Network on Trade* (69).
Weerahewa, J., & Meilke, K. (2007). India-China Trade Relationships: Implications for South Asian Countries. *International Agricultural Trade Research Consortium (IATRC) summer meetings.* Beijing.
Weerakoon, D., & Thennakoon, J. (2007). *India-Sri Lanka FTA: Lessons for SAFTA.* CUTS International.
Wilson, J., Mann, C., & Otsuki, T. (2005). *Assessing the Potential Benefit of Trade Facilitation: A global Perspective.* World Bank.
Wilson, J., Mann, C., & Otsuki, T. (2003). Trade facilitation and economic development: A new approach to quantifying the impact. *The World Bank Economic Review , 17*, 367-389.
Winters, L. A. (2009). *Innocent Bystanders - Implications of an EU - India Free Trade Agreement for Excluded Countries.* Commonwealth Secretariat.
WorldBank. (2008). *South Asia: Growth and Regional Integration.* World Bank.

XII. Tables and Figures

Table 27 FTAs by Status (Cumulative)

Year	Proposed[71]	Under Negotiation		Concluded		Total
		Framework agreement signed / under negotiation	Under Negotiation	Signed	Under implementation	
1975	0	0	0	1	0	1
1980	0	0	0	1	1	2
1989	1	0	0	1	3	5
1995	1	0	0	16	14	31
2000	3	0	6	20	25	54
2005	46	18	29	29	50	172
2006	52	18	37	25	63	195
2009	45	16	46	27	82	216

Source: ARIC, ADB

Table 28 FTAs by Scope (cumulative)

Year[72]	Bilateral[73]	Plurilateral[74]
1975	0	1
1980	0	2

[71] As of June 2009.
[72] As of June 2009.
[73] When a preferential trading arrangement involves only two parties.
[74] When a preferential trading arrangement involves more than two parties.

1989	3	2
1995	26	5
2000	46	8
2005	135	37
2006	150	45
2009	166	50

Source: ARIC, ADB

Table 29 Bilateral FTAs by Geographic Area

Bilateral FTAs	**Total**	
	Notified & Not Notified	
	2000	**2009**
Within sub-region		
Central and West Asia	10	17
East Asiaa	0	3
South Asia	0	8
Southeast Asia	1	1
The Pacific	2	2
Across sub-region		
Central and West Asia + South Asia	0	2
East Asia + South Asia	0	4
East Asia + Southeast Asia	0	12
East Asia + The Pacific	0	6
Southeast Asia + South Asia	0	11
Southeast Asia + The Pacific	0	7
The Pacific + South Asia	0	2
With Non-Asian Countries		
Central and West Asia + Non-Asia	9	19
East Asia + Non-Asia	0	24
South Asia + Non-Asia	0	17
Southeast Asia + Non-Asia	3	23
The Pacific + Non-Asia	1	8
Total	**26**	**166**

Source: ARIC, ADB

Table 30 FTA Status by Country, 2009

Country	Under Negotiation			Concluded		Total
	Proposed	Framework Agreement Signed/Under Negotiation	Under Negotiation	Signed	Under Implementation	
Afghanistan	1	0	0	2	1	4
Bangladesh	0	2	1	1	2	6
Bhutan	0	1	0	0	2	3
China	7	2	4	1	9	23
India	11	5	7	1	8	32
Nepal	1	1	0	0	2	4
Pakistan	10	5	3	2	6	26
Sri Lanka	2	1	0	1	4	8
Thailand	6	5	3	1	9	24
Viet Nam	2	1	2	2	4	11

Source: ARIC, ADB

Table 31 Regional Trade in South Asia

Reporter	Partner	Indicator	2002	2003	2004	2005	2006	2007	2008
Bangladesh	South Asia	Export Growth (%)	-30.5	41.9	25.4	63.1	35.4	39.3	40.0
Bangladesh	South Asia	Export Share (%)	0.8	1.0	1.1	1.5	1.5	1.9	2.5
Bangladesh	South Asia	Import Growth (%)	-4.2	30.3	16.4	11.8	6.0	28.5	34.6
Bangladesh	South Asia	Total Trade, in million US$	1203.2	1572.8	1836.9	2095.4	2259.5	2923.3	3949.2
India	South Asia	Export Growth (%)	4.5	48.1	8.1	18.7	8.9	39.6	17.4
India	South Asia	Export Share (%)	4.6	5.6	4.9	4.5	4.0	4.4	4.0
India	South Asia	Import Growth (%)	-16.5	18.1	34.4	42.5	1.7	35.4	19.8
India	South Asia	Total Trade, in million US$	2774.7	3976.3	4435.6	5432.2	5842.4	8115.4	9561.4
Maldives	South	Export	-17.2	11.6	-0.6	10.1	39.7	-26.7	14.2

Reporter	Partner	Indicator	2002	2003	2004	2005	2006	2007	2008
	Asia	Growth (%)							
Maldives	South Asia	Export Share (%)	15.5	13.9	12.7	17.4	14.8	11.5	10.7
Maldives	South Asia	Import Growth (%)	10.7	10.8	19.4	-5.8	-14.7	37.9	14.2
Maldives	South Asia	Total Trade, in million US$	115.5	128.1	149.9	143.6	131.9	166.4	189.9
Nepal	South Asia	Export Growth (%)	1.9	-5.9	22.5	28.7	4.1	-9.6	26.5
Nepal	South Asia	Export Share (%)	60.1	53.8	58.0	67.0	68.3	63.4	67.5
Nepal	South Asia	Import Growth (%)	-5.6	57.0	17.5	14.5	20.2	1.3	14.2
Nepal	South Asia	Total Trade, in million US$	951.0	1262.4	1500.9	1778.2	2049.9	2014.8	2364.5
Pakistan	South Asia	Export Growth (%)	-13.5	49.0	45.1	48.1	-24.1	11.3	24.7
Pakistan	South Asia	Export Share (%)	2.3	2.9	3.7	4.6	3.3	3.2	3.5
Pakistan	South Asia	Import Growth (%)	-23.0	38.7	74.9	29.3	102.7	47.8	13.5
Pakistan	South Asia	Total Trade, in million US$	455.7	655.5	1044.8	1443.7	1997.9	2750.8	3192.2
Sri Lanka	South Asia	Export Growth (%)	71.3	37.7	49.1	30.5	-11.2	8.8	12.4
Sri Lanka	South Asia	Export Share (%)	4.9	6.1	8.1	9.6	7.9	7.6	7.6
Sri Lanka	South Asia	Import Growth (%)	35.8	27.3	32.8	27.2	18.2	19.6	14.2
Sri Lanka	South Asia	Total Trade, in million US$	1094.8	1417.8	1933.9	2475.4	2745.9	3225.7	3672.3

Source: ARIC, IMF

Table 32 Trade between India and Sri Lanka

Reporter	Partner	Indicator	2002	2003	2004	2005	2006	2007	2008
India	Sri Lanka	Export Growth (%)	55.2	43.7	10.3	39.2	17.4	22.1	14.2
India	Sri Lanka	Export Share (%)	1.68	2.00	1.78	1.91	1.82	1.74	1.5
India	Sri Lanka	Import Growth (%)	7.3	98.6	90.7	64.0	-5.8	18.8	14.2
India	Sri Lanka	Import Share (%)	0.14	0.23	0.32	0.38	0.28	0.25	0.22
India	Sri Lanka	Total Trade Growth (%)	49.1	48.7	20.1	44.0	12.3	21.5	14.2
India	Sri Lanka	Total Trade, in million US$	933.4	1388.4	1667.0	2399.7	2695.3	3273.8	3737.5
India	Sri Lanka	Trade Share (%)	0.85	1.03	0.95	1.01	0.91	0.84	0.7

Source: ARIC, IMF

Table 33 Major Destinations for Pakistani Exports (2008)

Country	Share (%)
U.S.A.	19.5
United Arab Emirates	10.9
Afghanistan	6.0
United Kingdom	5.4
Germany	4.3
Italy	3.8
China	3.6
Sri Lanka	1.1
Others	45.4
Total	100.0

Table 34 Major Destinations for Sri Lanka Exports (2008)

Country	Share (%)
U.S.A	28.8
United Kingdom	14.3
Germany	6.4
India	5.8
Belgium	5.8
Italy	5.1
France	3.5

Russian Federation	3.4
Japan	2.7
Pakistan	0.8
Others	23.4
Total	100.0

Table 35 Exports of Pakistan

Year	To World (USD Million)	To Sri Lanka (USD Million)	% of Sri Lanka in Overall Exports
2003	11,145	75.97	0.7
2004	12,310	97.79	0.8
2005	14,383	155.93	1.1
2006	16,446	159.15	1.0
2007	16,971	200.6	1.2
2008	19,131	214.45	1.1
Total 2003-08	90,386	904	1.0

Source: COMTRADE

Table 36 Exports of Sri Lanka

Year	World (USD Million)	To Pakistan (USD Million)	% of Pakistan in Overall Exports
2002	4,686.94	28.81	0.61
2003	4,931.54	36.13	0.73
2004	5,573.00	39.22	0.70
2005	6,164.15	43.05	0.70
2006	6,828.57	58.89	0.86
2007	7,675.16	55.47	0.72
2008	8,450	72.241	0.85
Total 2003-08	39,622	305	0.77

Source: COMTRADE

Table 37 Commodity - Wise Bilateral Trade of Pakistan with Sri Lanka – Imports (USD Million)

PRODUCT GROUP	Value 2003	Share (%)	Value 2004	Share (%)	Value 2005	Share (%)	Value 2006	Share (%)	Value 2007	Share (%)	Value 2008	Share (%)
Live animals; animals products	0	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.01%
Vegetable products	24.38	63.84%	28.91	59.77%	25.51	56.97%	35.97	50.49%	35.47	56.02%	28.32	45.99%
Animal or vegetable fats and oils and their products; prepared edible fats; waxes.	0.48	1.27%	0.41	0.84%	0.41	0.91%	0.41	0.58%	0.33	0.53%	0.23	0.37%
Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured	0.02	0.06%	0.02	0.04%	0.02	0.04%	0.29	0.41%	0.11	0.17%	0.15	0.25%
Mineral products	0.25	0.66%	0.32	0.65%	0.28	0.63%	0.36	0.50%	0.47	0.74%	0.8	1.30%
Products of the chemical or allied industries.	0.84	2.20%	1.7	3.52%	1.25	2.80%	1.51	2.12%	0.76	1.19%	0.8	1.31%
Plastics and articles thereof; rubber and articles thereof	8.05	21.08%	12.84	26.55%	10.51	23.48%	19.15	26.88%	21.38	33.76%	24.86	40.38%
Raw hide and skins, leather, furskins; travel goods; Handbags; articles of animal guts	0	0.00%	0.04	0.08%	0	0.00%	0.06	0.08%	0.1	0.16%	0.22	0.36%
Wood and articles of wood; cork and articles of cork; manufactures of straw; basketware and wickerwork	0.38	1.00%	1.4	2.89%	2.66	5.94%	3.22	4.52%	2.17	3.43%	1.61	2.62%
Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper; paper and paperboard	0.45	1.19%	0.5	1.03%	0.48	1.08%	0.42	0.59%	0.52	0.82%	0.45	0.72%
Textiles and textile articles	1.31	3.44%	0.99	2.05%	0.69	1.55%	1.38	1.93%	1.03	1.63%	2.87	4.67%
Footwear, headgear, umbrellas, sticks; prepared feathers and articles made therewith; artificial flowers; articles of	0	0.00%	0.01	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

PRODUCT GROUP	Value 2003	Share (%)	Value 2004	Share (%)	Value 2005	Share (%)	Value 2006	Share (%)	Value 2007	Share (%)	Value 2008	Share (%)
human hair												
Articles of stone, plaster, cement, asbestos, mica, ceramic, glass	0.02	0.06%	0.01	0.02%	0.01	0.03%	0.05	0.07%	0.1	0.15%	0.08	0.13%
Base metals and articles	1.02	2.67%	0.14	0.30%	0.22	0.50%	0.35	0.49%	0.26	0.41%	0.34	0.55%
Machinery and appliances; electrical equipment; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories	0.91	2.38%	0.48	0.99%	0.92	2.05%	0.5	0.71%	0.53	0.84%	0.55	0.89%
Vehicles, aircraft, vessels and transport equipment	0	0.00%	0.2	0.42%	1.74	3.89%	6.84	9.60%	0.01	0.02%	0.05	0.09%
Optical, photographic, cinematographer, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches, musical instruments; parts and accessories	0.02	0.06%	0.36	0.74%	0.05	0.11%	0.06	0.08%	0	0.00%	0.01	0.01%
Miscellaneous manufactured articles	0.03	0.09%	0.05	0.10%	0.01	0.03%	0.65	0.91%	0.08	0.12%	0.23	0.37%

Source: FBS, Pakistan

Table 38 Commodity - Wise Bilateral Trade of Pakistan with Sri Lanka – Exports (USD Million)

PRODUCT GROUP	Value 2003	Share (%)	Value 2004	Share (%)	Value 2005	Share (%)	Value 2006	Share (%)	Value 2007	Share (%)	Value 2008	Share (%)
Live animals; animals products	7.37	9.70%	6.03	6.16%	5.35	3.43%	5.44	3.42%	6.01	2.99%	6.03	2.81%
Vegetable products	13.65	17.97%	11.71	11.97%	30.77	19.73%	12.69	7.97%	22.9	11.42%	42.39	19.77%
Animal or vegetable fats and oils and their products; prepared edible fats; waxes.	0.01	0.01%	0	0.00%	0.01	0.00%	0	0.00%	0	0.00%	0.02	0.01%
Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured	1.16	1.52%	2.51	2.56%	1.62	1.04%	1	0.63%	2.26	1.12%	4.34	2.03%
Mineral products	0.16	0.22%	0.08	0.09%	0.05	0.04%	0.39	0.25%	1.37	0.68%	2.29	1.07%
Products of the chemical or allied industries.	5.79	7.62%	6.55	6.70%	8.06	5.17%	7.7	4.84%	9.26	4.62%	9.3	4.34%
Plastics and articles thereof; rubber and articles thereof	3.25	4.28%	4.13	4.23%	7.7	4.94%	6.8	4.27%	3.01	1.50%	3.08	1.44%
Raw hide and skins, leather, furskins; travel goods; Handbags; articles of animal guts	1.07	1.40%	0.68	0.69%	0.62	0.40%	1.07	0.67%	0.59	0.29%	1.31	0.61%
Wood and articles of wood; cork and articles of cork; manufactures of straw; basketware and wickerwork	0.01	0.02%	0.02	0.03%	0.52	0.33%	0.03	0.02%	0.03	0.02%	0.03	0.01%
Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper; paper	0.01	0.01%	0.03	0.03%	0.1	0.07%	0.07	0.04%	0.07	0.04%	1.75	0.82%

PRODUCT GROUP	Value 2003	Share (%)	Value 2004	Share (%)	Value 2005	Share (%)	Value 2006	Share (%)	Value 2007	Share (%)	Value 2008	Share (%)
and paperboard												
Textiles and textile articles	38.53	50.72%	60.23	61.60%	89.51	57.40%	111.28	69.92%	134.94	67.27%	127.52	59.47%
Footwear, headgear, umbrellas, sticks; prepared feathers and articles made therewith; artificial flowers; articles of human hair	0.28	0.36%	0.13	0.13%	0.54	0.35%	0.75	0.47%	0.47	0.23%	0.16	0.07%
Articles of stone, plaster, cement, asbestos, mica, ceramic, glass	0.16	0.21%	0.18	0.19%	0.17	0.11%	0.18	0.11%	1.07	0.53%	0.81	0.38%
Natural or cultured pearls, stones, metals, jewelry	0.05	0.07%	0.02	0.02%	0	0.00%	0.01	0.01%	0	0.00%	0	0.00%
Base metals and articles	2.1	2.76%	3.58	3.66%	7.25	4.65%	8.4	5.28%	11.47	5.72%	12.21	5.69%
Machinery and appliances; electrical equipment; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories	0.65	0.86%	0.57	0.58%	1.14	0.73%	0.59	0.37%	3.81	1.90%	2.08	0.97%
Vehicles, aircraft, vessels and transport equipment	1.04	1.37%	0.81	0.83%	1.59	1.02%	2.08	1.31%	2.66	1.32%	0.79	0.37%
Optical, photographic, cinematographer, measuring, checking, precision, medical or	0.1	0.13%	0.15	0.15%	0.4	0.26%	0.29	0.18%	0.37	0.18%	0.11	0.05%

PRODUCT GROUP	Value 2003	Share (%)	Value 2004	Share (%)	Value 2005	Share (%)	Value 2006	Share (%)	Value 2007	Share (%)	Value 2008	Share (%)
surgical instruments and apparatus; clocks and watches, musical instruments; parts and accessories												
Arms & ammunition, parts & accessories	0.07	0.09%	0.01	0.01%	0.1	0.07%	0.01	0.01%	0	0.00%	0.06	0.03%
Miscellaneous manufactured articles	0.5	0.66%	0.36	0.37%	0.45	0.29%	0.37	0.23%	0.3	0.15%	0.18	0.09%

Source: FBS, Pakistan

Table 39 Pre and Post FTA Imports of Pakistan from Sri Lanka[75]

Product Group	Pre-FTA Ranking	Post-FTA Ranking
Vegetable products	1	1
Animal or vegetable fats and oils and their products; prepared edible fats; waxes.	7	10
Mineral products	10	6
Products of the chemical or allied industries.	6	5
Plastics and articles thereof; rubber and articles thereof	2	2
Wood and articles of wood; cork and articles of cork; manufactures of straw; basket ware and wickerwork	9	4
Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper; paper and paperboard	8	8
Textiles and textile articles	3	3
Base metals and articles	4	9
Machinery and appliances; electrical equipment; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories	5	7

[75] Based on the percentage share of product group's imports in overall imports from Sri Lanka.

Table 40 Pre and Post FTA Exports of Pakistan to Sri Lanka[76]

Product Group	Pre-FTA Ranking	Post-FTA Ranking
Live animals; animals products	3	5
Vegetable products	2	2
Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured	7	6
Mineral products	8	8
Products of the chemical or allied industries.	4	4
Plastics and articles thereof; rubber and articles thereof	5	7
Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper; paper and paperboard	NIT[77]	10
Textiles and textile articles	1	1
Base metals and articles	6	3
Machinery and appliances; electrical equipment; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories	10	9
Vehicles, aircraft, vessels and transport equipment	9	NIT

Table 41 Pakistan's Overall Trade

Year	Trade Openness[78]	Trade Growth (%)	Total Trade ($ mln.)
2002	29.1	9.0	21122
2003	29.9	18.2	24976
2004	31.6	24.3	31041
2005	37.8	33.6	41465
2006	39.9	22.7	50858

[76] Based on the percentage share of product group's exports in overall exports to Sri Lanka.
[77] Not in top ten.
[78] Openness: total trade as % of GDP, trade growth is the percentage change in the value of total trade (exports plus imports) relative to the previous year, Total trade is the sum of the value of exports and imports.

2007	40.7	15.2	58566
2008	40.6	16.2	68056

Source: IMF Directions of Trade Statistics; IMF World Economic Outlook database

Table 42 Sri Lanka's Overall Trade

Year	Trade Openness	Trade Growth (%)	Total Trade ($ mln.)
2002	62.6	2.4	10700
2003	62.5	10.3	11805
2004	66.6	16.5	13757
2005	62.5	10.8	15247
2006	60.6	12.4	17136
2007	58.9	11.1	19041
2008	57.4	19.4	22739

Source: IMF Directions of Trade Statistics; IMF World Economic Outlook database

Table 43 Pakistan's Bilateral Trade with Sri Lanka

Year	Trade Growth[79] (%)	Total Trade[80] ($ mln.)	Trade Intensity Index[81]	Trade Share[82] (%)
2002	1.3	103	6.26	0.49
2003	22.6	127	6.71	0.51
2004	42.2	180	7.72	0.58
2005	18.1	213	6.88	0.51
2006	-7.3	197	5.40	0.39
2007	12.9	223	5.70	0.38
2008	14.2	254	5.69	0.37

Source: IMF Directions of Trade Statistics

[79] Total trade growth is the percentage change in the value of total trade (exports plus imports) relative to the previous year.
[80] Total trade is the sum of the value of exports and imports.
[81] Trade intensity index is the ratio of trade share of a country/region to the share of world trade with a partner. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade.
[82] Trade share is the percentage of trade with a partner to total trade of a country/region. A higher share indicates a higher degree of integration between partner countries/regions. This is share in overall trade (exports + imports).

Table 44 Sri Lanka's Bilateral Trade with Pakistan

Year	Trade Growth (%)	Total Trade ($ mln.)	Trade Intensity Index	Trade Share (%)
2002	-4.2	95	5.43	0.88
2003	13.9	108	5.52	0.91
2004	36.8	147	5.88	1.07
2005	8.0	159	5.43	1.04
2006	28.7	205	6.08	1.20
2007	13.9	233	6.30	1.23
2008	14.2	267	6.04	1.17

Source: IMF Directions of Trade Statistics

Table 45 Tariffs applied by Sri Lanka

Product description[83]	No. of Lines	Pakistan (%)	USA (%)
Live animals; animal products	281	12.84	18.54
Animal or vegetable fats and oils and their cleavage products, prepared edible fats; animal or vegetable waxes	57	15.00	26.59
Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes	255	35.91	40.68
Mineral products	182	2.36	2.68
Products of the chemical or allied industries	993	2.31	4.19
Plastics and articles thereof; rubber and articles thereof	293	6.75	9.59
Raw hides and skins, leather, furskins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silkworm gut)	75	7.64	18.24
Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof	202	5.90	9.01
Textiles and textile articles	857	1.47	3.31
Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair	53	22.28	24.70
Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	182	14.19	20.50
Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	58	0.18	0.42
Base metals and articles of base metal	646	4.37	7.99

[83] Based on the data from 2009 using Harmonised System Nomenclature Rev. 07, to products originating from Pakistan and USA.

Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	1131	3.57	7.37
Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof	236	2.95	6.44
Arms and ammunition; parts and accessories thereof	20	2.51	6.99
Miscellaneous manufactured articles	190	15.80	20.98
Agricultural Products	1735	10.73	15.06
Harmonized System	6506	5.16	7.78
Industrial Products	5808	4.30	6.78

Source: MAcMap

Table 46 Tariffs applied by Pakistan

Product description[84]	No. of Lines	Sri Lanka (%)	USA (%)
Live animals; animal products	248	8.93	16.54
Vegetable products	312	2.98	8.56
Animal or vegetable fats and oils and their cleavage products, prepared edible fats; animal or vegetable waxes	54	16.29	27.13
Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes	229	13.85	26.03
Mineral products	195	0.87	2.66
Products of the chemical or allied industries	1153	3.31	8.21
Plastics and articles thereof; rubber and articles thereof	300	8.73	12.31
Raw hides and skins, leather, furskins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silkworm gut)	93	2.83	9.44
Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	106	2.47	7.07
Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof	182	4.85	12.78
Textiles and textile articles	920	8.07	16.23
Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and	53	19.34	24.60

[84] Based on the data from 2008 using Harmonised System Nomenclature Rev. 07, to products originating from Sri Lanka and USA

parts thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair			
Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	191	8.18	21.72
Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	60	0.63	1.87
Base metals and articles of base metal	761	4.60	11.93
Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	1247	5.09	10.64
Vehicles, aircraft, vessels and associated transport equipment	287	34.90	39.97
Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof	274	2.63	7.60
Arms and ammunition; parts and accessories thereof	52	6.12	18.26
Miscellaneous manufactured articles	186	6.33	21.94
Works of art, collectors' pieces and antiques	7	1.76	5.34
Agricultural Products	1694	6.33	13.68
Harmonized System	6910	6.81	11.72
Industrial Products	6303	6.74	11.47

Source: MAcMap

Table 47 Bilateral Trade Between Pakistan and Sri Lanka (USD Thousand)

Product code	Product label	Pakistan's exports to Sri Lanka			Total SL imports	Pakistan's exports to World		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
'TOTAL	All products	177595	208573	216720	13629063	16932872	17838408	20279046
'52	Cotton	109991	103773	99164	555570	3601009	3439578	3595598
'10	Cereals	4677	12917	14877	463943	1152338	1244147	2507890
'07	Edible vegetables and certain roots and tubers	4414	15524	13392	238343	43860	72757	45519
'60	Knitted or crocheted fabric	4516	10463	12282	473896	54069	66670	68963
'63	Other made textile articles,	2673	7540	10203	7878	3242514	3179485	3145524

Product code	Product label	Pakistan's exports to Sri Lanka			Total SL imports	Pakistan's exports to World		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
	sets, worn clothing etc							
'73	Articles of iron or steel	7362	8267	10194	253899	74362	90747	119609
'30	Pharmaceutical products	7138	7656	9361	179644	86686	110142	118884
'03	Fish, crustaceans, molluscs, aquatic invertebrates nes	5121	6913	5458	77418	167712	161055	217548
'93	Arms and ammunition, parts and accessories thereof	18	59	5370	50	1137	856	7777
'09	Coffee, tea, mate and spices	4376	3240	4517	99134	23487	26325	31449
'25	Salt, sulphur, earth, stone, plaster, lime and cement	93	2012	3843	295280	127390	251736	601004
'22	Beverages, spirits and vinegar	78	2253	3667	26043	117360	155636	230957
'39	Plastics and articles thereof	4926	2387	3131	437179	213347	186524	296463
'61	Articles of apparel, accessories, knit or crochet	2164	2121	2943	44919	1902212	1851004	1888467
'48	Paper & paperboard, articles of pulp, paper and board	29	79	2383	328083	13153	14662	29961
'41	Raw hides and skins (other than furskins) and leather	600	641	2184	17162	317719	391882	383116
'85	Electrical, electronic equipment	2038	4878	1787	799352	120333	131993	128492
'55	Manmade staple fibres	1249	2163	1547	272185	234490	386148	284790
'76	Aluminium and articles thereof	166	38	1296	59534	18112	17682	29283
'08	Edible fruit, nuts, peel of citrus fruit, melons	1309	754	909	15376	117015	124933	145187
'28	Inorganic chemicals,	526	794	834	100151	6078	11801	13335

Product code	Product label	Pakistan's exports to Sri Lanka			Total SL imports	Pakistan's exports to World		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
	precious metal compound, isotopes							
'95	Toys, games, sports requisites	252	141	632	11087	304733	210772	226170
'87	Vehicles other than railway, tramway	3018	1093	620	631347	84550	49523	99450
'17	Sugars and sugar confectionery	607	503	526	205985	96935	61053	239428
'84	Nuclear reactors, boilers, machinery, etc	1171	455	521	813476	112948	155288	317132
'12	Oil seed, oleagic fruits, grain, seed, fruit, etc, nes	600	554	518	12901	25101	43351	55702
'70	Glass and glassware	365	1078	513	33057	16897	20205	22257
'62	Articles of apparel, accessories, not knit or crochet	986	418	509	34922	1348321	1371039	1361171
'72	Iron and steel	73	246	478	389187	24862	24813	37475
'58	Special woven or tufted fabric, lace, tapestry etc	2140	1058	348	154249	38022	35449	15895
'38	Miscellaneous chemical products	116	125	277	135543	11519	7895	15861
'90	Optical, photo, technical, medical, etc apparatus	344	193	276	107464	170606	241025	279956
'20	Vegetable, fruit, nut, etc food preparations	199	339	231	9195	17060	22400	25596
'23	Residues, wastes of food industry, animal fodder	0	203	213	86150	4296	7950	10444
'26	Ores, slag and ash	317	787	193	1945	31792	96871	168219
'59	Impregnated, coated or laminated textile fabric	21	594	182	71726	6538	7436	4575
'54	Manmade filaments	1238	1222	157	105707	147356	136117	35163

Product code	Product label	Pakistan's exports to Sri Lanka			Total SL imports	Pakistan's exports to World		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
'82	Tools, implements, cutlery, etc of base metal	123	39	151	25511	42455	64314	62031
'13	Lac, gums, resins, vegetable saps and extracts nes	75	81	120	2054	29389	34226	39626
'64	Footwear, gaiters and the like, parts thereof	629	161	107	7761	135213	113216	133177
'33	Essential oils, perfumes, cosmetics, toileteries	109	90	97	43635	7881	10631	13585
'29	Organic chemicals	0	0	84	114192	62320	13851	13130
'96	Miscellaneous manufactured articles	131	23	64	61576	31091	26730	36608
'15	Animal,vegetable fats and oils, cleavage products, etc	3	12	61	183826	99507	108937	168317
'83	Miscellaneous articles of base metal	65	12	51	56577	1321	2134	2606
'42	Articles of leather, animal gut, harness, travel goods	90	46	42	5833	680369	691621	766850
'68	Stone, plaster, cement, asbestos, mica, etc articles	17	25	41	15904	29938	25193	28891
'35	Albuminoids, modified starches, glues, enzymes	0	4	39	18836	6736	6447	8350
'19	Cereal, flour, starch, milk preparations and products	102	58	32	45514	15151	14640	25602
'44	Wood and articles of wood, wood charcoal	9	32	32	52954	12953	13154	17971
'56	Wadding, felt, nonwovens, yarns, twine,	248	99	25	27018	32851	28049	30016

Product code	Product label	Pakistan's exports to Sri Lanka			Total SL imports	Pakistan's exports to World		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
	cordage, etc							
'32	Tanning, dyeing extracts, tannins, derivs,pigments etc	62	49	24	90495	20859	14324	20490
'21	Miscellaneous edible preparations	39	28	24	22312	7539	10866	13807
'05	Products of animal origin, nes	8	5	23	1787	15690	17094	23104
'74	Copper and articles thereof	57	3588	23	97256	34260	46582	52366
'40	Rubber and articles thereof	30	81	20	164695	85155	16087	9933
'27	Mineral fuels, oils, distillation products, etc	82	18	18	3132485	841231	994418	1229771
'51	Wool, animal hair, horsehair yarn and fabric thereof	2	0	14	13411	6465	6431	5831
'49	Printed books, newspapers, pictures etc	39	40	13	28110	5090	3626	3199
'57	Carpets and other textile floor coverings	13	5	13	3874	246129	222160	188157
'37	Photographic or cinematographic goods	78	36	9	15633	965	455	484
'88	Aircraft, spacecraft, and parts thereof	16	39	9	94965	9690	46100	15689
'94	Furniture, lighting, signs, prefabricated buildings	4	3	9	32071	66761	35505	56307
'06	Live trees, plants, bulbs, roots, cut flowers etc	0	5	8	734	598	509	923
'71	Pearls, precious stones, metals, coins, etc	6	2	7	544735	24058	120318	239834
'92	Musical instruments, parts and accessories	0	0	6	3582	4415	3465	4194

Product code	Product label	Pakistan's exports to Sri Lanka			Total SL imports	Pakistan's exports to World		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
'65	Headgear and parts thereof	2	2	3	1764	992	1521	1924
'50	Silk	0	12	2	8555	1901	803	1745
'11	Milling products, malt, starches, inulin, wheat gluten	0	108	0	12613	124545	110221	23826
'16	Meat, fish and seafood food preparations	0	55	0	39829	26368	21149	16933
'18	Cocoa and cocoa preparations	33	14	0	4913	1017	609	325
'69	Ceramic products	14	41	0	37549	12221	12186	14411
'78	Lead and articles thereof	140	62	0	14748	5284	25102	2950
'79	Zinc and articles thereof	343	196	0	4030	902	973	228

Source: COMTRADE

Table 48 Bilateral Trade between Pakistan and Sri Lanka (USD Thousand)

Product code	Product label	Pakistan's imports from Sri Lanka			SL Total Exports	Pakistan's imports from world		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
'TOTAL	All products	70973	59789	66216	8450409	29825754	32593936	42326568
'40	Rubber and articles thereof	19998	20597	27365	672075	311812	341888	365300
'12	Oil seed, oleagic fruits, grain, seed, fruit, etc, nes	12713	13307	10476	15868	403798	501436	379714
'14	Vegetable plaiting materials, vegetable products nes	6911	6775	8481	13432	16107	16265	19032
'08	Edible fruit, nuts, peel of citrus fruit, melons	8371	7665	5883	96751	84486	115243	103167
'09	Coffee, tea, mate and spices	8858	3444	5170	1414146	277932	256107	318003
'44	Wood and articles of wood, wood charcoal	3037	1800	1102	42859	81650	95386	96591
'54	Manmade filaments	106	1010	956	6872	312855	338733	315132

Product code	Product label	Pakistan's imports from Sri Lanka			SL Total Exports	Pakistan's imports from world		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
'25	Salt, sulphur, earth, stone, plaster, lime and cement	361	543	907	13419	53789	59806	124762
'39	Plastics and articles thereof	1409	608	777	62127	1128629	1280701	1360024
'53	Vegetable textile fibres nes, paper yarn, woven fabric	531	667	711	71980	48676	50359	66186
'48	Paper & paperboard, articles of pulp, paper and board	459	407	570	23676	360971	401024	439217
'63	Other made textile articles, sets, worn clothing etc	9	388	542	52951	85393	94102	120137
'94	Furniture, lighting, signs, prefabricated buildings	23	118	279	33621	51468	69051	93656
'15	Animal,vegetable fats and oils, cleavage products, etc	411	270	272	60386	878796	1301198	1879790
'85	Electrical, electronic equipment	443	288	254	263229	3081303	3448241	3782307
'28	Inorganic chemicals, precious metal compound, isotopes	63	0	243	12009	238244	258100	687854
'61	Articles of apparel, accessories, knit or crochet	89	118	214	1690417	14266	25888	25865
'35	Albuminoids, modified starches, glues, enzymes	69	205	198	4769	20079	26031	31907
'84	Nuclear reactors, boilers, machinery, etc	434	129	175	108521	3343977	3262440	3923993
'32	Tanning, dyeing extracts, tannins, derivs,pigments etc	171	133	171	3621	233474	263931	309373
'29	Organic chemicals	156	45	166	981	1177944	1569801	1761366
'76	Aluminium and articles thereof	138	192	165	2917	208466	245195	184698
'41	Raw hides and skins (other than furskins) and leather	95	157	148	748	75741	73754	117093

Product code	Product label	Pakistan's imports from Sri Lanka			SL Total Exports	Pakistan's imports from world		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
'38	Miscellaneous chemical products	317	187	100	38951	373929	392569	449975
'19	Cereal, flour, starch, milk preparations and products	31	117	95	11496	47351	48410	43358
'69	Ceramic products	83	58	84	49224	101432	106353	115853
'23	Residues, wastes of food industry, animal fodder	1	5	77	64176	111786	97192	131663
'96	Miscellaneous manufactured articles	150	28	68	33408	77790	77270	113142
'58	Special woven or tufted fabric, lace, tapestry etc	53	55	51	18534	25519	22570	23205
'88	Aircraft, spacecraft, and parts thereof	1	0	47	142114	626200	645080	325601
'68	Stone, plaster, cement, asbestos, mica, etc articles	8	1	44	8119	29228	75697	84676
'72	Iron and steel	20	31	44	7007	1392829	1543029	1629421
'59	Impregnated, coated or laminated textile fabric	46	6	41	3471	47485	48279	50651
'56	Wadding, felt, nonwovens, yarns, twine, cordage, etc	0	6	37	17993	22274	22707	24457
'47	Pulp of wood, fibrous cellulosic material, waste etc	25	23	36	19091	57211	69749	98394
'33	Essential oils, perfumes, cosmetics, toileteries	21	46	34	14893	66393	80901	79591
'52	Cotton	50	0	33	18346	428928	917841	1208577
'30	Pharmaceutical products	7	15	27	4083	244408	374024	432929
'73	Articles of iron or steel	28	11	23	15101	427948	387524	621913
'34	Soaps, lubricants, waxes, candles, modelling pastes	331	33	19	3815	119643	148146	194768
'17	Sugars and sugar confectionery	175	4	17	2175	717436	39960	27705
'55	Manmade staple	41	47	17	25094	284951	280337	339281

Product code	Product label	Pakistan's imports from Sri Lanka			SL Total Exports	Pakistan's imports from world		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
	fibres							
'49	Printed books, newspapers, pictures etc	43	58	17	47194	37266	42024	77971
'21	Miscellaneous edible preparations	0	32	14	35026	23490	30523	32452
'06	Live trees, plants, bulbs, roots, cut flowers etc	2	17	10	14211	566	1322	831
'60	Knitted or crocheted fabric	1	6	9	33825	12985	13738	15241
'62	Articles of apparel, accessories, not knit or crochet	7	2	7	1612972	10697	24986	19317
'57	Carpets and other textile floor coverings	2	6	7	7529	17185	20923	21428
'99	Commodities not elsewhere specified	106	2	7	222886	35691	2138	4187
'18	Cocoa and cocoa preparations	2	9	5	1505	6820	10812	10831
'90	Optical, photo, technical, medical, etc apparatus	31	1	4	40300	377585	466825	505375
'83	Miscellaneous articles of base metal	22	0	3	2543	29754	34924	38899
'07	Edible vegetables and certain roots and tubers	150	9	3	29708	289767	288118	304948
'03	Fish, crustaceans, molluscs, aquatic invertebrates nes	0	2	3	174933	1633	1691	1370
'82	Tools, implements, cutlery, etc of base metal	0	12	2	5946	38935	53711	56909
'70	Glass and glassware	1	1	2	7164	58557	63681	63006
'74	Copper and articles thereof	0	1	1	23085	173079	155709	128799
'27	Mineral fuels, oils, distillation products, etc	9	0	1	2069	7680295	8350335	14054225
'78	Lead and articles thereof	90	61	0	8761	19963	35788	46449
'86	Railway, tramway locomotives, rolling stock,	840	0	0	2	36975	52296	10920

Product code	Product label	Pakistan's imports from Sri Lanka			SL Total Exports	Pakistan's imports from world		
		Value 2006	Value 2007	Value 2008	Value 2008	Value 2006	Value 2007	Value 2008
	equipment							
'87	Vehicles other than railway, tramway	30	0	0	80177	1732666	1418886	1184228
'89	Ships, boats and other floating structures	3120	0	0	21542	72000	573293	183181
'95	Toys, games, sports requisites	187	1	0	42348	30881	28908	30813

Source: COMTRADE

Table 49 Pakistan Macro SAM **Rs. Billion**

	ACT	COM	FAC	HOU	ENT	GCUR	ROW	CAP	Total
Activities	0	7201	0	0	0	0	0	0	7201
Commodities	3823	0	0	2699	0	409	678	534	8143
Factors	3377	0	0	0	0	0	0	0	3377
Households	0	0	3377	0	0	0	185	0	3562
Enterprises	0	0	0	0	0	0	0	0	0
Government	0	252	0	146	0	0	0	0	398
Indirect taxes		204							204
Import duties		48							48
Direct taxes				146					146
Rest of world	0	691	0	0	0	0	0	0	691
Saving	0	0	0	717	0	-11	-171	0	534
Total	7201	8143	3377	3562	0	398	691	534	23906

Source: Dorosh *et al.* (2004)

Table 50 Percentage change in export share

Sr No	Commodities	Value 0203	Share	Value 0708	Share
1	Textiles and textile articles total	38.53	50.72%	127.52	59.47%
2	Vegetable products total	13.65	17.97%	42.39	19.77%
3	Base metals and articles or base metal total	2.10	2.76%	12.21	5.69%
4	Products of the chemical or allied industries. Total	5.79	7.62%	9.30	4.34%
5	Live animals; animals products total	7.37	9.70%	6.03	2.81%
6	Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured; tobacco substitutes	1.16	1.52%	4.34	2.03%
7	Plastics and articles thereof; rubber and articles thereof total	3.25	4.28%	3.08	1.44%
8	Mineral products total	0.16	0.22%	2.29	1.07%
9	Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television	0.65	0.86%	2.08	0.97%

	image and sound recorders and reproducers, and parts and accessories of such articles total				
10	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper f paperboard; paper and paperboard and articles thereof. Total	0.01	0.01%	1.75	0.82%
11	Raw hide and skins, leather, furskins and articles thereof; saddlery and harness; travel goods. Handbags and similar containers; articles of animal guts (other than silk worm gut) total	1.07	1.40%	1.31	0.61%
12	Articles of stone, plaster, cement. Asbestos, mica or similar materials; ceramic products; glass and glassware. Total	0.16	0.21%	0.81	0.38%
13	Vehicles. Aircraft, vessels and associated transport equipment total	1.04	1.37%	0.79	0.37%
14	Miscellaneous manufactured articles total	0.50	0.66%	0.18	0.09%
15	Footwear, headgear, umbrellas, sun umbrellas, walking sticks. Seat-sticks, whips, riding -crop and parts thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair. Total	0.28	0.36%	0.16	0.07%
16	Optical, photographic, cinematographer, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches, musical instruments; parts and accessories thereof. Total	0.10	0.13%	0.11	0.05%
17	Arms & ammunition, parts & accessories total	0.07	0.09%	0.06	0.03%
18	Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork. Total	0.01	0.02%	0.03	0.01%
19	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes. Total	0.01	0.01%	0.02	0.01%
20	Natural or cultured pearls, precious or semi-precious stones. Precious metals, metals clad with precious metal and articles thereof, imitation jewelry; coin total	0.05	0.07%	0.00	0.00%

Table 51 G-L Index of Intra-Industry Trade – 2009

HS	Description	GL_SL_07	GL_PK_07
26	Ores slag & ash	0.128	0.978
08	Ed. Fruits & nuts, peel of citrus/melons	0.486	0.961
24	Tobacco & manuf. Tobacco substitutes	0.941	0.925
71	Pearls, stones, prec. Metals, imitation jewelry, coins	0.934	0.910
82	Tools, spoons & forks of base metal	0.308	0.910
56	Wadding, felt & nonwovens, special yarns, twine, cordage, ropes & cables & articles	0.607	0.895
65	Headgear & other parts	0.160	0.860
20	Preps of vegs, fruits, nuts, etc.	0.776	0.858
89	Ships, boats, & floating structures	0.282	0.857
55	Man-made staple fibers, inc. Yarns etc.	0.204	0.841
94	Furniture, bedding, cushions, lamps & lighting fittings nesoi, illuminated signs, nameplates & the like,	0.828	0.679

	prefabricated buildings		
21	Misc. Edible preparations	0.853	0.525
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	0.943	0.502
74	Copper & articles thereof	0.951	0.461
97	Works of art. Collectors' pieces, antiques	0.894	0.263
69	Ceramic products	0.881	0.206
23	Residues from food industries, animal feed	0.831	0.151
05	Products of animal origin	0.914	0.130

Table 52 TSI revealing top Pakistan's products

No	HS2	Commodities (Description)	TSI_pk_03	TSI_pk_07
1	'52	Cotton	0.9998	1.0000
2	'10	Cereals	1.0000	1.0000
3	'93	Arms and ammunition, parts and accessories thereof	1.0000	1.0000
4	'22	Beverages, spirits and vinegar	-	1.0000
5	'28	Inorganic chemicals, precious metal compound, isotopes	0.3682	1.0000
6	'87	Vehicles other than railway, tramway	1.0000	1.0000
7	'26	Ores, slag and ash	-	1.0000
8	'13	Lac, gums, resins, vegetable saps and extracts nes	1.0000	1.0000
9	'64	Footwear, gaiters and the like, parts thereof	1	1
10	'83	Miscellaneous articles of base metal	1	1

Table 53 TSI of top 10 Pakistan's products gained ground

No	HS2	Commodities (Description)	TSI_pk_03	TSI_pk_07
1	'72	Iron and steel	-1.000	0.776
2	'06	Live trees, plants, bulbs, roots, cut flowers etc	-1.000	-0.545
3	'76	Aluminium and articles thereof	-1.000	-0.670
4	'14	Vegetable plaiting materials, vegetable products	-0.999	-1.000
5	'25	Salt, sulphur, earth, stone, plaster, lime and cement	-0.688	0.575
6	'55	Manmade staple fibres	-0.552	0.957
7	'90	Optical, photo, technical, medical, etc apparatus	-0.361	0.990
8	'59	Impregnated, coated or laminated textile fabric	-0.333	0.980
9	'28	Inorganic chemicals, precious metal compound, isotopes	0.368	1.000
10	'70	Glass and glassware	0.375	0.998

Table 54 TSI of top 10 Pakistan's products losing ground

No	HS2	Commodities (Description)	TSI_03	TSI_07
1	'35	Albuminoids, modified starches, glues, enzymes	1	-0.962
2	'19	Cereal, flour, starch, milk preparations and products	1	-0.337
3	'57	Carpets and other textile floor coverings	1	-0.091

4	'61	Articles of apparel, accessories, knit or crochet	1	0.895
5	'63	Other made textile articles, sets, worn clothing etc	1	0.902
6	'68	Stone, plaster, cement, asbestos, mica, etc articles	1	0.923
7	'17	Sugars and sugar confectionery	1	0.984
8	'95	Toys, games, sports requisites	1	0.986
9	'20	Vegetable, fruit, nut, etc food preparations	1	0.994
10	'60	Knitted or crocheted fabric	1	0.999

Table 55 Pakistan's RCA (2003-2007)

Sr No	HS2	Commodities (Description)	2003	2007
1	**85**	electrical machinery & equip. & parts, telecommunications equip., sound recorders, television recorders	15.835	1.217
2	**84**	nuclear reactors, boilers, machinery & mechanical appliances, computers	14.079	1.002
3	**52**	cotton, inc. yarns & woven fabrics thereof	13.479	1.287
4	**62**	articles of apparel & clothing accessories-not knitted or crocheted	12.895	1.284
5	**61**	articles of apparel & clothing accessories-knitted or crocheted	12.804	1.219
6	**39**	plastics & articles thereof	11.290	1.026
7	**7**	edible vegetables	8.955	1.286
8	**28**	inorganic chem, org/inorg compounds of precious metals, isotopes	8.597	1.287
9	**73**	articles of iron or steel	8.597	1.285
10	**63**	made-up textile articles nesoi, needlecraft sets, worn clothing, rags	8.119	1.223
11	**30**	pharmaceutical products	7.164	1.284
12	**87**	vehicles other than railway or tramway rolling stock	7.164	1.287
13	**64**	footwear, gaiters, & the like	5.731	1.287
14	**58**	special woven fabrics, tufted textiles, lace	5.511	1.223
15	**41**	raw hides & skins & leather	5.389	1.035
16	**71**	pearls, stones, prec. metals, imitation jewelry, coins	4.537	1.287
17	**25**	salt, sulphur, earth & stone, lime & cement	4.298	1.013

18	**10**	Cereals	2.866	1.287
19	**11**	milling industry products	2.866	1.148
20	**17**	sugars & sugar confectionery	2.866	1.276

Table 56 Pakistani Products with Dynamic Comparative Advantage

HS	Description	PK Export_07 ('000 $)	RRCA_PK_07	RRCA_SL_07	Static Adv.	Dynamic Adv.
0904	pepper, genus piper, genus capsicum or pimento	719	0.52	2.68		TRUE
5402	synthetic filament yarn (no sew thread), no retail	324	0.32	3.41		TRUE
1211	plants etc for pharmacy, perfume, insecticides etc	200	1.21	0.28	TRUE	TRUE
5807	labels, badges etc of textiles, in the pc etc	177	1.00	1.01		TRUE
3824	binders made for foundry moulds or cores; chemical products and preparations, including residual products, of the chemical or allied industries, nesoi	103	1.07	0.74	TRUE	TRUE
3915	waste, parings and scrap, of plastics	83	0.90	1.34		TRUE

HS	Description	PK Export_07 ('000 $)	RRCA_PK_07	RRCA_SL_07	Static Adv.	Dynamic Adv.
0910	ginger, saffron, turmeric, thyme, bay leaves etc	78	1.24	0.17	TRUE	TRUE
1905	bread, pastry cakes etc: comm wafers, empty caps etc	57	0.43	3.03		TRUE
3305	preparations for use on the hair	32	0.64	2.26		TRUE
2106	food preparations nesoi	28	0.61	2.38		TRUE
3304	beauty, make-up & skin-care prep, manicure etc prp	25	1.07	0.75	TRUE	TRUE
0804	dates, figs, pineapples, avocados etc, fr or dried	20	0.57	2.51		TRUE
4015	art of apparel & access of unhard vulcanized rubber	19	0.10	4.18		TRUE
4911	printed matter nesoi, incl print pictures & photos	18	1.16	0.45	TRUE	TRUE
6305	sacks & bags of textile material for packing goods	16	0.07	4.26		TRUE
1806	chocolate & other food products	14	1.12	0.57	TRUE	TRUE

HS	Description	PK Export_07 ('000 $)	RRCA_PK_07	RRCA_SL_07	Static Adv.	Dynamic Adv.
	containing cocoa					
6105	men's or boys' shirts, knitted or crocheted	11	0.94	1.21		TRUE
4821	labels of paper or paperboard, printed or not	7	0.02	4.45		TRUE
4901	books, brochures & similar printed matter	7	0.35	3.31		TRUE
3809	finishing agents etc for textiles, paper etc nesoi	5	0.05	4.35		TRUE
5806	narrow woven fabrics except labels etc in pc etc	3	0.64	2.26		TRUE
4001	natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, in primary forms or in plates, sheets or strip	1	0.00	4.53		TRUE
4008	plates, sheets, profile shapes etc, soft vulc rubber	1	0.01	4.50		TRUE

HS	Description	PK Export_07 ('000 $)	RRCA_PK_07	RRCA_SL_07	Static Adv.	Dynamic Adv.
4012	retread or used pneu tires, solid tires etc, rubber	1	0.05	4.36		TRUE
6104	women's or girls' suits, ensemb etc, knit or croch	1	0.64	2.26		TRUE
8517	elec apparatus for line telephony, telephone sets, pts	1	0.21	3.77		TRUE

Table 57 G-L Index Results

HS	Description	GL_PK_07	GL_SL_07
26	Ores slag & ash	0.9780	0.1277
08	Ed. Fruits & nuts, peel of citrus/melons	0.9612	0.4856
24	Tobacco & manuf. Tobacco substitutes	0.9248	0.9413
71	Pearls, stones, prec. Metals, imitation jewelry, coins	0.9104	0.9344
82	Tools, spoons & forks of base metal	0.9102	0.3083
56	Wadding, felt & nonwovens, special yarns, twine, cordage, ropes & cables & articles	0.8947	0.6070
65	Headgear & other parts	0.8596	0.1602
20	Preps of vegs, fruits, nuts, etc.	0.8584	0.7759
89	Ships, boats, & floating structures	0.8572	0.2823
55	Man-made staple fibers, inc. Yarns etc.	0.8415	0.2038
78	Lead & articles thereof	0.8245	0.8254
17	Sugars & sugar confectionery	0.7912	0.0261
58	Special woven fabrics, tufted textiles, lace	0.7789	0.1521
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments & accessories	0.6810	0.6540
94	Furniture, bedding, cushions, lamps & lighting fittings nesoi, illuminated signs, nameplates & the like, prefabricated buildings	0.6792	0.8276
04	Dairy, eggs, honey, & ed. Products	0.6779	0.0623

HS	Description	GL_PK_07	GL_SL_07
46	Manu. Of straw, esparto, or other plaiting materials, basketware and wickerwork	0.6409	0.5431
54	Man-made filaments, inc. Yarns & woven etc.	0.5968	0.0568
51	Wool & fine or coarse animal hair, inc. Yarns & woven fabrics thereof	0.5832	0.0069
06	Live trees & other plants	0.5568	0.0661
21	Misc. Edible preparations	0.5251	0.8532
96	Miscellaneous manufactured articles	0.5141	0.7113
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	0.5017	0.9427
70	Glass & glassware	0.4817	0.2289
64	Footwear, gaiters, & the like	0.4685	0.6384
19	Preps. Of cereals, flour, starch or milk	0.4644	0.2602
74	Copper & articles thereof	0.4605	0.9511
30	Pharmaceutical products	0.4550	0.0332
52	Cotton, inc. Yarns & woven fabrics thereof	0.4213	0.0482
07	Edible vegetables	0.4032	0.1689
35	Albuminoidal sub, starches, glues, enzymes	0.3970	0.0594
25	Salt, sulphur, earth & stone, lime & cement	0.3834	0.2392
73	Articles of iron or steel	0.3795	0.1890
14	Vegetable plaiting materials	0.3656	0.2985
02	Meat & edible meat offal	0.3617	0.2879
13	Lac, gums, resins, etc.	0.3567	0.7838
66	Umbrellas, sun umbrellas, walking-sticks, whips, riding-crops & parts	0.3491	0.1031
60	Knitted or crocheted fabrics	0.3417	0.0612
41	Raw hides & skins & leather	0.3168	0.1780
43	Furskins & artificial fur, manufactures	0.3085	0.0588
53	Veg. Textile fibers nesoi, yarns & woven etc.	0.2921	0.3975
59	Impregnated, coated, covered, or laminated textile prod, textile prod for industrial use	0.2669	0.0296
97	Works of art. Collectors' pieces, antiques	0.2629	0.8944
16	Ed. Prep. Of meat, fish, crustaceans, etc	0.2598	0.1854
39	Plastics & articles thereof	0.2543	0.3102
81	Base metals nesoi, cermets, articles etc.	0.2435	0.0477
36	Explosives, matches, pyrotechnic products	0.2377	0.0449
33	Oils & resinoids, perfumery, cosmetic or toilet preparations	0.2323	0.4776
44	Wood & articles of wood, wood charcoal	0.2291	0.8000
27	Mineral fuels, oils, waxes & bituminous sub	0.2128	0.0060

HS	Description	GL_PK_07	GL_SL_07
69	Ceramic products	0.2056	0.8814
45	Cork & articles of cork	0.2009	0.0000
93	Arms & ammunition, parts & accessories	0.1883	0.0007
09	Coffee, tea, mate & spices	0.1864	0.1813
95	Toys, games & sports equip, parts & acces.	0.1756	0.4019
67	Prepared feathers, human hair & articles thereof, artificial flowers	0.1735	0.4703
57	Carpets & other textile floor coverings	0.1721	0.7123
10	Cereals	0.1638	0.0186
12	Oil seeds/misc. Grains/med. Plants/straw	0.1592	0.6629
49	Printed books, newspapers, pictures, manuscripts, typescripts & plans	0.1588	0.7407
15	Animal or vegetable fats, oils & waxes	0.1545	0.6961
23	Residues from food industries, animal feed	0.1512	0.8313
22	Beverages, spirits & vinegar	0.1370	0.1891
76	Aluminum & articles thereof	0.1345	0.1598
88	Aircraft, spacecraft, & parts thereof	0.1334	0.6752
05	Products of animal origin	0.1299	0.9137
83	Miscellaneous articles of base metal	0.1151	0.1521
18	Cocoa & cocoa preparations	0.1068	0.4173
80	Tin & articles thereof	0.1042	0.3752
92	Musical instruments, parts & accessories	0.1034	0.4862
32	Tanning or dyeing extracts, dyes, pigments, paints & varnishes, putty, & inks	0.1030	0.0740
11	Milling industry products	0.0927	0.3527
84	Nuclear reactors, boilers, machinery & mechanical appliances, computers	0.0913	0.2617
40	Rubbers & articles thereof	0.0899	0.2730
28	Inorganic chem, org/inorg compounds of precious metals, isotopes	0.0875	0.2887
85	Electrical machinery & equip. & parts, telecommunications equip., sound recorders, television recorders	0.0822	0.4527
48	Paper & paperboard, articles of paper pulp	0.0705	0.1184
87	Vehicles other than railway or tramway rolling stock	0.0675	0.2172
01	Live animals	0.0585	0.1864
63	Made-up textile articles nesoi, needlecraft sets, worn clothing, rags	0.0575	0.4884
34	Soaps, waxes, scouring products, candles, modeling pastes, dental waxes	0.0573	0.2594
50	Silk, inc. Yarns & woven fabrics thereof	0.0535	0.0420

HS	Description	GL_PK_07	GL_SL_07
86	Railway or tramway locomotives, rolling stock, track fixtures & fittings, signals	0.0415	0.2652
38	Miscellaneous chemical products	0.0395	0.5968
91	Clocks & watches & parts thereof	0.0360	0.5232
62	Articles of apparel & clothing accessories-not knitted or crocheted	0.0358	0.0622
37	Photographic or cinematographic goods	0.0336	0.0135
42	Articles of leather, saddlery & harness, travel goods, handbags, articles of gut	0.0330	0.4383
72	Iron & steel	0.0317	0.0352
61	Articles of apparel & clothing accessories-knitted or crocheted	0.0275	0.0680
79	Zinc & articles thereof	0.0269	0.0942
03	Fish & crustaceans	0.0208	0.4295
47	Pulp of wood, waste & scrap of paper	0.0195	0.2965
29	Organic chemicals	0.0175	0.0169
75	Nickel & articles thereof	0.0011	0.2953
31	Fertilizers	0.0003	0.0381

Table 58 Pakistani Products with Static Export Potential

HS	Description	BRCA_PK_03[85]	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
03	Fish & crustaceans	2.863	3.316	1.286	0.001
07	Edible vegetables	8.955	2.483	1.286	0.003
10	Cereals	2.866	0.000	1.287	0.000
11	Milling industry products	2.866	3.311	1.148	0.482
13	Lac, gums, resins, etc.	1.433	0.000	1.287	0.000
16	Ed. Prep. Of meat, fish, crustaceans, etc			1.287	0.000
17	Sugars & sugar confectionery	2.866	0.000	1.276	0.035
20	Preps of vegs, fruits, nuts, etc.	1.433	0.000	1.287	0.000
24	Tobacco & manuf. Tobacco substitutes	1.433	0.000	1.287	0.000
25	Salt, sulphur, earth & stone, lime & cement	4.298	3.311	1.013	0.954
26	Ores slag & ash			1.287	0.000
28	Inorganic chem, org/inorg compounds of precious metals, isotopes	8.597	0.000	1.287	0.000
30	Pharmaceutic	7.164	0.000	1.284	0.009

[85] Bilateral revealed comparative advantage in Pakistan for 2003.

HS	Description	BRCA_PK_03[85]	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
	al products				
37	Photographic or cinematographic goods	2.866	0.000	1.287	0.000
39	Plastics & articles thereof	11.290	7.019	1.026	0.911
41	Raw hides & skins & leather	5.389	0.792	1.035	0.877
42	Articles of leather, saddlery & harness, travel goods, handbags, articles of gut	2.866	0.000	1.287	0.000
52	Cotton, inc. Yarns & woven fabrics thereof	13.479	1.962	1.287	0.000
55	Man-made staple fibers, inc. Yarns etc.	2.326	7.869	1.259	0.095
56	Wadding, felt & nonwovens, special yarns, twine, cordage, ropes & cables & articles	0.000	3.311	1.225	0.216
58	Special woven fabrics, tufted textiles, lace	5.511	0.509	1.223	0.222
59	Impregnated, coated, covered, or laminated textile prod,	1.433	3.311	1.276	0.037

HS	Description	BRCA_PK_03[85]	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
	textile prod for industrial use				
60	Knitted or crocheted fabrics	1.433	0.000	1.286	0.003
61	Articles of apparel & clothing accessories-knitted or crocheted	12.804	0.212	1.219	0.236
62	Articles of apparel & clothing accessories-not knitted or crocheted	12.895	3.311	1.284	0.011
63	Made-up textile articles nesoi, needlecraft sets, worn clothing, rags	8.119	1.104	1.223	0.221
64	Footwear, gaiters, & the like	5.731	0.000	1.287	0.000
65	Headgear & other parts			1.287	0.000
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	1.433	0.000	1.237	0.173
70	Glass & glassware	2.866	3.311	1.285	0.004
71	Pearls, stones, prec. Metals, imitation jewelry, coins	4.537	2.759	1.287	0.000
73	Articles of iron or steel	8.597	0.000	1.285	0.006

HS	**Description**	**BRCA_PK_03**[85]	**BRCA_SL_03**	**BRCA_PK_07**	**BRCA_SL_07**
74	Copper & articles thereof	1.433	0.000	1.286	0.001
79	Zinc & articles thereof	1.433	0.000	1.287	0.000
83	Miscellaneous articles of base metal	2.866	0.000	1.287	0.000
84	Nuclear reactors, boilers, machinery & mechanical appliances, computers	14.079	7.197	1.002	0.993
85	Electrical machinery & equip. & parts, telecommunications equip., sound recorders, television recorders	15.835	13.070	1.217	0.242
87	Vehicles other than railway or tramway rolling stock	7.164	0.000	1.287	0.000
88	Aircraft, spacecraft, & parts thereof			1.287	0.000
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments & accessories	1.433	0.000	1.287	0.000

HS	Description	BRCA_PK_03[85]	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
95	Toys, games & sports equip, parts & acces.	1.433	0.000	1.269	0.063

Table 59 Pakistani Products with Dynamic Export Potential at HS2 Level

HS	Description	BRCA_PK_03	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
07	Edible vegetables	8.955	2.483	1.286	0.003
17	Sugars & sugar confectionery	2.866	0.000	1.276	0.035
25	Salt, sulphur, earth & stone, lime & cement	4.298	3.311	1.013	0.954
30	Pharmaceutical products	7.164	0.000	1.284	0.009
39	Plastics & articles thereof	11.290	7.019	1.026	0.911
41	Raw hides & skins & leather	5.389	0.792	1.035	0.877
58	Special woven fabrics, tufted textiles, lace	5.511	0.509	1.223	0.222
61	Articles of apparel & clothing accessories-knitted or crocheted	12.804	0.212	1.219	0.236
62	Articles of apparel & clothing accessories-not knitted or crocheted	12.895	3.311	1.284	0.011
63	Made-up textile articles nesoi, needlecraft sets, worn clothing, rags	8.119	1.104	1.223	0.221
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	1.433	0.000	1.237	0.173
73	Articles of iron or steel	8.597	0.000	1.285	0.006
84	Nuclear reactors, boilers, machinery & mechanical appliances, computers	14.079	7.197	1.002	0.993
85	Electrical machinery & equip. & parts, telecommunications equip., sound recorders, television recorders	15.835	13.070	1.217	0.242
08	Ed. Fruits & nuts, peel of citrus/melons	7.446	9.279	0.115	4.086
12	Oil seeds/misc. Grains/med. Plants/straw	4.235	3.457	0.052	4.309
15	Animal or vegetable fats, oils	1.433	3.311	0.055	4.297

	& waxes				
18	Cocoa & cocoa preparations	1.433	0.000	0.783	1.756
19	Preps. Of cereals, flour, starch or milk	2.866	0.000	0.426	3.001
21	Misc. Edible preparations	1.433	0.000	0.600	2.394
33	Oils & resinoids, perfumery, cosmetic or toilet preparations	4.298	0.000	0.851	1.518
35	Albuminoidal sub, starches, glues, enzymes	2.866	3.311	0.025	4.403
44	Wood & articles of wood, wood charcoal	4.298	3.311	0.039	4.351
49	Printed books, newspapers, pictures, manuscripts, typescripts & plans	2.784	3.499	0.517	2.684
54	Man-made filaments, inc. Yarns & woven etc.	2.866	0.000	0.704	2.031
82	Tools, spoons & forks of base metal	1.433	0.000	0.990	1.036
94	Furniture, bedding, cushions, lamps & lighting fittings nesoi, illuminated signs, nameplates & the like, prefabricated buildings	2.229	1.471	0.032	4.376
96	Miscellaneous manufactured articles	8.722	6.331	0.592	2.424

Table 60 Sri Lanka's Products with Static Export Potential

HS	description	BRCA_PK_03	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
2	meat & edible meat offal	0.000	3.311		
4	dairy, eggs, honey, & ed. products	0.000	3.311	1.287	0.000
5	products of animal origin	1.433	0.000	1.287	0.000
6	live trees & other plants	0.000	6.621	0.292	3.468
8	ed. fruits & nuts, peel of citrus/melons	7.446	9.279	0.115	4.086
9	coffee, tea, mate & spices	4.298	9.932	0.624	2.313
12	oil seeds/misc. grains/med. plants/straw	4.235	3.457	0.052	4.309
14	vegetable plaiting materials	0.001	6.619	0.000	4.488
15	animal or vegetable fats, oils & waxes	1.433	3.311	0.055	4.297

18	cocoa & cocoa preparations	1.433	0.000	0.783	1.756
19	preps. of cereals, flour, starch or milk	2.866	0.000	0.426	3.001
21	misc. edible preparations	1.433	0.000	0.600	2.394
22	beverages, spirits & vinegar			1.287	0.000
23	residues from food industries, animal feed	0.000	3.311	1.256	0.108
27	mineral fuels, oils, waxes & bituminous sub	2.866	0.000	1.287	0.000
29	organic chemicals	2.500	0.845	0.000	4.488
32	tanning or dyeing extracts, dyes, pigments, paints & varnishes, putty, & inks	2.866	3.311	0.343	3.292
33	oils & resinoids, perfumery, cosmetic or toilet preparations	4.298	0.000	0.851	1.518
34	soaps, waxes, scouring products, candles, modeling pastes, dental waxes	3.224	2.483	0.038	4.356
35	albuminoidal sub, starches, glues, enzymes	2.866	3.311	0.025	4.403
38	miscellaneous chemical products	2.596	7.245	0.521	2.670
40	Rubbers & articles thereof	1.433	26.485	0.005	4.471
44	wood & articles of wood, wood charcoal	4.298	3.311	0.039	4.351
46	manu. of straw, esparto, plaiting materials, basketware and wickerwork			0	4.488
47	pulp of wood, waste & scrap of paper			0.000	4.488
48	paper & paperboard, articles of paper pulp	1.433	13.242	0.207	3.767
49	printed books, newspapers, pictures, manuscripts, typescripts & plans	2.784	3.499	0.517	2.684
50	silk, inc. yarns & woven fabrics thereof			1.287	0.000
53	veg. textile fibers nesoi, yarns & woven etc.	0.000	6.621	0.000	4.488

54	man-made filaments, inc. yarns & woven etc.	2.866	0.000	0.704	2.031
57	carpets & other textile floor coverings	1.433	3.311	0.585	2.448
67	prepared feathers, human hair & articles thereof, artificial flowers			0	4.488
69	Ceramic products	1.885	5.576	0.533	2.630
72	iron & steel	0.000	3.311	1.139	0.517
76	aluminum & articles thereof	0.000	6.621	0.208	3.763
78	lead & articles thereof			0.649	2.226
80	tin & articles thereof	1.433	0.000		
82	tools, spoons & forks of base metal	1.433	0.000	0.990	1.036
89	ships, boats, & floating structures	1.433	0.000		
91	clocks & watches & parts thereof	1.433	0.000	1.287	0.000
92	musical instruments, parts & accessories			0.000	4.488
93	arms & ammunition, parts & accessories	2.866	0.000	1.287	0.000
94	furniture, bedding, cushions, lamps & lighting fittings nesoi, illuminated signs, nameplates & the like, prefabricated buildings	2.229	1.471	0.032	4.376
96	miscellaneous manufactured articles	8.722	6.331	0.592	2.424
97	works of art. collectors' pieces, antiques	1.433	0.000		

Table 61 Sri Lankan Products with Dynamic Export Potentials

HS	Description	BRCA_PK_03	BRCA_SL_03	BRCA_PK_07	BRCA_SL_07
03	fish & crustaceans	2.86334884	3.31574247	1.28628529	0.0012981
10	Cereals	2.865586181	0	1.28665743	0
11	Milling industry products	2.865586181	3.310572931	1.14842151	0.482233872
13	lac, gums, resins, etc.	1.432793091	0	1.28665743	0
16	ed. prep. Of meat, fish, crustaceans, etc			1.28665743	0

20	preps of vegs, fruits, nuts, etc.	1.432793091	0	1.28665743	0
24	tobacco & manuf. tobacco substitutes	1.432793091	0	1.28665743	0
26	ores slag & ash			1.28665743	0
28	inorganic chem, org/inorg compounds of precious metals, isotopes	8.596758544	0	1.28665743	0
37	photographic or cinematographic goods	2.865586181	0	1.28665743	0
42	articles of leather, saddlery & harness, travel goods, handbags, articles of gut	2.865586181	0	1.28665743	0
52	cotton, inc. yarns & woven fabrics thereof	13.47888647	1.96177908	1.28665743	0
55	man-made staple fibers, inc. yarns etc.	2.325693133	7.86860812	1.25928174	0.09549967
56	wadding, felt & nonwovens, special yarns, twine, cordage, ropes & cables & articles	0	3.31057293	1.2247989	0.2157925
59	impregnated, coated, covered, or laminated textile prod, textile prod for industrial use	1.432793091	3.31057293	1.27591738	0.0374664
60	knitted or crocheted fabrics	1.432793091	0	1.28592009	0.0025721
64	footwear, gaiters, & the like	5.731172363	0	1.28665743	0
65	headgear & other parts			1.28665743	0
70	glass & glassware	2.865586181	3.3105729	1.28546498	0.0041598
71	pearls, stones, prec. metals, imitation jewelry, coins	4.53717812	2.758810776	1.28665743	0
74	copper & articles thereof	1.432793091	0	1.28629893	0.0012506
79	zinc & articles thereof	1.432793091	0	1.28665743	0
83	miscellaneous articles of base metal	2.865586181	0	1.28665743	0
87	vehicles other than railway or tramway rolling stock	7.163965453	0	1.28665743	0
88	aircraft, spacecraft, & parts thereof			1.28665743	0
90	optical, photographic, cinematographic, measuring, checking,	1.432793091	0	1.28665743	0

	precision, medical or surgical instruments & accessories				
95	toys, games & sports equip, parts & acces.	1.432793091	0	1.26866222	0.062776
02	meat & edible meat offal	0	3.31057293		
04	dairy, eggs, honey, & ed. products	0	3.3105729	1.28665743	0
05	products of animal origin	1.432793091	0	1.28665743	0
06	live trees & other plants	0	6.6211458	0.29242214	3.4683743
09	coffee, tea, mate & spices	4.298379272	9.9317187	0.62369391	2.3127379
14	vegetable plaiting materials	0.00100759	6.6188177	0	4.4884845
22	beverages, spirits & vinegar			1.28665743	0
23	residues from food industries, animal feed	0	3.31057293	1.25572816	0.1078962
27	mineral fuels, oils, waxes & bituminous sub	2.865586181	0	1.28665743	0
29	organic chemicals	2.499766669	0.84525266	0	4.4884845
32	tanning or dyeing extracts, dyes, pigments, paints & varnishes, putty, & inks	2.865586181	3.31057293	0.34310865	3.2915553
34	soaps, waxes, scouring products, candles, modeling pastes, dental waxes	3.223784454	2.4829296	0.03784287	4.3564702
38	miscellaneous chemical products	2.595559791	7.24506153	0.52128243	2.6699988
40	rubbers & articles thereof	1.432793091	26.484583	0.0050401	4.4709021
46	Manu. of straw, esparto, or other plaiting materials, basket ware and wickerwork			0	4.4884845
47	pulp of wood, waste & scrap of paper			0	4.4884845
48	paper & paperboard, articles of paper pulp	1.432793091	13.2422917	0.20692635	3.7666251
50	silk, inc. yarns & woven fabrics thereof			1.28665743	0
53	veg. textile fibers nesoi, yarns & woven etc.	0	6.62114586	0	4.4884845
57	carpets & other textile floor coverings	1.432793091	3.31057293	0.58484429	2.4482642

67	prepared feathers, human hair & articles thereof, artificial flowers			0	4.488484
69	ceramic products	1.885254067	5.575701	0.53285813	2.6296171
72	iron & steel	0	3.310572	1.13855298	0.5166600
76	aluminum & articles thereof	0	6.621145	0.20788788	3.7632708
78	lead & articles thereof			0.64855903	2.2259963
80	tin & articles thereof	1.432793091	0		
89	ships, boats, & floating structures	1.432793091	0		
91	clocks & watches & parts thereof	1.432793091	0	1.28665743	0
92	musical instruments, parts & accessories			0	4.4884845
93	arms & ammunition, parts & accessories	2.865586181	0	1.28665743	0
97	works of art. collectors' pieces, antiques	1.432793091	0		

Table 62 Aggregate effects of Full Trade Liberalization between Pakistan and Sri Lanka (% Change)

Variables	Pakistan	Sri Lanka
Real GDP	0.054	-0.001
Volume of imports	0.260	0.471
Volume of exports	2.194	0.678
Terms of trade	0.041	-0.013
Household consumption	0.058	-0.011
Investment	0.012	0.036
Government expenditure	0.032	-0.049
Value of Exports	0.076	0.182
Value of Imports	0.062	0.213

Table 63 Welfare Decomposition under full trade liberalization ($US Million)

Region	Welfare	Allocative Efficiency	Terms of Trade	Investment
Pakistan	10.76	2.61	6.83	1.32
Sri Lanka	8.59	8.74	-0.97	0.82
ROW	-4.7	3.3	-5.85	-2.14

Table 64 Aggregate effects of Partial Trade Liberalization between Pakistan and Sri Lanka (% Change)

Variables	Pakistan	Sri Lanka
Real GDP	0.027	0.004
Volume of imports	0.147	0.254
Volume of exports	1.16	0.392
Terms of trade	0.021	-0.004
Household consumption	0.03	-0.001
Investment	0.006	0.02
Government expenditure	0.16	-0.022
Value of Exports	0.043	0.097
Value of Imports	0.034	0.113

Table 65 Welfare Decomposition under partial trade liberalization ($US Million)

Region	Welfare	Allocative Efficiency	Terms of Trade	Investment
Pakistan	5.63	1.44	3.51	0.68
Sri Lanka	4.72	4.62	-0.35	0.46
ROW	-2.6	1.69	-3.16	-1.13

Table 66 Impact of full trade liberalization on exports from Sri Lanka and Pakistan (% change)

Sectors	Sri Lanka	Pakistan
Vegetable and Frutis	0.939	73.336
Grains Crops	1.850	130.908
Animal Products	0.767	19.683
Cattle	1.245	-0.778
Livestock and Meat Products	0.933	-1.048
Mining and Extraction	-0.519	0.003
Beverages and Tobacco Products	0.149	69.542
Food Products	1.058	26.916
Processed Food	0.924	-0.274
Textiles and Clothing	88.626	3.231
Wood Products	124.261	3.301
Paper products	-0.188	50.463
Metal Products	116.219	-0.097
Light Manufacturing	-0.205	-0.057
Chemical, Rubber and Plastic	47.955	29.843
Mineral Products	100.650	-0.079
Heavy Manufacturing	-0.223	0.016
Utilities and Construction	-0.265	0.139
Transport and Communication	-0.256	0.076
Other Services	-0.220	0.049

Table 67 Change in Exports as a Result of Concession List of Pakistan for Sri Lanka

Exporter	Exports ($ '000)		($ '000)	%
	Before	After	Change	Change
Afghanistan	696.42	720.61	24.19	3.5
Argentina	269.35	272.38	3.02	1.1
Australia	4007.24	4177.83	170.59	4.3
Austria	125.77	125.99	0.22	0.2
Bahrain	17.26	17.51	0.25	1.4
Bangladesh	126.55	121.81	-4.74	-3.7
Belgium	6058.2	6097.11	38.91	0.6
Bermuda	1.41	1.41	0	0.0
Bhutan	7.48	7.48	0	0.0
Brazil	44.37	45.58	1.22	2.7

Exporter	Exports ($ '000)		($ '000)	%
	Before	After	Change	Change
Bulgaria	67.77	67.66	-0.11	-0.2
Myanmar	1933.45	1912.69	-20.76	-1.1
Canada	408.49	789.88	381.39	93.4
Sri Lanka	**28460.26**	**30966.96**	**2506.71**	8.8
China	38239.02	38593.87	354.85	0.9
Taiwan, China	2902.89	3005.3	102.41	3.5
Czech Republic	9.31	9.33	0.01	0.2
Denmark	461.37	480.36	19	4.1
El Salvador	4.18	4.34	0.16	3.8
Finland	97.29	97.66	0.38	0.4
France	1414.23	1428.35	14.13	1.0
Germany	7578.58	7714.17	135.59	1.8
Greece	127.42	127.88	0.46	0.4
Hong Kong, China	1606.39	1672.54	66.15	4.1
Hungary	10.89	11.46	0.57	5.2
Iceland	4.43	4.42	-0.01	-0.2
India	2545.03	2564.53	19.49	0.8
Indonesia	13811.66	14194.49	382.82	2.8
Iran, Islamic Rep.	2596.87	2640.96	44.09	1.7
Iraq	187.51	191.26	3.75	2.0
Ireland	93.51	93.98	0.48	0.5
Italy	2178.04	2206.76	28.72	1.3
Japan	2556.77	2672.24	115.47	4.5
Jordan	27.5	28.05	0.55	2.0
Kenya	7.49	7.63	0.14	1.9
Korea, Dem. Rep.	110.56	110.35	-0.2	-0.2
Korea, Rep.	1138.5	1174.63	36.14	3.2
Kuwait	692.02	699.73	7.72	1.1
Lebanon	43.6	44.43	0.83	1.9
Libya	328.72	335.35	6.62	2.0
Malawi	22.27	22.51	0.23	1.1
Malaysia	4694.58	4616.81	-77.77	-1.7
Malta	205.99	207.13	1.15	0.6
Mexico	12.99	13.08	0.09	0.7
Monaco	1480.14	1496.72	16.57	1.1
Morocco	89.34	90.46	1.12	1.3
Oman	3.86	3.97	0.11	2.8
Nepal	125.92	128.26	2.34	1.9
Netherlands	4103.3	4164.25	60.95	1.5

Exporter	Exports ($ '000)		($ '000)	%
	Before	After	Change	Change
Netherlands Antilles	5.57	5.77	0.21	3.6
New Zealand	3005.25	3099.54	94.29	3.1
Nigeria	38.63	38.63	-0.01	0.0
Norfolk Island	14.6	16.1	1.5	10.3
Norway	222.45	222.53	0.07	0.0
Panama	11.4	11.43	0.03	0.3
Paraguay	10.54	10.53	-0.02	-0.1
Philippines	828.7	831.48	2.78	0.3
Poland	122.83	127.33	4.5	3.7
Portugal	10.65	11.29	0.65	6.0
Qatar	12.31	12.78	0.47	3.8
Romania	35.88	36.37	0.5	1.4
Russian Federation	1262.11	1300.71	38.59	3.1
Saudi Arabia	4087.29	4151.21	63.91	1.6
Singapore	3214.67	3219.37	4.7	0.1
Vietnam	1063.44	1051.38	-12.06	-1.1
Slovenia	21.19	20	-1.19	-5.6
South Africa	1646.71	2430.19	783.47	47.6
Spain	1824.57	1853.97	29.4	1.6
Swaziland	26.43	26.42	-0.01	0.0
Sweden	386.26	388.13	1.88	0.5
Switzerland	2232.87	2291.02	58.15	2.6
Syrian Arab Republic	425.83	434.25	8.42	2.0
Thailand	7023.38	7194.05	170.67	2.4
Togo	3.83	4.11	0.27	7.3
UAE	9445.8	9540.43	94.64	1.0
Tunisia	9.51	9.68	0.18	1.8
Turkey	249.25	252.77	3.52	1.4
Ukraine	82.07	83.44	1.37	1.7
Egypt, Arab Rep.	1572.22	1574.05	1.83	0.1
United Kingdom	5376.58	5437.14	60.57	1.1
United States	9431.52	9559.95	128.43	1.4
Uruguay	59.75	61.03	1.28	2.1
Unspecified	30.67	33.51	2.84	9.3

Table 68 Changes in Pakistan's Imports ($ '000)

HS	Imports Before	Imports Change	Tariff Revenue	Tariff New Revenue	Tariff Change In Revenue	Consumer Surplus

HS	Imports Before	Imports Change	Tariff Revenue	Tariff New Revenue	Tariff Change In Revenue	Consumer Surplus
	185530.9	5991.8	29113.9	24494.9	-4619.0	637.3
080111	4370.7	29.9	218.5	174.2	-44.4	1.3
080119	2465.5	167.0	246.6	1.1	-245.4	8.4
090610	2578.2	1.3	515.6	512.7	-2.9	0.3
090620	20.7	0.5	4.1	3.1	-1.1	0.1
090810	534.3	12.1	26.7	7.2	-19.5	0.4
091010	19031.1	1.3	3806.2	3803.6	-2.6	0.3
120300	12198.3	472.0	1219.8	131.9	-1087.9	26.1
121190	1998.2	2.8	199.8	198.9	-0.9	0.3
140300	4762.9	104.9	1071.7	770.3	-301.4	20.1
160239	1541.3	931.6	308.3	163.2	-145.1	123.9
210690	10121.9	2.3	2530.5	2526.4	-4.0	0.6
250410	815.4	7.7	40.8	28.9	-11.9	0.3
250490	66.6	3.0	3.3	1.9	-1.5	0.1
261400	243.6	0.1	12.2	12.0	-0.2	0.0
340213	15904.3	609.1	3180.9	2718.1	-462.7	111.0
380690	119.6	7.2	29.9	20.9	-9.0	1.5
381190	11039.0	3.9	1103.9	1098.2	-5.7	0.4
390421	869.0	2.9	217.3	215.8	-1.5	0.7
400121	10197.3	610.6	509.9	98.4	-411.5	18.0
400122	5842.5	49.1	292.1	286.1	-6.0	2.4
400129	5579.6	207.7	279.0	87.5	-191.5	6.8
400400	1915.5	1.2	335.2	332.3	-3.0	0.2
400599	170.1	0.4	34.0	33.8	-0.3	0.1
401490	275.5	0.5	68.9	68.3	-0.6	0.1
401610	821.2	6.7	205.3	204.9	-0.4	1.7
420100	2.2	0.0	0.6	0.6	0.0	0.0
420330	19.3	0.0	4.8	4.8	0.0	0.0
420340	85.4	0.5	21.4	21.3	-0.1	0.1
420500	505.3	6.7	126.3	118.1	-8.3	1.6
440910	9.2	2.4	1.8	1.9	0.1	0.4
440920	51.3	3.9	10.3	9.1	-1.2	0.7
441510	49.0	1.9	12.3	8.4	-3.8	0.4
441520	13.6	2.1	3.4	2.6	-0.8	0.4
441890	195.8	1.3	48.9	48.8	-0.2	0.3
460120	3.0	0.0	0.8	0.7	0.0	0.0
460199	17.2	0.1	4.3	4.3	0.0	0.0
482319	569.2	1.4	142.3	141.2	-1.1	0.3
490290	302.1	0.1	45.3	45.2	-0.2	0.0

HS	Imports Before	Imports Change	Tariff Revenue	Tariff New Revenue	Tariff Change In Revenue	Consumer Surplus
500100	10.8	0.2	0.5	0.2	-0.4	0.0
500200	856.2	19.0	42.8	14.4	-28.4	0.6
500310	11.8	0.7	0.6	0.2	-0.4	0.0
500390	33.9	11.2	1.7	0.7	-1.0	0.4
500400	961.9	0.3	48.1	47.6	-0.5	0.0
500500	3873.7	1.1	193.7	191.8	-1.9	0.1
500600	61.3	0.0	3.1	3.0	0.0	0.0
510111	22.8	0.6	1.1	0.4	-0.8	0.0
510119	7144.9	143.9	357.2	120.3	-237.0	4.8
510121	794.7	19.0	39.7	13.4	-26.3	0.6
510129	2939.0	54.4	147.0	49.4	-97.6	1.8
510130	1280.9	329.0	64.0	26.6	-37.5	10.9
510220	0.8	2.2	0.0	0.1	0.0	0.1
510400	28.1	23.1	1.4	0.8	-0.6	0.8
510510	1188.1	25.5	59.4	20.0	-39.4	0.8
510529	80.3	3.0	4.0	1.4	-2.6	0.1
510610	1101.6	6.4	55.1	45.7	-9.4	0.3
510620	616.4	63.9	30.8	11.2	-19.6	2.1
510710	180.4	0.9	9.0	7.5	-1.5	0.0
530511	302.7	24.0	15.1	0.2	-15.0	0.6
530519	1.9	0.1	0.1	0.0	-0.1	0.0
530810	299.3	16.8	29.9	2.4	-27.5	0.9
550810	159.2	8.8	15.9	8.3	-7.6	0.7
550820	41.8	20.0	10.4	5.1	-5.4	3.3
560122	58.0	6.4	14.5	5.3	-9.2	1.1
560129	125.3	12.8	31.3	11.4	-19.9	2.1
560410	294.4	1119.2	29.4	70.0	40.5	83.7
560729	29.1	2.6	7.3	2.6	-4.7	0.4
560811	1824.3	130.4	456.1	161.3	-294.8	21.7
560890	154.8	99.1	38.7	21.0	-17.8	16.5
560900	15.7	2.5	3.9	1.5	-2.4	0.4
600240	92.4	6.8	23.1	8.2	-14.9	1.1
600290	1341.4	98.5	335.3	118.8	-216.6	16.4
630590	36.3	3.1	9.1	3.3	-5.8	0.5
630720	143.6	12.5	35.9	12.9	-23.0	2.1
680530	845.2	1.5	211.3	209.6	-1.7	0.4
690100	675.2	3.8	168.8	168.1	-0.7	1.0
690410	78.6	0.1	19.6	19.5	-0.2	0.0
690490	7.6	0.2	1.9	1.9	0.0	0.1

HS	Imports Before	Imports Change	Tariff Revenue	Tariff New Revenue	Tariff Change In Revenue	Consumer Surplus
730610	245.4	6.7	61.3	62.4	1.1	1.7
730719	3213.4	0.0	374.9	374.9	0.0	0.0
730830	266.8	1.6	66.7	66.4	-0.3	0.4
731420	157.4	2.6	39.4	39.6	0.2	0.6
731431	6.7	0.0	1.7	1.7	0.0	0.0
731590	72.1	0.2	18.0	17.9	-0.1	0.0
731700	761.2	1.7	190.3	188.8	-1.5	0.4
732310	258.8	1.8	64.7	64.5	-0.2	0.5
732619	962.2	0.0	112.3	112.3	0.0	0.0
741510	73.3	0.1	18.3	18.2	-0.2	0.0
741529	42.9	0.1	10.7	10.6	-0.1	0.0
760719	6632.4	8.1	829.0	818.3	-10.7	1.0
761010	115.4	0.4	28.9	28.7	-0.2	0.1
830300	261.1	0.5	65.3	64.7	-0.5	0.1
830820	215.6	0.4	53.9	53.5	-0.4	0.1
830890	508.6	1.2	127.1	125.8	-1.3	0.3
847210	90.2	0.1	22.5	22.4	-0.2	0.0
848410	2572.1	3.4	600.1	594.9	-5.2	0.8
851220	3899.2	256.5	1364.7	1028.5	-336.2	76.6
853669	1780.0	1.7	445.0	440.7	-4.3	0.4
853910	1247.0	118.3	436.4	337.9	-98.5	35.3
854790	1213.8	2.2	303.5	301.0	-2.5	0.6
910599	204.2	25.0	51.1	37.8	-13.2	5.2
940150	0.9	0.0	0.2	0.2	0.0	0.0
940169	135.9	0.3	34.0	33.7	-0.3	0.1
940179	1.3	0.0	0.3	0.3	0.0	0.0
940180	44.7	0.1	11.2	11.1	-0.1	0.0
940600	8864.5	9.4	2216.1	2196.3	-19.8	2.3
950210	44.6	0.1	11.1	11.0	-0.1	0.0
950330	891.8	1.3	223.0	221.0	-1.9	0.3
950350	15.4	0.0	3.8	3.8	0.0	0.0
950390	7712.9	18.0	1928.2	1913.4	-14.8	4.5

Table 69 Change in total trade value and weighted rates as a result of Pakistan's concession

HS Code	Revenue Effect	TradeTotal Effect	Trade Value	Old Weighted Rate	New Weighted Rate	Change in Rate
	($ '000)			(Percent)		

HS Code	Revenue Effect	TradeTotal Effect	Trade Value	Old Weighted Rate	New Weighted Rate	Change in Rate
	($ '000)			(Percent)		
All	-4619.0	5991.8	185530.9	18.0	14.3	-20.4
80111	-44.4	29.9	4370.7	5.0	4.0	-20.8
80119	-245.4	167.0	2465.5	10.0	0.0	-99.6
90610	-2.9	1.3	2578.2	20.0	19.9	-0.6
90620	-1.1	0.5	20.7	20.0	14.6	-27.1
90810	-19.5	12.1	534.3	5.0	1.3	-73.6
91010	-2.6	1.3	19031.1	20.0	20.0	-0.1
120300	-1087.9	472.0	12198.3	10.0	1.0	-89.6
121190	-0.9	2.8	1998.3	10.0	9.9	-0.6
140300	-301.4	104.9	4762.9	22.5	15.8	-29.7
160239	-145.1	931.6	1541.3	20.0	6.6	-67.0
210690	-4.0	2.3	10121.9	25.0	25.0	-0.2
250410	-11.9	7.7	815.4	5.0	3.5	-29.8
250490	-1.5	3.0	66.6	5.0	2.7	-46.0
261400	-0.2	0.1	243.6	5.0	4.9	-1.6
340213	-462.7	609.1	15904.3	20.0	16.5	-17.7
380690	-9.0	7.2	119.6	25.0	16.5	-34.0
381190	-5.7	3.9	11039.0	10.0	9.9	-0.6
390421	-1.5	2.9	869.0	25.0	24.8	-1.0
400121	-411.5	610.6	10197.3	5.0	0.9	-81.8
400122	-6.0	49.1	5842.5	5.0	4.9	-2.8
400129	-191.5	207.7	5579.6	5.0	1.5	-69.8
400400	-3.0	1.2	1915.5	17.5	17.3	-0.9
400599	-0.3	0.4	170.1	20.0	19.8	-1.0
401490	-0.6	0.5	275.5	25.0	24.8	-1.0
401610	-0.4	6.7	821.2	25.0	24.8	-1.0
420100	0.0	0.0	2.2	25.0	24.8	-1.0
420330	0.0	0.0	19.3	25.0	24.8	-1.0
420340	-0.1	0.5	85.4	25.0	24.8	-1.0
420500	-8.3	6.7	505.3	25.0	23.1	-7.8
440910	0.1	2.4	9.2	20.0	16.5	-17.5
440920	-1.2	3.9	51.3	20.0	16.5	-17.5
441510	-3.8	1.9	49.0	25.0	16.5	-34.0
441520	-0.8	2.1	13.6	25.0	16.5	-34.0
441890	-0.2	1.3	195.8	25.0	24.8	-1.0
460120	0.0	0.0	3.0	25.0	24.8	-1.0
460199	0.0	0.1	17.2	25.0	24.8	-1.0
482319	-1.1	1.4	569.2	25.0	24.8	-1.0
490290	-0.2	0.1	302.1	15.0	14.9	-0.4

HS Code	Revenue Effect	TradeTotal Effect	Trade Value	Old Weighted Rate	New Weighted Rate	Change in Rate
	($ '000)			(Percent)		
500100	-0.4	0.2	10.8	5.0	1.7	-67.0
500200	-28.4	19.0	856.2	5.0	1.7	-67.0
500310	-0.4	0.7	11.8	5.0	1.7	-67.0
500390	-1.0	11.2	33.9	5.0	1.7	-67.0
500400	-0.5	0.3	961.9	5.0	5.0	-1.0
500500	-1.9	1.1	3873.7	5.0	5.0	-1.0
500600	0.0	0.0	61.3	5.0	5.0	-1.0
510111	-0.8	0.6	22.8	5.0	1.7	-67.0
510119	-237.0	143.9	7144.9	5.0	1.7	-67.0
510121	-26.3	19.0	794.7	5.0	1.7	-67.0
510129	-97.6	54.4	2939.0	5.0	1.7	-67.0
510130	-37.5	329.0	1280.9	5.0	1.7	-67.0
510220	0.0	2.2	0.8	5.0	1.7	-67.0
510400	-0.6	23.1	28.1	5.0	1.7	-67.0
510510	-39.4	25.5	1188.1	5.0	1.7	-67.0
510529	-2.6	3.0	80.3	5.0	1.7	-67.0
510610	-9.4	6.4	1101.6	5.0	4.1	-17.4
510620	-19.6	63.9	616.4	5.0	1.7	-67.0
510710	-1.5	0.9	180.4	5.0	4.1	-17.4
530511	-15.0	24.0	302.7	5.0	0.1	-99.0
530519	-0.1	0.1	1.9	5.0	1.7	-67.0
530810	-27.5	16.8	299.3	10.0	0.8	-92.4
550810	-7.6	8.8	159.2	10.0	5.0	-50.5
550820	-5.4	20.0	41.8	25.0	8.3	-67.0
560122	-9.2	6.4	58.0	25.0	8.3	-67.0
560129	-19.9	12.8	125.3	25.0	8.3	-67.0
560410	40.5	1119.2	294.4	10.0	5.0	-50.5
560729	-4.7	2.6	29.1	25.0	8.3	-67.0
560811	-294.8	130.4	1824.3	25.0	8.3	-67.0
560890	-17.8	99.1	154.8	25.0	8.3	-67.0
560900	-2.4	2.5	15.7	25.0	8.3	-67.0
600240	-14.9	6.8	92.4	25.0	8.3	-67.0
600290	-216.6	98.5	1341.4	25.0	8.3	-67.0
630590	-5.8	3.1	36.3	25.0	8.3	-67.0
630720	-23.0	12.5	143.6	25.0	8.3	-67.0
680530	-1.7	1.5	845.2	25.0	24.8	-1.0
690100	-0.7	3.8	675.2	25.0	24.8	-1.0
690410	-0.2	0.1	78.6	25.0	24.8	-1.0
690490	0.0	0.2	7.6	25.0	24.8	-1.0

HS Code	Revenue Effect	TradeTotal Effect	Trade Value	Old Weighted Rate	New Weighted Rate	Change in Rate
	($ '000)			(Percent)		
730610	1.1	6.7	245.4	25.0	24.8	-1.0
730719	0.0	0.0	3213.4	11.7	11.7	0.0
730830	-0.3	1.6	266.8	25.0	24.8	-1.0
731420	0.2	2.6	157.4	25.0	24.8	-1.0
731431	0.0	0.0	6.7	25.0	24.8	-1.0
731590	-0.1	0.2	72.1	25.0	24.8	-1.0
731700	-1.5	1.7	761.2	25.0	24.8	-1.0
732310	-0.2	1.8	258.8	25.0	24.8	-1.0
732619	0.0	0.0	962.2	11.7	11.7	0.0
741510	-0.2	0.1	73.3	25.0	24.8	-1.0
741529	-0.1	0.1	42.9	25.0	24.8	-1.0
760719	-10.7	8.1	6632.4	12.5	12.3	-1.4
761010	-0.2	0.4	115.4	25.0	24.8	-1.0
830300	-0.5	0.5	261.1	25.0	24.8	-1.0
830820	-0.4	0.4	215.6	25.0	24.8	-1.0
830890	-1.3	1.2	508.6	25.0	24.7	-1.2
847210	-0.2	0.1	90.2	25.0	24.8	-1.0
848410	-5.2	3.4	2572.1	23.3	23.1	-1.0
851220	-336.2	256.5	3899.2	35.0	24.8	-29.3
853669	-4.3	1.7	1780.0	25.0	24.7	-1.0
853910	-98.5	118.3	1247.0	35.0	24.8	-29.3
854790	-2.5	2.2	1213.8	25.0	24.8	-1.0
910599	-13.2	25.0	204.2	25.0	16.5	-34.0
940150	0.0	0.0	0.9	25.0	24.8	-1.0
940169	-0.3	0.3	135.9	25.0	24.8	-1.0
940179	0.0	0.0	1.3	25.0	24.8	-1.0
940180	-0.1	0.1	44.7	25.0	24.8	-1.0
940600	-19.8	9.4	8864.5	25.0	24.8	-1.0
950210	-0.1	0.1	44.6	25.0	24.8	-1.0
950330	-1.9	1.3	891.8	25.0	24.8	-1.0
950350	0.0	0.0	15.4	25.0	24.8	-1.0
950390	-14.8	18.0	7712.9	25.0	24.8	-1.0

Table 70 Change in Exports as a Result of Concession List of Sri Lanka for Pakistan

Exporter	Exports	Exports	
	Before ($ '000)	After ($ '000)	Change
Afghanistan	1.66	1.66	0.00
Australia	2321.45	2239.12	-82.32
Austria	86.76	86.75	-0.01
Bahrain	13.21	13.21	0.00
Bangladesh	65.13	65.12	-0.01
Belgium	35.32	35.28	-0.04
Brazil	71.79	71.51	-0.28
Bulgaria	89.39	88.69	-0.70
Myanmar	47.62	46.25	-1.37
Cambodia	1.10	1.10	0.00
Canada	477.84	474.72	-3.12
China	8317.13	8275.03	-42.09
Taiwan, China	2565.22	2564.18	-1.04
Cyprus	23.90	23.51	-0.39
Czech Republic	6.68	6.68	0.00
Denmark	25.82	25.54	-0.28
Finland	0.74	0.74	0.00
France	290.15	290.01	-0.13
Germany	1183.86	1182.63	-1.24
Hong Kong, China	13999.39	13996.10	-3.29
India	6145.88	6055.37	-90.51
Indonesia	374.69	373.23	-1.46
Iran, Islamic Rep.	78.52	77.44	-1.08
Ireland	16.63	16.62	0.00
Israel	39.04	36.27	-2.77
Italy	2182.59	2181.04	-1.54
Japan	1329.45	1328.76	-0.69
Korea, Rep.	2954.12	2951.60	-2.52
Kuwait	2.10	2.10	0.00
Malaysia	1473.95	1471.10	-2.84
Mauritius	2.01	2.01	0.00
Mexico	1.02	1.02	0.00
Morocco	39.95	39.95	0.00

Exporter	Exports	Exports	
	Before ($ '000)	After ($ '000)	Change
Netherlands	189.08	188.50	-0.58
New Zealand	55.38	55.29	-0.09
Norway	3.64	3.64	0.00
Pakistan	**3393.16**	**4218.20**	**825.04**
Philippines	9.77	9.76	-0.01
Portugal	12.86	12.86	0.00
Saudi Arabia	3.35	3.35	0.00
Singapore	3026.64	3022.67	-3.97
Vietnam	15.88	15.88	0.00
South Africa	830.12	818.12	-12.01
Spain	36.56	36.48	-0.08
Sweden	641.44	641.27	-0.17
Switzerland	604.79	604.64	-0.16
Syrian Arab Republic	14.48	14.37	-0.11
Thailand	821.06	820.63	-0.43
United Arab Emirates	4897.82	4826.81	-71.01
Turkey	2781.82	2758.37	-23.46
Ukraine	5.65	5.61	-0.04
United Kingdom	1891.56	1890.88	-0.68
United States	1286.59	1259.10	-27.49
Yemen	1.32	1.21	-0.11
Unspecified	13.00	12.87	-0.13

Table 71 Changes in Sri Lanka's Imports ($ '000)

HS Code	Imports	Imports	Tariff	Tariff	Tariff	Consumer
	Before	Change	Revenue	New Revenue	Change	Surplus
All	64,800.07	444.763	9,759.91	9,188.42	-571.489	62.214
71320	7,326.68	37.199	879.201	829.694	-49.507	4.328
80410	1,263.22	0.264	75.636	75.33	-0.306	0.016
80510	2,142.50	137.206	478.116	301.186	-176.93	24.373
80520	578.752	37.965	118.006	55.247	-62.759	5.571
80810	6,086.57	6.889	1,664.67	1,651.69	-12.979	1.876
81090	169.083	3.713	46.498	38.895	-7.602	0.928
90930	1,517.67	60.442	182.121	105.731	-76.39	5.651
90950	504.339	39.575	60.521	15.937	-44.583	2.954
91099	641.671	72.354	143.307	51.581	-91.726	10.693
120799	15.832	2.007	2.414	2.228	-0.186	0.278
130232	106.572	0.101	12.789	12.669	-0.119	0.012

HS Code	Imports Before	Imports Change	Tariff Revenue	Tariff New Revenue	Tariff Change	Consumer Surplus
200919	436.049	7.257	119.913	111.934	-7.98	1.914
390690	2,495.30	0.652	176.388	175.938	-0.45	0.046
392620	15,077.78	0.948	3,311.79	3,310.46	-1.334	0.208
560790	1,032.49	0.336	243.925	243.37	-0.555	0.079
640620	1,958.18	2.131	234.981	233.811	-1.17	0.255
730431	179.612	1.711	13.095	10.756	-2.339	0.113
730459	559.601	14.86	19.534	5.065	-14.469	0.325
730660	2,572.51	2.732	151.712	149.823	-1.888	0.16
730690	2,395.01	6.1	164.821	153.071	-11.751	0.404
741820	160.734	6.087	44.202	43.26	-0.942	1.626
820320	219.889	0.056	12.885	12.824	-0.061	0.003
821192	95.392	0.683	11.447	10.434	-1.013	0.078
821300	517.298	1.465	30.986	29.318	-1.668	0.085
830890	10,536.35	1.793	1,264.36	1,262.04	-2.326	0.215
848210	3,464.37	0.034	62.29	62.254	-0.036	0.001
848330	935.939	0.037	23.769	23.736	-0.033	0.001
853229	1,810.69	0.167	210.534	210.148	-0.386	0.019

Table 72 Change in total trade value and weighted rates as a result of Sri Lanka's concession

HS Code	Revenue Effect	Trade Total Effect	Trade Value	Old Weighted Rate	New Weighted Rate
	($ '000)			(Percent)	
	-571.489	444.763	64,800.07	13.72	11.26
71320	-49.507	37.199	7,326.68	12	11.27
80410	-0.306	0.264	1,263.22	5.99	5.96
80510	-176.93	137.206	2,142.50	22.32	13.21
80520	-62.759	37.965	578.752	20.39	8.96
80810	-12.979	6.889	6,086.57	27.35	27.11
81090	-7.602	3.713	169.083	27.5	22.51
90930	-76.39	60.442	1,517.67	12	6.7
90950	-44.583	39.575	504.339	12	2.93
91099	-91.726	72.354	641.671	22.33	7.22
120799	-0.186	2.007	15.832	15.25	12.49
130232	-0.119	0.101	106.572	12	11.88
200919	-7.98	7.257	436.049	27.5	25.25
390690	-0.45	0.652	2,495.30	7.07	7.05
392620	-1.334	0.948	15,077.78	21.96	21.95
560790	-0.555	0.336	1,032.49	23.63	23.56
640620	-1.17	2.131	1,958.18	12	11.93

HS Code	Revenue Effect	Trade Total Effect	Trade Value	Old Weighted Rate	New Weighted Rate
	($ '000)			(Percent)	
730431	-2.339	1.711	179.612	7.29	5.93
730459	-14.469	14.86	559.601	3.49	0.88
730660	-1.888	2.732	2,572.51	5.9	5.82
730690	-11.751	6.1	2,395.01	6.88	6.37
741820	-0.942	6.087	160.734	27.5	25.93
820320	-0.061	0.056	219.889	5.86	5.83
821192	-1.013	0.683	95.392	12	10.86
821300	-1.668	1.465	517.298	5.99	5.65
830890	-2.326	1.793	10,536.35	12	11.98
848210	-0.036	0.034	3,464.37	1.8	1.8
848330	-0.033	0.037	935.939	2.54	2.54
853229	-0.386	0.167	1,810.69	11.63	11.6

Table 73 Potential Trade Effect as a Result of Concessions under PSFTA

HS Code[86]	Trade Total Effect	Trade Diversion Effect	Trade Creation Effect	Old Duty Rate	New Duty Rate
	($ '000)			(%)	
Result of concessions by Pakistan	5,991.8	0.0	5,991.8	19.3	16.6
Result of concessions by Sri Lanka	444.763	0.0	444.763	13.83	12.84

[86] Potential effects calculated on 2004 data from COMTRADE.