



**The Effect of Preferential Trade Agreements on Pakistan's
Export Performance**
by
Shaista Alam

Abstract

The main objective of this study is to investigate empirically the effect of free or preferential trade agreements (PTAs) on Pakistan's export performance (value of exports, number of exporters and number of products per exporter) during the period 2003 to 2010. The analysis covers the South Asian Free Trade Area (SAFTA) and five bilateral PTAs with China, Sri Lanka, Malaysia, Iran and Mauritius. Data from the World Bank Exporters Dynamics Database are analysed using fixed effect panel data techniques. The SAFTA and PTAs with China and Iran are associated with improved export performance in terms of value of exports and number of exporters. There is no evidence that the bilateral PTAs with Sri Lanka and Mauritius affect export performance of Pakistan. There is some evidence for product diversification under the PTAs with Malaysia and Mauritius, whereas with Sri Lanka and China product diversification declined.

JEL Classifications: C21, E21, F14, F13, F41

Key Words: Pakistan, Preferential Trade agreements, Free Trade Areas, Export Performance.



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1. Introduction

Since independence Pakistan has suffered from large trade deficit, as imports have grown much faster than exports. Exports of a country are considered as a main pillar of the economy, a source of earnings, and foreign exchange, employment opportunities and ability to achieve strong and sustainable growth for a country. Only since early 2000s has Pakistan's export performance been impressive registering an average growth of 16 percent per annum on the back of strong macroeconomic policies pursued at home and a favourable international trading environment. Rising domestic demand due to strong economic growth increased the level of investment which ultimately increased the country's demand for capital goods and machinery imports. The import bill still remains much larger than exports revenue and Pakistan experiences an enormous trade deficit (see Table 1). Trade deficits remain a burden on the economy, despite trade liberalization, primarily removal of barriers, rationalization of tariff structure and reduction in protectionist policies (Alam and Ahmed, 2010). As the measures were mostly on liberalizing imports rather than promoting exports there may have been a limited stimulus to export performance, hence persistent deficits. Empirical research on how trade policies can promote exports is important for policy makers. This paper investigates the effect of trade agreements on export performance over the period 2003-2010.

There is a large literature on the possible determinants of export performance distinguishing external and internal factors. The internal factors are associated with supply side conditions. The external factors consist of market access conditions, demand conditions, proximity of international markets, and trade barriers in foreign markets. Relating these factors are transportation cost, location of origin and market destination country and the physical infrastructure of internal and external markets (Redding & Venables, 2004).

Changes in countries' international market access arise due to changes in aggregate import demand from partner countries, especially those that are close. This can be encouraged through regional trade and integration agreements. There are many studies on the effects of preferential trade agreements (i.e., regional and free trade agreements) on export performance and emphasizing the role of PTAs (Preferential trade agreements). However, the results are

inconclusive. The establishment of PTA requires the consent of two countries' governments, and according to Grossman and Helpman (1995) improves comparative stability in trade between the partner countries.

Table 1: Pakistan's Trade Prospects 1980 to 2013

Years	Export-GDP ratio	Import-GDP ratio	Trade Balance-GDP ratio
1980	12.5	24.1	-11.6
1990	15.5	23.4	-7.8
1995	16.7	19.4	-2.7
2000	13.4	14.7	-1.2
2001	14.7	15.7	-1.1
2002	15.2	15.3	-0.1
2003	16.7	16.1	0.6
2004	15.7	14.6	1.0
2005	15.7	19.6	-3.9
2006	14.1	21.5	-7.4
2007	13.2	19.8	-6.6
2008	12.4	23.2	-10.8
2009	12.4	19.7	-7.3
2010	13.5	19.4	-5.8
2013	13.2	19.9	-6.7
<i>Source: International Financial Statistics (various issues)</i>			

The main intention of the present study is to explore the factors that influence the export performance of Pakistan in conjunction with preferential/regional trade agreements with partner countries as determinants of export performance controlling for external such as proximity employing a gravity model framework. The analysis uses export data from the Exporter Dynamic Database for a sample of 125 destination countries over the period of 2003 to 2010. Countries with which free or preferential trade agreements were signed are captured with a dummy variable (taking a value of one from when the agreement was signed). The study employs three models. The first considers total value of bilateral exports as a function of income of partner countries, level of development of destination countries, preferential trade agreements, industrial exports as a share of total exports, textile exports as a share of industrial exports, number of HS-6 products exported per exporter across destination (a measure of product diversification) and positive and negative discrepancy found in the bilateral export data (see Section 4). The second, model has the number of exporters as the dependent variable and the third has number of products as dependent variable; both have the same set of explanatory variables as the first.

The organization of the study is as follows: Section 2 reviews previous literature and section 3 demonstrate some description analysis of Exporters Dynamics Database, section 4 presents model specification and estimation technique for empirical analysis and section 5 exhibits data sources and variables information. Section 6 discusses empirical findings and finally section 7 concludes.

2. Review of Previous Literature

This section presents a brief review of selected studies on the effect of free trade areas and preferential trading arrangements on export growth, and of modelling approaches used to measure the effects of FTAs and PTAs on export performance. When estimating the effects on trade patterns most studies use the gravity model because it is a tractable and flexible way of modelling bilateral trade flows.

Trade integration is playing a crucial role to increase trade flows between member countries. The number of FTAs and PTAs has increased rapidly during the past decades, involving developed and developing countries in all regions. There are many studies that discuss the trade integration between North-North, North-South and South-South region, benefits of trade integration among developing and developed countries, and the modelling approaches used to examine the effect of FTAs/PTAs on bilateral trade flows among member countries. The gravity equation is the most popular tool that measures the effect of free trade agreements on bilateral trade flows. Some previous studies find mixed and inconclusive results such as Abrams (1980) and Frankel et al, (1995), while recent studies find that FTAs/PTAs raise the bilateral flows between associate countries significantly (Baier & Bergstrand, 2007). However it is not obvious that increase in trade flows is similar in developed and developing member countries. According to Krugman (1991) and Magee (2003), the developing countries are un-natural trading partners because of their alike comparative advantage, same endowments, limited economic sizes and higher trade costs.

According to Ethier (1998) and Krueger (1997) Southern countries are expected to play better role in North-South agreements than agreements among themselves, because countries have different endowments and factor proportions. Moreover through these agreements developing countries can enter in more developed markets. On the other hand, when

agreements are between countries with unequal bargaining power, the trade is not welfare enhancing (Panagariya, 1999), because the formulation of schemes and rules by high income countries and low income countries have to implement their rules in spite of whether these rules are suitable for them. Therefore, in North-South agreements the advantage of low income countries is limited (Whalley, 2003).

Focusing on North-South trade agreements, Trefler (2004) finds positive and significant effect of NAFTA on Mexico's trade but Pacheco-López (2003) finds no effect of NAFTA on Mexican trade. Anson et al (2005) and Carrere and de Melo (2004) note that Mexico has limited trade with USA due to restrictive rules of origin. Estevadeordal and Suominen (2004) establish a measure of restrictiveness of rule of origin through the gravity equation and confirm that this rule weakens trade between member countries. Cieslik & Hagemeyer (2009) estimate EU-MENA trade agreement and discover that exports increased from the EU to MENA but not in the reverse direction.

Very few studies exist on trade agreements and exporter level data in case of Pakistan. Reis and Taglioni (2013) evaluate the trade competitiveness of Pakistan by using micro level trade data and explore that Pakistan's exports are concentrated in the hands of few big exporters and the control of these exporters are increasing with time and trade policy changes could not cope it. The study also finds that product modernization rate is very low in Pakistan. The middle pace performance of Pakistani exporters is due to domestic problems like business atmosphere, lack of trade related incentives, governance issues as well as external barriers.

Khan (2006, 2010) analyze the level of potential trade flows between Pakistan and ECO member countries and found large potential for Pakistan in case of intra-ECO trade, but the actual trade was lower than its potential. The study further establishes that the scale of trade at that time was assigned to regional agreements rather than unilateral liberalization, and suggests larger scope for regional cooperation among ECO member countries. The advantage of geography and the existence of trade preferences between ECO member countries could be extended to cover-up potential trade towards neighbouring countries.

Ahmed and Kalim (2014), discusses the effect of different international trade reforms like Multi-fiber Arrangements, Quota elimination and GSP plus on Pakistan's Textile and Clothing sector. This study examines the long run relationship among revealed comparative

advantage of textile and clothing sector and trade performance of Pakistan by employing Johansen co-integration technique and finds that textile sector contributes considerably in the trade performance of Pakistan while clothing sector do not contribute as much. Study further discovers the fact that textile and clothing do not acquire the advantages of quota elimination as it was expected.

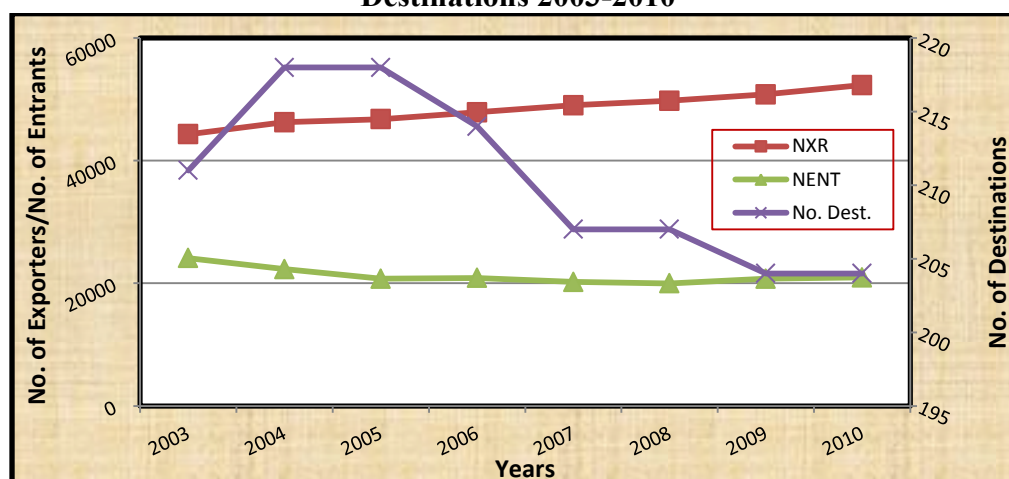
3. Descriptive Analysis

The Exporters Dynamic Database (Cebeci, Fernandes, Freund, and Pierola, 2012) is the exporters' level data collected from Customs agencies of various countries. The data set consists of 45 countries including 37 developing and 8 developed countries. Few countries were denied to access their exporter-level data to external researchers. Unfortunately Pakistan is the one of those countries. Therefore the present study will examine only summary data, not detailed firm level data for Pakistan.

The data file of country-year-destination (CYD) of Exporters Dynamic Database for Pakistan contains characteristics and dynamics of Pakistani exporters with 230 bilateral destination countries of Pakistan export for the period from 2002 to 2010. This data set consists of number of exporters, number of firms enter, number of firms exit, number of survivors, concentration/diversification measures, Average export value per exporter, number of exporter per HS6 product, number of HS6 product per exporter and other such measures across the years and across the destinations for Pakistan's exports.

Figure 1, plots the number of exporters and number of entrants across the period 2003 to 2010. Figure also plots number of destinations across the data period on secondary vertical axis. The chart depicts high growth for both numbers of exporters and destination countries during the early periods of analysis (2003-2005). Whereas, such higher pace of growth does not continued in the later period where number of exporters keep rising while growth of number of destination countries has shown reverse trend. This might be an indicator of concentration of export markets as compared to diversification of export in early period analysis. The number of destinations is highest in the year 2004 and 2005, which was accounted as 218 destinations. Figure also portrays the number of new entrants in export market, which shows declining trend till 2008 and afterward it go upward slightly.

Figure 1: Number of Exporters, Number of Entrants and Number of Destinations 2003-2010



Source: Author's illustration from Exporters Dynamics Database.

Note: NXR represents number of exporters, NENT represents number of entrants.

Table 2: Number of Destinations and Export Value per Destination: 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total No. of Destinations	190	211	218	218	214	207	207	204	204
No. of Destinations (1-10) exporters	67	72	68	71	68	55	55	54	54
Median export value per destination (1-10) exporters	0.015	0.020	0.015	0.018	0.025	0.022	0.010	0.006	0.008
No. of Destinations (11-50) exporters	53	54	57	54	52	59	52	47	43
Median export value per destination(11-50) exporters	0.025	0.020	0.020	0.016	0.028	0.022	0.019	0.021	0.019
No. of Destinations (51-100) exporters	14	25	28	25	25	18	24	25	26
Median export value per destination(51-100) exporters	0.026	0.029	0.028	0.023	0.024	0.034	0.042	0.033	0.028
No. of Destinations (101- 500) exporters	38	37	41	42	43	48	48	50	53
Median export value per destination(101-500) exporters	0.022	0.025	0.025	0.027	0.028	0.028	0.037	0.031	0.032
No. of Destinations (501 plus) exporters	18	23	25	26	26	27	28	28	28
Median export value per destination(501 plus) exporters	0.027	0.028	0.027	0.033	0.031	0.032	0.036	0.028	0.030

Note: Median value of Exports per destination is reported in Million US\$.

Source: Author's calculations from Exporters Dynamics Database.

As far as number of destinations and the median value of exports across destination concern, Table 2 reports total number of destinations and median value of exports per destination for each year. Table shows number of destinations for various categories of number of exporters (such as 1-10 exporters, 11-50, 51-100, 101-500 and more than 500 exporters). It also presents median value of exports per destination for each of the categories mentioned earlier. Table indicates that 9% to 14% destinations have more than 500 exporters per destination, while 26% to 35% destinations have 1 to 10 exporters per destination.

The Country-year-Destination (CYD) file of Exporter Dynamics Database also has data for number of HS6 products per exporter (mean) across export market of Pakistan during the period 2002 to 2010. The data of this variable presents the product diversification across destinations. Table 3 displays descriptive statistics of number of HS6 product per exporter. Table reveals maximum number of products per each exporter shows variation during the period, while minimum number of products is always 1. The maximum number of products reported in 2006 is highest across all partner countries. The mean value of NHS6 is highest in 2007 and lowest in 2002. The variation in the NHS6 products per exporter across markets is highest in 2004, implies that NHS6 vary from one to 11 products per exporter exported to destinations.

**Table 3: Product Diversification per Exporter across Destinations
2002 - 2010**

NHS6	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mean	1.548	1.672	2.019	2.043	2.078	2.295	2.072	2.016	1.950
Median	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Standard deviation	0.476	0.719	1.029	1.023	1.024	0.911	0.834	0.669	0.729
Max.	4.714	6.500	10.000	9.682	10.941	7.906	6.889	5.436	6.218
<i>Note:</i> Minimum number of HS6 product per exporter is always 1.									

Source: Author's calculations from Exporters Dynamics Database.

Analysis of Major Export Markets

In this section, study describes the export performance of Pakistan with reference to her major export markets with value of exports, number of exporters and the number of product

per exporter exported to major markets. Table 4 presents the percentage share of total value of exports to Pakistan's major export markets from 2003 to 2010. Table explains that European Union and USA are the leading export markets of Pakistan during the period. However, the combine share of both markets was 55.2% in 2003, 58.3% in 2005 and that had to turn down to 43.4% in 2010, it could be due to decline in textile exports to these markets. The WTO Agreement on Textile & Clothing (ATC), put backed the Multi Fibres Agreement (MFA), offered for the elimination of quota restriction in four phases over ten years period. The ATC phased out on December 2004. Through this agreement WTO has protected Developed countries to promote their local textile industry. Pakistan has suffered a lot due to this quota regime. During this regime in one hand Pakistan's major partners developed their own textile industry and on the other hand Pakistan has faced other problems as well, such that energy crises, law and order conditions, lack of research and development, lack of advanced equipments and machines, high inflation rate, considerable rise of cost of imported inputs, high cost of production, increase cost of financing and increase competition from China and India.

Table 4: Pakistan's Exports to Various Markets (% share)

Major Markets	2003	2004	2005	2006	2007	2008	2009	2010
USA	24.7	26.1	28.3	28.5	23.5	19.5	18.7	18.1
EU	30.5	34.1	30.0	28.9	28.8	27.0	25.8	25.3
Middle East	18.7	15.6	14.5	13.5	15.8	19.6	19.0	17.3
East Asia	9.5	9.2	9.3	9.6	9.7	8.4	10.0	11.5
South Asia	2.8	3.3	4.0	4.9	8.1	9.8	10.7	12.0
AUS	1.0	1.0	1.0	0.8	0.8	0.8	0.7	0.7
CAN	1.7	1.5	1.5	1.4	1.2	1.0	1.0	1.1
rest of the world	11.1	9.2	11.5	12.4	12.3	13.8	14.0	14.0
World	100	100	100	100	100	100	100	100

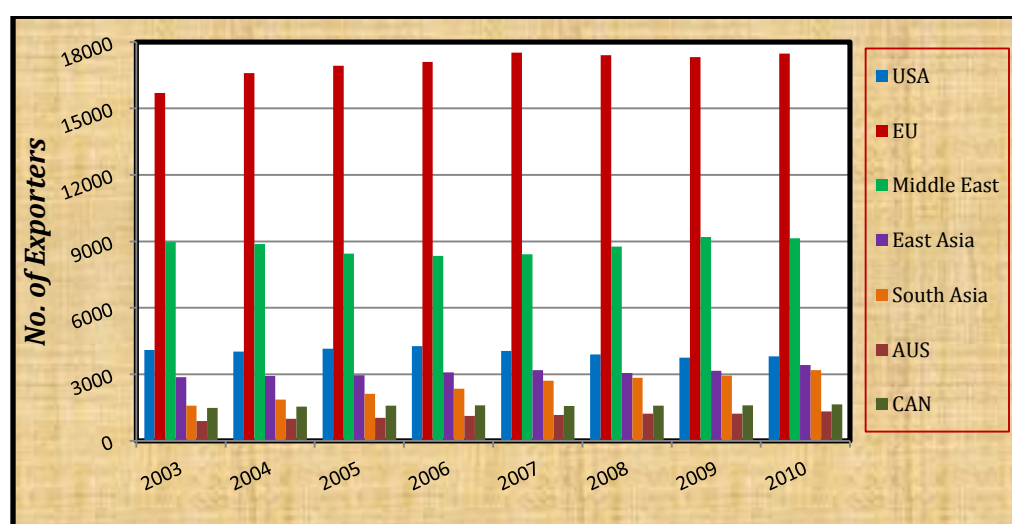
Source: Author's calculations from Exporters Dynamics Database.

The export share of USA is 24.7% in 2003 increasing till 2006 to 28.5%, while in later period it turns down to 18.1% in 2010. A part from the reasons discussed earlier, United States of America also impose high duties on imports from Pakistan. The export share to Middle East

demonstrates little variation during the period but do not found much difference between initial and final year's share. The export share to East Asia augmented 2% during eight years period from 9.5% to 11.5%. In East Asian countries, Hong Kong, China and South Korea are main contributing countries in this share.

Pakistan's export share to South Asian region has been escalating during 2003 to 2010. The share of exports to South Asia was 2.8% in 2003 that has grown up to 12.0% in 2010. After the establishment of South Asian Free Trade Area (SAFTA), Pakistan export share to the region has rapidly amplified. Afghanistan is the largest importer of Pakistan within the region. Pakistan export value to Afghanistan was US\$ 2.49 million in 2003 and US\$ 5.30 million in 2005. After the formation of SAFTA it is found that export to Afghanistan tremendously grown and in the first year of agreement it was mounted to US\$ 155 million to final year US\$ 1230 million. The second largest importer of Pakistan is Bangladesh, and following are Sri Lanka and India. These four countries are the main importers of Pakistani exports within the region. Exports to Maldives were also growing during the period, but the value of exports is very low as compare to Afghanistan, Bangladesh, Sri Lanka and India. The exports to Nepal were also very low and were declining during the period. As far as export share to Australia and Canada concern, these were very low during the period and show declining trend from 2003 to 2010.

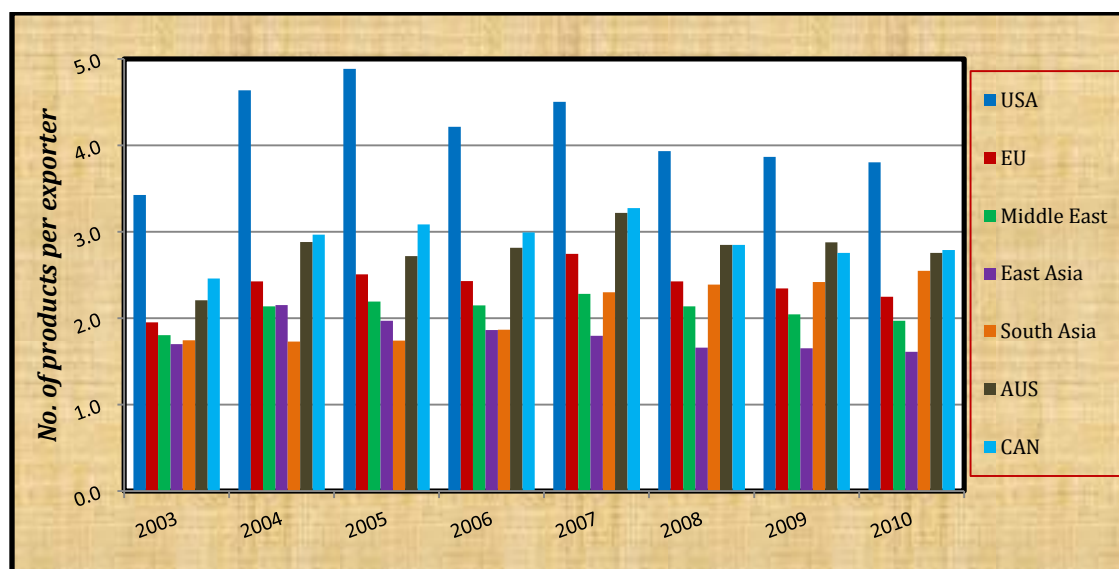
Figure 2: Number of Exporters across Major Markets



Source: Author's illustration from Exporters Dynamics Database.

The figure 2 demonstrates the comparison among number of exporters across major export markets of Pakistan. The figure illustrates that EU is the largest market as it has highest number of exporters as well as highest value of exports from Pakistan (as shown in Table 4). The number of exporters to EU is four times greater as compare to number of exporters to USA and approximately doubles to Middle East. The figure indicates another fact that all exports markets do not show substantial progress in the number of exporters excluding South Asia, which illustrates the evidence of consistent and sizeable improvement in the number of exporters during the period. The above discussion suggests that extensive margins of exporters did not increase substantially for most of the export markets over the period. Only South Asian market shown considerable growth in extensive margins of Pakistani exporters during study period.

The figure 3 presents the product diversification across major markets over the study period. The product diversification measured by number of HS6 products per exporter. The figure demonstrates that exports to USA are highly diversified among all major markets. The number of products per exporter exported to USA is around four in most of the years and approaching to five products per exporter in 2005. The trend of product diversification to USA is to some extent normally distributed as market share of USA and mean value of export per exporter to USA. The number of products per exporter for European Union is highest in 2007, which is lowers than 3, for all remaining years it has value around 2 products. For Middle East and East Asia product diversification level has been very low during whole period of study. Whereas degree of product diversification, has been improving in case of South Asian region, over the years particularly after the formation of SAFTA. The figure reveals that level of product diversification for Australia and Canada is better than European Union, Middle East, East Asia and South Asia over the period.

Figure 3: Product Diversification across Major Markets

Source: Author's illustration from Exporters Dynamics Database.

Analysis of Free/Preferential Trade Areas

The present section, expresses the export performance of Pakistan with especial reference to her those destination markets with whom Pakistan has agreements of free trade area and preferential trade areas regarding value of exports, number of exporters and the number of product per exporter exported to her FTAs/PTAs.

To evaluate the Pakistan's export performance across Free Trade Areas (FTAs) and export markets with Preferential Trade Agreements (PTAs), the present study illustrates total values of exports, number of exporters and number of products per exporter across FTAs/ PTAs in Table 5. The Table 5, panel (A) evidently explains the rapid and substantial growth of Pakistan's total export values to South Asian Free Trade Area over eight years span, especially after establishment of SAFTA. Pakistan's major product categories export to South Asia are textile & clothing, minerals, vegetables, metals, plastic & rubber products, mechanical & electrical machinery, animals and chemicals. Throughout the period, all categories of exports to South Asian Region expand considerably. Pakistan's total exports to China also found considerable escalation after the formation of FTA. The export of textile & clothing, minerals, animals, hides & skins, metals, plastic & rubber products, food products and vegetables are the Pakistan's major exports to China and export of all major categories

are growing, whereas export of chemicals, foot wear and transport are decline during this period.

Pakistan's export in terms of values with other PTAs like Sri Lanka, Iran and Malaysia shows slower growth as compare to export with SAFTA and China. The close review of data demonstrates that textile and clothing export to Iran, Malaysia and Mauritius are showing decline during the period of study, while for Sri Lanka it displays increasing trend. Conversely, total export value to Mauritius has shown no development; even it declines in later period. In 2003 its value is US\$33 million, which increase in 2008 to US\$ 40 million and afterward it collapse to US\$36 million. The reason of this decline is decrease in export of textile & clothing as well as footwear, plastic & rubber goods, stone glass, wood and metal products, machinery and electrical equipments and other miscellaneous items.

The Changes in number of exporters across free trade areas and preferential trade arrangements over the period 2003 to 2010 are exposed in Table 5, panel (B). The table obviously illustrates that number of exporters to South Asian markets are promptly growing throughout the period. From 2003 to 2010, the number of exporters is doubled, presenting hopeful picture. The number of exporters to China and Malaysia are also presenting inclining trend during the study period but the growing pace of number of exporters to Malaysia is not as fast as for South Asia and China. The numbers of exporters to China grownup more than double throughout this time span. Moreover, the rate of growth of number of exporters to Sri Lanka and Iran is quite low, but growing positively, while the number of exporters to Mauritius does not showing promising condition.

The situation discussed above suggests that extensive margin (number of exporters) for South Asian Market has been increased tremendously during this span of time. The expansion in extensive margin presented almost similar picture for China, while for other PTAs/FTAs like Malaysia, Sri Lanka, Iran and Mauritius growth of extensive margins are very slow and inconsistent throughout the period.

Table 5: Analysis of preferential/ Free Trade Areas

PTA/FTA	2003	2004	2005	2006	2007	2008	2009	2010
Panel (A): Export Value (Million US\$)								
SAFTA	311.70	402.59	399.42	702.72	1226.49	1665.88	1875.95	2052.32
China	150.61	283.83	291.49	423.44	500.85	619.25	722.38	1007.41
Malaysia	41.76	78.47	63.33	65.65	57.64	74.27	137.90	156.63
Iran	14.52	71.45	68.75	121.63	162.42	129.28	375.17	230.66
Sri Lanka	45.84	78.26	129.05	141.24	169.18	204.23	216.37	232.12
Mauritius	19.75	33.49	36.40	29.12	35.18	35.37	40.39	28.67
Panel (B): Number of Exporters								
SAFTA	1584	1862	2123	2351	2707	2844	2948	3189
China	430	494	591	664	785	875	914	1036
Malaysia	729	658	622	629	664	809	917	867
Iran	180	221	230	338	367	379	362	356
Sri Lanka	531	573	636	601	584	590	650	654
Mauritius	211	230	210	226	207	227	194	211
Panel (C): Number of Products (Mean)								
SAFTA	1.7	1.7	1.7	1.9	2.3	2.4	2.4	2.6
China	2.0	2.7	2.3	2.1	2.0	1.8	2.0	1.9
Malaysia	1.9	2.1	2.2	2.1	2.3	2.1	2.2	2.3
Iran	1.5	1.8	1.7	1.6	1.9	1.7	1.6	1.7
Sri Lanka	2.1	2.8	2.6	2.6	2.5	2.4	2.4	2.3
Mauritius	2.0	2.4	2.7	2.7	3.2	2.7	2.6	2.2

Source: Author's calculations from Exporters Dynamics Database.

The Table 5, panel (C) presents the changes in the product diversification across FTAs/PTAs over the study period. The product diversification measured as average number of HS6 products per exporter. The number of HS6 products is highest for Mauritius in most of the years, while the value of exports and number of exporter are very low as compare to other FTA/PTAs. Pakistan's export to South Asia is quite low diversified in terms of number of products. Number of products per exporter is less than 2 in the initial year of the study period, whereas in later period the product diversification has augmented from 2.3 to 2.6 for South Asia. In other words we can say that after the free trade agreement came into action the degree of product diversification has also improved. Pakistan's export to China has also low degree of diversification. In the early period it is between 2 and 2.7 whereas in later period it is less than 2 products per exporter. The degree of product diversification for Sri Lanka is much better as compare to south Asia and China, it is greater than 2 (2.1 to 2.8) products per exporter throughout the period. The level of product diversification for Iran and Malaysia is less than 2 and between 1.9 and 2.3 respectively.

4. Model Specification and Estimation Method

The present study develops a variant of traditional export demand model as a framework to analyze the association between trade liberalization and Pakistan's export performance. However, there are other factors are also involved that influence the export performance of a country and that must be considered, such as external demand conditions and internal supply side factors. As external demand side factors, the study employs income of importing countries (GDP_j) and development level of importing countries measured as Gross Domestic Product per capita (GDPC_j). The internal supply side variables like product diversification measured as number of HS-6 products exported per exporter across destination, share of industrial exports in total exports and share of textile exports in industrial exports as measure of composition effect.

The preferential trade agreements can also have an impact on trade cost. Certainly PTAs offer favourable scenarios associated with the reduction in administrative or institutional costs. Consequently, the agreement on South Asian Free Trade Area (SAFTA) and bilateral PTAs with China, Malaysia, Sri Lanka, Mauritius and Iran are incorporated in the model as dummies: DSAFTA, DCHN, DMYS, DLKA, DMUS and DIRN respectively.

The study employs pooled OLS and panel fixed effects with country pair specific fixed effects and time specific fixed effects to evaluate Pakistan's export performance. The specific aim is to test the effect of PTAs on the value of exports, the number of exporters and the number of products exported per exporter (as an indicator of the intensive margin) using the regression as follows:

$$LY_{jt} = \alpha + \alpha_j + \alpha_t + \alpha_1 LGDP_{jt} + \alpha_2 LGPPC_{jt} + \alpha_3 NHS6_{jt} + \alpha_4 IND_{jt} + \alpha_5 TXT_{jt} + \alpha_6 DSAFTA + \alpha_7 DCHN + \alpha_8 DMYS + \alpha_9 DLKA + \alpha_{10} DMUS + \alpha_{11} DIRN + \alpha_{12} PD_{jt} + \alpha_{13} ND_{jt} + \mu_{jt} \quad (1)$$

where,

Y_{jt} represents which of the three dependent variables is used: total bilateral export value (TXB_{jt}) flows from Pakistan to partner country j at time period t ; Number of exporters (NXR_{jt}) and Number of products at the Harmonized System 6 digit level ($NHS6_{jt}$).

α_j is the country pair fixed effects and α_t is the year specific fixed effect,

GDP_{jt} is Gross Domestic Product of partner country j at time t ,

$GDPC_{jt}$ is the gross domestic product per capita of partner country j at time t ,

IND_{jt} represents share of manufacturing exports in total bilateral exports from Pakistan to destination country j at year t .

TXT_{jt} represents share of textile exports in manufacturing exports from Pakistan to partner country j at time t .

$DSAFTA$, $DCHN$, $DMYS$, $DLKA$, $DMUS$ and $DIRN$ are dummy variables for regional and bilateral preferential trade agreements with Pakistan. If the value of variable one, it means both origin and partner countries are the member of PTA at time t , otherwise it is taking as zero.

PD_{ijt} and ND_{ijt} represent positive and negative discrepancy in our export data. The discrepancy is a proxy of measurement error in our export data.

The potential discrepancy is estimated as the difference between X_j (the value of exports to country j reported by Pakistan) and M_j (the value of imports from Pakistan reported by country j). As there are a number of reasons why there may be annual inconsistencies (even simply due to the timing of recording) we calculate averages of X_j and M_j over a number of years. Furthermore, as differences up to 15% can reasonably be expected (e.g. due to cif or fob valuations), to focus attention on significant discrepancies the criterion of +/- 30% is used. The actual discrepancy measure for the model is based on the ratio (X_j/M_j) where:

- A ratio (X_j/M_j) ≥ 1.3 implies a positive discrepancy so export values may be overstated, included as a binary variable: $PD = 1$ if ratio (X_j/M_j) ≥ 1.3 and 0 otherwise.
- A ratio (X_j/M_j) ≤ 0.7 implies a negative discrepancy so export values may be understated, included as a binary variable: $ND = 1$ if ratio (X_j/M_j) ≤ 0.7 and 0 otherwise.

In above stated model PD_{ijt} represents positive discrepancy and ND_{ijt} represents negative discrepancy. The μ_{jt} s are stochastic error terms with usual white noise properties and L represents natural logarithm.

The study used complete bilateral export data of Pakistan to her 125 partner countries for the period 2003 to 2010. Since the data do not contain any zero value of export flows, therefore there is no difficulty for estimation of model in log linear transformation.

The gross domestic product (GDP) of partner countries is considered as the size of the economy. If it is larger the demand for export of Pakistani goods will be greater. Therefore the present study would expect positive sign for the coefficient of GDP_j.

GDP per capita (GDPC_j) of importing countries is considered as a measure of level of development and infrastructure that is necessary to perform import. It explains the level of population welfare in the country (Boyes and Melvin, 2005). Sign of the coefficient of GDP per capita may be positive or negative. If a partner country have higher per capita income, it demands more country i's export, coefficient of per capita GDP will be positive; on the other hand due to economies of scale effect in country j, if country j produced more goods then demand for country i's export will reduce. Therefore the coefficient of GDP per capita will be negative.

The number of HS6 products per exporter is the measure of product diversification. If number of HS6 is higher, it means that exporters are more diversified. It is expected positive effect on export value and number of exporters.

The change in export composition is associated with demand conditions of partner countries, such as consumer preferences in the importer countries and market competition from other countries (Athanasoglou et al., 2010). If the composition effect of textile export is positive, it means demand for textile increased from destination countries. In case of composition effect of industrial export, if demand for industrial export of origin country increase from importer country, the composition effect of industrial share is positive, otherwise it is negative.

5. Data Sources

The time series data consists of eight years span from 2003 to 2010, across 125 cross-sectional units, i e., Pakistan's 125 trading partner countries. The complete list of partner countries is provided in Appendix Table A-1. The selection of countries is made on the criteria of availability of required data for selected variables. Data for number of exporters

across destinations, average value of export per exporter across destinations and number of HS-6 products per exporter across destinations are taken from the Exporter Dynamic Database, accessed from World Bank online database. The data for textile export and manufactured export is collected from UN COMTRADE Statistics from World Integrated Trade Solution (WITS) provided by World Bank. The data for GDP and GDP per capita of partner countries are taken from World Development Indicators. The source of data for distance between Pakistan and her partners countries and dummies for common official language and common border is Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

Series of bilateral exports across destination countries obtained from average value of export per exporter across destination multiply by number of exporters across destination. The information about Preferential Trade Agreements (PTAs) of Pakistan with various regional and non-regional partner countries and blocks are compiled from the World Trade Organization website and Economic Survey of Pakistan (various issues).

6. Empirical Findings

Descriptive statistics and pair wise correlation coefficients of all variables used are reported in Appendix Table A-2 and Table A-3.

6.1 Cross Section analysis:

The cross section analysis of equation (1) with addition of gravity variables like bilateral distance between Pakistan and her trading partners (in natural log transformation), area of partner countries in square kilometres (transform in natural log), dummies for common border of Pakistan with destinations ($COMB_{ij}$) and for common official language ($CMOLNG_{ij}$), are reported in Table 6. The results for value of bilateral exports are presented in column 2 and 3 for year 2003 and 2010 respectively. The selection of years for cross section analysis is based on the conditions of pre and post liberalization, since the FTAs/PTAs considered in the study start working during data period. The results reveal that all control variables except share of industrial exports in total exports are statistically significant in both years.

**Table 6: Cross Section Analysis of Pakistan's Export Performance
2003 & 2010**

Explanatory Variables	Value of Bilateral Exports	
	2003	2010
LGDP_j	0.542* (6.42)	0.466* (4.93)
LGDPPC_j	-0.265* (-2.57)	-0.262** (-2.26)
NHS6_{ij}	0.938* (3.72)	0.754* (3.16)
IND_{ij}	-0.007 (-0.86)	-0.009 (-1.37)
TXT_{ij}	0.033* (4.42)	0.012*** (1.73)
DSAFTA	-	-1.318 (-1.26)
DCHN	-	-0.274 (-0.12)
DMYS	-	0.128 (0.08)
DLKA	-	2.569 (1.36)
DMUS	-	1.354 (0.80)
DIRN	-	0.007 (0.001)
PD_j	-0.606*** (-1.93)	-0.456 (-1.02)
ND_j	-0.732*** (-1.92)	-1.326* (-3.5)
LDIST_{ij}	-0.733* (-2.49)	-0.541*** (-1.65)
CMOLNG_{ij}	0.106 (0.33)	-0.727*** (-1.87)
COMB_{ij}	-0.432 (-0.48)	1.386 (0.84)
LAREA_j	-0.031 (-0.35)	0.031 (0.31)
_cons	5.584** (2.31)	7.194* (2.47)
Number of obs.	125	125
F-statistics	16.22	8.03
Prob. > F	0	0
R-squared	0.6123	0.5605

*, ** and *** represent 1%, 5% and 10% level of significance. Figures in parenthesis represent t-statistics.

The negative discrepancy is significant in both years implies that export value of Pakistan's export have potential to understate. The distance, as proxy of transportation cost is statistically significant and has expected signs in both years, suggests that greater

transportation cost cause reduction in export value. Table also clearly illustrates that any FTA/PTA does not have significant effect on value of bilateral exports.

The dummy variable for common language (CMOLNG) represents that Pakistan and her trading partner have similar language. Similar language also reduces trade cost because in this case translator is not required. Similar language also shows that both nations have same culture; the demand and consumer preferences are same for both nations with similar culture. The dummy for common language have significant effect on export growth in the post liberalization era.

6.2 OLS Fixed effect Analysis

Export Performance in terms of Total Value of Bilateral Export:

Table 7 presents the estimation results of equation (1) employing fixed effect estimator, for total value of bilateral export as a dependent variable. The model (1) runs with robust standard error to control possible heteroscedasticity in the model. The results reveal that all control variables like GDP, GDP per capita, number of products, share of Industrial exports to total exports and share of textile exports to industrial exports are statistically significant with expected signs. The result suggests that effect of textile exports on total bilateral exports is positive but not up to the mark, because Pakistan's textile industry has enormous potential to boom exports but due to energy crises, lack of research and development, increased production cost, increase cost of doing business, lack of effective policy tools, governance issues, external trade barriers including multi fibre agreement (MFA) and agreement on textile and clothing (ATC) and competition from China, India and Bangladesh who have capture market share rapidly.

The results further indicate that of share of industrial exports in total exports presents negative effect on total value of bilateral exports, which implies that the demand for industrial exports decline due to competition of third country or the change of consumer preferences in the importing countries. In addition the reasons of declining demand for industrial exports are mainly energy shortage; increase in cost of production due to inflation, increase in prices of imported raw materials, poor business environment due to internal security and governance issues.

Table 7: Fixed Effect Analysis of Pakistan's Bilateral Export¹

Explanatory Variables	Value of Export Coef. (t-stat.)	Number of Exporters	Number of Products Coef. (t-stat.)
LGDPj	0.704** (2.380)	7.567*** (1.880)	0.538* (3.210)
LGDPcj	-0.621** (-2.100)	-	-0.539* (-3.200)
NHS6ij	0.225* (4.000)	17.708* (2.950)	-
INDij	-0.008* (-3.140)	0.281** (2.150)	0.003* (2.490)
TXTij	0.007* (3.750)	0.352* (2.470)	0.005* (2.830)
DSAFTA	0.732** (2.350)	140.547* (3.110)	0.343 (1.150)
DCHN	0.290** (1.980)	339.565* (5.460)	-0.391* (-2.740)
DMYS	0.248*** (1.630)	182.520* (5.330)	0.214** (2.080)
DLKA	-0.340 (-1.170)	-73.583 (-1.380)	-0.513*** (-1.890)
DMUS	-0.293 (-1.590)	-26.223** (-2.360)	0.284** (2.190)
DIRN	0.550* (2.680)	146.380* (10.070)	0.159 (1.230)
PDj	0.058 (0.840)	-	-
NDj	-0.436* (-5.610)	-	-
_cons	2.786 (0.880)	100.115 (0.870)	-2.836 (-1.520)
No. of Obs.	1000	1000	1000
F-statistics	375.86	973.96	58.44
Prob. > F	0	0	0
R-squared	0.9497	0.9932	0.710
Country Fixed Effects	Yes	Yes	Yes
Year fixed Effects	Yes	Yes	Yes
*, ** and *** represent 1%, 5% and 10% level of significance. All parameters are estimated with robust standard errors.			

The South Asian free trade area (SAFTA) and preferential trade arrangements with China and Iran appear as positive and significant effect on total value of bilateral export; the PTA with Sri Lanka, Malaysia and Mauritius found insignificant. The results suggest that SAFTA, PTA with China and Iran play remarkable role to improved export performance by 73%,

1 Pooled OLS results of Bilateral Export Performance are reported in Table A-4 Appendix A.

29% and 55% respectively. The improved export performance to SAFTA in terms of US Dollar is 2119 million which is 6Pakistan 81% of initial value of exports to SAFTA. The improved export value to China is US\$ 1112 million which is 392% of initial year's exports. The improved performance of export to Iran is US\$ 136 million which is 136% of the initial year's exports. Moreover, negative discrepancy in export data emerges negative and significant effect on total value of export; while positive discrepancy appears insignificant.

As far as country specific fixed effects concern, the results reported in Appendix Table A-5 panel (a). Table shows that only six country's fixed effects are positive and significant. United Arab Emirates, Hong Kong, Belgium, Netherlands, United Kingdom and Saudi Arabia appear to have major positive propensity to Pakistan's exports. The negative and significant effects found for 43 countries, in which India and Nepal are also included. Pakistan has PTAs with India and Nepal. These effects show that Pakistan has low propensity to export with India, Nepal and other 41 countries. The model is good fit with high values of F and R-square statistics. The value of R-square suggests that variation in dependent variable explained due to variation in right hand side variables is 95%; whereas F statistic rejects the hypothesis that all parameters are jointly equal to zero.

Export Performance in terms of Number of Exporters to destination:

Table 7 presents the results for estimation of number of exporters to destinations. The functional form of this estimation model is mixture of linear-log and linear, therefore slope coefficient of variables transformed into log should be interpreted by dividing these estimates by 100. The initial result obtain from this model has insignificant effect of GDP per capita of destination countries (LGDPCj), and other variables also appear with wrong signs, therefore dropped GDP per capita from model. The reported results reveal that all control variables are statistically significant; dummy variables for SAFTA, PTA with China, Malaysia and Iran are positive and highly significant whereas PTA with Mauritius appears to affect considerably negative to number of exporters and PTA with Sri Lanka found insignificant.

The coefficient of number of products (HS6) indicates that one unit increase in number of products boosts on average about 18 exporters to destination markets. This result implies that diversification in product variety raises the number of exporters. The share of industrial exports in total exports (IND) and share of textile exports into industrial exports (TXT) appear positive and statistically significant; suggest that 100 percent (100%) growth in IND and TXT enhance the 28 and 35 exporters respectively.

The dummy variable for SAFTA suggesting that on average more than 140 exporters increase after the formation of SAFTA and during study period 1605 exporters enter into SAFTA export market with 101% growth from initial year's exporters. The coefficient of dummy for China implies that more than 339 exporters on average increase to Chinese market after the agreement with China in action and the addition of exporters from 2003 to 2010 is 606 with 141% of initial year. The dummy variables for Malaysia and Iran indicating that 182 and 146 additional exporters enter in Malaysian and Iranian export market in the result of FTA/PTA which is 19% and 98% respectively of initial year's number of exporters.

The country specific fixed effects are presented in Appendix Table A-5 panel (b). The positive and statistically significant country specific fixed effects are appear for 27 countries, in which all major partners included such as United States, United Kingdom, United Arab Emirates, Germany, Saudi Arabia, Italy, Canada, Spain, Netherlands, Australia, France, Hong Kong, Belgium and FTA/PTAs partner countries with Pakistan like India, Sri Lanka, Bangladesh, China and Malaysia appear to have major positive propensity to Pakistan's exports with respect to number of exporters. The negative and significant effects found for 68 countries, in which Nepal and Maldives are also included. These effects suggest that Pakistan has low propensity to export in terms of number of exporters with these 68 countries.

The measures of goodness of fit for this model are highly significant with greater computed values of F and R-square statistics. The value of R-square suggests that variation in dependent variable explained by explanatory variables is 99%; whereas F statistic implies joint significance of the estimated parameters.

Export Performance in terms of Number of Products to destination:

Table 7 column 4 reports the results for estimation of number of products with country specific and year specific fixed effect with robust standard errors. This estimation model is as like as estimation model of number of exporters; mixture of linear-log and linear. The result explores that all control variables appear highly significant. The estimated coefficients of IND and TXT show very small effects on product diversification. The results further reveals that dummy variables for SAFTA and Iran found insignificant; China and Sri Lanka appear negative and significant effects on product diversification while dummies for Malaysia and Mauritius show positive and considerable effect on diversification of product variety. The

product diversification in exportable products did not improve during the study period for all FTAs and PTAs; whereas for Malaysia and Mauritius diversification of exportable products slightly improved; while for China and Sri Lanka it has declined. Overall the model does not perform well due to multi-colinearity present among explanatory variables. The country specific fixed effects and year fixed effects are reported in Appendix Table A-5 panel (c) and Table A-6.

7. Conclusions

This section presents empirical investigation of Pakistan bilateral export performance regarding value of exports, number of exporters and number of products during 2003 to 2010. The study simultaneously analyses the effect of trade liberalization in terms of effect of free/preferential trade agreements on Pakistan's export performance as well as quantify the effect of other internal and external factors on Pakistan's exports. The study explores that external demand factor is showing favourable effect on all three margins of export. The composition effects from textile exports of Pakistan suggest that in spite of facing many problems internally as discussed earlier and in past quota restrictions, multi-fibre agreement (MFA) and agreement on textile and clothing (ATC) externally, Pakistan textile sector is considerably contributing in Pakistan's export performance. After the removal of quota and phase out of ATC, Pakistan's textile exports could perform better but during the quota period external market competitiveness increase substantially; China, India and Bangladesh are the strong competitors of Pakistan textile exports for international and regional markets both.

As far as effects of free/preferential trade agreements on Pakistan's export performance concern, the SAFTA, and bilateral agreements with China, Malaysia and Iran appear beneficial for Pakistan's exports. The value of exports as well as number of exporters both indicators illustrate substantial improvement to export with SAFTA and these three bilateral PTAs. The complete mechanism of SAFTA is supposed to be implemented by December 31, 2015. The effect of SAFTA could be fully measured after its complete implementation. Cross section analysis suggests that transportation cost (Distance) and similar culture (common language) have significant effect on export performance in the post liberalization era.

References

- Abrams, R. K. (1980), International Trade Flows under Flexible Exchange Rates, *Federal Reserve Bank of Kansas City Economic Review*, 65(3), 3-10.
- Alam, S. And Ahmad Q. M., (2010), Exchange Rate Volatility and Pakistan's Import Demand: An Application of Autoregressive Distributed Lag Model, *International Research Journal of Finance and Economics*, Issue 48, 07-23.
- Ahmad Nawaz and Rukhsana Kalim (2014), Implications of Export Competitiveness, and Performance of Textile and Clothing Sector of Pakistan: Pre and Post Quota Analysis, *Pakistan Journal of Commerce and Social Sciences*, 8 (3), 696-714.
- Anson, J., O. Cadot, A. Estevadeordal, J. de Melo, A. Suwa-Eisenmann, and B. Tumurchudur. (2005), Rules of origin in North-South preferential trading arrangements with an application to NAFTA, *Review of International Economics* 13(3): 501-517.
- Athanasoglou, P. P., Backinezos, C. and Georgiou, E. A. (2010), Export Performance, Competitiveness and Commodity Composition, *Bank of Greece Working Paper No.114*.
- Baier, S. L. and Bergstrand, J. H. (2007), Do free trade agreements actually increase members' international trade?, *Journal of International Economics*, 71(1): 72-95.
- Carrère, Céline & de Melo, Jaime (2004), Are Different Rules of Origin Equally Costly? Estimates from NAFTA, *CEPR Discussion Papers 4437*.
- Cebeci, T., A. M. Fernandes, C. Freund, and M. D. Pierola (2012), Exporter Dynamics Database, *Policy Research Working Paper 6229*, The World Bank.
- Centre d'Etudes Prospectives et d'Informations Internationales (CEPII), www.cepii.org
- Cieslik, Andrzej & Hagemeyer, Jan, 2009, Assessing the Impact of the EU-sponsored Trade Liberalization in the MENA Countries, *Journal of Economic Integration*, 24, 343-368.
- Estevadeordal, A. and Suominen, K. (2004), Rules of origin: a world map and trade effects, in Cadot, O., Estevadeordal, A., Suwa-Eisenmann, A., and Verdier, T. (eds), *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*, Washington DC: IADB and CEPR.
- Ethier, W. (1998), The new regionalism, *The Economic Journal* 108(3): 1149-1161.
- Frankel, Jeffrey A.; Stein, Ernesto and Wei, Shang-jin. (1995). Trading Blocs and the Americas: The Natural, the Unnatural, and the Super-natural, *Journal of Development Economics*, 47(1), 61-95.
- Grossman, Gene M., and Elhanan Helpman. (1995), Trade wars and trade talks, *Journal of Political Economy* 103(4): 675-708.
- Helpman, Elhanan & Marc Melitz & Yona Rubinstein, (2008), Estimating Trade Flows: Trading Partners and Trading Volumes, *The Quarterly Journal of Economics*, 123 (2), 441-487.
- Khan Jahangir Achakzai (2006), Intra-ECO Trade: A Potential Region for Pakistan's Future Trade, *Pakistan Development Review*, 45(3), 425-437.
- Khan Jahangir Achakzai (2010), Unilateral Liberalization versus Regional Integration: The Case of ECO Member Countries, *The Lahore Journal of Economics*, 15(1), 27-44.

- Krueger, A. O. (1997) Trade Policy and Economic Development: How We Learn. *American Economic Review* 87, 1–22.
- Krugman, Paul, (1991), Increasing Returns and Economic Geography, *Journal of Political Economy*, 99 (3), 483-99.
- Magee, C. (2003), Endogenous preferential trade agreements: an empirical analysis, *Contributions to Economic Analysis and Policy* 2 (1).
- Pacheco-López, P. (2003), The Impact of Trade Liberalization on Exports, Imports, the Balance of Payments and Growth: the Case of Mexico, *University of Kent Working Paper 0401*.
- Panagariya, A. (1999), The Regionalism Debate: An Overview, *The World Economy*, 22 (4), 477 - 512.
- Redding, S. (2011). Theories of Heterogeneous Firms and Trade, *Annual Review of Economics* 3, 77-105.
- Reis, Jose Guilherme & Taglioni, Daria, (2013), Determinants of export growth at the extensive and intensive margins: evidence from product and firm-level data for Pakistan, *Policy Research Working Paper Series 6341*, The World Bank.
- Tefler Danie (2004), Trade Liberalization and the theory of Endogenous Protection: An Econometric Study of U. S. Import Policy, *Journal of Political Economy*, 101(1), 473-478.
- Whalley, J. (1993), Regional Trade Arrangements in North America: CUSTA and NAFTA, in Melo and Panagariya, ed., *New Dimensions in Regional Integration*, Cambridge University Press.

Appendix**Table A-1: List of Sample Countries**

Partner Countries	Partner Countries	Partner Countries	Partner Countries
<i>Afghanistan</i>	<i>Estonia</i>	<i>Luxembourg</i>	<i>Senegal</i>
<i>Algeria</i>	<i>Fiji</i>	<i>Macao S. A. China</i>	<i>Singapore</i>
<i>Azerbaijan</i>	<i>Finland</i>	<i>Madagascar</i>	<i>Slovak Republic</i>
<i>Argentina</i>	<i>France</i>	<i>Malawi</i>	<i>Vietnam</i>
<i>Australia</i>	<i>Gabon</i>	<i>Malaysia*</i>	<i>Slovenia</i>
<i>Austria</i>	<i>Gambia, The</i>	<i>Maldives*</i>	<i>South Africa</i>
<i>Bahrain</i>	<i>Germany</i>	<i>Mali</i>	<i>Zimbabwe</i>
<i>Bangladesh*</i>	<i>Ghana</i>	<i>Malta</i>	<i>Spain</i>
<i>Barbados</i>	<i>Greece</i>	<i>Mauritania</i>	<i>Sudan</i>
<i>Belgium</i>	<i>Guatemala</i>	<i>Mauritius*</i>	<i>Swaziland</i>
<i>Bosnia & Herzegovina</i>	<i>Guinea</i>	<i>Mexico</i>	<i>Sweden</i>
<i>Botswana</i>	<i>Guyana</i>	<i>Morocco</i>	<i>Switzerland</i>
<i>Brazil</i>	<i>Honduras</i>	<i>Mozambique</i>	<i>Togo</i>
<i>Bulgaria</i>	<i>Hong Kong SAR, China</i>	<i>Oman</i>	<i>Syrian Arab Republic</i>
<i>Cameroon</i>	<i>Hungary</i>	<i>Nepal*</i>	<i>Thailand</i>
<i>Canada</i>	<i>Iceland</i>	<i>Netherlands</i>	<i>Trinidad and Tobago</i>
<i>Sri Lanka*</i>	<i>India*</i>	<i>New Zealand</i>	<i>United Arab Emirates</i>
<i>Chile</i>	<i>Indonesia</i>	<i>Nicaragua</i>	<i>Tunisia</i>
<i>China*</i>	<i>Iran*</i>	<i>Niger</i>	<i>Turkey</i>
<i>Colombia</i>	<i>Ireland</i>	<i>Nigeria</i>	<i>Uganda</i>
<i>Congo, Rep.</i>	<i>Italy</i>	<i>Norway</i>	<i>Ukraine</i>
<i>Costa Rica</i>	<i>Cote d'Ivoire</i>	<i>Panama</i>	<i>Egypt</i>
<i>Croatia</i>	<i>Jamaica</i>	<i>Paraguay</i>	<i>United Kingdom</i>
<i>Cuba</i>	<i>Japan</i>	<i>Peru</i>	<i>Tanzania</i>
<i>Cyprus</i>	<i>Kazakhstan</i>	<i>Philippines</i>	<i>United States</i>
<i>Czech Republic</i>	<i>Jordan</i>	<i>Poland</i>	<i>Uruguay</i>
<i>Benin</i>	<i>Kenya</i>	<i>Portugal</i>	<i>Venezuela, RB</i>
<i>Denmark</i>	<i>Korea, Rep.</i>	<i>Qatar</i>	<i>Yemen, Rep.</i>
<i>Dominican Republic</i>	<i>Kuwait</i>	<i>Romania</i>	<i>Zambia</i>
<i>Ecuador</i>	<i>Kyrgyz Republic</i>	<i>Rwanda</i>	
<i>El Salvador</i>	<i>Lebanon</i>	<i>St. Lucia</i>	
<i>Ethiopia</i>	<i>Libya</i>	<i>Saudi Arabia</i>	

Note: * indicate that countries share FTA/PTA with Pakistan.

Table A-2: Descriptive Statistics

<i>Variables</i>	<i>No. of Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
NXRij	1000	373.31	639.340	2	4279
TXBth	1000	121905.7	368954	24.690	4319595
LTXBij	1000	9.771	2.196	3.206	15.279
GDPj	1000	1.03E+11	1.25E+12	7.926	2.04E+13
LGDPj	1000	17.719	2.783	0.008	30.647
GDPCj	1000	3.37E+08	4.09E+09	117.597	6.55E+10
LGDPCj	1000	8.544	2.114	4.767	24.905
INDij	1000	79.632	25.078	1.025	100.000
TXTij	1000	68.236	24.567	0.556	100.000
NHS6ij	1000	2.228	0.918	1	10.941
LDISTij	1000	8.684	0.675	5.926	9.723

Source: Author's estimation

Table A-3: Correlation Matrix

	LTXBij	LNXRij	NHS6	LGDPPCj	LGDPj	TXTij	SHINDij
LTXBij	1						
LNXRij	0.914	1.000					
NHS6	0.259	0.253	1.000				
LGDPPCj	0.149	0.332	0.043	1.000			
LGDPj	0.571	0.628	0.118	0.549	1.000		
TXTij	0.104	0.039	-0.059	0.056	0.017	1.000	
SHINDij	-0.102	0.027	0.069	0.276	0.165	0.252	1.000

Source: Author's estimation

Table A-4: Pooled OLS Results of Bilateral Export Performance

<i>Explanatory variables</i>	<i>Value of Exports Coef. (t)</i>	<i>Number of Exporters Coef. (t)</i>
LGDPj	0.499*(23.19)	100.673*(16.120)
LGDPCj	-0.174*(-5.88)	-
NHS6ij	0.454*(8.38)	203.738*(10.910)
SHINDij	-0.017*(-7.82)	-0.469(-0.650)
TXTij	0.015*(6.73)	1.803*(2.430)
DSAFTA	0.981*(3.09)	96.471(0.890)
DCHN	1.844**(2.37)	144.388(0.540)
DMYS	0.674(0.75)	353.813(1.140)
DLKA	1.073(1.57)	145.291(0.620)
DMUS	0.082(0.10)	-111.181(-0.410)
DIRN	0.902(1.28)	-70.794(-0.290)
PDj	-0.684*(-5.61)	-
NDj	-1.127*(-8.73)	-
Constant	2.160*(5.53)	-1954.362*(-15.530)
Number of obs.	1000	1000
F(13, 986)	80.79	44.73
Prob. > F	0	0
R-squared	0.516	0.311

, ** and * represent 1%, % and 10% level of significance.*

Source: Author's estimation

Table A-5: Country Specific Fixed Effects

<i>(a) Model of Total Value of Exports Bilateral</i>			
Positive Fixed effects			
<i>Partner Countries</i>	<i>Coef. (t)</i>	<i>Partner Countries</i>	<i>Coef.(t)</i>
United Arab Emirates	3.552*(4.15)	Netherlands	1.456**(2.02)
Hong Kong SAR,	2.710*(3.24)	United Kingdom	1.382*** (1.86)
Belgium	1.820*(2.36)	Saudi Arabia	1.215*** (1.72)
Negative Fixed effects			
<i>Partner Countries</i>	<i>Coef. (t)</i>	<i>Partner Countries</i>	<i>Coef. (t)</i>
Mali	-5.801*(-7.01)	Indonesia	-1.954**(-2.05)
Nepal*	-4.038*(-5.35)	Ghana	-1.870*(-2.58)
Rwanda	-3.890*(-4.47)	Morocco	-1.862*(-2.53)
Bosnia &	-3.721*(-3.88)	Uganda	-1.843*(-2.50)
Kyrgyz Republic	-3.705*(-4.21)	Bulgaria	-1.842**(-2.01)
Ethiopia	-3.384*(-4.19)	Paraguay	-1.835**(-2.12)
Malawi	-3.296*(-4.44)	Libya	-1.809**(-2.08)
Cuba	-3.211*(-4.00)	Niger	-1.798**(-1.98)
Zambia	-3.167*(-3.94)	Algeria	-1.694**(-2.36)
Gabon	-3.104*(-2.68)	Venezuela, RB	-1.654**(-2.19)
Mauritania	-2.817*(-2.83)	Senegal	-1.612**(-2.06)

Luxembourg	-2.770**(-1.92)	Nigeria	-1.556***(-1.78)
Azerbaijan	-2.647*(-3.30)	Slovak Republic	-1.532***(-1.72)
Zimbabwe	-2.568*(-3.38)	Colombia	-1.527**(-2.02)
Botswana	-2.489**(-2.21)	Romania	-1.492**(-2.05)
Ecuador	-2.403*(-3.15)	Ukraine	-1.426**(-1.92)
Guyana	-2.362***(-1.81)	Dominican	-1.388***(-1.68)
Brazil	-2.250**(-2.40)	Cameroon	-1.373**(-1.85)
Kazakhstan	-2.107*(-2.93)	Madagascar	-1.319***(-1.80)
Jamaica	-2.092**(-2.03)	Tanzania	-1.261***(-1.78)
India*	-2.070***(-1.66)	Togo	-1.259***(-1.67)
Peru	-1.972*(-2.66)		

(b) Model for Number of Exporters Bilateral

Positive Fixed effects

Partner Countries	Coef.	Partner	Coef.
United States	3584.466*(30.86)	Malaysia*	332.992*(3.51)
United Arab	2871.550*(21.88)	Kuwait	329.798*(3.54)
United Kingdom	2848.520*(26.22)	India*	301.014*(3.13)
Germany	2076.390*(21.66)	Japan	280.690*(2.95)
Saudi Arabia	1347.787*(12.34)	Singapore	276.295*(2.94)
Italy	1262.012*(12.86)	Greece	270.735*(2.88)
Canada	1194.713*(12.71)	Sri Lanka*	231.650*(2.51)
Netherlands	870.461*(9.21)	Korea, Rep.	215.938***(2.29)
Spain	869.396*(8.93)	Turkey	207.119***(2.05)
France	848.731*(8.96)	Sweden	203.582***(2.19)
Australia	747.717*(7.22)	Bangladesh*	189.835***(2.18)
Belgium	618.036*(6.66)	China*	184.468****(1.76)
South Africa	610.313*(6.49)	Oman	156.049****(1.64)
Hong Kong SAR,	365.312*(3.90)		

Negative Fixed effects

Partner Countries	Coef. (t)	Partner	Coef. (t)
Kyrgyz Republic	-375.884*(-4.12)	Uruguay	-269.467*(-2.89)
Iceland	-364.602*(-3.32)	Ethiopia	-268.968*(-2.93)
Nepal*	-355.652*(-4.07)	Slovak Republic	-268.560*(-2.87)
Maldives*	-327.713*(-3.92)	Malta	-262.951*(-2.81)
Kazakhstan	-326.076*(-3.61)	Madagascar	-262.848*(-2.88)
St. Lucia	-325.110*(-3.49)	Libya	-261.304*(-2.82)
Cuba	-318.452*(-3.40)	Venezuela, RB	-259.720*(-2.77)
Nicaragua	-315.185*(-3.39)	Estonia	-259.014*(-2.80)
El Salvador	-311.477*(-3.33)	Congo, Rep.	-257.191*(-2.76)
Gabon	-311.301*(-3.33)	Thailand	-256.624*(-2.75)
Trinidad and	-306.813*(-3.36)	Peru	-254.535*(-2.71)
Luxembourg	-304.999*(-3.27)	Senegal	-253.457*(-2.72)
Mali	-304.490*(-3.30)	Guinea	-252.901*(-2.71)
Barbados	-303.739*(-3.28)	Cote d'Ivoire	-252.551*(-2.69)
Botswana	-302.657*(-3.30)	Algeria	-250.720*(-2.70)
Bosnia &	-301.174*(-3.23)	Tunisia	-244.324*(-2.63)
Honduras	-300.798*(-3.21)	Benin	-241.806*(-2.58)
Fiji	-299.551*(-3.24)	Swaziland	-241.495*(-2.55)
Azerbaijan	-298.903*(-3.25)	Bulgaria	-239.474*(-2.57)
Malawi	-290.260*(-3.20)	Panama	-228.534*(-2.45)

Dominican Republic	-288.981*(-3.09)	Colombia	-224.967**(2.40)
Guyana	-288.932*(-3.13)	Slovenia	-224.612**(-2.42)
Zambia	-287.746*(-3.11)	Ghana	-220.432**(-2.38)
Costa Rica	-286.774*(-3.07)	Togo	-216.195**(-2.32)
Jamaica	-286.354*(-3.07)	Morocco	-213.170**(-2.29)
Guatemala	-284.879*(-3.05)	Croatia	-211.594**(-2.28)
Paraguay	-283.666*(-3.04)	Uganda	-206.780**(-2.24)
Mauritania	-278.554*(-2.95)	Argentina	-198.443**(-2.11)
Rwanda	-277.866*(-2.97)	Ukraine	-191.751**(-2.04)
Niger	-276.909*(-2.95)	Mozambique	-186.704**(-2.01)
Ecuador	-275.401*(-2.95)	Cyprus	-174.968***(-1.88)
Gambia, The	-273.390*(-2.94)	Brazil	-171.580***(-1.80)
Cameroon	-270.751*(-2.91)	Nigeria	-164.273***(-1.75)
Zimbabwe	-270.254*(-2.92)	Romania	-157.157***(-1.67)
(c) Model for Number of Products Bilateral			
Positive Fixed effects			
Partner Countries	Coef. (t)	Partner Countries	Coef. (t)
Macao S. A. China	8.582*(2.49)	Kazakhstan	2.339**(1.94)
Kyrgyz Republic	4.295*(3.32)		
Negative Fixed effects			
Partner Countries	Coef. (t)	Partner Countries	Coef. (t)
India*	-3.830*(-3.86)	Guatemala	-1.789**(-2.42)
China*	-3.507*(-3.44)	Cote d'Ivoire	-1.778**(-2.42)
Indonesia	-3.225*(-3.81)	Algeria	-1.770**(-2.39)
Brazil	-2.770*(-3.40)	Cuba	-1.767**(-2.37)
Vietnam	-2.573*(-3.38)	Sudan	-1.765**(-2.38)
Nigeria	-2.503*(-3.17)	Niger	-1.735**(-2.34)
Mexico	-2.492*(-3.16)	Ethiopia	-1.715**(-2.27)
Philippines	-2.408*(-3.17)	Cameroon	-1.591**(-2.15)
Japan	-2.401*(-3.02)	Romania	-1.562**(-2.15)
Egypt	-2.398*(-3.14)	Dominican	-1.554**(-2.08)
Iran*	-2.369*(-3.12)	Kenya	-1.547**(-2.11)
Bangladesh*	-2.318*(-2.84)	Uganda	-1.528**(-2.10)
Colombia	-2.259*(-3.01)	Ghana	-1.502**(-2.08)
Syrian Arab	-2.248*(-3.01)	Malaysia*	-1.476**(-2.03)
Peru	-2.231*(-3.02)	Honduras	-1.403***(-1.85)
Ukraine	-2.183*(-2.95)	Rwanda	-1.402***(-1.86)
Nepal*	-2.120*(-2.93)	Yemen, Rep.	-1.377***(-1.91)
Korea, Rep.	-2.027*(-2.72)	Mauritania	-1.370***(-1.73)
Venezuela, RB	-2.015*(-2.73)	Paraguay	-1.346***(-1.77)
Argentina	-2.012*(-2.71)	Senegal	-1.313***(-1.78)
Turkey	-2.000*(-2.61)	Bulgaria	-1.281***(-1.71)
Morocco	-1.916*(-2.61)	South Africa	-1.279***(-1.72)
Togo	-1.913*(-2.64)	El Salvador	-1.249***(-1.63)
Poland	-1.818*(-2.46)	Chile	-1.238***(-1.68)
Ecuador	-1.789**(-2.43)	Tunisia	-1.230***(-1.65)
*, ** and *** represent 1%, 5% and 10% level of significance. All parameters are estimated with robust standard errors.			

Source: Author's estimation

Table A-6: Period Fixed Effects

<i>Years</i>	<i>Value of Exports Coef. (t)</i>	<i>Number of Exporters Coef. (t)</i>	<i>Number of Products Coef. (t)</i>
2004	0.093 (1.09)	4.668 (0.480)	0.533*(8.03)
2005	0.268* (3.15)	8.932 (0.960)	0.555*(8.60)
2006	0.351* (4.33)	9.611 (1.070)	0.510*(7.97)
2007	0.330* (3.80)	11.024 (1.180)	0.699*(11.72)
2008	0.554* (6.54)	21.561** (2.420)	0.435*(8.30)
2009	0.387* (4.50)	28.397* (3.120)	0.372*(5.98)
2010	0.542* (6.36)	41.532* (4.300)	0.302*(4.13)

, ** and * represent 1%, 5% and 10% level of significance.
All parameters are estimated with robust standard errors.*

Source: Author's estimation.