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Impacts of the Free Trade Agreement on Pakistan Export to China and Economic Growth

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Abstract

The Free Trade Agreements between Pakistan and China increased the trade prospects between Pakistan China, resulting in an increased trade deficit in Pakistan with China. The study is based onhow the FTAs impact exports in Pakistan. This paper's results suggest a positive contribution of FTAs to Pakistan's exports in China's economy and the imports from China. However, the increase in imports is much higher than the increase in exports after Pakistan entered into subsequent FTAs with China. As a result, there is an increase in the Pakistan trade deficit, and the growth prospects of Pakistan suffered. The constant marketsuggests that,by focusing on products that enhance Pakistan'scomparativeadvantage,improving infrastructure, efficient tariff line utilization, and deep understanding of China's market, all are necessary for Pakistan to benefit from FTAs; otherwise, their provision becomes counterproductive. It is concluded that Pakistan needs to reduce the trade deficit with China as it negatively impacts its macroeconomic situation. Exports enhanced by investing in innovative technologies andreduced importsthrough production inland.

Keywords: Free Trade Agreement, Bilateral Trade, Trade Potential, Comparative Advantage

1. Introduction

The notion of Free Trade Agreements (FTAs) isthe outcome of global meetings and discussions on its favorable and unfavorable impacts on countries' economies around it. Its significance islargely escalating,with emerging developed countries playing a critical role in economic growth. This case is noteworthy since it contains both empirical and theoretical factors. A large number of researchers, includingMae et al. (2010), Kawai and Wignaraj (2007), Karmakar (2005), Plummer (2006), participated in the in-depth meeting that focused on the actual effect of FTA on economic growth (2004).

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Pakistan and China, two peaceful neighboring countries, are the World Trade Organization (WTO) since January 1995 and December 2001. In addition, they have robust trade and economic ties leading to a solid strategic and political relationship. FTA is essential for both countries as this has managed to construct a base for long-term trading partnerships and agreementsin both public and private sectors. Pakistan is a significant exporter of fiber, textile, vegetable, garments, oil and fat, leather, and even chemical products substantially sent to China. On the other hand, China is a market leader in producing wood products, plants, machinery, textile, crops, and paddy rice and exports it to Pakistan. China hascaught many eyes in growing its position in the international trade and investment market, whereas Pakistan has rapidly increased its export value from 2000 to 2014.

As a result of FTA, both China and Pakistan have experienced incremental improvements in their respective economies. Therefore, there is a need to critically examine the effects of the FTAs and identify areas where eliminating the trade tariffs may bring about a common advantage and increased profits. The current paper attempts to analyze the pre-and post-effect of FTAs between Pakistan and China on the macroeconomic variables in Pakistan.

Pakistan, a growing economy confronting enormous financial difficulties, can improvise its financial outlook by entering into FTA. They encourage exchange and investment-free progression and achieve nearer monetary combination between the limiting gatherings by eroding tax limitations on items.China is seen as a significant player and perspective FTAs as a critical piece of its global exchanging procedure. The industrial sector of China depends on the inflow of Foreign Direct Investment (FDI) and the exports of intermediate commodities and raw materials. Its exporting industry is instilled in current provincial and worldwide manufacturing organizations (Zhang 2010). According to Qi et al. (2014),after the end of theUS international trade dominance, China is seen as the most significant trading economy that trades in commodities.

China's GDP has been rapidly increasing during the last thirty years, amounting to $9,240,270 million in 2013, increasing more than one trillion dollars from 2012. According to Pakistan Business Council (2015),"China is the second-biggest economy on the planet and China's overflow trade surplus was $260,587 million".Keeping in view China's economic omnipresence, Pakistan entered into a Free Trade Agreement in 2006. In the first stage that lasted till the end of 2012, China aborted taxes on 6,418 products, whereas Pakistan ended taxes on 6,711 product offerings forfive years.China was allowed to export medicaments, vegetables, organic products, inorganic synthetics, natural, synthetic, apparatus, and crude materials into Pakistan. Meanwhile, China annulled tax on designing products, iron and steel items, citrus foods grown from the ground, mangoes, sports merchandise, calfskin articles, marble and different tiles, other home materials, bed cloth, cotton textures, and mechanical liquor. China additionally dispensed with a half tax on items like fish, dairy areas, woven pieces of clothing, knitwear, calfskin items, elastic items, plastic items, frozen squeezed orange, and so forth (MoC, 2016).

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Since July 2013, stage II exchanges have begun between the two nations. The underlying target of the FTA is to abrogate levy at any rate of 90%, all things considered (both regarding tax lines and exchange volume). The stage II aims at improving the bilateral trade by $15 billion along with enhancing the economic associations among Pakistan and China through the help of increased trade (Pakistan Business Council 2015).

The aspect of free trade influences both what is delivered (static impacts) and how it is created (dynamic impacts). In this way, a few researchers take free-trade same as an advancement (Mahmood and Jongwanich, 2018; Cerdeiro and Komaromi, 2017). Theories of liberal exchange contend that freetrade builds the productive designation of scarce resources and, along with these lines, advances trades (Sachs, Warner, Åslund, and Fischer, 1995; Frankel and Romer, 1999). Pakistan anticipated a ton from these free-trade agreements. Pakistan acquainted a few strategic reforms for boosting exports and enhancing the integration of the economy on the global leveled the exports in Pakistan (as the proportion of GDP) didn't change a lot (Shabir and Kazmi, 2007; Chaudhry, Jamil, and Chaudhry, 2017).
This study is organized as follows;literature review, research methodology including a detailed discussion of the research variables, results and findings, and finally,the conclusion.

2. Literature Review

Free Trade Agreements:It is known as a tool that has a strong effect on the economic standings and the bilateral trade of a country. According to HerreríasTalamantes& Orts (2010), a dichotomy is created by the two opposing forces of trade diversion and trade creation when discussing the usefulness of FTAs. Irwin (2020) discussed that trade is boosted in an economy through FTA, which encourages free multilateral trade. However, in their study, Kumar (2020) highlighted that FTA could also create trade imbalance and distortion. The views of FTA are mixed among researchers and economists as it produces both positive and negative impacts on the economy.

It is argued by Wacziarg& Welch (2008) in their study that no formal agreement has been established regarding the effect of FTA on trade deficits and economic growth.Opening the trade routes between two or more countries sustain growth in a particular situation only. Shah, Kamal, & Yu (2020) stated that an increase in labor productivity, financial deepening, and institutional overhaul are some of the factors that need to be considered when evaluating the impact of FTA on economic growth.

Saini (2012) discussed that regional integration in FTAis achieved through economic arrangement and cooperation between the member countries. It occurs when the member countries enter into an RTA to facilitate economic integration. A positive effect on trade, direct foreign investment, and economic welfare is generated in the regional economy. Shepherd (2019) and Tunio et al. (2020) analyzed that if RTA is created in the Asian countries at a mega level, it can result in positive economic benefits within the continent.

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Geldi (2012) further discussed that to achieve successful regional integration,it is crucial to resolve the security and peace issues between the member countries.

Further calculations are conducted by Huh and Park (2018) about regional integration using six dimensions; trade and investment, money and finance, regional value chains, free movement of people, infrastructure and connectivity, and institutional and social integration. Shepherd (2019) further added that Asia is well integrated with investment and trade than other Latin America and Africa regions while less integrated than European Union.

Khurana and Nauriyal (2017) and Tunio and Nabi (2021) discussed that TC is where the trade is increased between the members due to reducing trade barriers because of political integration. It enables the change of the original product to efficient members from inefficient members.Although,TD occurs because of the transition of the original product to the inefficient member from an efficient nonmember. Endoh further used this concept in 1999. Khurana and Nauriyal (2017) further argued that Endoh analyzed the concept of TD differently as the export activity of each institution. In their study, Tunio et al. (2021)Khurana and Nauriyal (2017) further estimated the effect of FTA on the export and import of ASEAN-India and found positive relation with economic growth.

The FTA helps improve the international policies of the member countries, supports weaker countries to bring amended institutional reforms for more economic growth,avoids time inconsistencies of trade liberalization, resolves disputes, and shares the burden of external conflicts. Macroeconomy instability is reduced through FTA with more certain policies (Mitra2002).

The studies conducted by Rault et al. (2008) andEstrada& Park (2012) discussed the new trade theory concerning FTA to provide a different perspective of the free trade agreements. They asserted that the lower tariff expands the market reach of small and medium-term enterprises, increasing the economies of scale of the region, enabling efficiency bringing in comparative advantage to the businesses. Computable General Equilibrium model is also suggested through which a large amount of trade flow data is analyzed to determine the impact of FTA.

Ghosh and Yamarik (2004) identified several studies producing misleading results that considered FTA as an exogenous variable that significantly impactedthe economy in trade flows.Likewise,Baier and Bergstrand (2007) confirmed that the use of cross-sectional data in determining the exogenity of trade agreement could produce biased results as it omits certain variables and has unobserved heterogeneity.

Magee (2003) discussed that the preferential agreements on trade volumes determined through 2SLS simultaneous equations. Baier and Bergstrand (2004) observed that when two countries are closer geographically, they are more likely to sign free trade agreements. Moreover, another study found that equal-sized economies flourish more (Fligenspan et

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al.,2015). There are two significant factors tools used to analyze the export of the country constant market share analysis (CMS) and two stages least square (TSLS). The TSLS tool is used to tackle the issues of endogeneity. Although, the second one determines the constant market share in the exports of a country. Fligenspan et al. (2015), in their study, made use of constant market share to determine the labor-intensive goods in the Brazilian exports. However, a recent study conducted by Mendes and Gagliano (2020) used the same model to determine Australian LNG exports. Mitra (2002) also proposed that this agreement reduces economic uncertainty andinstability in the macroeconomic dynamics as the members of an FTA are bound to avoid the inconsistency of unilateral trade liberalization.

Free Trade Agreements in Pakistan: Shaikh et al. (2012) highlighted several preferential and free trade agreements in Pakistan. Still, they are not operated as per their terms and conditions, causing poor trade performance. Pakistan is alsopartof many regional trade agreements such as SAFTA and ECOTA, but they have not shown any effectiveness.Few studies are based on Pakistani trade, specifically those that undertakethe country's general equilibrium analysis. The study conducted by Shaikh et al. (2012) is based on the GTAP model. This study used the CGE global model to determine the trade liberations under the SAFTA agreement in Pakistan. The findings reported an increase in the real imports and GDP, which includes improvements in the trade term and loss of exports in Pakistan during the SAFTA agreement. However, the overall results showed an increase in the aggregated trade volume. Pakistan and India were the only countries that benefited from SAFTA, while the rest worsened their situation.

Pal and Pohit (2020) conducted a CGE analysis of the trade agreements in Pakistan using the GTAP model assessmentdone between Pakistan and India. This study revealed that although bilateral trade liberalization is positive for welfare gains for both countries, India was a major gainer from the FTA. Another study conducted by Chishti et al. (2008) made a detaileduse of the CGE model. Some study was based on the impact of the EU FTA with Asian countries such as Korea, India, and ASEAN on the economy of Pakistan. The simultaneous results based on EU market analysis were issued by this study with the EU bilateral FTAs in Asia, including EU-ASEAN FTA, EU-Korea FTA, and EU-India FTA, proving that Pakistan also has a minor impact in comparison to these countries. Most of Pakistan's impact will be increased competition in the textile industry, clothing products, and leather market.

Zada and Khan (2017) argued further through the CGE model by determining the foreign savings from the import prices in Pakistan. It was revealed that Pakistan's trade balance worsened from foreign savings and the international price of imports. The small farmersbenefited from this trade agreement, while the medium-term farmers became more impoverished, which increased the poverty level in the rural areas as income inequality was created. Kazutomo (2007) examined with the use of the GTAP model the potential bilateral FTAs in Japan. The simulation results of this study showed that the bilateral partners of Japan receivedpositive welfare gains. The GTAP model used for the US in the study of Abdelmalki et al. (2007) highlighted that the US gained benefit under the US-Morocco FTA in the trade

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liberalization. Gains on Morocco's end were negative, which loss resulted in the loss of welfare.

Similarly, Durongkaveroj (2015) based their study on the CGE model in Pakistan's bilateral FTA with the ASEAN, whereby a rise in real GDP was recorded. Other than the real GDP,and the actual exports of Pakistan and other ASEAN members were also increased. This study showed that household-related benefits were gained by all the ASEAN economies from Pakistan trade liberalization. Another study conducted by Irshad et al. (2016) was based on the triangular type FTAbetween China, Pakistan, and ASEAN.Pakistan's natural and strategic importance has resulted in a win-win situation for the ASEAN and China in enhancing all the members' bilateral trade flows. This study also highlighted that when Pakistan joined the ASEAN-China FTA, it provided all the member countries with rapid and cheap access to multiple markets such as Central Asia and the Middle East.

The study by Vanzetti and Pham (2006) based on the CGE model of Vietnam showed an increase in the Vietnamese trade flow due to trade liberalization agreements for both sectorial imports and exports. A more comprehensive model was developed by Zhou and Wong (2008) for Vietnam using the dynamic CGE model and the household representative model. This study concluded that the trade liberalization of Vietnam with ASEAN couldincrease trade flow and economic growth, reducing rural poverty.

A CGE model has also been developed for Bangladesh in the study conducted by Zada and Khan (2017). The results of this trade showed that export-oriented sectors were encouraged through trade agreements. However, the import sector was discouraged. An increase in the poverty gap was seen between the urban and rural areas, resulting in income inequality. Another study was based on Sri Lanka by Nufile et al. (2013) based on the trade potential with Pakistan. This study proved that the trade agreements between Sri Lank and Pakistan could result in enhanced trade flow where a new way of bilateral trade can be explored using new industrial products as per the demand pattern of Pakistan.

The discussion from the various studies above applies to the free trade agreements yield, trade creation, and trade diversion, affecting the trade flow. Any alterations in the trade flow have an economy-wide implication and are highlighted in the studies discussed above. Hence, to studies, these economies with the impact of CGE (Computable General Equilibrium), interlinked sectors of the economy are also analyzed alongside other governmental policies. There has been preliminary empirical assessment on many countries, but no such assessment has been conducted for the Pakistan economy.

FTAs between Pakistan and China: Fligenspan, Lelis, Cunha, and Clezar (2015) stated that among the many tools, constant market share analysis (CMS) and two stages least square (TSLS) are the most important in determining the free trade agreements. The TSLS tool efficiently analyzes the issue of endogeneity. The second tool is used to measure the changes in the exports of a country. Mendes and Gagliano (2020) stated that many authors had used

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the constant market share method to analyze the labor-intensive goods exports and the LNG exports. The South Asia Free Trade Agreement or SAFTA has been analyzed by Shaikh et al. (2012) using the GTAP model, where it was identified that the Pakistani economy would benefit from this free trade agreement. On the other hand, the researchers such as Bandara and Yu (2003) and Gallagher (2004) found only a few sectors such as textile benefitting from SAFTA.

The study conducted by Khan et al. (2018) investigated the intra-industry trade between Bangladesh, Pakistan, Sri Lanka, and India. The obstacles in trade agreement were highlighted in the study of Batra (2007), which included a limited capacity of these countries to generate restrictive trade policies, exportable surpluses due to political problems. Political problems,mainly between Pakistan and India,are the reason behind inhibiting the growth of intra-regional trade in South Asia countries. As Taneja et al. (2013) argued, economic integration is governed by the relation of India with other economies of the region. The tension between Pakistan and Indiaaffects other economies in the SAFTA as the trade agreement between the members is halted. The intra-SAARC trade, on the other hand, is carried out on a small scale in comparison with the regional blocks of the rest of the world.

Bilateral trade literature and theoretical justification: According to Kandogan (2005), many countries were a part of global integration after World War II entered preferential trade agreements. These trade agreements became the reason for increased economic competence and growth, which is suggested in Viner's theory of trade creation. The existing literature on this created an empirical assessment based on the gravity model. Kandogan (2005) further examined the natural trade partner theory in the European region. The trade agreements between the countries resulted in welfare improvement for Europe and its trade partner countries, particularly for the smaller counterparts. Soloaga and Alan Wintersb (2001) discussed that the newly found regionalism did not increase intra-bloc trade.

Jean, Mulder, and Ramos (2014) analyzed the effect on Chile's economy due to EU-Chile FTA using comparative statistics via the CGE model and the structural decomposition method between 2002 and 2008. As per this study, the agreement between the two regions showed real economic growth of 23% in Chile. Shinyekwa and Othieno (2013) based their analysis on the East African Community Trade Agreement. An expanded gravity was applied to estimate the static and dynamic randomeffects. The results indicated that South RTAs are creating trade diversions, and reforms for EAC integrations improved.

Another literature discussed the similar gravity equation found in the study of Ghosh and Yamarik (2004). Itwas conducted to test the strength of the conventional estimation with the use of cross-sectional data. The record of fragile estimates was not considered in the FTA estimations. The questions were further raised by Ghosh and Yamarik (2004) to use a binary variable in the gravity model and its exogenous nature. The suggestion made by Baier and Bergstrand (2009) about the binary variable was that used in country pair, time, and industry.

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The analysis conducted by Vicard (2011) determines the agreements using panel data to minimize the self-selection and downward bias of the country pairs in the analysis. It was done to set the panel data and enable the pair heterogeneity of various pairs of countries.

Herath (2014) discussed the trade agreement through the agricultural food trade using the gravity model using Pseudo Poisson Maximum Likelihood (PPML). Another analysis of PPML was based on the study of Magee (2008), where multiple trade agreements were identified which account for zero trade flow with the help of PPML. The study conducted by Lateef et al. (2018) concerning Pakistan-China agricultural trade applied the same estimator. It provided a string to prove that a positive impact on the economy is seen to export agricultural products in Pakistan.

The study conducted by Susanto et al., (2007) was based on the conventional gravity-based analysis for the regions of Canada and the USA, and Mexico and the USA. The free trade agreements among these employ direct tariffs, and congestions were granted under the agreement, and imports in the agreement were conducted per the region's demands. As Lateef et al. (2018) discussed, in 2013, the Pakistan Business Council conducted a study on the Pak-China free trade agreement by comparing the tariff reduction model for both countries. The analysis was conducted in the rest of the world. This study also discovered that ASEAN countries enjoy higher tariffs or equal compared to Pakistan, and there were no special concessions for Pakistan. China benefitted more in this as the concession provided to China by Pakistan in the agreement of free trade was more favorable than the offers provided by China to Pakistan. In 2011, the trade deficit of Pakistan doubled due to this from 204 billion to 4.8 billion with China. Although the exports of Pakistan expanded due to this FTA with China, it was low compared to China's exports.

H1:FTA significantly impacts exports in Pakistan
H2:FTA negatively impacts in term of account deficit in Pakistan
H3:FTA impact positively in terms of economic growth in China and Pakistan

3. Research Methodology

The current study attempts to understand the impact of FTAs between Pakistan and China on Pakistan's economic trade and growth, mainly on Pakistan's trade balance, imports, and exports vis a vis China. The research design is quantitative, whereby a regression analysis is performed as this study has objective data to view trends and patterns between the dependent and independent variables over the years. The challenge of potentialendogeneity is tackled using two sets of least square equations that are simultaneous. For the 1st set (equation no 1 and equation no 2), the factors determining Pakistan's exports and imports with its trade partners are investigated. On the other hand, for the 2nd set (equation no 3 and equation no 4), the impact of FTAs with china on growth and trade deficit in Pakistan are investigated. Owing to the likely simultaneity in variables and the feedback loops, that is, growth in Pakistan (GDPp). Pakistan trade deficit with China (TDp), imports (Imp), and Pakistan exports (Exp), found in equations 1 to equation 4, the technique of two-stage least square

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estimation is used. According to Bollen& Paxton (1998), the two-stage least square estimation produces reliable results by resolvingendogeneity.

Table 1: Variable Detail and Data Resources

Variable	Description	Source
Exp	Pakistan exports	Handbook of statistics on Pakistan economy, State Bank of Pakistan
Imp	Pakistan imports	Handbook of statistics on Pakistan economy, State Bank of Pakistan
TDp	Pakistan maintains a trade imbalance with the rest of the globe.	Authors calculation from WDI data
GDPp	Pakistan GDP growth rate	Handbook of statistics on Pakistan economy, State Bank of Pakistan
WGDP	World GDP	WDI
DRCA	The dynamic demonstrated a competitive advantage with trading partners.	Author's calculation
TP	Potential for commerce with trade partners	Author's calculation
FD	In Pakistan, financial deepening is defined as the ratio of M2 and private sector credit to GDP.	Author's calculation
Infra	A composite infrastructure index comprised of 30 factors pertaining to energy, communication, transportation, and finance. Following Cooray, Dzhumashey, and Schneider, the data is projected to 2017. (2017)	Donaubauer et al. (2015)
CPI	Pakistan consumer price index	Handbook of statistics on Pakistan economy, State Bank of Pakistan
GFCF	Gross Fixed Capital Formation in Pakistan	Handbook of statistics on Pakistan economy, State Bank of Pakistan
Dum	Take 0 before 2006 and 1 after 2006 for the China-Pakistan FTA.	Author's calculation
GDPc	China GDP growth rate	WDI
Expc	Pakistan export to China	Handbook of statistics on Pakistan economy, State Bank

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		of Pakistan
Impc	Pakistan imports from China	Handbook of statistics on Pakistan economy, State Bank of Pakistan
TDpc	Pakistan trade deficit with China	Author's calculation
DRCAc	Pakistan's comparative advantage was shown by the Pakistan dynamic. china	Author's calculation
TPc	China Pakistan trade potential	Author's calculation

3.1. Model Equations

Set 1:

$Exp_t = \beta_1 + \beta_2 GDP_{pt} + \beta_3 WGDP_t + \beta_4 Exch_t + \beta_5 Infr_t + \beta_6 Imp_t + \beta_7 DRCA_t + \beta_8 Dum_t + \mu$ (i)

$Imp_t = \beta_1 + \beta_2 GDP_{pt} + \beta_3 WGDP_t + \beta_4 Exch_t + \beta_5 FD_t + \beta_6 Exp_t + \beta_7 TP_t + \beta_8 Dum_t + \varepsilon$ (ii)

Set 2:

$TDp_t = \delta_1 + \delta_2 GDPp_t + \delta_3 WGDP_t + \delta_4 Exch_t + \delta_5 FD_t + \delta_6 CPI_t + \delta_7 DRCA_t + \delta_8 Dum_t + \tau$ (iii)

$TDp_t = \gamma_1 + \gamma_2 TDp_t + \gamma_3 FDI_t + \gamma_4 Exch_t + \gamma_5 FD_t + \gamma_6 CPI_t + \gamma_7 GFCF_t + \gamma_8 Dum_t + \varepsilon$ (iv)

In the above equations, a time is denoted by t and δ, γ, β, and α is used as structural parameters. Error terms are ε, ϵ, τ, and μ. In the first set of equations, the trade potential of Pakistan with trade partners (TP), Pakistan financial deepening (FDP), infrastructure (Infr), and Pakistan's dynamically revealed comparative advantage with trade partners (DRCA) are utilized as instruments. On the other hand, in the second set of equations, Gross Fixed Capital Formation (GFCF) and Pakistan's dynamically revealed comparative advantage with trade partners (DRCA) are used as instruments. Even though Two-Stage Least Square is a suitable technique, we have sued numerous diagnostic tests to increase the reliability of our models, such as tests for serial correlation, endogeneity, and weak instruments.

All the above equations include a dummy variable for depicting Pakistan's economic and trade relations with other countries. Nevertheless, the second set of equations is used to assess how the trade relations with China impactPakistan's economic dynamics.

Set 3:

$Exp_t = \alpha_1 + \alpha_2 GDPp_t + \alpha_3 WGDP_t + \alpha_4 Exch_t + \alpha_5 Infr_t + \alpha_6 Imp_t + \alpha_7 DRCA_t + \alpha_8 Dum_t + \mu$ (v)

$Imp_t = \beta_1 + \beta_2 GDPp_t + \beta_3 GDPc_t + \beta_4 Exch_t + \beta_5 FD_t + \beta_6 Exp_t + \beta_7 TPc_t + \beta_8 Dum_t + \varepsilon$ (vi)

Set 4:

$TDp_t = \delta_1 + \delta_2 GDPp_t + \delta_3 WGDP_t + \delta_4 Exch_t + \delta_5 FD_t + \delta_6 CPI_t + \delta_7 DRCA_t + \delta_8 Dum_t + \tau$ (vii)

$TDp_t = \gamma_1 + \gamma_2 TDp_t + \gamma_3 FDI_t + \gamma_4 Exch_t + \gamma_5 FD_t + \gamma_6 CPI_t + \gamma_7 GFCF_t + \gamma_8 Dum_t + \varepsilon$ (viii)

Equations 5 to equation 8 have similar error terms and str4uctural parameters (1 to equation 4. Nevertheless, the variables tend to be more focused on the Chinese aspect. In Equations 6

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and equation 5, we have focused on Pakistan's exports and imports from China only. As a result, we have replaced TP, DRCA, and World GDP with TP, Pakistan DRCA, and China GDP. In the 4th set, DRCA, World GDP, and trade deficit are replaced by Pakistan's dynamic comparative advantage with China (DRCAc), China GDP (GDPc), and Pakistan trade deficit with China (TDpc), respectively. The explanation of other variables is given in the preceding paragraphs.

3.2. Constant Market Share Model (CMS)

The Constant Market Share Model (CMS) is used for separating the contribution of world demand effects from the market composition. The notion of CMS offers a diverse dimension to an export analysis by decomposing the substantial growth of any nation's exports among two pertinent periods in diverse effects. It is the market distribution effect (MDE), the commodity composition effect (CCE), and the world demand effect (WDE) (Spiegelglas, 1959; Naya, 1967). The model of CMS includes both non-price and price competitiveness. The underlying model explains deviation among actual export growth and the response of export growth whenever there is an augment in the demand of imports. It depicts that there is no change in the focus nation's commodity share in all markets. The decomposition of the actual export growth, the following equation is used in CMS analysis:

$$\Delta X = \sum_{i=1}^{n} rX_i + \left(\sum_{i=1}^{n} r_i X_i - \sum_{i=1}^{n} rX_i \right) + \left(\sum_{i=1}^{n} \sum_{j=1}^{n} r_{ij} X_{ij} - \sum_{i=1}^{n} r_i X_i \right) \quad \text{(ix)}$$

In this equation, Δ X denotes the change in a nation's exports in reality; ri depicts the percentage increase in world exports of the commodity (from one period to another).r shows the percentage increment in exports in the entire world (from one period to another); Xi stands for Pakistan's exports of commodity to other nations; rij denotes percentage increase in world exports of the commodity (excludingPakistan); Xij shows Pakistan's exports of the commodity.

4. Results and Discussion

4.1 Simultaneous equation

The empirical analysis offour simultaneous equations based on Pakistan's growth, trade deficit, exports, and aggregate imports in the table below depicts that when DRCA reduces, exports in Pakistan reduce (shown in column 2). Considering this,the comparative edge of Pakistan in holding its export back plays a significant role. Over the last 20 years, DRCA reduced due to the ongoing war on terror in Pakistan, scarcity of capital, lack of skilled labor, and energy crisis. The results reveal that in Pakistan, imports do not complement the provision of exports; on the other hand, imports in Pakistan are suppressing and competing with exports. In globalized production and imports promoting exports, Pakistan facesa big challenge as imports are suppressing exports. In recent years, there has beena sharp increase

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in imports; however, in these imports, a big chunk includes consumable items final goods that do not contribute to exports.

Conversely, CPFTA dummy, World GDP, and infrastructure are significantly and positively contributing to increased exports. There is an insignificant impact of Pakistan GDP growth on exports, supporting Ahmed et al. (2003) findings. The third column in the table shows exports of Pakistan to other countries and depictsPakistan's trade potential increased significantly in recent years. Trade potential, in reality, denotes complementarity among markets. As complementarity increases, trade increases.

It is highlighted in column 3 that exports and world GDP are not impacting imports in Pakistan. The factors that are majorly contributing to imports are CPFTA, Pakistan GDP, and financial deepening; on the other hand exchange rate has a negative impact on imports. It shows that as the exchange rate in Pakistan depreciates, imports become less attractive and more expensive. Even though CPFTA has enhanced both exports and imports in Pakistan, the contribution of CPFTA in imports is much higher than that in exports, widening the trade deficit in Pakistan. As a result, there is an imbalance in Pakistan's external sector, exerting pressure on macroeconomic indicators and growth. The results in Table 3 depict that when Pakistan RCA increased, it reduced the trade deficit in Pakistan; on the other hand, a dummy for CPFTA, financial deepening, and Pakistan GDP increased the trade deficit. The fifth column in Table 3 depicts that GFCF, financial deepening, and FDI inflows contribute to economic growth prospects in the Pakistani economy; however, CPI and trade deficit are adversely impacting the economic growth prospects of Pakistan.

Table 2: Regression Analysis

Variables	**Export**	**Imports**	**Trade deficit**	**GDP**
DRCA	−0.132 (0.003)		−0.233 (0.003)	
TP		0.012 (0.014)		
GDP	0.212 (0.203)	0.043 (0.022)	0.068 (0.090)	
Exp		0.322 (0.207)		
Imp	−0.032 (0.003)			
TD				−0.222 (0.033)
WGDP	0.120 (0.000)	0.330 (0.193)	0.001 (0.010)	

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.05.040

FDI				0.132 (0.100)
Exch	0.132 (0.544)	−0.009 (0.017)	0.026 (0.675)	0.245 (0.334)
Infra	0.442 (0.033)			
FD		0.288 (0.000)	0.101 (0.099)	0.058 (0.032)
CPI			0.061 (0.144)	−0.078 (0.000)
GFCF				0.481 (0.001)
Dum (CPFTA)	0.098 (0.053)	0.182 (0.082)	0.336 (0.055)	−0.195 (0.130)
Adjusted R2	0.771	0.731	0.690	0.712
F test (p value)	0.04	0.001	0.001	0.045
Jstatistics (p value)	0.019	0.023	0.011	0.037
BreuschGodfrey test (p values)	0.534	0.455	0.198	0.618

Standard errors are reported in parentheses.

The results depict that when the trade deficit increases by 1%, it strains the economic growth in Pakistan by 0.22%. The CPFTA's negative variable is not statistically significant and asserts that CPFTA is contributing to unbalanced trade, but not in the economic growth of Pakistan.

For measuring the impact of Pakistan's increasing trade exposure and CPFTA with china, we used equation five to equation eight. The focus is on the trade deficit, imports, and exports with China particularly. The results are shown in Table 4, which denotes that the CPFTA dummy is a significant factor playing a significant role in pushing China's growing export prospects. The results also depict that our primary interest variable, exports in Pakistan to china, has enhanced when an increment in DRCA between Pakistan and China is. The quality of infrastructure and economic growth in China are certain factors positively influencing the exports of Pakistan to China. Whenever GDP in China increases, the demand for Pakistani exports increases. In addition, depreciation of the exchange rate reduced imports of Pakistan from china. On the other hand, CPFTA crucially enhanced imports from China in Pakistan. The reason why the trade deficit of Pakistan with China increased significantly is that CPFTA dummy impacts high on Pakistan's imports as compared to exports to China

Table 3: Regression Analysis

Variables	**Export to China**	**Imports from China**	**Trade deficit**	**GDP**
DRCA China	0.586 (0.000)		−0.470(0.019)	
TPc		0.358 (0.011)		

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.05.040

GDP	0.057 (0.577)	0.183(0.037)	0.089 (0.099)	
Exp China		0.768(0.452)		
Imp China	0.002(0.023)			
TDp China				−0.108 (0.001)
GDP China	0.336(0.000)	0.332(0.402)	0.010 (0.221)	
FDI				0.099 (0.100)
Exch	0.233(0.145)	−0.014 (0.509)	0.016(0.387)	0.109 (0.544)
Infra	0.289 (0.012)			
FD		0.330(0.000)	0.022(0.143)	0.099 (0.018)
CPI			0.061(0.198)	−0.09 (0.001)
GFCF				0.521 (0.022)
Dum	0.403(0.022)	0.883(0.050)	0.497(0.004)	−0.189 (0.437)
Adjusted R^2	0.781	0.721	0.710	0.760
F test (p value)	0.000	0.000	0.000	0.000
Jstatistics (p values)	0.000	0.000	0.000	0.000
BreuschGodfrey test (p values)	0.000	0.000	0.000	0.000

Standard errors are reported in parentheses.

The individuals involved in Pakistan's policymakers must have a profound understanding of the dynamic nature of China's market and economy. Pakistan's exports static nature needs a jolt. To obtain a fair market share in China's market, companies in Pakistan needto be vigilant and proactive in responding to the changing demands of Chinese imports. Alongside, Pakistan needs to widen its reforms in infrastructure and energy to attract investment from Chinese firms. The trade deficit in Pakistan can effectively reduce by offering a constructive production environment and enhancing firms' productivity at home.

4.2. Constant market share analysis

We use the CMS model from 2003–2006, 2007–2011, 2012–2016, and 2003–2016 to link trade performance with key compelling events and appreciate the fundamental drivers behind Pakistan exports. Separately, the two effects contributed 55.27 percent and 53.30 percent of Pakistan's exports to China. While the Competitiveness aspect has a small commitment, Pakistan's fair implementation suffers from Commodity Composition.

Because of the unfavorable effects of the financial crisis from 2007 to 2011, the impact of World Trade and Market Distribution Effects on Pakistan's export development to China was

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.05.040

modest, while the Commodity Composition Effect on Pakistan's fare to China was insignificant during this era. Therefore, table 5 indicates a drop in overall exports. From 2012 to 2016, Pakistan's exports were constrained mainly by the Competitiveness Effect since ASEAN countries are more competitive in most of China's product offers. However, because of genuine advertising, packaging, comprehensive fare strategy, and consistency in the stockpile of ASEAN countries' exports, Pakistan sends out Competitiveness (mainly rice) in the Chinese market has disintegrated in the most recent couple of years.

CMS results (Table 5) demonstrate that the Market Distribution Effect is a critical aspect of Pakistan's fare implementation. On the other hand, the Commodity Composition Impact reveals an adverse effect for Pakistan for all periods except 2007–2011. The results in the table for the years 2012–2016 reflect a grim picture of Pakistan's fare execution since the overall fare change is negative in this period; however, Market Distribution has a favorable impact on exports. Therefore, the World Trade implications of Pakistan's exports to China are insignificant and very unpredictable.

Table 4: Comparative Effect Analysis

Effects/years	**2003–2006**		**2007–2011**		**2012–2016**	**2003–2016**	
Adjustment in exports (I + II + III + IV) (in $ million)	247.00 (100)		1,065.29(100)		−1,039.88 (100)	1,314.30	-100
I. World trade outcome	135.99	-55.28	208.50	-19.58	−367.72 (−35.36)	292.16	-22.24
II. Commodity structure result	−66.06	(−26.74)	68.48	-6.43	−193.61 (−18.62)	−159.09	(−12.10)
III. Competitiveness result	176.55	-71.48	788.34	-74.02	−478.57 (−46.02)	1,181.23	-89.88

Source: Authors' calculations

Our findings suggest that among the four components (Competitiveness Effect, Market Distribution Effect, Commodity Composition Effect, and Global Trade Effect), world trade and competitiveness greatly influenced Pakistan's exports to China. It demonstrates that the rise in global prices contributes to an increase in Pakistan's exports to China. World trade and competitiveness effects improved Pakistan's performance; however, market circulation negatively affected Pakistan's performance following CPFTA. The ongoing trade war between the United States and other countries, including China and the world economy's sluggish growth, is unquestionably not a good indication for Pakistani exports. China and Pakistan sought to address the deterioration, with Pakistan requesting FTA 2.0 to solve a growing trade gap. However, we believe that Pakistan FTA 2.0 will not function unless Pakistan investigates its solidarity in the Chinese market, presents fundamental improvements, and improves profitability at home. In this context, Pakistan must keep an eye

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.05.040

on the container to increase its competitive advantage and overcome the curse of sleepy fare execution. Pakistan needs a complete primary upgrade for this.

5.Conclusion

To conclude, Pakistan and China are both members of the World Trade Organization (WTO) since January 1995 and December 2001. Both peaceful countries have robust trade and economic bond that has allowed them to hold a solid strategic and political relationship. Both private and governmental bodies have joined hands to form everlasting and strong trade relations and numerous investment projects (agreements). FTA of both Pakistan and China, in this case, is significant in their perspective. Firstly, this has managed to construct a base for long-term trading which has surprisingly converted themselves into long-term partners. Let's see Pakistan, a significant exporter of fiber, textile, vegetable, garments, oil and fat, leather, and even chemical products that are all substantially sent to China. On the other hand, China is a market leader in exporting wood products, plants, machinery, textile, crops, and paddy rice, which is also sent to Pakistan. Both of these vulnerable countries have a significant role in world affairs because of the increasing development numbers and peaceful relations.

This paper has examined the effect of the China-Pakistan international alliance on Pakistan's exports and GDP development by utilizing the minor square procedure. The discoveries of the paper affirm that CPFTA expanded in general just as two-sided trade between China and Pakistan. Nonetheless, the paper demonstrates that the increases from the international alliance are a long way from equivalent. Our discovering shows that the example of two-sided trade pointedly moved for China after CPFTA because China was in a better situation to use the concession accessible under the international alliance. Then again, absence of appropriate arranging and required planning, Pakistan didn't profit from the concessions under CPFTA and, in this manner,messed up the chance to expand her exports to China. Resultantly, Pakistan trade deficit with China expanded. It put a question mark on the advantages of China Pakistan deregulation relations and brought up an issue on Pakistan readiness to join CPFTA.

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