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An Empirical Analysis of Pakistan's Agriculture Trade with China: Complementarity or Competition?

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ABSTRACT

This paper examines the bilateral trade flows between Pakistan and china with particular focus on the trade of agricultural goods. It observes the trends and characteristics of China-Pakistan trade relations after both countries signed the China-Pakistan Free Trade Agreement in 2006. We use trade complementarity index, revealed comparative advantage index, trade integration index and export similarity index to empirically analyse trade complementarity and competition of thirty five agricultural products. Furthermore, we investigate the future prospects of agriculture sector by calculating indicative trade potentials of top agriculture products. The findings of this study show that there exist competition and complementarity for few products; however, complementarity is strong.. The indicative trade potentials show that Pakistan has higher exports potentials in products rice, seafood and cotton, which however have not reached up to their potentials due to various barrier and nonbarrier tariffs. Thus it is important that these challenges are addressed in order to increase the bilateral trade in future.

Keywords: Bilateral Trade; Agriculture sector; Trade Competition; Trade Complementarity; CPEC, CPFTA

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1. INTRODUCTION

Pakistan China trade relations have underwent significant structural changes since the signing of the first free trade agreement between China-Pakistan Free Trade Agreement (CPFTA) in 2006. The trade pattern has shown an upward trend; the volume of bilateral has raised from US\$2.2 billion to US\$ 15.6 billion between the year 2003 and 2018 (ITC, 2018). However, it is important to note that the bilateral trade between both the countries remains tilted to China, as Pakistan's exports have been outpaced with the imports from China; during the period 2003-2018, Pakistan's exports to China increased from US\$ 0.4 billion to US\$ 2 billion, on the other hand, imports from China increased from US\$ 1.8 billion to US\$ 14 billion during the same period.

The overall trade balance is more skewed towards China, showing a trade balance of US\$15.6billion, however, the bilateral trade of agricultural goods shows a surplus. The composition of exports of agricultural goods mainly includes primary products such as raw cotton, which do not add substantial value to the overall trade between both the countries. In the basket of exportable goods, agricultural goods take major share of Pakistan's total exports to China. Rice and cotton constitute 60 percent and 75 percent of Pakistan's total exports respectively, while rice export to China is showing an average growth of 65 percent over the period of ten years. After Vietnam and India, Pakistan is the third largest supplier of rice to China which is mainly driven by higher demand in the consumption of rice in China. Low international price of Pakistan's rice also helped it in entering the Chinese market surpassing Thailand. Besides, raw hides and skin, fish and other seafood etc. are other major exports to China.

It is important to note that along with an increasingly upward trend in trade between the two countries, concerns are being raised about the trade deficit with China. Significant portion of the prevailing deficit is due to an unbalanced tariff concessions offered under the first CPFTA. Under this agreement, the quality of concessions given was not good, which led to substantial trade deficit, impacting the overall trade balance between both countries. The other reason behind imbalance of trade is due to the difference in structural nature of the industries in both countries. In comparison to Pakistan, China has a strong manufacturing base to export goods and is major trading partner of 120 countries of the global economy. This has led to have a trade surplus with most of its trading partners.

In order to address the trade deficit issues, China and Pakistan have taken proactive measures to maintain some balanced trade relations. More recently, both countries have agreed to implement the second round of free trade agreement, which has come into force from January this year. Along with providing market access, both the countries have also ensured safeguard measures to protect the domestic industries from

Both authors have contributed equally to the completion of this research paper.

huge influx of imported products by restricting imports, which reduce the economies of scale for domestic industries, thus limiting their profitability.

Given this background, this paper intends to review the dynamics of bilateral agricultural trade between the China and Pakistan. It specifically analyses the characteristics and trend of the trade by investigating their complementarity and competition of approximately thirty five major agricultural goods. This research article investigates the trends and patterns of agriculture trade between China and Pakistan; what kind of trade products is appealing based on comparative advantage theory? Based on the trade potentials, what new strategies are needed to enhance agricultural cooperation between the two countries.

This study is significant from various policy perspectives. First, with deep economic integration between Pakistan and China under the broader framework of China-Pakistan Economic Corridor (CPEC), it has become more important to investigate the existing structure of trade between both countries. This will help policy makers to address the existing structural trade imbalances in both countries. Secondly, it is significant to study individual sectors in order to find if trade of products from specific sectors are in competition or they complement each other. If product compliments each other, it would contribute in finding and enhancing bilateral cooperation of trade in those respective products. Moreover, if the study finds competition, more adjustments would be needed to enhance the bilateral trade cooperation.

2. LITERATURE REVIEW

Despite the recent phenomena of trade protectionism, countries around the world have always focused on free and open trade as the right means for growth and prosperity. For opening markets and benefiting in terms of welfare, regional trade integration is very important. According to World Bank's report (2018), South Asia is considered as the least integrated region while East Asia 35 percent and Europe at 60 percent are the most integrated regions in the world.

In literature, numerous studies have investigated the trade/regional trade to analyse the trade integration and development opportunities. While studying the African economies, Fortunato & Giovanni (2011) find that there is huge potential of regional integration, which are mostly untapped despite significant intra-African trade in the last ten years and base on the presence of diversification, there is a need to promote exchanges between African economies particularly in the context of fragile global recovery.

In most of the studies, comparative advantage theory has been tested in order to assess a country's international trade performances. Xu & Fa (2019) while investigating the bilateral trade between China and member countries of the Eurasian Economic Union (EAEU) find that trade is not competitive and there are huge potentials for enhancing trade integration. Similarly, Min H. et al (2016) investigates the state of complementarity and competition between China and Belt & Road Initiative (BRI) states and find that in trade relations among these countries, competition and complementarity coexist, but complementarity seems to be more dominant. They suggest that these countries should diversify their trade relations and focus on further cooperation. In case of Pakistan, various studies have focused on identifying the nature of Pakistan's export/import and have found potentials for export /import markets (Abbas and Waheed, 2015; Qayyum and Mahmood (2013); Gul and Yasin, 2011). Few others have investigated international competitiveness of Pakistan; Mahmood and Nishat (2005) examine export competitiveness of Pakistan's twenty five non-agricultural products, whereas Akhtar et al. (2008) have explored the footwear industry for its competiveness in Pakistan. While reviewing the existing literature, we observed that that not enough studies have been carried out on Pakistan's agriculture sector in terms of its contribution to the overall trade between China and Pakistan owing to an uptick in economic integration between the two countries in the broader framework of CPEC. There is a need for a comprehensive study of Pakistan's competitiveness, or for that matter, complementarity in agriculture, especially post-CPEC. The current study, thus, aims to fill this gap in the existing literature on international trade.

3. TRADE SITUATION OF CHINA AND PAKISTAN

China's agriculture sector accounts for approximately 15 percent of its GDP and the sector grows approximately at 8 percent annually. Despite, the rapid growth in this sector, China imports major agricultural crops as the country's population is very high with average caloric consumption. Moreover, with industrialisation, China has lost major arable lands, which has led to the import of crops such as wheat and rice, in order to meet the consumption needs of its population. According to official statistics, China mainly imports agricultural goods from USA (soybeans), Brazil (meat), Canada, New Zealand and Australia (dairy products). China imports cotton yarn and rice from emerging Asian economies, like Vietnam, Thailand, Pakistan and India.

Similarly, for Pakistan, the growth in this sector for the year 2018 shows an upward trend as compare to the previous years. Over the period from 2003 through to 2018, the average growth rate in Pakistan's agricultural exports is 27 per cent, with the top three entries of cotton, rice and fishes. China remains the largest destination for agricultural exports but there has been a rapid increase in exports to Australia, India and United States.

3.1. Pakistan's Agricultural Trade with China

While observing Pakistan's agricultural trade with China, agricultural products accounted for 85 percent of total exports to China in 2018. However, it is important to note that 71.2 percent of agricultural products imported by China were raw material, which mainly includes cotton, and 18.1 percent were consumer goods, including fish and other fruits and nuts

The top three exports of agricultural products to China constitute less than 2 percent of China's total world import demand of agricultural goods. Table 1 indicates the list of top three suppliers of agricultural goods to China, in which Pakistan is among the top three in supplying cotton while in others it lags behind. United States of America is the main supplier of these goods followed by Australia and Vietnam.

Table	1
1 uore	

Items	2003	2018	Cou	ntry's Ranking	
Total Exports to China	259,637	1,829,435	(Top Suppliers to China)		a)
Agricultural Exports to China	442,084	1,351,828	First	Second	Third
Cotton	358,185	968,230	Vietnam	India	Pakistan
					Vietnam
Cereals	252	220,821	United States	Australia	(Pakistan at
					5th)
Ores, slag and ash	27,836	77,664	Australia	Brazil	Peru
Raw hides and skins	31,366	37,120	United States	Brazil	Australia
Fish and other aquatic invertebrates	24,638	47,993	Russian Federation	United States	Canada
Percentage Share in total Exports	87	85			

Pakistan's Agricultural Exports to China (US Dollar Thousands)

Source: Author's calculation, ITC (2019).

Similarly, the bilateral trade between China and Pakistan in terms of imports of agricultural goods is not very significant. The share of agricultural imports is below 1 percent in the total imports from China (Table 2). It shows a positive trend from 2003 to 2018 but the change is very insignificant. It is noted that edible vegetables have contributed much to the total imports, showing a growth of more than 50 percent. While the percentage share in total imports over the period of ten years has increased, but not proportionate to the overall imports of non-agricultural goods from China. For the other agricultural goods like dairy products, live animals and fish and other aquatic invertebrates, Vietnam, India and United States are the major suppliers in Pakistan.

Table 2

Items	2003	2018	Country's Ranking		
Total Imports from China	957,331	14,599,749	(To	(Top Suppliers to Pakistan)	
Agricultural Imports from China	695	107,378	First	Second	Third
Fish and other aquatic invertebrates	1	17	Vietnam	Thailand	Montenegro
Meat and edible meat offal	334	26	India	Malaysia	Indonesia
Live animals	2	91	Australia	Netherland	USA
Dairy products	152	103	USA	France	New Zealand
Edible vegetables and certain roots and tubers	206	619	India	Australia	Canada (China at 4th)
Percentage Share in total Imports	0.02	0.78			
Trade balance in Agricultural goods	441,389	1,244,450			

Pakistan's Agricultural Imports from China (US Dollar Thousands)

Source: Author's calculation, ITC (2019).

4. CHINA-PAKISTAN FREE TRADE AGREEMENTS

4.1. Tariff Structure under Phase 1

As discussed above, the tariff structure under the phase of trade agreement between China and Pakistan has resulted into substantial trade deficit on account of the overall bilateral trade. Under these agreements, both countries eliminated tariffs on 7550 tariff lines, which were to be phased out in two-five year periods with phase 1 spanning from 2007-2012 with the following tariff reduction modalities (TRMs). China has offered concessions on 7,550 tariff line out of which 35 percent products were included in the zero-rated category. These include cotton fabrics, marble, leather articles and medical appliances. However, no concessions were given on 15 percent products, which included fish, cotton, paper, plastic and textile items. Similarly, Pakistan offered concessions to China on 6,803 tariff lines, along with zero tariff rates on machinery, electronic products and raw materials.

		Pakistan TRMs		China TRMs	
		No of Tariff	% of Tariff	No of Tariff	% of Tariff
Category	Tracks	Lines	Lines	Lines	Lines
Ι	Elimination of tariffs (3 years)	2423	35.6	2681	35.5
II	0-5 per cent (5 years)	1338	19.9	2604	34.5
III	50 per cent of margin of preference	157	2	604	8
IV	20 per cent of margin of preference	1768	26.1	529	7
V	No concession	1025	15	1132	15
VI	Exclusion list	92	1.4	-	-
	Total lines (at the HS 8-digit level)	6803		7550	

Summary of Concessions offered under CPFTA-1(2007-2012)

Source: Ministry of Commerce, Pakistan, 2007-2012.

Since the first CPFTA, the increase in Pakistan's exports of agricultural goods to China is seen in products like cotton, but relatively less seafood and raw hides. However, for many products, Pakistan was unsuccessful in taking benefits of the concessions provided by China as per the reports of Pakistan Business Council (PBC). In these reports commissioned over 2013-2019, there are various FTA related factors, which have influenced the impacts on the trade performance.

- The foremost factor identified is about the quality of concessions provided by each side; the quality of concessions provided by Pakistan to China was better than what China has offered to Pakistan (PBC, 2013). Pakistan has provided preferential tariff lines on products which China actually exports; this has resulted into huge floods of Chinese products into domestic market thereby affecting domestic production of these items due to low profitability. The products include footwear, clothing, medical and surgical items, fans and rubber tyres. In contrast, Pakistan was offered tariff line on low value added items i.e. minerals, chemicals, cotton bed linen, woven fabric etc. (PBC, 2019). Also, out of the total tariff lines offered to Pakistan under phase 1, 1400 were such which Pakistan had not exported to China .does not import from the world (IGC, 2017). Moreover, no concession was offered on Pakistan's major exports like rice, seafood, leather skin and hides, this can be observed in the decline of seafood exports to China recently. Another factor, which greatly impacted Pakistan's exports to China, was ASEAN-China trade agreement (2010), under which China offered zero-rated tariffs to Pakistan's main competitors like ASEAN countries and Bangladesh. This has led to almost 80 percent loss of Pakistan's exports to China (PBC, 2019).
- Non-Tariff barriers (NBTs) were another factors which could not led Pakistan's export reaching its full potential. Safety and quality standards as per sanitary and phytosanitary (SPS) agreements, which were mostly enacted since 2011 led to low exports of rice to China.

Keeping in view the above discussion, we find that China-Pakistan trade has increased after both signed FTA, Both exports and imports have improved, however the growth in imports have outpaced the growth in exports for Pakistan. Moreover, it is observed that there is a change in the composition of Pakistan's exports to China after FTA with cotton showing the highest growth in its exports, while some products like seafood, raw hides and other organic chemicals have underperformed in terms of exports to China. We also discussed some of the factors which lead to low growth in exports, which include quality of concessions provided by each country, with no concessions offered on some of Pakistan's top exports like rice along with NBTs which have impacted the overall trade between both countries.

4.2. Tariff Structure under Phase 2

The protocol for second phase was CPFTA was signed in April 2019, which came in to operational in January 2020. Under this agreement, Pakistan has secured concessions for its products of export interest, more access to Chinese markets along with safeguarding its domestic industries. Both countries have agreed to ease up 75 percent of tariff lines for each other, with China doing it in a period of 10 years and Pakistan in a period of 15 years. China has also agreed to remove tariffs on 313 priority tariff lines that include engineering goods, plastics, leather, footwear, chemicals, textiles and garments, meat, prepared foods, seafood, oil seeds etc. Along with this, more market access has been offered to Pakistan's products into Chinese markets. Secondly, 1760 tariff lines come under the protected list, which mainly include apparel, iron and steel, electrical appliances, vehicles and agriculture products. Some safeguard measures have been introduced to restrict imports of products, which have over the years impacted the domestic industries.

It is observed that CPFTA-2 is marked improvement of the CPFTA-1, such that Pakistan is able to secure better access than its top competitors (ASEAN countries), with lower tariff rates as compared to CPFTA-1. With priority list 1, which includes seafood and garments, given immediate access to Chinese markets, it is going to improve the Pakistan's exports pattern. However, Pakistan still faces higher tariff rates on rice as compare to its competitors; 15 percent higher than Vietnam. It still does poorly on other agri-products like fruit pulps, jams, and unfrozen orange juice.

The next section thus focuses on Pakistan's agriculture products, while calculating their competitiveness and complementarity with Chinese products; how far each product competes or complements with China's export and import pattern; what strategies are required to improve the overall trade pattern in the long run.

5. DATA AND METHODOLOGY

Based on the existing trade pattern between Pakistan and China, this study examines if there exist competitiveness or complementarity in agriculture products between the two trading partners. Traditionally, trade competitiveness and complementarity of a country is measured by Revealed Comparative Advantage (RCA) Index, proposed by Balassa in 1989 which has been widely applied in the literature. Besides, we also use other related indicators, which include trade complementarity index, trade integration index, exports similarity index and trade potential. For data, this study employs trade statistics from International Trade Statistics (ITC), which covers detailed annual data for 35 agricultural products for China and Pakistan. For a detailed overview of trade relations, this study focuses from year 2003 till 2018, while the above mentioned indices are calculated for both countries. Agriculture products are identified based on the definition provided by World Trade Organisation (WTO).¹

6. EMPIRICAL ANALYSIS

6.1. Trade Complementarity

(i) Revealed Comparative Advantage

Revealed comparative advantage (RCA) index analyses country's comparative advantage, based on its export performance and its computational formula is as follow

$$RCA_{ij} = \left[\frac{X_{ij}}{X_{it}}\right] / \left[\frac{X_{wj}}{X_{wt}}\right] \qquad \dots \qquad \dots \qquad \dots \qquad \dots \qquad \dots \qquad \dots \qquad (1)$$

Here X_{ij} represents value of country i's exports of product j and X_{wj} shows value of world's exports of product j. whereas X_{it} and X_{wt} represent country i's total export and world's total export. If RCA index is higher than 1, it shows that country i has a comparative advantage in product j; higher is the values, the more advantage it has. However, if one of the trading partners has advantage in product j, while the other has not, i.e, the other country's RCA index is less than 1, it suggests that they both will gain if they cooperate with each other on trade.

Figure 1 presents the average RCA of all the agricultural products used in this study. The trend shows that for Pakistan, on average the index is above 1, which says that Pakistan enjoys comparative advantage in most of the agricultural commodities. Moreover, each product's trend also show similar trends, for products like fish, cereals, cotton, edible vegetables, edible fruit and nuts and beverages, the RCA index is greater than 2.5 (Table 4).² This shows that Pakistan has strong competitiveness in these goods, because in South Asia, Pakistan is a noteworthy producer of cereals, cotton and fruits. Similar results have also been found by Min He et al. (2016) in case of bilateral trade between China and South Asian countries. For China, the RCA index shows less than 1for all major agriculture products, showing no competitiveness in them in comparison to Pakistan. The significant differences in comparative advantages of agricultural products imply that there are enormous potentials of cooperation between China and Pakistan.

Table 4 presents the product wise results for Pakistan; while categorising the products into three broad ranges, we find that for majority of the products, Pakistan shows relatively strong competitiveness in terms of its trade with China. With RCA showing index greater than 2, we infer that Pakistan has comparative advantage in trading agricultural goods with China.

¹List of agriculture goods is presented in the appendix.

²The graph for each product is separately shown in order to see the trend in each product for both the countries. The graphs are presented in the appendix.



Table 4

1.5 <rca<2< th=""><th>RCA>2</th></rca<2<>	RCA>2
Relatively Strong Competitiveness	Strong Competitiveness
Coffee, tea, maté and spices	Beverages, spirits and vinegar
Meat and edible meat offal	Cereals
Miscellaneous edible preparations	Cotton
	Edible fruit and nuts; peel of citrus fruit or melons
	Fish and crustaceans, molluscs and other aquatic
	invertebrates
	Lac; gums, resins and other vegetable saps and
	extracts
	Products of animal origin, not elsewhere specified
	or included
	Sugars and sugar confectionery
	Vegetable plaiting materials;
	vegetable products not elsewhere specified or
	included

Pakistan's Product Competitiveness

(ii) Trade Integration Index

This measures the closeness of trade between two countries. The higher value indicates strong trade complementarity between the two trading partners. It is measured as follow:

Here, E_a characterises country a's exports to nation b, whereas E_a is country a's total export during the same period. Similarly, M_b is country b's total import and M_w

represents total imports of the whole world for the given period. TII taking values higher than1 indicates strong between two countries.

According to the graphical presentation, trade integration between Pakistan and China illustrates an upward trend in the beginning, however, it stabilises over the period of time. China's trade integration with Pakistan is very stronger in some years with value touching 6. Similarly, for each product category of Pakistan's agricultural goods, we find that the value takes greater than one, suggesting higher dependence of Pakistan on the Chinese markets. On average, the value is higher over the years. (Figure 2). The graph for each product is presented in Appendix Figure B.



Fig. 2. Trade Integration Index

Table 5 presents Pakistan's product wise trade integration with China, showing strong integration for each of the product listed.

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Commodities	TI>1
Cereals	Yes
Cotton	Yes
Fish and crustaceans, molluscs and other aquatic invertebrates	Yes
Furskins and artificial fur; manufactures thereof	Yes
Lac; gums, resins and other vegetable saps and extracts	Yes
Preparations of cereals, flour, starch or milk; pastrycooks' products	Yes
Products of animal origin, not elsewhere specified or included	Yes
Raw hides and skins (other than furskins) and leather	Yes
Residues and waste from the food industries; prepared animal fodder	Yes
Wood and articles of wood; wood charcoal	Yes
Silk	Yes

Pakistan's Product-Wise Trade Integration with China

(iii) Trade Complementarity Index

It measures the matching pattern of one country's export to imports of the other country. A higher degree of complementarity indicates that there are favourable prospects of successful trade arrangements. The formula is as follows:

$$\left(1 - \left(\sum \left|\frac{\sum_{w} m_{iwa}}{\sum_{w} M_{wa}} - \frac{\sum_{w} x_{ibw}}{\sum_{w} X_{bw}}\right|\right) \div 2\right) \times 100 \qquad \dots \qquad \dots \qquad \dots \qquad (3)$$

Where 'a' denotes the importing country, 'b' is exporting country and 'w' represents world. While 'x' characterises exports of a particular commodity, 'X' shows the total exports, similarly, 'm' reflects import of a specific product; 'M' is total imports. It takes the difference in imports of one trading partner with exports of other in the same sector. The value ranges between 0 and 100; with 100 demonstrating true match between the import and export pattern of both trading partners.

Trade complementarity shows an upward trend between China and Pakistan (Figure 3). For the year from 2003 to 2018, there is less growth in the demand for Pakistan's agriculture goods. The calculated complementarity index was less than 0.3 in 2003, which has now increased to 0.4 in 2018. This pattern indicates a smooth change over the year and on average the index is less than 0.4.Similar results are also found by Xu, S. (2017) while analysing trade complementarity and competition between China and Belt & Road Initiative (BRI) countries. The results for South Asian countries are mix; with India showing a strong complementarity with TCI value reaching to 0.80, while Sri Lanka and Pakistan show weak complementarity of trade with China with TCI barely reaching 0.4 for each.

Although, Pakistan's exports of agriculture products to China have increased after signing of the first FTA, however, the growth is observed in few products like cotton. On the other hand, China imports most of the agriculture goods and food from around the world, which mostly include oils, grains (which include corn, wheat, sorghum, barley, rice and animal feed), sugar, cotton, fruits, vegetables, meat and hides. However, Pakistan's share in China's imports of these goods is very nominal; cereal constitutes 1.4 percent while fruits and nuts form 0.4 percent of the imports of China. This shows that Pakistan's export pattern does not match with China's imports, showing a value of 0.4. This can be due to the fact that for most of the products like seafood and rice, the tariff lines are still very high, which has put Pakistan in tough competition with its counterparts.

Similarly, when we observe China's exports of agriculture goods to Pakistan, it shows a complete opposite of the above case. China's export supply match to Pakistan's import, such as the index remains above 0.5 over the years. From this we conclude that while the Pakistan's complementarity with China has increased over the years, the value is still low. This is because of the fact that both the countries are at different stage of production within the agriculture sector with Pakistan exporting only low-value added goods to China. Thus more preferential trade agreements are needed to accrue the benefits to both countries.



6.2. Trade Competition

(i) Export Similarity Index (ESI)

ESI captures trade similarity between the two trading countries by taking into account the world market, while calculating trade competitiveness between the two countries.

$$ESI = \left\{ \sum_{i=0}^{n} \left[\frac{1}{2} \left(\frac{EXp_a^i}{EXp_a} + \frac{EXp_b^i}{EXp_b} \right) \times \left(1 - \left| \frac{EXp_a^i}{EXp_a} + \frac{EXp_b^i}{EXp_b} \right| \right) \right\} \times 100$$
(4)

Where EXp_a^i signifies exports of good 'i' for country 'a', EXp_a is country 'a's aggregate exports in the world. Similarly, EXp_b^i are exports of good 'i' for country 'b', and EXp_b is 'b's aggregate exports in the world market. It ranges from 1 to 100 with higher index, showing tough competition with the two countries.

ESI between Pakistan and China demonstrates an increasing trend, crossing 0.8, however, the trend is declining in more recent years. China has transformed from an agricultural economy to an industrial economy, shifting to a more capital-intensive and technology-intensive industries, while Pakistan lacks in innovation in its agricultural sector, leading to a low productivity base. To increase the overall productivity of Pakistan's agricultural sector, both countries under CPEC framework for agricultural cooperation, have agreed to bring investment in this sector, transfer technology and increase productivity of products like cereals, egg, meat, and seafood, which can be exported to feed the people of China. These kinds of agreements have created complementary affects for the sector, which can also be seen by a decline in the graph in more recent years. Numerous others studies have also found that China's exports of agricultural goods have complementary effects for Asia, suggesting that China's exports expansion of agricultural commodities does have displacement effects for Asian Countries (Nguyen, H.,2016).





6.3. Trade Potentials

Based on the discussion in the previous section, it is inferred that there exists vast potential for enhancing the bilateral trade of agricultural goods between China and Pakistan. Each category of goods ranging from cereals, fruits, fish and raw cotton, shows that Pakistan's export portfolio matches that of the imports of China. The complementarity between Pakistan's exports and China's imports signal to a favourable position for Pakistan to expand exports to China and gets its share in the huge Chinese markets. We calculated trade potential of each product for Pakistan and China using formula written below;

TP = *min* {*country's exports*; *partner country's imports*} - *actual bilateral trade*

Figure 5 presents indicative trade potentials for Pakistan and China in 2018. For China, we find that in few products, it has potential in capturing sizable share of Pakistan's market. These include tea, coffee, spices, oil seeds, vegetable/animal fats and oils; fruits; paper and paperboard, it has more potential that what it is currently exporting.



Fig. 5. Indicative Potentials of Pakistan's Exports to China

In case of Pakistan, cotton shows huge potential in reaching out to Chinese markets; in 2018 Pakistan's actual exports of cotton to China stood at \$968 million, while it has the potential to export up to \$2500million. Similarly for products like meat, beverages, rice and fish, Pakistan shows the potential to capture the huge Chinese market. A study conducted by Pakistan Business council, (2015) has also identified products like cotton and frozen fish, which show indicative potential of upto \$100 million

However, it is important to note that there are numerous factors which have hampered Pakistan's exports to China according to its full potential. The first FTA signed between both countries has tilted the trade balance in favour of China with huge deficit in the bilateral trade. Although, the volume of trade has increased since then, however it has not added substantial value to it. China had not offered trade concession to Pakistan's top exports like rice, fruits and seafood, which has resulted into Pakistan losing its market share to its competitors like Bangladesh and ASEAN countries. Moreover, the non-tariff barriers enacted by China have further impacted Pakistan's exports to China.

Most of the issues or constraints have been addressed in the second phase of FTA, which is considered an improved version of the first. China has agreed to give duty-free access to products like seafood, and juices, which was not part of the first FTA, despite Pakistan being exporting these products to the world in bulk. Thus, there is potential to increase exports of these items under the new tariff lines. A study compiled by Pakistan Business Council, (2019) states that lack of compliance to SPS requirements along with absence of domestic accreditation bodies have hugely impacted Pakistan exports of juices. Under CPFTA-2, not much attention has been paid to these non-tariff barriers, like standards and quality assurance certificates, particularly for fruits and rice exporters from Pakistan. It is important to address these issues in order to achieve the maximum gains from trade concessions on Pakistan's exports.

Lastly, CPEC has huge potentials in enhancing the bilateral trade between both countries. Since the launch of this mega-initiative, economic integration has strengthened in various dimensions, which include industrial cooperation, infrastructural development, agriculture cooperation, tourism and people-to-people contacts. As CPEC has entered into its operational stage after completing the initial phase of laying the infrastructure, the Governments on both sides have identified some priority areas for further cooperation. Enhancing agricultural cooperation is one of the key areas identified, with the aim to enhance agricultural output and value addition of agricultural products for the mutual benefits of both countries. In view of Ministry of Planning, Development and Reforms Initiative, Pakistan, the focus is to increase the scope of cooperation in areas like livestock, fisheries, mangoes, rice and horticulture. This will help in increasing the trade flows of agricultural goods, with Pakistan goods entering into Chinese market fulfilling the consumption needs of people in China. Since 2018, Pakistan and China signed four Memorandum of Understandings (MoUs) in agricultural cooperation on livelihood opportunities, meat farming, food security and control of pests in the context of locust attack in Pakistan. The purpose of all these initiatives is to enhance the sector's overall productivity, improving capacity building and transferring technology to Pakistan so that Pakistan can be made part of the global food processing chains. Enhancing trade in agricultural product is the key focus of both countries, especially giving due consideration to rice and cherries from Pakistan. This may help in addressing the nontariff barriers with regards to ensuring standard and quality measurements along with working on easing certification requirements for exporters in the long run.

7. CONCLUSION

The trade balance between China and Pakistan has witnessed a turnaround after signing of CPFTA which was aimed to solidify the bilateral trade between the two countries. For Pakistan, it provides the opportunity to enter into the Chinese market through better trade concessions and boost the overall trade between both countries. At present, the bilateral trade favours China, however, Pakistan can cut the trade deficit by exporting more agricultural commodities to China through increased market access and with more concessions achieved under the second phase of CPFTA.

The results of this study show competition and complementarity coexist but the latter dominates. There exists complementarity in agricultural goods between both the countries, as the RCA indices for majority of the products are higher than 1. This calls for proactive trade integration between both countries. As mentioned earlier, with urbanisation along with a rise in living standards of majority people in China, China's demand for agricultural imports is growing. This provides the right opportunity for higher demand of Pakistan's agricultural products. Moreover, indicative potentials of Pakistan's top agri-products exports to China show that these products indicate higher value of trade potentials to meet the needs of China. Empirics shows that Pakistan exports agricultural goods to China mainly consisting of cotton and rice, contributing above 70 percent to the overall exports to China; it has so far failed to avert the deficit in the overall trade. Strengthening trade in agriculture products will be beneficial to both sides.

For this it is important that both the countries make good use of the complementarities to improve the overall trade structure. As discussed earlier, due to high population with increasing demand for consumption, China imports most of the agriculture goods and food from around the world, which mostly include oils, grains (which include corn, wheat, sorghum, barley, rice and animal feed), sugar, cotton, fruits, vegetables, meat and hides. However, Pakistan's share in China's imports of these goods is very nominal; cereal constitutes 1.4 percent while fruits and nuts form 0.4 percent of the imports of China. Thus there is an opportunity for Pakistan to look into ways for increasing its share in the agricultural imports of China. Pakistan should strengthen exports, which have comparative advantage along with an increase in trade of complementary products.

Secondly, Pakistan needs to introduce modern farming and mechanisation strategies in order to alleviate the constraints to enter into the markets in China. This can be done by subsidising the cost of inputs for farmers, providing funding for farmers to invest in improving their productivity and encouraging research and development in the agriculture sector in Pakistan. Moreover, Pakistan needs to work for improving the NTBs in order to expand market share in China and other international markets, where Pakistan is losing its share as compared to other south Asian and ASEAN countries.

Thirdly, it is important to enhance trade negotiations and establishment of trade zones. Under these negotiations, Pakistan needs to push for fair tariff concessions on agricultural products like cotton, rice, seafood and other food products. More recently, Pakistan and China has announced the second phase of FTA, in which major tariff concessions are being extended, however, Pakistan has yet to compete with major ASEAN countries for exporting rice and wheat to China and other countries. In meat and poultry, the removal of tariffs provide an incentive to increase exports, however, Pakistan faces the challenge of formal and consistent supply chain, which will make it difficult for the stakeholders to benefit from it.

Codes	Products Categories
	Animal or vegetable fats and oils and their cleavage products; prepared edible
15	fats; animal
22	Beverages, spirits and vinegar
10	Cereals
18	Cocoa and cocoa preparations
9	Coffee, tea, maté and spices
45	Cork and articles of cork
46	Cotton
	Dairy produce; birds' eggs; natural honey; edible products of animal origin,
4	not elsewhere
8	Edible fruit and nuts; peel of citrus fruit or melons
7	Edible vegetables and certain roots and tubers
3	Fish and crustaceans, molluscs and other aquatic invertebrates
43	Furskins and artificial fur; manufactures thereof
13	Lac; gums, resins and other vegetable saps and extracts
1	Live animals
	Live trees and other plants; bulbs, roots and the like; cut flowers and
6	ornamental foliage
2	Meat and edible meat offal
21	Miscellaneous edible preparations
	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit;
12	industrial or medicinal
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard
19	Preparations of cereals, flour, starch or milk; pastrycooks' products
	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic
16	invertebrates
20	Preparations of vegetables, fruit, nuts or other parts of plants
	Prepared feathers and down and articles made of feathers or of down;
67	artificial flowers; articles
5	Products of animal origin, not elsewhere specified or included
	Pulp of wood or of other fibrous cellulosic material; recovered (waste and
47	scrap) paper or
41	Raw hides and skins (other than furskins) and leather
23	Residues and waste from the food industries; prepared animal fodder
40	Rubber and articles thereof
50	Silk
17	Sugars and sugar confectionery
24	Tobacco and manufactured tobacco substitutes
	Vegetable plaiting materials; vegetable products not elsewhere specified or

14

44

51

included

Wood and articles of wood; wood charcoal

Wool, fine or coarse animal hair; horsehair yarn and woven fabric

Appendix-A

List of Products



Fig. A. Revealed Comparative Advantage Index for Each Product













Fig. B. Trade Integration Index











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