Innovation &
Technology Centre

Preliminary Draft

Enhancing Pakistan - China Trade: A Data Driven Approach

LAHORE SCHOOL OF ECONOMICS

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Executive Summary:

Pakistan and China have a deep bilateral partnership based on trust, diplomacy, and shared interests. The China-Pakistan Economic Corridor (CPEC) and the Free Trade Agreement (FTA) are the main pillars of their economic cooperation. However, Pakistan faces a signficant trade deficit with China due to its low-value-added exports.

China exports more sophisticated products than Pakistan, reflecting its role as a global leader in manufacturing technologically advanced goods. Pakistan's exports to China are mostly low value-added, less sophisticated products, while its imports from China are high value-added, more sophisticated products, resulting in a trade imbalance.

Pakistan can enhance and diversify its exports to China by focusing on high-value-added products that have high import demand in China and are close to Pakistan's current productive capacity. The report identifies such products using the concepts of economic complexity and product space networks. Some of the potential products include processed copper, high-quality soya beans, tractors, and a range of products within the chemicals sector.

Pakistan also needs to adopt a strategic industrial policy that can help in upgrading its industrial base, increase its productivity and innovation, and export products that meet the needs of the Chinese market more effectively. The report suggests policy measures such as improving the quality and standards of exports, investing in technology, upgrading skills of the labor force, enhancing the competitiveness of local industries, creating an enabling environment for Chinese joint ventures and enhancing special economic zones.

Highlights:

- Pakistan and China have a deep bilateral partnership based on trust, diplomacy, and shared interests.
- Pakistan faces a signficant trade deficit with China due to a narrow base of low-value-added exports.
- Pakistan can enhance and diversify its exports to China by focusing on high-value-added products that have high import demand in China and are close to Pakistan's current productive capacity.
- Pakistan needs to adopt a strategic industrial policy that can help in upgrading its industrial base, increase its productivity and innovation, and meet the requirements of the Chinese market more effectively.

Chapter 1: Understanding Pakistan-China Trade

1.1 Overview of the Economic Relationship between Pakistan and China

Pakistan and China benefit from a deep bilateral partnership based on trust, strong diplomatic ties, and shared international interests. The foundations of this relationship were laid when Pakistan became one of the first countries—and the first Muslim nation—to recognize the People's Republic of China shortly after its establishment in 1949. Official diplomatic ties were inaugurated on May 21, 1951, marking the beginning of a deep and long-lasting alliance.

The two countries' constant support for one another on various platforms—whether addressing regional crises or supporting one another's positions in international forums—indicates the depth of their relationship. With the signing of the China-Pakistan Economic Corridor (CPEC) accords, economic cooperation between China and Pakistan experienced a significant increase. One of the main components of China's Belt and Road Initiative (BRI), CPEC is a comprehensive package of collaborative projects. The projects under CPEC include infrastructure development, collaborative investment, and technology transfer. This initiative is expected to have a significant impact on employment generation and GDP growth in Pakistan.

1.2 Pakistan-China Trade Relations

A significant project under China's broader BRI, the CPEC, aims to strengthen China's geopolitical and economic ties with Pakistan. CPEC was introduced in May 2013 and was emphasized during Chinese President Xi Jinping's visit to Pakistan in April 2015. It involves a significant inflow of Chinese investment, focusing on the development of ports, energy, and highways to enhance connectivity between China and Pakistan. The strategic significance of CPEC for Pakistan is highlighted in Box 1.1.

Box 1.1: Economic Significance of CPEC

It was projected that CPEC would require an initial expenditure of roughly $46 billion. However, the total investment committed to CPEC projects has been expanding steadily since 2013, with the aggregate amount surpassing $60 billion in 2021. The energy industry has received a large percentage of the investment; one example is the Sahiwal Coal Power Project, which required an investment of more than $1.8 billion. The Gwadar Port's infrastructure and associated facilities are set to receive a significant investment of more than $1 billion. Special economic zones (SEZs) are being established as part of CPEC to draw international investment.

CPEC is expected to significantly impact Pakistan's economic development by improving infrastructure, increasing industrial activity, and creating job opportunities. By establishing a direct connection between China and the Arabian Sea, it seeks to elevate Pakistan to a prominent position in the regional commerce scene and reduce the length of the trade route for China's exports and imports. According to Pakistan's goal for economic growth, the expected economic boost from CPEC is expected to assist Pakistan's transformation from a lower-middle-income economy to an upper-middle-income one.

However, the corridor faces challenges. While the CPEC offers significant infrastructure development, Pakistan risks significantly increasing its level of international debt due to the initiatives. There are also important fiscal considerations that may result from Chinese investments and loans. Furthermore, efforts must be undertaken to ensure that the gains from

economic growth as a result of CPEC are equally distributed across Pakistan to ensure sustained support for the initiative.

Another significant milestone in the economic cooperation between Pakistan and China was the Pakistan-China Free Trade Agreement (FTA). The FTA, initially signed in 2006 and subsequently upgraded in 2019, has significant implications for the economic and trade relations between the two countries. This agreement is part of broader strategic and economic partnerships, including the CPEC, designed to enhance bilateral trade by reducing tariffs and improving market access.

1.3 Trade Dynamics and Challenges

China is a critical player in Pakistan's economy with bilateral trade volumes that favor China. Pakistan's imports from China include a vast array of products, notably chemicals, machinery, and electronic products. Conversely, Pakistan's exports to China are mainly limited to cotton yarn, unprocessed copper, and food products. This trade imbalance has led to discussions about how Pakistan needs to diversify its industrial base towards higher value-added goods and to expand the level and quality of goods exported by Pakistan to China.

To set the context of the deeper discussion on how to deepen the level of trade between Pakistan and China, we start by looking at the impact of the Pakistan-China FTA and then move to a broader overview of the nature of Pakistan's trade relationship with China.

1.3.1 The Pakistan-China Free Trade Agreement

One of the first formal initiatives to increase trade between Pakistan and China was the 2006 FTA between Pakistan and China. It is helpful to look at how the FTA has impacted Pakistan-China trade. Box 1.2 showcases the significance and prospects of the FTA.

A. Increased Market Access

For Pakistan:

The FTA allowed Pakistani products to quickly enter China, one of the world's largest and most lucrative markets. The agreement opened up Chinese markets for high-priority Pakistani products such as seafood, textiles, and leather goods. This opportunity was vital for Pakistan's SMEs and significant industries to expand their export base, increase revenues, and stimulate economic growth.

For China:

China benefits from the FTA by gaining access to Pakistan's market, notably in sectors where Pakistan needs assistance, like technology and infrastructure. Chinese products benefited from lower tariffs, which led to a significant inflow of Chinese goods into Pakistani markets.

B. Trade Volume Growth

The FTA has significantly increased bilateral trade volumes. However, up to now, the growth has been relatively asymmetrical, with Pakistan experiencing a substantial increase in imports from China compared to exports. While this has helped modernize sectors like telecommunications and transportation through affordable Chinese technology, it has also led to a considerable trade deficit for Pakistan. Balancing this growth is essential to foster sustained growth and development.

Box 1.2: Strategic significance and future prospects of Pakistan-China FTA

The China-Pakistan Free Trade Agreement (FTA), effective in July 2007, aimed to enhance bilateral trade and investment. However, phase one of the FTA led to a significant trade deficit for Pakistan. The agreement was reviewed, and the second phase (CPFTA2) became effective on January 1, 2020. Under CPFTA2, China eliminated tariffs on 313 product lines, benefiting Pakistani exports like textiles, cotton, frozen meat, seafood, chemicals, and more. This phase is expected to help Pakistani exporters access China's import market.

C. Reduction in Trade Barriers

Streamlining trade procedures under the FTA was pivotal in reducing logistical costs and delays. The agreement enhances business ease and predictability by simplifying customs regulations and removing non-tariff barriers. For businesses in both countries, these improvements mean quicker turnaround times and reduced operational costs, encouraging more frequent and more extensive trade transactions.

D. Impact on Local Industries

The influx of lower-cost Chinese imports under the FTA posed a challenge to local industries in Pakistan. While some industries benefited from cheaper raw materials and machinery, others were unable to remain competitive because of lower-priced Chinese goods, which led to their decline. Encouraging these industries to innovate and increase productivity is critical to ensuring that both countries can capitalize on the opportunities provided by the FTA.

E. Investment Inflows

Chinese investments in Pakistan, particularly in infrastructure and energy under CPEC, complemented the trade benefits of the FTA. These investments were critical for Pakistan's long-term economic development, providing capital, technology, and expertise. These investments were critical for China as they fit in well with their broader Belt and Road Initiative goals.

F. Economic Integration

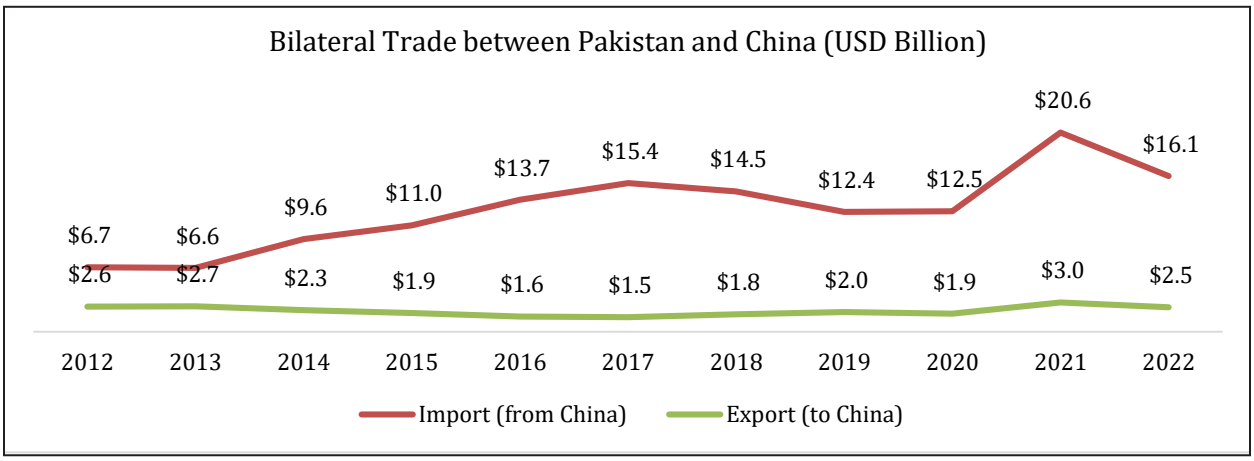
The economic integration fostered by the FTA extends beyond trade and investment to include technology transfer, human resource development, and regulatory harmonization. By developing Special Economic Zones (SEZs) and encouraging joint ventures, both countries created the foundations for an ecosystem conducive to deeper economic cooperation. This integration helped Pakistan develop its industrial capacity while aligning more closely with China, the global economic leader.

G. Challenges and Adjustments

The primary challenge with the FTA is ensuring that the benefits expand for both countries. Pakistan must focus on upgrading its industrial base to produce and export higher-value goods. This requires investment in technology, skills development, and innovation. Policy adjustments, focused on long-term sustainability rather than short-term gains, are crucial for leveraging the FTA to its full potential.

Chaudhry, T., Jamil, N., & Chaudhry, A. (2017) analyzed Pakistan's experience with the China-Pakistan Free Trade Agreement. Their work highlights the economic impact of the FTA, which significantly increased Chinese imports, intensifying competition and challenging local industries. Their results underscored the need for a strategic industrial policy under CPEC to bolster local industries. This strategic focus is crucial for leveraging CPEC for Pakistan's sustainable economic growth and development.

1.3.2 Bilateral Trade between Pakistan and China



Source: UN Commodity Trade Database

The graph illustrating the bilateral trade trends between Pakistan and China from 2012 to 2022 shows a pronounced disparity between imports from China to Pakistan and exports from Pakistan to China. Over the decade, imports (depicted in orange) have consistently outpaced exports (depicted in green), with a significant rise in imports peaking around 2018 before a slight decline and another sharp increase in 2020. The graph peaks again in 2021, indicating a robust demand for Chinese goods. However, there is a noticeable dip in 2022, which could be attributed to various economic, policy, or global factors such as disruptions in supply chains.

The top imports from China in 2021 ranged from high value-added products like electronics, and chemicals as well as other products such as transmission apparatus, petroleum oils obtained from bituminous minerals, and human and animal blood.

In contrast, Pakistan's exports to China have remained significantly lower than imports throughout the period, although a slight increase is observable from 2019 onwards. This suggests potential efforts or policy implementations to boost export volumes to China. The top Pakistani exports to China reported in 2021 were from the textiles, agriculture, and metals sectors, with products such

as cotton yarn, refined and unrefined copper, rice, and oil seeds. These are not only less complex and low-value-added products but also collectively fulfill only 4.37% of the total import demand for these particular products in China. Box 1.2 shows the major exports of Pakistan to China and major imports of Pakistan from China in 2021.

Box 1.3: Differences in Bilateral Trade in Goods between China and Pakistan

In 2021, Pakistan's major exports to China were textiles, agriculture, and metals, which fulfilled only 4 % of the corresponding import demand for these goods in China. In contrast, the majority of Pakistani imports from China in 2021 were from the high-value-added sectors of chemicals and electronics, and the total amount of Pakistani imports from China amounted to over 43 % of the total import demand for these goods in Pakistan.

The discussion above shows significant potential for expanding trade between Pakistan and China. In particular, Pakistan's strong relationship with China allows Pakistan to benefit from investment, expertise, technology transfers, and human capital development, resulting from joint ventures between the two countries and investment from Chinese industries into Pakistan. This can significantly impact the amount of Pakistani exports to China and the movement from low-value-added, low-sophistication goods to higher value-added, more sophisticated exports from Pakistan to China, which can spill over to Pakistani exports to the rest of the world.

1.4 The Way Forward

It is essential to identify products that can help enhance and diversify Pakistani exports. The objective of the analysis done in this report is to highlight the value-added Pakistani products that can be exported to China, while leveraging the strategic partnership facilitated by CPEC and CPFTA2. Box 1.4 displays a selection of processed goods across different sectors in Pakistan, which have the potential to yield increased export earnings from Pakistani exports to China. A more general product identification of the analysis is explained below.

From the current export basket, Pakistan can focus on the textiles and apparel sector with products such as textile fabrics impregnated, coated, covered, or laminated with plastics, medical, surgical, dental, or veterinary tools, textile wall coverings, lamps and lighting fittings, woven fabrics, and seat coverings. Major new potential products that can be exported to China in the same sector include nonwovens, flax, raw or processed, and artificial staple fibers, not carded, combed or otherwise processed for spinning.

Another sector in which Pakistan exports major products is agriculture. In this sector, Pakistan can enhance exports in relatively more complex products such as patent leather, animal or vegetable fats and oils and their fractions, food preparations, mushrooms and truffles, and malt extract. The potential high-value-added exports in the same sector include the following products: vegetable parchment, flour, meal, powder, flakes, granules and pellets of potatoes, paper and paperboard, rye, calendars, and meat.

Box 1.4: Product Identification for higher Exports to China

Most Pakistani exports to China are low-value-added textiles, agricultural goods, and unprocessed metals. To enhance and diversify the export structure, Pakistan must prioritize high-value-added and relatively more complex products. One promising area is processed copper products (such as copper wires, tubes, pipe fittings, and bars), allowing Pakistan to tap into China's $54.7 billion copper import market. In the machinery sector, Pakistan can increase exports of photographic laboratory equipment, a product with Chinese imports of $21.7 billion. Additionally, there is significant potential to boost exports in higher value-added agricultural goods like oilseeds.

In the metals sector, Pakistan can increase its current exports of products such as hand tools, spoons, forks, articles of cutlery, razors, and razor blades. The new relatively high value-added products which can be added to the export basket of Pakistan to China in the same sector include screws, bolts, nuts, and similar articles, handsaws, blades for saws of all kinds, other bars and rods of stainless steel, flat-rolled products of other alloy steel, nickel plates, sheets, strip and foil, and copper powders and flakes.

Products in the chemicals are also considered to be a higher-value-added. However, Pakistan currently exports items such as polymers of ethylene, phosphinates (hypophosphites), and painters' colors, which generate little export revenue from China. Some of the major high-value-added export products identified within this sector from the analysis include photographic plates and film, pickling preparations for metal surfaces, ketones and quinones, prepared glues and other prepared adhesives, and petroleum resins in primary forms.

Pakistan's current exports to China in the electronics and machinery sectors are also low, averaging only $0.52 million. Major exports include more complex products, but due to low market penetration, the export revenue generation is insignificant. It is recommended to increase exports to China of products such as machines and mechanical appliances having individual functions, instruments, and apparatus for physical or chemical analysis, taps, cocks, valves, and similar appliances, machinery for working rubber or plastics or the manufacture of products from these materials, electrical machines and apparatus, having individual functions, electrical capacitors, fixed, variable or adjustable, telephone sets, including telephones for cellular networks or other wireless networks, diodes, transistors and similar semiconductor devices, and photosensitive semiconductor devices, including photovoltaic cells.

Some of the major high value-added potential products include apparatus and equipment for photographic, microscopes other than optical microscopes, machine tools for planing, shaping, slotting, broaching, gear cutting, gear grinding or gear finishing, sawing, cutting-off, calendering or other rolling machines, machine tools for working any material by removal of material, by laser or other light or photon beam, ultrasonic, electro-discharge, electro-chemical, electron-beam, ionic-beam or plasma arc processes, discs, tapes, solid-state non-volatile storage devices, smart cards and other media for the recording of sound or other phenomena, electric, laser or other light or photon beam, vacuum cleaners, electromagnets, and electric storage batteries.

The rest of the report is organized as follows: Chapter 2 explains in detail the bilateral merchandise trade between Pakistan and China. Chapter 3 showcases the methodology adopted in identifying the products that can increase current and potential exports to China in the near future. Product lists are shown in the appendices. Chapter 4 sheds light on the services trade between Pakistan and China and explores the potential increase in services exports of Pakistan to China. Chapter 5 includes recommendations and policy implications of the analysis in general, as well as specific policy recommendations based on the technical analysis. Chapter 6 concludes the study.

Chapter 2: Recent Trends in Pakistan-China Merchandise Trade

Pakistan and China both benefit from a wide range of natural resources. While Pakistan has focused a significant amount of its productive capacity on meeting domestic demand, China has followed an export-led growth strategy over the last four decades, which has led to China becoming a global leader in manufacturing.

The experiences of China, the close ties between Pakistan and China, and the growing Chinese market provide an opportunity for Pakistan to learn from Chinese experiences and develop its domestic capacity to expand its presence in Chinese markets and use these lessons to increase exports to the rest of the world.

2.1 Pakistan's Merchandise Exports to China in 2021

One measure of the degree of interaction between Pakistan and China is to look at Pakistan's exports to China. A key takeaway from the recent trends in the merchandise trade between Pakistan and China is that a significant proportion of Pakistan's exports have been in the agriculture and textile sectors. For 2021, table 2.1 provides an overview of the top 20 products that Pakistan exported to China. They mainly consist of low-value-added raw materials and low-processed goods, with over 27% of gross exports in the textiles sector and cotton yarn being the highest at about USD 0.73 billion. See box 2.1 for an overview of Pakistan's textile exports to China. Apart from textiles, refined copper and rice are also major exports. Other significant exports include oil seeds, unrefined copper, and ethyl alcohol. This list reflects that Pakistan's export basket primarily concentrates on agricultural and basic industrial products. The data also showed that Pakistan's exports to China constituted only 0.11% of China's global imports in 2021.

2.2 Pakistan's Merchandise Imports from China in 2021

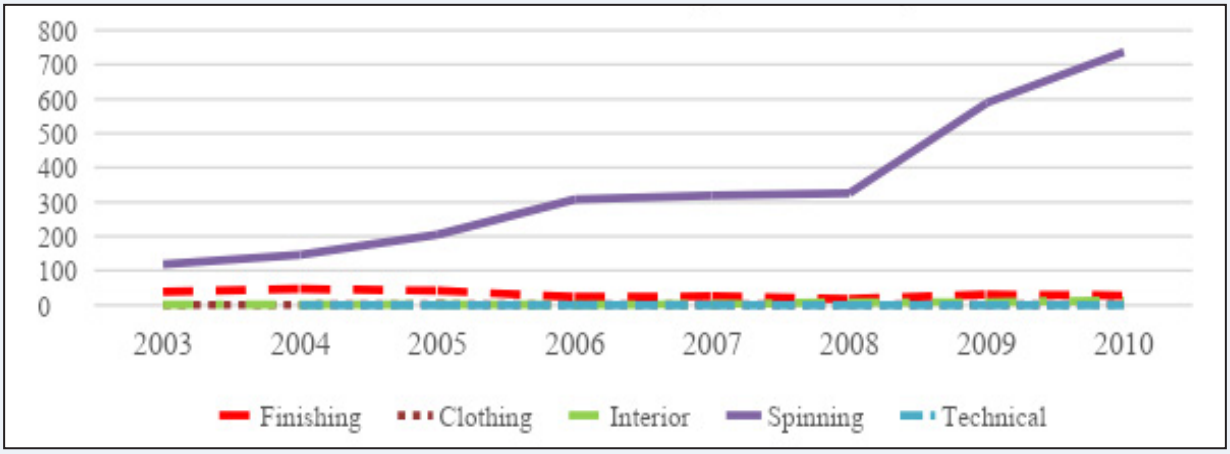
Another helpful illustration of the economic relationship between Pakistan and China is the quantity and type of goods Pakistan imports from China. Pakistan's major worldwide imports include petroleum oils and related products, agricultural or industrial machinery, and various chemicals. From China, as reported in table 2.2, Pakistan's top 20 imports in 2021 included products such as transmission apparatus, petroleum oils, human blood, animal blood, semiconductor devices, fertilizers, motor vehicles, and electrical transformers.

In contrast, the top 20 imports from China fulfilled over 53.4% of the import demand for respective products in Pakistan, highlighting Pakistan's strong import dependence on Chinese products. Another crucial observation that can be drawn from the major imports from China is that they constitute high value-added products as opposed to Pakistan's exports to China, which mainly comprise unprocessed and low value-added items. As a result, the trade deficit concerning China reported in 2021 was over USD 13 billion, one of many factors that has led to Pakistan's persistent balance of payments problem. Therefore, increasing export growth by enhancing and diversifying Pakistan's export basket concerning China should be a primary focus of policymakers as they work to deepen trade relations between Pakistan and China.

Box 2.1: Textile Exports to China

In a paper titled "Trading Textiles along the New Silk Route," researchers examined the effects of the Pakistan-China Free Trade Agreement on Pakistani textile manufacturers. They found that reductions in Chinese tariffs increased Pakistani exports in the spinning sector, while exports from other textile-related sectors did not increase significantly. The authors also found that the growth in Pakistani textile exports to China after substantial capital investments did not accompany the free trade agreement on the part of Pakistani manufacturers.

Figure 3: Pakistan's Segment Wise Exports to China (USD Millions)



Source: Chaudhry, T., Jamil, N., & Chaudhry, A. (2017).

Table 2.1 - Top 20 Products that Pakistan Exports to China

Pakistan Exports to China (2021)			
	HS Code	**Description**	**Value** (USD Billion)
1	5205	Cotton yarn (other than sewing thread), containing 85 per- cent or more by weight of cotton, not put up for retail sale	$0.73
2	7403	Refined copper and copper alloys, unwrought (other than master alloys of heading 7405)	$0.66
3	1006	Rice	$0.38
4	7402	Unrefined copper; copper anodes for electrolytic refining	$0.22
5	1207	Other oil seeds and oleaginous fruits, whether or not broken	$0.13
6	2207	Undenatured ethyl alcohol of an alcoholic strength by volume of 80 percent vol. or higher; ethyl alcohol and other spirits, denatured, of any strength	$0.11
7	2610	Chromium ores and concentrates	$0.08
8	7601	Unwrought aluminum	$0.08
9	2608	Zinc ores and concentrates	$0.07
10	813	Fruit, dried, other than that of headings 0801 to 0806; mixtures of nuts or dried fruits of this chapter	$0.07
11	802	Other nuts, fresh or dried, whether or not shelled or peeled	$0.06
12	303	Fish, frozen, excluding fish fillets and other fish meat of heading 0304	$0.05
13	2601	Iron ores and concentrates, including roasted iron pyrites	$0.04
14	2301	Flours, meals and pellets, of meat or meat offal, of fish or of crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption; greaves (cracklings)	$0.04

Pakistan Exports to China (2021)			
	HS Code	**Description**	**Value** (USD Billion)
15	5209	Woven fabrics of cotton, containing 85 percent or more by weight of cotton, weighing more than 200 g/m2	$0.04
16	307	Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic invertebrate	$0.04
17	1605	Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved	$0.03
18	306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets of crusta	$0.03
19	7407	Copper bars, rods and profiles	$0.03
20	6110	Sweaters, pullovers, sweatshirts, waistcoats (vests) and similar articles, knitted or crocheted	$0.03

Table 2.2 - Top 20 Products that Pakistan Imports from China

Pakistan's Imports from China (2021)			
	HS Code	**Description**	**Value** (USD billion)
1	8525	Transmission apparatus for radio-broadcasting or television, whether or not incorporating reception apparatus or sound recording or reproducing apparatus; television cameras, digital cameras and video camera recorders	$1.73
2	2710	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70 percent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils:	$1.50
3	3002	Human blood; animal blood prepared for therapeutic, prophylactic or diagnostic uses; antisera and other blood fractions and modified immunological products, whether or not obtained by means of biotechnological processes; vaccines, toxins, cultures of micr	$1.50
4	8541	Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light-emitting diodes; mounted piezoelectric crystals; parts thereof	$0.57
5	3105	Mineral or chemical fertilizers containing two or three of the fertilizing elements nitrogen, phosphorus and potassium; other fertilizers; goods of this chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg	$0.53
6	5407	Woven fabrics of synthetic filament yarn, including woven fabrics obtained from materials of heading 5404	$0.49
7	5402	Synthetic filament yarn (other than sewing thread), not put up for retail sale, including synthetic monofilament of less than 67 decitex	$0.40
8	7225	Flat-rolled products of other alloy steel, of a width of 600 mm or more	$0.39
9	8703	Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702),including station wagons and racing cars	$0.34
10	8504	Electrical transformers, static converters (for example, rectifiers) and inductors; parts thereof	$0.32
11	8502	Electric generating sets and rotary converters	$0.27

Pakistan's Imports from China (2021)			
	HS Code	**Description**	**Value** (USD billion)
12	8401	Nuclear reactors; fuel elements (cartridges), non-irradiated, for nuclear reactors; machinery and apparatus for isotopic separation; parts thereof	$0.26
13	8503	Parts suitable for use solely or principally with the machines of heading8501 or 8502:	$0.26
14	7210	Flat-rolled products of iron or nonalloy steel, of a width of 600 mm or more, clad, plated or coated	$0.26
15	4011	New pneumatic tires, of rubber	$0.24
16	8414	Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters; parts thereof	$0.24
17	7219	Flat-rolled products of stainless steel, of a width of 600 mm or more	$0.23
18	8415	Air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, including those machines in which the humidity cannot be separately regulated; parts thereof	$0.23
19	8402	Steam or other vapor generating boilers (other than central heating hot water boilers capable also of producing low pressure steam); super-heated water boilers; parts thereof	$0.22
20	3204	Synthetic organic coloring matter, whether or not chemically defined; preparations as specified in note 3 to this chapter based on synthetic organic coloring matter; synthetic organic products of a kind used as fluorescent brightening agents or as luminop	$0.18

2.3 China's Global Imports in 2021

Though it is easy to say that Pakistan should increase exports to China, one reason for the current trade imbalance could be that Pakistan's export capabilities are unable to match China's import needs. To analyze the degree of overlap between Pakistan's exports and Chinese imports, it is important to analyze all the goods that Pakistan exports and China imports.

Table 2.3 provides a comparative overview of the top 20 products that China imported globally in 2021. This data can be used to compare and analyze Pakistan's current market penetration in China and highlight potential sectors where Pakistan can increase its exports to China. As can be seen, China's import list comprised high value-added products such as electronic and industrial goods, with electronic integrated circuits emerging as the top import, amounting to over USD 300 billion; the potential for higher market penetration is vast in high value-added and more sophisticated sectors. Another significant import is crude petroleum oils and iron ores, which shows that China is importing many materials to meet its industrial needs. Other significant items include petroleum gasses, copper ores, and motor vehicles, underscoring China's role as a global industrial hub with diverse and substantial resource requirements.

Table 2.3 - Top 20 products that China imports from the world

China Imports from World (2021)			
	HS code	**Description**	**Value** (USD Billion)
1	8542	Electronic integrated circuits; parts thereof	$301.72
2	2709	Petroleum oils and oils obtained from bituminous minerals, crude	$215.80
3	2601	Iron ores and concentrates, including roasted iron pyrites	$155.18

China Imports from World (2021)			
	HS code	**Description**	**Value** (USD Billion)
4	2711	Petroleum gasses and other gaseous hydrocarbons	$61.32
5	2603	Copper content	$54.72
6	8703	Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702),including station wagons and racing cars	$50.37
7	1201	Soya beans	$47.83
8	7108	Gold (including gold plated with platinum) unwrought or in semi manufactured forms, or in powder form	$43.05
9	8473	Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with machines of headings 8469 to 8472	$36.43
10	7403	Refined copper and copper alloys, unwrought (other than master alloys of heading 7405)	$33.28
11	8517	Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data,including apparatus for communication in a wired or wireless network (such as a loc	$31.80
12	8479	Machines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter; parts thereof	$30.11
13	8708	Parts and accessories of the motor vehicles of headings 8701 to 8705	$27.76
14	2701	Coal; briquettes, ovoids and similar solid fuels manufactured from coal	$24.65
15	9010	Apparatus and equipment for photographic (including cinematographic)laboratories, not specified or included elsewhere in this chapter; negatoscopio; projection screens; parts and accessories thereof	$21.71
16	3901	Polymers of ethylene, in primary forms	$20.62
17	3004	Medicaments (excluding goods of heading 3002, 3005 or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses (including those in the form of transdermal administration systems) or in forms or packings	$20.06
18	9013	Liquid crystal devices not constituting articles provided for more specifically in other headings; lasers, other than laser diodes; other optical appliances and instruments, not specified or included elsewhere in this chapter; parts and accessories thereof	$20.02
19	8541	Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light-emitting diodes; mounted piezoelectric crystals; parts thereof	$19.99
20	2710	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70 percent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils:	$19.21

As explained above, a straightforward comparative analysis of tables 2.1 and 2.3 showed that for the year 2021, Pakistan's exports to China constituted only 0.11% of China's total imports. The market size in China for its top 20 imports was approximately USD 1234.94 billion, of which Pakistan exports comprise only 0.06%. This contrasts to the level of Chinese exports to Pakistan for the same year.

Likewise, Pakistan's top 20 exports amounted to USD 2.9 billion in 2021, whereas China's import demand for the same products approximated USD 236 billion, signifying Pakistan's market penetration of only 1.2%. Hence, the products exported by Pakistan fulfilled a significantly smaller proportion of the imports demanded by China. The magnitude and type of products

traded differed significantly. Pakistan's exports had a much lower value than China's imports of high-value, technologically advanced goods from around the globe.

This draws attention to the significant differences in the volumes of goods exported and imported in Pakistan and China, respectively, and emphasizes the necessity for Pakistan to expand and diversify its export portfolio to include more high value-added commodities. Pakistan needs to not only enhance its current exports to benefit from a higher proportion of China's market but also channel its resources towards the production of higher value-added products that are in high demand in China to counter the current mismatch between Pakistan's supply and China's demand.

This does not imply that Pakistan should commence production of semiconductor devices or integrated circuits shortly to tap into some proportion of the enormous market in China for the respective products. However, it is recommended that Pakistan recompose its current export basket concerning China by focusing on products with high market size, high value-added, and general know-how near Pakistan's current productive capacity.

The analysis in this report employs the concepts of economic complexity and primary connections in the product space networks to identify high-value-added products that can be exported to China in the near future. The analytical framework and explicit lists of such products are shown in the next section. However, box 2.2 highlights some of these products and summarizes the observations made based on the data thus far.

Box 2.2: Summary of the recent trends in the merchandise trade between Pakistan and China

1. Pakistan mainly exports low-value-added products to China.
2. Pakistan imports high-value-added processed products from China.
3. Pakistan's merchandise trade deficit with China amounted to over USD 13 billion in 2021.
4. Because China tends to import relatively higher value-added products, Pakistan is not able to fully benefit from China's market.

Pakistan needs to:

1. Improve market penetration for its exports to China
2. Recompose the current export basket by exporting higher value-added products for which China's import demand is high.
3. Diversify the export basket by moving up the value chain and exporting new, higher value-added products to China.
4. Some of these products include processed copper, high-quality soya beans, rape seeds or colza, tractors, and chemicals.

Chapter 3: Increasing Pakistan's Merchandise Exports to China

The previous chapter discussed the current trade between Pakistan and China and showed significant potential for expanding trade ties. In this chapter, we analyze the complexity of goods traded between Pakistan and China and use this framework to identify areas where the trading relationship can be strengthened.

Product complexity is critical since the production and export of more complex goods lead to more significant industrial productivity growth, greater employment and income, and greater economic development. China's experiences are a perfect illustration of how transitioning from less complex, low value-added exports to more complex, higher value-added exports can support long-term development and sustained economic growth.

In this chapter, we focus on Pakistani merchandise exports to China, compare these with overall Chinese imports, and use this to identify sectors and products that have the most potential for increased trade between Pakistan and China. We also look at three essential issues for both countries to benefit from future trade: (i) First, we look at how sophisticated or complex products being exported are using a complexity index. This is important since a product that ranks higher on the complexity index is a higher value-added good, essential for long-term economic growth. (ii) Second, we look at the country-level economic complexity index to understand the level of technological sophistication of goods produced in the country as a whole which is then used to compare how a country's exports to one particular country (given by the complexity index of those export goods) compare to the average complexity of goods produced in that country (given by the economic complexity index; (iii) Finally, we look at the goods that are linked, or connected, to a country's current basket of export goods to determine which new products a country can expand into for its exports and which of these potential new exports are higher value added (again, given by the product complexity index).

3.1 Understanding Bilateral Trade between Pakistan and China using Product Complexity

Hidalgo and Hausmann (2009) introduced the economic complexity and product space methodology to measure a country's productive capacity and knowledge base. The first metric considered here is the Product Complexity Index (PCI). The Atlas of Economic Complexity (AEC)[1] provides bilateral trade data based upon Harmonized System (HS) 1992 codes at the 4-digit level. Each product at the 4-digit level has an associated level of complexity, known as PCI, which ranks the know-how and diversity required to produce a product. More sophisticated products, such as machinery, electronics, and chemicals, have higher PCI than less sophisticated products, such as raw materials and simple agricultural products.

Another relevant metric is the Economic Complexity Index (ECI), which reflects an economy's knowledge intensity and capabilities. According to AEC, ECI ranks countries based on how diversified and complex their export basket is. Developed countries that possess a greater diversity of productive know-how, particularly complex specialized know-how, are able to produce a greater diversity of sophisticated products and hence have higher ECI than developing countries.

1 https://atlas.cid.harvard.edu/rankings/product/2021?filter=

In the context of Pakistan and China's merchandise exports in 2021, the ECI provides essential insights. Pakistan's ECI for all exports is reported as -0.49, which again reflects that Pakistan exports less complex goods. In comparison, China's ECI for all its exports is significantly higher at 1.33, illustrating its role as a significant exporter of diverse and complex goods on the global stage. Pakistan's major exports have negative PCI values. In contrast, China's significant exports have highly positive PCI values, signifying the presence of a diverse economic structure with more complex and sophisticated products that are part of the export basket. As a result, the disparity between the two countries' ECI is evident.

While the AEC provides the ECI for different countries based on their respective global export baskets, the data for ECI reflecting bilateral export baskets is unavailable. To compare the average differences between the product complexity, or PCI, of the trade baskets that make up bilateral trade between Pakistan and China. To do this, we calculate the weighted average PCI, with weights equal to the share of the exported and imported products in total exports and imports, respectively, for the following scenarios: (a) Pakistan's exports to China (2021) and (b) Pakistan's imports from China (2021).

Pakistan's average PCI for exports to China is -1.59, indicating that the products Pakistan exports to China are relatively less diverse and less complex, even in comparison to the goods in Pakistan's aggregate export basket, which has an ECI of -0.49. This suggests that Pakistan's export portfolio to China mainly consists of simpler goods, which might not command high value or significant export revenues.

Conversely, the average PCI for Pakistan's imports from China stands at 0.52, signifying a more complex and diverse range of products being imported into Pakistan from China. This implies that Chinese merchandise imported to Pakistan is technologically more advanced or varied than Pakistan's currently exported goods.

Box 3.1: Complexity of the products traded between Pakistan and China

- The Economic Complexity Index (ECI) for all of Pakistan's exports is -0.49, reflecting a less sophisticated export basket.
- The ECI for all of Chinese exports is significantly higher at 1.33, illustrating its diverse and sophisticated export basket.
- The average Product Complexity (PCI) for Pakistan's exports to China is -1.59, which shows that Pakistan exports significantly less sophisticated goods to China.
- The average Product Complexity for Pakistan's imports from China is 0.52, which shows that Pakistan imports significantly more sophisticated goods from China.
- The average Product Complexity for all of Pakistan's imports from the world is -0.28 which shows that the products that Pakistan imports from China tend to be more sophisticated than its average imported good.
- The average Product Complexity for all of China's imports from the world is -0.24, which shows that China tends to import low-technology, natural resource-based products such as petroleum and unrefined metals to fulfill its industrial needs.

Lastly, a similar weighted average of PCI was calculated for their global imports to understand the type of products that both Pakistan and China import. Specifically, a weighted-average PCI was calculated for (c) Pakistan's global imports (2021) and (d) China's global imports (2021).

When broadening the perspective, Pakistan's average PCI for global imports was -0.28, which is higher than the ECI of -0.49, and Pakistan's average PCI for exports to China of -1.59 but lower

than the average PCI for Pakistan's imports from China of 0.52. This indicates that Pakistan imports more sophisticated goods than it exports and that the goods that it imports from China are more sophisticated than the average goods it imports.

On the other hand, China's average PCI for its global imports is -0.24, which is higher than the average PCI of its imports from Pakistan (-1.59), showing that China exports more complex products than it imports and imports even simpler products from Pakistan than it imports generally from the world. The value also signifies that despite the fact that China imports technologically advanced products, the average PCI for global imports is relatively low because it is importing a significant amount of basic resource-based goods in metals and minerals sectors which are essential for the firms to meet their industrial needs but have low PCI. Non-Resource PCI for all imports may be quite high.

For Pakistan, this is a challenge because (a) it cannot yet export high technology products to China and (b) it cannot export significantly more resource-based products because of its own limited production. These indices highlight the difference between the economic complexity of Pakistan and China, particularly in their export capabilities. China's ability to export more complex goods benefits its economy through higher value-added returns, while Pakistan's focus on simpler goods may limit its growth prospects in international trade.

3.2 Identifying Products to Expand Pakistani Merchandise Exports to China

It has been established so far that Pakistan currently exports low-value-added, less sophisticated, and less complex products to China and is not optimally benefitting from the Chinese market. This situation highlights the need for Pakistan to enhance and diversify its merchandise exports.

In this section of the report, we identify products that can not only increase current exports but also enhance the number of products exported to China in the near future. The analysis is divided into three scenarios, which are explained in detail below.

3.2.1 Identifying Products based on Pakistan's Current Exports to China

Pakistan exported 391 products at the HS 4-digit level to China in 2021. Table 3.1 shows the top 20 exported products, sorted in descending order of export value. The associated PCI values are negative, which shows that Pakistan's major exports are from low value-added categories. In addition, major export sectors include agriculture, textiles, and metals.

The largest export item in the textiles sector is cotton yarn, with a negative PCI of -1.858. Cotton woven fabric is another major export, valued at approximately $39.97 million, with a negative PCI. In the metals sector, significant exports include refined and unrefined copper and other products like chromium and zinc ores. A diverse range of agricultural products are exported, with notable items including rice, which is a significant staple, various seeds, fruits and seafood.

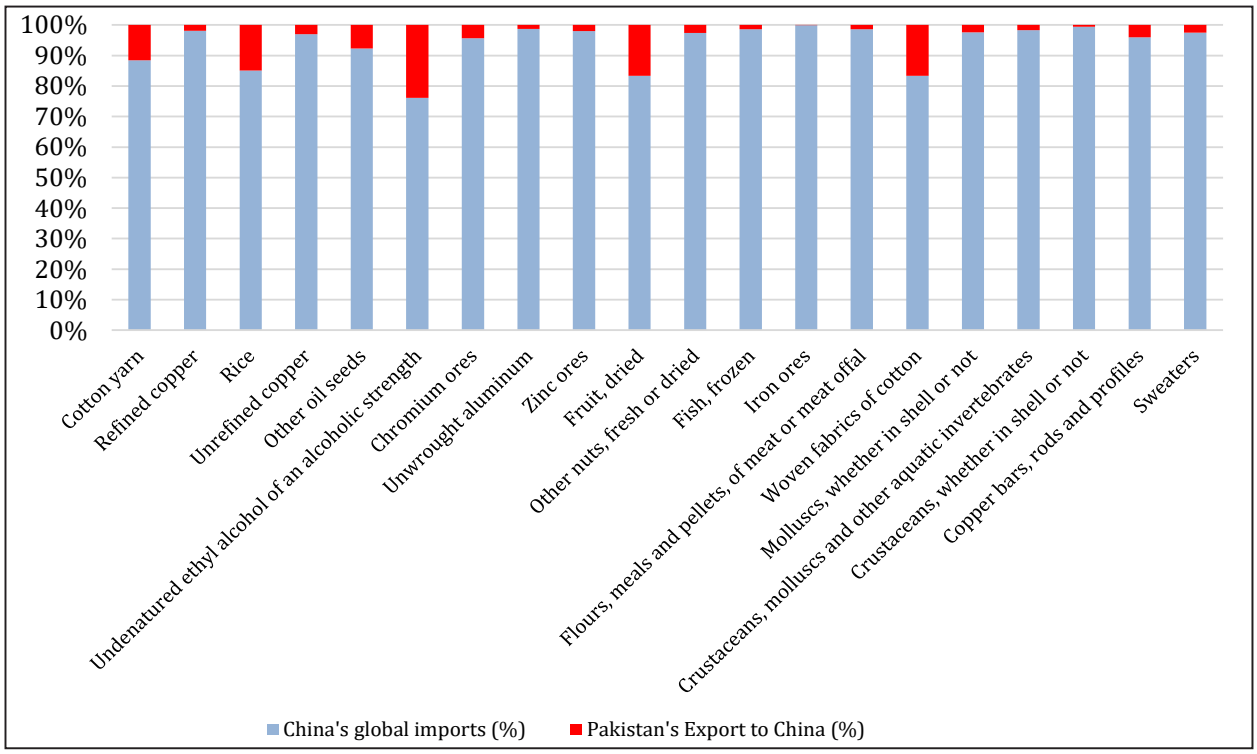
Table: Top 20 exports of Pakistan to China (2021)

Pakistan's Exports to China (2021)					
	HS Code	**Description**	**Value** (USD Billion)	**PCI**	**Sector**
1	5205	Cotton yarn (other than sewing thread), containing 85 per- cent or more by weight of cotton, not put up for retail sale	$0.73	-1.858	Textiles
2	7403	Refined copper and copper alloys, unwrought (other than master alloys of heading 7405)	$0.66	-1.518	Metals
3	1006	Rice	$0.38	-1.557	Agriculture
4	7402	Unrefined copper; copper anodes for electrolytic refining	$0.22	-2.515	Metals
5	1207	Other oil seeds and oleaginous fruits, whether or not broken	$0.13	-2.262	Agriculture
6	2207	Undenatured ethyl alcohol of an alcoholic strength by volume of 80 percent vol. or higher; ethyl alcohol and other spirits, denatured, of any strength	$0.11	-0.759	Agriculture
7	2610	Chromium ores and concentrates	$0.08	-2.646	Minerals
8	7601	Unwrought aluminum	$0.08	-1.127	Metals
9	2608	Zinc ores and concentrates	$0.07	-1.528	Minerals
10	813	Fruit, dried, other than that of headings 0801 to 0806; mixtures of nuts or dried fruits of this chapter	$0.07	-0.992	Agriculture
11	802	Other nuts, fresh or dried, whether or not shelled or peeled	$0.06	-1.67	Agriculture
12	303	Fish, frozen, excluding fish fillets and other fish meat of heading 0304	$0.05	-1.873	Agriculture
13	2601	Iron ores and concentrates, including roasted iron pyrites	$0.04	-1.973	Minerals
14	2301	Flours, meals and pellets, of meat or meat offal, of fish or of crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption; greaves (cracklings)	$0.04	-1.65	Agriculture
15	5209	Woven fabrics of cotton, containing 85 percent or more by weight of cotton, weighing more than 200 g/m2	$0.04	-1.175	Textiles
16	307	Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic invertebrate	$0.04	-1.66	Agriculture
17	1605	Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved	$0.03	-1.716	Agriculture
18	306	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets of crusta	$0.03	-2.076	Agriculture
19	7407	Copper bars, rods and profiles	$0.03	0.37	Metals
20	6110	Sweaters, pullovers, sweatshirts, waistcoats (vests) and similar articles, knitted or crocheted	$0.03	-1.396	Textiles

When the corresponding merchandise imports in China for the same 20 products are seen, it becomes evident that Pakistan's market share is relatively insignificant. Of the USD 236.5 billion market size in China for these 20 products, with iron ores comprising a significant portion of USD 155.18 billion, Pakistan's market share is approximately 1.2%, of which the sub-sector of iron ores has a share of 0.02% only.

Figure 3.1 further shows that Pakistan has a low market share in most categories, whether high or low value-added. However, in relative terms, the market shares in the global imports of China are higher in products such as cotton yarn, dried fruits, and woven fabrics, all of which have negative PCIs that are lower than Pakistan's ECI of -0.49. This means that the types of goods China currently imports from Pakistan are less sophisticated than the average export good of Pakistan. If both the current export composition and the market share in China remain the same, Pakistan will find it challenging to move into producing and exporting higher value-added goods.

Figure 3.1: Percentage Share of Pakistan's Top 20 Exports in China (2021)



Source: Authors' calculations.

Box 3.2: Summary of Pakistan's merchandise exports to China in 2021

- **Textiles**: This sector dominates Pakistan's exports to China, with high volumes of cotton yarn and woven cotton fabrics. These products are less sophisticated, with low levels of product complexity.
- **Metals**: Significant exports include refined and unrefined copper and other metals like chromium and zinc ores. These are basic materials with less value addition.
- **Agriculture**: A diverse range of agricultural products are exported, with notable items including rice, various seeds, fruits, and seafood, all of which have low levels of product complexity.
- **Overall,** Pakistan's export profile to China is characterized by a mix of raw materials and agricultural products, which are essential but lower in complexity and technological content.

Therefore, it is recommended that Pakistan change its current composition of exports to China. The way forward is shown in Table 3.2, which lists down the top 20 of the 228 products (out of 391 exported products in 2021) exported to China that have PCI at least as high as ECI of -0.49, or those goods that are more sophisticated than the average Pakistani export good. This range of products exported from Pakistan to China is more diverse, has higher technological content, and covers diverse sectors, from metals to chemicals and machinery to agriculture.

Within the metals sector, copper bars, rods, and profiles have a positive PCI (0.369) and a high competitive advantage. Another notable sector is chemicals, in which polymers of styrene and ethylene, both used widely in manufacturing, have positive PCIs, significant export values, and moderate competitive advantage. Likewise, industrial monocarboxylic fatty acids and other chemical products like zinc oxide and gelatin also depict PCI higher than -0.49.

In the machinery sector, medical and surgical instruments, which fulfill essential demand in healthcare sectors, stand out with positive PCI and high export value. Physical exercise and sports equipment also show a positive PCI with a reasonable export value and competitive advantage, highlighting a niche but competitive market.

The relatively high value-added agricultural exports are bones, horn-cores, skins, and parts of birds, which can satisfy demand in specific industries like crafts and traditional medicines. Rapeseed oil and other agricultural products like glycerol and steatite (talc), though simpler, cater to specific needs in China's agricultural and industrial sectors.

Textile sector exports tend to be less complex products. Within the top 20 exports in table 3.2, only woven fabrics have slightly higher complexity than -0.49. These exported products cater to essential or niche markets in China but currently, their market share in China needs to be greater. For instance, the medical and surgical instruments category has a market share of only 0.13%. Overall, for the 20 products listed in Table 3.2, the market share of Pakistani products constitutes only 0.16% of the import demand in China. Given the importance of these products and the potential of the Chinese market size, increasing exports to China in these categories should be a primary focus of the policymakers in the near future.

Table 3.2: Top 20 exports of Pakistan to China for which PCI is greater than ECI

Pakistan's Exports to China (2021)					
	HS Code	**Description**	**Value** (USD Million)	**PCI**	**Sector**
1	7407	Copper bars, rods and profiles	$29.64	0.37	Metals
2	3903	Polymers of styrene, in primary forms	$17.34	0.577	Chemicals
3	9018	Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scintigraphic apparatus, other electro-medical apparatus and sight-testing instruments; parts and accessories thereof	$16.26	0.783	Machinery
4	506	Bones and horn-cores, unworked, defatted, simply prepared (but not cut to shape), treated with acid or degelatinized; powder and waste of these products	$13.23	-0.219	Agriculture
5	505	Skins and other parts of birds, with their feathers or down, feathers and parts of feathers(whether or not with trimmed edges) and down, not further worked than cleaned, disinfected or treated for preservation; powder and waste of feathers or parts	$8.55	-0.035	Agriculture
6	9506	Articles and equipment for general physical exercise,gymnastics, athletics, other sports (including table-tennis) or outdoor games, not specified or included elsewhere in this chapter; swimming pools and wading pools; parts and accessories thereof	$8.19	0.447	Machinery

Pakistan's Exports to China (2021)					
	HS Code	**Description**	**Value** (USD Million)	**PCI**	**Sector**
7	1514	Rapeseed, colza or mustard oil, and fractions thereof, whether or not refined, but not chemically modified	$4.10	0.652	Agriculture
8	3823	Industrial monocarboxylic fatty acids; acid oils from refining; industrial fatty alcohols	$3.71	-0.123	Chemicals
9	2526	Natural steatite, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape; talc	$3.69	-0.02	Minerals
10	3901	Polymers of ethylene, in primary forms	$3.63	0.066	Chemicals
11	2817	Zinc oxide; zinc peroxide	$3.56	-0.168	Chemicals
12	7113	Articles of jewelry and parts thereof, of precious metal or of metal clad with precious metal	$3.22	0.194	Stone
13	8212	Razors and razor blades (including razor blade blanks in strips), and base metal parts thereof	$2.90	-0.191	Metals
14	1520	Glycerol, crude; glycerol waters and glycerol lyes	$2.40	-0.261	Agriculture
15	5211	Woven fabrics of cotton, containing less than 85 percent by weight of cotton, mixed mainly or solely with man-made fibers, weighing more than 200 g/m2	$2.37	-0.397	Textiles
16	8203	Files, rasps, pliers (including cutting pliers), pincers, tweezers, metal cutting shears, pipe cutters, bolt cutters, perforating punches and similar hand tools, and base metal parts thereof	$2.22	0.794	Metals
17	4202	Trunks, suitcases, vanity cases, attache cases, briefcases, school satchels, spectacle cases, binocular cases, camera cases, musical instrument cases, gun cases, holsters and	$1.90	-0.314	Agriculture
18	9999	Commodities not specified according to kind	$1.80	-0.162	Other
19	5512	Woven fabrics of synthetic staple fibers, containing 85 percent or more by weight of synthetic staple fibers	$1.76	0.179	Textiles
20	3503	Gelatin (including gelatin in rectangular (including square) sheets, whether or not surface-worked or colored) and gelatin derivatives; isinglass; other glues of animal origin, excluding casein glues of heading 3501	$1.64	-0.148	Chemicals

A more ambitious policy to increase exports from the current export basket of China would be to focus on high-value-added products which have maximum PCI. Table 3.3 shows the top 10 products exported to China in descending order of PCI. Their export share in Pakistan is significantly low as Pakistan does not have a competitive advantage in the associated sectors. However, the market size of China for these products presents Pakistan with an opportunity to generate higher export revenues.

The sectors of machinery and chemicals are the most significant in the table and, therefore, should have strategic importance for Pakistan when export-oriented policies are being formulated. Products such as machines and mechanical appliances having individual functions, measuring or checking instruments, instruments, and apparatus for physical or chemical analysis, and appliances such as taps or valves have billions of dollars of import demand in China, and channeling resources towards these sectors can be a beneficial and a positive step towards achieving higher export growth. See box 3.3 for an analysis of the export composition shift required for greater exports to China.

Table 3.3: Top 10 exports of Pakistan to China in descending order of PCI

Pakistan's Exports to China (2021)					
	HS Code	**Description**	**Value** (USD Million)	**PCI**	**Sector**
1	8479	Machines and mechanical appliances having individual functions, not specified or included elsewhere in this chapter; parts thereof	$0.02	2.04	Machinery
2	3403	Lubricating preparations (including cutting-oil preparations, bolt or nut release preparations, antirust or anticorrosion preparations and mold release preparations, based on lubricants) and preparations of a kind used for the oil or grease treatment of t	$0.00	1.787	Chemicals
3	9027	Instruments and apparatus for physical or chemical analysis (for example, polarimeters,refractometers, spectrometers, gas or smoke analysis apparatus); instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension	$0.01	1.773	Machinery
4	3908	Polyamides in primary forms	$0.59	1.769	Chemicals
5	8481	Taps, cocks, valves and similar appliances, for pipes, boiler shells, tanks, vats or the like, including pressure-reducing valves and thermostatically controlled valves; parts thereof	$0.01	1.717	Machinery
6	8477	Machinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this chapter; parts thereof	$0.03	1.712	Machinery
7	8208	Knives and cutting blades, for machines or for mechanical appliances,and base metal parts thereof	$0.01	1.708	Metals
8	3002	Human blood; animal blood prepared for therapeutic, prophylactic or diagnostic uses; antisera and other blood fractions and modified immunological products, whether or not obtained by means of biotechnological processes; vaccines, toxins	$0.00	1.679	Chemicals
9	9031	Measuring or checking instruments, appliances and machines, not specified or included elsewhere in this chapter; profile projectors; parts and accessories thereof	$0.21	1.632	Machinery
10	8207	Interchangeable tools for hand tools, whether or not power-operated, or for machine-tools (for example, for pressing, stamping, punching, tapping, threading, drilling,boring, broaching, milling, turning or screw driving), including dies for drawing or ext	$0.07	1.584	Metals

Box 3.3: Current and Potential Export Sectors for Promoting Pakistan's Exports in China

Current Sectors with Major Exports:

- **Textiles**: High export volumes in cotton yarn and woven fabrics of cotton.
- **Metals**: Significant exports in Refined and unrefined copper and other metals like chromium and zinc ores.
- **Agriculture**: Notable items including rice, various seeds, fruits, and seafood.

Priority Sectors with Potential Exports:

- **Metals**: Copper bars, rods, and profiles
- **Chemicals**: Polymers of styrene and ethylene, industrial monocarboxylic fatty acids, and other chemical products like Zinc oxide and gelatin.
- **Machinery**: Medical and surgical instruments, physical exercise and sports equipment.
- **Agriculture**: Bones and horn cores and skins and parts of birds, rapeseed oil, glycerol, and steatite (talc)
- **Textiles**: Woven fabrics.

3.2.2 Identifying Products based on Pakistan's Exports to Other Countries

The first scenario focused on altering the export composition of the 391 products exported to China in 2021 so that more complex and high-value-added items with higher import demand in China are exported over time. The products and sectors are highlighted in Tables 3.1, 3.2, and 3.3. In this scenario, the recommended path for export expansion and diversification is to filter out products that satisfy the following criteria:

a. Pakistan exports the product to other countries but not China, hence the revealed comparative advantage (RCA)[2] is greater than zero.

b. The product has an import demand in China that is currently not being fulfilled by Pakistan.

The difference between (a) and (b) for every product will be considered as an untapped export potential that Pakistan can use to increase its footprint in the Chinese market. For the year 2021, there were 656 HS 4-digit product categories that Pakistan was not yet exporting to China, but China was importing from other countries, of which 486 products had PCI higher than the 2021 ECI of Pakistan, -0.49.

Table 3.4 shows the top 20 of the 656 products, and Table 3.5 reports the top 20 of the 486 products, both sorted in descending order of Pakistan's global exports. It can be observed in Table 3.4 that Pakistan's exports have relatively lower values, with the highest one amounting to $354 million in petroleum oils and related products. The associated PCI values are negative for the majority of the items. However, despite that, there is a potential for redirecting some of these exports to China based on Chinese import demand.

The most prominent product is medicaments and medical supplies in the chemicals sector. They show a substantial gap between Chinese imports and Pakistan's exports to the world, indicating a potential market for growth given the positive PCI and existing market relevance.

Another notable product in China that is in high demand to meet its industrial and transportation needs is petroleum oils (both refined and crude) in the minerals sector. Despite the huge potential gap, Pakistan may not be able to target this sector for higher exports directed towards China due to its own low production and limited resources in the respective merchandise. Additionally, the associated PCI is significantly lower than -0.49; therefore, raising exports here may not generate higher export revenues.

Another growth sector is metals, within which ferrous products and flat-rolled steel products have substantial volumes albeit negative PCI values, indicating less complexity yet significant export volumes that highlight competitive pricing or availability advantages. Products such as flat-rolled products of iron and flat-rolled non-alloy steel have positive PCI and a sizeable untapped gap between Pakistan's global exports and Chinese imports.

Another high-value-added sector is vehicles, whereby products such as ships, aircraft, and tractors appear in Table 3.4. The potential untapped gap in these sectors is also huge, but given Pakistan's production capabilities, it might be more feasible to raise exports in tractors rather than aircraft and ships.

2 RCA is the ratio showing the share of an exported product in the local export basket divided by the share of the same exported product in global exports. If RCA is greater than zero, it indicates a non-zero value of the exported product in the economy, whereas if RCA is greater than 1, it indicates that the product is exported with a comparative advantage or that the economy has a competitive advantage in producing that product.

Within the agriculture sector, there are low PCI products such as citrus fruits, meat of bovine animals, onion, corn, vegetable oils, and potatoes, as well as high PCI products such as other sugar, cereal, and products related to paper. Even though strong competitiveness in agricultural exports of Pakistan can be leveraged in markets like China, Pakistan must rely more on high value-added items with potential export gaps such as citrus fruits, meat of bovine animals, corn, vegetable oils, other sugars, and products related to paper/wood.

In addition, products like used or new rags and women's or girls' clothing also reflect substantial exports, showcasing strong sectors that could potentially increase market share in China, given the high demand for textile products. Overall, it is recommended that Pakistan's strategic focus should not be only on the products with significant export volumes as that would only leverage existing strengths in low PCI goods in agriculture, textiles, and basic manufacturing. Instead, exports should be expanded as well as diversified by prioritizing and tapping into high-demand sectors in China like medicaments, flat-rolled products of iron and flat-rolled non-alloy steel, tractors and paper, paperboard, cellulose wadding and webs of cellulose fibers, which could offer new opportunities for higher export revenue streams in future.

Table 3.4: Top 20 products exported by Pakistan but not yet exported to China

Pakistan's Exports Not Yet Exported to China (2021)						
	HS Code	**Description**	**Value of Exports** (USD Million)	**Value of Imports in China** (USD Million)	**PCI**	**Sector**
1	2710	Petroleum oils and oils obtained from bituminous minerals, other than crude	$354.11	$19,207.60	-0.756	Minerals
2	201	Meat of bovine animals, fresh or chilled	$260.44	$572.42	-0.563	Agriculture
3	3004	Medicaments (excluding goods of heading 3002, 3005 or 3006)	$255.92	$20,057.80	0.851	Chemicals
4	805	Citrus fruit, fresh or dried	$186.06	$544.45	-1.292	Agriculture
5	8901	Cruise ships, excursion boats,ferry boats, cargo ships, barges and similar vessels for the transport of persons or goods	$183.63	$1,011.63	-0.675	Vehicles
6	7203	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products, in lumps, pellets or similar forms; iron having a minimum purity by weight of 99.94 percent, in lumps, pellets or similar forms	$135.59	$731.13	-1.32	Metals
7	703	Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled	$133.66	$18.16	-1.98	Agriculture
8	2709	Petroleum oils and oils obtained from bituminous minerals, crude	$132.46	$215,804.08	-2.4	Minerals
9	701	Potatoes, fresh or chilled	$114.23	$0.19	-0.762	Agriculture
10	1005	Corn (maize)	$93.13	$7,356.83	-0.937	Agriculture
11	6310	Used or new rags, scrap twine, cordage, rope and cables, and worn out articles of twine, cordage, rope or cables, of textile materials	$80.97	$5.83	-1.26	Textiles
12	1516	Animal or vegetable fats and oils and their fractions	$76.33	$770.92	-1.41	Agriculture

Pakistan's Exports Not Yet Exported to China (2021)						
	HS Code	**Description**	**Value of Exports** (USD Million)	**Value of Imports in China** (USD Million)	**PCI**	**Sector**
13	7210	Flat-rolled products of iron or nonalloy steel, of a width of 600 mm or more, clad, plated or coated	$75.90	$1,752.85	0.325	Metals
14	1702	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel	$59.27	$508.97	-0.106	Agriculture
15	8802	Other aircraft (for example,helicopters, airplanes); spacecraft (including satellites) and suborbital and spacecraft launch vehicles	$54.12	$10,833.55	0.113	Vehicles
16	4811	Paper, paperboard, cellulose wadding and webs of cellulose fibers, coated, impregnated, covered, surface-colored, surface-decorated or printed, in rolls or rectangular (including square) sheets, of any size	$44.60	$545.71	0.339	Agriculture
17	8701	Tractors (other than tractors of heading 8709)	$43.62	$424.48	1.023	Vehicles
18	6108	Women's or girls' slips, petticoats, briefs, panties, night-dresses, pajamas, negligees, bathrobes, dressing gowns and similar articles, knitted or crocheted	$40.17	$55.71	-1.633	Textiles
19	1213	Cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets	$40.01	$6.57	-0.286	Agriculture
20	7209	Flat-rolled products of iron or nonalloy steel, of a width of 600 mm or more, cold-rolled (cold-reduced), not clad, plated or coated	$31.83	$1,390.68	0.016	Metals

Table 3.5 filters out the more complex products than the ECI of Pakistan's basket of goods exported worldwide. These products may currently have lower shares of exports, indicating moderate to low comparative advantage. However, with high PCI and significant import demand, export diversification can lead to valuable gains in export revenues.

Five sectors are more apparent in the table: chemicals, metals, agriculture, vehicles, and electronics and machinery. Medicaments show a significant demand in the chemicals sector, with China importing over $20 billion worth of them. However, Pakistan's exports are relatively modest at $255.92 million, which shows the enormous potential for higher exports in the Chinese market. Similarly, polymers of vinyl chloride and reaction initiators, with a high PCI and moderate competitive advantage in Pakistan, indicate potential growth areas given their substantial demand in China.

In the metals sector, the product categories of flat-rolled iron or steel and tanks, casks, drums, cans, boxes, and similar containers depict positive PCI, a high local competitive advantage, and considerable import demand in China, suggesting that this sector could be further developed.

Another notable product category in the vehicles sector is tractors, where Pakistan can focus on increasing the size of the market for its goods in China. Furthermore, if capabilities are enhanced,

electric storage batteries and turbojets could be a strong area for Pakistan, potentially indicating an opportunity for growth in the electronics and machinery sector.

In the agriculture sector, where Pakistan possesses a significant competitive advantage, the product categories of other sugars, paper and paperboard, the niche market of cereal straw and husks, and fiberboard of wood or other ligneous materials show relatively high PCI and import demand in China, indicating potential competitiveness and suggesting room for higher export growth. Box 3.4 highlights the product categories with significant potential to generate new export revenue streams in Pakistan from China.

Table 3.5: Top 20 products exported by Pakistan but not yet exported to China for which PCI is greater than ECI

Pakistan's Exports Not Yet Exported to China (2021)						
	HS Code	**Description**	**Value of Exports** (USD Million)	**Value of Imports in China** (USD Million)	**PCI**	**Sector**
1	3004	Medicaments (excluding goods of heading 3002, 3005 or 3006)	$255.92	$20,057.80	0.851	Chemicals
2	7210	Flat-rolled products of iron or nonalloy steel, of a width of 600 mm or more, clad, plated or coated	$75.90	$1,752.85	0.325	Metals
3	1702	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel	$59.27	$508.97	-0.106	Agriculture
4	8802	Other aircraft (for example,helicopters, airplanes); spacecraft (including satellites) and suborbital and spacecraft launch vehicles	$54.12	$10,833.55	0.113	Vehicles
5	4811	Paper, paperboard, cellulose wadding and webs of cellulose fibers, coated, impregnated, covered, surface-colored, surface-decorated or printed, in rolls or rectangular (including square) sheets, of any size,	$44.60	$545.71	0.339	Agriculture
6	8701	Tractors (other than tractors of heading 8709)	$43.62	$424.48	1.023	Vehicles
7	1213	Cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets	$40.01	$6.57	-0.286	Agriculture
8	7209	Flat-rolled products of iron or nonalloy steel, of a width of 600 mm or more, cold-rolled (cold-reduced), not clad, plated or coated	$31.83	$1,390.68	0.016	Metals
9	3904	Polymers of vinyl chloride or of other halogenated olefins, in primary forms	$26.62	$1,480.55	0.567	Chemicals
10	8507	Electric storage batteries, including separators therefor, whether or not rectangular(including square); parts thereof	$24.98	$4,110.47	1.19	Electronics
11	4411	Fiberboard of wood or other ligneous materials, whether or not bonded with resins or other organic substances	$23.61	$123.46	0.036	Agriculture

Pakistan's Exports Not Yet Exported to China (2021)						
	HS Code	**Description**	**Value of Exports** (USD Million)	**Value of Imports in China** (USD Million)	**PCI**	**Sector**
12	7612	Aluminum casks, drums, cans, boxes and similar containers (including rigid or collapsible tubular containers), for any material (other than compressed or liquefied gas), of a capacity not exceeding300 liters, whether or not lined or heat insulated, but no	$22.90	$21.56	0.127	Metals
13	2836	Carbonates; peroxocarbonates (percarbonates); commercial ammonium carbonate containing ammonium carbamate	$19.42	$746.82	-0.481	Chemicals
14	7310	Tanks, casks, drums, cans, boxes and similar containers, for any material (other than compressed or liquefied gas), of iron or steel, of a capacity not exceeding 300 liters, whether or not lined or heat insulated, but not fitted with mechanical or thermal	$15.37	$144.67	-0.014	Metals
15	8411	Turbojets, turbo propellers and other gas turbines, and parts thereof	$14.93	$13,228.96	0.795	Machinery
16	7005	Float glass and surface ground or polished glass, in sheets, whether or not having an absorbent, reflecting or non-reflecting layer, but not otherwise worked	$13.74	$791.26	-0.28	Stone
17	407	Birds eggs, in shell, fresh, preserved or cooked	$13.62	$0.02	-0.303	Agriculture
18	3815	Reaction initiators, reaction accelerators and catalytic preparations, not elsewhere specified or included	$13.01	$2,203.65	1.049	Chemicals
19	4013	Inner tubes, of rubber	$11.67	$4.89	-0.461	Chemicals
20	210	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal	$11.61	$52.56	0.252	Agriculture

Box 3.4: New Products with high Potential in Enhancing and Diversifying Pakistan's Exports in China

High-value products with significant export potential, which Pakistan is already exporting in low amounts:

Chemicals: Medicaments and medical supplies, and polymers of vinyl chloride

Metals: Flat-rolled products of iron or nonalloy steel, and tanks, casks, drums, cans, boxes, and similar containers for any material

Vehicles: Tractors

Electronics & Machinery: Electric storage batteries and turbojets

High-value products with significant export potential in the sectors which Pakistan is already exporting in higher amounts:

Agriculture: Meat of bovine animals, corn (maize), other sugars, paper and paperboard, cereal straw and husks, and fiberboard of wood or other ligneous materials

3.2.3 Identifying New Products that Pakistan Can Start Exporting

The analysis thus far identified the potential products based on the metrics of ECI and PCI. Apart from these indices, which indicate the technological capacity of an economy, the AEC also provides data on *connectedness*, which reflects the "similarity" between an economy and the exported products.

In the context of this analysis, connectedness would answer the following question: Is Pakistan's export basket compatible with what is required to produce more high-end textiles or automobiles? The data on connectedness can, therefore, shed light on the related products and industries that are most likely to grow in the future based on the current capabilities of the economy.

The AEC uses the ring chart visualization, which showcases exports closely associated with a chosen product, either because it is a related export or commonly co-exported by the same country. These products are linked through their technological resemblance, indicating the utilization of similar production techniques to manufacture them. For example, if a country exports poultry (HS Code: 0207) with a significant competitive advantage, whereby RCA is greater than one, then related harvesting or threshing machinery (HS Code: 8433) is stated as a primary connection.

The export data is thus based on HS1992 codes at the 4-digit level. Here, we take into account all the primary connections to Pakistan's export basket in 2021. The main proposition is that if a product has a primary connection to Pakistan's export basket in 2021, then potentially, based on technological similarity and absorptive capacity, Pakistan has the capability to increase the export of that product in the near future.

The central focus is on those products within the primary connections that are currently not part of Pakistan's export basket (in 2021). However, since these are primary connections, they have technological similarities and, therefore, can be part of the export basket in the near future. There are 58 products that are connected to Pakistan's export basket in 2021, with RCA equal to zero. Of these 58 products, China has an import demand of 56 products. Table 3.6 shows the top 20 of the 56 products, sorted in descending order of China's imports.

In Table 3.6, PCI gives us insights into the complexity and potential economic value of producing these goods. Higher PCI provides an opportunity to capture more market value and, thus, potentially increase exports in the near future. A notable sector with high complexity is chemicals. Products like colloidal precious metals, phenol-alcohols, other organo-inorganic compounds, and compounds with other nitrogen functions have high PCIs (ranging from about 1.0 to over 2.2). Apart from that, the import demand in China for these products is also substantial. This indicates potential for significant value addition and economic benefit if developed and exported effectively in China. Therefore, developing industries like chemical compounds and precious metals could be strategically beneficial.

The categories of photographic and film products and chemical element/compound wafers also show high PCI, but it may be more feasible to unlock the potential of those industries in the near future, for which PCI is closer to the reported ECI of -0.49. A PCI of over 2.0 reflects a highly complex manufacturing process for which Pakistan may not have the relevant know-how.

In the metals and stone sectors, products such as unwrought nickel, copper foil, and glass have high PCIs and robust import demand in China. Building technological capabilities and innovation in these sectors can lead to a more prominent footprint of Pakistan's exports in China. The product list also includes several mineral products, of which coke etc. of coal, and titanium ores could be considered more relevant to the resource base of Pakistan. These typically have negative PCIs, indicating they are less complex. However, their extraction can still be significant due to the demand for these raw materials in various industrial processes.

Other low-complex products in Table 3.6 are apparent in the agriculture and vehicle sectors. Products like grain sorghum and chemical wood pulp in the agriculture sector and light vessels

in the vehicles sector show negative PCIs, which indicates less complexity or value addition. However, their presence in significant import volumes suggests a stable demand driven by raw material needs rather than finished goods. An exception is rape or colza seeds, with a positive PCI, indicating a slightly higher complexity and potential for value addition.

Table 3.6: Products identified as primary connections of Pakistan's 2021 export basket with RCA equal to zero.These are sorted in descending order of import demand in China

Primary Connections Not Yet Exported by Pakistan (2021)					
	HS Code	**Description**	**Value of Imports in China** (USD Billion)	**PCI**	**Sector**
1	2711	Petroleum gases and other gaseous hydrocarbons	$61.32	-2.34	Minerals
2	4703	Chemical woodpulp, soda or sulfate, other than dissolving grades	$13.35	-0.036	Agriculture
3	7502	Unwrought nickel	$6.22	0.055	Metals
4	7410	Copper foil (whether or not printed or backed with paper, paperboard, plastics or similar backing materials) of a thickness(excluding any backing) not exceeding 0.15 mm	$3.96	1.089	Metals
5	3818	Chemical element/compound wafers doped for electronic	$2.83	2.058	Chemicals
6	1007	Grain sorghum	$2.77	-2.349	Agriculture
7	8457	Machining centers, unit construction machines (single station) and multistation transfer machines, for working metal	$2.59	2.01	Machinery
8	2907	Phenols; phenol-alcohols	$2.15	1.323	Chemicals
9	2822	Cobalt oxides and hydroxides; commercial cobalt oxides	$1.96	-1.178	Chemicals
10	2204	Wine of fresh grapes, including fortified wines; grape must other than that of heading 2009	$1.68	-0.542	Agriculture
11	1205	Rape or colza seeds, whether or not broken	$1.48	0.224	Agriculture
12	7006	Glass of heading 7003, 7004 or 7005, bent, edge-worked, engraved, drilled, enameled or otherwise worked, but not framed or fitted with other materials:	$1.25	1.254	Stone
13	2926	Nitrile-function compounds	$0.85	0.894	Chemicals
14	2614	Titanium ores and concentrates	$0.84	-2.143	Minerals
15	3702	Photographic film in rolls, sensitized, unexposed, of any material other than paper, paperboard or textiles; instant print film in rolls, sensitized, unexposed	$0.67	2.003	Chemicals
16	2843	Colloidal precious metals; inorganic or organic compounds of precious metals, whether or not chemically defined; amalgams of precious metals	$0.58	2.238	Chemicals
17	8905	Light-vessels, fire-floats,dredgers, floating cranes, and other vessels the navigability of which is subsidiary to their main function; floating docks; floating or submersible drilling or production platforms	$0.55	-1.368	Vehicles
18	2704	Coke etc of coal, lignite or peat, retort carbon	$0.50	-0.331	Minerals
19	2931	Other organo-inorganic compounds	$0.44	1.652	Chemicals
20	2929	Compounds with other nitrogen function	$0.44	1.067	Chemicals

Since Table 3.6 shows a quite diverse range of PCI, it would be beneficial to highlight the products that are primary connections of Pakistan's export basket in 2021, are imported in China, and have PCI higher than ECI of -0.49 so that the priority sectors can be analyzed more effectively. Forty-four products fulfill the above criteria, and Table 3.7 shows the top 20 of these products, sorted in descending order of import demand in China.

The chemicals sector dominates the list, with products like phenols, nitrile-function compounds, other organo-inorganic compounds, compounds with other nitrogen functions, prepared rubber accelerators, sulfonamides, carbon, and ion-exchangers based on polymers having positive PCIs. These are high in complexity and import demand, suggesting a strategic opportunity for Pakistan to develop these industries.

In the metals sector, unwrought nickel, copper foil, and bars and rods, stainless steel have positive PCIs making them potential markets for Pakistan to explore, even if it currently does not specialize in these products. These also represent sectors where Pakistan could increase its capabilities or form joint ventures to tap into the Chinese market.

Another sector that can be considered relatively more sophisticated is the mineral sector, whereby products such as coke and coal reflect high import demand and know-how closer to Pakistan's current productive capacity. These items could be needed for raw materials and primary products, which Pakistan could supply without significant value addition. Lastly, within the agriculture sector, Pakistan can focus on products like chemical wood pulp and rape or colza seeds which have positive PCIs.

The diversity in products—ranging from agriculture like rape or colza seeds to minerals and chemicals—indicates multiple fronts on which Pakistan could potentially expand its export portfolio. Developing capabilities in these areas could help Pakistan diversify its exports beyond traditional sectors, similar to what China has already done. This data should be pivotal for Pakistan's trade strategy with China, highlighting areas where there is existing demand in China and where Pakistan could potentially develop a competitive edge and also collaborate with Chinese firms to meet this demand.

Table 3.7: Products identified as primary connections of Pakistan's 2021 export basket with RCA equal to zero and PCI greater than ECI. These are sorted in descending order of import demand in China

Primary Connections Not Yet Exported by Pakistan (2021)					
	HS Code	**Description**	**Value of Imports in China** (USD Billion)	**PCI**	**Sector**
1	4703	Chemical woodpulp, soda or sulfate, other than dissolving grades	$13.35	-0.036	Agriculture
2	7502	Unwrought nickel	$6.22	0.055	Metals
3	7410	Copper foil (whether or not printed or backed with paper, paperboard, plastics or similar backing materials) of a thickness(excluding any backing) not exceeding 0.15 mm	$3.96	1 .089	Metals
4	3818	Chemical element/compound wafers doped for electronic	$2.83	2.058	Chemicals
5	8457	Machining centers, unit construction machines (single station) and multistation transfer machines, for working metal	$2.59	2.01	Machinery

Primary Connections Not Yet Exported by Pakistan (2021)					
	HS Code	**Description**	**Value of Imports in China** (USD Billion)	**PCI**	**Sector**
6	2907	Phenols; phenol-alcohols	$2.15	1.323	Chemicals
7	1205	Rape or colza seeds, whether or not broken	$1.48	0.224	Agriculture
8	7006	Glass of heading 7003, 7004 or 7005, bent, edge-worked, engraved, drilled, enameled or otherwise worked, but not framed or fitted with other materials:	$1.25	1.254	Stone
9	2926	Nitrile-function compounds	$0.85	0.894	Chemicals
10	3702	Photographic film in rolls, sensitized, unexposed, of any material other than paper, paperboard or textiles; instant print film in rolls, sensitized, unexposed	$0.67	2.003	Chemicals
11	2843	Colloidal precious metals; inorganic or organic compounds of precious metals, whether or not chemically defined; amalgams of precious metals	$0.58	2.238	Chemicals
12	2704	Coke etc of coal, lignite or peat, retort carbon	$0.50	-0.331	Minerals
13	2931	Other organo-inorganic compounds	$0.44	1.652	Chemicals
14	2929	Compounds with other nitrogen function	$0.44	1.067	Chemicals
15	3812	Prepared rubber accelerators; compound plasticizers for rubber or plastics, not elsewhere specified or included; antioxidizing preparations and other compound stabilizers for rubber or plastics	$0.43	0.918	Chemicals
16	2935	Sulfonamides	$0.36	1.201	Chemicals
17	2803	Carbon, nesoi (including carbon black)	$0.31	0.3	Chemicals
18	3914	Ion-exchangers based on polymers of headings 3901 to 3913, in primary forms	$0.28	1.873	Chemicals
19	2716	Electrical energy	$0.24	-0.405	Minerals
20	7221	Bars and rods, stainless steel, hot-rolled, irreg coils	$0.24	1.726	Metals

Box 3.5: New Products with Potential to be Exported to China

Higher value products with significant export potential:

Chemicals: Phenols, nitrile-function compounds, other organo-inorganic compounds, compounds with other nitrogen function, prepared rubber accelerators, sulfonamides, carbon, nesoi, and ion-exchangers based on polymers.

Metals: Unwrought nickel, copper foil, and bars and rods, stainless steel.

Stone: Glass.

Less complex products with significant export potential:

Agriculture: Chemical wood pulp and rape or colza seeds.

Minerals: Coke of coal.

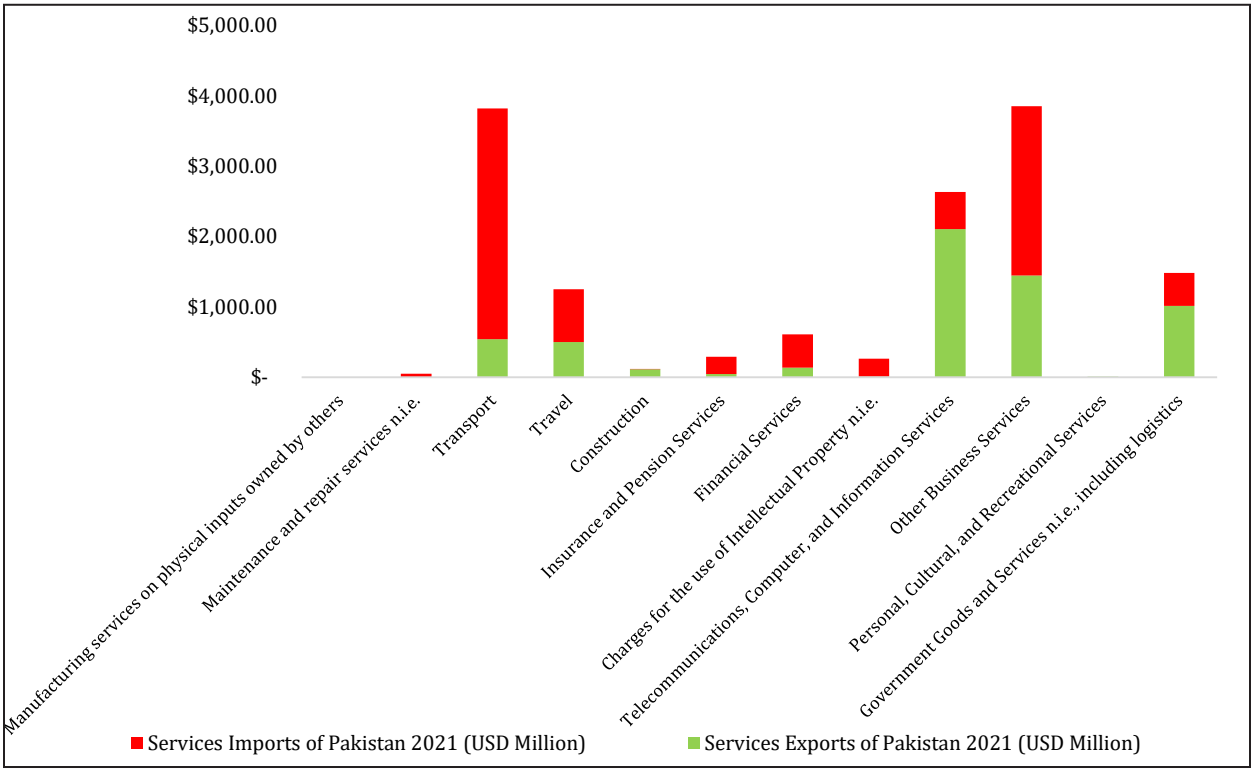
Chapter 4: Increasing Pakistan's Services Exports to China

Pakistan has steadily increased its trade in the services sector over time. In the fiscal year 2006, Pakistan exported USD 3.7 billion worth of services, the most prominent exports being in the transport sector. In 2022, exports increased to approximately USD 7 billion, with the most significant surge seen in the ICT category, where exports were reported at USD 2.6 billion. The imports increased from USD 8.3 billion in 2006 to USD 12.1 billion in 2022. While trade in the services sector increased significantly worldwide, reaching USD 13.7 trillion in 2019, Pakistan has yet to be able to generate pronounced gains over time.

While exports doubled over the last 16 years, significantly higher imports meant that the trade deficit for services increased from USD 3.3 billion to USD 3.8 billion. Figure 4.1 shows the export and import values for the year 2021 in each classification of the services sector. The services trade classifications are a standard first-level breakdown of the Balance of Payments and International Investment Position Manual, sixth edition (BMP6), and the corresponding Extended Balance of Payments Services Classification (EBOPS 2010). Apart from ICT, Pakistan has a trade deficit in services across all other categories, with the most pronounced deficits occurring in transport and other business services.

In this chapter, we analyze the recent trends in the bilateral services trade between Pakistan and China and then examine the potential sectors in which Pakistan can increase its services exports to China.

Figure 4.1: Services Trade in Pakistan (2021)

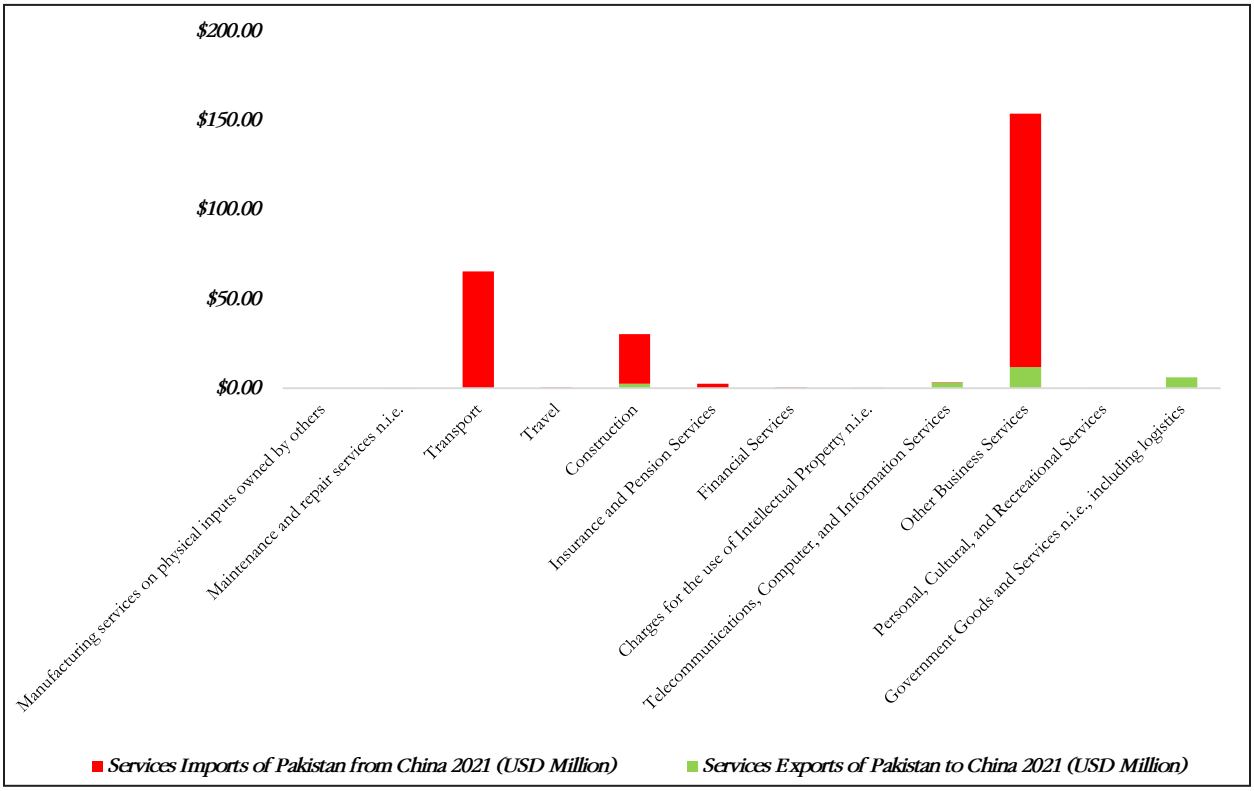


Source: State Bank of Pakistan Data Portal

4.1 Services Trade between Pakistan and China in 2021

Pakistan's services trade deficit with China in 2021 was USD 214 million. Exports amounted to only USD 24 million, while the services imports were approximately USD 238 million. While Pakistan's exports grew more steadily in the ICT sector as compared to other categories, the fact that only USD 24 million of aggregate services exports were exported to China means that the majority of Pakistan's services exports in that sector were being directed towards other countries in the Middle East, Western Europe, and the USA rather than China. Major services imported from China by Pakistan included transport, construction, and other business services. Figure 4.2 shows the bilateral trade in the services sector for the year 2021.

Figure 4.2: Services Trade between Pakistan and China (2021)

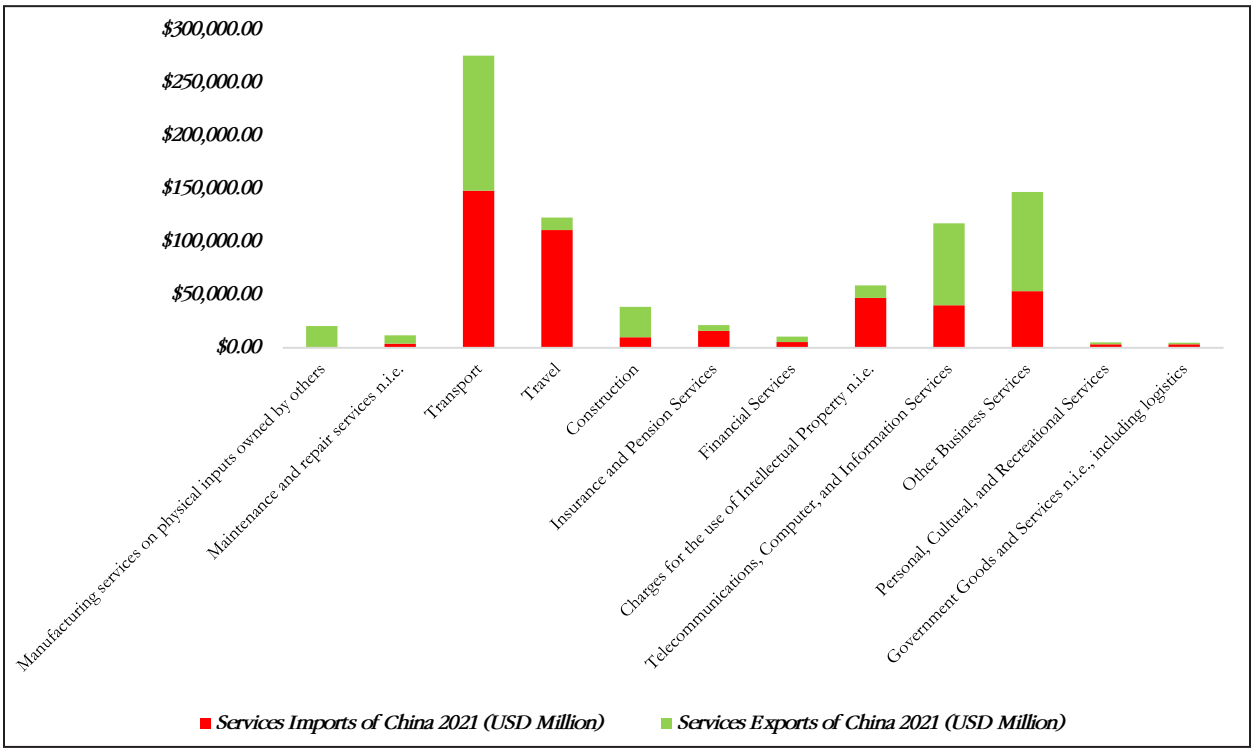


Source: State Bank of Pakistan Data Portal

It is helpful to analyze the recent trends in Pakistan's services trade with China to understand if Pakistan's services exports can align more closely with China's service imports.

Figure 4.3 shows the services trade in China for the year 2021. China reported a services trade deficit of USD 49 billion, with service exports of USD 392 billion and service imports of USD 441 billion. The highest level of imports was in the transport sector. The total size of China's trade in services shows that China is one of the largest global markets for exports and that Pakistan has the potential to increase its service exports to China.

Figure 4.2: Services Trade of China (2021)



Source: www.trademap.org

4.2 Strategies to Increase Pakistan's Services Exports to China

The primary issue is that Pakistan has been unable to increase its services exports to China, except for in a few areas, such as ICT and business services, over time. We employ the intensive margin of exports concept to analyze the opportunities for increasing Pakistan's service exports to China. The intensive margin of exports is a number that reflects the maximum potential increase in the services exports from the current export basket. It focuses on export expansion rather than export diversification by scaling up the quantities produced and improving product quality, which can then be exported to existing markets. It is calculated by subtracting the current exports of Pakistan to the host region (China in this report) from either the global exports of Pakistan or the global imports of China, whichever value is lower for every services trade classification.

Since global imports from China are higher than Pakistan's global exports, the latter is considered when calculating the maximum margin of potential export growth from Pakistan to China. Table 4.1 shows the margin values in descending order. The highest growth margin is in the ICT sector, followed by other business services and government goods and services (including logistics support). China's services market is huge in every category, reiterating that Pakistan can capitalize on a large, untapped export gap.

The intensive margin does not imply that Pakistan must increase exports to this extent; instead, it only shows a direction or a feasible expansion path of an export sector that policymakers can follow and focus on. The only diversification path, which involves expanding the export base by adding new categories to be exported in China, is seen in manufacturing services on physical inputs owned by others. China's global imports are USD 712 million, and Pakistan's current exports are zero.

Table 4.1 Potential Growth in Exports of Services to China (2021)

Potential Growth in Exports of Services to China			
	Services Trade Classifications (BMP6)	**Intensive Margin of Export** (USD Million)	**Global Imports of China** (USD Million)
1	Telecommunications, Computer, and Information Services	$2,104.86	$40,113.44
2	Other Business Services	$1,436.26	$53,186.48
3	Government Goods and Services n.i.e., including logistics	$1,009.86	$3,235.74
4	Transport	$544.00	$147,865.13
5	Travel	$500.80	$111,043.84
6	Financial Services	$137.73	$5,345.63
7	Construction	$113.54	$9,793.23
8	Insurance and Pension Services	$46.99	$16,037.25
9	Charges for the use of Intellectual Property n.i.e.	$12.98	$46,889.44
10	Personal, Cultural, and Recreational Services	$11.00	$3,272.65
11	Maintenance and repair services n.i.e.	$2.99	$3,817.22
12	Manufacturing services on physical inputs owned by others	$0.00	$712.04

Pakistan faces several challenges as it focuses on expanding service sector exports, especially ICT exports. Some of these include relatively unfavorable tax laws, uneven internet connectivity, weak enforcement of intellectual property rights, the lack of importance given to the services sector while negotiating trade agreements, the absence of a comprehensive services export growth strategy in Pakistan, and the lack of participation in the services trade fair globally by Pakistani firms.

Pakistan's firms can partner with Chinese firms in the ICT sector for digital and technological adaptation. One way to do this is by developing e-commerce platforms to reach a broader audience. Integrating services into platforms such as Alibaba, JD.com, and Tencent can increase market size.

In the business services sector, Pakistan needs to focus on digitizing accounting processes, using technologies such as cloud-based accounting, software development, blockchain technology, communication technology, and artificial intelligence. Local companies must adapt to automating redundant processes that involve manual labor. Upgrading the soft skills of accounting professionals is also crucial.

Also, there is an urgent need to market Pakistan's business services skills globally. One area of focus could be in the accounting field. Pakistani professionals' accounting skills must be marketed through global services trade fairs, using digital platforms to make potential clients aware of high-quality accounting skills in Pakistan, and building a solid international network is critical. Apart from these, continuous compliance with international services standards (such as international accounting standards) and the availability of credit insurance for the export of services will be necessary to increase Pakistan's competitiveness in the business services sector.

Chapter 5: Policies for Enhancing Pakistan-China Trade Relations

The trade relationship between Pakistan and China is integral to Pakistan's economic development. However, currently some of the issues that should be addressed include a significant trade deficit with China, low export penetration, and an export basket made up of lower value-added exports. These need to be addressed through the formulation of appropriate strategic policies.

In general, policies to strengthen trade, especially the promotion of exports from Pakistan to China, should focus on joint partnerships with Chinese companies, the establishment of special economic zones (SEZs), the inclusion of high-technology exports, technology transfer, improved logistics, the promotion of green energy projects, and environmental sustainability.

These recommendations are primarily based on the analysis in the previous chapters of this report and other references, including the Government of Pakistan's Strategic Trade Policy Framework (STPF) 2020-25.

5.1 Focus on Targeted Product Categories

The analysis in the previous chapters showed a vast untapped potential gap between Pakistan's export supply and China's import demand, both in the current export portfolio and the recommended export portfolio that can be adopted in the future. The current composition of Pakistan's exports to China is a combination of low-value-added products such as **textiles** (cotton yarn, woven fabrics), **metals** (refined and unrefined copper), and **agricultural products** (rice, seeds, fruits). Our current export basket's low level of product sophistication is illustrated by the low product PCIs, ranging from -1.0 to -1.9.

It was also observed that Pakistan must make more efforts to export goods that meet the needs of China's market, with the top 20 exported products meeting only 1.2% of the demand on the Chinese side. Therefore, there is an urgent need to shift the export composition, channeling the resources towards high value-added items with above-average product sophistication or PCIs higher than the current ECI of the export basket of Pakistan. The policymakers have to be careful while moving up the value chain and focus mainly on those high-value-added products that China imports in large quantities.

The targeted product categories can include the following: (i) processed products in the **metals** sector, including copper bars, rods, and profiles; (ii) products in the **chemical** sectors including polymers of styrene and ethylene, industrial monocarboxylic fatty acids and other chemical products like zinc oxide and gelatin; (iii) products in the **machinery** sector including medical and surgical instruments, and physical exercise and sports equipment; and (iv) specialized products from the **agriculture** sector including bones and horn-cores and skins and parts of birds, rapeseed oil, glycerol and steatite (talc).

5.2 Target New Product Categories

The analysis in this report also highlighted a new export portfolio by filtering products with higher product sophistication (PCI greater than -0.49) that Pakistan exports to countries other than China and China imports from other countries than Pakistan. The potential export gap was

identified by analyzing the differences between Pakistan's global exports and China's global imports. There were 486 product categories within which priority sectors and potential products were identified that could bridge this gap.

In the sectors with moderate to low RCA in Pakistan, it was shown that the policy focus should be on (i) products in the **chemical** sector, including medicaments and medical supplies, and polymers of vinyl chloride; (ii) processed **metals** sector including flat-rolled products of iron or non-alloy steel, and tanks, casks, drums, cans, boxes and similar containers for any material; (iii) the **vehicle** sector including tractors and (iv) the **electronics & machinery** sector: electric storage batteries, and turbojets. The potential products in the sectors with higher RCA in Pakistan included **agricultural products** such as meat of bovine animals, corn (maize), other sugars, paper and paperboard, cereal straw and husks, and fiberboard of wood or other ligneous materials.

We also identified new products for which the current RCA equals zero. However, they could be part of the export portfolio in the future based on their technological resemblance with Pakistan's current know-how and productive capacity. High-value and more complex primary connections with significant export potential included: (i) products from the **chemical** sector, including phenols, nitrile-function compounds, other organo-inorganic compounds, compounds with other nitrogen function, prepared rubber accelerators, sulfonamides, carbon, nesoi, and ion-exchangers based on polymers; (ii) products from the **metals** sectors including unwrought nickel, copper foil, and bars and rods, stainless steel; (iii) products from the **stone** sector including glass. There were also relatively less complex primary connections with significant export potential in the (i) **agricultural** sector, including chemical wood pulp and rape or colza seeds, and (ii) **minerals** sectors, such as coke and coal.

5.3 Government Initiatives to Increase Pakistan's Exports to China

It has already been established that Pakistan can expand and diversify its export portfolio by increasing the production of high-value-added products in nontraditional sectors such as chemicals, high-complexity processed metals, and vehicles. It can also enhance exports by moving towards more sophisticated, or high PCI, products within the traditional sectors of agriculture and textiles. In this section, we highlight the support policies that Pakistan can adopt to promote exports in the targeted product categories.

Pakistan can establish an Export Development Fund to encourage the exports of high-value-added products. The policies can also introduce regulatory reforms to simplify export documentation requirements and regulatory procedures, making it easier for new items to enter the market. Support policies could also encourage businesses to innovate and produce goods that specifically address the needs of China's market by offering innovation-related incentives.

The report "Contours of a National Charter for Exports—III" presented strategic initiatives to enhance Pakistan's exports, including implementing a long-term export policy. The policy also advocates diversification into nontraditional markets using the Export Development Fund, simplifying regulations, providing tax incentives, developing robust export infrastructure, and promoting high-value branded exports. Additionally, the report highlights the importance of supporting SMEs in thriving in the export market.

The Strategic Trade Policy Framework (STPF) 2020-25 proposes measures to boost export competitiveness by reducing costs, rationalizing tariffs, enhancing productivity through technology, diversifying markets, integrating into global value chains, and investing in infrastructure. These initiatives aim to improve the business environment and position Pakistan favorably in the global market.

Box 5.1: Support Policies to Enhance Pakistan's Exports in China

- Creation of the Export Development Fund, which provides financial aid for market research and international trade participation.
- Regulatory reforms aim to simplify export-import procedures and enhance transparency.
- Investment and joint ventures with Chinese firms to enhance innovation in targeted sectors.
- Encourage SMEs to increase their exports in the international market, especially China.
- Promote integration into GVCs by supporting compliance with international standards and fostering links between local firms and multinationals.

5.4 Focus on Environmental Sustainability and Green Energy Projects

Given the challenges posed by climate change, environmental sustainability is the most relevant policy in today's world. The way forward is to expand investment in renewable energy projects such as wind, solar, and hydropower to reduce fossil fuel dependency and develop sustainable energy resources. Pakistan has partnered with China's Three Gorges Corporation in Gilgit-Baltistan to develop hydropower plants, ensuring comprehensive environmental impact studies. Likewise, a shift towards solar energy can also be considered a vital green energy project in Pakistan.

Pakistan is recommended to initiate joint ventures with China's renewable energy companies to build large-scale solar farms in Punjab, offering land at subsidized rates. Investment and transition to solar energy are strategic moves for Pakistani firms to remain competitive with rising fuel costs. Strict environmental standards and monitoring systems are also recommended for projects under CPEC to ensure sustainable development without compromising ecological balance.

5.5 Leverage Current Trade Agreements

Under the second phase of implementing the Pakistan-China FTA, it is recommended that the scope of the FTA be expanded to include more Pakistani products in high demand in China, thereby diversifying the export base beyond traditional goods. This can be facilitated by showcasing Pakistan's capacity to produce more sophisticated goods. Pakistan can also engage in trade promotion activities in China, including trade fairs and business delegations, to showcase Pakistan's export potential. Negotiation of technology transfer agreements should be an essential part of trade deals, particularly in manufacturing automation and IT sectors.

5.6 Develop Special Economic Zones (SEZs)

SEZ development can attract foreign direct investment from Chinese businesses, which can help promote Pakistan's industrial sector's development in the recommended nontraditional sectors. Due to CPEC, several SEZs have already been established, and many will be established. Pakistan

can capitalize on SEZs by making them industrial hubs for joint ventures with Chinese companies and venues for technology transfer to local firms.

Pakistan can mainly focus on increasing China's investment in upgrading the raw and unprocessed low-value-added goods produced in the industrial and minerals sector so that they are refined and processed in Pakistan before being exported to China. Policymakers can provide tax incentives and streamline regulatory procedures in the economic zones to attract high-tech manufacturing and service businesses. A crucial support policy for a sustainable SEZ is the persistent provision of the necessary infrastructure, such as reliable electrical supplies, logistical hubs, and improved connectivity.

Appendix 1 presents specific SEZ-related policies that can be implemented to generate the production of high-value-added products that can become part of the export portfolio in the near future.

Box 5.2: Policies related to SEZs in Pakistan

- Tax incentives and duty-free import of capital goods to increase firms' participation in the SEZs.
- Provide infrastructure and logistics support, including reliable utilities, transportation networks, and efficient communication facilities.
- Encourage collaborations with Chinese companies for technology transfer.
- Training programs for local labor focus on skill enhancement and improving productivity through technical expertise.
- R&D in innovative procedures for the production of more complex (high PCI) products in both traditional and nontraditional sectors.

5.7 Develop and Implement an Export-led Industrial Strategy

To boost exports, Pakistan needs to design an export-led industrial strategy that aggressively uses tools like tariff reductions on intermediate inputs, subsidized credit for exporters, and tax refunds for exporters who prove that they have used imported inputs for export purposes.

Since commercial banks have no incentive to lend to exporters if the interest rate remains high, policymakers need to make credit available to exporters at lower rates. The State Bank's Temporary Economic Refinance Facility (TERF) program and its financing scheme to promote solar energy usage by manufacturers are successful examples of this and should be aggressively expanded.

The government should also focus all expenditures on training by entities like TEVTA and all expenditures on education and infrastructure on export promotion. Also, as foreign markets start to tax imports based on emissions (with the EU Carbon Border Adjustment Mechanism coming into place over the next few years), the government needs to subsidize exporters' transition to cleaner energy sources before Pakistani exports fall.

The government should also focus on practical demand-side measures. First, the trade investment officers posted in foreign missions must be given product lists and export targets for their countries. The product lists must be data-driven, and countries and products that comprise our current export destinations, export goods, and new, higher value-added products must be identified. Policymakers can pair this with customs data and census of manufacturing industry data to identify firms that already produce and export these goods to help pair foreign buyers

with Pakistani suppliers. Also, Pakistan needs to target service sector exports in areas such as IT, health, and education, which should be an integral part of any export strategy.

5.8 Leverage Pakistan's Geographic and Strategic Position

Pakistan should enhance its transportation and logistics infrastructure to improve trade flow efficiency between Pakistan and China, particularly under the CPEC framework. In this context, expansion and modernization of the Karakoram Highway to facilitate smoother goods transport, including safety features to handle increased traffic and adverse weather, is crucial. Apart from that, accelerating the expansion of Gwadar Port with Chinese assistance and developing associated warehousing and logistics facilities to support large-scale transshipment is also of strategic importance in Pakistan. Strengthening maritime security and infrastructure to ensure safe and efficient shipping routes is also crucial. This is because Pakistan will be better positioned to leverage its geographic and strategic placement as the infrastructure improves and security concerns are mitigated. It can enhance its role as a critical trade conduit between China and other regions, including the Middle East and Africa via the Arabian Sea. It can also be part of multilateral trade agreements as a central transit point for goods traveling from China to other continents. These measures would eventually strengthen trade with China and enable higher exports of Pakistani products in the region.

5.9 Enhance Services Sector Competitiveness

The development of the services sector, particularly the IT sector, is essential in Pakistan, and the expansion of IT services exports has remained one of the most important policies. Policies needed to enhance service sector infrastructure, streamline trade policies, and access international markets more effectively. Actionable policies include improving inter-agency coordination, rationalizing taxes, enhancing industry-academia linkages, and providing targeted training. In this sector, Pakistan can partner with various companies in China to facilitate the movement of service professionals across borders through specialized agreements for upgrading the skills of the domestic labor force. Pakistan can also participate in global services export fairs to enhance visibility and market access for Pakistan's services sector.[3]

3 See the Pakistan Business Council's report on The Global Trade in Services and Pakistan (PBC, 2024).

Chapter 6: Concluding Remarks

Pakistan and China have an enduring political and economic relationship. Over the last few decades, China's export-led growth strategy has led it to transition from low value-added to high-value-added exports and this path provides important lessons for Pakistan.

The current trade relationship between Pakistan and China presents significant opportunities for Pakistan's economic development. Pakistan's exports to China predominantly comprise low-value-added goods, while its imports from China are largely high-value-added and technologically advanced goods. This difference underscores the need for Pakistan to transition towards exporting more complex and higher value-added products that are in demand in China and have general know-how closer to Pakistan's current productive capacity. This will enhance Pakistan's economic growth and reduce its trade deficit.

The analysis in this report highlights several strategic recommendations. Firstly, Pakistan must focus on increasing the complexity of its existing export portfolio by developing industries that can produce high-value-added goods. Critical sectors identified for potential improvement include high PCI products in metals, chemicals, machinery, and vehicles, in addition to increasing high PCI products in traditional sectors of agriculture and textiles. For example, exporting processed copper products, industrial chemicals, and electronic bikes could significantly enhance Pakistan's export value.

In addition, Pakistan must also explore new product categories that it currently exports to other countries but not to China. Products such as high-value-added chemicals, flat-rolled steel products, tractors, and electronic goods like electric storage batteries represent significant opportunities for expanding Pakistan's export basket to China. Also, high-end textiles such as designer clothes, activewear, high-end gems and jewelry, and specialized agricultural products such as high-quality soybeans and rapeseed oil offer promising opportunities for diversification and value addition.

Infrastructure development is crucial for supporting this shift towards higher value-added, more sophisticated, and higher PCI exports. Strategic partnerships under CPEC, such as the Karakoram Highway's modernization and the Gwadar Port's expansion, are essential for facilitating smoother transport and enhancing trade efficiency. Improved warehousing and logistics facilities and robust maritime security measures will create a conducive environment for exporting more sophisticated goods. Furthermore, Pakistan's strategic geographic location offers significant advantages for enhancing trade flows with China and other regional markets. By leveraging its position and investing in transportation and logistics infrastructure, Pakistan can become a critical trade conduit between China and other regions, including the Middle East and Africa.

Developing SEZs is another critical strategy for fostering industrial growth and innovation. These zones can attract foreign direct investment, particularly from Chinese companies, and serve as hubs for high-tech manufacturing and service industries and technology transfer from joint ventures with Chinese companies. One policy that should be prioritized is building up local refineries where raw products such as copper and marble could be processed under the supervision of China's technical expertise before being exported as high-value-added products to China. Likewise, the agricultural industry can also be revolutionized by encouraging investment and R&D in producing high-quality seeds of specialty grains that have high demand in China.

General support policies such as providing tax incentives, streamlining regulatory procedures, providing smooth internet connectivity, using export development funds, encouraging participation of SMEs, and ensuring reliable infrastructure within SEZs will be instrumental in attracting investment and boosting industrial productivity.

Apart from that, Pakistan also needs to increase the use of green technology, such as solar panels and other sustainable energy products, to enhance the demand for exports in the international market. Enhancing the services export sector's competitiveness is also crucial, especially in the categories of ICT and business services, such as accounting and bookkeeping.

In conclusion, the trade relationship between Pakistan and China offers the potential for export growth that can be tapped into by implementing an export-led industrial policy. In this regard, learning from China's experience in how they moved up the quality ladder as they transitioned from low value-added products to production of complex and highly sophisticated products is crucial. That is why joint ventures with the Chinese firms and the associated technology spillovers need to be materialized.

Policy makers not only need to focus on high value-added products, investing in infrastructure, leveraging its geographic advantages, and fostering industrial development through SEZs, but also enhance its diplomatic ties with China to enhance its export performance and achieve a more balanced trade partnership with China. Learning from the experiences of China and implementing these strategic recommendations will not only reduce the trade deficit but also support sustainable economic growth and development for Pakistan in the long term.

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Appendix 1

Specific SEZ Policies

1. Rashakai Economic Zone, Khyber Pakhtunkhwa, Pakistan

This SEZ in Pakistan's northwestern province can be leveraged to establish a center of excellence for textile and electronics innovation. Pakistan can partner with China's technology companies to introduce manufacturing innovations in the stated sectors and products identified in those sectors. The zones can also help provide training programs in collaboration with nearby educational institutions to upskill employees.

2. Dhabeji Special Economic Zone, Sindh, Pakistan

Due to the SEZ's proximity to Karachi and Port Qasim in southern Pakistan, a logistic and manufacturing hub can be developed here. Support policies can include providing incentives for logistics companies to open operations and implement cutting-edge logistics management technologies.

3. Allama Iqbal Industrial City (M3 Industrial City), Punjab, Pakistan

The province of Punjab can be considered as a hub of textile industry. Therefore, high PCI textile products can be focused upon in this SEZ. This indicates policies that should encourage moving beyond raw cotton yarn and basic woven fabrics to exports of high-quality finished garments, technical textiles, and specialized fabrics such as knitwear. Another high-value-added item could be developing a niche in fashion and design-oriented products, including designer clothing. Firms in Pakistan can partner with Chinese companies to bring advanced textile machinery and automation technologies to Pakistani mills, thereby improving efficiency, product quality, and technology transfer. In addition to textiles, diversification into pharmaceuticals, chemicals, and machinery could also be done in this SEZ. As mentioned, products such as medicaments, and polymers have high potential for export growth. Therefore, R&D in innovative chemical processes, manufacturing processes, and sustainable textile technologies via tax exemptions and subsidies for related products is essential.

4. Bostan Industrial Zone, Balochistan, Pakistan

The SEZ in the southwestern province has a strong focus on agro-based industry and metals and mineral processing. Therefore, the extraction and production of processed metal products like gems and jewelry, high-grade steel, aluminum products, processed copper, and coal coke to meet China's industrial needs can be encouraged here. Similarly, innovation and production of high value-added agricultural products such as organic fruits (such as Mangoes), specialty grains (such as chia and quinoa), high-quality soya beans, and rape and colza seeds, can also be implemented with assistance for certification and adherence to international standards.

For this SEZ, the provision of required funding for the construction of cold storage facilities, agricultural processing facilities, new mineral processing facilities, and mining technology is crucial. It is also highly recommended that local firms, in partnership with China's companies, build refineries in Pakistan where low-value-added products in agricultural and minerals sectors are processed and upgraded before they are exported to China as high-value-added items.

5. ICT Model Industrial Zone, Islamabad, Pakistan

The model zone in Pakistan's capital city can be developed as an IT and software development hub. Support policies can include establishing a venture capital fund to provide funding for tech companies and startups and forming alliances with China's IT companies for infrastructure development and information sharing. Pakistan's IT firms can also partner with Chinese tech giants like Alibaba and Tencent, focusing on e-commerce and fintech solutions.

6. Special Economic Zone at Mirpur, Azad Jammu and Kashmir, Pakistan

This SEZ can be leveraged to produce hydroelectric power for energy-intensive industries. Pakistan should prioritize meeting its energy demand, which will likely grow as these SEZs are further developed and production is enhanced. Furthermore, Pakistan can diversify its export portfolio if electrical energy can be exported to China. Therefore, this particular SEZ in northern Pakistan holds strategic importance. An essential support policy is the provision of reduced electric rates to businesses in the zone. In addition, Pakistan could promote investments in the production of ceramics and electronics, which can profit from decreasing energy prices.

7. Mohmand Marble City, Tribal Districts, Khyber Pakhtunkhwa, Pakistan

The policy is to establish this zone as a leading marble and minerals processing center so that Pakistan can capitalize on its existing comparative advantage. Over time, more processed, high-technology, and high-value-added items can be produced and exported to China. Partnering with Chinese firms to establish high-quality processing centers, implement subsidized prices for modern machinery and equipment, and enforce strict environmental laws to guarantee environmentally responsible mining methods could be beneficial.

8. China Special Economic Zone, Dhabeji, Sindh, Pakistan

This special zone would specifically attract China's investment and industries in various sectors. Support policies include expedited visa processing for Chinese investors and establishing a bilingual administrative office to streamline operations and communication.

9. Industrial Park on Pakistan Steel Mills Land at Port Qasim near Karachi, Sindh, Pakistan

As the name suggests, the primary policy behind this SEZ is to revitalize the existing industrial infrastructure to attract heavy industries such as steel and automobiles, including the production of electronic bikes, tractors, and other heavy machinery. This would require improved logistics and port facilities.

10. Quaid-e-Azam Apparel Park, Punjab, Pakistan

The apparel park's primary aim is to promote high-value garment manufacturing, for which training courses on excellence in clothing design and manufacturing could be a beneficial policy. In addition, installing zero-liquid discharge (ZLD) systems to attract brands that care about the environment is also considered useful. This policy will not only strengthen Pakistan's existing competitive advantage but also help it access more of the environment-cautious consumer market in China.

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