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Empires of Cotton:

A Comparative Study of British Colonialism and CPEC

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ABSTRACT

China's expanding integrations in South Asia under the umbrella of BRI (Belt and Road Initiative) and projects such as CPEC (China-Pakistan Economic Corridor) are intensifying the interdependency of states in the region, prompting counter narratives from various other global players. While China characterizes these projects as a means to support developing economies and alleviate poverty, Western-centric narratives portray it as the promotion of an illiberal political order that undermines democratic values. We propose to steer away from both narratives, and instead to understand projects such as BRI and CPEC as part of the re-shaping of the capitalist order on a planetary scale — a new global order that is increasingly focused on the uninterrupted flow and smooth operation of a global supply chain. To that end, we intend to conduct a comparative study of the agricultural practices of the 19th-century British Empire in South Asia and the 21st-century China in Pakistan, with a focus on cotton. As a strategic commodity, cotton has been at the center of agricultural industry, farming and labor practices, trade and commerce, and technological expertise in both historical contexts. By examining the two cases along these dimensions, we hope to obtain a clearer understanding of the economic and geopolitical significance of the above projects.

Introduction

The launch of CPEC in 2013 promised to deliver much-needed and long-delayed infrastructural improvements in Pakistan. The Chinese government's commitment of \$60 billion in investment in Pakistan's roads, railways, energy, farming, and industrial infrastructure was envisioned to have an immense impact on the country's economic development, its geopolitical position in the region, and on the livelihood of local communities. Such impacts, however, might not always be positively aligned with each other, leading to contrastive, even conflicting, accounts of potential outcomes. While CPEC's proponents portray it as the road to rapid growth and prosperity, its opponents view it as a component of Chinese geopolitical ambitions in the region and beyond. Both sides draw on the historical record to support their positions – the former on the Tiger economies of South Asia in the late-twentieth century, the latter on the Suez Canal and how it brought Egypt under British control in the late-nineteenth century.

We seek to avoid this dichotomy, and to instead understand CPEC as part of the re-shaping of the capitalist order on a planetary scale — a new global order that is increasingly focused on the uninterrupted flow and smooth operation of a global supply chain (Cowen 2017). While fraught with its own asymmetries of economic and political influence, this new order presents noticeable shifts in the geopolitics of the globe, calling into question some of the basic tenets of established theoretical frameworks. One such tenet is the tripartite division of the global capitalist system into centers, peripheries, and semi peripheries (Wallerstein 1976). As we argue, while this division can be meaningfully applied to the 18-19th century domination of South Asia by the British Empire, it cannot speak as directly to contemporary relations such as those between China and Pakistan. As Martin Arboleda, drawing on Gavin Bridge (2008), argues, “the debate on resource peripheries has advanced through a default to national-scale modes of analysis that pushes questions about the transnational organization of production into the background” (2020: 103; original emphasis). As an alternative, Arboleda proposes a mode of analysis that takes the planetary flow of material, capital, and labor as its default. While this argument is largely made for the case of extractive industries, we seek to examine its relevance and application to the case of farming (and cotton).

This shift of perspective has conceptual, methodological, and practical implications. Conceptually, it focuses our attention away from geopolitics toward geoeconomics. If in the era of geo-politics, borders demarcated the exercise of power within sovereign national territories, in the era of geo-economics international actors in a globalized market govern the spatial geography of borders. It is such that the language of “gateways and corridors” comes into prominence in talking about the secure flow of goods and commodities across the globe.

Methodologically, this shift is consistent with the recent academic interest in explaining global phenomena from a world-system perspective, where the flow of capital, commodities, labor, and information is understood on planetary scale, rather than within the boundaries of nation-states. Our focus on planetary geoeconomics, however, is not meant to distract away from the geopolitics of CPEC. To maintain this geopolitical aspect, we have chosen to compare Chinese practices surrounding cotton in contemporary Pakistan with those of the British in India in the 18th-19th centuries. Conducting a comparative study of these practices along the two dimensions of trade and technology will allow us to address questions about the significance of CPEC on various dimensions and scales of the economy, while avoiding the dichotomous narratives of plunder and prosperity.

Practically, this shift in perspective enables a holistic grasp of the realities on the ground on various scales – regional, national, and local. To shed light on CPEC at these various scales and dimensions, we have chosen to focus on cotton as a key commodity of Pakistan's

economy – often referred to as “white gold” in the local discourse. As a key commodity, cotton opens up a wide window onto different aspects of CPEC. First, it provides a link between farming and industry. Cotton is at once an agricultural product and the raw material for industries such as textiles. Second, as a global commodity, cotton transgresses regional and national boundaries, allowing us to consider global logistic flows. Lastly, as a mainstay of local communities in core rural areas in Pakistan such as Punjab, cotton can provide a grounded image of the impact of CPEC on Pakistanis’ livelihood, labor practices, property regimes, and so forth.

British Practices in Indian Cotton Industry through Colonialism

British Colonialism and World Systems Theory

The network of cotton trade stemming from British-Indian production, both under Company rule and the British Raj, can be viewed through Wallerstein’s World Systems conceptualization of global capitalism. Wallerstein (1976) divides the capitalist world-economy into the core, the semiperiphery, and the periphery. The capitalist institutions of a “worldwide division of labor” and “bureaucratic state machineries” continuously reinforce these positions’ existence, even as countries and regions move in and out of each of these classifications (Wallerstein, 1976, p. 83). Under Wallerstein’s definition, core states persist through “strong state machinery” and durable national cultures that are able to extract resources from relatively weaker periphery states (Wallerstein, 1976, p. 482-483). The semiperiphery acts as “middle trading groups” which are able to manage the affairs between core and periphery states without having access to the political and economic coalitions of the core (Wallerstein, 1976, p. 483). Core states maintain their position by extracting value from cheap labor, which is delegated to the semiperiphery and periphery (Wallerstein, 1976, p. 483). Under Wallerstein’s conception, differences in both technological advancement and control over global trade can determine the core or periphery status of states.

Washbrook (2015) applies Wallerstein’s World Systems concept to South Asia’s historical position in the flow of global capitalism. In his essay, Washbrook (2015) argues that South Asia since its formal incorporation into the British empire in 1750 was a semiperipheral state with core features such as financial and industrial management as well as peripheral features such as the extraction of raw materials (p. 482). Washbrook (2015) also challenges Wallerstein’s conceptualization of the semiperiphery to a degree, noting that South Asia itself contained its own cores and peripheries in the form of “sets of intermediary agencies” which, while reliant on the capitalist imperialist system as a whole, took their own share and provided the social mobility that that drove resistance movements against British rule (ibid, 501). Based on this understanding of British India’s semiperipheral status, Washbrook analyzes the degree to which the British core subjugated domestic Indian core industries. Before the 1820s, British direct administration of India was much more limited; even subsequent attempts by the British Raj to reduce the Indian economy to an agricultural one and to centralize its control had limited success, overall failing to shift South Asia’s status from semiperiphery to periphery (ibid, p. 493).

Technology

For centuries prior to European colonization of India, Asia (East and South Asia in particular) was where most of the innovative and widely adopted cotton technologies emerged. Tools which ultimately made it possible for European merchants to profit from the global cotton trade, such as the roller gin, bow, spinning wheel, and new kinds of looms, all originated in Asia. This flow of cotton technologies from East to West remained constant for centuries, even persisting for decades following South Asia’s formal incorporation into the British Empire. Technological transfer was crucial for British merchants’ ability to take

control of the global cotton trade and until well into the 18th century, Britain's dominance over global cotton trade networks was due in no part to their development of new technologies, techniques, or modes of organizing production. Rather, as Beckert (2015) writes:

“European capitalists and rulers altered global networks through multiple means. The muscle of armed trade enabled the creation of a complex, Eurocentric maritime trade web; the forging of a military-fiscal state allowed for the projection of power into the far-flung corners of the world; the invention of financial instruments—from marine insurance to bills of lading—allowed for the transfer of capital and goods over long distances; the development of a legal system gave a modicum of security to global investments; the construction of alliances with distant capitalists and rulers provided access to local weavers and cotton growers; the expropriation of land and the deportation of Africans created flourishing plantations.” (p. 30-31)

In the 17th century, European manufacturers, with support from their national governments, began collecting knowledge of Indian textile production and circulating it amongst themselves so as to more effectively replicate Indian textile colors and design patterns so popular in African and European markets. Throughout the 17th and 18th centuries, British printers drew on Indian cotton printing expertise by collecting and copying Indian textile designs to improve the quality and style of their domestic products (ibid, 50). Beckert characterizes this appropriation of Indian techniques not as a mutually beneficial diffusion of tools and ideas, but rather as a form of espionage.

While the direction of technology transfer later changed, not until the Industrial Revolution did British-developed technologies become relevant to global cotton production. By the 1780's, Britain had effectively inserted itself into global cotton networks, and taken control of them. However, prior to the Industrial revolution, their role in the manufacturing of cotton products paled in comparison to other regions of the world. For Britain to succeed in becoming a global exporter of cotton products required, among other things, new technologies to increase productivity and lower costs. Throughout the 18th century, British inventors, incentivized by British cotton capitalists, managed to successfully mechanize many aspects of the cotton manufacturing process — first, the weaving process, quickly followed by new spinning techniques. By the end of the 18th century, cotton manufacturing in Britain had exploded, with British cotton textile exports increasing by an annual rate of 14 percent between 1780–1800.

These technologies spread quickly among British cotton manufacturers, who largely retained their productive edge over the rest of the cotton manufacturing world well into the first decades of the 19th century, largely enabled by protectionist policies of the British government. One such policy put in place in 1786 went as far as to criminalize the export of new cotton manufacturing technologies for the following decades.

Around the time British cotton technologies were developing another key invention — the cotton mill — emerged in Britain. The cotton mill functioned as a centralized location to house technologies crucial for many steps of the manufacturing process, and to aggregate, organize, and oversee labor all under a single roof. This gave cotton capitalists unprecedented control over the entire production process.

The development of the cotton mill, coupled with the mechanization of cotton manufacturing, marked a turning point in the technological relationship between Britain and South Asia. British cotton exports skyrocketed, overtaking the Indian cotton industry by large margins by the early 19th century. By the middle of the century, the Indian cotton industry had begun building itself back up in the image of its British competitors. Headrick (1988) describes the historical development of the newly transformed Indian cotton industry. In 1854, the first successful Indian cotton mill venture opened its doors, and by 1914 India was home to 271 cotton mills, mostly clustered in larger urban areas such as Mumbai, Ahmedabad, Madras, and Cawnpore. These mills were, by and large, owned and operated by Indian entrepreneurs who relied entirely on British cotton production machinery and,

until the late 1880's, on British expatriate technicians to operate the machines. The reliance on foreign workers stemmed in part from a general air of secrecy surrounding British skills of the trade — technicians were sometimes encouraged but often hesitant to pass on their knowledge to Indian workers. This air of secrecy was reinforced by caste and class-based prejudices, as well as a dominant ethos at the time which regarded Europeans as naturally gifted in the mechanical arts and, by this logic, considered them better suited for operating machinery. Because of this technological dependence on Britain, the Indian cotton industry mostly operated as, in Headrick's terms, a technological satellite of its British counterpart.

Cotton mill owners in some areas, such as present-day Mumbai, were partially successful in developing relative independence from British expertise. They did so by investing in technical schools that offered programs in textile technology and various kinds of engineering. By 1895, 58% of cotton mill workers in Mumbai's managerial, engineering, carding, spinning and weaving positions were Indian, a number which continued to grow over the subsequent decades as European populations in India declined.

World War I marked the emergence of the Japanese cotton textile industry, accompanied by an innovative Japanese textile-machine industry and an array of new techniques and technologies to increase productivity. British manufacturing equipment and techniques began to be rendered comparatively obsolete, and India's continued dependence on British machinery imports meant that its industry, too, lagged behind Japan's. Despite a surge in demand spurred by the war, Indian cotton mills were left unable to replace older machinery and thus failed to meet these increased demands on their production. Once India and Pakistan gained their independence in 1947, they were left with outdated cotton production technology. As a result, both states found it difficult to industrialize their textile sectors and escape their semiperipheral status in the decades following despite the erasure of formal colonial blocks on domestic cotton weaving.

Trade

The tension between Britain's efforts to reduce India's semiperiphery status was apparent in the manipulation of cotton trade between the two regions. Although under British rule at the time, the Indian textile industry in the 1700s and 1800s was a key competitor to Britain's own weaving industry. Riello (2013) notes how European producers of cotton yarn and cloth could not compete with their Indian counterparts in terms of either quality or price in the 1700s (p. 217). As Indian cotton and cloth became more competitive, England became more protectionist. For example, in 1701 Parliament banned the import of printed cottons, most of which came from India. Similarly, in 1721, England outlawed wearing white calicoes originating from India. In 1774, Parliament decided that only cotton spun and woven in England could be sold in England, except for a few heavily-taxed Indian linens, and as a result, British cotton manufacturing expanded (Beckert 2015, 72). As Beckert argues, Britain finally overtook India in terms of comparative advantage in cotton textile manufacturing by appropriating Indian weaving technologies and using them to progress towards industrialization (p. 92-93). While industrialization played a role in Britain's rising advantage in producing finished textiles, Britain's own protectionist trade policies were decisive in determining the role of cotton both at home and in India. As a result, Britain maintained its monopoly over the cotton industry, furthering the core-periphery relationship between the two states.

Once the Indian finished textile market had been rendered essentially obsolete in the world market through a combination of European industrialization and English trade manipulation, India's role as Britain's periphery was firmly established for decades. This relationship was further solidified by the export of British products to India, which pushed more Indians to produce cotton rather than manufacturing finished goods themselves (Beckert 2015: 175). Increasing regulation of the cotton trade driven by demands from British merchants in Bombay also contributed to the deterioration of local networks within India and the rising power of the British state in the country's internal affairs (ibid: 302). British merchants also pushed for state initiatives to "convert" Indian peasants into cotton

producers in order to compete with the lowering prices of cotton enabled by slave labor in the Americas (ibid: 303).

After the American emancipation of its slaves, European demand for Indian cotton greatly expanded (ibid: 366-67). As a result, the British state further integrated itself into Indian rural life to fuel the ever-expanding rise of industrial capitalism (ibid: 390-91). By the end of the 1800s, British traders had fully penetrated inland to replace local manufacturing with imports of British goods, with the limited exception of some manufacturers in Western India. The British also exerted their economic influence to limit India's trade with other countries. In 1930, for instance, they coerced India to limit imports of finished cotton from Japan, leading the Japanese government to ban the import of raw cotton from India (Beckert, 2015: 504). Despite the deprivation of capital from the Indian countryside due to restrictive British trade policies, India's entrepreneurial class benefited from British rule by taking advantage of Britain's colonial trade network (ibid: 510). In this way, as Washbrook argues, cores and peripheries developed within colonial India, allowing the state as a whole to remain a semiperiphery.

In the 1930s, cotton trade would eventually become a source of nationalist fervor in India against British influence, as Indian independence leaders recognized the importance that cotton production and weaving could play in the industrialization of a future independent Indian state (Beckert, 2015: 523). However, early tensions between the core and periphery in Indian society — that is, between cotton industrialists and their workers — would help propel mobilization for separate Indian and Pakistani independence and would continue to perpetuate these social conflicts post-partition (Beckert 2015: 526-27). While British restrictions on Indian trade ended after 1947 and the global balance of trade began to shift dramatically in the post-World War II economy, the divide between cotton capitalists and their workers and their respective influence on overseas trade remained in place.

Overall, British colonialism in India from its inception around the 1600s to its demise in 1947 imposed its core status over South Asia by imposing restrictive trade policies on cotton and by limiting the domestic influence of Indian cotton merchants and cotton manufacturers. Regulating the cotton trade was a key instrument for both the British East India Company and the British Raj in their attempts to reduce India's status to periphery. However, by the 20th century, British state influence had significantly waned, allowing for Indian self-determination over the cotton industry and the definitive return of both India and Pakistan to semiperipheral status.

Chinese Practices in Pakistani Cotton Industry through CPEC

We seek here to understand the spatial organization of contemporary capitalism through the expansion of Arboleda's conceptualization of a "planetary mine" to all raw resources, including cotton. Arboleda (2020) defines the "planetary mine" as a "geography of extraction" that is a result of two modern transformations: the more even distribution of late industrialization worldwide and the increasing automation of labor (p. 19). Arboleda also posits that the technological and industrial changes that have occurred since the 1980s have rendered Wallerstein's core/periphery concept insufficient for the present moment. While the movement of capital is mediated by states, he argues, the geographic organization of production and the global division of labor are not governed by "relations of unequal exchange and dependency" between states. Rather, their dynamics are governed by the production of relative surplus value at the global scale, accompanied by the reproduction of an international working class whose function as a unified industrial organism is premised on the fragmentation of productive subjectivities along not only spatial, but also social and temporal lines (p. 20, 56, 76).

While Arboleda focuses on mineral resources and the flow of raw earth materials, the "planetary mine" concept can also be applied to the contemporary cotton industry, as the production of cotton is also reliant on the extraction of labor and the flow of capital on a

global scale, all dependent on the smooth operation of logistical infrastructures that span the planet. Both types of goods are also historically linked to colonial-era practices of extraction and exploitation. Viewing CPEC through this planetary perspective would thus allow for a better understanding of the socio-economic drivers of the project, the relative position of the parties, and the possible future state of the corridor.

CPEC as a Culmination of Sino-Pakistani Ties

CPEC is sometimes conceptualized as an additional formalization of the friendly state-to-state relationship between China and Pakistan, instead of as a turning point in the integration of either states' technology, capital, or labor. Various analysts, however, have recently questioned the ability of CPEC projects to meet their promises of economic upgrading of Pakistani industries (Garlick 2018; McCarney 2020; Spies 2021). This questioning of CPEC's efficacy reflects the broader scholarly discussion surrounding the nature of BRI, CPEC's parent initiative. BRI, along with CPEC, may be better understood as an economic strategy of the Chinese government to consolidate overseas development projects that were already underway in different parts of the globe. This strategy raises the level of attention and excitement around existing development to build political capital for future projects. However, BRI lacks the coordinated vision necessary to be considered an effective grand strategy for Chinese overseas development or a significant turning point in Chinese development firms' engagement with other countries. Instead, BRI represents a co-opting of Chinese firms' existing profit motives for investing abroad in countries with demands for economic development and supplies of raw labor. CPEC, as a component of BRI, is also driven by firm-to-firm behavior to control the global flow of capital, with the state acting as a mediator, and not as a primary actor, though both Chinese and Pakistani politicians have attempted to incorporate the technology and trade exchanges between China and Pakistan leading up to the introduction of CPEC into a national narrative. CPEC represents a commitment to these existing exchanges rather than a transformation, especially regarding the production of cotton. The upcoming sections will attempt to examine CPEC's role in the cotton industry from a long-term, planetary perspective.

Technology

Since the Industrial Revolution, the number of specialized technologies involved in the cotton production and textile manufacturing processes has increased significantly. Additionally, for each function to which technology can be applied in the production process there are many more varieties of such technological interventions available globally, as well as many more manufacturers, suppliers, and intermediaries. This growth has, however, been far from evenly distributed between or within nations, nor applied evenly to all processes involved in the cotton value chain.

Although Pakistan is a leading producer and exporter of cotton, disparities in quality and yields of cotton crop persist between Pakistan and other global suppliers. This can be attributed, in part, to disparities in technology use. For example, most cotton in Pakistan is hand-picked. The trash content of hand-picked raw cotton is around 9%, compared to 3.5% for machine-picked cotton. Removing this trash content requires producers to 'beat' the cotton, a process which reduces its overall quality (Batool & Saeed 2017: 38).

Reports indicate major differences in technology use across different sectors of the cotton production process in Pakistan. Overall, sowing, spraying, and interculture are generally considered to be more mechanized compared to land preparation, irrigation, and weeding (Ahmad 2015: 7; Batool & Saeed 2017: 38). In areas where mechanization is more common, such as in the cleaning of cotton, the machinery employed tends to be outdated, also contributing to quality and yield disparities. (Batool & Saeed 2017: 38).

When evaluating technology practices in Pakistani cotton production, it is also important to account for differences between large scale and small/medium scale producers. With most farmers in Pakistan running small-scale operations, the high costs of purchasing, maintaining, and updating technologies make it infeasible for such small farmers to own their own equipment, so many individuals rent tools like tractors, tillage implements, and

sprayers from neighboring farmers. Larger scale operations also frequently rely on renting, but largely from rental companies who often do not do business with small- or medium-sized growers. For cotton manufacturers, the size of their operation can determine their place in the global cotton value chains. Small-scale spinners, for example, lack the technology to produce yarn with a high enough thread count to meet international market demands. Subsequently, small-scale manufacturers seeking to export textiles mostly import yarn from abroad. Large textile manufacturers who spin yarn in-house tend not to face this problem, as they possess the technology required to achieve the high thread count global markets require (ibid: 39). Such disparities between small-, medium-, and large-scale producers within Pakistan can make it impractical to generalize cotton technology use, and its implications for production and export, at the national level.

A comprehensive analysis of cotton production technologies — including genetically modified seed varieties; farming vehicles; fertilizers; plant protection products; irrigation technologies; tools for picking, sowing, harvesting, ginning, cleaning, spinning; precision agriculture technologies; storage tools and infrastructures; product transportation infrastructure; etc.— is beyond the scope of this paper and will be tackled in future work. Our findings thus far, however, are consistent with the planetary mine perspective in the following ways:

First, as we later discuss, the current era of technological innovation cannot be said to have stemmed from any single geopolitical hegemon mobilizing science and technology to achieve trade dominance. (Arboleda 2020: 43)

Second, the radical increases in productive capacities of large-scale industry in recent decades cannot be attributed exclusively to specific technological innovations, such as artificial intelligence, big data, robotics, or biotechnology, but rather to the "the systematic fusion and interaction of such technologies across the physical, digital, and biological domains" (ibid: 52). We can see this expressed in many of policy recommendations for cotton technology use and technology transfer under CPEC, which do not emphasize the use or diffusion of particular technologies, but rather the need to simultaneously upgrade machinery across most (if not all) sectors of Pakistani cotton production, to use technology and innovation to enhance connectivity between small farmers and SMEs, to enhance Pakistani cotton plant genetics, to invest in information-communication technology-enabled agriculture, and to enhance "last mile" infrastructure such as marketing facilities, cold chains, and feeder roads. These recommendations all work "to promote the systematic, large-scale, standardized and intensified construction of the agricultural industry" (Ahmad 2020: 262)

Although it is too early to assert with certainty at this stage of our research, our findings on the flow of cotton production and manufacturing technologies between China and Pakistan seem consistent with a planetary perspective. According to Arboleda, the pathways towards national development taken by East Asian economies in recent decades support the argument that the contemporary organization of extraction worldwide is driven not by quests for domination or empire-building, but by "the contradictory and crisis-ridden tendency to constantly revolutionize the technological basis of the forces of production" (2020, 56). The ceaseless pursuit of ever-increasing productivity, expressed politically in the forms of national policy and international competition, has resulted in continual, rapid relocation — both domestically and abroad — of various parts of the labor process depending on their relative complexity for the nations involved in each instance of relocation. Drawing on Postone (1993, 290), Arboleda refers to this as a "treadmill effect," as instantiated on China's tendency towards mechanization since the early 2000's, highlighting how significant increases in Chinese machine exports have closely paralleled the country's systematic efforts to import raw materials beginning in 2001. (2020, 58)

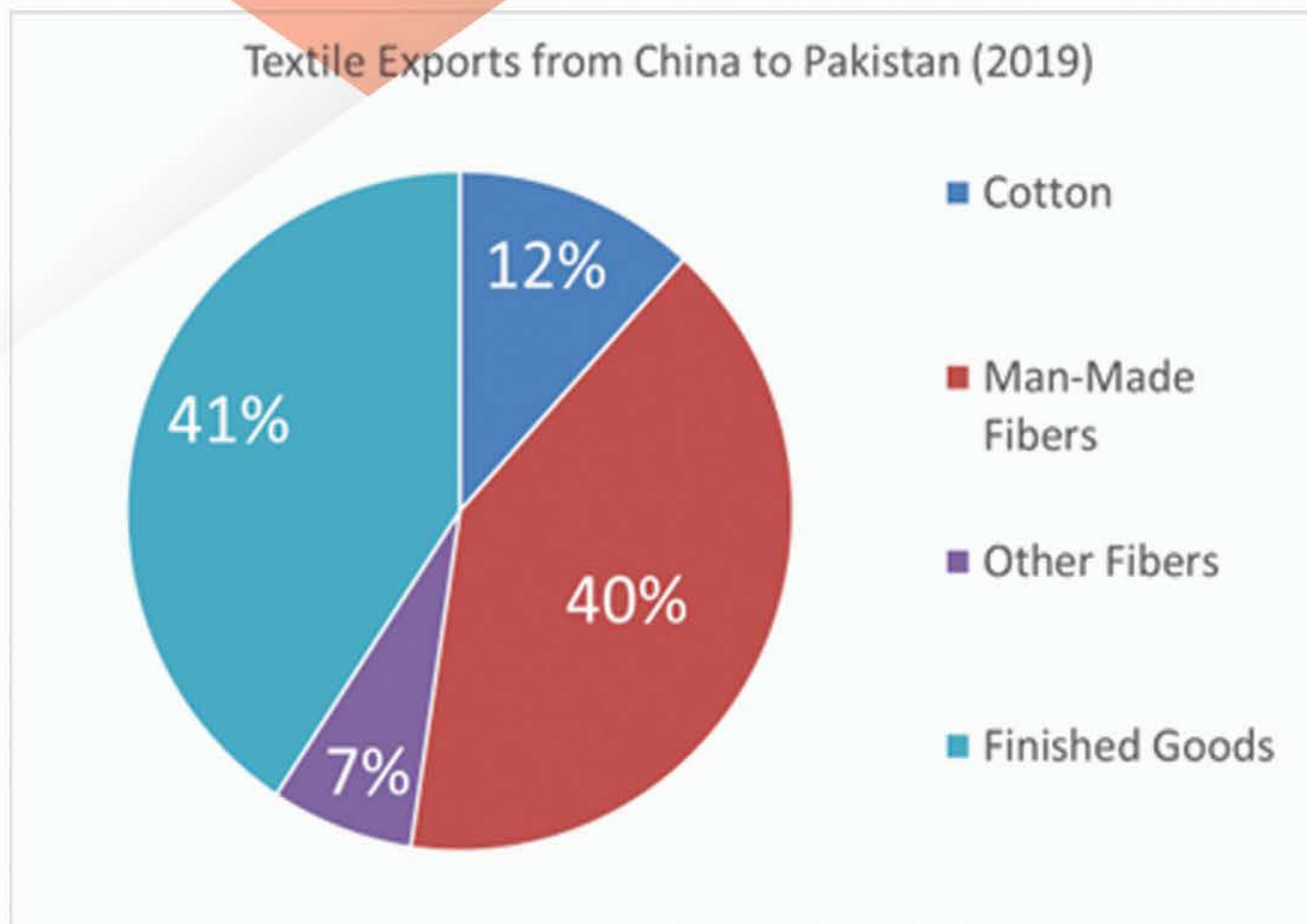
A 2011 report cites imports from China as the largest medium of international technology transfer and diffusion into Pakistan, with China serving as the biggest supplier of textile machinery, parts, and components to Pakistan's manufacturing sectors (Shahab 2011: 195, 224) among other exporters such as Germany, Switzerland, Belgium, Japan, the US, and the UK (Hussain et al., 2009). China is also Pakistan's main supplier of fertilizers, and Pakistani

tariffs on Chinese fertilizers are zero (or near zero) under the Pakistan-China FTA. Overall, the technology content of Chinese exports to Pakistan are significantly higher than vice versa (Shahab 2011: 190). As was evident with diffusion of British technologies to India following the Industrial Revolution, high rates of machinery imports from one country to another on their own neither indicate a high level of technology transfer, nor do they imply increasing technological autonomy of the receiving country. To avoid situations of technological dependence might require, for example, the transfer of scientific and technological knowledge, development of domestic manufacturing industries for relevant technologies, and advancement in domestic research and development institutions and infrastructures.

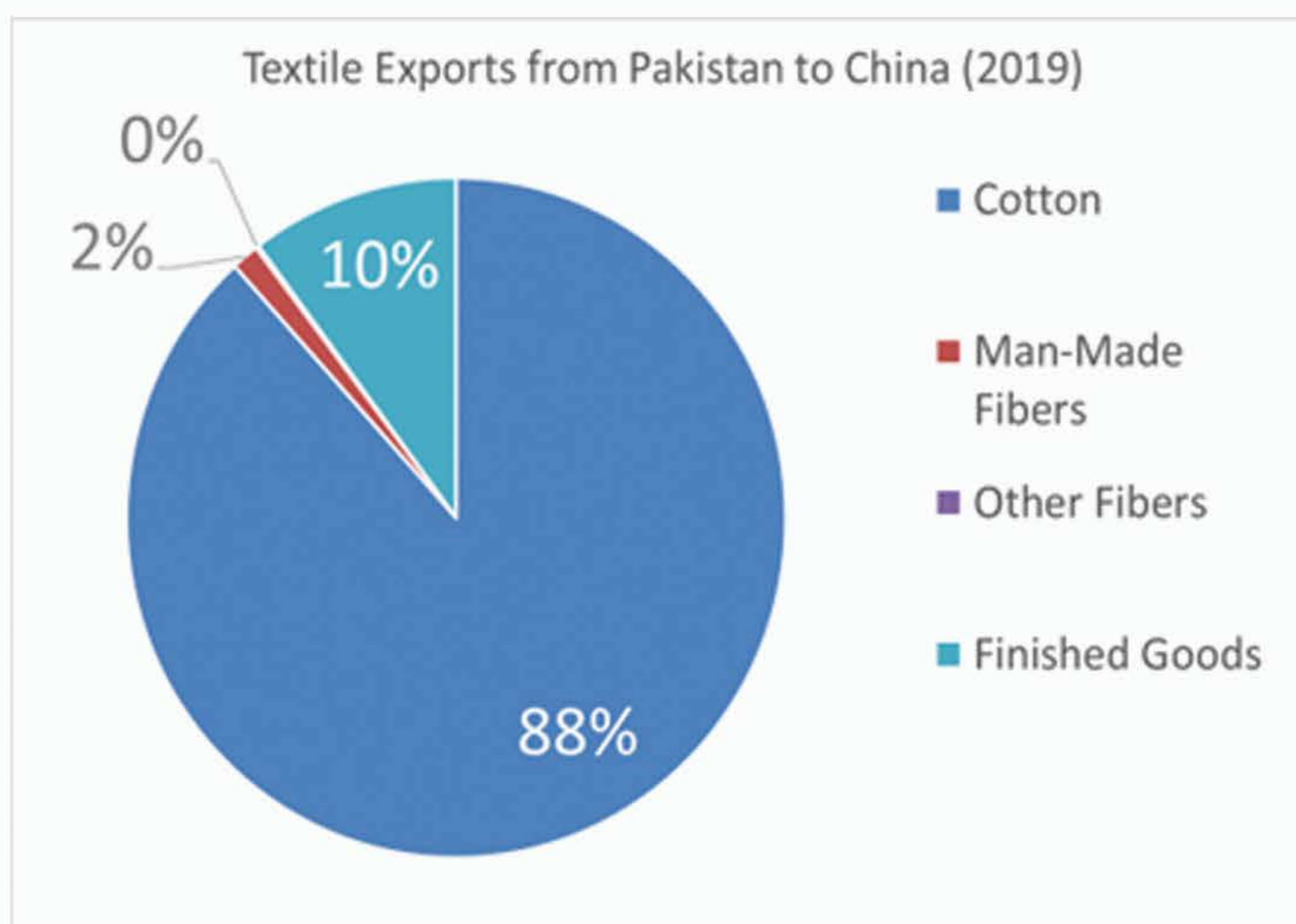
In a world economy whose industries are characterized by increasingly globalized, densely interwoven networks of institutions and capital, it can be difficult to directly track the impacts of technology transfer in a given sector. Shahab (2011) argues that when examining nations at early stages of market development, it may be better to focus on the indirect impacts of technology transfer, such as the kinds of economic interactions that could spur technological knowledge transfer between nations in the future (p. 197). Currently, some initiatives and projects under the CPEC umbrella appear to look beyond passive imports of technology in their attempts to foster technology transfer. For example, the current phase of CPEC project rollout, reportedly set for completion within the next two years, is devoted in large part to IT, agricultural transformation, and technology transfer from China to Pakistan (Paracha 2022). Included in this rollout are plans for the China Machinery Engineering Corporation, a subsidiary of Sinomach, to establish a science and technology transfer center focused on agricultural mechanization. Economists such as Chaundry et al. (2017) recognize the need for CPEC projects to enable Pakistani firms to "move up the technology ladder." To that end, they recommend initiatives such as the following: "creating firm-level incentives for investment in advanced machinery based on the technological sophistication of output"; "imposing a minimum local content requirement — a minimum percentage of locally sourced inputs — on all goods created in CPEC industrial zones"; and "making it mandatory for a minimum level of technology transfer to take place over the life of each CPEC initiative" (p. 16-17). These initiatives hold some promise, although it is difficult to evaluate with certainty their efficacy at this stage, and much of the publicly available reporting on the current or future impacts of CPEC on technology transfer in the Pakistani cotton production industry remains speculative.

Trade

The trade dynamics surrounding CPEC better fit Arboleda's planetary conceptualization of capitalism since, while inequities exist in the cotton trade between China and Pakistan, this inequity is not driven primarily by state-to-state domination or manipulation. Pakistan and China's cotton trade dynamics is similar to that of Britain and British India, in that Pakistan relies on China for a broad range of finished textiles while overwhelmingly exporting raw cotton. However, this imbalance between raw material and finished goods is mostly due to Pakistan's continued reliance on its cotton crop as part of its overall economy due to geographical constraints, and not due to an attempt by China to contain Pakistan's production to labor-intensive goods (Ahmad 2020: 262-65). Since raw cotton continues to be a resource dependent on extraction with little value added, Pakistan's dependence on cotton puts its industries in the position of reliance on industrial textile producers for trade (Ahmad 2020: 238, 255). CPEC's efforts to further industrialize Pakistan and to build the value of its capital may alleviate the stagnation brought by this reliance on cotton, but the components of CPEC that reinforce Pakistan's agricultural industries will likely counteract these efforts (Hussain, 2017).



Source: Observatory of Economic Complexity (OEC)



Source: Observatory of Economic Complexity (OEC)

CPEC itself does not stipulate any new legal agreements regarding Sino-Pakistani cotton trade; in fact, Pakistan and China's trade agreements were implemented before CPEC was formally announced. Pakistan's trade policy was significantly liberalized in the late 1980s, though this encouragement of new industries and increased imports had little impact on Pakistan's macroeconomic makeup (McCartney 2021: 150-51). Textiles remained Pakistan's leading export sector, both prior to and after these reforms. Pakistan's trade agreements with China have had similarly mixed effects on Pakistan's overall economy. Since 2006, when the Pakistan-China Free Trade Agreement was implemented lowering tariffs on outbound Pakistani cotton fabrics and textiles, bilateral trade in all goods have increased by almost six billion USD (Hussain and Shah 2017: 295).

However, this trade has mostly been to Pakistan's detriment, as the FTA caused a decrease of 95 million USD in real GDP from 2006 to 2017 due to an increased reliance on Chinese finished goods such as textiles and industrial equipment (Hussain and Shah 2017: 304-5). McCartney (2021) argues that the Pakistani FTA with China made most of Pakistan's goods, including cotton and textile products, less competitive worldwide due to increased access to Chinese markets (p. 160). The FTA also never directly addressed Pakistan's industrial growth constraints that continue to limit its ability to diversify away from its raw cotton production. Researchers such as Chaudhry, Jamil, and Chaudhry (2017) have suggested that CPEC's "industrial cooperation component" would begin to increase value added for Pakistani cotton-based exports, such as finished textiles, but China's comparative advantage in industrial production would make it difficult for Pakistani firms to catch up (p. 17-18). Due to the difficulty of decoupling Pakistan's cotton industry from its global niche, CPEC's planned initiatives do not represent a fundamental shift in the trade imbalances between China and Pakistan.

CPEC also includes plans for the creation of Pakistani Special Economic Zones (SEZs) that seemingly seek to upgrade Pakistan's industrial capabilities. Pakistan's plans for SEZs through CPEC follow the Chinese model of encouraging low-tariff exports and inward foreign direct investment (McCartney 2021: 114). Pakistan introduced several SEZs through the SEZ Act in 2012, which was further amended in 2016 to align with CPEC objectives (McCartney 2021: 117). The Pakistani government has claimed that its nine SEZs through CPEC will promote local industrialization, but some observers have questioned the value of these SEZs when Pakistan has already developed industrial clusters elsewhere (ibid). While Pakistan still needs further industrial upgrading to assume an advantageous position in the global value chain for cotton and its other raw goods, starting new industrial bases from scratch will divert resources that could otherwise be used to support existing firms. McCartney (2021) notes that market liberalization through methods like SEZs will not benefit Pakistan since, unlike China in the 1970s, Pakistan has already been a market economy for decades (p. 129). Pakistan's SEZs will likely fail to upgrade the nation's cotton industry not only due to systemic issues with regulations and taxes, but also due to the cotton industry's dependence on existing industrial clusters abroad that are capable of upgrading raw cotton's value, such as those situated in China. CPEC's further integration of Pakistan and China's economies will exacerbate this dependence, but through market forces, not political and legal domination.

CPEC's integration of the Chinese and Pakistani textile sectors represents a culmination of state actions recognizing the relative market positions for each nation, guided by planetary economics and geography. 92% of Pakistani exports are in sectors where China has a clear comparative advantage due to its relatively-industrialized economy (McCartney, 2021, 151-52). While Pakistan has maintained its comparative advantage in raw cotton production, this advantage is to the detriment of Pakistani firms and workers, whose labor has been essentially locked into the global flow of capital. However, the FTAs and SEZs created by China and Pakistan, as well as the other industrialization and infrastructure development initiatives pushed by both countries through CPEC, are reflections of this global flow, not impositions by China on Pakistan to coerce a periphery state. While China and Chinese firms benefit from this flow of trade, the current positioning of Pakistan relative to China is more reflective of the current form of global capitalism, as opposed to Chinese coercion of Pakistan into the status of a periphery state.

Comparison of British and Chinese Practices in South Asian Cotton Sectors

The examination of British colonialism in India and Chinese relationship with Pakistan reveals significant asymmetries in technology and trade between the respective countries. In both cases, the relationships reveal an adverse impact on the target country's ability to upgrade their industries from the labor-intensive production of raw cotton to the industrial production of woven textiles.

However, key historical, economic, and geopolitical differences separate these two cases. The British administration of India, both through the British East India Company and British Raj, mirrors Wallerstein's World Systems model of extractive capitalism, where state domination allows for the flow of capital out of the periphery through technological espionage, protectionism, and the oppressive manipulation of markets. The Chinese-Pakistani relation, on the other hand, is more closely aligned with a logistic model, where extractive trade dynamics surrounding resources like cotton are shaped by a global system of capitalism focused on the smooth flow of commodities rather than on direct state action.

Based on these differences, our perspective on CPEC seeks to steer away from the current dominant discourse. Newspaper headlines, especially in the West, are filled with comparisons of CPEC to British colonial rule. This comparison is compelling enough to even be addressed by CPEC's official website FAQ, which states that "while East India Company cemented its power in the sub-continent through brutal force and with no regard to the well-being of local population, China's approach has been to expand its influence around the globe through economic prosperity rather than military might" (CPEC Authority Official Website). Echoed by the official discourse in Pakistan and China, this line of argument speaks only to half of the truth — namely, the British approach to the cotton industry in India. The other half about China's approach to Pakistan is wrapped in a utopian rhetoric that obscures the disadvantages to Pakistan's trade and technology brought about by the current global division of labor. As a result, Chinese firms have benefited from open trade with Pakistan at the expense of Pakistan's industrial advancement, leaving ordinary Pakistanis to rely on labor-intensive forms of cotton farming.

Ejaz and Ali (2021) provide a similar study of British and Chinese trade and investment practices, making direct comparisons between CPEC and British colonialism (p. 82). Identifying CPEC as "Chinese neo-colonialism," they argue that due to China's relative political and economic influence, its relationship with Pakistan is primarily extractive with respect to agricultural and mineral goods. Rooted in World Systems theory of international power relations, such as War of Maneuver and War of Position, Ejaz and Ali's (2021) perspective highlight the use of state-led mechanisms to subjugate weaker nations (p. 94-94).

We have tried to demonstrate, however, that the cases of British Colonialism and CPEC cannot be easily compared since the models of global capitalism have since evolved from a state-dominated World Systems framework to a planetary perspective, where the private sector and class structures is the primary determinant of economic and social development. Due to the increased flow of technology and trade in the modern planetary economy, "neocolonialism" is not achievable. Instead, firms exploit labor where available regardless of national origin, with states serving as facilitators to or regulators of this exploitation. Similar to the World Systems model implemented during British colonialism, the planetary system is also exploitative, and while CPEC is a potential facilitator of cotton production exploitation in Pakistan, the actual harm or benefit to cotton workers relative to the status quo has yet to be seen. So far, it looks unlikely that a fully-implemented CPEC will represent a radical shift in terms of Pakistan's involvement in global capitalism, especially in terms of its cotton sector.


	British Practices	Chinese Practices
Overview	<ul style="list-style-type: none"> British colonialism best matches a world systems perspective. British colonialism was primarily economically exploitive through direct administration of cotton production and trade in India. Britain tried to reduce India's status from semiperiphery to periphery. 	<ul style="list-style-type: none"> CPEC best matches a planetary capitalism perspective. CPEC is reflective of China and Pakistan's relative cotton industry positioning and long-term diplomatic alignment. China as a state is not attempting to reduce Pakistan's status and is instead trying to further take advantage of Pakistan's low-cost cotton production for its own manufacturing and export interests.
Technology	<ul style="list-style-type: none"> Britain appropriated Indian cotton weaving technologies to upgrade their industries. During the Industrial Revolution, a switch in machinery innovation and production occurred. Britain overtook South Asia as a central origin point of cotton production technology. 	<ul style="list-style-type: none"> There is no single bilateral flow of technology. Instead, technology flows globally, though the directionality of these flows remains uneven. CPEC's impact on cotton value trade through technology is questionable due to both lack of evidence of technological upgrading in Pakistan due to CPEC and CPEC's reinforcement of the cotton industry.
Trade	<ul style="list-style-type: none"> British law blocked Indian imports to manipulate the market position of Indian textile producers. Britain imposed legal protections for domestic manufacturing industries while keeping market prices for raw cotton from India low. 	<ul style="list-style-type: none"> China gains an advantageous position to cheaply import Pakistani cotton based on mutually agreed-upon free trade agreements and market dynamics. CPEC is a continuation of the Sino-Pakistani relationship and will not change the current capital imbalance in the two nations' cotton trade.

Conclusion

CPEC, as a component of BRI, holds great transformative potential for Pakistan, for South Asia, and for the globe. The scale and direction of such transformation is yet to be fully determined, contingent as it is on contemporary geo-economic and geopolitical shifts taking place in the aftermath of a global pandemic, the war in Ukraine, the changing political landscape in Europe, and so forth. These shifts, along with the deep changes that have been underway for many decades in the global capitalist order, demand new ways of thinking about international relations and the role of various state and non-state actors in reshaping them. The planetary perspective developed in recent years provides one such mode of understanding the interstate system as composed of political actors that are autonomous of the state but not autonomous of class interests and agendas. Seeking to transcend methodological nationalism, this perspective encourages us to move beyond the idea that uneven development can be solely, or even largely, attributed to the agency of specific state actors aspiring to world domination. "The periphery," as Arboleda argues, "needs to be understood as a ubiquitous socio-spatial condition, not as the exclusive domain of international political relations" (2020: 32).

This line of thinking does not imply the irrelevance of states or neocolonial relations. Rather, it invites us "to understand imperialism as one of the phenomenal forms in which global value relations assert themselves... [striving] to increase the organic composition of capital at the system-wide level" (ibid: 34). Understood in this fashion, then, the purpose of these shifts is not so much the pursuit of hegemonic status as it is the facilitation of resource and commodity flows through the construction of railways, ports, waterways, power plants, roads, debt instruments, digital platforms, and so forth.

CPEC provides a vivid example of this formulation, given the multifaceted aspect of its component infrastructural projects and their converging focus on the smooth flow of materials, as captured by the historical-metaphorical invocation of the "Silk Road." Considering these components, it would make more sense to understand CPEC as an assertion of global value relations than as an expression of the neocolonial ambitions of the



Chinese government. What is gained through this lens is a holistic appreciation of the multiple actors and agendas involved in the project, along with their divergent — even conflicting — interests, including the Chinese and Pakistani governments, transnational corporations, global powers such as the U.S., regional powers such as Iran and India, local leaders and communities, and so forth. This perspective avoids the binary simplification of geopolitical and geo-economic relations, which at the same time acknowledging the asymmetries of power that undergird a project such as CPEC.

Works Cited

- Ahmad, Mahmood. "Developing a Competitive Agriculture and Agro-Based Industry under CPEC." In *China's Belt and Road Initiative in a Global Context: Volume II: The China Pakistan Economic Corridor and Its Implications for Business*, edited by Jawad Syed and Yung-Hsiang Ying, 227–69. Palgrave Macmillan Asian Business Series. Cham: Springer International Publishing, 2020.
- Ahmad, Dr Tanveer. "Agricultural Mechanization Research & Development in the Islamic Republic of Pakistan." United Nations Economic and Social Commission for Asia and the Pacific Centre for Sustainable Agricultural Mechanization, no. 8 (2015): 1-15.
- Arboleda, Martín. *Planetary Mine: Territories of Extraction under Late Capitalism*. Verso Books, 2020.
- Batool, Samavia, and Fahad Saeed. "Mapping the Cotton Value Chain in Pakistan: A Preliminary Assessment for Climate Vulnerabilities & Pathways to Adaptation." *Pathways to Resilience in Semi-arid Economies*, May 2017.
- Beckert, Sven. *Empire of Cotton: A Global History*. First Vintage Books edition. New York: Vintage Books, a division of Penguin Random House, 2015.
- Chaudhry, Theresa, Nida Jamil, and Azam Chaudhry. "Pakistan's Experience with the Pakistan–China FTA: Lessons for CPEC." *THE LAHORE JOURNAL OF ECONOMICS* 22 (2017): 1–24.
- Ejaz, Khushboo, and Zainab Ali. "A Comparison between the British Colonisation And Chinese Neocolonialism: A Case Study of Pakistan." *Pakistan Vision* 22, no. 1 (2021): 82–100.
- "FAQS | China-Pakistan Economic Corridor (CPEC) Authority Official Website." Accessed March 23, 2022. <http://cpec.gov.pk/faqs>.
- Garlick, Jeremy. "Deconstructing the China–Pakistan Economic Corridor: Pipe Dreams Versus Geopolitical Realities." *Journal of Contemporary China* 27, no. 112 (2018): 519–33.
- Headrick, Daniel R. *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850-1940*. New York: Oxford University Press, 1988.
- Hussain, D., Figueiredo, M., and Ferreira, F. "SWOT analysis of Pakistan textile supply chain." IX Congreso Galego de Estatística e Investigación de Operacións Ourense, 2009.
- Husain, Khurram. "Exclusive: CPEC Master Plan Revealed." *DAWN.COM*, May 14, 2017. <https://www.dawn.com/news/1333101>.
- Hussain, Ch Mazhar, and Syed Zulfiqar Ali Shah. "Quantitative Assessment of Pakistan and China Free Trade Agreement," *Pakistan Journal of Commerce and Social Sciences* 11, no. 1. 293-308.
- McCartney, Matthew. "The China-Pakistan Economic Corridor (CPEC): Infrastructure, Social Savings, Spillovers, and Economic Growth in Pakistan." *Eurasian Geography and Economics* 0, no. 0 (2020): 1–32.
- The Dragon from the Mountains: The CPEC from Kashgar to Gwadar*. Cambridge: Cambridge University Press, 2021.
- Paracha, Faiz. "China to Invest \$12 Billion in CPEC in Next 3 Years." *ProPakistani*. February 7, 2022. <https://propakistani.pk/2022/02/07/china-to-invest-12-billion-in-cpec-in-next-3-years/>
- Postone, Moishe. *Time, Labor, and Social Domination: A Reinterpretation of Marx's Critical Theory*. Cambridge University Press, 1993.
- Riello, Giorgio. *Cotton: The Fabric That Made the Modern World*. Cambridge; New York: Cambridge University Press, 2013.
- Shahab, Mansoor. "Technology Transfer from China to Pakistan in Evolutionary Perspective." Chinese Academy of Sciences, 2011.
- Spies, Michael. "Promises and Perils of the China-Pakistan Economic Corridor: Agriculture and Export Prospects in Northern Pakistan." *Eurasian Geography and Economics*.
- Wallerstein, Immanuel Maurice. *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. Text ed. Studies in Social Discontinuity. New York: Academic Press, 1976.
- Washbrook, David. "South Asia, the World System, and World Capitalism." *The Journal of Asian Studies* 49, no. 3 (August 1990): 479–508.