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Geopolitical Considerations in Sino-US Trade Relations

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Abstract

This paper delves deeper into the broader implications and considerations surrounding the trade relationship between the two largest economies in the world. One important aspect to consider is the geopolitical dynamics that shape Sino-US trade relations, including factors such as strategic competition, security concerns, and diplomatic tensions. By examining the intersection of trade policy with broader geopolitical considerations, the study seeks to provide insights into the underlying drivers of trade dynamics between the two countries. Furthermore, the paper explores the potential impact of trade policy adjustments on key sectors of the economy, including manufacturing, technology, agriculture, and services. By conducting sectoral analysis, the study aims to assess the winners and losers of trade policy shifts and identify strategies for mitigating potential adverse effects. Moreover, the study investigates the role of international institutions and multilateral agreements in shaping Sino-US trade relations. By examining the influence of organizations such as the World Trade Organization and regional trade agreements, the paper seeks to assess the constraints and opportunities for cooperation between the United States and China within the framework of global trade governance. Additionally, the paper explores the implications of trade policy adjustments for global supply chains and economic globalization more broadly. By analyzing the interconnectedness of the global economy, the study aims to assess the potential ripple effects of changes in Sino-US trade relations on other countries and regions. Finally, the study considers the implications of trade policy adjustments for broader economic and social objectives, including job creation, income distribution, and environmental sustainability. By examining the trade-offs between different policy objectives, the paper seeks to provide a balanced assessment of the potential benefits and costs of different trade policy options. This paper represents a comprehensive analysis of the issues surrounding Sino-US trade relations, drawing on empirical evidence and theoretical insights from international economics and political economy. Through its rigorous analysis and interdisciplinary approach, the study aims to inform policy decisions and contribute to the ongoing debate on trade policy and economic diplomacy between the United States and China.

Keywords: Geopolitics, Trade Policy Adjustments, Global Supply Chains, Economic Globalization

JEL Codes: F13, F14, F51

1. INTRODUCTION

The prominence of Sino-US trade in the realm of international trade research can be attributed to several key factors. Firstly, the United States and China hold significant positions as the world's largest and second-largest economies, respectively (Dwipayana, et al 2022). Their economic prowess and extensive trade activities have far-reaching implications for global commerce and economic dynamics. As such, any developments in their trade relationship are closely monitored and analyzed by researchers, policymakers, and market participants alike. Moreover, the bilateral trade between the United States and China is of paramount importance due to their roles as each other's major trading partners (Xiang, et al 2022). The interdependence of their economies, characterized by substantial trade flows in goods and services, investment, and technology exchange, underscores the significance of their trade relationship. As such, fluctuations, tensions, or breakthroughs in Sino-US trade policies and practices have profound implications not only for the two countries involved but also for the stability and functioning of the broader global economy. Given the magnitude of their economic interactions and the strategic importance of their bilateral relationship, Sino-US trade serves as a focal point for scholarly inquiry and analysis within the field of international trade research (Cheng, 2021; Mordecai & Akinsola, 2021). Researchers delve into various aspects of this complex relationship, ranging from trade balances, tariffs, and non-tariff barriers to intellectual property rights, currency exchange rates, and geopolitical considerations. By examining the intricacies of Sino-US trade dynamics, researchers seek to provide insights into its drivers, challenges, and potential pathways for cooperation or conflict resolution, thereby informing policy discussions and shaping future trade strategies for both nations and the global community. The symbiotic nature of the trade relationship between the United States and China, where each country serves as the largest export market for the other, underscores the significance of Sino-US trade in scholarly research (Jaworsky and Qiaoan, 2021; Andreou, 2021). As the global economic landscape continues to evolve rapidly, scholars are increasingly focused on understanding how adjustments in trade policies between the two nations could impact the structure and dynamics of their trade relationship. The dynamic nature of Sino-US trade policies and their potential implications for trade structures are subjects of considerable interest and concern among researchers. Changes in trade policies, such as tariffs, quotas, or trade agreements, can have far-reaching consequences for the flow of goods, services, and investments between the two countries (Auboin, et al 2021; Mealli, 2021). Moreover,

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these policy adjustments may influence global supply chains, market competition, and economic growth trajectories, not only for the United States and China but also for other countries interconnected with their trade networks.

Given the complex interplay of economic, political, and strategic factors shaping Sino-US trade relations, scholars are engaged in multifaceted research endeavors aimed at unraveling the underlying dynamics and anticipating future developments. By examining the potential scenarios, risks, and opportunities arising from changes in trade policies and their impacts on trade structures, researchers contribute valuable insights to policymakers, businesses, and other stakeholders navigating the intricacies of the Sino-US trade landscape amidst evolving global economic conditions (Irfan and Sohail, 2021; Renwick and Gu, 2022). The aftermath of the 2008 financial crisis brought about a period of economic adjustment not only for China but also for developed economies such as the United States, Japan, and those in the European Union. While China had been experiencing rapid economic growth prior to the crisis, its pace of expansion moderated in the wake of the global financial turmoil (Sun and Chang, 2020; Naik, 2020; Shahbaz, et al 2022). Similarly, developed countries faced challenges ranging from sluggish growth to outright recession, as the crisis reverberated across international markets. The synchronized slowdown in economic growth among major economies underscored the interconnectedness of the global economy and the interdependencies of international trade and finance. Economic adjustments in one region often have ripple effects that are felt across the world, impacting supply chains, consumer demand, and financial markets (Hwand and Lee, 2017; Alzahrani and Salah, 2019; Ghadge, et al 2022). As such, the period following the 2008 financial crisis prompted a reevaluation of economic policies, trade relations, and financial regulations to mitigate risks and foster more resilient and sustainable growth trajectories.

For China, the slowdown in economic growth served as a catalyst for structural reforms aimed at rebalancing its economy, shifting from export-led growth to a more consumption-driven model (Arshad and Mukhtar, 2017; Staniškis, et al 2022; Ahmad et al., 2022). These reforms, coupled with targeted stimulus measures, sought to sustain growth momentum while addressing imbalances in the economy. Meanwhile, developed economies pursued monetary and fiscal stimulus policies to spur recovery and mitigate the impacts of the crisis on employment and financial stability (Siddiqi et al., 2014; Audi and Ali, 2018; Dan, 2012). The evolving dynamics of Sino-US trade have introduced new complexities and challenges, particularly in the context of shifting industrial policies and changing trade patterns. One notable trend is the persistent expansion of the bilateral trade imbalance between the two nations, encompassing trade in goods and services. This imbalance has become a focal point of contention and has fueled debates surrounding trade relations and economic cooperation (Dan and Baoren, 2012). Against the backdrop of industrial policy adjustments, trade protectionism has become increasingly prevalent, often justified under the guise of promoting "fair trade." This rise in protectionist measures has contributed to escalating trade frictions between China and the United States, further complicating their economic relationship. Of particular concern is the spread of trade protectionism beyond traditional goods sectors, extending to areas where China holds comparative advantages (Feiting, 2007). As China undergoes a process of industrial upgrading and structural transformation, the United States has responded with measures aimed at safeguarding its own economic interests. This includes expanding trade protection to non-traditional goods sectors, where China may have established advantages or emerging capabilities. Such actions reflect a broader trend of economic competition and strategic maneuvering between the two countries, with implications for global trade dynamics and economic stability (Guobing, 2005). Given the significance of Sino-US trade relations on the global stage, it is imperative to closely examine the structural changes occurring within their trade relationship. Understanding these shifts can inform policymakers, businesses, and stakeholders on both sides about emerging challenges and opportunities, as well as potential areas for collaboration and conflict resolution (Greewax, 2003). By studying the evolving structure of trade between China and the United States, stakeholders can better navigate the complexities of international trade and contribute to the development of more robust and sustainable trade policies. A multitude of economic scholars, both domestically and internationally, have dedicated their research efforts to analyzing trade structure and exploring the dynamics of Sino-US trade relations. This body of research has expanded our understanding of the intricate interplay between these two economic powerhouses (Gerard, 2003). Thus far, the exploration of Sino-US trade relations has primarily gravitated towards three principal focal points. Firstly, considerable attention has been directed towards elucidating the complexities surrounding the Sino-US trade surplus, trade deficit, and the emergence of trade frictions (Wang & Li, 2004; Wang, 2006). These studies delve into the underlying causes of these imbalances and seek to identify potential avenues for rectification (Hong, 1998).

Secondly, researchers have diligently examined the ramifications of Sino-US trade policies on the broader trade landscape and have proposed strategic measures to effectively navigate these challenges (Xiao, 1998; Ping, 2005). By analyzing policy interventions and their impact on trade relations, scholars aim to provide actionable insights for policymakers and stakeholders alike (Jinqian, 2011). Furthermore, recent research endeavors have begun to explore emerging dimensions of Sino-US trade relations, including technological innovation, intellectual property rights, and environmental sustainability. These studies aim to capture the evolving nature of trade dynamics in the digital age and anticipate future trends that may shape the trajectory of Sino-US economic engagement (Meiling, 2006). In addition to the aforementioned areas of focus, a significant body of research has also delved into the underlying motives driving Sino-US trade relations. This inquiry encompasses an analysis of the respective comparative advantages of both nations, the mechanisms through which trade links are established, and the evolving trends in the trade relationship (Lin, 2006; Xia, et al 2012) and Ling (2006). However, it's worth noting that while extensive research has been conducted on the Sino-US trade surplus and deficit, the bulk of these studies primarily concentrate on trade in goods, with limited attention paid to trade in services. This imbalance stems from the inherent difficulty in accurately measuring the volume and impact of services traded between the two nations. Furthermore, an in-depth analysis of the causes of Sino-US trade friction reveals a predominant emphasis on economic factors, often neglecting the influence of political dynamics and the role of interest groups (Ding,

2021). This narrow focus underscores the need for a more comprehensive understanding of the multifaceted forces shaping trade relations between China and the United States (Tielu and Bingxiang, 2004). In light of these observations, future research endeavors should strive to adopt a more holistic approach, encompassing a broader range of factors that contribute to the complexities of Sino-US trade relations. By embracing a multidimensional perspective, researchers can generate more nuanced insights into the dynamics of this critical economic partnership (Garcia and Tschakert, 2022). Furthermore, a detailed examination of the impacts of the 2008 financial crisis on the structure of Sino-US trade remains conspicuously absent from the existing literature. While empirical analyses of Sino-US trade dynamics offer valuable insights, there is a notable deficiency in the depth and breadth of such studies, with a predominant reliance on normative analyses (Zhuancheng, 2012). Moreover, despite the substantial body of literature dedicated to exploring the trade structure between China and the United States, there exists a notable dearth of research focusing on the comparative export competitiveness of specific goods between the two nations. Particularly lacking are studies elucidating the comparative advantage of China's goods exports vis-à-vis the United States (Xinqiao, 2005). This gap in the literature underscores the need for a more comprehensive and empirical approach to understanding the intricacies of Sino-US trade dynamics (Teo, 2022). By conducting rigorous empirical analyses and exploring the nuanced nuances of comparative export competitiveness, researchers can offer valuable insights into the underlying factors driving trade patterns and inform policymakers of potential avenues for enhancing bilateral trade relations. The theory of trade competitiveness and its application in analyzing trade compatibility between partners lays the foundation for exploring issues such as trade integration and plays a pivotal role in predicting the future trajectory of bilateral trade relationships (Chen, et al 2022). As trade dynamics evolve and the comparative advantages between industries in two countries shift, understanding trade compatibility becomes increasingly essential, particularly in the context of significant adjustments in export structures witnessed in both China and the United States. Moreover, the theory of trade competitiveness provides a framework for assessing the evolving nature of trade relationships and identifying areas of synergy and divergence between trading partners (Malik, et al 2021). As China and the United States undergo substantial shifts in their export compositions, the dynamics of trade compatibility undergo corresponding changes, necessitating a nuanced understanding of the factors driving these transformations. By leveraging the principles of trade competitiveness, researchers can offer valuable insights into the evolving dynamics of Sino-US trade relations and inform policymakers of potential strategies to enhance trade compatibility and foster sustainable economic growth. This underscores the importance of integrating theoretical frameworks with empirical analysis to gain a comprehensive understanding of the complexities inherent in bilateral trade relationships (Sun, et al 2021).

2. DEVELOPMENT OF SINO-US TRADE

On June 10, 1971, the United States announced the restoration of transport of a list of non-strategic materials to China, effectively ending a longstanding embargo against the nation. This significant development marked a pivotal moment in China-US relations. Then, on February 21, 1972, President Nixon's historic visit to China marked a turning point, breaking the ice and reopening the door to bilateral contacts. Subsequently, on February 28 of the same year, both nations signed the Sino-US Joint Communiqué, commonly referred to as the Shanghai Communiqué, in Shanghai. This landmark agreement ushered in a new era of political and economic relations between China and the United States. In June 1973, Chase Manhattan Bank made history by establishing a formal business relationship with the Bank of China. This marked a significant milestone, as it was the first time in 24 years that an American bank had engaged in formal cooperation with the Bank of China. This move represented a substantial step forward in financial sector cooperation between the two countries. During the period from 1974 to 1975, the ongoing tensions surrounding the Taiwan issue led to a downturn in Sino-US relations, consequently resulting in a sharp decline in bilateral trade volume. By 1975, the Sino-US bilateral trade volume plummeted to \$461.9 million. However, on April 10, 1978, there was a notable turning point when the U.S. Department of Agriculture made a significant announcement. The United States had successfully sold 600,000 tons of wheat to China, marking the first such trade occurrence since 1974. This transaction represented a notable thaw in relations and signaled a potential path towards improved economic cooperation between the two nations. During the phase of resumed Sino-US trade, the stark ideological disparities between the two nations, coupled with the absence of formal diplomatic relations, imposed limitations on the extent to which governmental activities could be conducted. Consequently, many interactions were relegated to lower levels, hindering the scope and depth of engagement. This constrained environment extended to trade operations, where restrictions impeded the flow of goods and services between the two countries. The trade scale during this period remained modest, reflecting the cautious approach adopted by both sides amidst political uncertainties. As a result, the economic impact of these trade activities on the United States was marginal, with limited tangible benefits discernible from the relatively small volume of transactions. This phase served as a transitional period marked by tentative steps towards normalization, rather than substantial economic integration between the two nations.

On January 1st, 1979, a significant milestone was reached as China and the United States formally established diplomatic relations. This historic event laid the foundation for a new chapter in Sino-US relations. Subsequently, in July 1979, both governments further solidified their commitment to enhancing bilateral trade by signing the Sino-US trade agreement. One of the key provisions of this agreement was the granting of Most Favored Nation (MFN) tariff treatment to each other, effective from February 1st, 1980. This crucial step towards normalizing trade relations between the two nations paved the way for increased economic cooperation and exchange. The establishment of diplomatic ties and the initiation of high-level exchanges between China and the United States signified the beginning of a new era in their relationship. This period witnessed rapid development in bilateral trade, as both countries seized the opportunity to capitalize on their

newfound diplomatic rapport and foster mutually beneficial economic partnerships. The period from 1982 to 1983 saw a persistent decline in China-US trade due to various factors, including disputes over the Taiwan issue, the Hubei Guangdong Railway bonds, and restrictions on China's textile imports. These challenges contributed to a deterioration in bilateral economic relations over the span of two years. To address the escalating political and economic tensions between the two countries, Secretary of State George Schultz embarked on a visit to China with the aim of promoting the resolution of the Sino-US textile agreement. The successful negotiation of this agreement marked a significant milestone in mitigating tensions between China and the United States during the early 1980s.

With the Sino-US textile issue resolved, bilateral tensions began to ease, paving the way for improved relations between the two nations. A notable development in this regard occurred on November 23, 1983, when the US Department of Commerce issued an amendment to export regulations, signaling a positive shift in the dynamics of China-US economic engagement. The amendment issued on November 23, 1983, marked a significant shift in US export policy towards China. Under this amendment, China transitioned from the category of P-class countries to V-class, thereby subjecting China to the same export treatment policy as non-communist nations such as those in Western Europe, the Middle East, Africa, and Asia. This change in classification underscored a broader strategic realignment in US-China relations, signaling a move towards greater economic cooperation and normalization of trade relations. Moreover, against this backdrop of evolving diplomatic and economic ties, the Sino-US Industrial and Technological Cooperation Agreement was signed at the White House. This landmark agreement, a cornerstone of bilateral cooperation, aimed to strengthen technological collaboration between China and the United States across various industries. By fostering greater synergy in industrial technology, the agreement sought to deepen the economic partnership between the two nations and promote mutual prosperity. From 1984 to 1989, a significant period of progress unfolded in Sino-US relations, characterized by the signing of a series of bilateral agreements focusing on economic, scientific, and technological cooperation. These agreements served as foundational pillars, providing the necessary premise and guarantee for the advancement of bilateral economic and trade relations. Spanning across various sectors of the economy, these agreements laid the groundwork for collaborative efforts between China and the United States in areas such as trade, investment, technology transfer, and scientific research. By fostering closer ties and facilitating greater cooperation, these agreements contributed to the development and diversification of both nations' economies. The period witnessed a palpable shift towards deeper engagement and mutual benefit, as both countries recognized the potential for shared prosperity through enhanced collaboration. This era of bilateral agreements played a pivotal role in shaping the trajectory of Sino-US economic relations, laying the groundwork for continued cooperation and growth in the years to come. In the late 1980s, the global landscape underwent significant upheaval with the collapse of the Soviet Union and the fall of communism. Against this backdrop of geopolitical transformation, China-US relations encountered challenges as the United States expressed dissatisfaction with China's perceived human rights record. This dissatisfaction led to the adoption of a series of sanctions by the United States, impacting various aspects of Sino-US trade and economic relations. Issues such as Most Favored Nation (MFN) status, intellectual property protection, market access, and the exportation of labor-intensive products emerged as contentious points of contention between the two nations during the 1990s. The culmination of these challenges culminated in a crisis in Sino-US relations during the mid-1990s, as diplomatic tensions escalated and trade disputes intensified. The deterioration in relations during this period underscored the complexities inherent in the China-US relationship and highlighted the need for concerted efforts to address underlying grievances and foster constructive dialogue between the two nations. Despite the challenges and diplomatic tensions during the period from 1988 to 1993, Sino-US economic and trade relations experienced a remarkable trajectory characterized by sustained growth. The shifting geopolitical landscape, including Japan's and many Western European countries' intensified efforts to trade with China, prompted the Bush administration to adopt a pragmatic foreign policy approach based on the national interests of the United States.

During this period, while diplomatic relations between China and the United States encountered various twists and turns, economic and trade ties between the two nations continued to flourish. Contrary to expectations of a decline, Sino-American trade witnessed a consistent upward trajectory, with trade volumes steadily increasing. This resilience in economic relations underscored the mutually beneficial nature of the bilateral trade partnership and highlighted the importance of economic interdependence in mitigating diplomatic tensions. Despite geopolitical challenges and diplomatic fluctuations, the foundation of economic cooperation between China and the United States remained robust, laying the groundwork for continued growth and collaboration in the years to come. From 1994 to 1999, senior leaders from both China and the United States engaged in reciprocal visits, underscoring a commitment to enhancing bilateral relations. During these visits, a multitude of economic agreements and contracts were signed, aimed at further deepening and strengthening trade links between the two nations. These proactive measures played a pivotal role in promoting economic and trade cooperation between China and the United States. By fostering greater dialogue and collaboration at the highest levels of leadership, both countries demonstrated a shared commitment to advancing mutual interests and facilitating sustainable economic growth. The signing of numerous economic contracts and agreements during this period served to solidify the foundation of bilateral trade relations, laying the groundwork for increased investment, technology transfer, and commercial exchange. These actions underscored the importance of constructive engagement and dialogue in fostering a conducive environment for continued economic cooperation and partnership between China and the United States.

The decoupling of human rights issues from Most Favored Nation (MFN) status by the United States marked a significant turning point in Sino-US relations. With economic interests elevated to strategic importance, both countries shifted their focus towards fostering mutually beneficial trade relations. This shift allowed trade between China and the United States

to gradually transcend political considerations and enter a stage of rapid development. As economic cooperation flourished, the shackles of political constraints were gradually lifted, paving the way for increased commercial exchange and investment between the two nations. A pivotal moment in this trajectory occurred on November 15, 1999, when representatives from China and the United States convened in Beijing to sign the bilateral agreement on China's accession to the World Trade Organization (WTO). This landmark agreement not only accelerated China's entry into the WTO but also laid the groundwork for the long-term stability and development of Sino-US economic and trade relations on the basis of a win-win framework. By formalizing China's integration into the global trade system, the agreement facilitated greater market access and enhanced transparency, benefiting both Chinese and American businesses. This pivotal milestone underscored the growing mutual interdependence between China and the United States and set the stage for continued cooperation and collaboration in the years to come. China's official accession to the World Trade Organization (WTO) on December 11, 2001, marked a significant milestone in the evolution of bilateral trade relations between China and the United States. As the 143rd member of the WTO, China's entry into the global trade body signaled its commitment to adhering to international trade norms and regulations. With China's accession, bilateral trade relations between the two countries were integrated into the multilateral trading system under the framework of the WTO. This development effectively resolved Most Favored Nation (MFN) issues between China and the United States, eliminating longstanding trade barriers and paving the way for a more open and transparent trading environment.

The resolution of MFN problems marked a new chapter in Sino-US trade relations, characterized by increased cooperation and expanded trade opportunities. With the removal of trade barriers, bilateral trade relations entered a new period of development, marked by greater depth and breadth of cooperation across various sectors of the economy. The extensive scope of trade cooperation between China and the United States during this period underscored the mutual benefits derived from robust economic engagement. As both countries embraced the opportunities presented by globalization, bilateral trade relations flourished, laying the foundation for continued collaboration and partnership in the years ahead. Following China's accession to the World Trade Organization (WTO), the bilateral trade surplus between China and the United States began to expand, drawing increasing attention to the trade deficit issue within domestic US politics. This heightened scrutiny led to a surge in requests for anti-dumping and anti-subsidy measures on products made in China, as well as cases involving special safeguard measures. Furthermore, the US government adopted a more cautious approach towards high-tech exports to China amidst concerns about intellectual property protection and national security. Consequently, the imposition of various tariff and non-tariff barriers, with technical barriers to trade being a primary method, increased substantially.

The outbreak of the financial crisis in the United States in 2009 had far-reaching repercussions on the global economy, including Sino-US trade relations. For the first time since China's accession to the WTO, the volume of trade between China and the United States began to decline. This downturn reflected the broader economic challenges faced by both countries and underscored the interconnectedness of their economies in the face of global economic upheavals. In response to the challenges posed by the widening trade deficit and increased competition from China, the United States initiated protective measures under the banner of fair trade. These measures aimed to safeguard domestic industries and enhance product competitiveness in the market while mitigating losses incurred due to trade imbalances. As part of these efforts, the United States implemented a series of large-scale economic stimulus plans aimed at revitalizing domestic industries and bolstering their competitive edge. These initiatives sought to improve infrastructure, invest in research and development, and provide support to key sectors of the economy. Despite the existence of trade friction, characterized by disputes over tariffs, subsidies, and intellectual property rights, the overall volume of trade between the two countries has continued to exhibit a stable upward trend. This incremental growth reflects the enduring economic interdependence between China and the United States, underscoring the resilience of bilateral trade relations amid evolving geopolitical dynamics and economic challenges.

3. EMPIRICAL ANALYSIS OF SINO-US TRADE STRUCTURE

Using the Intra-industry Trade Index provides a comprehensive overview of the overall Sino-US trade situation, allowing for an analysis of the extent to which both countries engage in intra-industry trade, where they both import and export similar goods within the same industry. This index offers insights into the level of specialization and interdependence between the two economies. Additionally, the Export Similarity Index and Revealed Comparative Advantage Index (RCA) offer a more nuanced analysis of the trade structure between China and the United States. By examining the similarity of exports and comparative advantages in specific industries, these indices shed light on the patterns and dynamics of bilateral trade. To ensure the consistency and integrity of the data, the Harmonized Commodity Description and Coding System (HS Code) classification method is employed. The HS Code, developed by the Customs Co-operation Council, encompasses categories from both the Standard International Trade Classification (SITC) and the Convention on Nomenclature for the Classification of Goods in Customs Tariffs (CCCN). This classification system has become globally recognized and widely used, providing a standardized framework for categorizing traded goods. By utilizing the HS Code classification method, analysts can effectively categorize and compare trade data, facilitating accurate and reliable assessments of the structure and dynamics of Sino-US trade relations. This approach ensures consistency and comparability across different datasets, enabling robust analysis and informed decision-making.

The table 1 presents Grubel-Lloyd indices for Sino-US trade from 2002 to 2022, categorized by different chapters. Each chapter represents a specific category of traded goods. The indices indicate the proportion of trade within a chapter that occurs between China and the US, compared to the total trade volume of that chapter. For instance, in 2002, the Grubel-

Lloyd index for HS85 was 0.28, indicating that 28% of the trade within chapter HS85 (electrical machinery and equipment) was between China and the US. Similarly, in 2003, the index remained the same at 0.28.

Table 1: Grubel-Lloyd indices of Sino-US trade from 2012 to 2022

Chapter	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
HS85	0.28	0.28	0.26	0.23	0.27	0.24	0.25	0.23	0.23	0.19	0.16
HS84	0.34	0.27	0.24	0.21	0.21	0.24	0.25	0.24	0.24	0.23	0.21
HS94	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.02
HS95	0	0	0.01	0.01	0	0.01	0	0.01	0.03	0.05	0.03
HS64	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
HS39	0.41	0.45	0.51	0.51	0.53	0.61	0.6	0.7	0.67	0.64	0.56
HS87	0.26	0.3	0.32	0.37	0.4	0.49	0.45	0.56	0.78	0.91	0.86
HS90	0.62	0.66	0.71	0.73	0.76	0.74	0.75	0.83	0.85	0.84	0.89
HS12	0.13	0.06	0.09	0.1	0.1	0.07	0.05	0.04	0.03	0.04	0.04
HS61	0	0	0.01	0.01	0	0	0	0	0	0	0
HS62	0.01	0	0	0	0	0	0	0	0	0	0
HS73	0.07	0.07	0.1	0.1	0.09	0.11	0.13	0.16	0.16	0.14	0.13
HS29	0.86	0.99	0.96	0.87	0.77	0.85	0.59	0.76	0.78	0.76	0.67
HS88	0.03	0.05	0.08	0.04	0.05	0.07	0.09	0.08	0.09	0.11	0.09
HS42	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01
HS63	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
HS40	0.25	0.33	0.3	0.31	0.3	0.31	0.33	0.38	0.44	0.4	0.36
HS44	0.35	0.33	0.35	0.34	0.31	0.31	0.31	0.38	0.59	0.82	0.68
HS76	0.85	0.85	0.82	0.86	0.96	0.96	0.89	1	0.91	0.73	0.82
HS74	0.68	0.5	0.66	0.61	0.59	0.54	0.61	0.45	0.33	0.26	0.24
TOTAL	0.3	0.31	0.3	0.29	0.31	0.33	0.34	0.38	0.4	0.41	0.41

Table 2 : RCAs of Sino-US trade in 2012 and 2022

chapter	2012		2022		rate of change in China	Rate of change in the U.S.
	RCA(China)	RCA(USA)	RCA(China)	RCA(USA)		
HS85	1.505	1.199	1.949	0.859	0.296	-0.283
HS84	1.123	1.351	1.489	1.130	0.326	-0.164
HS94	2.407	0.657	3.044	0.549	0.265	-0.166
HS95	4.990	0.735	3.261	0.854	-0.346	0.161
HS64	4.860	0.145	3.474	0.131	-0.285	-0.095
HS39	0.789	1.255	0.861	1.217	0.091	-0.030
HS87	0.183	0.926	0.341	1.092	0.869	0.179
HS90	0.748	1.966	1.099	1.675	0.469	-0.148
HS12	0.911	3.337	0.237	3.548	-0.739	0.063
HS61	4.033	0.382	3.632	0.135	-0.099	-0.646
HS62	4.239	0.230	3.144	0.159	-0.258	-0.310
HS73	1.501	0.777	1.526	0.761	0.017	-0.021
HS29	0.658	1.078	0.795	1.205	0.209	0.117
HS88	0.071	3.326	0.043	3.856	-0.386	0.159
HS42	6.567	0.242	3.372	0.242	-0.487	0.000
HS63	4.963	0.507	3.596	0.395	-0.276	-0.221
HS40	0.652	0.991	0.838	0.786	0.286	-0.207
HS44	0.875	0.740	0.865	0.732	-0.011	-0.010
HS76	0.714	0.722	1.048	0.952	0.468	0.318
HS74	0.428	0.558	0.371	0.657	-0.133	0.178

This trend continues for each chapter and year combination listed in the table. Overall, the total Grubel-Lloyd index, representing the proportion of total Sino-US trade compared to total global trade, shows a fluctuating pattern over the years. It starts at 0.30 in 2002, decreases to 0.29 in 2004, then gradually increases to 0.41 by 2021 and remains the same in 2022. This indicates fluctuations in the proportion of Sino-US trade relative to total global trade over the years.

The table 2 provides Revealed Comparative Advantages (RCAs) of Sino-US trade in 2012 and 2022, categorized by different chapters. RCAs indicate the relative advantage of a country in exporting specific products compared to its trading partner. For each chapter, the RCA values for China and the USA are presented for both 2012 and 2022. Additionally, the table includes the rate of change in RCAs for both countries between 2012 and 2022. For instance, in chapter HS85 (electrical machinery and equipment), China's RCA was 1.505 in 2012 and increased to 1.949 in 2022, indicating a strengthening of China's comparative advantage in this category over the decade. In contrast, the USA's RCA in HS85 was 1.199 in 2012 and decreased to 0.859 in 2022, suggesting a weakening comparative advantage for the USA in this category. The table provides insights into the changing comparative advantages of China and the USA across different product categories over the specified period.

The table 3 displays the Export Similarity Indices (ESI) of China and the U.S. in the world market across the years from 2012 to 2022. ESI measures the similarity of export structures between two countries, with higher values indicating greater similarity. In 2012, the ESI between China and the U.S. was 61, which increased slightly to 62.9 in 2013 and remained relatively stable around the range of 62 to 63 until 2015. From 2016 onwards, the ESI began to decline gradually, reaching 56.1 in 2022. In short, the ESI suggests that the export structures of China and the U.S. in the global market have exhibited some degree of similarity over the years, with fluctuations observed in the index values.

Table 3: Export Similarity Indices of China and the U.S. in the world market

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ESI	61	62.9	63	63.3	61.5	59.3	58.4	55	55.8	55.8	56.1

4. CONCLUSIONS

The rapid development of Sino-US trade in goods in recent years has indeed been remarkable, reflecting the deepening economic ties between the two nations. However, it's important to recognize that trade structure is dynamic and continually evolving, driven by various factors such as shifts in consumer preferences, technological advancements, and changes in government policies. While the overall trajectory of Sino-US trade has been one of growth, the specific composition and structure of trade have undergone gradual changes over time. These changes may not always be immediately apparent or dramatic, but they are nonetheless significant in shaping the overall dynamics of bilateral trade relations. Factors contributing to the evolution of trade structure between China and the United States include the emergence of new industries and sectors, advancements in production technologies, and shifts in global supply chains. Additionally, changes in regulatory frameworks, trade agreements, and geopolitical dynamics can also influence the composition of bilateral trade. Despite the slow and sometimes subtle nature of these changes, they play a crucial role in shaping the long-term trajectory of Sino-US trade relations. By closely monitoring and analyzing these evolving patterns, policymakers and stakeholders can adapt their strategies and policies to effectively navigate the shifting landscape of international trade. The recent shift in the structure of Sino-US trade, with industrial products dominating exports instead of primary products, represents a significant evolution in bilateral economic relations. However, it's noteworthy that many of these industrial exports from China are still predominantly labor-intensive products. While China may possess a comparative advantage in most of the top 20 HS Code Chapters in US-China merchandise trade, this does not necessarily indicate an improvement in China's competitiveness in these industries. The term "comparative advantage" refers to the ability of a country to produce goods and services at a lower opportunity cost than other countries. In the context of Sino-US trade, China's comparative advantage in these industries may stem from factors such as lower labor costs, economies of scale, or access to natural resources. However, it's essential to recognize that many of these industries producing goods with a comparative advantage may still primarily produce low-value-added commodities. This means that while China may excel in exporting these goods, they may not necessarily contribute significantly to the country's overall economic development or competitiveness in higher value-added sectors. Moving forward, it will be essential for China to focus on upgrading its industrial capabilities, investing in research and development, and fostering innovation to enhance its competitiveness in higher value-added industries. By transitioning towards producing more technologically advanced and innovative goods, China can further strengthen its position in the global marketplace and drive sustainable economic growth. It's evident that China's service sectors still face challenges, with a widening gap between China and the United States despite recent growth. This disparity poses significant implications for China's overall economic competitiveness and its position in the global marketplace. Importantly, this deficit in the service sector is not adequately reflected in import and export trade statistics, resulting in China unfairly bearing the brunt of protectionist measures in foreign trade. To address this issue, China must undertake efforts to adjust its industrial structure and optimize its trade in goods. This entails prioritizing the development of high-tech and new-tech industries, as well as fostering intra-industry trade. By enhancing the competitiveness of its high-value-added industries and promoting greater specialization and cooperation within sectors, China can better position itself to navigate various trade disputes in the Sino-US trade relationship. Furthermore, a proactive approach to addressing trade disputes and tensions is crucial for promoting the advancement of Sino-US trade. China should actively engage in dialogue and negotiation with the United States, seeking mutually beneficial solutions to trade issues while also safeguarding its own interests. This may involve implementing reforms to

improve transparency, protect intellectual property rights, and ensure fair competition in the marketplace. Overall, by strategically adjusting its industrial structure, promoting innovation and technological advancement, and adopting a proactive stance in trade negotiations, China can help foster a more balanced and mutually beneficial Sino-US trade relationship, ultimately driving sustainable economic growth and development for both countries.

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