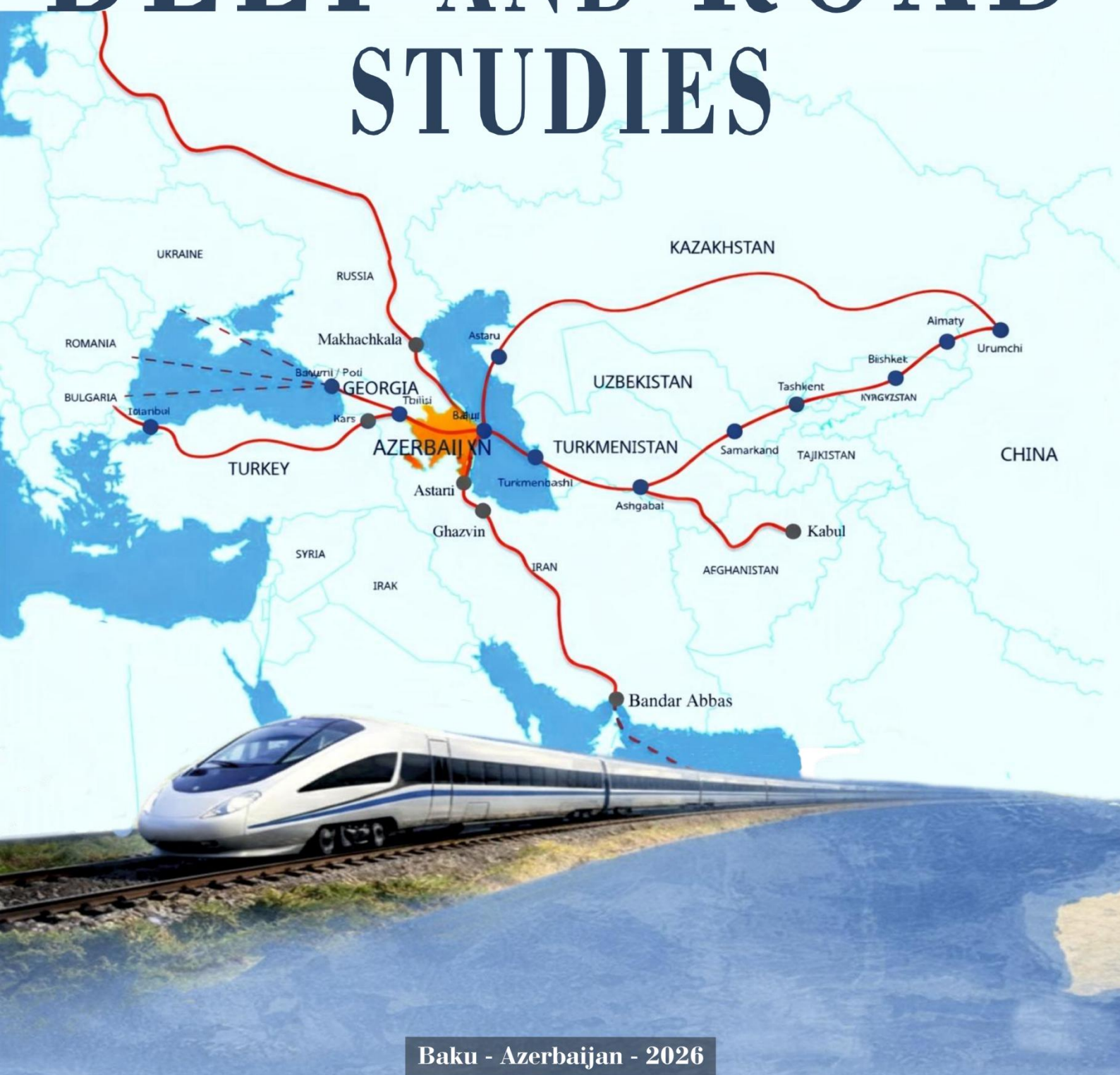


The Journal of

BELT AND ROAD STUDIES





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About the Journal

The Journal of Belt and Road Studies is established as a peer-reviewed scientific journal published twice a year by Azerbaijan State University of Economics (UNEC) dedicated to advancing rigorous, interdisciplinary research on the Belt and Road Initiative (BRI) and its multifaceted implications for global economic, political, and socio-cultural landscapes. As one of the most ambitious and transformative initiatives of the 21st century, the BRI has reshaped international connectivity, trade, and regional cooperation, creating unprecedented opportunities and complex challenges that demand critical scholarly inquiry.

This journal provides a platform for scholars, policymakers, and practitioners to present high-quality empirical research, conceptual analyses, and policy-oriented studies. By fostering evidence-based and methodologically robust scholarship, it seeks to illuminate the BRI's impact on sustainable development, political economy, governance, international relations, and cross-cultural exchange.

In today's rapidly evolving global landscape, marked by economic interdependence and geopolitical realignments, comprehensive and critically engaged research on the BRI is essential. As a peer-reviewed scientific journal, the Journal of Belt and Road Studies ensures the highest standards of academic rigor, providing researchers with a credible and influential outlet to disseminate their findings and contribute to the global discourse.

The journal aspires to become a key reference for academics, researchers, and policy experts worldwide, promoting interdisciplinary collaboration, advancing theoretical and applied knowledge, and informing evidence-based policymaking. By encouraging submissions that combine analytical depth, methodological excellence, and intellectual originality, the journal strengthens scholarly understanding of the BRI and its broader significance for global development.

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The journal welcomes original research on topics including, but not limited to:

- Infrastructure finance, connectivity, and logistics along BRI corridors
- Trade, investment, and value chain integration among BRI partner countries
- New Structural Economics and comparative development theory
- Energy transition, green development, and the Green Silk Road
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- Geopolitics, governance, and multilateral institutions in the BRI context
- Case studies of BRI flagship projects and their economic impacts

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Foreword

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We are confident that the Journal of Belt and Road Studies will serve as an essential forum for advancing research that is timely, relevant, and impactful, supporting a global community of scholars engaged in studying one of the most consequential initiatives of our time.

The Editorial Team

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China's Belt and Road Initiative—The Rationale and Likely Impacts from the New Structural Economics Perspective

Justin Yifu Lin*

Peking University, Beijing, China

ORCID: <https://orcid.org/0000-0003-0518-9829>

E-mail: justinlin@nsd.pku.edu.cn

* Corresponding author

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ABSTRACT

China proposed the Belt and Road Initiative (BRI) in 2013 as a global development cooperation framework to fulfill its responsibility for assisting other developing countries. The initiative, based on China's experiences and strength, focuses on infrastructure and is enthusiastically received by both developing countries and multilateral development institutions as infrastructure is the bottleneck for growth in most developing countries. Using a new structural economics perspective, this article discusses China's rationale for proposing the BRI and analyzes the unprecedented opportunities that the initiative offers for partner countries to achieve their industrialization and modernization.

1. Introduction

Before its transition from a socialist planned economy to a market economy, China was a poor, inward-oriented country with a per capita GDP of US\$ 156 in 1978, less than one third of the average of US\$ 495 for countries in Sub-Saharan Africa. At that time 84% of its population lived below the international poverty line of US\$ 1.25 a day. Over the past 47 years after 1978, it achieved an average annual growth rate of 8.8% in GDP and an average annual growth rate of 13.0% in the value of export and import measured in US dollars. With those remarkable growth rates, China's GDP, measured at market exchange rates, overtook Japan in 2010, becoming the world's second largest economy, and China's export value surpassed Germany in the same year, becoming the world's largest exporter. China overtook the US in total value of import and export in 2013 and total economic size, measured in purchasing power parity, in 2014, making the country the world's largest trading nation and economy. China lifted all its population out of extreme poverty in 2020, 10 years ahead of other nations in achieving the UN's Sustainable Development Goals (SDG) of

eliminating extreme poverty.¹ In 2025, China's per capita GNI reached US\$ 13,950, which has surpassed the US\$ 13,935 World Bank threshold for high-income countries. This is a milestone in the global economy, as it means the population living in high-income countries in the world increased from 16% to 34%. Currently China is the major trading partner for more than 140 countries. Trade between two countries is win-win for both sides, and the smaller country gains more than the large country. Therefore, China's rapid economic and trade growth has contributed to the wellbeing of Chinese people and people across the world.

China's achievements since the reform and opening in 1978 are unprecedented in world economic history. Against this backdrop, this paper discusses the rationale for the Chinese government's proposal of the Belt and Road Initiative (BRI), its global popularity, and BRI's likely impact on global development from the perspective of New Structural Economics, a new theoretical framework

¹The United Nations adopted the Sustainable Development Goals in 2015, which consist of 17 goals to be achieved by all its 193 member countries by 2030. Elimination of poverty is the first among the 17 goals.

for understanding economic development and operation that I have advocated since 2011. The rest of the paper is organized as follows: I briefly introduce the basic ideas of New Structural Economics, followed by the rationale for China's proposal of the BRI, the reasons for BRI's popularity in developing countries and the global development community, an assessment of BRI's likely impacts on global development, and concluding remarks.

2. The New Structural Economics: A Framework for Inclusive and Sustainable Development

I proposed the New Structural Economics (NSE) in 2011 during my tenure as Chief Economist and Senior Vice President of the World Bank, aiming to establish a new framework for rethinking the determinants, evolutionary mechanisms, and socioeconomic impacts of economic structure in the process of modern economic development (Lin, 2011). This framework emerged from decades of global development experience, especially the successes of East Asian economies and China's reform and opening up, as well as the persistent challenges of poverty, the middleincome trap, and weak structural transformation across much of the developing world.

After World War II, mainstream development thinking shifted between structuralism and neoliberalism, yet neither adequately explained sustained catchup growth nor guided effective policy. The New Structural Economics seeks to transcend these two paradigms by restoring structure, endogeneity, and dynamics to the center of development analysis, providing developing economies with a theoretically consistent and practically actionable roadmap for industrial upgrading, poverty reduction, and convergence toward highincome status.

The New Structural Economics adopts a rigorous neoclassical approach to investigate how economic structure is formed, transformed, and shapes growth, distribution, and stability throughout a country's development process. Its core analytical premise is that an economy's production structure encompassing industrial and technological choices its hard infrastructure (including transport, energy, telecommunications, and logistics), and its soft infrastructure (institutional, legal, financial, regulatory, and cultural arrangements) are all endogenous to the economy's factor endowment structure. Factor endowments comprising labor, physical capital, human capital, land, and natural resources are given at any specific point in time but evolve systematically over time as incomes rise, savings accumulate, and educational attainment improves. The relative abundance and scarcity of these factors determine the economy's budget constraint and relative factor prices, which in turn define its latent comparative advantages across different industries and technologies. In lowincome, laborabundant, capitalscarce economies, for instance, laborintensive and resourcebased activities typically embody the greatest comparative advantage, enabling firms to achieve low factor costs and global competitiveness. As capital accumulates relative to labor, comparative advantages gradually shift toward more capitalintensive manufacturing and modern services, driving structural upgrading.

A central implication of the New Structural Economics is that optimal industrial and technological structures differ across development stages and are not simply replicas of those in advanced economies. Attempts by lowincome countries to prematurely adopt capitalintensive industries characteristic of highincome economies often encouraged by old structuralism—violate comparative advantages, require heavy government subsidies and distortions, and result in low efficiency, rentseeking, and unsustainable growth. Conversely, neoliberal prescriptions that neglect structural constraints and underemphasize infrastructure and institutional coordination often leave developing countries trapped in lowvalue, lowproductivity activities with high transaction costs. The New Structural Economics instead prescribes a comparativeadvantagefollowing (CAF) strategy: an economy achieves the fastest, most sustainable, and most inclusive growth by developing industries consistent with its evolving comparative advantages as determined by its endowment structure. Such a strategy maximizes firm profitability, accelerates capital accumulation, upgrades the endowment structure itself, and enables continuous industrial upgrading along the development spectrum.

For latent comparative advantages to become actual comparative advantages and thus competitive in domestic and global markets, appropriate hard and soft infrastructure must be supplied in tandem with industrial changes. Each industry often has distinct requirements for transportation, electricity, logistics, customs clearance, financial intermediation, regulatory clarity, and skilled labor. Without coordinated improvements in infrastructure, even industries aligned with comparative advantages will suffer excessively high transaction costs, erode competitiveness and discourage private investment. Empirical evidence across Africa, Latin America, and Asia consistently shows that inadequate infrastructure power shortages, poor roads, limited ports, and weak digital connectivity acts as the most binding constraint to firm performance, export growth, and structural transformation (Calderón & Servén, 2010, 2015; Foster & BriceñoGarmendia, 2010). The New Structural Economics thus highlights infrastructure as foundational to turning factor cost advantages into overall economic competitiveness.

Sustained structural transformation also requires a synergetic institutional arrangement: an efficient market and a facilitating state. The market is fundamental because it provides reliable price signals that reveal comparative advantages, reward firms that align with them, and discipline those that do not. A competitive market mechanism ensures that resources flow toward their most productive uses. However, markets often fail to provide adequate infrastructure in a timely manner, coordinate externalities across firms and sectors, or compensate for first-mover's information externality associated with industrial upgrading. Here, the state has a legitimate and necessary role to facilitate structural transformation by addressing externalities, providing or coordinating hard and soft infrastructure improvements, lowering transaction costs, and supporting entrepreneurial experimentation without replacing market signals (Lin & Monga, 2011).

This “facilitating state” differs from both the overintervening state of old structuralism and the minimalist state of neoliberalism. Instead, it acts to enable markets to function better, helping economies overcome bottlenecks that delay or derail industrialization.

From a dynamic perspective, the New Structural Economics interprets economic development not as a binary divide between “less developed” and “developed” but as a continuous spectrum from subsistence agrarian economies to highincome postindustrial economies. Each step along this spectrum involves simultaneous upgrading of endowments, industries, technology, infrastructure, and institutions. Countries that follow their comparative advantages and maintain a sound marketfacilitatingstate governance structure can achieve rapid, sustained, and inclusive growth, reduce poverty quickly, and avoid the middleincome trap. Those that ignore structural endogeneity or rely on distorted policies often stagnate, suffer recurrent crises, or remain stuck in lowproductivity activities.

In sum, the New Structural Economics provides a unified, grounded framework for understanding structural change and guiding development policy. It establishes that economic structure is endogenous to factor endowments; that industrial strategies consistent with comparative advantages deliver the strongest sustainable growth; that coordinated infrastructure provision is essential to realizing competitiveness; and that development requires both an efficient market and a facilitating state. Proposed during my service as World Bank Chief Economist (Lin, 2011), this framework continues to inform research, policy design, and international development cooperation, offering a theoretically robust and practically relevant foundation for advancing inclusive, sustainable, and transformative development worldwide including through highquality BRI implementation.

3. China's Rationale for Proposing BRI

After the Second World War, various multilateral development institutions, including the World Bank, the International Monetary Fund and various regional development banks, were established to help postwar economic reconstruction, eliminate poverty, and narrow the income gap between developing and developed countries all essential goals for social and political stability and world peace. Developed countries also set up their own bilateral development agencies, such as the US Agency for International Development, the UK Department for International Development, and the French Development Agency, to carry out their overseas development agendas and coordinate projects with multilateral development institutions. China, as an emerging global power, needs to shoulder the same responsibility as other major economies to support the development of other developing countries. There are two main reasons for China to propose the BRI as a new global development cooperation initiative.

Firstly, the global community expects China to share responsibility for global development commensurate with

its economic weight. In 2009, President Hu Jintao of China reached an agreement with President Obama at the G20 Summit to increase China's contribution to funding and voting power in the World Bank and International Monetary Fund. However, the United States Congress balked at the agreement, frustrating China's intention to expand its role in existing multilateral development institutions.

Secondly and more importantly, since the 1960s, over US\$ 4.6 trillion (in constant 2007 dollars) in gross Official Development Assistance has been provided to developing countries, including both bilateral and multilateral aid (Lin & Wang, 2017). Despite these generous funding supports; results have been disappointing. So far only two lowincome economies, South Korea and Taiwan, China have successfully advanced to highincome status since World War II. Mainland China is likely to be the third around 2025. Among the 101 middleincome economies in 1960, only 13 overcame the middleincome trap and became highincome economies by 2008 (Agenor, Canuto & Jelenic, 2012). Most developing countries have remained trapped in poverty or middleincome status, and development assistance combining funding, advice, and conditions from wealthy nations has failed to deliver sustainable development (Easterly, 2007). If China's assistance followed the same approach as existing global development institutions, results would likely be similarly disappointing.

As discussed in the previous section, modern economic development is a process of continuous structural transformation, including industrial upgrading from traditional agriculture to manufacturing and further to services to raise productivity and income (Kuznets, 1966). In this process, infrastructure and institutions must improve to meet industrial needs, making specific technologies feasible and reducing transaction costs of production and market exchange (Lin, 2011). A developing country has the potential to grow faster than developed countries due to the advantage of backwardness (Gerschenkron, 1962). If development assistance helps remove bottlenecks to structural transformation, recipient countries can tap this potential, eliminate poverty, and catch up with developed economies. If assistance fails to address development bottlenecks, even wellintentioned support will be ineffective.

What is the main bottleneck for structural transformation in developing countries? According to New Structural Economics, a developing country can grow dynamically if: 1) firms develop industries consistent with comparative advantages determined by the country's endowment structure, so their factor costs are competitive domestically and internationally; and 2) the state plays a facilitating role to help firms overcome hard and soft infrastructure bottlenecks, lowering business transaction costs so total costs (factor plus transaction) are competitive. From this perspective, at any development stage a country has comparative advantages in certain industries. A country's development failure most likely stems from soft and hard infrastructure bottlenecks that leave comparative advantages latent and firms uncompetitive. Infrastructure

bottlenecks are evident across developing countries, and the benefits of infrastructure investment are clearly illustrated by China's development experience. During its market transition and extraordinary growth from 1978 to 2025, China expanded its railway network from 48,600 km to 165,000 km, high-speed rail from 0 to 50,000 km, highway network from 890,200 km to 5,550,00 km, and expressway network from 100 km in 1988 to 191,000 km, covering 99% of cities with 200,000 or more populations. Roberts et al. (2010) show that China's real aggregate income in 2007 would have been approximately 6% lower without the expressway expansion from 4,800 km in 1998 to 41,000 km in 2005. Most development assistance from multilateral and bilateral institutions has focused on humanitarian purposes (health, education) and governance improvements (transparency, rule of law, democracy, business environment), largely falling into soft infrastructure. Hard infrastructure bottlenecks remain the main obstacle to development in developing countries.

Infrastructure investment needs are massive. According to Asian Development Bank estimates, developing Asia requires US\$ 26 trillion in infrastructure investment from 2016 to 2030, with an infrastructure gap averaging 2.4% of projected GDP for 2016–2020. The African Development Bank estimates the continent's infrastructure needs at US\$ 130–170 billion annually, with a financing gap of US\$ 67.6–107.5 billion per year. The InterAmerican Development Bank calculates an annual infrastructure gap of US\$ 150 billion in Latin America and the Caribbean. If development assistance targets hard infrastructure bottlenecks, recipient countries can achieve dynamic growth, consistent with the Chinese motto: "for a country to get rich, build roads first."

Drawing on its own experience and commitment to global development, President Xi Jinping proposed the "Silk Road Economic Belt" during a visit to Kazakhstan in August 2013. In October of the same year, he proposed the "21st Century Maritime Silk Road" in Indonesia at an ASEAN meeting. Together these form the BRI. The BRI aims to build a new global development cooperation framework using infrastructure investment as a vehicle for "policy coordination, infrastructure connectivity, unimpeded trade, financial integration, and people-to-people bonds" to achieve "a community of shared interests, destiny, and responsibility." Alongside the BRI, China proposed establishing the Asian Infrastructure Investment Bank (AIIB) in 2013 as a new multilateral development institution mandated to fund infrastructure projects in Asia and beyond. With evolving global challenges and opportunities since 2013, new pillars have been incorporated including health, green, digital, and clean Silk Roads building on the initial focus on infrastructure connectivity.

4. The Popularity of BRI

The BRI has been warmly received globally since its launch in 2013. By January 2026, more than 150 countries and 30 international organizations have signed cooperation agreements with China. Meanwhile, the AIIB began with 57 founding members across five continents, including

major developed economies (except the US, Japan, and Canada), and most Asian and European countries. AIIB membership has grown to 111 countries by January 2026, making it the largest multilateral development institution after the World Bank. The BRI's popularity rests on four key reasons.

Firstly, China has strong comparative advantages in delivering infrastructure projects, built through decades of largescale domestic investment. China produces more than half of the world's cement, steel, and other construction materials annually. Chinese construction and engineering firms are among the most competitive globally. China is therefore credible in promoting and supporting infrastructure projects in other countries.

Secondly, China maintains a high national savings rate around 45% of GDP and foreign exchange reserves exceeding US\$ 3 trillion, providing ample funding for infrastructure projects in BRI partner countries. As noted, infrastructure projects are highly welcome in developing countries facing severe infrastructure bottlenecks.

Thirdly, China has unique advantages in supporting structural transformation in BRI participant developing countries. The dynamic expansion of laborintensive industries after 1978 reform and openingup made China the "world's factory" and top exporter. With rising wages and rapid capital accumulation, China's comparative advantages have shifted, and laborintensive industries must relocate to lowerwage developing countries. Most BRI partner countries are low or middleincome economies, making them ideal destinations for such industrial relocation. BRI infrastructure projects help these countries seize the window of opportunity from China's laborintensive industry transfer. PostWWII experience shows that developing countries capturing such relocation opportunities achieve dynamic growth for 20 years or more, escaping poverty and advancing to middle or even highincome status. In the 1960s, Japan's manufacturing sector employed 9.7 million people when it began offshore laborintensive industry transfer; in the 1980s, the Four Asian Tigers had 2.3 million (South Korea), 1.5 million (Taiwan, China), under 1 million (Hong Kong, China), and 0.5 million (Singapore). By contrast, China had 125 million manufacturing jobs in 2010, including 85 million in laborintensive sectors, creating ample opportunities for BRI developing countries to pursue industrialization and modernization simultaneously (Lin, 2012).²

Fourthly, the BRI delivers tangible economic benefits to developed economies, generating expanded trade, job creation, investment returns, and sustained growth to form a mutually reinforcing cycle of shared prosperity. As highlighted by New Structural Economics (Lin, 2011), infrastructure connectivity is critical to unlocking structural transformation, and flagship BRI projects directly translate this logic into concrete gains for advanced economies. Representative projects such as the

²The number in manufacturing dropped to 121 million and laborintensive industries around 80 million in 2018 according to China's 4th economic survey in 2018.

ChinaEurope Railway Express network and the upgraded Port of Piraeus in Greece have revitalized regional logistics, manufacturing, and trade systems across Europe. The ChinaEurope Railway Express has sharply reduced logistics time and costs, strengthening justintime supply chains for Europe's automotive, machinery, and hightech sectors while creating stable employment in transportation, warehousing, and related services. The modernized Port of Piraeus has become a leading transshipment hub in the Mediterranean, boosting fiscal revenues, private investment, and job creation for Greece and attracting global firms to establish regional distribution centers. These infrastructure improvements directly strengthen economic activity and competitiveness in developed economies.

Empirical findings from my joint work with Yan Wang validate these positive effects of BRI projects (Lin & Wang, 2024). Using a gravity model and panel data covering 2010–2022, our study shows that BRI connectivity infrastructure significantly reduces trade costs, shortens transport times, and strengthens regional value chains across Eurasia, leading to an approximately 25% increase in bilateral trade volumes along key corridors. By easing infrastructure bottlenecks in developing economies, the BRI accelerates their industrialization, income growth, and import demand for capital goods, hightech products, and advanced services major export sectors of developed countries. As partner countries achieve faster structural transformation, their growing purchasing power expands overseas markets for advanced economies, which in turn supports domestic employment, private investment, and economic expansion. In this way, the BRI creates a winwin mechanism: infrastructuredriven development in the Global South enlarges market opportunities for the Global North, lifting growth and welfare across all participating economies (Lin & Wang, 2024; World Bank, 2019).

5. The Likely Impact of BRI on Global Development

Modern firm operations depend crucially on infrastructure. Inadequate infrastructure not only weakens firm competitiveness but also prevents the launch of many promising businesses.³⁴ This is most evident in SubSaharan Africa, where per capita electricity consumption averages only 124 kilowatthours per year (excluding South Africa) hardly enough to power one light bulb per person for six hours a day (Foster & BriceñoGarmendia, 2010)⁵. Scarce electricity also raises costs. World Bank Investment Climate Assessment surveys (2000–2004) show firms in Benin, Burkina Faso, Gambia, Madagascar, Mozambique, Niger, and Senegal spend over 10% of total costs on energy, compared to only 3% for Chinese firms. For the median Tanzanian firm, losses from power outages reach 10% of sales, versus just 1% for the

median Chinese firm (Eifert, Gelb & Ramachandran, 2005). Furthermore, poor roads and port facilities leave many people in SubSaharan Africa disconnected from domestic and global markets (World Bank, 2009). Many SubSaharan African countries are landlocked; about twothirds of their population live in rural areas with the world's lowest road density. Unsurprisingly, transport costs are high, representing about 16% of firms' indirect costs (Iarossi, 2009).

Infrastructure investment should be a top priority for developing countries. As elaborated in New Structural Economics, modern economic development is a process of structural transformation featuring continuous technological innovation, industrial upgrading, and improvements in hard and soft infrastructure. In premodern agrarian economies, over 85% of the population typically lives in rural areas and works in agriculture, with rainfed production mostly for subsistence. As structure shifts to modern manufacturing, electricity becomes essential for mass production for broad markets rather than personal consumption. As market scope expands, roads and ports enable producers to access domestic and international markets (Lin, 2011). Notably, internet and digital technology allow small rural firms to serve global markets and workers in developing countries to perform backoffice tasks for developedcountry firms if proper telecommunications infrastructure exists. Additionally, amid climate change and more frequent natural disasters, robust infrastructure is increasingly critical for sustainable development by strengthening resilience and mitigation capacity.

Infrastructure investment strongly supports growth in developing countries. Calderón and Servén (2010) estimate that infrastructure improvements raised average annual growth in developing countries by 1.6 percentage points in 2001–2005 versus 1991–1995, with the largest effect (2.7 percentage points) in South Asia. If lowincome SubSaharan African countries had infrastructure levels matching Indonesia, West African lowincome economies would gain 1.7 percentage points in annual growth (Calderón & Servén, 2015). If African countries closed infrastructure gaps relative to Pakistan or India, Central African lowincome economies would gain an extra 2.2 percentage points annually, and East and West African countries 1.6 percentage points. Similarly, if Latin America reached average infrastructure levels of nonLAC middleincome economies (e.g., Turkey or Bulgaria), the region would gain roughly 2 percentage points in annual growth (Calderón & Servén, 2015).

Infrastructure shortfalls in the developing world hinder development and harm daily life for millions. In Africa, over 70% of households lacked electricity access and only 33% of rural households had allweather roads in 2006 (International Road Federation, 2010). Inadequate infrastructure also undermines health and education outcomes (Agenor & MorenoDodson, 2006). Construction of allweather roads in Morocco raised girls' school attendance from 28% to 68% between 1985 and 1995 by freeing women's time. Better roads also enabled wider use of butane for cooking and heating; previously, women

³This section draws on Lin (2013).

⁴Reinikka and Svensson (1999) find from Uganda's data that unreliable provision of electricity is a significant deterrent to investment.

⁵Excluding South Africa.

spent an average of two hours daily collecting firewood, and butane prices fell from 20 Dh to 11 Dh per bottle, making it affordable for many families (World Bank, 1996).⁶ Hospital and health center visits doubled over the period. Improved water supply and sanitation significantly reduce diarrheal diseases, which kill 1.8 million people annually (WHO, 2004). Infrastructure investment is thus key to achieving many SDG targets.

Infrastructure investment in developing countries also benefits advanced economies. Building power plants, roads, and ports requires capital goods, many produced in advanced economies; about 70% of capital goods in low-income countries are imported from high-income economies. Research shows infrastructure investment boosts trade prospects for both developing and advanced countries. Generally, a US\$ 1 increase in developing-country investment is associated with a 50% rise in imports and a US\$ 0.35 increase in high-income country exports.⁷ The developing world's annual infrastructure financing gap exceeds US\$ 500 billion. Closing this gap would generate about US\$ 250 billion in capital goods import demand, with roughly US\$ 175 billion sourced from high-income economies about 7% of their total capital goods exports in 2010.

In short, increased infrastructure investment in developing countries under the BRI can foster a virtuous, self-reinforcing cycle, lifting growth and wellbeing in both developing and developed economies. According to a World Bank (2019) assessment, completed BRI transport projects could reduce travel times along economic corridors by 12%, increase trade by 2.7%–9.7%, raise incomes by up to 3.4%, and lift 7.6 million people out of extreme poverty in participating countries if paired with reforms to enhance transparency, trade expansion, debt sustainability, and environmental, social, and anticorruption safeguards. Launched in 2017 with Egypt, Laos, Saudi Arabia, Serbia, Thailand, Turkey, and the UAE, the Digital Silk Road harnesses digital opportunities to reduce transaction costs, expand market reach, and create jobs, similar to physical connectivity. China and 22 partner countries have built the "Silk Road Ecommerce" platform; in 2019, crossborder ecommerce trade between China and Digital Silk Road participants rose 87.9% year-on-year (Advisory Council of Belt and Road Forum, 2021). The Health Silk Road, Green Silk Road, and Clean Silk Road will similarly advance other SDG targets.

6. Concluding Remarks

As the inaugural issue of the Journal of Research in Belt and Road highlights the profound global significance of

transcontinental connectivity, inclusive development cooperation, and empirical research on the Belt and Road Initiative, this paper reaffirms that the BRI represents a landmark, forward-looking framework fully aligned with the journal's core mission to advance rigorous, policy-relevant scholarship on this transformative global endeavor. The BRI has garnered enthusiastic support across the world, consistent with China's responsibility as an emerging major economy and offering unprecedented opportunities for partner countries to realize industrialization and modernization.

Rooted in the theoretical logic of New Structural Economics, the BRI addresses the most binding constraint to structural transformation in developing countries: inadequate hard infrastructure. By prioritizing connectivity, industrial coordination, and mutually beneficial cooperation, the initiative enables developing nations to unlock their latent comparative advantages, accelerate growth, reduce poverty, and advance toward high-income status. Empirical evidence from my joint work with Yan Wang (2024) further demonstrates that flagship BRI projects including the China-Europe Railway Express and the Port of Piraeus in Greece significantly reduce trade costs, boost bilateral trade volumes by approximately 25%, strengthen regional value chains, and generate tangible economic benefits for both developing and developed economies. Faster growth in the Global South expands demand for capital goods, hightech products, and advanced services from advanced economies, creating a virtuous circle of shared prosperity across the global economy.

The BRI operates on the principles of wide consultation, joint contribution, and shared benefits, mainly through flexible bilateral and multilateral coordination to ensure projects reflect host countries' development priorities, endowment structures, and national conditions. Though still in its early stage, the BRI has already demonstrated its unique capacity to deliver critical infrastructure that might otherwise take decades to materialize. With the evolution of the Digital Silk Road, Green Silk Road, Health Silk Road, and Clean Silk Road, the initiative continues to adapt to emerging global challenges such as climate change, public health risks, and the digital divide, making an increasingly important contribution to the UN Sustainable Development Goals.

Going forward, the BRI will remain a vital force for global recovery, structural transformation, poverty reduction, and equitable progress. As a practical, inclusive model of international development cooperation, it honors each country's development stage and endowment structure while fostering a community of shared interest, destiny, and responsibility. As this inaugural journal issue seeks to shape the future of BRI research, the BRI will continue to offer rich, enduring topics for academic inquiry and provide a robust foundation for building a more open, inclusive, balanced, and beneficial global economic system.

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⁶Before road improvements in the 10-year period to 1995, women had to spend an average of 2 hours per day collecting and carrying wood for fuel. Butane gas, used extensively in urban areas, did not reach the rural areas due to the high transport and distribution costs. Initially, a bottle of butane cost 20 Dh; following improvement of the road, the price dropped considerably, to as low as 11 Dh, making it affordable for many families (World Bank, 1996).

⁷Based on 2008 trade data from WITS/COMTRADE.

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The Current Phase of Hungarian–Chinese Bilateral Ties: Gates, Bridgeheads, Bastions

Dániel Kuttor*

University of Miskolc, Miskolc, Hungary

ORCID: <https://orcid.org/0000-0003-2229-4364>

E-mail: kuttor.daniel@uni-miskolc.hu

* Corresponding author

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ABSTRACT

The brief study describes and examines the development of Hungarian–Chinese bilateral relations over the past decade, in connection with the "Eastern Opening" strategy, with particular attention to merchandise trade and foreign policy/economic aspects. It points out that in the period after 2010, the relationship system, built on historically stable foundations, has reached a new, higher level: Hungary consciously positions itself as China's European foothold, while the volume of bilateral merchandise trade is increasing and its structure is diversifying; at the same time, the trade balance tilts asymmetrically in favour of China. The author emphasizes that Chinese investments and financing sources amid the limited European Union funds simultaneously represent growth opportunities and financial-technological dependence, which generate foreign policy tensions in the EU and NATO context.

1. Introduction

The Government of Hungary, upon the recommendation of the EU Council, adopted and published its "Next Step, Széll Kálmán Plan 2.0" program in the spring of 2012, aiming to provide a framework for further comprehensive structural reforms and future development directions. In the third chapter of the document, with the intention of stimulating economic growth and improving competitiveness, a new foreign economic strategy was defined, the goal of which was to identify concrete steps in addition to shaping attitudes (Hungarian Government, 2014). To this end, it emphasized the need to support Hungarian exports by diversifying their geographical and product composition. The Government's primary intention is to reduce Hungary's strong dependence on the European Union and to expand its relations with countries and regions producing rapid economic growth, mainly in Asia. The strategy pays particular attention to Indian, Chinese, and Russian actors and markets.

The foreign economic strategy aimed not only to focus on increasing the volume of foreign trade and structural transformation, but also emphasized the promotion of foreign investments. The new investments were expected to contribute to further economic growth and employment expansion, improve the international reputation of Hungary and Hungarian companies, increase budget revenues, and

facilitate the import of modern technologies. It was openly stated that priority would be given to investments implemented in the country's lagging (eastern and southern) regions, in the manufacturing industry, in connection with research and development. The Government provided effective support for these investments through administrative and financial means, and through its own discretionary decisions, including investment, employment, and training subsidies, as well as development tax incentives.

This concept began to be increasingly referred to, both professionally and in wider circles, as the "Eastern or Global Opening" (hereinafter "Eastern Opening"). As a result of the implementation of the strategy, primarily Eurasian economic relations were established, gained new momentum, and brought results for Hungary over the past decade, within the framework of cooperation with partners from East, Central, or South Asia. Due to the aggression in the Ukraine and its economic and political consequences, this cannot be discussed in the case of Russia; however, regarding China, a new era began in the past decade, with spectacular developments (Éltető & Völgyi, 2013; Nagy & Szép, 2011). In the 2010s, due to the favourable global economic and political environment, as well as the growth of the economies involved, China appeared as a business partner and investor (Kuttor, Orosz & Takács, 2025).

I believe that the few thoughts above can also convey the national economic importance of Hungary's foreign economic strategy, the so-called "Eastern Opening". I think that due to the program's significance and complexity, it is worthy of analysis; it has already generated numerous publications, reports, and studies (Tarrósy & Vörös, 2014). However, increasing activities and efforts is necessary for more numerous and in-depth examinations than before. Guided by this conviction, in this short article I wish to provide contributions to the development of Hungarian-Chinese bilateral relations over the past decades and to the interpretation of events and outcomes in three respects: with a description reviewing the development of bilateral relations, an analysis of the changes in trade of goods, and an accounting of international reactions.

2. The Long-Term Perspective and Dynamics of Bilateral Relations

2.1 Background, fundamentals

The first six decades of Hungarian-Chinese relations (between 1949 and 2009) can be divided into four main phases: an initial period of friendly relations; then a distancing for ideological reasons; followed by a pragmatic interval leading to gradual normalization; and finally, a rapidly deepening, developing period based primarily on economic cooperation (Embassy of the People's Republic of China in Hungary, 2024). The initial close political-ideological relationship was shaped and influenced by the fault lines within the socialist-communist bloc, and later by new foreign policy priorities after the regime change, within global frameworks.

Hungary recognized the People's Republic of China on October 4, 1949, and diplomatic contact took place a few days later, on the 6th, making Hungary one of the early recognizers. In the 1950s, intensive leadership visits (Zhu De, Zhou Enlai, as well as János Kádár and Ferenc Münnich) and bilateral, multifaceted agreements (cultural, scientific-technological, student exchange) laid the foundation for the 'friendly cooperation.'

However, from the late 1950s, the deterioration of the Chinese-Soviet relationship and the ideological tensions of the "Cultural Revolution" gradually cooled Hungarian-Chinese bilateral relations. In the 1960s, in fact, cultural and scientific cooperation came to a halt. In the 1970s, intergovernmental relations formally persisted, but cultural exchanges only slowly restarted, inter-party relations were broken off, and student exchanges were not restored.

The 1980s brought the gradual normalization and institutionalization of political and inter-party relations, accompanied by mutual high-level visits and joint statements. It was then that the China-Hungary Committee for Economic, Trade, Scientific, and Technological Cooperation was established. During this period, several long-term trade agreements were also signed, and scientific as well as student exchanges received new momentum. After a temporary lull caused by Hungary's political and economic transition, at the beginning of the 1990s, political dialogue was quickly restored through visits at the

level of foreign ministers and heads of state, and anniversary (on the 50th anniversary) commemorations strengthened the symbolic dimension. In the 1990s, the focus and emphasis of relations and cooperation shifted to the economy and trade: bilateral investment protection and taxation agreements were signed, trade turnover grew dynamically, and Chinese companies appeared in Hungary.

By the early 2000s, trade between China and Hungary had risen to one of the highest levels among the countries in the region. The development of relations was marked by Péter Medgyessy's visit to Beijing in 2003 and the opening of the Bank of China's branch in Budapest. Cultural and educational cooperation became institutionalized through new agreements (diploma recognition, cultural exchange programs, tourism status), ranging from simple information and data exchange to scientific cooperation in joint research.

2.2 New era, new standards

For Hungarian-Chinese relations to reach a new, higher level in the first half of the 2010s, the alignment and synergy of several factors were required:

- The network of relations briefly described above, with a six-decade-long history, which provided a stable framework and foundation for moving forward based on mutual trust.
- The consistent stance of the Orbán governments, continuously in power since 2010, in supporting the development of relations with China, taking on cooperation even at the cost of conflicts or tensions with third parties.
- China's active international engagement and the launch of new initiatives, such as strengthening the previous global opening of the 2000s; launching the multilateral, region-specific "16+1" initiative (2012); proclaiming the Belt and Road Initiative (BRI, 2013), etc.
- The emergence of Xi Jinping and his leadership across multiple terms, both as General Secretary of the Communist Party of China and as head of state of the People's Republic of China.

With the 2010 Beijing negotiations and the decision on the Huawei investment, a new format of China's economic presence began in Hungary. At the 2011 summit, 12 agreements were reached that laid the foundation for expanding bilateral cooperation. Xi Jinping's 2014 European trip indicated that China's regional interests are directed towards infrastructure and logistics, in line with Budapest's ambitions.

2015 brought a milestone: Hungary became the first EU member state to join the Belt and Road Initiative (BRI). This also signalled at the global political level the Hungarian leadership's commitment to cooperation with China. During the 2016 and 2017 meetings, institutionalized coordination and partnership were already functioning, and there also appeared the intention on the Hungarian side to position Hungary and Budapest as a Central European base and bridgehead.

Table 1. High-level meetings of heads of state during the period of 2010–2025

Year	Venue	Participants (the Chinese name is given in pinyin form)	Short description / Results
2010	Beijing (Peking)	Viktor Orbán – Jiabao Wen	Decision on the Huawei investment
2011	Budapest	Viktor Orbán – Jiabao Wen	Signing of 12 bilateral agreements
2014	Europe	Jinping Xi	Xi's first European trip, increased interest in infrastructure projects
2015	Budapest	Péter Szijjártó – Yi Wang	Signing of BRI, Hungary is the first EU country
2016	Beijing (Peking)	Péter Szijjártó – Yi Wang	BRI meeting, continuation of coordination mechanisms
2017	Beijing (Peking)	Viktor Orbán – Jinping Xi	Announcement of Comprehensive Strategic Partnership
2017	Budapest	Viktor Orbán – Keqiang Li	11 bilateral agreements, CEEC-China summit
2019	Beijing (Peking)	Viktor Orbán – Jinping Xi	BRI Forum, 70 years of diplomatic relations
2020	Beihai, Guangxi	Péter Szijjártó – Yi Wang	Acquisition of Chinese vaccines, Hungary is the first EU country to authorize the vaccine
2023	Budapest	Viktor Orbán – Yi Wang	High-level diplomatic ceremonial visit, 10th anniversary of BRI, on EU-China relations
2024	Budapest	Viktor Orbán – Jinping Xi	18 agreements, announcement of 'Comprehensive Strategic Partnership for All Time'
2024	Beijing (Peking)	Viktor Orbán – Jinping Xi	Strategic consultation on the new level of partnership, China-EU relations under the EU presidency
2024	Beijing (Peking)	Péter Szijjártó – Yi Wang	Foreign Ministerial consultation on the new level of partnership, further coordination of projects
2025	Budapest	Tamás Sulyok, Viktor Orbán – Leji Zhao	Deepening parliamentary cooperation, green energy, (AI) digital economy projects

Source: own editing based on Kecskeméti (2025, p. 24).

During the 2019 BRI Forum, relations further strengthened at the diplomatic level, and during the coronavirus pandemic (COVID-19), Hungary was the first EU member state to authorize and use a Chinese vaccine. The decision brought increased political trust towards China. In the crisis, China sought to become a strategic partner in terms of health and logistics.

Following the pandemic, relations have reached a higher level today. The 2024 presidential visit and summit in Budapest, where alongside 18 different agreements the "comprehensive strategic partnership for all time" was announced, carried both a political and symbolic message.

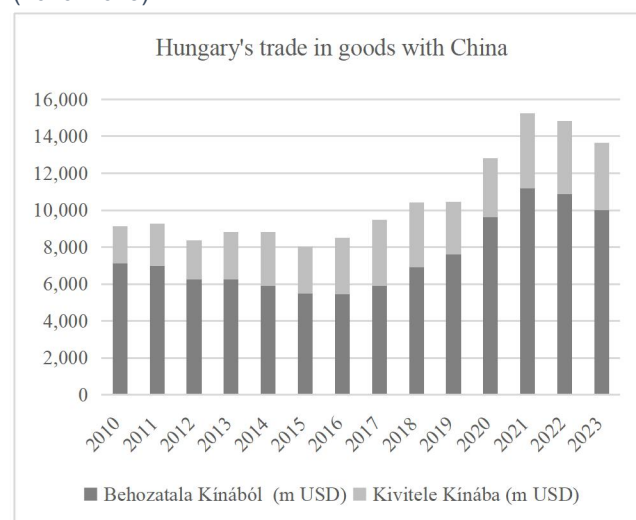
Hungary increasingly sought a mediating role between the EU and China, even during its EU presidency. The 2025 meetings expanded cooperation in parliamentary, green energy, and digital (AI) projects, signalling a qualitative transformation and openness in the relationship.

3. The Development of Bilateral Trade in Goods

In the first half of the 2010s, Chinese modernization achieved spectacular results: in terms of the size of the economy (GDP), it became the second largest in the world, and in terms of export volume, it rose to the first place (Kuttor, Nagy & Szép, 2014). Although the economy's growth showed a slowing trend, it still approached 7 percent per year on average. China's production-based, industrial development model was partly organized to replace imports with domestic production and partly to meet demand in the global market (Szunomár, 2012). Despite the fact that the credit crisis, then the pandemic, and more recently protectionist trade policy measures necessitate the gradual and continuous reconsideration of the export-oriented concept, this mechanism remains the primary, preferred one in China (Gáspár, Sass, Koppány &

Bi, 2023). All of this presents opportunities, but also challenges, for all those states that trade with China. Usually, an extremely asymmetric exchange relationship develops. This has been also the case with our country, which, within the framework of the 'Eastern Opening,' primarily wanted and was able to expand and deepen its trade relations with China. This effort has produced results over the past nearly one and a half decades, although it has also generated challenges.

Figure 1. Development of Hungary's trade with China (2010–2023)

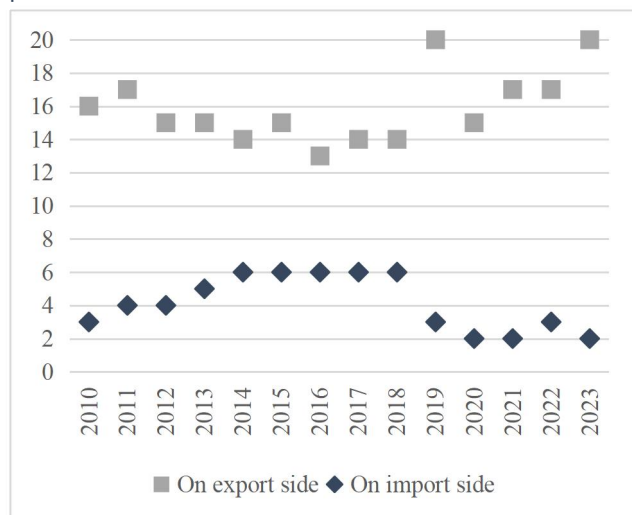


Source: own editing based on comtrade data.

Between 2010 and 2023, the volume of bilateral trade in goods expanded to about one and a half times its size, amid significant fluctuations. It is important to emphasize that growth became noticeable after 2019, mainly due to the surge in imports. This contributed to the breaking of the favourable trend. In 2017, our country's trade deficit

stopped decreasing and then rose to new heights in the early 2020s. In recent years, it has approached an annual deficit of 7 billion dollars. In the ranking of trade partners, this imbalance is also reflected in China's position, showing a time dynamic like what has been described above.

Figure 2. China's ranking among Hungary's trading partners



Source: own editing based on comtrade data.

While China has in recent years been identified as the second-largest importer, mostly following Germany in terms of imports, on the export side it is found only after European (mainly EU) countries, pushed out of the TOP 15.

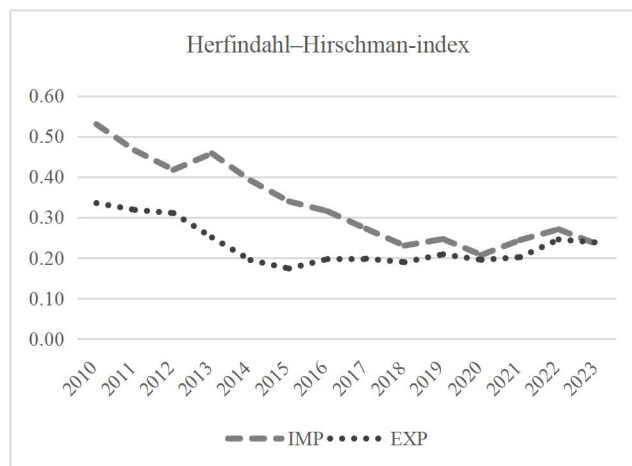
The composition of trade is varied in both relations. According to the HS (Harmonized System) ID2 classification system, almost 100 product groups appear in the portfolio (UN, 2007). Generally, imports include more diverse products than Hungarian exports. A favourable change in composition can be read from the numbers. This aligns with one of the key objectives of the "Eastern Opening" – namely increasing the diversification of trade. The composition can be expressed using several indicators; this time I am applying one of the most used indicators, the Herfindahl–Hirschman Index (HHI).

The HHI is a number indicating the concentration of a market, factor, or population, which can range between 0 and 1. A value close to zero indicates that multiple elements or participants are equal within the population; on the other hand, a value close to 1 reflects a concentrated situation.

$HHI = s^1_2 + s^2_2 + \dots + s^n_2$, where s^i is the share of the i -th element (in percent), and n is the number of elements or participants.

Examining the product composition, in terms of both export and import, it can be said that concentration has dissolved, and observing the trends, we can also perceive a convergence.

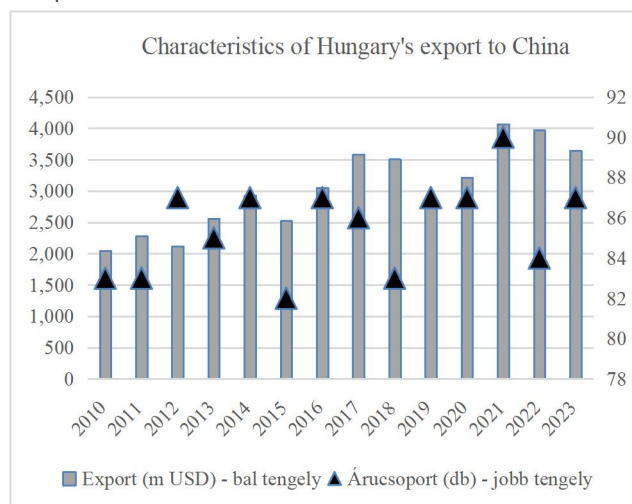
Figure 3. The concentration of product composition in bilateral trade, 2010–2023



Source: own editing based on OEC data.

It can be stated that more and more, as well as more varied, goods have been included in trade between the two countries. The catalogue features primarily electrical machines and electronic equipment; cars, tractors, trucks, and their parts; machinery, mechanical equipment and parts; optical, photographic and film equipment; medical instruments; and pharmaceutical products. Individual products can also be found, such as in exports the range of pharmaceutical products, and in imports the categories of organic chemicals, steel, or plastic products.

Figure 4. Hungarian exports to China, volume and composition



Source: own editing based on comtrade data.

Finally, it is worth noting again that Hungary's exports to China doubled during the examined time period and also showed favorable shifts and changes in their composition.

4. "Eastern Opening" in the Context of the European Union and the North Atlantic Context

As a result of the consistent implementation of the "Eastern Opening", it has become a common opinion that Hungary is referred to as China's new European foothold, which, while maintaining EU and NATO membership, is increasingly integrated into Chinese economic and political networks (Bernek, 2018). This simultaneously offers economic advantages and increases Hungary's strategic exposure in a world economy with a new structure (Kiszelly, 2025). Budapest is valuable and attractive to

Beijing in two respects: on the one hand, as an EU and NATO member, it is able to influence decisions related to China; on the other hand, it increasingly receives Chinese capital and hosts corporate and governmental premises (Éltető, Peragovics, Sass & Szunomár, 2024).

Thanks to the new projects – the Belgrade–Budapest railway, the V0 railway ring, CATL's investments in Debrecen and BYD's investments in Szeged, as well as the air corridors connecting Budapest with China – Hungary has become a key hub in the supply chains linked to the BRI (MERICS, 2024). In addition, the Huawei logistics and R&D centres, the 4iG–Huawei agreement, the construction of Chinese battery factories, and the spectacular growth of Chinese FDI clearly show that the Hungarian Government has been willing to rely on Chinese technology and capital even in strategic sectors (5G, batteries, logistics, AI). According to Wu (2025), Hungary remains loyal precisely because it is increasingly linked to China, as Chinese economic relations have now become fundamental strategic interests of the Hungarian state. Despite increasing external pressure, the Government has so far not wished to give this up. The economy's dependence has reached such a level that 'de-risking' or 'de-coupling' in Hungary's case is not only costly but also difficult. Due to the projects implemented so far, as well as the undertaken decisions and commitments, it is only conceivable to a small extent (Fehér, 2025). Thus, probably in connection with the EU's 'de-risking' strategy applied to Chinese affairs, Budapest will continue to play a softening and slowing role in the future.

5. Conclusion/Summarizing Thoughts

In my article, I attempted to highlight the circumstances, justification, and objectives of the "Eastern Opening". The gradual development of Hungarian-Chinese diplomatic relations; the results and challenges appearing in goods trade; and finally, the complex political consequences.

It is perceptible that for our country, the relationship with China represents a central element of the "Eastern Opening" strategy and aligns with the logic that seeks to emphasize connectivity in a multipolar world. Due to the freezing of European Union funds, Chinese investments (in battery manufacturing and the automotive industry, infrastructure construction, AIIB loans) have become the main source of financing. The government strategy consciously positions the country as a "European gateway" for Chinese decision-makers and investors, which has had consequences such as increasing financial and technological dependence, even in key infrastructure sectors (railway, energy, telecommunications). I emphasized the importance of regular high-level meetings (between Xi and Orbán, as well as at ministerial and lower levels), through which Hungary can appear today as one of China's close European partners. Membership in the BRI, regular intergovernmental meetings, and open communication channels have resulted in established and stable diplomatic relations.

Between 2010 and 2025, the Hungarian-Chinese relationship developed under the guidance of strategic

partnership through lively economic cooperation. Nowadays, Hungary consistently positions itself as China's continental, Central European bridgehead. However, this burdens its EU and North Atlantic relations, and it is questionable how long this can be maintained in a polarizing, conflict-laden world. Nevertheless, in the future, expanding political cooperation would be important in high technologies, such as green energy, infrastructure, and IT. At the same time, Hungary also emphasizes its geopolitical mediating role. These thoughts currently gain little attention, so in most cases our country acts alone, with little support and success.

Thus, we can only hope that the values traditionally highly regarded in Chinese diplomacy, the so-called five virtues (wu chang), will soon come into effect in international relations and diplomacy, promoting the development and transformation of existing multilateral frameworks.

The mentioned five virtues are:

- benevolence (ren);
- honesty, righteousness (yi);
- propriety, courtesy (li);
- wisdom (zhi);
- loyalty (xin).

I trust that the domestic achievements reached with Chinese partners in the bilateral relationship, the maintenance of positions, and the exploitation of advantages will not cease in the future, nor become impossible, but the intention and opportunity to leverage mutual benefits will remain.

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The Financial Viability of The Trans-Caspian International Transport Route (TITR): A Risk-Adjusted Analysis of Infrastructure Synergy and Azerbaijan's Strategic Role

Aysel Rahmanova*

Azerbaijan Railways (ADY) CJSC, Baku, Azerbaijan

ORCID: <https://orcid.org/0009-0004-2170-6157>

E-mail: a.rahmanova@ady.az

* Corresponding author

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ABSTRACT

The Trans-Caspian International Transport Route (TITR), commonly referred to as the Middle Corridor, has emerged as a strategically significant multimodal freight corridor linking China, Central Asia, the Caspian basin, Azerbaijan, Georgia, Türkiye, and European markets. While its geopolitical relevance has been widely analysed, the financial viability of the corridor remains insufficiently theorised within a risk-adjusted framework. This paper addresses that gap through a qualitative-analytical assessment that integrates New Economic Geography and Transaction Cost Economics perspectives. Drawing on peer-reviewed scholarship, institutional reports, and empirical transport data, the study evaluates TITR's competitiveness relative to the Northern Corridor and maritime alternatives, with particular emphasis on Azerbaijan's role as the pivotal logistics node. The analysis demonstrates that TITR's corridor competitiveness is determined not only by physical distance reduction — approximately 3,000 km shorter than the Northern Corridor — but by the institutional quality of soft infrastructure including customs harmonisation, digital cargo tracking, and tariff coordination. The paper further examines how the Port of Alat, the Baku-Tbilisi-Kars (BTK) railway, and the prospective Zangezur Corridor collectively generate infrastructure synergies capable of reducing operating expenditure, improving capital rotation, and lowering the risk premium perceived by logistics operators. The findings suggest that TITR's long-term financial viability depends on the consolidation of a platform-based governance model that integrates physical assets with institutional interoperability across participating states.

1. Introduction

The reorganisation of Eurasian trade networks in the post-2022 geopolitical environment has transformed the Trans-Caspian International Transport Route from a secondary policy aspiration into a commercially significant logistics corridor. Russia's invasion of Ukraine in February 2022 disrupted established transcontinental freight routes, while repeated disruptions to Red Sea maritime shipping reinforced shipper incentives to diversify overland alternatives. Within this context, TITR — running from China through Kazakhstan, across the Caspian Sea, through Azerbaijan and Georgia, and westward through Türkiye to European destinations — has recorded cargo volumes of 2.76 million tons in 2023, representing a 65 percent increase from the preceding year (Gafarli, 2024).

Yet the corridor's rapid rise in utilisation has not been accompanied by proportionate analytical attention to its financial logic. Existing scholarship is heavily weighted

toward geopolitical and strategic framing, with economic and institutional dimensions remaining underdeveloped. This paper contends that evaluating TITR through a risk-adjusted economic lens is essential for understanding both its current limitations and its long-term potential. The central analytical claim is that corridor competitiveness is a function not only of physical distance and modal speed, but of the total transaction cost environment — encompassing customs delays, documentation burdens, tariff inconsistencies, and governance fragmentation — within which freight operators make routing decisions (Nandy et al., 2026).

Azerbaijan occupies a decisive position within this analysis. Strategically situated between the Caspian crossing and the South Caucasus land bridge, the country has invested substantially in the Port of Alat, the Baku-Tbilisi-Kars railway, and associated logistics infrastructure. The proposed Zangezur Corridor, which would provide a direct overland link between mainland Azerbaijan, Nakhchivan, and Türkiye through Armenian

territory, introduces a further strategic variable with significant implications for route geometry, operating cost, and redundancy.

This paper addresses three interrelated research questions. First, how does TITR compare with competing Eurasian routes when assessed through transport time, transaction cost, and risk-adjusted efficiency criteria? Second, in what ways do Azerbaijan's infrastructure investments generate synergies that improve the commercial viability of the corridor? Third, how might the Zangezur Corridor alter the economic calculus of regional transit and Azerbaijan's broader non-oil development strategy?

2. Literature Review and Theoretical Framework

2.1 Existing Scholarship on TITR

Academic engagement with the Middle Corridor has grown substantially since 2022, yet remains unevenly distributed across thematic domains. A geopolitically oriented strand of literature examines TITR primarily as an instrument of strategic realignment, focusing on its role in reducing post-Soviet countries' dependence on Russian-controlled transit infrastructure (Garibov, 2016; Miholjic, 2018). These studies establish the political rationale for corridor investment but leave financial sustainability largely untheorised.

A second, transport-focused strand examines operational realities including transit duration, intermodal handling, infrastructure bottlenecks, and route elasticity. Zhumanov et al. (2024) construct an agent-based simulation model of Kazakhstan's TITR railway segment, demonstrating that single-track infrastructure constraints add between 10 and 12 hours to container train journey times, representing 16 percent of net movement time. Palu and Hilmola (2023) document the corridor's container volume growth from 42 TEUs in 2015 to 9,023 TEUs in 2021 on the Georgian railway section, while noting that actual throughput may be four times higher than officially recorded figures due to route fragmentation in reporting.

A third strand engages with development economics and non-oil diversification, particularly in the Azerbaijani and Kazakhstani contexts. Miholjic (2018) argues that TITR participation offers Central Asian and South Caucasian economies a structural mechanism for export diversification and reduced dependence on hydrocarbon cycles. Kenderdine and Bucsky (2021) conclude that corridor growth on the demand side is contingent on European market drivers rather than China's supply-side subsidies, pointing to an underlying fragility in the corridor's business model. None of these contributions, however, integrates a systematic risk-adjusted financial framework.

2.2 Theoretical Framework: New Economic Geography and Transaction Cost Economics

This study draws on two complementary analytical traditions. New Economic Geography, associated principally with Krugman (1991), holds that reductions in transport cost generate agglomeration effects by increasing market access, concentrating economic activity,

and improving the viability of regional production networks. Applied to TITR, this perspective suggests that the corridor's value lies not merely in linear distance reduction but in its capacity to reorganise spatial economic relationships across Eurasia. If transport becomes faster, more reliable, and institutionally less burdensome, the corridor can attract trade flows that reinforce its own development through positive feedback.

Transaction Cost Economics complements this perspective by directing attention to the governance dimensions of exchange. From this standpoint, a corridor is commercially viable only when the total cost of exchange — including administrative delay, documentation burden, inconsistent tariffs, legal uncertainty, and coordination failure — is sufficiently low to justify route selection over alternatives. This is especially important for multimodal, multi-jurisdictional corridors such as TITR, where cargo must traverse multiple rail systems, maritime segments, customs jurisdictions, and regulatory regimes. The conjunction of these frameworks suggests that Azerbaijan's role in TITR should be evaluated simultaneously as a territorial bridge, an infrastructure investor, and an institutional coordinator.

3. Methodological Approach

This study employs a qualitative-analytical methodology informed by comparative cost assessment and risk-adjusted corridor evaluation. The approach synthesises peer-reviewed academic literature, institutional reports from the World Bank (2023), OECD (2023), and Asian Development Bank Institute, alongside primary transport data on freight volumes, transit times, and infrastructure specifications. A purely econometric approach is not adopted given the corridor's evolving operational conditions and the significant variance in publicly available data; instead, the paper constructs a structured interpretive model capable of identifying the conditions under which TITR infrastructure investments generate disproportionate economic value.

Risk-Adjusted Cost (RAC) Equation: To quantify the economic competitiveness of the corridor, the following model is proposed:

$$RAC = TC + IC(TVM) + RC$$

Where TC denotes direct transport costs, IC(TVM) represents inventory carrying costs adjusted for the time value of money, and RC is the risk premium associated with geopolitical and institutional factors.

Risk-Adjusted Connectivity Index (RACI): The operational efficiency of infrastructure nodes is evaluated using the following index:

$$RACI = (Ec \times Sy) / (R(gp) + If)$$

Where Ec is economic competitiveness, Sy is infrastructural synergy, R(gp) is geopolitical risk, and If is institutional friction.

The analytical framework organises variables into three categories: (1) physical efficiency metrics including transit distance, modal integration, throughput capacity, and cargo handling time; (2) financial performance

indicators encompassing capital expenditure, operating expenditure, inventory carrying costs, turnaround time, and expected logistics return; and (3) institutional risk variables including customs harmonisation, legal predictability, tariff coordination, and governance fragmentation. Azerbaijan's infrastructure portfolio — the Port of Alat, the BTK railway, and the prospective Zangezur Corridor — is evaluated as a synergistic system rather than a collection of discrete projects.

4. Comparative Route Assessment: TITR versus Competing Corridors

The operational and financial competitiveness of the Middle Corridor is best illustrated through a comparative assessment with alternative routes. Table 1 synthesises the key performance indicators (KPIs) based on current institutional data and infrastructure projections.

Table 1. Comparative Route Performance Metrics — TITR, Northern Corridor, and Maritime Routes

Route	Distance (km)	Transit Time (days)	Current Annual Capacity	Key Advantage
TITR (Middle Corridor)	~6,500	14–18	5.8 million tons/year	Bypasses Russia; shorter distance
Northern Corridor (Trans-Siberian)	~10,900	18–22	~1.46 million TEU (2021)	High volume; established operations
Maritime (Suez)	~20,000+	40–60	Dominant share (95%)	Low unit cost; high volume
Zangezur-enhanced TITR (projected)	~3,500	10–14	Up to 10 million tons by 2027	Maximum distance reduction

Source: Gafarli (2024); Palu & Hilmola (2023); World Bank (2023); Zhumanov et al. (2024)

4.1 Distance and Transit Time

A fundamental competitive advantage of TITR relative to the Northern Corridor is route length. The Middle Corridor is approximately 3,000 kilometres shorter than its Russian counterpart, a metric that translates directly into reduced fuel consumption, lower labour costs, and diminished inventory carrying charges for time-sensitive cargo (Gafarli, 2024). Transit times on TITR currently range between 14 and 18 days, compared to approximately 20 days via the Trans-Siberian route and 40 to 60 days by maritime options. This time advantage has particular significance for high-value goods including electronics, automotive components, and pharmaceutical products, where delivery windows directly affect working capital requirements.

4.2 Financial Efficiency: Capital Rotation and Operating Cost

Beyond raw distance, the financial attractiveness of a corridor depends on its capacity to accelerate capital rotation for logistics operators and the firms they serve. Shorter transit cycles reduce the period during which goods are immobilised, lowering inventory financing

costs. For a manufacturer shipping goods worth USD 1 million with an annual cost of capital of 8 percent, reducing transit time by 25 days releases approximately USD 5,500 in financing cost per shipment — a figure that compounds significantly across repeat shipments.

The Zangezur Corridor, if operationalised, is projected to reduce total travel distance by approximately 25 percent relative to the BTK-only routing, with estimated fuel savings per truck of approximately 33 litres per journey (Gafarli, 2024). These operational savings directly improve the internal rate of return for logistics operators and strengthen the commercial case for route commitment. Current TITR capacity stands at approximately 5.8 million tons annually, with projections from the World Bank (2023) indicating that tripling freight volumes to 11 million tons and halving transit times are achievable by 2030, subject to coordinated infrastructure investment and institutional reform. The OECD (2023) independently identifies the corridor's potential while emphasising that realisation depends critically on policy coordination among Türkiye, Azerbaijan, Georgia, and Kazakhstan.

4.3 The Corridor Risk Premium

A conceptually important dimension of TITR's financial evaluation is the corridor risk premium — the additional cost implicitly borne by shippers who perceive uncertainty regarding documentation reliability, border handling consistency, and route continuity. Unpredictable delays ranging from 14 to 60 days, as reported by Gafarli (2024), generate substantial contingency costs and reduce route confidence among potential new users. The Northern Corridor, despite its association with sanctioned Russian territory, historically benefits from lower perceived risk due to centralised customs administration under a single sovereign. TITR's fragmented governance across five to seven jurisdictions constitutes a structural risk multiplier that infrastructure investment alone cannot resolve.

5. Azerbaijan's Infrastructure Portfolio: Synergy and Financial Logic

5.1 Port of Alat

The Port of Alat, located 65 kilometres south of Baku on the Azerbaijani Caspian coast, is the principal maritime-rail interface point within Azerbaijan's logistics architecture. Its current operational capacity stands at 15 million tons of cargo and 100,000 TEUs annually, with planned expansion to 25 million tons and 500,000 TEUs upon completion of all construction phases (Chankov, 2023; Garibov, 2016). The port's strategic importance derives not merely from its handling capacity but from its function as a coordination node where cargo is transferred between ferry and rail modes. Efficient port operations reduce idle time, improve scheduling reliability, and lower the hidden costs associated with delayed cargo movement. In corridor economics, these time savings matter because they influence both the time value of inventory and the predictability of delivery commitments upon which commercial relationships depend.

5.2 Baku-Tbilisi-Kars Railway

The Baku-Tbilisi-Kars railway, opened in 2017, provides the 849-kilometre overland continuation of Azerbaijan's logistics system, connecting westward through Georgia to the Turkish standard-gauge network and onward to European destinations. Its current line capacity is approximately 5 million tons annually, with projections for expansion (Chankov, 2023). The BTK railway's strategic value is amplified when understood as part of an integrated multimodal corridor rather than a standalone rail asset. It enables the consolidation of Caspian-bound cargo into a coherent westward freight flow that bypasses more politically constrained alternatives, contributing to network resilience and creating a transport option whose attractiveness increases as throughput rises and coordination improves.

In financial terms, Azerbaijan's role through BTK can be understood as the conversion of sovereign infrastructure spending into a platform for recurring transit revenue and indirect economic gain. Such gains include customs receipts, railway usage charges, port fees, logistics services, warehousing, and the development of industrial activities associated with free economic zones. Azerbaijan Railways was projected to receive transit traffic revenues of USD 600–700 million annually by 2020 (Miholjic, 2018), though realisation has been contingent on corridor-wide volume growth.

5.3 The Zangezur Corridor: Strategic Economics

The proposed Zangezur Corridor introduces a qualitatively different dimension to TITR's financial

calculus. The corridor would establish a highway and railway link connecting Azerbaijan's western regions with the Nakhchivan Autonomous Republic through Armenian territory, comprising a new 166 km railway from Horadiz to Ordubad alongside related highway infrastructure. When extended via a Kars-Nakhchivan railway link, the corridor would establish for the first time a direct railway connection between Türkiye and Russia through Azerbaijan, while simultaneously positioning TITR as the shortest land transport route between the Pacific and Atlantic Oceans (Gafarli, 2024).

The economic logic of the Zangezur Corridor rests on three mechanisms. First, it reduces total route distance by approximately 25 percent relative to the BTK-only option, lowering fuel use, labour costs, maintenance expenditure, and scheduling uncertainty. Second, it provides route redundancy, reducing the probability that disruption at any single node will suspend the corridor's commercial viability — functioning, in financial terms, as embedded infrastructure insurance. Third, it creates optionality value by opening new market connections between Türkiye, Central Asia, and European destinations that are currently accessible only through more circuitous routing.

The Zangezur Corridor is projected to boost Azerbaijan's trade with Türkiye and Europe by up to 15 percent, reduce transport costs by up to 30 percent, and cut travel time by up to 50 percent (Gafarli, 2024). Additionally, estimates project more than USD 710 million in increased exports and a 2 percent rise in non-oil GDP for Azerbaijan following corridor operationalisation.

Table 2. Azerbaijan's Infrastructure Assets — Financial and Strategic Parameters

Infrastructure Asset	Current Capacity	Planned Capacity	Key Financial Contribution	Status
Port of Alat	15 mt / 100,000 TEU	25 mt / 500,000 TEU	Modal transfer efficiency; transit fee revenue	Operational (Phase 1)
BTK Railway	~5 million tons/year	17 million tons (peak)	Westbound rail continuity; transit receipts	Operational since 2017
Horadiz–Aghbend Railway	Under construction	Part of Zangezur link	Southern connectivity; route geometry improvement	45% complete (2024)
Zangezur Corridor (full)	Proposed	~10 million tons projection	25% distance reduction; 30% cost reduction	Pending Armenia agreement
Alat Free Economic Zone	Operational	Expanding	Value-added services; FDI attraction	Active

Source: Gafarli (2024); Garibov (2016); Chankov (2023); Miholjic (2018)

6. Soft Infrastructure and Institutional Friction

6.1 Customs and Documentation Challenges

The most consequential constraints on TITR's commercial viability may arise not from physical infrastructure but from institutional governance. Cargo traversing the Middle Corridor encounters varying customs regulations across Türkiye, Georgia, Azerbaijan, and Kazakhstan, creating a fragmented administrative landscape that the Northern Corridor — benefiting from

centralised Russian control — does not face (Gafarli, 2024). These institutional frictions aggregate across transfer points to produce substantial total transaction costs. Delays ranging from 14 to 60 days — a variability range that makes precise inventory planning impossible — are attributable primarily to customs processing inconsistencies and documentation burden rather than physical infrastructure limitations.

From a Transaction Cost Economics perspective, this institutional fragmentation represents the primary

constraint on corridor competitiveness. A corridor with moderate physical limitations but low institutional friction may systematically outperform a theoretically shorter route burdened by fragmented administration, particularly for just-in-time supply chains and time-sensitive cargo categories. The World Bank (2023) and OECD (2023) both identify customs harmonisation and digitisation as prerequisites for realising the corridor's projected potential, with the World Bank projecting that the combination of halved travel times and tripled freight volumes is achievable by 2030 only under coordinated reform conditions.

6.2 Digitisation as Core Infrastructure

Real-time cargo visibility, interoperable documentation systems, and coordinated scheduling platforms constitute a category of 'digital infrastructure' whose economic value is equivalent to physical investment. The reduction of uncertainty through digital systems directly lowers the corridor risk premium that deters potential shippers. Azerbaijan's potential role as a convening actor for digitisation and procedural coordination — given its central position in the Caspian–South Caucasus interface — represents a competitive advantage that extends beyond its physical asset base. The Alat Free Economic Zone's integration into corridor logistics systems is particularly relevant in this regard, offering a platform for customs modernisation and multimodal scheduling that can help transform TITR from a corridor with episodic attractiveness into one with routine commercial credibility.

7. Risk-Adjusted Financial Assessment

7.1 Return Dimensions

TITR's potential return profile encompasses several interconnected channels. Faster cargo movement reduces the time value of inventory for manufacturers and traders, with delivery compression from maritime to overland cycles improving capital rotation. For high-value or time-sensitive cargo, reduced transit times may justify route selection even where direct transport cost differentials are modest, because lower working capital pressure improves the balance-sheet efficiency of the shipper.

Reductions in operating expenditure through shorter distance and improved vehicle utilisation directly enhance logistics profitability for carriers, improving the corridor's bankability from the standpoint of private operators. Transit revenue for Azerbaijan represents a further return channel. Port fees, railway usage charges, customs receipts, and ancillary logistics services collectively constitute a diversification stream from the corridor's throughput. The multiplier effects of corridor activity — including warehousing, brokerage, insurance, and light industrial processing within the Alat Free Economic Zone — extend this return profile into domestic economic transformation that goes beyond pass-through transit accounting.

7.2 Risk Dimensions and Mitigation

The risk side of TITR's financial equation encompasses geopolitical uncertainty, route fragmentation, limited current scale relative to the Northern Corridor, bottlenecks at transfer points, and the possibility that institutional coordination will lag behind infrastructure expansion. The corridor currently holds approximately 10 percent of the capacity of the Russian route, reflecting its status as a growth corridor whose commercial maturity remains prospective rather than realised (Gafarli, 2024).

Kazakhstan's USD 35 billion transport sector investment over the past five years, including 2,500 kilometres of new railways and expanded Caspian port capacities, signals a sustained commitment to corridor development that reduces infrastructure-related risk (Gafarli, 2024). However, geopolitical risk associated with the Zangezur Corridor — dependent on finalisation of the Azerbaijan–Armenia peace agreement — remains a material contingency. The corridor's long-term risk profile improves as route redundancy increases: the BTK route through Georgia provides an established operational fallback even if the Zangezur link is delayed.

Table 3. TITR Middle Corridor — Cargo Volume Growth (Georgian Railway Section, China-Europe)

Year	Volume (TEU)	Year-on-Year Change	Notes
2015	42	—	Corridor initial phase
2016	132	+214%	BRI policy activation
2017	190	+44%	BTK railway opens
2018	1,320	+595%	Corridor coordination agreements
2019	2,764	+109%	Pre-pandemic peak
2020	3,029	+10%	Pandemic resilience
2021	9,023	+198%	Post-pandemic surge; Ukraine war early effect
2022 (est.)	~33,600 *	n/a	*Full corridor estimate (4× Georgian data)
2023	2.76 million tons	+65%	New annual record; all cargo types

Source: Palu & Hilmola (2023) for TEU data (Georgian Railways via UN Economic and Social Council, 2022); Gafarli (2024) for 2023 tonnage. *Sector professional estimate cited in Palu & Hilmola (2023).

8. Implications for Azerbaijan's Non-Oil Development Strategy

The significance of TITR for Azerbaijan extends beyond transit accounting into a structural question about the

country's longer-term development model. Azerbaijan's economy remains heavily dependent on hydrocarbon exports, which accounted for approximately 89 percent of export value in the period examined by Miholjeic (2018). The corridor's development offers a partial structural hedge against commodity price volatility by creating alternative income channels tied to trade flows rather than extraction cycles. If TITR deepens and stabilises, Azerbaijan stands to benefit from both direct transport revenues and broader spillovers in employment, services, and export capacity.

Several channels are particularly relevant. Transit-linked logistics services — including warehousing, brokerage, customs support, freight forwarding, and insurance — represent a service-sector deepening that is directly conditioned on corridor throughput volume. Light industrial activity and assembly functions in zones linked to transport nodes offer a further domestic value-capture mechanism. The Alat Free Economic Zone is especially important in this context: if effectively linked to corridor infrastructure, the zone can serve as a bridge between transit and production by encouraging firms to perform packaging, processing, redistribution, and related services near the transport hub. The projected 2 percent rise in non-oil GDP and growth in manufacturing and mining sectors following Zangezur Corridor operationalisation (Gafarli, 2024) quantifies the scale of potential domestic economic impact.

9. Policy Implications

The analysis yields several policy priorities for states and institutions involved in the Middle Corridor. Participating countries should accelerate the standardisation of customs procedures, tariff disclosure, digital documentation, and border-management protocols. A corridor cannot function as an integrated economic platform while its governance remains segmented across jurisdictions. This is not merely an administrative reform priority; it is a precondition for reducing the corridor risk premium that currently deters committed commercial utilisation.

Digitisation should be treated as core infrastructure rather than an administrative add-on. Real-time cargo visibility, interoperable documentation systems, and coordinated scheduling platforms reduce uncertainty and build route trust among potential shippers. Future growth will likely require blended financing models combining public investment, sovereign support, and instruments capable of attracting long-term institutional capital — particularly for rolling stock modernisation, green logistics initiatives, and terminal efficiency upgrades. Free economic zones and logistics parks should be designed to support processing, assembly, and re-export activity, maximising domestic value capture from corridor flows. From a resilience perspective, investments that reduce single-point corridor dependency — including the Zangezur Corridor if politically feasible — should be understood as productivity-enhancing rather than merely precautionary.

10. Limitations and Directions for Future Research

This paper has several limitations. The analysis draws on currently available institutional and secondary-source material rather than proprietary shipment-level data, making it an analytical assessment rather than a definitive quantitative forecast. The corridor remains politically and operationally dynamic, and some projected gains — particularly those associated with the Zangezur Corridor — depend on implementation conditions that are not yet fully settled. The Azerbaijan–Armenia peace process introduces material uncertainty into the Zangezur timeline that cannot be resolved through economic analysis alone. Freight competitiveness also varies significantly by cargo type, seasonality, and firm-specific logistics strategy, dimensions that deserve more granular study.

Future research could extend this analysis in at least three directions. A formal econometric study of tariff elasticity and route substitution across Eurasian corridors would provide quantitative grounding for the comparative arguments advanced here. The development of shipment-level comparative models incorporating inventory cost, insurance premiums, and customs delay distributions would produce more precise estimates of route-specific financial performance. Third, examination of whether TITR can evolve beyond freight transit into a broader energy and green-industry corridor — particularly in relation to renewable electricity, hydrogen derivatives, and low-carbon industrial supply chains — represents a prospectively significant research frontier.

11. Strategic Recommendations for TITR Enhancement

A risk-adjusted assessment of the Trans-Caspian International Transport Route (TITR) indicates that Azerbaijan can further strengthen its strategic position within the Middle Corridor through several complementary policy measures. First, the implementation of a unified digital customs and transit platform among all TITR member states would significantly reduce institutional friction, streamline border-crossing procedures, and improve the efficiency of cargo movements. Second, the establishment of transparent and predictable tariff structures would lower uncertainty for international logistics operators and freight forwarders, thereby reducing the risk premium associated with corridor utilization. Third, continued investment in the multimodal infrastructure of the Port of Alat would enhance connectivity between maritime and rail transport segments, increasing operational efficiency and improving the overall competitiveness of the corridor. Finally, expanding the use of public-private partnerships (PPPs) would facilitate the development of logistics hubs and supporting infrastructure while reducing the fiscal burden on the public sector. Collectively, these measures would improve corridor reliability, attract additional transit flows, and reinforce Azerbaijan's role as a key logistics and transport hub linking Europe and Asia.

12. Conclusion

The Trans-Caspian International Transport Route has emerged as one of the most consequential connectivity projects in the current reorganisation of Eurasian trade. When examined through a risk-adjusted financial and institutional lens, TITR appears as an increasingly credible attempt to combine supply-chain resilience, transit speed, and regional economic integration. The corridor recorded 2.76 million tons of cargo in 2023, a 65 percent increase on the prior year, and both the World Bank and OECD project further tripling of freight volumes by 2030 under coordinated reform conditions.

This paper has argued that Azerbaijan occupies the corridor's principal strategic and financial node. Through the Port of Alat, the BTK railway, and associated logistics infrastructure, the country has sought to convert geographic position into recurring economic advantage. The prospective Zangezur Corridor further sharpens this strategy by offering the possibility of lower operating costs, shorter land routes, 25 percent distance reduction, and greater redundancy in the South Caucasus transport system.

These physical advantages are, however, contingent on the evolution of soft infrastructure: harmonised customs systems, digital interoperability, legal predictability, and coordinated corridor governance. Where these elements converge, TITR has the potential to evolve from a supplementary transit option into a robust commercial artery linking East Asia, Central Asia, the South Caucasus, Türkiye, and Europe. The financial viability of the Middle Corridor should ultimately be understood as a problem of integration. The corridor becomes economically powerful when ports, railways, institutions, and policy frameworks operate as components of a single coordinated system. Azerbaijan's strategic role within this architecture is not only that of a transit state but that of a system-builder — and the quality of that system-building will determine whether TITR's considerable geographic and logistical advantages are translated into durable commercial performance.

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When BRI Meets Conditional Trade: Bangladesh's Dual Dependency Trap in the Age of U.S.-China Competition

Syed Shahnawaz Mohsin*

North South University (NSU), Dhaka, Bangladesh

ORCID: <https://orcid.org/0009-0008-5308-3678>

E-mail: shahnawaz.mohsin@northsouth.edu

* Corresponding author

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ABSTRACT

This paper examines Bangladesh's evolving trade strategy at the intersection of competing goeconomic pressures from the United States and China, arguing that the country functions as a "strategic swing economy" whose hedging capacity is increasingly constrained by structural asymmetries. Through analysis of the 2026 U.S.-Bangladesh Reciprocal Trade Agreement and Bangladesh's deepening infrastructure integration with China's Belt and Road Initiative (BRI), the study reveals a central tension: while U.S. engagement offers enhanced market access conditional on labor, environmental, and digital governance reforms, Chinese cooperation provides flexible development financing and infrastructure investment that generate long-term dependency without explicit governance conditionalities. The findings contribute to Belt and Road discourse in three critical ways. First, they demonstrate that BRI-induced infrastructure integration does not automatically expand strategic autonomy for recipient countries; rather, when combined with parallel trade alignment toward Western markets, it can produce fragmented economic systems and dual dependency traps. Second, the paper challenges binary narratives of BRI as either neocolonial domination or mutually beneficial development, revealing instead how connectivity-driven development coexists uneasily with competing regulatory regimes, creating compound constraints on policy sovereignty. Third, by introducing the "strategic swing economy" concept, the analysis shows that mid-sized developing nations actively shape their engagement with China, yet face diminishing maneuvering space as trade agreements increasingly embed strategic alignment. These findings suggest that sustainable BRI cooperation requires frameworks that explicitly reconcile infrastructure financing with policy autonomy, enabling recipient countries to transition from passive rule-takers to active participants in shaping global economic governance norms.

1. Introduction

Over the past three decades, Bangladesh has become a dynamic export-oriented economy, largely due to its ready-made garment (RMG) sector. This export-led growth has fostered economic expansion, reduced poverty, and facilitated structural transformation, positioning the country for a transition from least developed to middle-income status (World Bank, 2023; Rahman, 2021). The transformation has led to vulnerabilities such as high export concentration, reliance on external markets, and limited industrial diversification. As Bangladesh nears its post-LDC transition, these issues are becoming more pronounced amid shifting global trade dynamics and intensifying geopolitical competition.

The post-LDC transition is a crucial turning point for Bangladesh's trade policy, as graduation means the gradual loss of preferential market access, including duty-free and quota-free privileges that have supported the

competitiveness of Bangladeshi exports in advanced markets (UNCTAD, 2021). Maintaining export competitiveness will rely on deeper integration into trade frameworks, improved regulatory compliance, and upgraded industrial capabilities. Meanwhile, the global trade environment is transforming due to geopolitical rivalries, supply chain restructuring, and the strategic economic actions of major powers (Farrell & Newman, 2019; Drezner et al., 2021). Trade agreements now extend beyond tariff reductions to encompass labor standards, digital governance, environmental regulation, and supply chain security, linking market access to broader regulatory and strategic issues (Baldwin, 2022; Rodrik, 2018).

In the current global landscape, Bangladesh is caught between competing goeconomic forces, particularly the United States and China. The U.S. is Bangladesh's largest export destination, importing a significant portion of its garment exports and supporting its export-led growth model (Uddin, 2025; World Bank, 2023). The 2026

United States–Bangladesh trade framework aims to stabilize and deepen their relationship amid tariff, supply chain, and regulatory uncertainties. This engagement is increasingly contingent on labor rights, environmental compliance, intellectual property protection, and digital trade governance, highlighting the trend among advanced economies to incorporate regulatory norms into trade agreements (Baldwin, 2022; Aaronson & Leblond, 2018). China is Bangladesh's largest trading partner and a key part of its development strategy, with a focus on infrastructure financing, industrial investment, and technological cooperation. Through initiatives such as the Belt and Road Initiative, Chinese capital has significantly contributed to the development of Bangladesh's transport networks, energy systems, and industrial zones, supporting its structural transformation (Mashrafy & Ullah, 2024). Chinese economic engagement, unlike Western trade arrangements, often features lower governance conditionality, flexible financing, and a focus on large-scale infrastructure development. This makes China an attractive partner for Bangladesh in addressing infrastructure deficits and fostering industrial expansion. The coexistence of these two economic relationships reflects Bangladesh's broader strategy of diversified engagement, often described as a "multi-vector" foreign economic policy (Datta, 2026). Bangladesh aims to maximize economic opportunities and maintain strategic autonomy by fostering ties with major powers. However, rising geopolitical competition, especially between the U.S. and China, complicates this balance. Trade agreements have become tools of geoeconomic strategy, with economic partnerships increasingly influenced by broader strategic pressures (Scholvin & Wigell, 2018; Güneylioglu, 2023). Bangladesh's trade policy is characterized by a central tension between deepening ties with the United States and reliance on China. Engaging with the U.S. offers benefits such as improved market access and integration into global supply chains, but it also entails regulatory constraints that can affect domestic policy. In contrast, reliance on China provides financing and infrastructure support with fewer conditions attached, though it risks long-term dependence and limits diversification.

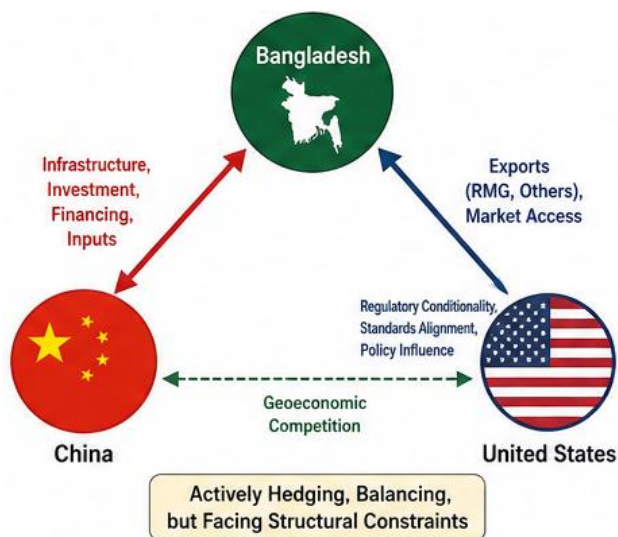
This paper argues that Bangladesh is becoming a "strategic swing economy," aiming to maximize economic gains by balancing relationships with competing major powers. However, its ability to maintain this strategy is hindered by three factors: asymmetric trade agreement conditions with advanced economies, structural dependencies within global production networks, and geopolitical tensions stemming from great-power rivalries. The study investigates how Bangladesh navigates these competing trade alignments and the challenges posed by its growing engagement with the U.S. alongside established ties with China. It aims to contribute to discussions on trade policy, development, and geopolitical competition in the Global South.

2. Conceptual Framework: Trade Policy in a Geopolitical Economy

The shift in global trade from a rules-based system to one influenced by geopolitical competition requires a new approach to trade policy. For developing economies like

Bangladesh, trade policy now encompasses more than just tariffs and market access; it is part of a broader geopolitical economy where economic tools are used to pursue strategic interests and alter global production networks. This section proposes a framework to analyze Bangladesh's evolving trade strategy by integrating strategic autonomy, small-state balancing, and the changing dynamics of geoeconomics and globalization. As illustrated in Figure 1, Bangladesh operates within a triangular geoeconomic structure, balancing export dependence on the United States with infrastructure and supply chain reliance on China.

Figure 1. Bangladesh as a Strategic Swing Economy



Source: Illustrated by the author.

2.1 Strategic Autonomy in Trade Policy

The concept of strategic autonomy has become more important as states navigate an uncertain global economic environment. It refers to a state's ability to make independent policy decisions and pursue national objectives without relying too much on external actors (GEOPOL.UK 2026). In trade policy, the concept of strategic autonomy goes beyond formal sovereignty, allowing countries to shape domestic regulations, industrial policies, and international partnerships to meet national development goals. Recent research links this idea to rising concerns about supply chain vulnerabilities, economic coercion, and technological dependence (Steinbach, 2023). As global production networks grow more fragmented and interdependent, states are increasingly aware of the risks associated with external dependencies in critical sectors such as energy, technology, and manufacturing. As a result, trade policy has shifted to focus on managing interdependence rather than just promoting liberalization.

The pursuit of strategic autonomy is limited by economic interdependence. Research on European trade policy shows that states balance multilateral cooperation with unilateral action, staying open to global markets while protecting domestic interests (Kübek & Mancini, 2023). For developing economies, balancing integration into global value chains with maintaining policy flexibility is challenging due to structural dependencies. Thus, strategic autonomy is not absolute but a relative outcome

influenced by power asymmetries and institutional constraints.

2.2 Small-State Balancing and Trade Strategy

The challenges of strategic autonomy are particularly significant for smaller and mid-sized economies, which lack the structural power of larger states but are deeply integrated into global economic networks. Small-state theory suggests these countries adopt balancing strategies to navigate relationships with major powers, often seeking diversified partnerships to enhance economic opportunities and minimize vulnerability.

This balancing behavior manifests in trade policy, where smaller states engage with multiple major powers elaborating on one for exports and another for investment. However, the rise of great-power competition complicates these strategies, as economic relations become more politicized. Scholars argue that geopolitical alignment increasingly influences trade flows, thereby pressuring states to align with competing economic blocs (Farrell & Newman, 2019) creating a structural dilemma for countries like Bangladesh, which must navigate overlapping and sometimes conflicting economic relationships.

2.3 Geoeconomics versus Globalization

Trade policy dynamics can be better understood by distinguishing between globalization and geoeconomics. Traditional globalization theories focus on efficiency gains from open markets and cooperation, portraying trade as beneficial for growth and interdependence. However, recent scholarship indicates a shift toward a geoeconomic paradigm, in which states leverage economic tools including trade agreements and investment flows—to achieve strategic aims (Drezner et al., 2021). This shift indicates a transformation in the global economy, where interdependence is seen as both a source of gain and a potential vulnerability.

Contemporary analyses depicts that globalization persists but is now more contested and fragmented, marked by a tension between cooperation and competition (Mariotti, 2025). States now seek to reshape global economic networks to enhance their strategic position, leading to the emergence of concepts such as "weaponized interdependence" and techno-nationalism (Farrell & Newman, 2019). In this environment, trade policy is increasingly intertwined with issues of economic security, technological control, and geopolitical alignment.

2.4 Defining the "Strategic Swing Economy"

This study introduces the concept of a strategic swing economy to analyze Bangladesh's role in the global trade system. A strategic swing economy is a mid-sized developing state that leverages relationships with competing major powers to maximize economic gains while maintaining policy autonomy. Key characteristics include:

1. An intermediate position in the global hierarchy, attracting partnerships without being a dominant power.
2. Diversified economic ties with multiple major powers across various sectors.
3. A hedging strategy that seeks benefits from competing partners without exclusive commitments.

However, this position is fragile; rising geopolitical competition may put pressure on regulatory alignment, supply chain integration, and strategic cooperation, potentially undermining sustained neutrality. The concept highlights both agency and constraints, reflecting the structural tensions involved.

2.5 Analytical Dimensions

To operationalize this framework, the analysis focuses on three key trade-offs Bangladesh faces in its relations with major powers:

1. **Market Access vs. Policy Sovereignty** - Trade agreements often require regulatory commitments in areas like labor and environmental standards, which can enhance export competitiveness but may limit domestic policy autonomy (Rodrik, 2018). This creates a trade-off between accessing markets and maintaining policy independence.
2. **Conditional vs. Non-Conditional Partnerships** - Economic partnerships vary in the governance conditions they impose. Advanced economies often include explicit conditionalities in trade agreements, while others may offer more flexible cooperation. This influences the strategic choices and potential benefits for developing economies.
3. **Trade vs. Infrastructure Dependency** - Bangladesh's economic relationships are marked by reliance on export markets for trade and external financing for infrastructure. Different geopolitical actors shape these interrelated dependencies and are crucial for understanding the implications of Bangladesh's trade strategy.

3. Bangladesh–China Economic Relationship

The economic relationship between Bangladesh and China has become a key partnership in Bangladesh's development. In the last two decades, China has emerged as Bangladesh's largest trading partner and a vital source of infrastructure financing and industrial inputs (Islam et al., 2024). This relationship highlights the growing economic ties between China and developing economies, marked by increased trade, investment, and infrastructure collaboration. While it has significantly boosted Bangladesh's growth and transformation, it also raises concerns about dependency and strategic vulnerability (Titumir & Rahman, 2019).

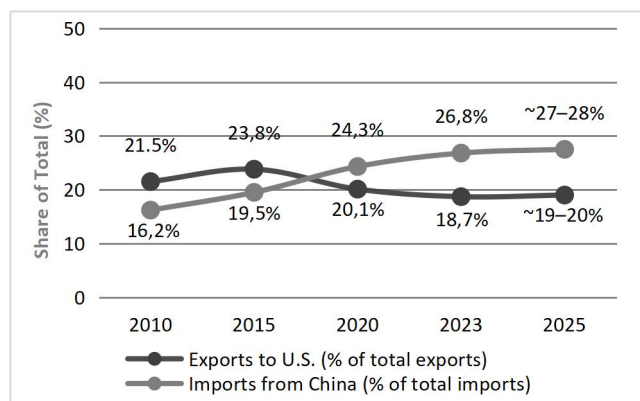
3.1 Trade Structure and Dependency

China is the largest source of imports for Bangladesh, significantly supplying intermediate and capital goods essential for domestic production (Razzaque et al., 2020). Chinese exports to Bangladesh, including machinery, textiles, and electronics, are vital for the country's manufacturing sectors, particularly the ready-made garment industry. These products account for over one-fifth of Bangladesh's total imports, highlighting the strength of its trade relationship (Islam et al., 2024). Figure 2 demonstrates the deepening structural asymmetry in Bangladesh's trade profile.

Bangladesh's production model is heavily reliant on imported raw materials from China, particularly for its garment industry. This creates an upstream dependency on Chinese supply networks for domestic production.

Additionally, the trade relationship is imbalanced, with imports from China accounting for a large share of Bangladesh's trade, while exports to China are minimal, representing only a small fraction of total exports (Razzaque et al., 2020). The Bangladesh–China trade relationship exhibits asymmetric interdependence, in which Bangladesh relies disproportionately on China due

Figure 2. Trade dependence: Bangladesh and major partners (2010-2025)



*2025 estimates

Source: World Bank (2023) WITS; IMF (2024) Direction of Trade Statistics.

to structural constraints such as limited product diversification and weak market penetration. This imbalance has significant economic policy implications. Although affordable industrial inputs boost production and export competitiveness, ongoing trade deficits create external vulnerabilities, including pressure on foreign exchange reserves and limited bargaining power in negotiations. The where dependency both supports and restricts development defines Bangladesh's economic ties with China. Here table 1 highlights Bangladesh's dual dependency structure export reliance on the U.S. and import dependence on China.

Table 1. Bangladesh's Trade Dependence by Major Partners (2010–2025)

Year	Exports to U.S. (% of total exports)	Imports from China (% of total imports)	Trade Balance with China (USD bn)
2010	21.5%	16.2%	-5.4
2015	23.8%	19.5%	-8.1
2020	20.1%	24.3%	-12.5
2023	18.7%	26.8%	-15.2

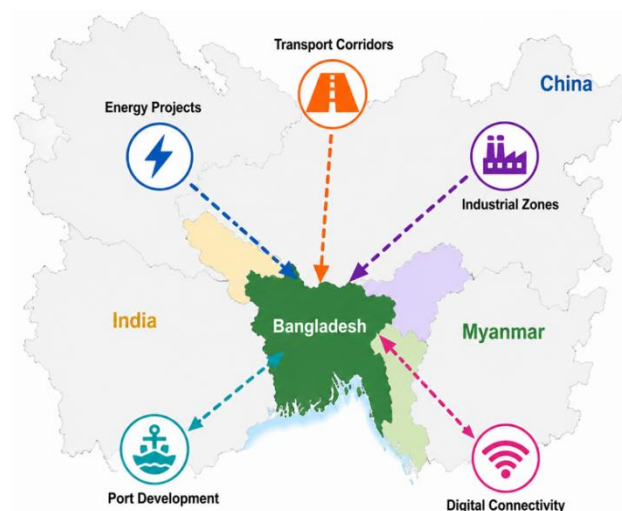
Source: World Bank and IMF Data

3.2 Infrastructure and Development Financing

China is crucial to Bangladesh's infrastructure development, particularly through the Belt and Road Initiative (BRI) launched in 2013. The BRI has expanded China's economic influence across Asia and Africa, with Bangladesh becoming a key partner due to its strategic location and development needs (Islam et al., 2024). Chinese financing has played a crucial role in addressing Bangladesh's infrastructure deficits, with a focus on energy, transportation, and industrial development. Key projects such as power plants, highways, railways, and ports enhance connectivity, reduce logistical costs, and support industrial growth, contributing to the country's

overall development goals (Titumir & Rahman, 2019). Figure 4 maps the sectoral and geographic distribution of Chinese-supported infrastructure projects in Bangladesh. Chinese involvement in infrastructure development is notable for its scale and rapid implementation, driven by state-owned enterprises and government-backed financing. This rapid execution appeals to developing

Figure 3. Bangladesh-China Infrastructure Connectivity under BRI



Source: Based on Belt and Road Portal (2024) data.

economies seeking to boost growth and address infrastructure challenges. However, concerns arise regarding financial sustainability and governance, with potential risks of debt accumulation and challenges in project viability and transparency (Titumir & Rahman, 2019). While Bangladesh has so far managed its external debt relatively prudently, the long-term implications of sustained reliance on external financing remain a subject of policy debate.

3.3 Nature of Chinese Engagement

China's economic engagement with Bangladesh is characterized by rapid, large-scale projects, primarily driven by state-owned enterprises and centralized decision-making. Additionally, Chinese partnerships often come with minimal governance conditionality, distinguishing them from Western development models (Titumir & Rahman, 2019). Chinese financing and investment typically lack explicit requirements for governance reforms or political conditions, giving recipient countries flexibility in their development strategies. Additionally, engagement is primarily state-led, with strong coordination among government institutions, financial entities, and corporate actors (Akter et al., 2023; Titumir & Rahman, 2019).

China's approach offers Bangladesh access to financing, technology, and infrastructure development opportunities that are often not available through traditional Western channels (Akter et al., 2023). Chinese engagement enhances Bangladesh's developmental flexibility, allowing it to pursue large-scale projects without strict policy conditions. However, this model poses risks, such as creating long-term dependencies on a single partner. As Bangladesh integrates its infrastructure and industrial sectors with China, it may struggle to diversify its

economic partnerships or adjust its policy direction (Titumir & Rahman, 2019). The Bangladesh–China economic relationship exemplifies a complex interplay of opportunity and constraint. China's support for infrastructure and industrial growth fosters dependency, raising concerns about long-term sustainability and strategic autonomy. This duality is key to understanding Bangladesh's position in a shifting geoeconomic landscape as it navigates relationships with various major powers.

4. Bangladesh–United States Trade Engagement

The economic relationship between Bangladesh and the United States is crucial for Bangladesh's export-driven growth. Unlike its engagement with China, which focuses on infrastructure and industrial inputs, the U.S. relationship is centered on market access. This highlights a structural duality in Bangladesh's economy, balancing dependence on Western markets with ties to Asian economies. The 2026 United States–Bangladesh Agreement on Reciprocal Trade marks a significant evolution in this relationship, introducing regulatory alignment and strategic cooperation beyond traditional trade (White House, 2026).

4.1 Overview of Trade Relations

The United States is Bangladesh's largest export destination, especially for ready-made garments (RMG), which are vital to the country's economy. U.S. demand drives industrial growth, job creation, and foreign-exchange earnings in Bangladesh (World Bank, 2023). Bangladesh exports billions of dollars in garments to the U.S. each year, accounting for a significant share of its total export earnings and solidifying its status as a leading global apparel supplier (Tradeimex, 2026). Bangladesh's export dependence on the U.S. creates both opportunities and vulnerabilities. While it has spurred rapid industrial growth and integration into global supply chains, it also exposes the country to external shocks and regulatory pressures from this dominant market. This vulnerability has been highlighted by events such as the suspension of GSP benefits due to labor rights concerns, demonstrating the link between U.S. trade relations and governance issues.

4.2 The New Trade Deal (2026)

The 2026 United States–Bangladesh Agreement on Reciprocal Trade marks a significant step in bilateral economic relations, reducing tariffs on Bangladeshi exports to a capped rate of around 19 percent and enhancing market access for both countries (USTR, 2026). Selected textile and apparel products may receive preferential or zero-tariff treatment under certain conditions, highlighting the garment sector's importance in bilateral trade (Timsina, 2026). The agreement goes beyond tariff adjustments, covering labor standards, environmental protection, intellectual property rights, digital trade, and regulatory transparency. Bangladesh will strengthen labor protections, enforce recognized labor rights, enhance collective bargaining, and prohibit forced labor (USTR, 2026). The agreement commits to strong environmental protection and improved enforcement, highlighting the growing role of

sustainability in global trade governance (White House, 2026).

The agreement includes provisions to enhance governance and transparency, such as strengthening anti-corruption measures, adopting good regulatory practices, and addressing issues related to state-owned enterprises (USTR, 2026). Bangladesh has agreed to remove non-tariff barriers and align its regulatory standards with those of the U.S. in sectors such as agriculture, pharmaceuticals, and industrial goods. This agreement fits into broader U.S. trade and strategic goals, emphasizing supply chain resilience and export control cooperation. Its provisions on data flows and intellectual property support the U.S. Indo-Pacific strategy, aiming to strengthen economic partnerships and promote rules-based governance in the region. Thus, the trade framework serves not just as a bilateral economic deal but as part of a larger geoeconomic strategy to influence regional trade dynamics.

4.3 Conditionality and Compliance Pressures

A defining feature of the United States' trade engagement with Bangladesh is the incorporation of conditionalities that link market access to regulatory reforms (World Bank, 2023). U.S.-led trade frameworks often require compliance with governance, labor, and environmental standards, reflecting U.S. trade policy norms. A key area of conditionality is labor rights enforcement. The 2026 agreement mandates Bangladesh to strengthen labor laws, ensure freedom of association, and enhance enforcement in export-oriented sectors (USTR, 2026). These requirements build on earlier reforms following international scrutiny of industrial accidents and impose ongoing compliance obligations that may require significant institutional capacity and regulatory adaptation (Shahrukh, 2026).

ESG considerations play a crucial role in conditionality. The agreement's focus on environmental protection and sustainability highlights the integration of ESG criteria into global trade. Adhering to these standards may raise production costs for Bangladeshi firms, especially in labor-intensive sectors such as garments, thereby impacting their price competitiveness in international markets (Rahman, 2026). The agreement also promotes broader regulatory reforms, aligning with U.S. standards in areas like intellectual property and digital trade. Bangladesh's commitment to U.S. certifications in specific sectors highlights how trade agreements can influence domestic regulations and limit policy discretion (USTR, 2026). These provisions can boost trade by reducing barriers and improving compatibility, but they may also threaten regulatory sovereignty and independent policy goals (Shahrukh, 2026).

Table 2. Core Tension: Divergent Engagement Models

U.S. Engagement	Dimension	China Engagement
Trade (Exports)	Primary Mode of Engagement	Infrastructure & Investment
High (Labor, ESG, Governance)	Conditionality Level	Low (Limited Explicit Conditions)
Required	Regulatory Alignment	Minimal

Market-based (private sector driven)	Financing Model	State-led (government backed)
Supply Chain Alignment	Strategic Intent	Connectivity & Development
Sovereignty Erosion, Compliance Burden	Risk Type	Dependency Accumulation

Source: Composed by the author based on Rodrik (2018); Farrell & Newman (2019)

The dynamics highlight a key contrast in Bangladesh's external economic relations: engagement with China focuses on infrastructure financing with flexible conditions. In contrast, U.S. trade engagement emphasizes market access linked to regulatory reforms and compliance (Rahman, 2026). This model provides key benefits for export opportunities and high-value market integration, but it may also limit policy autonomy and heighten vulnerability to external pressures. In the context of growing global geoeconomic competition, these conditions have broader strategic implications (Shahrukh, 2026). By incorporating regulatory alignment and economic security into trade agreements, the United States extends its influence into the domestic policies of partner countries (Rahman, 2026). For Bangladesh, navigating these pressures while maintaining diversified economic partnerships represents a central challenge in its evolving trade strategy.

5. Core Tension: Conditional vs Non-Conditional Trade Regimes

Bangladesh's trade strategy is shaped by a tension between two models: conditional, rules-based trade regimes and flexible, state-led partnerships with limited conditionality. This reflects wider changes in the global political economy, where trade agreements serve as tools for regulatory influence and geopolitical alignment. The contrast between Bangladesh's engagement with the US and China highlights how different trade governance models create varying opportunities and constraints for developing economies. The divergence outlined in Table 2 constitutes the structural basis of Bangladesh's strategic dilemma. The divergence between U.S. and Chinese engagement models, summarized in Table 2, constitutes the structural basis of Bangladesh's strategic dilemma.

Table 3. Comparative Features of U.S. vs China Economic Engagement

Dimension	U.S. Engagement	China Engagement
Primary Mode	Trade (exports)	Infrastructure & investment
Conditionality	High (labor, ESG, governance)	Low (limited explicit conditions)
Regulatory Alignment	Required	Minimal
Financing Model	Market-based	State-led
Strategic Intent	Supply chain alignment	Connectivity & development
Risk Type	Sovereignty erosion	Dependency accumulation

Source: Composed by the author based on Rodrik (2018); Farrell & Newman (2019)

5.1. "No Strings Attached" vs. "Rules-Based Engagement."

A key distinction among Bangladesh's major economic partners lies in their engagement strategies. Chinese cooperation is pragmatic and non-intrusive, focusing on infrastructure and industrial investment without strict governance conditions. This allows Bangladesh to prioritize projects in energy, transportation, and industrial growth. In contrast, U.S.-led trade engagement operates under a rules-based framework, linking market access to compliance with regulatory standards. The 2026 United States–Bangladesh Agreement on Reciprocal Trade illustrates this, requiring Bangladesh to uphold labor rights, strengthen environmental protections, enhance regulatory transparency, and align its intellectual property regime (USTR, 2026). These provisions illustrate how trade agreements are increasingly used to diffuse regulatory norms and shape domestic governance structures.

The agreement includes commitments on digital trade, export controls, and supply chain cooperation, aligning with U.S. geoeconomic goals. These provisions show that modern trade deals go beyond economics to address strategic alignment and security. One analysis highlights that the agreement "reaches into Bangladesh's regulatory discretion... and future strategic flexibility," underscoring its governance implications (Ali, 2026).

This contrast can therefore be understood as a divergence between:

- China's pragmatic, development-oriented engagement, emphasizing infrastructure and financing
- U.S. rules-based engagement, emphasizing regulatory alignment and compliance

While both models offer economic benefits, they impose fundamentally different constraints on policy autonomy and development strategy.

5.2 Policy Sovereignty vs. Market Access

The trade-off for Bangladesh involves balancing policy sovereignty with market access, particularly in the garment sector. Engaging with the U.S. opens high-value export markets, but requires compliance with regulatory commitments that limit domestic policy flexibility. The 2026 trade agreement highlights: Bangladesh must accept U.S. standards on food safety and industrial goods, strengthen labor laws, adopt environmental and anti-corruption frameworks, and align with intellectual property and digital governance rules (USTR, 2026). These provisions improve market access and trade integration while limiting independent policymaking, especially in industrial policy, digital regulation, and trade governance. Analysts indicate that such agreements may necessitate extensive reforms across various sectors (MUNA, 2026).

Economic engagement with China offers flexible policy design since financing and investment are not tied to governance reforms. However, this flexibility creates a structural dependence on Chinese capital, technology, and supply chains.

Thus, Bangladesh faces a dual constraint:

- With the U.S., access to markets is contingent on compliance with external standards
- With China, development flexibility is accompanied by increasing economic dependence

This duality underscores the complexity of Bangladesh's position as a balancing economy within an increasingly polarized global trade system.

5.3 Sectoral Impacts

The core tension's implications are evident sectorally, where varying forms of engagement lead to different outcomes. The garment sector highlights the pros and cons of U.S.-led trade engagement. As Bangladesh's main export industry, the RMG sector is set to benefit from improved U.S. market access under the 2026 trade agreement, thereby enhancing manufacturers' export competitiveness and stability within global supply chains (Khan, 2026).

The gains come with rising compliance costs due to labor rights, supply chain transparency, and environmental standards, requiring investments in regulatory capacity and monitoring systems. For firms with thin margins, these costs may reduce price competitiveness, especially against countries with fewer regulations. Additionally, U.S.-origin input requirements could change supply chain dynamics, potentially impacting Bangladesh's production networks (Oritain, 2026). This introduces new complexities for firms seeking to balance cost efficiency with compliance. Bangladesh's infrastructure and industrial development are heavily tied to Chinese investment, particularly in energy, transportation, and industrial zones, which are vital for economic growth. The lack of strict conditionality in Chinese partnerships allows for greater flexibility in development but also increases dependence on China for financing and technology. Meanwhile, growing U.S. trade engagement may exert pressure on Bangladesh's ties with China, potentially shifting it towards U.S.-aligned economic frameworks (USTR, 2026). This creates the possibility of strategic friction, in which Bangladesh's commitments under one partnership may constrain its flexibility to engage with another.

Bangladesh's trade policy faces a central tension between two competing economic models: the U.S. offers access to high-value markets with strict regulatory requirements, while China provides flexible development financing and infrastructure support, risking long-term dependency. This dynamic is not just economic but also geopolitical, as trade agreements grow more strategic. Bangladesh must navigate these competing pressures to balance economic growth with policy autonomy.

6. Challenges Arising from the New U.S. Trade Deal

The 2026 trade agreement between Bangladesh and the United States marks a new phase of economic engagement with deeper regulatory integration and conditional market access. While it promises benefits like enhanced export stability and reduced tariffs, it also presents challenges that could limit Bangladesh's

economic flexibility and strategic autonomy. This section highlights four main concerns: regulatory and institutional strain, cost-competitiveness risks, strategic vulnerability, and domestic political-economy constraints.

6.1 Regulatory and Institutional Strain

The agreement poses immediate challenges for Bangladesh's regulatory capacity, demanding comprehensive reforms in labor governance, environmental compliance, digital regulation, and intellectual property enforcement. Although these reforms align with international standards, their implementation requires administrative capacity that varies significantly across the country. As shown in Figure 5, the agreement imposes cross-sectoral regulatory obligations that extend beyond traditional trade domains.

Figure 4. Regulatory and Institutional Impact of the U.S. Trade Agreement on Bangladesh



Source: Based on USTR (2026) Fact Sheet; Supplementary Material (2026)

In labor governance, the agreement calls for stronger enforcement of labor rights and collective bargaining protections, along with stricter penalties for violations. This integration of labor regulations into a trade enforcement framework makes them compliance-oriented and subject to external monitoring, with non-compliance potentially leading to the re-imposition of tariffs (Mohsin, 2026, Appendix A). This creates pressure on domestic institutions to expand enforcement capacity without sufficient strengthening. Additionally, aligning with higher environmental standards in export-oriented sectors introduces regulatory burdens that require investments in monitoring, regulatory agencies, and compliance infrastructure. For a developing economy with limited resources, this can lead to implementation gaps and uneven enforcement outcomes (Rodrik, 2018).

The agreement introduces regulatory displacement, where external standards shape domestic policies. Requirements for accepting foreign regulatory approvals, like sanitary measures or product certifications, shift regulatory

authority beyond national institutions (Mohsin, 2026, Appendix A). This not only strains administrative capacity but also raises concerns about the long-term erosion of domestic regulatory autonomy.

6.2 Cost Competitiveness Risks

A key challenge for Bangladesh is the potential erosion of cost competitiveness, particularly in the ready-made garment sector, which has thrived due to low labor costs and a flexible regulatory environment. Stricter compliance requirements for labor, environmental, and governance standards could significantly raise production costs. Meeting labor standards demands investments in safety, wage adjustments, and monitoring, while environmental regulations require upgrades in processes and waste management. Additionally, supply chain transparency and certification add administrative burdens. The agreement also accelerates intellectual property harmonization and regulatory alignment, which may further increase input costs for domestic industries (Mohsin, 2026, Appendix A). For example, stronger intellectual property protections may raise the cost of technology transfer and limit access to affordable inputs, particularly in sectors such as pharmaceuticals and agriculture.

In addition, the agreement includes elements of managed trade, such as commitments to purchase U.S. goods including energy and agricultural products, which may further strain Bangladesh's cost structure and foreign exchange reserves (Mohsin, 2026, Appendix A). These obligations introduce rigidities into trade flows, potentially crowding out more cost-effective sourcing options. Cumulative compliance costs may increase production costs by 10–20%, eroding Bangladesh's comparative advantage.

Table 4. Estimated Compliance Costs under U.S. Trade Agreement

Compliance Area	Required Reform	Estimated Cost Impact
Labor Standards	Wage increases, inspections	+5–10% production cost
Environmental	Waste management, emissions	+3–7%
ESG Reporting	Certification, audits	+2–5%
Supply Chain Transparency	Traceability systems	+1–3%
Compliance Area	Required Reform	Estimated Cost Impact
Labor Standards	Wage increases, inspections	+5–10% production cost

Source. (World Bank, 2023; Mohsin, 2026)

These factors raise concerns about the sustainability of Bangladesh's competitive advantage in global markets. As production costs rise, the country may face increasing competition from other low-cost producers that are not subject to similar regulatory constraints, thereby undermining its position in global value chains.

6.3 Strategic Vulnerability

In addition to addressing economic concerns, the pact creates strategic risks by tying trade to security and regulatory convergence. In order to effectively

incorporate aspects of U.S. foreign policy into its domestic legislation, Bangladesh must embrace U.S. export controls and sanctions (Mohsin, 2026, Appendix A). This results in a type of extraterritorial regulatory influence where Bangladesh's economic activities are subject to the strategic priorities of a foreign power.

Additionally, the agreement contains clauses that can limit Bangladesh's capacity to interact with other partners. For example, Bangladesh's ability to diversify its economic ties is limited by termination clauses in agreements with "non-market countries" (Mohsin, 2026, Appendix A). In the case of Bangladesh's relationship with China, these clauses are especially important since they can restrict future participation in sectors including technology collaboration, infrastructure funding, and digital trade.

The agreement also incorporates elements of strategic alignment in areas such as defense cooperation, data governance, and supply chain security. These provisions collectively position Bangladesh within a U.S.-centric economic and security architecture, potentially reducing its flexibility to pursue an independent foreign policy. As the supplementary analysis notes, the agreement "narrows Bangladesh's long-standing multi-vector engagement strategy" by embedding strategic commitments within economic arrangements. (Mohsin, 2026) This dynamic poses a risk of over-alignment, in which Bangladesh's economic and regulatory systems become increasingly oriented toward a single geopolitical partner, thereby increasing exposure to external shocks and geopolitical shifts.

6.4 Domestic Political Economy Constraints

There will probably be substantial internal political economy obstacles to the agreement's implementation. Stakeholders who incur transition costs may oppose trade reforms, particularly those pertaining to regulatory alignment. Reforms that increase production costs or impose harsher rules may be opposed by industrial lobbies in labour-intensive industries like apparel, especially by businesses with small profit margins that are worried about compliance costs.

Additionally, bureaucratic inertia could impede complex regulatory changes. The extensive reforms required encompassing labor law, environmental regulation, digital governance, and intellectual property demand coordination among various government agencies, each with differing capacities. Such coordination challenges can delay or weaken reform initiatives (World Bank, 2023). The supplementary analysis further suggests that embedding domestic reforms within a trade compliance framework may alter their political dynamics. When reforms are perceived as externally imposed, rather than domestically driven, they may face greater resistance from both policymakers and the public (Mohsin, 2026, Appendix A). This can complicate the reform process and reduce the effectiveness of policy implementation.

Bangladesh's deepening trade ties with the United States present both opportunities and significant challenges. While the agreement could enhance market access, it also imposes constraints related to institutional capacity, cost

competitiveness, and political feasibility. This highlights the paper's central argument: Bangladesh's role as a strategic swing economy is constrained by structural asymmetries in trade agreements. Navigating these challenges will be crucial for sustaining growth while maintaining policy autonomy in a polarized global economy.

7. Implications for Bangladesh–China Relations

The deepening trade engagement between Bangladesh and the United States carries significant implications for Bangladesh's long-standing economic relationship with China. As trade agreements increasingly function as instruments of geoeconomic alignment, Bangladesh's participation in a U.S.-led trade framework introduces new dynamics that may reshape its interactions with China across trade, investment, and strategic domains. This section examines four interrelated implications: trade diversion and strategic signaling; risks to Chinese investment flows; the emerging dual structure of infrastructure versus trade alignment; and the broader risks associated with geopolitical balancing.

7.1 Trade Diversion and Strategic Signaling

The 2026 trade agreement has significant implications for Bangladesh's geopolitical stance, signaling its alignment with a U.S.-centric economic model. This shift is more than symbolic; it has tangible effects on trade patterns and diplomatic relations. The agreement's provisions on supply chain security, digital governance, and economic alignment reflect a broader geoeconomic strategy beyond traditional economic cooperation (Farrell & Newman, 2019).

The supplementary analysis reinforces this interpretation, noting that the agreement "anchors Bangladesh more firmly within a U.S.-aligned regulatory and strategic framework," thereby narrowing its room for maneuver in engaging with alternative partners (Mohsin, 2026, Appendix A). From China's perspective, these developments may signal a shift in Bangladesh's economic alignment, despite its official policy of diversification. This could lead to trade diversion dynamics, where changes in regulations and supply chain integration affect sourcing and market orientation. For example, incentives to use U.S. inputs or standards might reduce Bangladesh's reliance on Chinese goods, thereby altering existing trade flows.

7.2 Risks to Chinese Investment Flows

The deepening U.S.-Bangladesh trade ties may affect Chinese investment in Bangladesh, a key partner in China's infrastructure development under the Belt and Road Initiative. The agreement includes provisions that could limit Bangladesh's interactions with "non-market economies" and allow for the termination or renegotiation of certain agreements (Mohsin, 2026, Appendix A). While such provisions may not immediately disrupt existing Chinese projects, they create strategic uncertainty that could affect future investments. China might adopt a more cautious approach to economic engagement with Bangladesh, leading to slower approvals of new projects, a greater focus on those with clear returns, and increased scrutiny of Bangladesh's regulatory environment.

Analyses of geoeconomic competition indicate that major powers often adjust their investment strategies in response to shifts in partner alignment and broader strategic considerations (Drezner et al., 2021). Bangladesh's deepening engagement with the US may prompt China to reassess the scale and scope of its involvement.

7.3 Infrastructure vs. Trade Realignment

Bangladesh's external economic relations are evolving into a dual alignment structure, relying on China for infrastructure development while increasingly integrating with the United States in trade. Bangladesh depends on Chinese financing and expertise for critical infrastructure projects in sectors like energy and transportation, making it hard to replace in the short- to medium-term. Conversely, trade is shifting toward the U.S., notably in the ready-made garments sector, supported by a 2026 trade agreement that enhances market access and aligns regulatory frameworks. However, this dual approach creates tension, as data governance and export control regulations may hinder Bangladesh's integration of Chinese technologies into its economy (Mohsin, 2026, Appendix A). Bangladesh's development strategy depends on Chinese infrastructure and investment, while its trade strategy aligns more with U.S. regulations. This creates a conflict, as managing this dual dependence poses a policy challenge where actions in one area may limit options in another.

7.4 Geopolitical Balancing Risks

The key implication of these dynamics is the increasing challenge of maintaining a balanced foreign economic policy. As global trade becomes more fragmented and geopolitically influenced, the room for neutral strategies is diminishing. Countries engaging with multiple major powers may feel pressure to align with one side.

The Bangladesh–U.S. trade agreement illustrates this trend by incorporating strategic alignment into economic terms. Provisions on export controls and economic security link trade policy to geopolitical factors, potentially restricting Bangladesh's ability to pursue independent economic relationships. (Mohsin, 2026, Appendix A).

Bangladesh faces the risk of forced alignment due to its relationships with competing partners, particularly China and the U.S. This pressure may lead to expectations such as limiting engagement with Chinese firms in sensitive sectors and increased scrutiny of cooperation with non-U.S. partners. Balancing these relationships could generate tensions, as China may view Bangladesh's alignment with the U.S. as a shift away from their partnership, while the U.S. may expect deeper compliance over time.

A trade pact between the United States and Bangladesh would have complicated ramifications. Although it provides better access to American markets, it might also impose restrictions that change Bangladesh's relationship with China, potentially resulting in changes in investment flows and heightened geopolitical pressures. Bangladesh wants to use its connections with major countries to further its development as a strategic swing economy, but

growing geoeconomic rivalry may make this strategy less viable. Navigating these conflicting demands to preserve both strategic autonomy and economic prosperity is the difficult part.

8. Bangladesh as a Strategic Swing Economy

The preceding analysis demonstrates that Bangladesh cannot be understood as a passive actor within the contemporary global trade system. Rather, it is actively engaged in strategic hedging, seeking to leverage its economic relationships with major competitors, particularly the United States and China to maximize developmental gains while preserving policy autonomy. This behavior aligns with broader patterns observed among mid-sized developing economies navigating an increasingly fragmented and competitive geoeconomic environment (Farrell & Newman, 2019; Drezner et al., 2021).

However, while Bangladesh exhibits agency in its external economic strategy, its capacity to function as a fully autonomous "strategic swing economy" is constrained by deep structural asymmetries embedded within its trade and development model. These asymmetries limit the feasibility of sustained neutrality and complicate efforts to balance competing economic partnerships. Drawing on both the empirical analysis presented in this paper and the supplementary assessment of the 2026 trade agreement, three interrelated constraints emerge as particularly significant: dependence on the United States for exports, dependence on China for infrastructure, and limitations in institutional capacity.

Table 5. Sectoral Dependence Structure

Sector	Primary External Partner	Nature of Dependence
RMG Exports	U.S.	Market access
Industrial Inputs	China	Supply chain
Infrastructure	China	Financing & construction
Technology/Standards	U.S.	Regulatory alignment
Sector	Primary External Partner	Nature of Dependence
RMG Exports	U.S.	Market access

Note: Bangladesh's economy is structurally bifurcated across geopolitical axes.

8.1 Active Hedging and the Limits of Neutrality

Bangladesh's trade and development strategy reflects a deliberate effort to diversify economic partnerships and avoid overreliance on any single external actor. This multi-vector approach is evident in the coexistence of strong export ties with the United States and deep infrastructure and investment linkages with China. By engaging simultaneously with both powers, Bangladesh seeks to extract economic benefits from each while mitigating risks associated with exclusive alignment.

This strategy is consistent with the concept of hedging in international political economy, where states pursue overlapping and sometimes contradictory relationships to manage uncertainty and maximize flexibility. In practice, Bangladesh has sought to maintain this balance by:

Leveraging U.S. market access to sustain export growth

Utilizing Chinese financing and investment to address infrastructure deficits

Avoiding explicit alignment with any single geopolitical bloc

However, the evolving character of global trade governance poses a growing threat to this strategy's viability. Economic ties are increasingly linked to geopolitical factors as trade agreements include components of supply chain integration, regulatory alignment, and strategic cooperation. This change is highlighted by the supplemental study, which points out that the 2026 trade deal "narrows the space for multi-vector engagement" by integrating Bangladesh into a strategic and regulatory framework that is aligned with the United States. Mohsin (2026). Bangladesh's hedging approach is therefore getting harder to maintain. The nation is under increasing pressure to match its laws, policies, and economic ties with conflicting external frameworks rather than functioning as a neutral middleman. The conflict between agency and constraint that characterises Bangladesh's status as a strategic swing economy is highlighted by this dynamic.

8.2 Constraint 1: Export Dependence on the United States

The first major constraint arises from Bangladesh's heavy dependence on the United States as an export market. The ready-made garment sector, which dominates Bangladesh's export economy, is deeply integrated into U.S.-led global value chains. This dependence creates a structural asymmetry in which Bangladesh's economic stability is closely tied to continued access to the U.S. market.

The 2026 trade agreement reinforces this dependence by institutionalizing market access within a regulatory compliance framework. While the agreement provides opportunities for export growth and tariff stability, it also binds Bangladesh to obligations related to labor standards, environmental governance, and regulatory alignment (USTR, 2026). As noted in the supplementary material, these commitments are enforceable through trade mechanisms, effectively linking export access to ongoing compliance (Mohsin, 2026, Appendix A).

This dynamic limits Bangladesh's policy autonomy in several ways. First, it constrains the scope for independent regulatory decision-making, as deviations from agreed standards may carry economic consequences. Second, it increases vulnerability to external policy shifts, including changes in U.S. trade policy or geopolitical priorities. Third, it creates a path dependency in which Bangladesh's export strategy becomes increasingly aligned with U.S. regulatory frameworks. In this context, export dependence functions not merely as an economic relationship but as a structural constraint that shapes Bangladesh's broader strategic orientation.

8.3 Constraint 2: Infrastructure Dependence on China

Bangladesh's dependence on China for industrial investment and infrastructure development is a second significant obstacle. Bangladesh's infrastructure

deficiencies have been largely addressed by Chinese funding, technology, and project execution, especially in areas like energy, transportation, and industrial zones. These expenditures are essential for maintaining economic growth and promoting industrial development. But a kind of structural dependence is also brought about by this reliance. Bangladesh's capacity to diversify its economic partnerships may be limited as supply chains, infrastructure systems, and industrial capacities become more intertwined with Chinese networks. The size and financing structure of Chinese projects, which frequently entail long-term commitments and few other funding sources, further strengthen this reliance.

Further complexity is introduced by the interplay between this reliance and Bangladesh's interactions with the US. According to the supplemental analysis, Bangladesh's ability to interact with Chinese partners may be indirectly hampered by clauses in the U.S. trade deal, especially those pertaining to export controls, data governance, and economic security (Mohsin, 2026, Appendix A). For instance, compliance with U.S. regulatory regimes may prohibit participation in some Chinese-led efforts or limit the adoption of Chinese technologies. This leads to a structural paradox: Bangladesh's commercial and regulatory direction is increasingly influenced by its relationship with the United States, even as it depends on China for funding infrastructure and development. One of the main obstacles to Bangladesh's economic plan is managing this dual dependence.

8.4 Constraint 3: Institutional Capacity Limitations

The third constraint concerns Bangladesh's institutional capacity to manage complex, overlapping economic relationships. The implementation of the 2026 trade agreement requires extensive reforms across multiple domains, including labor governance, environmental regulation, digital trade, and intellectual property. These reforms demand significant administrative capacity, coordination, and technical expertise. However, as noted in the literature, developing economies often face challenges in implementing comprehensive regulatory reforms due to limited institutional resources and coordination mechanisms (Rodrik, 2018; World Bank, 2023). The supplementary analysis further emphasizes that the agreement introduces a compliance-driven framework in which domestic reforms are subject to external monitoring and enforcement (Mohsin, 2026, Appendix A). This increases the administrative burden on domestic institutions and raises the risk of uneven or incomplete implementation.

Institutional limitations also affect Bangladesh's ability to negotiate and manage its external economic relationships. Effective balancing between major powers requires not only strategic intent but also the capacity to design, implement, and enforce complex policy frameworks. Without such capacity, Bangladesh may find itself reacting to external pressures rather than proactively shaping its economic strategy.

These constraints highlight the limits of Bangladesh's position as a strategic swing economy. While the country has demonstrated agency in pursuing a diversified and flexible economic strategy, its ability to sustain this

approach is constrained by structural dependencies and institutional limitations. Export dependence on the United States ties Bangladesh's economic stability to compliance with external regulatory frameworks, while infrastructure dependence on China creates long-term commitments that limit diversification. At the same time, institutional capacity constraints reduce Bangladesh's ability to manage these competing pressures effectively. These findings reinforce the central argument of this paper: that Bangladesh's role as a strategic swing economy is both enabled and constrained by its position within the global political economy. As geoeconomic competition intensifies and trade agreements become more deeply embedded in strategic considerations, the space for neutral or balanced engagement is likely to narrow further. The challenge for Bangladesh, therefore, lies not only in navigating these constraints but in developing the institutional and strategic capacity to manage them effectively.

9. Policy Recommendations

This section advances four interrelated policy recommendations. Collectively, these recommendations emphasize the need for Bangladesh to rebalance its external economic relationships, reduce overdependence on conditional trade regimes, and preserve strategic autonomy in an increasingly polarized global economy.

9.1 Strategic Hedging Framework

In order to prevent becoming overly dependent on any one economic partner, Bangladesh needs to establish and implement a strategic hedging strategy. Although the nation has traditionally used a de facto multi-vector strategy, the escalation of geoeconomic competition calls for a more planned and formalised approach. Bangladesh may be forced into a path-dependent alignment with U.S.-centric regulatory and economic institutions as a result of the 2026 trade agreement. The agreement contains elements of strategic alignment, as the supplementary analysis shows, especially in areas like supply chain security, digital governance, and export controls that may limit Bangladesh's capacity to maintain a diverse range of partnerships (Mohsin, 2026, Appendix A). In this situation, hedging cannot be merely verbal; in order to maintain flexibility, it must involve specific policy measures.

This includes:

- Actively resisting exclusivity clauses or provisions that restrict engagement with other partners
- Maintaining parallel economic engagements with China and other emerging economies
- Avoiding regulatory commitments that create irreversible alignment with a single bloc

From a strategic standpoint, Bangladesh should treat the U.S. agreement as one instrument among many, rather than as the central pillar of its trade policy failure to do so risks transforming a hedging strategy into de facto alignment.

9.2 Selective Compliance Strategy

Rather than fully internalizing the regulatory framework embedded in the U.S. trade agreement, Bangladesh should adopt a selective compliance strategy that limits the scope of alignment to sectors where it yields clear economic benefits—primarily export-oriented industries such as ready-made garments.

The agreement's broad regulatory requirements—including labor, environmental, intellectual property, and digital governance provisions—extend far beyond what is necessary for market access. As noted in the supplementary material, these provisions "expand into domestic regulatory domains... affecting long-term policy autonomy" (Mohsin, 2026, Appendix A). Full compliance across all sectors would therefore impose unnecessary costs and constraints on the broader economy.

A more strategic approach would involve:

- Applying U.S.-aligned standards strictly within export sectors targeting the U.S. market
- Maintaining flexible or alternative regulatory frameworks in non-export sectors
- Avoiding cross-sectoral regulatory harmonization that exceeds trade requirements

This dual-track regulatory model allows Bangladesh to capture the benefits of market access while minimizing sovereignty costs. It also preserves the flexibility to engage with alternative partners, including China, whose economic cooperation does not require comparable regulatory alignment.

9.3 Diversification Strategy

The most critical long-term priority for Bangladesh is diversifying its trade and investment relationships. Overdependence on a single export market, particularly one that imposes extensive conditionalities creates structural vulnerabilities that undermine economic resilience.

Bangladesh must therefore accelerate efforts to expand trade with alternative partners, including:

- The European Union, which remains a major export destination and offers preferential access frameworks
- Association of Southeast Asian Nations economies, which are increasingly integrated into regional supply chains
- The Middle East, particularly for energy trade, labor markets, and emerging investment opportunities

At the same time, Bangladesh should deepen its economic engagement with China, particularly in areas where Chinese cooperation offers clear developmental advantages. This includes:

- Expanding participation in infrastructure and industrial projects under the Belt and Road Initiative
- Strengthening industrial supply chains linked to Chinese manufacturing networks

- Leveraging Chinese financing and technology for industrial upgrading

From a strategic perspective, diversification is not merely an economic objective but a geopolitical necessity. By broadening its network of economic partnerships, Bangladesh can reduce exposure to external shocks, enhance bargaining power, and preserve greater policy autonomy.

9.4 Institutional Strengthening

Finally, Bangladesh must invest in institutional strengthening to enhance its capacity to manage complex trade relationships and navigate competing regulatory frameworks. Without adequate institutional capacity, even the most well-designed strategies will be difficult to implement effectively.

Key priorities include:

- Strengthening regulatory agencies responsible for labor, environmental, and trade governance
- Enhancing coordination across ministries to manage overlapping trade commitments
- Developing specialized expertise in trade negotiation and dispute resolution

The supplementary analysis highlights that the current agreement imposes significant administrative burdens, with compliance mechanisms that require sustained monitoring and enforcement (Mohsin, 2026, Appendix A). Addressing these challenges requires not only technical capacity but also strategic coherence in policymaking. At the same time, institutional strengthening should not be oriented solely toward compliance with external standards. Rather, it should aim to enhance Bangladesh's ability to negotiate from a position of strength, shape trade agreements in line with national interests, and resist provisions that undermine long-term autonomy. These recommendations underscore the need for a recalibrated trade strategy that prioritizes sovereignty, flexibility, and long-term development over short-term market access gains. While engagement with the United States remains important, it should not come at the cost of strategic autonomy or the erosion of diversified economic partnerships.

In practical terms, this requires Bangladesh to:

- Treat the U.S. trade agreement as a limited and conditional instrument
- Avoid deep structural alignment that constrains future policy choices
- Reinforce and expand its economic engagement with China and other partners
- Build the institutional capacity necessary to manage a complex and contested global trade environment

Ultimately, the challenge is not whether Bangladesh should engage with the United States or China, but how it can do so on terms that preserve its autonomy and maximize its developmental trajectory.

10. Conclusion

This paper has examined Bangladesh's evolving trade strategy within an increasingly fragmented and geopolitically charged global economic system. By analyzing its deepening engagement with the United States alongside its entrenched economic relationship with China, the study has demonstrated that Bangladesh's position is best understood through the lens of a strategic swing economy. Rather than passively navigating external pressures, Bangladesh has actively pursued a hedging strategy designed to extract economic benefits from competing major powers while preserving policy flexibility.

However, the findings of this paper underscore a central and increasingly unavoidable reality: Bangladesh's balancing act is becoming progressively fragile. The 2026 trade agreement with the United States, while offering short-term gains in market access and export stability, embeds a framework of regulatory alignment, compliance obligations, and strategic commitments that constrain Bangladesh's policy autonomy. At the same time, Bangladesh's continued reliance on China for infrastructure development, industrial inputs, and financing reinforces structural dependencies that are difficult to unwind in the short to medium term. These dual dynamics create a condition of asymmetric interdependence, in which Bangladesh is simultaneously tied to competing economic systems in ways that limit its strategic maneuverability.

The analysis further demonstrates that these constraints are not merely economic but deeply institutional and geopolitical. The expansion of conditional trade regimes, the politicization of supply chains, and the integration of economic agreements into broader strategic frameworks have fundamentally altered the landscape in which Bangladesh operates. As highlighted in the supplementary analysis, the U.S. trade agreement extends beyond traditional trade provisions to shape domestic regulatory systems, align economic governance with external standards, and embed elements of strategic cooperation. In parallel, China's role in infrastructure and development financing continues to anchor Bangladesh within a network of long-term economic commitments that are not easily substitutable.

Without careful and deliberate strategic calibration, Bangladesh therefore risks entering a dual dependency trap. On one side, overreliance on U.S. markets combined with extensive regulatory conditionality may erode policy sovereignty and expose the country to external political and economic pressures. On the other side, sustained dependence on Chinese financing and infrastructure may limit diversification and create long-term structural vulnerabilities. The coexistence of these dependencies does not necessarily produce balance; rather, it may generate compounding constraints that reduce Bangladesh's ability to act independently in both economic and geopolitical domains.

The findings of this paper demonstrate that Bangladesh occupies an increasingly pivotal yet constrained position within the evolving geoeconomic landscape shaped by the United States and China. While Bangladesh has actively pursued a balancing strategy, leveraging export

integration with the United States and infrastructure partnerships under the Belt and Road Initiative, this dual engagement has produced a structurally asymmetric outcome. The study finds that U.S.-led trade frameworks impose regulatory and governance conditionalities that reshape domestic institutions. In contrast, Chinese engagement facilitates rapid infrastructure development with fewer explicit constraints but deeper long-term dependencies. This interplay highlights a central tension in Belt and Road Studies: connectivity-driven development can enhance economic capacity, yet when combined with competing regulatory regimes, it may also narrow strategic autonomy rather than expand it.

These findings carry broader implications for regional connectivity, economic development, governance, and international cooperation. For regional connectivity, Bangladesh's experience illustrates how infrastructure integration under the Belt and Road Initiative can coexist often uneasily with parallel trade alignment toward Western markets, creating fragmented rather than fully integrated economic systems. In terms of governance, the diffusion of external regulatory standards through trade agreements underscores how global economic integration increasingly shapes domestic policy space. Geopolitically, the case reveals the risks faced by mid-sized developing economies operating within rival geoeconomic blocs, where efforts at balancing may evolve into dual dependency. More broadly, the paper suggests that sustainable international cooperation in such contexts requires frameworks that reconcile development financing with policy autonomy, enabling countries like Bangladesh to transition from passive rule-takers into more active participants in shaping the norms of global economic governance.

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The FDI Effect of Sovereign ESG in Belt and Road Countries: Institutional Quality, Dimensional Heterogeneity, and Regional Differences

Shenghua Li*

Yanbian University, Yanji, China

ORCID: <https://orcid.org/0000-0000-0000-0000>

E-mail: 2024010127@ybu.edu.cn

* Corresponding author

Yiran Niu

Yanbian University, Yanji, China

ORCID: <https://orcid.org/0009-0003-1256-0064>

E-mail: 17838519301@163.com

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ABSTRACT

Against the dual backdrop of the deepening Belt and Road Initiative (BRI) and the advancing global sustainable development agenda, sovereign ESG performance has become a key factor influencing international capital flows. Using panel data from 76 Belt and Road partner countries over 2001–2024, this study examines the impact, mechanisms, and boundary conditions of sovereign environmental, social, and governance (ESG) performance on foreign direct investment (FDI). The findings reveal that sovereign ESG exerts a significant promoting effect on FDI inflows, exhibiting dimensional heterogeneity in the order of social > governance > environmental performance. Mechanism analysis shows that trade openness, social inclusion, and human capital are three important transmission channels. Further analysis reveals a single threshold based on institutional quality: sovereign ESG primarily functions as an institutional compensatory advantage, exerting a significant effect in countries with weak institutions, while its marginal utility diminishes in countries with mature institutions. This effect is prominent in countries with a colonial history and in East and Southeast Asia, but exhibits an inhibitory effect in South Asia and Central and Eastern Europe due to institutional and regulatory frictions. These findings empirically define the effectiveness boundary of sovereign ESG in attracting FDI, providing empirical evidence for Belt and Road countries to formulate differentiated ESG strategies for investment attraction and expanding the understanding of the economic consequences of sovereign ESG from an institutional compensation perspective.

1. Introduction

As the 15th Five-Year Plan period approaches, the deep integration of Chinese-style modernization with global sustainable development goals is entering a new historical juncture. Driven by the deepening advancement of the dual-carbon goals and the paradigm shift in global ESG investment, the logic governing international capital flows is being redefined. Traditional foreign direct investment (FDI) location theories have long focused on economic variables such as market size, factor costs, and resource endowments. However, in the post-Paris Agreement era, particularly in the face of new green trade barriers such as the European Union's Carbon Border Adjustment Mechanism (CBAM), a country's sovereign performance in environmental sustainability, social inclusivity, and governance effectiveness (ESG) has evolved from a soft ethical constraint into a hard threshold affecting the risk pricing and long-term returns of cross-border capital. During the 15th Five-Year Plan period, promoting the upgrade of the Belt and Road

Initiative (BRI) from hard infrastructure connectivity to soft rules and standards connectivity systematically enhancing the sovereign ESG competitiveness of partner countries is not only crucial to the quality of the Initiative's high-quality development but also serves as a strategic breakthrough to counter the so-called "debt trap" narrative and build China's discursive power.

Belt and Road partner countries are currently characterized by significant heterogeneity in development stages, institutional environments, and resource endowments. This paradigm shift poses a crucial practical issue for the BRI, which is at a critical stage of transitioning toward high-quality cooperation, while the deepening global sustainable development agenda further requires the Initiative to achieve higher standards of practice in areas such as climate response, ecological protection, and social inclusion. Against this dual backdrop, sovereign ESG performance, a composite indicator encompassing a country's core competitiveness in climate change response, social inclusivity, and

institutional effectiveness not only affects the implementation outcomes of the Initiative's sustainable development goals but also directly influences its attractiveness to high-quality global capital. As the Initiative itself emphasizes its transition toward high-quality development, partner countries face the question of whether and how they can translate their sovereign ESG performance into substantive competitive advantages for attracting high-quality FDI. Therefore, systematically examining the impact, mechanisms, and boundary conditions of sovereign ESG on foreign direct investment within the unique context of the BRI characterized by institutional diversity and divergent development priorities—holds significant theoretical importance. Against this backdrop, as the 15th Five-Year Plan emphasizes the need to coordinate high-quality development with high-level security and to advance the construction of a green and digital Silk Road within the Belt and Road framework, a question that demands attention emerges: how does sovereign ESG performance influence FDI inflows across Belt and Road countries, characterized by institutional diversity, varying development stages, and complex geopolitical contexts? Moreover, as the initiator of the Initiative, how should China formulate differentiated ESG empowerment strategies tailored to partner countries with distinct institutional quality and regional characteristics? Building on the above context, this study utilizes panel data from 76 Belt and Road partner countries spanning the period 2001 to 2024 to systematically examine the impact of sovereign ESG performance on FDI inflows from the sovereign level, a novel undertaking and to deepen theoretical understanding and practical implications across three dimensions upon which commercial relationships depend.

1.1 Measurement and Macroeconomic Effects of Sovereign ESG

Existing research on the measurement and macroeconomic effects of sovereign ESG has primarily been conducted from two perspectives. With respect to measurement systems, sovereign ESG—as an extension of the corporate ESG concept to the national level—aims to systematically assess a country's comprehensive performance in environmental sustainability, social inclusivity, and governance effectiveness (Gratcheva et al., 2021). Although its conceptual framework originates from the United Nations Sustainable Development Goals and has been progressively systematized under the impetus of the global ESG investment wave (Gratcheva et al., 2021), existing measurement systems exhibit significant divergence. The sovereign ESG ratings developed by international rating agencies such as MSCI, Sustainalytics, and Refinitiv each employ distinct approaches in indicator selection, weighting, and data sources, posing substantial challenges for cross-country comparisons (Arsh et al., 2023) (Zavadskas et al., 2025). This measurement heterogeneity not only reflects the inherent multiplicity of the ESG concept but also reveals the methodological challenges facing current sovereign ESG research: MSCI emphasizes long-term risk

management capabilities, whereas Refinitiv focuses more on actual performance outcomes (Baker et al., 2022), a discrepancy that directly constrains the generalizability and comparability of research conclusions (Berg et al., 2022).

At the level of macroeconomic effects, existing research confirms that sovereign ESG influences economic performance through multiple channels. In financial markets, superior ESG performance significantly reduces sovereign credit risk and compresses financing costs. Studies based on OECD countries indicate that countries with better ESG performance exhibit lower average sovereign bond spreads, a finding primarily attributable to contributions from the social and governance dimensions, while the contribution of the environmental dimension is relatively limited (Crifo et al., 2017). This finding has been further validated in the credit default swap market, where countries with strong ESG performance not only exhibit lower CDS spreads but also have flatter credit term structures, suggesting that the risk-mitigating effects are long-term in nature (Zhao, 2025). At the level of economic growth, panel cointegration analysis reveals a long-run equilibrium relationship between ESG and GDP per capita, although the short-term effect is not significant, implying that the realization of economic benefits requires an accumulation process (Diaye et al., 2021). Cross-country studies further reveal that improvements in national ESG performance promote economic growth through channels such as enhancing energy efficiency and fostering human capital accumulation, and this effect exhibits significant cross-country heterogeneity (Wang et al., 2023). Notably, the moderating role of institutional context in the economic effects of ESG cannot be overlooked, as country-level factors such as political systems and financial institutions profoundly shape ESG performance and its effectiveness (Ioannou & Serafeim, 2022). However, existing research has paid insufficient attention to developing countries, particularly regarding the intermediate mechanisms and boundary conditions through which sovereign ESG affects economic development.

1.2. The Mechanisms Linking Sovereign ESG and International Capital

Sovereign ESG performance plays an increasingly significant role in international capital allocation by influencing risk premia and investor preferences. The theoretical foundation for this relationship stems from frontier developments in asset pricing theory; the ESG-efficient frontier model proposed by Pedersen et al. systematically incorporates ESG factors into the portfolio construction framework, establishing the theoretical basis for sovereign ESG in asset allocation (Albert et al., 2023) (Cui et al., 2025) (Pedersen et al., 2020). Guided by this theory, empirical research has made substantial progress across different capital markets. Evidence from equity markets shows a stable negative relationship between country-level ESG ratings and IPO underpricing, indicating that superior ESG performance effectively enhances market pricing efficiency by reducing

information asymmetry (Baker et al., 2021). Bond market research reveals more complex mechanisms: although ESG integration has become an important paradigm in sovereign debt investment, its pricing efficiency remains constrained by data quality and standard harmonization (Gratcheva & Gurhy, 2024) (UN-PRI, 2019). The influence of sovereign ESG has extended beyond traditional equity and bond markets into the domain of exchange rate pricing, where the predictive power of country-level ESG ratings for exchange rate movements suggests that its systemic importance in global asset allocation is steadily increasing (Ilias & T, 2021) (Shipeng et al., 2021).

1.3. The Specificity of Sovereign ESG and FDI in the Belt and Road Context

Within the new international cooperation framework established by the BRI, the relationship between sovereign ESG and FDI exhibits unique theoretical implications and practical characteristics. The roots of this specificity lie in the shared development stage characteristics and institutional transition contexts facing partner countries, where prevalent pressures on ecological environments, governance challenges, and institutional capacity-building needs provide a realistic setting for the mechanisms of sovereign ESG that differs fundamentally from that of developed economies. In this particular context, institutional innovations promoted by China, such as the Green Investment Principles for the Belt and Road (Cheng, 2023), have established institutional linkages between ESG performance and investment access, injecting unique institutional impetus into the investment-attracting function of sovereign ESG. This mechanism has received indirect corroboration in research on capital market internationalization, where evidence suggests that institutional alignment under open economy conditions can promote ESG standard improvement through channels such as signaling and monitoring constraints (Hao et al., 2025), providing theoretical reference for understanding the relationship between sovereign ESG and FDI.

1.4. Literature Review and Research Gaps

However, existing research on the relationship between ESG and FDI exhibits a notable structural imbalance. Most studies focus on the impact of firm-level ESG behavior on investment decisions, while the mechanisms through which sovereign ESG operates—particularly within the Belt and Road region, characterized by diverse institutional environments and varied development stages remain underexplored. Theoretically, there is a debate between promotion and cost arguments regarding the impact of sovereign ESG on FDI. On one hand, superior ESG performance can attract high-quality FDI through channels such as enhancing trade openness, strengthening social inclusion, and accumulating human capital. On the other hand, excessively high ESG compliance costs may inhibit FDI inflows in the short term, creating a so-called green threshold effect. More critically, sovereign ESG is not a simple aggregation of corporate ESG; it encompasses country-specific issues such as climate

change response, gender equality, and the rule of law. Its effects on FDI exhibit more complex dimensional heterogeneity and regional dependence, necessitating the construction of an integrated analytical framework to clarify these dynamics. The marginal contributions of this study are primarily reflected in the following three aspects. First, at the research level, it systematically extends ESG research from the micro level of firms to the macro level of sovereigns, focusing on the unique context of the Belt and Road. Second, it constructs an integrated analytical framework encompassing mechanisms, thresholds, and heterogeneity, innovatively investigating the promoting effect of sovereign ESG on FDI, its dimensional heterogeneity across social, governance, and environmental aspects, and exploring whether the three transmission channels trade openness, social inclusion, and human capital can be identified. Third, from a theoretical perspective, it attempts to introduce the lens of institutional compensation, thereby deepening the understanding of the economic consequences of sovereign ESG.

2. Theoretical Mechanisms and Research Hypotheses

2.1. The Promoting Effect of Sovereign ESG on FDI Inflows

In international direct investment theory, the institutional quality of host countries has always been a decisive factor influencing FDI location choices. Traditional theories have primarily focused on economic factors such as market size and labor costs, as well as foundational aspects like the rule of law and government effectiveness. However, with the deepening of the global sustainable development agenda, particularly the reshaping of investment rules by international frameworks such as the Paris Agreement, the importance of sovereign ESG as a comprehensive and forward-looking signal of institutional quality has become increasingly prominent (Bannour & Abdelkawy, 2024). Superior sovereign ESG performance conveys positive information to international markets regarding a country's long-term development potential, environmental and social risk management, and governance reliability, thereby effectively mitigating the lemons market problem arising from information asymmetry in cross-border investment. Drawing on signaling theory, sovereign ESG performance can be understood as a high-quality institutional signal issued by host countries. When host countries demonstrate excellence in environmental management, social inclusivity, and governance effectiveness, they send clear signals to international investors regarding long-term policy stability, lower compliance risks, and higher resource utilization efficiency. Such signals are particularly valuable in Belt and Road countries, where institutional environments are more complex and information transparency is often limited, as they help responsible investors identify investment opportunities and reduce upfront due diligence costs.

From the perspective of institutional complementarity, sovereign ESG is not independent of traditional economic factors but rather forms multidimensional synergies with them (Ioannou & Serafeim, 2022). Improvements in environmental performance not only reduce the green barriers and carbon tariff risks faced by foreign investors but also enhance resource utilization efficiency. Optimization of social performance fosters a high-quality and stable labor force through investment in education and healthcare, thereby reducing labor–capital conflicts. Strengthening governance performance ensures the effective enforcement of contracts and the predictability of policies, lowering political risks. This comprehensive institutional advantage, particularly for institutional investors that prioritize long-term value and reputation, is expected to exert a significant net promoting effect on FDI inflows into Belt and Road countries. Furthermore, sovereign ESG provides a safer investment environment for international capital through its risk-mitigating function. According to modern portfolio theory, international investors systematically assess various risks in host countries when making asset allocation decisions. Superior ESG performance significantly reduces the risks of policy changes, environmental non-compliance, and social unrest faced by foreign investors, thereby lowering the investment risk premium and enhancing risk-adjusted return expectations. Accordingly, the following hypothesis is proposed:

H1: Sovereign ESG performance exerts a significant promoting effect on FDI inflows into Belt and Road countries.

2.2. The Mechanisms Linking Sovereign ESG to FDI

The promoting effect of sovereign ESG on FDI operates primarily through three highly intertwined transmission channels. First, the trade openness channel. From the perspective of transaction costs in new institutional economics (North, 1990) (Williamson, 1985), sovereign ESG performance—particularly improvements in governance performance implies more transparent rules, more efficient administrative services, and more reliable contract enforcement, which directly reduce the institutional transaction costs faced by foreign-invested enterprises. Simultaneously, improvements in environmental performance, such as the adoption of international environmental standards, help host-country enterprises integrate into global green value chains and reduce green trade barriers arising from differences in environmental regulations. The combined effect of these factors substantially enhances host countries' trade facilitation and market accessibility, thereby creating a more favorable business environment, particularly for market-seeking and efficiency-seeking investments.

Second, the social inclusion channel. According to social conflict theory, a society characterized by high inequality and a lack of inclusion harbors greater risks of instability (Okara, 2023). The social performance dimension of sovereign ESG, through improvements in gender equality, social security, and public services, can effectively enhance social cohesion and stability. This

provides foreign-invested enterprises with a predictable operational environment characterized by low conflict risk, significantly reducing the non-productive operational risks they face. Moreover, the income growth and expansion of consumer markets resulting from inclusive growth offer a broader hinterland for market-seeking FDI.

Third, the human capital channel. According to endogenous growth theory (Lucas, 1988), human capital is the core driver of technological progress and economic growth. The emphasis of sovereign ESG on social equity and public governance naturally leads to sustained investment in education and health. The resulting high-quality, healthy labor force not only directly enhances the production efficiency of foreign-invested enterprises but also strengthens their capacity for technology absorption and innovation. For technology-intensive and innovation-driven FDI, this constitutes a critical locational advantage, forming a virtuous cycle of ESG investment → human capital accumulation → inflows of high-skill FDI. Under the overarching framework of sovereign ESG, these three pathways reinforce one another: trade openness provides the economic foundation for social inclusion, social inclusion creates stable conditions for human capital accumulation, and human capital in turn supplies intellectual support for the deepening of trade openness and industrial upgrading. Accordingly, the following hypothesis is proposed:

H2: Sovereign ESG indirectly promotes FDI inflows through multiple channels, namely enhancing trade openness, strengthening social inclusion, and accumulating human capital.

2.3. Boundary Conditions of the Sovereign ESG Effect

A critical boundary condition for the promoting effect of sovereign ESG on FDI may lie in the institutional quality of host countries. According to institutional substitution theory, in countries with low institutional quality, the absence of formal institutions creates substantial information asymmetry and investment risk (Zheng et al., 2024). Under such circumstances, strong sovereign ESG performance can serve as an efficient and visible signaling mechanism, potentially compensating for deficiencies in hard institutions by providing investors with an alternative framework for assessing country risk, thereby exerting a strong attraction for FDI. Conversely, in countries with high institutional quality, where well-established rule of law and efficient government are already the norm, the signals conveyed by sovereign ESG largely overlap with existing institutional signals, and its marginal utility necessarily diminishes. Based on the above logic, it is tentatively proposed that the role of sovereign ESG essentially manifests as an institutional compensation mechanism.

Second, a country's colonial history and the regional regulatory environment constitute another important boundary condition (Acemoglu & Robinson, 2022). For countries with a colonial history, institutional development often exhibits path dependence, and strong ESG performance serves as a powerful tool for reshaping

international image and overcoming historical institutional disadvantages. In different regions along the Belt and Road, due to variations in existing institutional traditions, development stages, and geopolitical contexts, global ESG rules and regional cooperation initiatives may produce either synergistic or competitive effects. In East and Southeast Asia, where institutional compatibility is relatively high, arrangements such as the China–ASEAN Free Trade Area tend to create synergistic effects with ESG rules, amplifying their positive impact. In contrast, in South Asia and Central and Eastern Europe, friction between rules and standards renders ESG compliance costs more pronounced, potentially even suppressing certain types of FDI in the short term. Based on the above analysis, the following hypothesis is proposed:

H3: The promoting effect of sovereign ESG on FDI is moderated by host country institutional quality and regional characteristics, with its influence exhibiting significant boundary conditions.

3. Research Design

3.1. Model Specification

To examine the impact of sovereign ESG on FDI, based on Dunning's eclectic paradigm (OLI) of international direct investment (Foss, 2024), this study treats sovereign ESG as a key component of host country location advantages and constructs the following two-way fixed effects model:

$$FDI_{it} = \beta_0 + \beta_1 ESG_Component_{it} + \gamma X_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where the subscripts i and t denote country and year, respectively. The core explanatory variable $ESG_Component_{it}$ represents a series of sovereign ESG indicators, which will be substituted in subsequent regressions as: (1) the sovereign ESG composite index; (2) the environmental performance score; (3) the social performance score; and (4) the governance performance score. The coefficient β_1 is the key parameter of interest, whose significance and direction reflect the net effect of sovereign ESG on FDI. β_0 is the intercept term, γ represents the coefficients of the control variables, and X_{it} is the vector of control variables, included to mitigate omitted variable bias. The model also incorporates country fixed effects (α_i) and year fixed effects (λ_t) to capture time-invariant country heterogeneity and macro-level shocks that are constant across individuals, respectively. All estimations employ robust standard errors clustered at the country level to address potential within-group autocorrelation and heteroskedasticity.

3.2. Variable Description

Dependent variable. FDI inflows (fdi_gdp) are measured as net foreign direct investment inflows as a percentage of GDP. This relative measure eliminates the influence of economic scale and more accurately reflects a country's attractiveness to foreign capital. Using the ratio of net FDI inflows to GDP as the dependent variable effectively avoids measurement bias arising from differences in economic size and more authentically captures the host

country's relative attractiveness to foreign investment (Alfaro et al., 2010).

Core explanatory variables. The sovereign ESG composite index ($sovereign_esg$) and its dimensional indices, including environmental performance (env_perf), social performance (soc_perf), and governance performance (gov_perf). The sovereign ESG composite index is constructed by applying min–max normalization to transform the raw indicators of the three dimensions into the $[0, 1]$ interval, followed by equally weighted averaging. This construction method follows mainstream practices in international sovereign ESG assessment (Gratcheva et al., 2021), and equally weighted averaging avoids measurement bias arising from subjective weighting (Capelle-Blancard et al., 2019). Environmental performance is measured using the Yale Environmental Performance Index (EPI), which is widely used in cross-country comparative studies of environmental performance (Wang et al., 2023). Social performance is measured based on the social dimension indicators of the United Nations Human Development Index, encompassing core dimensions such as life expectancy and educational attainment. Governance performance is measured as the average of government effectiveness, rule of law, and control of corruption from the World Bank's Worldwide Governance Indicators, three indicators that effectively capture the core essence of national governance quality (Kaufmann & Kraay, 2023).

Control variables. To mitigate the impact of omitted variable bias on the estimation results, the following control variables are selected: economic development level ($\ln_gdp_pc$), measured as the natural logarithm of GDP per capita, to control for the attraction effect of market size on FDI; infrastructure conditions ($internet$), measured as the percentage of internet users in the total population, reflecting the host country's level of digitalization and transaction convenience; macroeconomic stability ($inflation$), measured by the inflation rate, to capture the impact of price fluctuations on the investment environment; and resource endowment (nat_res_gdp), measured as natural resource rents as a percentage of GDP, to control for the influence of resource-seeking FDI. In addition, two policy dummy variables are constructed: Belt and Road cooperation depth (bri_depth), which takes the value of 1 for countries that signed cooperation documents before the end of 2015; and global ESG rule strength (esg_rule), which takes the value of 1 for years from 2016 onward, to control for the structural impact of the tightening of global ESG regulations following the entry into force of the Paris Agreement.

Mechanism and threshold variables. For the mechanism variables, proxy indicators for the three transmission channels are selected: trade openness ($trade_gdp$), measured as the sum of imports and exports as a percentage of GDP, reflecting the host country's degree of integration into global markets; social inclusion (gdi), measured using the United Nations Gender Development Index, which comprehensively reflects levels of gender

equality and social inclusion; and human capital (avg_edu), measured by average years of schooling. The threshold variable is institutional quality (inst_quality), proxied by the rule of law indicator from the World Bank's Worldwide Governance Indicators, which is widely used in cross-country comparative studies of institutional quality.

3.3. Sample Selection and Data Sources

The data for this study are sourced from authoritative databases including the World Bank's World Development Indicators (WDI) and Worldwide

Governance Indicators (WGI), the Yale Environmental Performance Index (EPI), the United Nations Development Programme (UNDP) Human Development Report, and the International Country Risk Guide (ICRG). The sample covers 76 Belt and Road partner countries spanning the period from 2001 to 2024 (see Appendix for the list of countries). To ensure data quality, missing values were imputed and outliers were addressed, with all continuous variables winsorized at the 1% level to mitigate the influence of extreme values. Table 1 presents the descriptive statistics of the variables

Table 1. High-level meetings of heads of state during the period of 2010–2025

Variable	Symbol	Observations	Mean	Std. Dev.	Min	Max
FDI level	fdi_gdp	1900	4.172	6.050	-4.461	43.916
sovereign ESG composite index	sovereign_esg_equal	1900	0.495	0.339	0.112	0.822
Environmental performance score	env_perf	1900	0.499	0.116	0.225	0.803
Social performance score	soc_perf	1900	0.705	0.129	0.38	0.911
Governance performance score	gov_perf	1900	0.281	0.213	-0.194	0.752
GDP per capita	ln_gdp_pc	1900	10.397	0.888	7.950	12.075
Internet penetration	internet_gdp	1900	39.550	31.512	0.078	99.7
Inflation rate	inflation	1900	201747.82	1749768.78	16.60	15985497.62
Natural resource rents	nat_res_gdp	1900	8.629	12.001	0.002	51.789
Belt and Road cooperation depth	bri_depth	1900	0.224	0.417	0	1
ESG rule strength	esg_rule	1900	0.360	0.480	0	1
Country risk index	risk	1900	68.187	6.860	50.037	85.133
Social inclusion	gdi	1900	0.928	0.082	0.634	1.039
Trade openness	trade_gdp	1900	85.799	37.454	26.268	186.111

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

4. Empirical Analysis

4.1. Baseline Regression Results

To control for unobserved individual heterogeneity and common time trends, a two-way fixed effects model is employed for estimation. Table 2 presents the baseline regression results of the impact of sovereign ESG on FDI. Column (1) examines the effect of the ESG composite index, while columns (2) through (4) respectively test the independent effects of the environmental, social, and governance dimensions.

As shown in column (1) of Table 2, the estimated coefficient of the sovereign ESG composite index is 0.091 and is statistically significant at the 5% level, supporting Hypothesis H1 and indicating that sovereign ESG performance exerts a significant promoting effect on FDI inflows. Examining the dimensional regression results, the effects across dimensions exhibit clear heterogeneity, characterized by the ordering “social performance > governance performance > environmental performance.” Specifically, social performance exhibits the strongest promoting effect, reflecting the central role of social stability and inclusivity in attracting foreign investment. Governance performance also demonstrates a significant positive effect, suggesting that improvements

in the rule of law and government effectiveness help reduce institutional transaction costs. Although the coefficient for environmental performance is relatively small, it remains significantly positive, indicating that environmental compliance has become a basic consideration in foreign investment decisions, albeit with a relatively limited marginal effect within the sample countries.

The estimation results for the control variables are generally consistent with theoretical expectations. The internet penetration rate is significantly positive, reflecting the importance of digital infrastructure in reducing information costs. The Belt and Road cooperation depth is significantly positive, indicating that the Initiative effectively promotes FDI inflows through policy coordination. The global ESG rule strength is significantly negative, reflecting that some countries may face short-term FDI suppression in response to rising ESG compliance costs. The coefficient for GDP per capita is significantly negative in most models, which deviates from the market size hypothesis in traditional FDI theory. This phenomenon reveals the particularity of FDI structure along the Belt and Road: within the FDI flowing into the sample countries, resource-seeking and efficiency-seeking investments still account for a

relatively large proportion, and these investments are sensitive to labor costs and factor prices, and may be suppressed by the cost increases associated with rising GDP per capita. This result also indirectly suggests that

many Belt and Road countries at the initial stage of industrialization are experiencing a gradual erosion of their traditional cost advantages and facing urgent pressures for transformation.

Table 2. Baseline regression results

	(1)	(2)	(3)	(4)
sovereign_esg_equal	0.091** (0.04)			
env_perf		0.029** (0.01)		
soc_perf			23.338*** (2.68)	
gov_perf				4.825*** (0.94)
ln_gdp_pc	-0.566** (0.24)	-0.554** (0.24)	-2.800*** (0.39)	-1.075*** (0.28)
internet_gdp	0.029*** (0.01)	0.029*** (0.01)	-0.002 (0.01)	0.021*** (0.01)
inflation	0.000 (0.00)	0.000 (0.00)	0.000*** (0.00)	0.000 (0.00)
nat_res_gdp	-0.023 (0.01)	-0.023 (0.01)	0.012 (0.02)	-0.016 (0.01)
bri_depth	0.968*** (0.37)	0.968*** (0.37)	0.382 (0.38)	1.022*** (0.37)
esg_rule	-2.087*** (0.42)	-2.098*** (0.42)	-1.511*** (0.40)	-1.738*** (0.40)
Country fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
N	1900	1900	1900	1900
R2	0.328	0.325	0.360	0.341

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: Robust standard errors are reported in parentheses; ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The same applies to subsequent tables.

In summary, sovereign ESG exerts a significant promoting effect on FDI in Belt and Road countries, exhibiting a pattern of dimensional heterogeneity in the order of social > governance > environmental performance. This finding suggests that, in the Belt and Road context, investors place greater emphasis on host countries' social development and governance quality, while environmental performance—though playing a relatively limited role has become an indispensable institutional signal.

4.2. Endogeneity Treatment

The baseline regression results initially reveal the association between sovereign ESG and FDI. However, endogeneity issues such as reverse causality and omitted

variables may lead to estimation bias. To obtain more consistent causal inferences, the two-period lagged values of each ESG dimension variable (L2_ESG_var) are used as instrumental variables for themselves. Meanwhile, considering the dynamic continuity of FDI, a system GMM model is constructed for endogeneity treatment as follows:

$$FDI_{it} = \beta_0 + \beta_1 FDI_{i,t-1} + \beta_2 ESG_{it} + \beta_3 Controls_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Where ESG_{it} is substituted by the sovereign ESG composite index, environmental performance, social performance, and governance performance respectively, yielding four models. Table 3 presents the estimation results of the above two methods.

Table 3. Endogeneity treatment regression results

Variable	2SLS instrumental variable method			GMM estimation			
sovereign_esg_equal				0.032 (0.03)			
fdi_L1				0.727*** (0.06)	0.727*** (0.06)	0.714*** (0.06)	
env_perf	0.045** (0.02)				0.010 (0.01)		
soc_perf		25.305*** (3.08)				7.549*** (1.90)	0.723*** (0.06)
gov_perf			6.130*** (1.21)				1.582*** (0.59)
controls	YES	YES	YES	YES	YES	YES	YES

Country fixed effects	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES
N	1748	1748	1748	1824	1824	1824	1824
R2	0.354	0.396	0.313	0.431	0.396	0.355	0.434

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: Robust standard errors are reported in parentheses; ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The same applies to subsequent tables.

4.3. Robustness Tests

(1) Variable Substitution

To enhance the robustness of the conclusions, an ESG index based on correlation weighting (with weights of 0.262, 0.369, and 0.369 for environmental, social, and governance dimensions, respectively) and an ESG index extracted via principal component analysis are constructed. The following substitution tests are then conducted: (1) the dependent variable is replaced with the natural logarithm of FDI absolute values; (2) the core explanatory variable is replaced with the two alternative ESG indices described above. The results are presented in Table 4.

Analysis of Table 4 shows that the core findings remain robust after employing different variable measurement approaches. First, in column (1), when the dependent variable is replaced with the logarithm of FDI absolute values, the coefficient of the core explanatory variable—the sovereign ESG composite index—is not significant, but the signs and significance of the control variables are largely consistent with the baseline model, indicating overall stability of the model specification. The insignificance of the core variable arises from subtle differences in the economic meaning of the variables: FDI absolute values place greater emphasis on scale, whereas the ratio to GDP measures relative importance within the economy. In columns (2) and (3), when the core explanatory variable is replaced with the weighted ESG index and the PCA-based ESG index respectively, the coefficients of both are significantly positive at the 5% level. This finding is consistent with the positive effect of the sovereign ESG composite index in the baseline regression, demonstrating that the core conclusion—that sovereign ESG performance promotes FDI inflows—does not depend on any particular method of constructing the ESG index. Whether based on theoretically informed equal weighting or data-driven principal component analysis or correlation weighting, the resulting composite indices all point to the same economic regularity.

Table 4. Robustness test results

	(1)	(2)	(3)
sovereign_esg_equal	0.001 (0.01)		
sovereign_esg_weighted		0.117** (0.05)	
sovereign_esg_pca			0.029** (0.01)
controls	YES	YES	YES

Country fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
N	1900	1900	1900
R2	0.439	0.328	0.336

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: Robust standard errors are reported in parentheses; ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The same applies to subsequent tables.

(2) Jackknife Test

To exclude the possibility that specific country samples exert undue influence on the baseline regression results and to ensure the general applicability of the core conclusions, a jackknife test is further employed for sample sensitivity analysis. Individual sample countries are sequentially excluded, and the remaining subsamples are used for repeated estimation. By observing the range and stability of the estimated coefficients of the core explanatory variable, it is determined whether the model is driven by outliers or specific observational units. The model specification is as follows:

$$FDI_{-c} = \beta_0 + \beta_1 \text{Sovereign_ESG}_{-c} + \beta_2 \text{Controls}_{-c} + \varepsilon_c \quad (3)$$

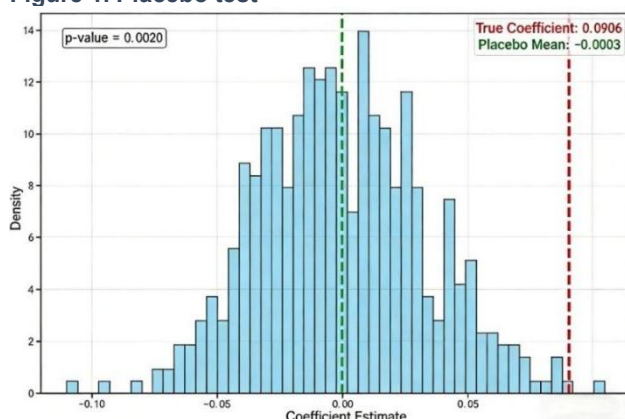
where the subscript $-c$ denotes the subsample after excluding country cc in each regression. The test results show that the mean coefficient of the sovereign ESG composite index is 0.092, close to the baseline regression result, and the estimated coefficients for all subsamples remain statistically significant at the 1% level. The coefficients exhibit extremely low volatility throughout the jackknife test, with standard errors stable around 0.039, confirming the high stability of the estimation results. The baseline regression finding that sovereign ESG has a significant promoting effect on FDI is not driven by any specific country or group of countries; the conclusion is insensitive to changes in sample composition and demonstrates strong robustness, further enhancing the reliability of the core empirical findings.

(3) Placebo Test

Finally, a placebo test is conducted to rule out the influence of unobserved confounding factors or randomness, with the results shown in Figure 1. A pseudo ESG index is randomly generated and used for estimation; the resulting coefficient is 0.0906 and is statistically significant ($p=0.0020$), corresponding to the baseline regression result. This finding indicates that the observed sovereign ESG effect is not driven by randomness or potential confounding factors, thereby strengthening the credibility of the causal inference. In summary, a series of

rigorous robustness tests consistently demonstrate that the core finding sovereign ESG performance, particularly social and governance performance, has a robust promoting effect on FDI inflows into Belt and Road partner countries is reliable.

Figure 1. Placebo test



Source: own editing based on from the World Bank's Worldwide Governance Indicators.

5. Extended Analysis: Mechanisms, Conditions, and Heterogeneity

Having established the significant promoting effect of sovereign ESG on FDI, this section further conducts an extended analysis from three dimensions mechanisms, boundary conditions, and group heterogeneity to systematically reveal the underlying transmission pathways, contextual conditions, and heterogeneous patterns.

5.1. Mechanism Analysis

Table 5. Mechanism analysis results

Mediation path	Bootstrap mediation analysis				Sobel mediation analysis	
	Mediation effect	Mediation proportion	Confidence interval	Significance	Mediation effect	Significance
Sovereign ESG → Human capital → FDI	0.060	66.426	[0.043, 0.081]	***	0.061	***
Sovereign ESG → Social inclusion → FDI	0.076	85.567	[0.059, 0.101]	***	0.077	***
Sovereign ESG → Trade openness → FDI	0.102	110.323	[0.072, 0.134]	***	0.102	***
Environmental performance → Human capital → FDI	0.020	68.717	[0.014, 0.027]	***	0.020	***
Environmental performance → Social inclusion → FDI	0.025	87.597	[0.019, 0.033]	***	0.025	***
Environmental performance → Trade openness → FDI	0.033	113.122	[0.024, 0.044]	***	0.033	***
Social performance → Human capital → FDI	3.636	15.611	[-1.209, 7.836]		3.637	
Social performance → Social inclusion → FDI	5.472	23.035	[0.741, 10.303]	***	5.332	**
Social performance → Trade openness → FDI	6.251	26.691	[4.683, 7.995]	***	6.243	***
Governance performance → Human capital → FDI	0.465	9.711	[0.207, 0.799]	***	0.467	***
Governance performance → Social inclusion → FDI	1.384	29.426	[1.005, 1.915]	***	1.403	***

The promoting effect of sovereign ESG on FDI has been validated by both baseline regression and robustness tests; however, the underlying transmission pathways remain unclear. Based on theoretical analysis, a triple mediation model incorporating human capital, social inclusion, and trade openness is constructed. Specifically, sovereign ESG may operate through the following three pathways: first, the human capital channel, which cultivates a high-quality labor force by enhancing education and health levels, thereby attracting technology-intensive investment; second, the social inclusion channel, which strengthens social stability by promoting gender equality and social security, thereby reducing operational risks for foreign investors; third, the trade openness channel, which lowers entry and transaction costs for foreign investment by improving governance effectiveness and aligning environmental standards with international rules. To empirically test the above mechanisms, a mediation effect model is employed, specified as follows:

$$\text{Stage 1: } M_{it} = \alpha_0 + \alpha_1 \text{Sovereign_ESG}_{it} + \text{Controls}_{it} + u_{it} \quad (4)$$

$$\text{Stage 2: } FDI_{it} = \beta_0 + \beta_1 \text{Sovereign_ESG}_{it} + \beta_2 M_{it} + \beta_3 \text{Controls}_{it} + \varepsilon_{it} \quad (5)$$

Where M_{it} represents the mediator variables, encompassing the three channels of human capital, social inclusion, and trade openness. α_1 denotes the coefficient of the effect of ESG on the mediator, β_2 denotes the coefficient of the effect of the mediator on FDI, and $\alpha_1 \times \beta_2$ represents the mediation effect. The Bootstrap mediation analysis (500 replications) and Sobel mediation analysis are jointly employed for validation, with the results presented in Table 5

Governance performance→Trade openness →FDI	3.189	66.755	[2.467, 4.085]	***	3.168	***
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Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The results show that the mediation effect of the trade openness pathway is highly significant at the 1% level, and its effect size ranks first among the three mechanisms, playing a central role in the process through which sovereign ESG promotes FDI. This empirically reveals that enhancing trade openness is a key pathway through which ESG empowers FDI. It demonstrates that increasing trade openness by reducing tariff and non-tariff barriers and optimizing the business environment constitutes the primary channel through which sovereign ESG attracts FDI, thereby empirically establishing the core logic of “improved governance and environmental standards → increased trade openness → increased FDI inflows.” However, the mediation proportion of the trade openness channel reaches 110.32%, exceeding the total effect. This typically indicates the presence of a suppression effect, meaning that while sovereign ESG exerts a positive mediation effect on FDI through the trade openness channel, it simultaneously triggers a competing negative process that partially masks its true total effect. Concurrently, deeper trade openness also implies more intense market competition and lower trade barriers. This leads to greater openness of the domestic market, enabling multinational enterprises to serve the host country market through trade exports rather than direct investment, thereby generating a substitution effect for some market-seeking FDI. Moreover, as host country domestic enterprises integrate into global markets and enhance their competitiveness, this also inhibits foreign investment entry to a certain extent.

The mediation effect of the social inclusion channel is 0.076, indicating that 85.57% of the promoting effect of sovereign ESG on FDI is realized through improvements in social inclusion indicators such as gender equality and social security. This is consistent with the baseline regression finding that social performance is a core driver, demonstrating that social stability and equity are important considerations for multinational capital in evaluating the investment environment. The mediation effect of the human capital channel is 0.060, with a mediation proportion of 66.43%, indicating that improvements in education levels constitute an important pathway through which ESG attracts FDI. Countries with superior ESG performance tend to place greater emphasis on human capital accumulation, while a high-quality labor force enhances the production efficiency of foreign-invested enterprises, forming a virtuous cycle of “ESG → educational investment → talent pool → FDI inflows.” Examining the mechanism decomposition results across the three ESG dimensions, the transmission pathways for environmental performance and governance performance are relatively focused and consistent. Specifically, all three mediation pathways for environmental performance are significant, with effect sizes ranked as “trade openness > social inclusion > human capital,” which is consistent with the findings for the composite index.

Further dimensional decomposition reveals heterogeneity in the mechanism effects. Both environmental performance and governance performance effectively promote FDI through all three channels, indicating that improvements in environmental performance not only attract green FDI through direct ecological improvements but also indirectly enhance FDI attractiveness by promoting upgrades in market rules and social standards. In addition to the trade openness channel, governance performance also exhibits significant effects through the social inclusion and human capital channels, reflecting the comprehensive effect of “improved governance quality → optimized institutional environment → synergistic improvements in social and human capital → FDI inflows,” thereby validating the central role of governance as an institutional foundation. Social performance demonstrates significant effects through the trade openness and social inclusion channels, but not through the human capital channel. This may be attributable to the long-term lag in the effect of social performance on human capital, which has not yet fully manifested within the sample period, as well as the fact that FDI in the Belt and Road context is more sensitive to immediate social stability than to long-term human capital quality.

In summary, sovereign ESG promotes FDI inflows into Belt and Road countries primarily through three channels: trade openness, social inclusion, and human capital—with significant dimensional heterogeneity. Among these, trade openness is the most central transmission mechanism, particularly prominent in the environmental and governance dimensions, highlighting the importance of aligning with international rules for attracting foreign investment. Social inclusion is the main pathway through which social performance influences FDI, confirming that social stability is a fundamental prerequisite for investment security. The effectiveness of the human capital channel is subject to dual constraints of dimension and time, and its long-term value warrants continued attention in future research. These empirical results systematically validate the proposed Hypothesis H2.

5.2. Threshold Effect Analysis

To test the threshold effect of institutional quality proposed in Hypothesis H3, the following panel threshold model is constructed:

$$FDI_{it} = \beta_0 + \beta_1 \text{Sovereign_ESG}_{it} I(\text{Inst_Open} \leq \gamma + \beta_2 \text{Sovereign_ESG}_{it} I(\text{Inst_Quality} > \gamma) + \beta_3 \text{Controls}_{it} + \varepsilon_{it} \quad (6)$$

where inst_quality is the threshold variable, γ is the threshold value to be estimated, and $I(\cdot)$ is an indicator function. β_1 and β_2 represent the marginal effects of sovereign ESG on FDI in the low and high institutional quality regimes, respectively. The model estimation identifies an optimal single threshold value of 0.2462,

based on which the full sample is divided into two groups: low institutional quality and high institutional quality. Table 6 presents the grouped regression results, revealing a key non-linear relationship.

Table 6. Threshold effect analysis results

	Low institutional quality	High institutional quality
sovereign_esg_equal	0.157*** (0.02)	-0.011 (0.07)
controls	YES	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES
N	950	950
R2	0.441	0.335

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: Robust standard errors are reported in parentheses; ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The threshold regression results in Table 6 indicate that the promoting effect of sovereign ESG on FDI exhibits significant institutional dependence. Specifically, in the group of countries with institutional quality below the threshold, the estimated coefficient of sovereign ESG is significantly positive at the 1% level, indicating that in economies with imperfect institutional environments, superior ESG performance can serve as an effective institutional compensatory advantage, compensating for deficiencies in formal institutions. However, in the group of countries with institutional quality above the threshold, this coefficient is no longer statistically significant, suggesting that once host countries have established mature institutional systems, the marginal attraction utility of sovereign ESG exhibits a diminishing trend, and foreign investment decisions are increasingly dominated by traditional economic factors. From a theoretical perspective, this clearly defines the boundary conditions within which sovereign ESG operates, revealing that it is not a universally applicable investment attraction tool but rather a strategic asset highly dependent on the institutional context. In summary, the threshold effect analysis not only validates the threshold effect in Hypothesis H3 but also deepens the understanding of the economic consequences of sovereign ESG from the perspective of institutional compensation.

5.3. Heterogeneity Analysis

The foregoing analysis reveals the average effect of sovereign ESG on FDI and its operating conditions; however, this effect may exhibit systematic differences across country groups with different characteristics. To this end, this subsection conducts heterogeneity tests from two dimensions—intrinsic country characteristics and geographic regions—to reveal the complex landscape of sovereign ESG's impact. First, group regressions are performed based on education level and historical colonial background, with the results presented in Table 7. Education level is divided into high and low groups using

the sample median as the cutoff, while colonial history is categorized according to the World Colonial Database.

(1) Grouping by Country Characteristics

Table 6. Threshold effect analysis results

	High education level	Low education level	With a colonial history	Without a colonial history
sovereign_esg_equal	7.596 (4.64)	0.015 (0.03)	0.294*** (0.05)	0.025 (0.04)
controls	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
N	947	953	525	1375
R2	0.201	0.31	0.534	0.298

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: Robust standard errors are reported in parentheses; ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The heterogeneity analysis results in Table 7 reveal significant differences in the sovereign ESG effect across countries with different historical backgrounds. In the sample of countries with a colonial history, sovereign ESG exhibits a significant promoting effect on FDI, whereas this effect is not evident in countries without a colonial history. This finding indicates that for countries that have experienced colonial rule and exhibit path dependence in institutional development, enhancing sovereign ESG performance serves as an effective means to compensate for historical institutional deficiencies and reshape international image. Further heterogeneity tests show that differences in education level do not lead to significant differentiation in the sovereign ESG effect. Regardless of whether in the high or low education level country groups, the direct effect of sovereign ESG fails to pass significance tests. This result corroborates the mechanism analysis, indicating that education level primarily influences FDI indirectly through the human capital accumulation channel rather than directly moderating the relationship between sovereign ESG and FDI.

(2) Grouping by Region

Given the vast geographical coverage of Belt and Road partner countries and the substantial differences among them in terms of economic development stages, resource endowments, and cultural institutions, further group regressions by region are conducted. The results are presented in Table 8.

The regional heterogeneity analysis reveals a more complex pattern, with the sovereign ESG effect exhibiting distinct regional characteristics. The most positive effect is observed in East and Southeast Asia, where the coefficient of sovereign ESG is positive, although not statistically significant. This may be attributable to the region's deep integration into global

Table 8. Heterogeneity analysis results (2)

	East and Southeast Asia	South Asia	Central and West Asia	Central and Eastern Europe	Africa and Latin America
sovereign_esg_equal	0.048 (0.05)	-0.154*** (0.05)	-0.017 (0.07)	-0.190** (0.08)	-0.023 (0.09)
controls	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES
N	225	200	450	500	325
R2	0.654	0.723	0.412	0.268	0.318

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Note: Robust standard errors are reported in parentheses; ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

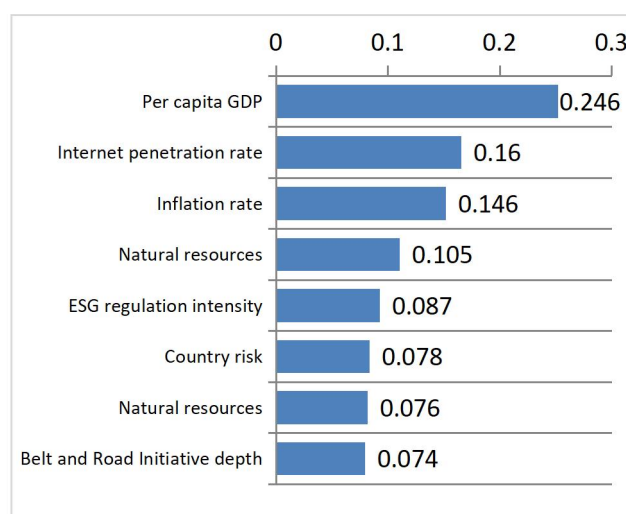
value chains and stable FDI inflows, which diminish the marginal signaling role of ESG, yet the positive sign still indicates a favorable trend. In stark contrast, in South Asia and Central and Eastern Europe, the coefficients of sovereign ESG are significantly negative. This provides compelling counterevidence for institutional compensation theory: when ESG rules are severely mismatched with local institutional practices and development stages, improvements in sovereign ESG are not interpreted as positive signals of institutional compensation but are instead perceived as premature compliance costs. This suggests that the effectiveness of the institutional compensation mechanism hinges on a crucial precondition: ESG standards must be effectively aligned with the local institutional environment and development stage. In Central and West Asia and the Africa–Latin America region, the coefficients are negative but not significant, indicating that in these regions, where resource endowments constitute the primary advantage, ESG performance has not yet become a core factor influencing foreign investment decisions.

Through the triple extended analysis of mechanisms, thresholds, and heterogeneity, this study comprehensively delineates the complex process through which sovereign ESG influences FDI. The findings reveal that the mechanisms operate primarily through enhancing social inclusion and trade openness, and exhibit significant threshold characteristics, being significant only in the group of countries with lower trade openness, thereby revealing the boundary conditions of its effect. The impact also displays strong heterogeneity, particularly significant in countries with a colonial history, presenting a positive trend in East and Southeast Asia, while exhibiting an unexpected negative effect in South Asia and Central and Eastern Europe.

(3) Causal Forest Analysis

Traditional methods struggle to capture the more complex patterns of heterogeneity arising from interactions among multiple variables. In contrast, the causal forest algorithm, as a machine learning-based approach, overcomes the subjective limitations of functional form selection and variable interaction specification inherent in traditional model settings, systematically accounts for complex interactions among variables, and thereby enables more precise estimation of the individual treatment effects of sovereign ESG on FDI while identifying the key characteristic variables driving effect heterogeneity. To

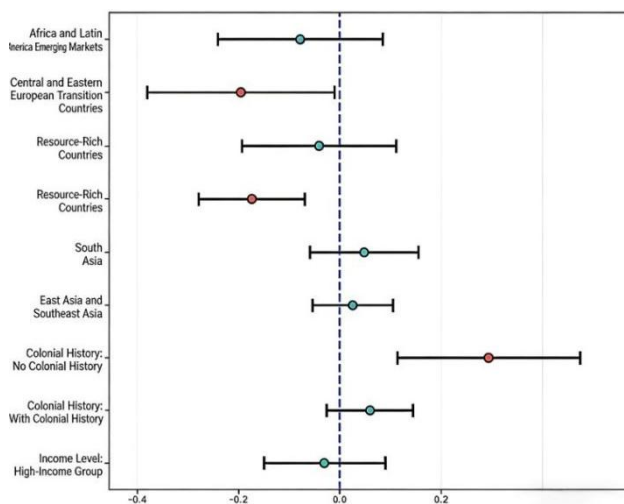
this end, a data-driven exploration of heterogeneity is further conducted.

Figure 2. Causal forest feature importance plot

Source: own editing based on from the World Bank's Worldwide Governance Indicators.

Figure 2 presents the variable importance ranking output from the causal forest model. The results show that GDP per capita is the most central factor driving heterogeneity in the sovereign ESG effect, with its importance score far exceeding that of other variables. This indicates that the economic development level of host countries constitutes the macro-level foundation upon which the investment attractiveness of sovereign ESG is realized, profoundly influencing the transmission efficiency of ESG signals. Internet penetration and the inflation rate, serving as proxy variables for infrastructure conditions and macroeconomic stability, also exhibit relatively high importance, highlighting the critical supporting role of a favorable business environment for the realization of ESG value. In contrast, the importance scores of institutional variables such as Belt and Road cooperation depth and global ESG rule strength are relatively low, suggesting that their influence is more universal rather than being the primary sources of effect heterogeneity.

Figure 3. Heterogeneity analysis forest plot



Source: own editing based on from the World Bank's *Worldwide Governance Indicators*.

Figure 3 further depicts, through a heterogeneity forest plot, the distribution of the conditional average treatment effect (CATE) of sovereign ESG across subgroups defined by different feature combinations. The results reveal significant heterogeneity in the individual treatment effects (ITE), confirming that the impact of sovereign ESG on FDI is not homogeneous. For the subset of countries characterized by colonial history and middle-income levels, sovereign ESG exhibits the strongest positive treatment effect. This finding corroborates the subgroup regression results, once again emphasizing the critical role of historical institutional legacies and specific stages of development in unlocking the positive effects of ESG. In contrast, in subgroups of high-income countries and those with relatively well-developed institutional environments, the point estimates of the treatment effect tend toward zero or even become negative. This pattern is internally consistent with the findings of the threshold effect analysis, suggesting that once a country's development surpasses a certain stage, the marginal utility of sovereign ESG in attracting FDI may diminish.

By introducing the cutting-edge causal forest method, this study not only validates the existence of heterogeneity in the sovereign ESG effect but also transcends the limitations of traditional subgroup tests, revealing a more complex heterogeneity landscape arising from the interplay of multidimensional characteristics such as economic development level and colonial history. These findings collectively constitute empirical support for Hypothesis H3, providing multidimensional empirical evidence for understanding the boundary conditions of the sovereign ESG effect.

6. Conclusions and Policy Implications

Through systematic empirical analysis, the following four conclusions are drawn. First, sovereign ESG overall exerts a significant promoting effect on FDI inflows into Belt and Road countries, yet its internal driving structure exhibits notable heterogeneity. Social performance and governance performance constitute the core pillars attracting foreign investment, while the independent

contribution of environmental performance is relatively limited. This suggests that, in the Belt and Road context, investors primarily view sovereign ESG as a risk management tool, placing particular emphasis on host countries' long-term operational security and institutional stability. Second, sovereign ESG indirectly influences FDI through three important channels. Among these, the trade openness channel exhibits the strongest mediation effect, highlighting the critical value of aligning with international rules; the social inclusion and human capital channels also play important roles. This finding reveals the transmission mechanism through which sovereign ESG enhances investment attractiveness by reducing institutional transaction costs and improving market accessibility. Third, the effectiveness of sovereign ESG is strictly contingent on host countries' institutional foundations. The study finds that its promoting effect is significant in the group of countries with low institutional quality, playing an important institutional compensation function, whereas its marginal utility markedly diminishes in countries with high institutional quality. This finding precisely delineates the value boundary of sovereign ESG as a substitutional advantage. Fourth, the FDI effect of sovereign ESG exhibits significant historical and geographical characteristics. Its effect is particularly prominent in countries with a colonial history, serving as an effective tool for breaking historical path dependence and reshaping international reputation; it exhibits a positive trend in East and Southeast Asia, while showing an inhibitory effect in South Asia and Central and Eastern Europe, reflecting the importance of aligning ESG standards with regional characteristics.

Based on these findings, the following policy recommendations are proposed. First, for countries with weak institutions, a "ESG-first" compensation strategy should be implemented. Such countries should prioritize the allocation of limited administrative and fiscal resources to areas that can rapidly establish international trust: first, enhancing governance effectiveness, and second, improving social inclusion. The core objective is to construct a concise, transparent, and credible localized ESG framework, creating a distinctive institutional identity to compensate for traditional disadvantages in attracting investment. Concurrently, drawing on the experience of regional organizations such as ASEAN, they should formulate ESG standards aligned with their own development stages to avoid bearing excessive costs from pursuing overly ambitious standards.

Second, for countries with mature institutions, a value exploration strategy of ESG integration should be pursued. The strategy for such countries should transcend foundational infrastructure and shift toward deeply embedding existing ESG advantages into industrial development planning, focusing on creating ESG-oriented industrial clusters. Tax incentives, financing tools, and other policy instruments should be employed to guide foreign investment toward these high-value-added sectors, thereby promoting upward movement in global value chains while avoiding low-level competition over ESG metrics.

Third, differentiated empowerment and alignment strategies should be adopted for different regions. In East and Southeast Asia, where ESG foundations are relatively strong, efforts should focus on “ESG + digitalization” collaborative empowerment, promoting the deep integration of digital technologies in areas such as green infrastructure and smart government, thereby further enhancing investment efficiency and attractiveness. In contrast, in South Asia and Central and Eastern Europe, where regulatory frictions are pronounced, the policy task is rule alignment and cost management. Actively identifying the main friction points between global ESG rules and local realities, establishing flexible coordination mechanisms through transitional periods, technical assistance, and cost subsidies can help reduce compliance costs and transform barriers into opportunities.

Fourth, China’s role should evolve from “initiator” to “enabler and connector.” For partner countries with weak institutions, China can prioritize assistance in governance capacity building and environmental standard setting, helping them solidify their ESG foundations. For countries rich in human capital, efforts can focus on green technology transfer and joint research and development, facilitating the integration of Chinese enterprises’ green industry chains with host countries’ advantageous factors. Overall, efforts should be made to establish a set of “Belt and Road” ESG cooperation guidelines that seek common ground while reserving differences and promote gradual improvement, bridging divergences in a pragmatic manner and maximizing the overall positive benefits of ESG cooperation.

7. List of Abbreviations

Abbreviation	Full Form
BRI	Belt and Road Initiative
CBAM	Carbon Border Adjustment Mechanism
CDS	credit default swap
EPI	Environmental Performance Index
ESG	environmental, social, and governance
FDI	foreign direct investment
GMM	generalized method of moments
ICRG	International Country Risk Guide
OLI	eclectic paradigm (Ownership, Location, Internalization)
PCA	principal component analysis
2SLS	two-stage least squares
UNDP	United Nations Development Programme
WDI	World Development Indicators
WGI	Worldwide Governance Indicators

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Appendix

Table A1. Variable Descriptions and Data Sources

Variable	Data Source	Construction / Notes
Dependent Variable		
FDI level (fdi_gdp)	World Bank, World Development Indicators (WDI)	Net foreign direct investment inflows as a percentage of GDP
Core Explanatory Variables		
Sovereign ESG composite index (sovereign_esg_equal)	Yale Environmental Performance Index (EPI); United Nations Development Programme (UNDP) Human Development Report; World Bank Worldwide Governance Indicators (WGI)	Constructed by min–max normalization of environmental, social, and governance dimension scores into [0,1] interval, then equally weighted average
Environmental performance score (env_perf)	Yale Environmental Performance Index (EPI)	Raw EPI score, reflecting national environmental sustainability
Social performance score (soc_perf)	United Nations Development Programme (UNDP) Human Development Report	Social dimension indicators of the Human Development Index (life expectancy, educational attainment, etc.)
Governance performance score (gov_perf)	World Bank Worldwide Governance Indicators (WGI)	Average of government effectiveness, rule of law, and control of corruption
Control Variables		
GDP per capita (ln_gdp_pc)	World Bank, World Development Indicators (WDI)	Natural logarithm of real GDP per capita (constant US\$)
Internet penetration (internet_gdp)	World Bank, World Development Indicators (WDI)	Percentage of internet users in total population
Inflation rate (inflation)	World Bank, World Development Indicators (WDI)	Annual inflation rate (consumer prices, %)
Natural resource rents (nat_res_gdp)	World Bank, World Development Indicators (WDI)	Total natural resource rents as a percentage of GDP
Belt and Road cooperation depth (bri_depth)	Ministry of Commerce of China / official BRI documents	Dummy variable = 1 if country signed BRI cooperation document before the end of 2015
Global ESG rule strength (esg_rule)	Author's construction based on Paris Agreement	Dummy variable = 1 for years from 2016 onward (post-Paris Agreement)
Country risk index (risk)	International Country Risk Guide (ICRG)	Composite political risk rating
Mechanism Variables		
Trade openness (trade_gdp)	World Bank, World Development Indicators (WDI)	Sum of exports and imports as a percentage of GDP
Social inclusion (gdi)	United Nations Development Programme (UNDP)	Gender Development Index (ratio of female to male HDI values)
Human capital (avg_edu)	United Nations Development Programme (UNDP) / Barro-Lee dataset	Average years of schooling (age 15 and above)
Threshold Variable		
Institutional quality (inst_quality)	World Bank Worldwide Governance Indicators (WGI)	Rule of law indicator (ranges from approx. -2.5 to 2.5, normalized)

Note: The dataset covers 76 Belt and Road partner countries from 2001 to 2024. Missing values were imputed, and all continuous variables were winsorized at the 1% level to mitigate outlier effects. WDI refers to the World Bank's World Development Indicators; WGI refers to the Worldwide Governance Indicators; EPI refers to the Environmental Performance Index; UNDP refers to the United Nations Development Programme; ICRG refers to the International Country Risk Guide

Table A2. List of 76 Belt and Road Partner Countries by Region

Region	Countries (ISO Alpha-3 Codes)
Southeast Asia (9)	KHM, IDN, MYS, MMR, PHL, THA, BRN, LAO, VNM
South Asia (7)	BGD, IND, NPL, PAK, LKA, MDV, BTN
Central Asia (5)	KAZ, KGZ, TJK, TKM, UZB
West Asia and North Africa (17)	ARE, OMN, EGY, IRN, TUR, ISR, QAT, KWT, LBN, SAU, BHR, IRQ, JOR, YEM, SYR, PSE, AFG
Central and Eastern Europe and CIS (27)	ALB, AZE, EST, BLR, BGR, MKD, BIH, POL, RUS, CZE, HRV, LVA, LTU, ROU, MDA, MNE, SRB, SVK, SVN, UKR, HUN, ARM, GEO, MNG, CYP
Africa (10)	ETH, AGO, GHA, KEN, MAR, MOZ, NGA, ZAF, TZA, ZMB
Latin America (3)	ARG, PER, BOL

Note: CIS refers to the Commonwealth of Independent States. The list follows the current academic definition of Belt and Road partner countries.

Connectivity, Contestation, and Security: Geopolitical Implications of the Belt and Road Initiative

Atendriya Dana*

Jadavpur University, Kolkata, India

ORCID: <https://orcid.org/0009-0008-9363-7188>

E-mail: atendriya.dana@gmail.com

* Corresponding author

Neha Nazneen Siddiqui

Indian Institute of Management Kolkata, India

ORCID: <https://orcid.org/0000-0002-2302-7260>

E-mail: nnazneen7@gmail.com

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ABSTRACT

The Belt and Road Initiative (BRI) has emerged as one of the most significant international infrastructure and connectivity projects of the 21st century. While widely presented as an economic and developmental programme aimed at enhancing trade routes, logistics networks, and regional integration, the BRI has increasingly generated strategic concerns linked to security implications of the BRI by analysing how large-scale connectivity projects reshape regional strategic environments and contribute to new forms of diplomatic and military contestation. It argues that BRI linked infrastructure must be understood not only as an economic instrument but also a strategic asset capable of influencing maritime routes, military access, and political alignment. The paper explores how the perceived dual use potential of ports, transport corridors, and digital infrastructure has contributed to strategic anxieties among rival powers, intensified security dilemmas in sensitive regions, and encouraged counterbalancing initiatives by external actors. In addition, the study highlights how internal security challenges such as insurgency, terrorism, and political instability in host states, which affect the operational sustainability of BRI projects and compel China to expand security cooperation mechanisms abroad. By situating BRI within broader debates on infrastructure geopolitics, economic statecraft, and regional security orders, this study contributes to a deeper understanding of how connectivity driven development initiatives can generate unintended security consequences. The article concluded that the future of the BRI will be shaped not only by economic viability but also by evolving interaction between development priorities, strategic competition, and regional security governance

1. Introduction

The Belt and Road Initiative (BRI) represents one of the most ambitious and transformative global infrastructure and connectivity strategies of the 21st century. Conceived in 2013 by the leadership of the People's Republic of China, the BRI was initially articulated through the Silk Road Economic Belt and the 21st Century Maritime Silk Road, signaling China's intention to integrate regional economies across the Eurasian landmass and maritime routes linking East Asia with Africa and Europe (Du, 2016). Over time, the initiative has expanded both in geographical scope and institutional reach, encompassing transport, energy, digital, and industrial infrastructure projects across multiple continents. At its core, the BRI seeks to foster economic connectivity by reducing trade

costs, upgrading logistics networks, and facilitating greater capital and commodity flows (Du, 2016).

Despite its developmental objectives, the BRI cannot be understood solely as an economic infrastructure programme; it also embodies broader strategic ambitions that intersect with questions of regional influence, power projection, and institutional shaping. The strategic dimension of the BRI is evident in how the initiative has been integrated into China's foreign policy and institutional strategy, where connectivity and governance agendas are intertwined (Du, 2016). From Beijing's perspective, the creation of physical and institutional links helps to reshape international economic architecture by embedding China more centrally within global governance processes and intergovernmental networks (Du, 2016). This duality infrastructure as both an economic process and a strategic instrument places the

BRI at the centre of contemporary debates about global order and strategic competition. One of the key arenas where the strategic dimensions of the BRI are most vividly contested is in the realm of international power politics, particularly in the context of China–United States strategic competition. Scholars highlight that the Belt and Road Initiative has influenced global geopolitical dynamics by altering how states perceive strategic influence, alignments, and competitive engagement (Zhao, 2021). As connectivity infrastructure becomes increasingly tied to influence over trade routes and regional partnerships, the BRI has also encouraged counter-initiatives and alternative connectivity frameworks from other major actors (Zhao, 2021). These developments underscore that connectivity is no longer a narrow economic matter but a fulcrum of renewed strategic rivalry in global politics.

Emerging research also demonstrates that the security implications of the BRI extend beyond geopolitics alone to include economics and financial vulnerabilities that interact with strategic risk. In policy debates, concerns are frequently raised about the debt sustainability of BRI projects, particularly when sovereign lending results in high repayment burdens for host states (Hurley et al., 2019). Some partner countries have experienced debt distress risks linked to BRI commitments, raising questions about fiscal resilience and the long-term stability of Chinese-funded infrastructure expansion (Hurley et al., 2018). These concerns suggest that security in the BRI context must also be understood in economic terms, including the financial sustainability of development corridors and the vulnerabilities produced by large-scale lending.

The growing literature on the BRI shows that while the initiative has been widely studied through development and connectivity frameworks, the relationship between infrastructure expansion and security outcomes remains unevenly analysed. A systematic review of BRI scholarship highlights that research has been dominated by economic, logistical, and transport analysis, while questions of strategic competition, risk, and security governance require deeper investigation (Panibratov et al., 2020). At the same time, studies of transport networks under the BRI show that connectivity reshapes route diversification, logistics capacity, and energy flows, indicating that the initiative has structural consequences that may also produce strategic leverage (Wang et al., 2021). Political economy research further demonstrates that participation in BRI projects is shaped by bargaining power, institutional conditions, and domestic political calculations in host states, suggesting that infrastructure engagement is inseparable from power relations (Li et al., 2021).

2. Literature Review

Building on the section above, the BRI occupies a contested space where development objectives increasingly intersect with strategic competition and security perceptions, where the scholarly literature has evolved rapidly to address these overlapping dimensions. Early academic work largely interpreted the BRI through the lens of economic integration, infrastructure financing, and trade facilitation. However, as the initiative expanded

across strategic corridors and politically sensitive regions, researchers began to treat the BRI not simply as a development programme but as a framework through which influence, governance, and security concerns are negotiated. The result is a diverse literature that reflects competing interpretations of the BRI's intent, effects, and implications for international order. This section reviews the major debates shaping contemporary BRI scholarship, focusing specifically on security-oriented discussions, the development versus geopolitics divide, strategic infrastructure perspectives, maritime security narratives, and the emerging gaps that justify a more integrated security analysis.

2.1. BRI and the Security Debate

One major strand of scholarship places the BRI directly within the context of geopolitical rivalry and strategic security. A prominent contribution argues that the BRI has become increasingly embedded in China–United States strategic competition, shaping not only connectivity outcomes but also international perceptions of power, influence, and alignment (Hurley et al., 2019). In this view, infrastructure corridors should be interpreted as geopolitical instruments, capable of influencing the distribution of regional influence and creating new strategic dependencies. Such perspectives suggest that the BRI has contributed to a competitive environment where connectivity projects are interpreted as markers of strategic ambition rather than neutral development tools.

At the regional level, the security debate has also been explored through institutional frameworks such as the Shanghai Cooperation Organization (SCO). Research examining the SCO's engagement with BRI-related cooperation highlights how security and development agendas converge, particularly through counterterrorism mechanisms, intelligence coordination, and regional stability initiatives (Azizi, 2024). This literature suggests that the BRI is not only an economic platform but also a vehicle for building institutionalised cooperation that links economic integration with security governance.

2.2. The Development vs Geopolitics Debate

A second major debate concerns whether the BRI should be understood primarily as a development programme or as a geopolitical strategy. Some scholars frame the initiative as China's emerging geopolitical project aimed at reshaping regional influence through connectivity expansions (Zhang, 2018). This interpretation argues that infrastructure projects and trade corridors are strategically positioned to enhance China's access to markets, resources, and geopolitical leverage. However, more recent work complicates this binary. Research emphasizing “views from the ground” argues that the BRI is better understood as a relational and contested process, shaped not only by Beijing's ambitions but also by host state agency, local political bargaining, and fragmented implementation realities (De Oliveira et al., 2020). This approach suggests that BRI outcomes vary significantly across contexts and cannot be reduced to a single strategic logic. Political economy research further strengthens this argument by demonstrating that foreign direct investment along BRI routes is mediated by institutional credibility, domestic politics, and geopolitical conditions, meaning that BRI participation is shaped as much by negotiation

and legitimacy as by economic opportunity (Li et al., 2021).

2.3. Strategic Infrastructure and Connectivity Scholarship

The strategic implications of BRI have also been analysed through infrastructure and connectivity research, particularly transport studies. A major review of transport research under the BRI maps how scholars increasingly examine logistics systems, corridor planning, route diversification, and resilience frameworks (Wang et al., 2021). Importantly, this literature highlights that transport connectivity influences broader strategic outcomes such as supply chain stability, trade security, and energy access. This reinforces the argument that infrastructure is not simply an economic asset but also a structural component of strategic capability.

Beyond transport, scholars of urbanisation and spatial political economy argue that BRI infrastructure is embedded in deeper transformations of global capitalism. Research on the emerging geographies of BRI-driven urbanisation suggests that connectivity projects shape spatial restructuring, ecological consequences, and urban expansion patterns, producing new forms of governance contestation (Williams et al., 2019). Although this scholarship is not always explicitly security focused, it is relevant because it demonstrates how infrastructure produces long-term structural effects that can influence state capacity and political stability. Relatedly, work on the structural reshaping of globalisation situates connectivity politics within a world increasingly shaped by fragmented value chains, techno-nationalism, and strategic sectors, highlighting that infrastructure competition is unfolding within a broader transformation of global economic order.

3. String of Pearls & Maritime Security Narratives

A substantial literature focuses on maritime security and the BRI's sea-based corridor. The String of Pearls narrative, suggesting that China seeks to establish a chain of ports and facilities across the Indian Ocean, has become influential in strategic analysis. Yet some scholarship cautions against treating this framework as a definitive explanation. One study argues that while Chinese port investments raise strategic concerns, the evidence for a direct Sino-Indian security dilemma is more ambiguous and dependent on regional context and state behaviour (Brewster, 2018). This critique is significant because it challenges simplified threat narratives and calls for more empirical evaluation of the strategic implications of BRI maritime projects.

Maritime contestation is also shaped by broader US–China rivalry, particularly in the South China Sea. Research examining maritime claims and energy competition highlights how access to resources and sea routes has intensified strategic rivalry and security perceptions in the region (Brewster, 2018). At the same time, geo-economic analyses of the Maritime Silk Road emphasise that maritime connectivity must also be understood through trade and market integration patterns, suggesting that maritime infrastructure carries both economic incentives and strategic consequences (Hu et al., 2022).

3.1. Research Gap

Despite the expansion of BRI scholarship, several gaps remain relevant for security-oriented research. While many studies examine trade outcomes or geopolitical narratives, fewer integrate the BRI's economic, political, and security implications into a unified analytical framework. The literature on BRI-driven urbanisation notes that scholarship remains relatively embryonic and overly China-centric, calling for deeper attention to host state agency, local political dynamics, and comparative case studies (Williams et al., 2020). Similarly, broader horizon scans highlight that governance risks, social tensions, environmental pressures, and security vulnerabilities remain underexamined in relation to corridor development (Hughes et al., 2020). These gaps suggest that the security consequences of connectivity cannot be captured solely through military analysis or macro geopolitical narratives; rather, they require an approach that incorporates financial vulnerability, domestic instability, and strategic rivalry into the same analytical field.

3.2. Conceptual Framework

To examine the security implications of the BRI, this article adopts a conceptual framework that treats infrastructure not as a neutral economic instrument, but as a strategic object embedded within geopolitical competition, financial influence, and contested regional ordering. The framework integrates four key lenses: (1) the security dilemma and strategic competition, (2) economic statecraft and infrastructure power, (3) dual-use infrastructure as a strategic concept, and (4) connectivity as geopolitics. Together, these approaches allow the BRI to be analyzed as a connectivity project that produces both cooperation and insecurity by altering power relations, shaping dependency structures, and reorganizing strategic space.

3.2.1. Security Dilemma and Strategic Competition

The security dilemma provides a useful starting point for understanding why infrastructure development under the BRI generates strategic anxieties. In classical international relations theory, a security dilemma occurs when actions taken by one state to enhance its security, such as building alliances, expanding capabilities, or securing strategic routes, which are interpreted by others as threatening, thereby triggering countermeasures and escalating mistrust. Although the BRI is formally framed as a cooperative development programme, its scale, geographic reach, and association with Chinese state power have increasingly led rival states to interpret it through a strategic lens.

This dynamic is particularly evident in the growing body of scholarship that situates the BRI within China–US strategic rivalry. Zhao argues that the BRI has become a central arena through which China seeks to consolidate influence across Eurasia, while the US increasingly views the initiative as a geopolitical challenge to its strategic position and regional alliances (Zhao, 2021). In this interpretation, BRI corridors do not merely connect markets but also influence patterns of alignment, access, and political leverage. The security dilemma emerges because connectivity projects can be perceived as

instruments of long-term strategic positioning, even when they are justified through economic rationales. Similarly, debates over whether the BRI constitutes China's "new geopolitical strategy" reinforce how the initiative is embedded in competitive interpretations. Scholars note that many states view the BRI not simply as infrastructure cooperation but as a pathway for China to secure energy routes, expand influence, and reshape regional balances of power (Zhang, 2018). Even when China articulates the initiative as "win-win cooperation," strategic rivals often interpret the same infrastructure expansion as a form of indirect power projection. This mismatch in perceptions helps explain why the BRI has generated competitive responses, alternative corridor initiatives, and growing discourse around strategic vulnerability.

3.2.2. *Economic Statecraft and Infrastructure Power*

A second conceptual lens frames the BRI as a form of economic statecraft, where financial resources and infrastructure investments function as instruments of political influence. Economic statecraft refers to the use of economic tools, such as investment, lending, trade incentives, or sanctions, to shape the behaviour and preferences of other states. In the context of the BRI, infrastructure becomes a mechanism through which China can deepen economic interdependence while also creating leverage in diplomatic and strategic relationships. Research on Europe's financial security highlights this point by showing how Chinese lending and infrastructure engagement are interpreted as a challenge to economic sovereignty and financial autonomy (Pardo, 2018). The study argues that infrastructure projects are not simply commercial arrangements but can create political leverage through long-term dependence on finance, construction firms, and repayment structures. In this view, BRI investments are not merely an economic opportunity; they are a channel through which influence can be institutionalized.

This argument is strengthened by analyses of China's policy banks and the restructuring of development finance. Chen (2020) explains that Chinese development financing is neither purely concessional aid nor entirely private market lending; rather, it represents a state-supported model in which policy banks provide large-scale credit tied to strategic objectives. These banks operate as key instruments of China's overseas engagement by shaping project design, repayment structures, and the broader financial environment of recipient states. The BRI therefore reshapes development finance architecture by offering alternatives to Western-led institutions, while also expanding Chinese influence through credit networks and project dependency. This model blurs the distinction between economic cooperation and strategic leverage, reinforcing why BRI financing is frequently debated as a security concern rather than a neutral development tool.

3.2.3. *Dual-Use Infrastructure as a Strategic Concept*

A central concept in contemporary BRI security debates is that of dual-use infrastructure. Dual-use refers to assets that serve civilian economic purposes but also hold potential strategic or military utility. In the BRI context, ports, rail corridors, logistic hubs, and digital networks may facilitate trade and transport while also enabling

strategic mobility, surveillance capabilities, or military logistical support. The dual-use concern does not necessarily require immediate militarisation; rather, it arises from the possibility that infrastructure can be repurposed or leveraged in future contingencies.

Studies on maritime network restructuring under the BRI demonstrate how infrastructure corridors influence the geography of trade routes and transshipment hubs, particularly through chokepoints and strategic maritime nodes (Saeed et al., 2021). While the article focuses on trade flows, it indirectly supports a dual-use argument: the same maritime corridors that enhance commerce also influence strategic mobility and access. Ports that function as transshipment hubs can, under different circumstances, become strategic assets for naval presence, logistical replenishment, or maritime surveillance. Thus, infrastructure planning alters not only commercial flows but also the strategic landscape of maritime power.

The dual-use logic is further developed in contemporary geopolitical studies that conceptualize global politics as a competition for centrality within infrastructure and production networks. The argument advanced in the "Second Cold War" framework suggests that great powers increasingly compete to occupy central positions in global infrastructure, finance, digital, and production systems (Schindler et al., 2023). From this perspective, infrastructure is not simply a developmental asset but a strategic network that can determine long-term geopolitical advantage. This conceptualisation helps explain why the BRI has become a focal point of security attention, where it represents an attempt to reorganize global connectivity networks in ways that enhance China's centrality, thereby producing strategic anxiety among rival states and encouraging balancing behaviour.

3.2.4. *Connectivity as Geopolitics*

A final lens interprets connectivity itself as a geopolitical process rather than a neutral technical programme. Connectivity projects are often presented as economic solutions but they shape political order by creating routes, dependencies, and institutional linkages that reorganize regional space. The conceptual framework developed in "Connectivity and Order" is particularly useful here, as it argues that connectivity operates through multiple logics like cooperation, contestation, coercion, and containment (Gaens et al., 2023). This framework is valuable because it allows BRI infrastructure to be analyzed as a tool of order-making. Connectivity can produce cooperation through trade and integration, but it can also generate contestation when rival actors perceive it as exclusionary or strategically threatening. It can enable coercion through financial dependence, and it can prompt containment through competing corridor strategies and alliance responses.

Importantly, this approach also aligns with scholarship that rejects simplistic interpretations of the BRI as a singular master plan. The "views from the ground" perspective argues that BRI is not a fixed blueprint but a relational process shaped by local bargaining, contested implementation, and uneven political geographies (De Oliveira et al., 2020). This highlights that connectivity outcomes are not predetermined by China alone, but are negotiated through domestic politics, regional interests, and institutional constraints. Such a framework is

essential for security analysis because it prevents overly deterministic conclusions about BRI militarization while still recognising that connectivity projects can generate strategic consequences.

Furthermore, research linking the BRI to global urbanisation demonstrates that connectivity must be understood through its spatial and political-economic restructuring effects. Scholars argue that BRI infrastructure is embedded in a wider transformation of global capitalism, where corridors and mega projects reorganise urban spaces, ecological landscapes, and regional development patterns (Williams et al., 2019). This perspective expands the meaning of security beyond military concerns, showing how infrastructure-driven connectivity can produce new forms of social contestation, environmental pressure, and political instability. These indirect effects are crucial for understanding BRI security risks, since infrastructure projects reshape governance capacity and political legitimacy within host states.

Taken together, these conceptual lenses provide a framework for interpreting the BRI as a connectivity project that simultaneously advances economic integration and generates security dilemmas. This framework also enables the subsequent empirical sections of the paper to analyse security outcomes not as accidental side effects, but as structurally embedded possibilities within the political economy and geopolitical logic of contemporary connectivity projects.

4. Research Design

The study adopts a qualitative research design to examine how the BRI generates security implications through strategic infrastructure expansion and connectivity politics. Building on the conceptual framework developed above, centred on security dilemma, economic statecraft, dual-use infrastructure, and connectivity as geopolitics, the study treats BRI projects as political and strategic assets rather than purely technical development interventions. The objective is not to measure BRI outcomes in purely economic terms, but to assess how infrastructure development reshapes perceptions of power, vulnerability, and regional security ordering. Methodologically, the study relies on qualitative content analysis of academic scholarship, policy reports, and institutional documents related to the BRI. Particular attention is given to texts that address strategic competition, debt risk, and maritime connectivity, as these dimensions capture the broader security externalities of infrastructure development. The study draws from both critical and mainstream IR literature in order to avoid deterministic interpretations of the BRI as either a cooperative development agenda or an expansionist geopolitical project.

The analysis proceeds through a thematic approach, structured around four themes: (1) strategic rivalry and security dilemmas generated by BRI corridors, (2) financial leverage and development lending as economic statecraft, (3) the dual-use potential of ports, transport routes, and logistic networks, and (4) regional and global responses that reflect containment, balancing, and adaptation. These themes allow the article to trace how security concerns emerge at multiple levels, from state perceptions and alliance politics to domestic

vulnerabilities in host countries. Rather than offering a single country case study, the study uses illustrative examples from major BRI regions, maritime and land corridors, to demonstrate recurring patterns of strategic anxiety and policy response. This approach supports broader analytical generalisation while remaining grounded in empirical discussions found in existing scholarship. This study's contribution lies in integrating fragmented debates into a unified analytical framework that conceptualises BRI security as multidimensional, encompassing geopolitical rivalry, financial vulnerability, and strategic reordering of connectivity networks.

5. China's Security Adaptation, Diplomatic Responses and Security Risk

The expansion of the BRI across politically sensitive regions has exposed China to an evolving spectrum of security risks that challenge the assumption that connectivity projects are inherently stabilising. While the BRI was initially framed as an economic and developmental strategy, its increasing exposure to conflict zones, fragile political environments, and contested strategic spaces has made security governance an unavoidable dimension of China's overseas engagement. This has generated two parallel developments: first, a growing recognition that BRI projects are vulnerable to host-country instability and non-traditional security threats; second, an adaptive shift in China's diplomatic and security practices to manage risks and protect overseas interests.

A major theme in the BRI security literature is the argument that China now confronts "security externalities" generated by the very geographies it seeks to connect. Studies identify that BRI corridors pass through regions characterized by terrorism, separatism, political fragility, and cross-border instability, making infrastructure development increasingly exposed to disruption (Wuthnow, 2017). The significance of this argument lies in its framing of security not as a secondary concern but as a structural condition shaping the BRI's viability. From this perspective, BRI projects become embedded in environments where the protection of personnel, assets, and long-term investment returns require more than commercial planning; it requires political risk management, security cooperation, and diplomatic negotiation.

Beyond traditional security threats, scholars increasingly highlight the importance of human security dimensions in BRI contexts. Dellios and Ferguson argue that the BRI's sustainability is dependent not only on state-to-state agreements but also on how projects interact with local communities, livelihoods, governance capacity, and social stability (Dellios & Ferguson, 2017). Their analysis is valuable because it expands the security debate beyond militarized interpretations and shows that local grievances, inequality, and environmental disruptions can create destabilising pressures. Under this view, BRI security risks emerge not only from terrorism or insurgency but also from social tensions and governance failures, which can trigger political backlash and undermine the legitimacy of Chinese projects in host countries.

This broader understanding is reinforced by work mapping regional security dynamics, highlighting that

BRI-related security concerns operate at both traditional and non-traditional levels, including geopolitical rivalry, domestic instability, energy vulnerability, cyber risks, and transnational crime (Maryam et al., 2024). Such analysis suggests that the BRI has become deeply entangled in multidimensional security environments, where economic connectivity creates new dependencies and exposure to threats. These dynamics are particularly visible in the China-Pakistan Economic Corridor (CPEC), frequently described as one of the most strategically significant BRI corridors. Research on project risks in CPEC's transportation network highlights that infrastructure development faces numerous vulnerabilities, including governance challenges, political instability, financing uncertainty, and physical security threats. Studies demonstrate that transport corridor risks include both technical concerns, such as construction delays and operational inefficiencies. This illustrates how infrastructure corridors generate security challenges that directly shape their feasibility, cost, and strategic value. The CPEC case therefore functions as a useful reference point for understanding why China increasingly treats security planning as integral to infrastructure diplomacy. In response to these realities, China has gradually adapted its overseas engagement strategy. Liu argues that China's choices involve a difficult balance between its long-standing principle of non-interference and the growing necessity to protect its overseas citizens and investments (Liu, 2019). This dilemma has encouraged China to expand diplomatic engagement with host governments, strengthen intelligence cooperation, and rely on security partnerships to manage threats. Such developments suggest that the BRI is contributing to a shift in Chinese foreign policy practice, where infrastructure expansion produces pressures for deeper security involvement abroad.

Overall, the security risks surrounding the BRI demonstrate that connectivity projects generate complex vulnerabilities that require diplomatic adaptation. Host-country instability, terrorism, political contestation, and socio-economic grievances represent persistent threats to the long-term sustainability of BRI corridors. At the same time, these risks have compelled China to modify its diplomatic and security posture, signaling that the BRI is not only reshaping global connectivity but also transforming the practice of China's external engagement in fragile and strategically contested regions.

6. Does the BRI Create a New Security Order?

The question of whether the BRI contributes to the emergence of a new security order has become central to contemporary debates on global governance and regional stability. While the BRI is often framed as an economic integration initiative, its scale and institutional reach have raised deeper questions about whether China is indirectly reshaping security governance through development corridors, connectivity institutions, and new patterns of cooperation. Rather than producing an immediate replacement of existing frameworks, the BRI appears to contribute to a gradual reconfiguration of regional order through institutional overlap, economic dependency, and security-development linkages.

One prominent perspective suggests that the BRI's influence on security order is mediated through regional institutions, particularly the SCO. Scholars argue that the SCO functions as a platform through which China integrates economic cooperation with security governance, particularly through counterterrorism frameworks and regional coordination mechanisms (Azizi, 2024). The SCO's relevance lies in its institutional capacity to combine security dialogue with economic integration, thereby supporting China's broader connectivity agenda. This supports the interpretation that BRI is not merely an infrastructure project but also an institutional strategy that can strengthen regional governance arrangements aligned with Chinese priorities.

Related scholarship emphasizes the "peace through development" logic that underpins many Chinese policy narratives. Sun and Zhang highlight how China's strategic thinking often links development investment with the reduction of conflict and insecurity, presenting economic integration as a stabilizing tool (Sun & Zhang, 2021). This approach assumes that poverty reduction, infrastructure expansion, and interdependence can reduce the incentives for conflict by creating shared material interests. Within this logic, BRI becomes a mechanism for stabilisation, not through military alliances but through the construction of economic corridors that bind regional actors into networks of shared development.

The question of order-building also becomes more complex when placed within the wider Indo-Pacific strategic environment. Koga's analysis of emerging minilateralism demonstrates that the Indo-Pacific has witnessed the rise of flexible strategic groupings designed to manage regional rivalry and balance China's expanding influence (Koga, 2022). Such minilateral initiatives, including security-oriented coalitions, indicate that the BRI's expansion has not produced uncontested regional integration but has instead generated countervailing responses. These responses suggest that rather than establishing a single China-led security order, the BRI may be contributing to a more fragmented regional environment where competing security frameworks coexist.

Thus, the BRI's contribution to a "new security order" should be interpreted not as a replacement of existing alliances but as a gradual restructuring of security governance through economic corridors, institutional partnerships, and the linking of security cooperation with development finance. The initiative encourages new forms of regional coordination and strengthens China's role in shaping connectivity governance. At the same time, it also triggers balancing behaviour, strategic suspicion, and institutional competition, which limits the possibility of a stable and unified security order emerging directly from BRI processes.

7. BRI's Contribution to Shift in Security Structures and Alliances

The BRI has not only influenced bilateral economic engagement but also contributed to the reshaping of regional security structures and alliance dynamics. While the initiative does not operate as a formal military alliance system, its strategic infrastructure corridors and financing mechanisms alter the political economy of regional

relations, creating new forms of dependence, hedging behaviour, and strategic recalibration. The BRI's effects on security alignment are therefore indirect but significant, especially in regions where multiple major powers compete for influence.

Central Asia provides a particularly important context for assessing these dynamics. Scholars argue that Central Asian states are increasingly positioned between Russia and China within the evolving frameworks of Greater Eurasia (Kazantsev et al., 2021). Their analysis highlights how BRI-linked integration expands China's economic presence in the region while Russia continues to play a major role in security governance through legacy ties and institutional mechanisms. This produces a layered regional order where Central Asian states must navigate competing strategic pressures. Rather than fully aligning with any power, many states pursue hedging strategies that allow them to benefit economically from China while maintaining security linkages with Russia. This suggests that the BRI reshapes regional security structures by altering the economic foundations of influence without directly displacing existing security arrangements.

Kazakhstan provides a useful illustration of this balancing logic. Kazakhstan's relationship with China is shaped by careful efforts to prevent regional domination, reflecting both economic pragmatism and strategic caution (Kondapalli, 2023). Kazakhstan participates actively in BRI connectivity and investment opportunities while simultaneously maintaining a foreign policy strategy that avoids overdependence on any single power. This balancing behavior reflects how BRI participation can strengthen economic ties without necessarily producing straightforward geopolitical alignment, thereby complicating simplistic narratives that treat the BRI as a direct mechanism of strategic control. The security consequences of BRI-related corridors are also evident in South Asia, particularly in the case of CPEC, which carries security implications for India, particularly due to its geographic proximity to disputed border areas and its potential strategic value in regional power projection (Sangkar & Huda, 2023). This perspective reflects broader concerns that BRI corridors can reshape regional security perceptions by altering strategic geography and strengthening China's presence in sensitive zones. While such arguments often focus on military implications, they also highlight how infrastructure projects contribute to regional strategic anxiety and influence alliance behaviour.

Taken together, these regional examples demonstrate that the BRI contributes to shifts in security structures through economic integration, strategic corridor development, and the expansion of China's political and infrastructural presence. However, the reshaping of alliances is not uniform. In some contexts, BRI engagement encourages closer strategic partnership with China; in others, it produces hedging strategies or triggers counterbalancing behaviour by rival states. The BRI therefore functions less as a direct alliance-building instrument and more as a catalyst for realignment, where infrastructure connectivity alters the distribution of influence and compels states to reconsider their strategic positioning.

8. Conclusion

The paper has examined the BRI as a connectivity framework that increasingly operates within an environment of geopolitical contestation and multi-dimensional security concerns. While the BRI is formally presented as a development-oriented programme aimed at infrastructure investment, trade facilitation, and regional integration, the analysis demonstrates that its expansion cannot be separated from strategic rivalry, institutional competition, and evolving perceptions of risk. The BRI therefore occupies a dual identity, where it is simultaneously a platform for economic cooperation and a mechanism through which power, influence, and security dynamics are reconfigured. The literature reviewed in this paper highlights that the BRI has become embedded in broader strategic competition, particularly between China and the United States, where connectivity projects are interpreted not merely as commercial investments but as long-term instruments of influence and alignment. This strategic framing reinforces the logic of the security dilemma, as China's infrastructural expansion generates perceptions of threat or imbalance among rival actors, encouraging counter-initiatives and competitive connectivity frameworks. At the same time, the BRI's institutional and financial structures reveal the importance of economic statecraft. Infrastructure lending, policy bank financing, and corridor development create forms of dependency and bargaining leverage that shape political relations beyond the immediate economic sphere.

The study also shows that security challenges are not only external or geopolitical but are deeply rooted in host-country environments. Terrorism, insurgency, governance weakness, and local political contestation have emerged as persistent risks that undermine project sustainability and force China to adapt its diplomatic practices. This adaptation reflects an important shift in Chinese overseas engagement, as the protection of investments and citizens increasingly requires deeper security cooperation, institutional coordination, and risk management strategies. In this sense, the BRI does not merely generate security concerns; it also compels new patterns of security governance and diplomatic engagement.

A central finding of the paper is that the BRI contributes to a gradual reshaping of regional security structures, though not in the form of a unified China-led security order. Instead, the BRI operates through layered and uneven processes of realignment, hedging, and balancing. In Central Asia, states negotiate between Chinese economic influence and Russian security presence, producing a complex regional order shaped by overlapping power structures. In South Asia and the Indo-Pacific, BRI corridors generate strategic anxieties that strengthen counterbalancing coalitions and minilateral cooperation frameworks. These outcomes suggest that BRI-driven connectivity produces fragmentation as much as integration, as regional actors respond differently based on domestic politics, strategic vulnerabilities, and institutional interests. Ultimately, the BRI should be understood as a strategic connectivity project whose security implications extend beyond militarisation narratives to include financial vulnerabilities, governance pressures, and contested geopolitical ordering. The initiative is likely to remain a defining feature of global infrastructure politics, but its long-term sustainability will

depend on how effectively China and partner states manage the interaction between development ambitions and security realities. Future research must therefore move beyond binary interpretations of the BRI as either development cooperation or geopolitical expansion and instead examine how connectivity generates complex, evolving security outcomes across regions.

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China's Medical Aid to Pacific Island Countries: Implementation Methods, Effectiveness Analysis and Development Paths

Letian Xie*

Fudan University, Shanghai, China

ORCID: <https://orcid.org/0009-0009-3681-3947>

E-mail: 24110170060@m.fudan.edu.cn

* Corresponding author

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ABSTRACT

The South Pacific region is an important target area for China's new era of major-country diplomacy with Chinese characteristics, and it serves as a "blue ribbon" connecting the "Belt and Road" initiative. Given that the vast majority of Pacific Island countries suffer from disadvantages such as small size and sparse population, which result in low levels of national development, poor living standards of the people, and prominent health deficits, China pays greater attention to providing development assistance, including medical aid, to these countries during the process of developing bilateral relations with them. Currently, through continuous dispatch of medical teams to the Pacific region, conducting the Mission Harmony series of tasks, and providing emergency public health assistance, China has effectively alleviated the shortage of medical resources in the Pacific island countries receiving assistance, safeguarded the life and health safety of local people, and consolidated and developed friendly relations between China and the Pacific island countries. Moreover, the medical assistance provided by China has provided case support for enhancing China's international and regional influence, promoting the wide dissemination of the one-China principle in the South Pacific region, and implementing the global security initiative and the global development initiative. In the future, China should promote its medical assistance to Pacific Island countries towards the direction of covering the entire region, intelligent healthcare, improving their medical capabilities, and international collaboration. This will be achieved through the regular dispatch of medical teams to all Pacific island countries that have diplomatic relations with China, encouraging domestic provinces and autonomous regions to provide targeted assistance to specific Pacific Island countries, strengthening medical assistance, and calling on third parties outside the region to jointly promote medical assistance to Pacific Island countries.

1. Introduction

On February 21, 2023, the Ministry of Foreign Affairs of China held the Blue Hall Forum and released the The Global Security Initiative Concept Paper. It positively responded to the development demands of Pacific Island countries in areas such as global climate governance, natural disaster prevention, and public health cooperation. It was pointed out that China will consistently attach importance to the special circumstances and reasonable concerns of Pacific island countries in the fields of climate change, natural disasters, and public health, support the efforts made by Pacific island countries to

address global challenges, support the implementation of their "Blue Pacific 2050 Strategy", increase the provision of materials, funds and human resources support, and help island countries enhance their ability to deal with non-traditional security threats (People's Daily, 2023).

The South Pacific is a naturally strategic region along the "Belt and Road" initiative. In particular, establishing the China-Pacific Island Countries Blue Partnership is of great significance for China in its efforts to build an oceanic power, continuously promote the Maritime Silk Road, and actively participate in global governance (Guo and Lin, 2022). Therefore, in the context of China and Pacific Island countries accelerating the building of a

China-Pacific community with a shared future, it is worth paying attention to how to implement precise policies and provide more high-quality development assistance to Pacific Island countries, thereby promoting the in-depth development of bilateral relations between China and the Pacific island countries.

2. The Situation of China's Medical Assistance to Pacific Island Countries

In May 2022, the Ministry of Foreign Affairs of China released the Fact Sheet: Cooperation Between China and Pacific Island Countries, clearly stating that China has a long history of friendly exchanges with Pacific Island countries. Since establishing diplomatic relations in the 1970s, China has continuously expanded its cooperation with the islands, covering 20-plus fields such as trade and investment, marine environment, disaster prevention and mitigation, poverty alleviation and assistance, healthcare, education, tourism, culture, sports, and local affairs. China provides economic and technical assistance to the islands without any political conditions attached, implementing over 100 aid projects, providing more than 200 batches of material assistance, and training about 10,000 personnel in various fields for the islands. China has dispatched 600 medical teams to the islands, benefiting over 260,000 people. Since the outbreak of the COVID-19 pandemic, China has provided nearly 600,000 doses of vaccines and over 100 tons of various anti-epidemic supplies to the islands. China and the islands have formed 22 pairs of friendly provincial (municipal) city relations (Ministry of Foreign Affairs of China, 2022). To be honest, these exchanges and cooperation efforts can be said to cover the most urgent development and governance needs of the Pacific island countries (Zhang and Yu, 2024). Given that the vast majority of Pacific Island countries are facing severe healthcare challenges, during the process of deepening China-Tonga relations, China has targeted the actual needs of the Pacific island countries and has always regarded medical assistance as an important area of cooperation. Mainly through dispatching medical teams, implementing the Mission Harmony series of medical tasks, and providing emergency public health assistance, etc., it has continuously strengthened cooperation with Pacific Island countries in the field of healthcare.

2.1 Foreign medical aid team

From April 12 to 24, 1985, Hu Yaobang, then General Secretary of the Communist Party of China, visited five countries: Australia, New Zealand, Samoa, Fiji, and Papua New Guinea, marking the first visit to the South Pacific region by a senior Chinese Communist Party leader. During the visit, Hu emphasized that the South Pacific belongs to the countries of the region, and China had no intention of competing with anyone for control of the area. China has always supported the South Pacific

countries in independently formulating their own domestic and foreign policies and establishing and developing friendly relations with other countries based on their own actual needs and interests. This visit sent a signal to the outside world that China values the legitimate rights and interests of Pacific Island countries, supports their reasonable demands, and is willing to cooperate with them for mutual development. It played a positive role in further deepening China's friendly relations with Pacific Island countries. To enhance bilateral relations with the Pacific Island countries and out of humanitarian considerations, China also began to gradually provide medical aid within its capacity to these countries, sending medical teams to those willing to establish diplomatic ties. Since China sent a medical team to Samoa in 1986 to carry out medical work, China has gradually strengthened its medical and health cooperation with the Pacific Island countries in need by sending foreign medical teams.

On November 22, 2014, during a collective meeting with the leaders of Pacific Island countries, President Xi Jinping delivered a keynote speech, in which he stated, "China is willing to strengthen exchanges with the island countries in various fields and continue to send medical teams to relevant island countries to carry out their work (The State Council the People's Republic of China, 2014). On November 16, 2018, President Xi Jinping once again held a collective meeting with the leaders of Pacific Island countries with which China has diplomatic ties. During this meeting, Xi clearly stated, "No matter how far China develops, it will always be a member of the developing world, and will always stand together with developing countries. The relationship between China and the Pacific Island countries has opened a new chapter. We are willing to work together with the island countries, strengthen our friendship with sincerity, advance cooperation through practical efforts, and jointly create a brighter future for the relationship between China and the Pacific Island countries (The State Council the People's Republic of China, 2018). Under the strong promotion of the Chinese government, the frequency of sending medical aid teams abroad, the number of covered countries, the size of the teams, and the overall volume have all shown a significant upward trend. Moreover, China attaches great importance to the subjective will of the recipient countries and does its best to meet their medical demands.

In 2018, in response to the humanitarian request made by the Samoan government for dispatching a medical assistance team, during the process of forming the second batch of China's medical assistance team to Samoa, the Second Affiliated Hospital of Jilin University specially selected six experts from the departments of cardiology, otorhinolaryngology, nephrology, pathology, dermatology and urology to participate in the composition

of the medical assistance team. Meanwhile, some provinces and autonomous regions in China have fully utilized their own advantages and actively carried out medical assistance activities. By dispatching short-term medical teams to Pacific Island countries such as Fiji for free medical check-ups and visits, they helped these island countries enhance their medical capabilities. For instance, since 2007, the Guangdong Provincial Government has coordinated experts from relevant hospitals and continuously carried out the “Medical Services to the Islands” initiative. Teams have been dispatched to countries such as the Federated States of Micronesia, Samoa, Tonga, and Vanuatu to provide targeted medical services. Starting from 2015, Guangdong Province has, based on a thorough understanding of the actual medical and health needs of Pacific Island countries, fully exerted its initiative. It has continuously carried out the “Medical Services to the Islands” initiative, sending medical teams to Fiji, Papua New Guinea, the Federated States of Micronesia, Samoa, Tonga, Vanuatu and other countries. A total of 22 medical teams has been dispatched, providing medical treatment for nearly 6000 patients in various fields such as ophthalmology, cardiovascular medicine and dentistry, and performing over 300 cataract removal surgeries (Xinhua Net, 2022). The continuous implementation of

these activities fully demonstrates that local governments are also actively participating in foreign affairs activities, and are contributing their due efforts to strengthening the connectivity between China and Pacific Island countries and accelerating the establishment of the China-Pacific Island Countries Community of Shared Future.

Although sending medical assistance teams to the affected countries can to some extent alleviate the shortage of medical personnel in those countries, in regions where the medical infrastructure is relatively backward, local hospitals lack the ability to treat complex and difficult cases. Therefore, on one hand, the Chinese government provides medical assistance to Pacific Island countries through donating medical equipment, building comprehensive hospitals, and providing scarce medicines, to enhance the professionalism of the medical teams and local medical staff in diagnosis and treatment. On the other hand, the Chinese medical teams also conduct training and teaching for local medical staff through academic lectures, clinical teaching, and training exchanges, aiming to improve the diagnosis and treatment capabilities of local medical personnel. According to incomplete statistics, China has dispatched 600 medical teams to these countries, conducted hundreds of medical visits and free medical services, and donated a large amount of medical equipment and medicines, serving a total of 260,000 local patients (People’s Daily, 2023).

Table 1. Situation of China’s Dispatch of Medical Teams to Pacific Island Countries with Diplomatic Relations

Country	Date of Establishment of Diplomatic Relations	The Date for Restoring Diplomatic Relations	The Date When the Medical Team was First Dispatched
Fiji	1975		
Samoa	1975		1986
Papua New Guinea	1976		2002
Vanuatu	1982		1987
Micronesia	1989		2009
Cook Islands	1997		
Tonga	1998		2010
Niue	2007	2019	
Solomon Islands	2019	2024	2022

Source: Author’s compilation based on Ministry of Foreign Affairs of the People’s Republic of China (2022), People’s Daily (2018), and official records of Chinese medical assistance to Pacific Island Countries

2.2. Carry out the Mission Harmony Series of Tasks

Generally speaking, the main participants in diplomatic and foreign affairs activities are the governments of sovereign states at all levels. However, this does not rule out the involvement of other actors in foreign affairs. Apart from the Chinese government coordinating and organizing the dispatch of medical aid teams for overseas assistance, based on the humanitarian concern of saving lives and treating the sick, the Chinese government has also actively coordinated various forces to participate in medical assistance to Pacific Island countries. The most typical example is that the Chinese Peace Ship Hospital has been sent to Pacific Island countries multiple times to

carry out medical service tasks.

Since October 2008, after undergoing a series of inspections and deliveries of the ship’s hull and onboard medical equipment to the naval forces, PLAN Hospital Ship Ark Peace has mainly been engaged in major tasks such as treating and transporting wounded personnel at sea, emergency rescue in major disasters, and providing international humanitarian medical services. As of 2024, PLAN Hospital Ship Ark Peace has carried out 10 Mission Harmony series of tasks abroad and has visited the South Pacific region multiple times. While conducting friendly visits, it has also brought medical services to the local area.

In August 2014, after completing the Rim of the Pacific-

2014 exercise, the PLAN Hospital Ship Ark Peace transferred to carry out the Mission Harmony-2014. It immediately set off for the four South Pacific countries of Tonga, Fiji, Vanuatu, and Papua New Guinea to conduct friendly visits and medical services. During the nearly two-month mission period, the PLAN Hospital Ship Ark Peace covered a total distance of 9207 nautical miles, provided 22211 outpatient consultations, admitted 110 patients for hospitalization, and performed 212 surgeries. At the same time, the PLAN Hospital Ship Ark Peace also invited medical staff from the four countries to board the ship to participate in the entire medical treatment process of joint triage, consultation, and surgery. Through practical methods, it imparted practical medical skills and relevant experience to the participants (People's Daily Online, 2014).

Following its first medical mission to four South Pacific countries from June to November 2018, the PLAN Hospital Ship Ark Peace once again participated in major diplomatic activities of the country and carried out friendly visits and medical services in some South Pacific island countries and some Latin American countries. During this mission, the PLAN Hospital Ship Ark Peace set up 18 clinical departments and 5 auxiliary diagnostic departments, with a total of 120 medical staff, and carried a 1-shipboard ambulance helicopter. The average daily number of patients seen at the outpatient clinic exceeded 800 (Xu et. al, 2021). On November 14, 2018, on the eve of his state visit to the Independent State of Papua New Guinea, his meeting with the leaders of Pacific Island countries with which China has diplomatic relations, and his attendance at the 26th APEC Economic Leaders' Meeting, President Xi Jinping published assigned article in Papua New Guinea's Post-Courier and The National. In the article, he noted that "the Chinese naval hospital ship Peace Ark visited Papua New Guinea, Fiji, Tonga, and Vanuatu, providing humanitarian medical services to more than 20000 people in the island countries (The State Council the People's Republic of China, 2018).

During the mission in the four South Pacific countries, the PLAN Hospital Ship Ark Peace conducted a total of 143 surgeries and operations. Only one patient experienced postoperative nausea and vomiting, and no patient had an extended hospital stay that prevented them from being discharged in time (Wang et. al, 2018). It is

clearly evident that when the PLAN Hospital Ship Ark Peace visited the South Pacific island countries, it not only brought medical care to the local people but also once again demonstrated China's emphasis on developing friendly relations with the Pacific island countries, and its willingness to contribute its due efforts to the development of public health in these countries.

From July to September 2023, in accordance with the consensus reached between China and the five countries of Kiribati, Tonga, Vanuatu, Solomon Islands and East Timor, immediately after China's official COVID-19 prevention and control policies returned to "Category B infectious diseases under Category B management", the Chinese government dispatched the PLAN Hospital Ship Ark Peace for the third time to the South Pacific region to carry out the Mission Harmony series of tasks. During the two-month mission period, the total voyage of the PLAN Hospital Ship Ark Peace exceeded 12,000 nautical miles, the total number of medical services provided exceeded 40,000, the number of individual station diagnoses exceeded 10000, and 192 surgeries were performed on the main platform of the hospital ship. In the Solomon Islands alone, the PLAN Hospital Ship Ark Peace treated 10310 local patients and conducted 5825 auxiliary examinations. The then Prime Minister of the Solomon Islands, Manasseh Sogavare, even said when he boarded the PLAN Hospital Ship Ark Peace to visit the medical staff, "The Peace Ark Hospital Ship carries profound meanings of promoting world peace, saving lives, helping the injured, and having boundless love." (Li and Li, 2023) Evidently, while the PLAN hospital ship Ark Peace delivered high-quality medical services to local communities in the four South Pacific countries, it also helped expand the popular foundation for further consolidating the China-Pacific Island Countries community with a shared future and provided strong support for this vision.

It is worth noting that the PLAN Hospital Ship Ark Peace also conducted detailed research on the climatic conditions and lifestyle of the people in the South Pacific region. This has largely ensured that the hospital ship can continuously provide high-quality medical care, enhance diagnostic accuracy, and guarantee the quality and safety of surgeries (Yang et. al, 2024).

Table 2. Object countries and regions covered by each Mission Harmony of PLAN Hospital Ship Ark Peace

Year	Mission Name	Target Countries and Regions
2010	Mission Harmony -2010	The waters of the Gulf of Aden and Djibouti, Kenya, Tanzania, Seychelles, and Bangladesh
2011	Mission Harmony -2011	Cuba, Jamaica, Trinidad and Tobago, Costa Rica
2013	Mission Harmony -2013	The waters of the Gulf of Aden and the countries of Maldives, Pakistan, India, Bangladesh, Myanmar, Brunei, Cambodia, and Indonesia
2014	Mission Harmony -2014	Tonga, Fiji, Vanuatu, Papua New Guinea
2015	Mission Harmony -2015	Australia, French Polynesia, the United States, Mexico, Barbados, Grenada, Peru
2017	Mission Harmony -2017	Djibouti, Sierra Leone, Gabon, Congo (Brazzaville), Angola, Mozambique, Tanzania and Timor-Leste, with stops in Sri

		Lanka and Spain
2018	Mission Harmony -2018	Papua New Guinea, Vanuatu, Fiji, Tonga, Venezuela, Grenada, Dominica, Antigua and Barbuda, Dominica, Ecuador
2022	Mission Harmony -2022	Indonesia
2023	Mission Harmony -2023	Kiribati, Tonga, Vanuatu, Solomon Islands and East Timor

Source: Author's compilation based on Ministry of National Defense of the People's Republic of China (2023, 2024) and official Mission Harmony records.

2.3 Provide Emergency Public Health Assistance

Based on the current situation of public health, the healthcare systems in most Pacific island countries are relatively weak, and medical supplies are scarce. Masks and other epidemic prevention supplies are mostly dependent on external imports and international aid. The rapid outbreak and rapid spread of the COVID-19 pandemic worldwide have further highlighted the health deficits in the South Pacific region. Some Pacific Island countries have even been forced to declare a state of emergency or implement quarantine and lockdown measures to deal with the COVID-19 epidemic. Out of humanitarian considerations, after achieving a certain degree of success in its own epidemic prevention, China promptly provided support to the Pacific island countries within its capacity.

The outbreak of the COVID-19 pandemic at the end of 2019 and its rapid spread worldwide severely disrupted the overall stability of global public health. Against this backdrop, it is imperative to carry out international multilateral cooperation, exchange prevention and control experiences, and jointly promote the stabilization of global public health governance. Therefore, China has fully leveraged its comparative advantages and actively provided public health assistance. When the overall situation of epidemic prevention and control in Wuhan, Hubei Province was stabilizing, China promptly held a video conference of health experts from China and Pacific Island countries to share China's epidemic development situation and prevention and treatment experiences with ten Pacific island countries that have diplomatic relations with China. They also conducted in-depth exchanges and discussions on aspects such as prevention measures, diagnosis screening, and laboratory testing with the Pacific island countries. Eventually, based on the understanding and absorption of the epidemic prevention-related experiences provided by Chinese medical staff, each Pacific island country also adopted various measures and plans from China in the subsequent epidemic prevention and control efforts. Based on the successful holding of video conferences among health experts, on May 13th and November 30th, 2020, China also held two special deputy foreign minister-level meetings with ten Pacific island countries that have diplomatic relations. At the official level, they fully discussed and reached a broad consensus on issues such as how to better carry out anti-epidemic cooperation, jointly oppose politicizing, stigmatizing, and labelling the

epidemic, and strive to promote the forward development of practical cooperation in various fields in the "post-pandemic era".

In addition, China has established the China-Pacific Island Countries Anti-Epidemic Cooperation Fund. In March 2020, after the first case of COVID-19 was reported in Papua New Guinea, the Chinese government used the China-Pacific Island Countries Anti-Epidemic Cooperation Fund to donate to Papua New Guinea. On November 25, 2021, China also provided epidemic prevention assistance to Micronesia in the form of additional investment in the China-Pacific Island Countries Anti-Epidemic Cooperation Fund. The emergence of this series of actions fully demonstrates that China adheres to the concept of a community with a shared future for mankind, attaches great importance to developing relations with Pacific island countries, and is willing to join hands with these countries in fighting the epidemic and overcoming difficulties together.

On June 24, 2021, President Xi Jinping held a phone conversation with then Prime Minister of Fiji, Frank Bainimarama. Their discussion focused on jointly combating the COVID-19 pandemic and strengthening medical and health assistance. Xi noted that China is willing to continue providing support to Fiji in its fight against the pandemic, including vaccines. China will establish a China-Pacific Island Countries emergency supplies reserve to help island countries such as Fiji enhance their capacity to respond to major public health emergencies and natural disasters (The State Council the People's Republic of China, 2021). This initiative received a positive response from Fiji and other Pacific Island countries. During the first China-Pacific Island Countries Foreign Ministers' Meeting held on October 21st, the participating parties specifically discussed issues related to strengthening cooperation in combating the pandemic and building a health community as well as establishing a contingency reserve warehouse for emergency supplies between China and Pacific Island countries in the field of public health. They also detailed the relevant cooperation consensus and included it in the Joint Statement of the China-Pacific Island Countries Foreign Ministers' Meeting released after the meeting (People's Daily, 2021).

It should be noted that the establishment of the emergency material reserve warehouse has not only provided the Pacific island countries with relatively sufficient material support when they are facing the COVID-19 pandemic, but also enables them to receive

assistance materials from the emergency material reserve warehouse when other disaster-stricken countries in the region need it. This fully demonstrates that China will take the opportunity of jointly combating the COVID-19 pandemic to gradually increase its financial and material assistance to the Pacific island countries in healthcare, in order to promote the development of public health in the Pacific island countries.

3. The Effectiveness of China's Medical Assistance to Pacific Island Countries

The main reasons for the poverty of high-poverty countries are usually the combined and compounded effects of various factors such as the lack of human capital, insufficient social governance, resource constraints, backward connectivity, and lagging financial development (Xu, Zhao and Sun2024). The relatively backward development situation of the Pacific island countries has led to their long-term need for the necessary assistance from the international community.

Since the "Belt and Road" Initiative was officially proposed in 2013, China has gradually increased its health assistance to the countries along the "Belt and Road", which has led to an increase in the financial investment of China in health assistance to Pacific Island countries (Yang and Cao, 2023). At present, the "Belt and Road" cooperation between China and Pacific Island countries has covered all aspects of the "five connectivity" goals. Particularly, cooperation in terms of infrastructure connectivity and people-to-people connectivity has achieved more prominent results. In the field of people-to-people connectivity, educational and medical exchange and cooperation are the key areas of cooperation between the two sides. China has dispatched medical teams to 8 Pacific island countries that have diplomatic relations with China, assisting within its capacity to improve the relatively backward medical and health conditions in those regions (Lyu, 2022). Based on the basic facts of China's medical assistance to Pacific Island countries, it is easy to observe that China's medical assistance to these countries has played the following positive roles.

First, China has fulfilled the international responsibilities expected of a responsible major country and provided high-quality public health products. China's diplomacy has always emphasized the importance of common development, prosperity and coexistence for all humanity. Therefore, while pursuing its own development, China attaches great importance to the reasonable concerns of other countries. Due to the constraints of subjective and objective factors such as the size of the country, the level of economic and social development, and the governance capacity, most Pacific island countries are facing a relatively severe threat of health deficits. Introducing international aid has become the main means for these

countries to alleviate the crisis. Against this backdrop, China's decades-long medical assistance has, to a large extent, alleviated the relatively prominent health deficits in the recipient Pacific island countries, effectively safeguarding the lives and health safety of the local people, and thus fully demonstrating that China has fulfilled its due international responsibilities and powerfully refuted the groundless accusations against China's diplomacy from the outside.

Secondly, it has greatly promoted the development of a comprehensive strategic partnership of mutual respect and common development between China and the Pacific island countries. Geographically, China and the Pacific island countries are separated by vast distances, and the long-term political, economic and cultural exchanges between the two sides have been restricted by this objective factor. With the continuous improvement of China's comprehensive national strength, in response to the actual needs of the Pacific island countries, actively providing medical assistance to these countries will initially focus on the humanistic exchange level, promoting increasingly close personnel exchanges between the two sides. On this basis, there is greater cooperation space for both sides, which provides beneficial preliminary guidance for strengthening all-round exchanges and cooperation under the framework of the "Belt and Road" Initiative, and ultimately provides strong support for consolidating and developing the bilateral or multilateral relations between China and the recipient Pacific island countries.

Third, China's medical assistance to Pacific Island countries also helps the international community gain a deeper understanding of the One-China principle and shatters the illusions of Taiwan independence forces seeking so-called "international support". In order to maintain and expand its purported influence in the South Pacific, the Taiwan authorities have attempted to seek so-called "international recognition" through "checkbook diplomacy", building ethnic and cultural ties, and providing economic aid. By using medical assistance as a diplomatic entry point and carrying out comprehensive cooperation with Pacific Island countries that have established diplomatic ties with China-covering areas such as trade and investment the marine environment, disaster prevention and mitigation, poverty reduction, and public health-China has been able to convey goodwill for cooperation in the South Pacific and generate positive spillover effects. This approach also helps the international community better recognize that the One-China principle represents a just cause and the prevailing will of the international community.

Although China's medical assistance to Pacific Island countries has greatly enriched the forms of China's distinctive major-country diplomacy and has met the development needs of those countries, it has strong

vitality, appeal and centripetal force. However, it is undeniable that at present, China's medical assistance to Pacific island countries still has some problems that need to be solved, such as not yet dispatching medical teams to some Pacific island countries that have diplomatic relations with China, not yet forming a unified medical assistance system, there are certain discrepancies in the records and reports of medical assistance, and the participation of third parties from outside the region in medical assistance is relatively low.

4. Suggestions for the Future Development of China's Medical Aid to Pacific Island Countries

The World Health Organization once issued a statement indicating that providing health services to a population scattered across dozens of atolls and island groups, covering a distance of up to 5000 kilometers, with slow internet speeds, extremely high operational costs, and infrequent transportation links, poses significant challenges. Most Pacific Island countries are confronted with the inherent challenges of numerous islands, sparse and scattered populations, poor transportation, and relatively backward technological levels, resulting in high operational costs for public health services. Specialized and hospital care is limited to densely populated areas, and achieving the goal of a healthy island vision remains a long way off (World Health Organization). Even the majority of people living on Pacific Islands are unable to effectively access basic services such as clean water, sanitation, and proper waste treatment and disposal. This exposes them inevitably to diseases that could have been prevented. Therefore, it is of great urgency to provide the Pacific island countries with humanitarian assistance within their capacity from the perspective of international aid, in order to improve the relatively backward public health conditions in these regions and enhance the well-being and health of the local people.

Firstly, it is necessary to establish a regular pattern of sending medical assistance teams to all Pacific island countries that have diplomatic relations with China. Currently, due to factors such as the relatively weak willingness of some Pacific island countries to receive assistance and the significant geographical limitations, China has not sent medical assistance teams to all these countries. In addition to the traditional method of directly dispatching medical teams to the local areas and conducting medical tasks, if the infrastructure conditions permit, China can also introduce smart medical technology and conduct remote joint consultations through video conferences, thereby better mobilizing advanced domestic medical resources, improving the medical treatment level of local hospitals, and promoting the integration and sharing of medical resources. At the same time, in the short term, when the numerous islands and their small sizes make it difficult to create medium-

sized or large comprehensive hospitals, we can also break away from the existing thinking of "one medical team providing assistance to one country", and establish a mobile medical assistance team to provide basic medical services to the people on more islands and create a medical referral green channel for patients with severe conditions. Ultimately, the medical services provided by the medical assistance teams will benefit more island countries and their people.

Secondly, efforts should be made to explore the possibility of domestic provinces and autonomous regions providing targeted assistance to specific Pacific Island countries. Based on the current implementation of medical assistance, the operation mode of China's overseas medical teams is mainly that the National Health Commission uniformly coordinates and determines which specific province or autonomous region will organize a medical assistance team to send to the country with needs, and carry out regular medical assistance. At the same time, some provinces have also fully utilized their initiative by using local foreign affairs channels to carry out medical assistance activities, providing short-term medical assistance to some Pacific island countries or offering opportunities for specific island country medical staff to study at designated universities and hospitals in China. Obviously, local governments have actually been deeply involved in the operation system of China's medical assistance to Pacific Island countries, and have gained certain cooperation experience. With the continuous advancement of the "Belt and Road" initiative, the connections between local governments and the outside world are also becoming increasingly strong, and their foreign aid has become an important aspect of China's foreign aid (Wang and Guo, 2023). If conditions permit, we can follow the model of targeted poverty alleviation in which eastern coastal provinces and cities in China assist in poverty-stricken areas in the west. We can organize provinces, autonomous regions, and municipalities with the ability, willingness and experience to offer high-quality medical assistance to the Pacific island countries that have diplomatic relations with China. This will help better promote the construction of the cause of enhancing mutual understanding between the Chinese and Pacific island peoples.

Furthermore, efforts should be made to enhance the local medical standards. Although China's development-oriented aid has provided sufficient impetus for local development, it may prevent the recipient countries from building their own sustainable development capabilities (Zhao and Cai, 2025). Currently, China's medical assistance to Pacific Island countries mainly involves sending medical personnel to specific Pacific Island countries for short-term or medium-to-long-term medical assistance, as well as providing medical infrastructure construction, medical supplies, and other services to the

countries in need with funds contributed by China. The “self-reliance” capacity of Pacific Island countries is somewhat insufficient. Therefore, in the subsequent process of providing medical assistance to Pacific Island countries, China should gradually shift the focus of assistance to providing short-term medical training and medium-to-long-term medical education for the Pacific island countries, helping them cultivate a group of medical professionals with high levels and rich medical experience, thereby improving the local medical standards. However, it should be noted that this shift in focus does not mean that China will abandon its existing medical assistance model. China still needs to provide medical assistance, especially medical supplies and health funds, to the Pacific island countries that have needs, so that they can better cope with public health challenges. Finally, efforts should be made to jointly promote medical assistance to Pacific Island countries with external parties. The medical deficits that have emerged in these Pacific island countries will not only seriously threaten the life and health security of the island people, but also have a spill-over effect, seriously delaying the timely achievement of the Sustainable Development Goals. In order to effectively promote the development of Pacific island countries, China has long been committed to helping these countries break free from the vicious cycle of being underdeveloped or classified as less developed countries. Although China's unconditional assistance to Pacific Island countries has been well-received by many of the South Pacific island countries (Zhang, 2019). In the future, China can provide medical assistance to Pacific Island countries while publicly calling on and inviting other non-regional third parties to participate in these activities. Together, they can promote the development of public health in Pacific Island countries. Moreover, this approach can once again demonstrate China's active fulfillment of international obligations and effectively counter the false reports and remarks targeting China's aid from the outside world.

5. Conclusion

On February 10, 2023, President Xi Jinping, in a reply letter to the members of China's 19th medical team sent to the Central African Republic, clearly stated that foreign aid medical teams should use benevolent intentions and skilled medical practice to benefit local people, tell China's story through concrete actions, and make greater contributions to promoting the building of a global community of health for all (The State Council the People's Republic of China, 2023). The Pacific island countries are not only an important force that cannot be ignored on the international political stage, but also an important target for China to continuously improve its grand strategy for diplomacy in the surrounding regions in the new era (Shi, 2019). China has provided medical

assistance to Pacific Island countries for a relatively long period of time, with a wide coverage, diverse forms of assistance, and good results achieved. This not only effectively alleviated the health deficit pressure of the recipient Pacific island countries, but also demonstrated China's status as a responsible major country in the international community. Moreover, it has accelerated the development of the China-Pacific island countries' community of shared destiny. With the deepening and implementation of the “Belt and Road” initiative, medical cooperation between China and Pacific Island countries will become increasingly close, and it will also become an important support for promoting the development of Pacific Island countries and helping to achieve the Sustainable Development Goals on schedule.

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