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Influence of Belt & Road on consensual Trade with Path to Structural Trade Model

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Abstract: Xi Jinping, the president of China, announced Belt and Road project. A large geographic area of the world, encompassing America, Asia, and Africa, was to be developed economically and through increased bilateral trade. BRI covers 64 per cent of the global population and 30 per cent of the international GDP. Analyses consequences of Belt and Road Initiative-driven changes to marine networks on bilateral trade movements (BRI). The gravity model approach was applied for results to study the significance of China through "Belt and Road project" (BRI) trade through various quantitative techniques, including (POLS), (FE), and applied to look at the hypothesized impact of bilateral trade of one Country with other countries. To study the importance of BRI on the two-way trade of China with 29 trading partners, panel data from 20 years (2000–2019) of data were obtained. China has a very good impact on international trade, and its GDP per capita is shown to be highly positive. The relationship between the two is very significant and positive, as indicated. Results indicate that as trade partners' countries' populations have grown, their economies have also grown.

Introduction

Chinese president announced a mega project in the year 2013 called the Belt & Road project that connects countries with one belt. (Lu et al., 2018). The Belt and Road Project and Asian Infrastructure bank as grand economic and diplomatic strategies aimed not only at overcoming domestic economic problems but also showing the importance of China in the area (Cai, 2018). Development of economies of other regions, including subregions of Europe, Asia, and Africa, accounts for 64% of the total global population and 30% of the total world's GDP

(Huang, 2016). The focus was on creating infrastructure networks and establishing free trade areas. It refers to the infrastructure of a global network, the railway of China-Laos, the railway of China-Thai, Hungary Serbian Railways, Nairobi-Mombasa-Mandrake Railways, the port city of Colombo Sri Lanka, Hambantota Harbor in Sri Lanka, Piraeus Harbor in Greece, Gwadar Harbor in Pakistan, China – The Myanmar pipeline is all part of China's Belt and Road project initiative. In addition, China established itself with 20 other economic and

trade zones in 14 other countries, and they signed free trade agreements with countries. FHA projects are in progress with the council of Gulf Cooperation, Sri Lanka, Israel and Maldives (M. L. Wang et al., [2018](#)).

BRI includes new multilateral financial products designed to establish an open cooperation framework and to build the industrial base infrastructure to secure and strengthen China's relations with countries along with Silk Road. In the era of modernization and disbalance alleviation extends in the developing regions in China, the infrastructure of transport in the BRI project countries plays an important role in developing economic growth (C. Wang et al., [2020a](#)) consumption of power and growth of economics can clearly show the internal relationship between two key indicators and evidence of green power cooperation in BRI countries (Zhang et al., [2021](#)) Transportation infrastructure services can affect the region of economics in which they are located can affect other regions as well (Arbués et al., [2015](#)). BRI is the largest infrastructure program (Schulhof et al., 2022). The Belt and Road Project (BRI), unhindered economic prosperity, is the controversial infrastructure construction at a large scale that can increase energy consumption and increase the risk to the environment in BRI countries (Qi et al., [2019](#)) transportation investment creates a powerful spillover effect in terms of space and time (Berechman et al., [2006](#)). China is the global leader in infrastructure (Z. Liu et al., 2020). The ancient Silk Road has been weakened in the last few centuries. After the end of the Cold War, it had a chance that it could be revived. Silk roads connected China to other countries with global business, and the manufacturing plants placed an influence and movements first with the commodities. (Chan, [2019](#)) China opens different ports in different countries. In Djibouti, the three new ports opened in 2017 and also the standard gauge railway line under the flag of BRI. Djibouti is the gateway between Asia and the Middle East to connects

China through the port. (*Djibouti: Small Country, Big Stakes*, n.d.).

BRI has significantly improved create date impact on the food quality that is imported from other countries linked to the belt and road project (Zhou et al., [2022](#)). China also opens its ports to Turkmenistan, which is the (TRACECA) corridor of trade from western China through the Central Asian nations of Kyrgyzstan, Tajikistan, Kazakhstan, Uzbekistan, and Turkmenistan to Europe. (*Turkmenistan Port Opens New China-Europe Rail Corridor* | JOC.Com, n.d.) the infrastructure of transport in the countries linked to the BRI region has an important role in the economic growth of the different countries. Many governments that are a part of BRI countries are a part development of new roads, rails, ports, and other infrastructure to further development and increase road and rail networks at the Country and regional levels. These projects that are part of BRI Projects, the Zhezqazghan-Buine Railway (Kazakhstan), the Algren-Pap Railway (Uzbekistan), railways Lines (Kyrgyz Republic), and Nairobi Mombasa. However, the rail network and road density are still below the global average. Most of the BRI countries have no proper basic infrastructure of transport such as road infrastructure, railroads and port infrastructure in BRI projects. (C. Wang et al., [2020b](#)) reducing the cost of overall travel and transportation in the Belt and Road projects transportation network that can pave the way for other investments and increased growth rate in GDP. But the effect varies significantly across the source and destination of the countries (Chen & Lin, [2018](#)).

Russia has become a key partner of the BRI project. China is one of the investors in Sino-Russia energy cooperation and transportation infrastructure (Be et, 2016) BRI opens doors for Europe for cross-border trade to reduce the cost of transportation. (Herrero & Xu, [2017a](#)) And increasing the operations of the China Railway Express that connects China to the Europe region. (Choi, 2021) and Asia into China through land and

sea routes(Palit, [2018](#)) CPEC is part of BRI projects that has different infrastructure networks like roads, ports and railways that connect China to Pakistan(Jacob, 2018) BRI's main motive is to connect different countries into a Sino-centric network of that is a multi-purpose network to make good relations to other countries(Callahan, [2016](#)) China's relations with South Asian countries like countries of other regions that will help to build economic corridors with these countries. (Chung, [2017](#)) BRI made industrial redeployment possible and increased global business, increased investment in the projects in different countries and made to increase energy sources within the region(W. Liu & Dunford, [2016](#)) and opened the door for new ways to produce energy. ("Handbook on Trade Policy and Climate Change," 2022) provides a new infrastructure of roads for the sustainability of economic growth in China and cross-border trade between countries, with the "Maritime Silk Road"(Khan et al., [2018](#)) BRI has become a significant and important factor helping in growing China's economic condition in the world(H. Liu et al., 2020) BRI will have a major and open influence on future of the world trade(Ascensão et al., [2018](#)).

Economic Overview

BRI has major economics in different regions and nations on the globe with six corridors (Sheng & Nascimento, 2021), Including 114 trading countries (Yu et al., 2020a) BRI has 118 projects in different countries in transport, energy, and infrastructure. According to(*Belt and Road Initiative*, n.d.), the amount required for the projects under BRI is US \$ 575 billion. When these projects are completed, the BRI projects of transport will reduce the time to travel along the economic corridor by 12 per cent, trade by 2.7% to 9.7%, and income by up to FDI can have a positive influence on GDP, employment, and GDP growth, for low-income countries and region (Chen & Lin, 2018)The total amount of foreign investment and construction projects in China exceeds US \$ 1.6 trillion. According to the Ministry of Commerce of

China, from 2014 to 2017, China invested a total of 542.6 (\$ 100 million) in 125.4, 148.2, 145.3, 3, 123.7.4 in above 60 countries on the Belt and Road projects. In addition, international financial institutions, the China Development Bank, Asian Infrastructure Investment Bank and Silk Road Fund are directly providing the necessary funds for the Belt and Road Projects (*China Global Investment Tracker | American Enterprise Institute - AEI*, n.d.).foreign investment in BRI countries reached approximately US \$ 47 billion 2020 is about 54% less than 2019 In some countries, such as Vietnam, BRI investment surged in 2020 Compared to 2019. China's Investment in countries which is not a part of the BRI projects countries fell to 70% compared to 2019, about \$ 17 billion in 2020 in term of the investment. First investment renewable energy (solar, wind, hydro) China's Foreign Energy Investment-Increases Share from 38% to 57% from 2019 to 2020. (Nedopil, [2021](#)) China invests in different countries under OBOR. Chinese investment in those countries is to access natural resources(Bhaumik & Co, 2011). Many of the Chinese investments are in the form of infrastructure, services, and energy in trade openness(Abdulsalam et al., 2021). The lead Chinese investor (POWERCHINA Ltd) is investing US\$250 million into a US\$2 billion venture in the CPEC, one of the major corridors (Hamdani, n.d.) Improvement of regional infrastructure and betterment of connectivity in West Asia will give China access to oil resources and gas resources to reach markets in Europe and Africa.

Increased use of oil and gas in China led to increased imported products from Central Asia and some other regions, as well as the Gulf region(Yildiran, [2019](#)) BRI is especially beneficial to connected neighbours, as trade increases dramatically with geographical proximity (Hausman & Taylor, [1981](#)) The Belt and Road Projects will increase trade between countries by up to 4.1%. Improved trading and financial hours allow countries to increase trading in different sectors and sectors that use more time-sensitive

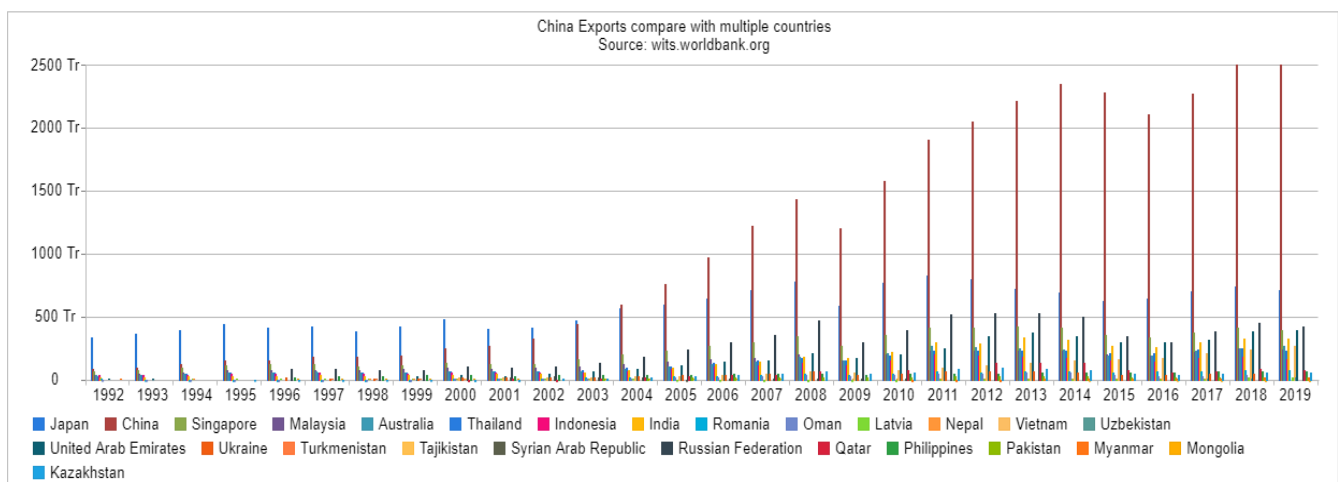
trade inputs. For countries that are new to infrastructure and highly integrated into the international value chain, the gain of profit from trade with BRI projects for those countries will be greater (Baniya et al., 2020). Belt and Road Projects (BRI) has the potential to lead to more trade prosperity (Himaz, 2021) BRI increase economic growth in countries that are part of this huge global project 17.34% of GDP. Chinese investment in Turkey significantly increased recent years (Gürel & Kozluca, 2022) Most recent data shows that China's total export value was US \$ 2,498,569,865.64,000, total import value was

US \$ 2,068,950,254.60 thousand, and its trade balance was positive by US \$ 429,619,611.04 thousand. China's effective tariff-weighted average (tariff) is 2.53%, and (MFN) is 3.29%. Trade growth in the years is -3.51%, and global is -1.13%. China's economy is on a high, and its GDP is currently 14,279,937,467,431 in US dollars. China's service exports are 244,359,155,290.70 in the balance of payments (current US dollars), and service imports are 505,508,186,201.57 in the balance of payments (current US dollars). China's manufacturing and service industries account for about 18.50% of the GDP.



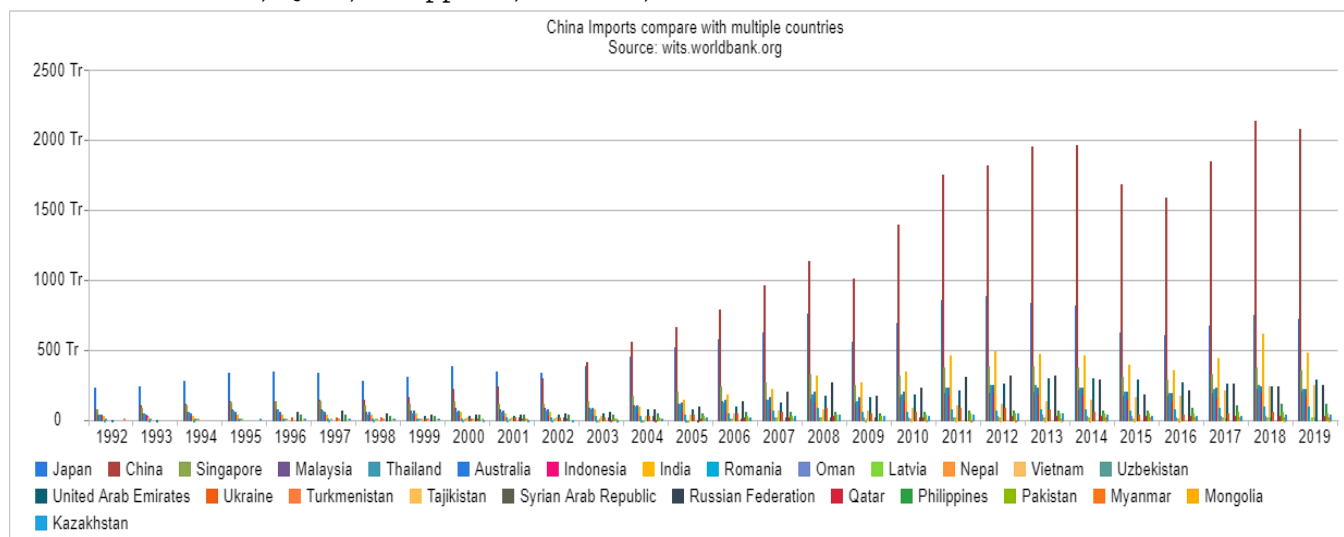
China with the compare of world growth of economics and other trade partners in different time series from 2004 to 2019 where the

statistical line shows the up and downs of the economic growth of China with world growth.



Export of China to different countries like Japan, Malaysia, Australia, Thailand, Indonesia, India, Romania, Oman, Latvia, Nepal, Vietnam, Uzbekistan, United Arab Emirates, Ukraine, Turkmenistan, Tajikistan, Syrian Arab Republic, Russian Federation, Qatar, Philippines, Pakistan,

Myanmar, Mongolia and Kazakhstan with the year from 1992 to 2019. The flow of export of goods and products that China is exporting is continuously increasing as China is becoming the exporter of their goods in different countries.



Import of China with different countries like Japan, Malaysia, Australia, Thailand, Indonesia, India, Romania, Oman, Latvia, Nepal, Vietnam, Uzbekistan, United Arab Emirates, Ukraine, Turkmenistan, Tajikistan, Syrian Arab Republic, Russian Federation, Qatar, Philippines, Pakistan, Myanmar, Mongolia and Kazakhstan with the year from 1992 to 2019. The flow of import of goods and products that China is exporting is continuously affecting the economy of China through the number of goods that China are importing through the borders from different countries.

Objective

To know how the belt and road project changed the consensual trade between China and partner trade countries.

Research Questions

How does the belt and road project change trade with China with other trade partners?

Will the belt and road project create influence other countries' trade?

Literature Review

BRI can basically be seen as an infrastructure-driven economic beneficial plan. Some of the previous literature referenced in research is the trade and economic research between countries linked directly or indirectly to BRI. Some researchers have examined the Influence of regional and cross-border economic integration on trade relations with the subregional economic conditions and consensual trade between belt and road countries. (Saqib Irshad et al., 2015) Analyze the interdependence of trade between China and the Country in the area of B & R initiatives using the Hubness measurement index. They discovered that trade interdependence between China and these countries was growing, but it was asymmetric, with these countries relying more on exports than China. (Z. Liu et al., 2020) focus on two major trades to shed light on the Framework and transformation of B&R trade ties, relative positions of different countries, changes in trading community composition (such as community leaders), and changes in trade patterns between them. The emphasis is on relationship networks. On the one hand, the entire

international trade network of B & R countries has seen a leadership transition from Russia to China, with some temporary communities emerging.

Because the future impact of China's BRI is ascertained by the degree of integration of connected regions, China may choose some regions with stable and high centrality indexes (Russia and China, Singapore, Serbia, Greece, Turkey, Iran, Poland, Hungary), Romania, and others as strategic regional allies. Herrero & Xu conducted an A model equation used in an econometric investigation to evaluate how much trade could occur between the countries involved in the R & B initiative. They discovered that a 10% reduction in shipping costs increased trade by 1.3% more than a 10% reduction in ad valorem tax. Furthermore, they discovered that if transportation costs were reduced, European Union countries would be the biggest "winners" in terms of 6% trade growth. Asian countries, on the other hand, will benefit the most from the creation of free trade zones. Trade will grow by 3%. (Pan & Chong, 2022) Use social network analysis techniques to map the development of FDI and trading networks in Belt Road countries which discover that both networks are decentralized, networks with small global coverage, with increasing edge density and number. (Wu & Chen, 2019a) Found that, on average, China's OFDI has a significant impact on strengthening the trade between countries with BRI countries and a low impact on export strength. Although, the impact of China's OFDI on trade intensity with BRI countries depends on the resource-rich national groups of high- and low-income countries at different times.

(Haiyue & Manzoor, 2019) Investigate The significant effect of Direct investment on Chinese firm profitability. Chinese businesses making investments in participating nations within the Belt and Road Initiative (BRI) have shown to be more productive than companies investing in non-BRI countries. (H. Y. Liu et al., 2017) China's Outward FDI in OBOR countries is extremely

dependent on exchange rate (ER) tiers, market opportunity, and approachability, as well as receiving country phases of the construction. (Himaz, 2021) gained enormous evidence of previous deficit spending in China's infrastructural development, enhanced corporate debt, and corrupt practices. According to specialists, if the Belt and Road Project magnifies this occurrence, the probable results of economic and financial difficulties in China may well have serious communicable effects with enormous consequences. (Limão & Venables, 2001) Most Silk Road countries' commerce with China is presently extremely slow. The cause of the current progression is unconfirmed, but their findings suggest that the brought back to life Silk Road could help fill some of the trade potentials. This is especially true for Central Asian countries that are landlocked. Transportation infrastructure investment can be especially important in Central Asia. (Sun, 2021) Start investigating regardless of whether high-quality RTA enhances the standard of Chinese state-owned enterprises' exported goods to "Belt and Road" European states when compared to private and international entities. (Zaman et al., 2021) China's FDI Direct investment has greatly enhanced also every economic growth of the Country, but financial liberalization is vanishingly small because most developing economies really have to invest in structural transformation and focus on promoting open and market economic expansion. (J. Li et al., 2019) highlighted the importance of developing a new sustainable Silk Road through scientific research and reinforcing international cooperation.

(Démurger, 2001) According to the World Bank, infrastructure development is critical to closing China's regional growth gap, especially if the Country lacks adequate redistributing wealth frameworks, support systems, and household structures to address non-symmetric growth of the regional market. (Le et al., n.d.) Initiatives promote textile exports and infrastructure development. (Zhang et al., 2021) It was discovered that state expenditure on ecofriendly

growth in the economy varies by Country. (*China's Way: On JSTOR*, n.d.) A new Silk Road financial belt and a new Historical Silk Road process have been proposed. Domestic policies such as trying to strengthen demarcation line security in western China, trying to secure export opportunities and energy supplies, continuing to develop residential transportation routes, and trying to close the gap between developed and developing China's east and west regions are driving China's initiatives to establish a B & R initiative. It was wanted to believe in having been promoted. (Yu et al., 2020b) Showed the BRI effect by building new consensual trade Preference Index showed that measures bilateral trade preference with China with its 114 trades Partner by using the model of difference to show China's Belt and Road trade Since the introduction of the BRI project, countries have been connected with higher priority. Especially the index of bilateral disclosure trade preferences with China and the Belt Road Project countries has risen by Approximately 8% more than countries other than Belt Road. (C. Y. Li et al., 2019).

In trade and investment data, it needs to employ the conventional Dickey-Fuller Test augmented (ADF) in addition to its own systemic debugging tools. From 2010 to 2017, China, with these 64 countries all along Belt and Road project, had been in direct communication and found that Trade flows with one root of unity and trade flow shock in 46 (72%) countries Seem to appear more often among these after the initiative is announced Country. As in other countries, trade flows are Period 2010-2017. Both from the 21st Century ancient Silk Road and the Silk Road Economist project by the Chinese government. (Ma et al., 2021) uses the entropy model and finds Transportation infrastructure with logistics are becoming key factors influencing national and international trade. At the same time, an international logistics corridor is under construction along the Belt Road Initiative project (BRI). (Ma et al., 2021).

Using the gravity model, we discovered that an increase in China's import and export margins reduces China's trade surplus. BRI estimates trading volume while lowering the standard price of traded commodities. These effects vary according to income level and product category. In short, the Belt and Road Initiative has significantly strengthened China's global trade position and is beneficial to both trade parity. An extended gravity model has been developed to explain the flow of bilateral clothing trade using the policy variable BRI. Ho and colleagues (2020) A generalized method of moments (GMM) model was used to empirically study the impact of China's FDI on trade intensity with BRI countries. According to the study, China's OFDI has a positive impact on import resilience with BRI countries but a detrimental consequence on export strength. (Wu & Chen, 2019b) Applying a gravity model and analyzing China's aid statistics to demonstrate the impact of the Belt and Road Initiative on China's barter with Central Asian countries. According to the study, changes in trade styles in Central Asian countries are the result of China's investment in regional infrastructure. The impact of China's bilateral ODF (0.046%) is more significant than the effect of the OECD average ODF (0.0077%), and China's bilateral ODF is the average consequence of China's ODF (0.238). %) Even bigger. China's ODF has had a major impact due to improved geographical position and development area. (Lee, 2019). (Mao et al., 2018) To confront the endocannabinoid problems resulting from self-selection to the BRI node country group, use confirmatory factor matching and a differential approach. According to estimates, the Belt and Road Initiative has had a net beneficial effect on base station countries' exports to mainland China, which is an increasing tendency (Fardella & Prodi, 2017).

Most Northeastern and Central European countries will benefit from the creation of new rail links. Vehicles and electronic equipment, for example, will have an advantage more than others

due to their high weight-to-value ratio. However, because of their high cost, commuter trains do not account for a large proportion of the total import/export flow. Investment in new container terminals is not as "new" as railroads, but it can make a significant difference. The development of the Philippine port's Harbor has already increased the Mediterranean's significance as China's both import and export hub. (Dumor & Yao, 2019) The gravity equation model was combined with neural network analysis of detailed trade and investment exports. When particularly in comparison to basic models with fixed country year effects, such as the Estimation method as well as the Poisson pseudo-supervised classification technique, an artificial neural network with fixed country effects generated more accurate estimates. Meanwhile, the analysis found that more than half of the six East African countries that have participated in the BRI encountered their targets. Kenya has met its 80 per cent annual target. (Qi et al., 2019) The seamless transition model is merged with the - convergence model to determine the difference in trade increasing returns to scale, technical effect, and combined effect, as well as the rate of energy intensity convergence. When the barter threshold has been exceeded, empirical results show that, given a decline in energy intensity, the scale of cooperation between China and the BRI promotes a level of convergence of energy demands of about 13% in BRI countries increase. The technology effect hastens the rate of energy brightness convergence that is associated with lower energy intensity. The significant impact on the economic effects of high-skill and low-medium-skill methodologies, in particular, enhance the rate of energy intensity convergence by 12% and 15%, including both. BRI countries that have high levels of bilateral trade or a large share of technology-intensive imports from China tend to have a higher degree of development. With higher to China. (A. Liu et al., 2020) China's trade relations with Belt and Road countries are hampered by institutional and cultural differences. Changes in

the cultural distance are more affected by shifts in China's trade with B and R countries than changes in institutional distance. The relationship between China and Europe is less sensitive to cultural distance and time than trade between China and Asia and along B and R corridors.

Hypothesis.

H₁. The Belt Road project increase the trade flow of China.

H₂. Belt Road Initiative increases the export of China.

H₃. Belt Road Initiative impacts international trade.

Methodology

Theoretical Model

The structural gravity model approach is used to analyze the impact of preferential trade agreements (PTAs), investment protection treaties (BITs), and other trade flow policies. (Kox & Rojas-Romagosa, 2020) According to the model, the volume of commerce between any two nations is proportional to the number of their domestic products, and there is a range missile defence function, where spacing is basically defined to include all the factors that may cause trade resistance. (Krisztin & Fischer, 2015) Trade flow may be influenced by GDP, investment, trade balance, and geographic location distances among both trade partners. We incorporate into the governing equations by (Anderson & van Wincoop, 2003)

A simple form of gravity model is as follows.

$$X_{ij} = G S_i M_j \phi_{ij}$$

where M_j stands for all importer-specific components of total demand, such as the importing nation's GDP, and X_{ij} stands for the monetary value of exports from i to j . & S_i includes elements unique to the exporter GDP that represent the total volume of exports prepared to provide. The level of the world is an example of a variable called G that not depends on i or j . Last, " ij " denotes how simple it is for exporter i to access market " j ".

$$X_{ij} = \frac{Y_i Y_j}{Y} \left(\frac{t_{ij}}{\Pi_i P_j} \right)^{1-\sigma}$$

t_{ij} (one plus the tariff comparable of total the trade expenses) appears to be the cost in Country j of having to import a nice from stthe ate $I > 1$, and I and P_j represent the ease of access to the worldwide market of the Country of export and trading partner, or the external and inside intergovernmental reactance elements of Country I and Country j , also including. Y corresponds to the global GDP, while Y_i and Y_j portray the GDPs of countries I and j , respectively.

$$\ln X_{ij} = a_0 Y + a_1 \ln Y_i + a_2 \ln Y_j + a_3 \ln t_{ij} + a_4 \ln \Pi_i + a_5 \ln P_j + \varepsilon_{ij}$$

We simply take the logarithm to obtain a simple linear equation where ε_{ij} It is the error term.

$$\ln X_{ij} = a_0 + a_1 I_i + a_2 I_j + a_3 \ln t_{ij} + \varepsilon_{ij}$$

I_i is a dummy variable which is equal to $\ln t_{ij}$ is the log of trade value with two geographical countries I and j , and if the nation is I to one, and if not, to zero.

$$t_{ij} = d_{ij} \cdot \exp(\delta_2 P_{ij} + \delta_3 CL_{ij} + \delta_5 BRI_{ij})$$

d_{ij} is the bilateral geographical distance between two borders, I_{ij} , CL_{ij} , EM_{ij} , with BRI_{ij} are the dummy variables for the bilateral trade P (population of China in other countries), CL (the common language of two countries), IN (Inflation of two countries), BRI (member of Belt Road Initiative) as we are studying the effect of BRI on the bilateral trade of China.

$$Re m_i = \sum_j \frac{Dist_{ij}}{GDP_i / GDP_W}$$

The formula for measuring distance

$$\begin{aligned} \ln X_{ij} = & \beta_0 + \ln GDP_i + \ln GDP_j - (\sigma - 1) \ln t_{ij} \\ & + (\sigma - 1) \left[\sum_j \theta_j \ln t_j - \frac{1}{2} \sum_i \sum_j \theta_i \theta_j \ln t_{ij} \right] \\ & + (\sigma - 1) \left[\sum_j \theta_j \ln t_j - \frac{1}{2} \sum_i \sum_j \theta_i \theta_j \ln t_{ij} \right] \end{aligned}$$

Where time indices are excluded for simplification and denote, Gross domestic product shows the trade costs. The terms in big brackets are the linear estimation of the MRTs. The first term in the bracket is subjectively a form of remoteness term (rather than only geographic isolation, the word needs to reflect export growth costs); the 2nd term is a way of measuring global trade costs. Most importantly, this equation demonstrates that the trade balance between I and j is influenced by consensual trade relative to multilateral trade costs and multilateral relative to global trade costs. We use the fixed effect model to demonstrate the estimation results with three models, which are as follows. Model 1

$$\begin{aligned} \lg(ITR_{ijt}) = & \alpha + \beta_1 \lg(GDP_{it}) \\ & + \beta_2 \lg(GDP_{perCapita_{it}}) \\ & + \beta_3 \lg(TRB_{ijt}) + \beta_4 \lg(pop_{it}) \\ & + \beta_5 \lg(DS_{ij}) + \beta_6 \lg(GDP_DS_{ijt}) \\ & + \mu_{ijt} \end{aligned}$$

Model 2

$$\begin{aligned} \lg(ITR_{ijt}) = & \alpha + \beta_1 \lg(GDP_{jt}) \\ & + \beta_2 \lg(GDP_{perCapita_{jt}}) \\ & + \beta_3 \lg(TRB_{ijt}) + \beta_4 \lg(pop_{jt}) \\ & + \beta_5 \lg(DS_{ij}) + \beta_6 \lg(GDP_DS_{ijt}) \\ & + \mu_{ijt} \end{aligned}$$

Model 3

$$\begin{aligned} \lg(ITR_{ijt}) = & \alpha + \beta_1 \lg(GDP_{ijt}) + \beta_2 \lg(TRB_{ijt}) \\ & + \beta_3 \lg(GDP_w) + \beta_4 \lg(GDP_DS_{ijt}) \\ & + \mu_{ijt} \end{aligned}$$

We use three models to test the validation of the results. We took a log of all the variables that we used in the models.

Data and Sample

In this research paper, data on the import and export flows between China and its main trade partners were used, and 30 countries of China's foreign trade partners were selected as a sample. Those 30 countries are trade partners of China

through the Belt Road Project. The list of countries in the study has appeared in Appendix. Data on the trade of China with other countries/trade partners in 20 years other countries at an annual level in dollars from the China Trade Statistics database. Data on the current gross domestic product (GDP) of China with other 30 countries in dollars are from the WDI. Data of GDP per Capita with China and other trade partners. Data on World GDP and data on the

population of China and other countries in current dollars are also taken from The WDI. Data on the distance between two countries are taken from Google Maps. (China Trade Statistics | WITS, n.d.; World Development Indicators | Data Bank, n.d.). Data is in time series with the time period from 2000–2019. The structural gravity model and three different models to check the validity of data are used in the analysis.

Estimations and Analysis

Statistical Summary

We do a statistical summary to check the balance of the data.

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
lg ITR	600	15.472	2.026	8.682	18.904
lg TRB	600	4.238	6.654	0	17.349
lg GDPi	600	29.207	.841	27.823	30.29
lg GDPj	600	25.258	1.819	20.573	28.764
lg GDPw	600	31.718	.32	31.146	32.104
Gdpcapitachina	600	4795.215	3140.392	959.372	10143.838
Gdpcapitap	600	11073.037	16018.07	128.1	85075.984
lg GDP Ds	600	2.084	.198	.441	2.423
lg pop	600	21.013	.033	20.956	21.065
lg pop part	600	16.906	1.581	13.292	21.035
Rem	600	12.068	1.768	8.645	15.995

Statistical summary of the variables taken in which it is shown that we have 600 observations of 30 countries of the Belt Road Initiative, including China and its other trade partners and 20 years of panel data to know the effect of the belt road project on bilateral trade with China. The variable to measure the consensual trade is mainly the import and export of China with their trade partners. With the import and export, we calculate the volume of international trade and

trade balance and the natural logarithm of the trade. Geographical distances from one Country to another as shown in the gravity model above. The variable of distance is constant. It's not changing over the years, so we created the variable of remoteness for estimation. Other variables like GDP per capita, inflation and populations of two trading partners were also taken for best estimation and results.

Correlation

Matrix of Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) lg_ITR	1.000										
(2) lg_TRB	0.182	1.000									
(3) lg_GDPi	0.509	-0.062	1.000								
(4) lg_GDPj	0.806	-0.003	0.321	1.000							
(5) lg_GDPw	0.519	-0.063	0.985	0.326	1.000						
(6) gdpcapitachina	0.468	-0.049	0.966	0.296	0.917	1.000					
(7) gdpcapitap	0.303	0.056	0.184	0.362	0.190	0.167	1.000				
(8) lg_GDP_Ds	0.423	-0.088	0.340	0.381	0.347	0.310	0.629	1.000			
(9) lg_pop	0.493	-0.058	0.983	0.309	0.956	0.982	0.173	0.329	1.000		
(10) lg_pop_part	0.490	-0.131	0.060	0.638	0.058	0.059	-0.339	-0.132	0.059	1.000	
(11) rem	-0.650	-0.065	0.145	-0.826	0.133	0.155	-0.165	-0.153	0.150	-0.724	1.000

The correlation between variables lg_ITR (log of international trade) is highly correlated with the lg_GDPj (gross domestic product of trade partner), 0.806, and the correlation of variables lg_ITR with other variables is not highly correlated, which means the relationship between international trade and gross domestic product of trade partner is highly positive. Lg_TRB (log of trade balance) is not highly correlated with other variables because the negative values between variables indicate the negative correlation between variables. Lg_GDPi (log of the gross domestic product of one Country) is highly correlated with the lg_GDPperCapita (log of GDP

per capita), and that is 0.985, and it's highly significant other than that lg_GDPw (gross domestic product of world) that is 0.966 and lg_pop (log of the population of one Country) are highly correlate with each other. Lg_GDPj (log of the gross domestic product of another trade country) is highly correlated with the lg_pop part (log of the population of partner trade country) that 0.638, which means it is a kind of positive correlation between variables other than that lg_GDPperCapita (gross domestic product per capita of trade partner) that is 0.5495 and inflation partner are negatively correlated.

Table 3.

Variables	Lg_ITR(OLS)	Lg_ITR(FE)
lg_TRB	0.0533*** (0.00532)	0.0347*** (0.00390)
lg_GDPi	0.815 (0.572)	-0.0482 (0.241)
lg_GDPj	-0.0444 (0.0588)	0.887*** (0.0672)
lg_GDPw	1.727 (1.131)	1.936*** (0.485)
GDPcapitachina	-0.0000698 (0.0000796)	-0.0000946** (0.0000337)
GDPcapitap	-0.00000754 (0.00000391)	-0.0000173*** (0.00000351)
lg_GDP_Ds	1.369*** (0.231)	0.317* (0.147)
lg_pop	6.306 (7.832)	7.521* (3.333)
lg_pop_part	-0.0961 (0.0532)	0.268* (0.124)
Rem	-0.911*** (0.0615)	0 (.)
__cons	-184.4 (156.0)	-229.6*** (66.03)
R ²	0.848	0.919

Standard errors in parentheses* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

For further analysis, we performed ordinary least-squares regression. Therefore, a fixed-effects panel regression model is used for estimations. Initial results are shown in the 3rd table. The results in the 1st column of the 3rd Table show impact of ITR (International Trade) on TRB (Trade Balance) has a significant impact. GDP gross domestic product per capita of China and other trading partners, GDP_w (gross domestic product of the world), is calculated using the GDP of the financial countries, biased Calculating distances to reduce effects. In the results, distances do not change over time, so we calculate the distance BIP_DS (gross domestic product distance). The populations of the two trading partners were used as variables. Results show that the trade balance and world GDP increase with an

increase in international or bilateral trade between countries. The GDP gap between countries has a significant effect on international trade. This shows that the 3 Steric is in the 95% confidence interval. R-square suggests a model confidence of approximately 84% for ordinary least squares and a model fit confidence of 90% for fixed effects models. Simple ordinary least squares and fixed effects show that the results are related. Regarding the estimated sphere of influence of the Belt Road Project, trade between China and Belt Road countries and non-Belt Road countries increased. The reason for this is that Belt Road will facilitate the flow of trade with China and the Belt Road countries. We further did three analyses model 1st, model 2nd and model 3rd.

Table 4.

	(Model1)	(Model2)	(Model3)
Variables	lg_ITR	lg_ITR	lg_ITR
lg_TRB	0.0347*** (0.00400)	0.0345*** (0.00396)	0.0348*** (0.00397)
lg_GDPi	0.0699 (0.283)	-0.337* (0.165)	-0.338* (0.165)
lg_GDPw	2.196*** (0.289)	2.198*** (0.287)	2.185*** (0.287)
Lg-GDP capita	0.508* (0.215)		0.0753 (0.101)
Rem	-0.448* (0.225)		
lg_pop	3.353 (2.541)	2.914 (2.525)	3.078 (2.536)
lg_pop_part	0.502* (0.253)		
lg_GDPj		0.879*** (0.0662)	0.815*** (0.109)
lg_GDP_Ds		0.434** (0.147)	0.412** (0.150)
_cons	-134.1* (52.49)	-128.9* (52.27)	-130.9* (52.36)
R ²	0.913	0.913	0.913

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

That is, results for the main explanatory variables of the (lg-ITR) coefficient show statistically significant positive values in the overall estimate of the fixed effects from Model I to Model III (Table 4), indicating that trade Balance is a volume that plays an important positive role in bilateral trade. For example, fixed effects model I (Table 4, column 1). China's GDP per capita has a p-value of 0.005, which is very positive and has an impact on China's trade, and when GDP per capita increases, so does trade volume. Global GDP is in the 95% confidence interval, with three three-dimensional indications that the p-value of 0.001 is highly positive and significant, suggesting that the increase in China's bilateral trade has increased global gross domestic product increases. The p-value for the distance in column 1 shows the

negative impact on bilateral trade, affecting China's bilateral trade as the distance increases. If the trade partner's population increases China's exports and increases bilateral trade volume, the trade partner's population will have a positive influence on bilateral trade. To get an idea of the actual results of Model 2, we added some other variables and removed some variables from Model 1. In the second model, we found that, like the first model, the trade balance. It also shows a very positive impact on inter-country trade.

In Model 2, global GDP is in the 95% confidence interval, and there are three cubic signs that the p-value of 0.001 is highly positive, indicating that an increase in China's bilateral trade is Like Model 1, which suggests increasing global gross domestic product. Gain. In Model 2, we add the GDP of trade partners with China and

the GDP distance as additional variables to know the actual results. Partners' GDP positive impact on China's bilateral trade. After the second model, run another model and subtract additional variables, such as the account population and distance variables, from model 3 to check the validity of the results. This also shows that the trade balance has a positive influence on China's bilateral trade, similar to the first and second models. In Model 3, global GDP is in the 95% confidence interval, and there are three cubic signs that the p-value of 0.001 is highly positive and significant, indicating that China's bilateral trade growth suggests that the gross domestic product of Increase in model 2. Partner's GDP had a positive influence on consensual trade. R-squared values for all models whose data fit the model 93%. This is very significant.

Findings and Discussions

Researchers analyzed that China's Belt Road project will impact trade between countries by launching the Belt Road. Our result is aligned with that (Z. Wang et al., 2020). Using the gravity approach and it is found that China's trade surplus of China's consensual trade. The Belt Road will stimulate transaction volume and reduce the unit price of traded commodities. The Belt and Road very effectively strengthened China's position in international trade and was beneficial for trade equality on both sides. (Kohl, 2019) use the gravity model approach and found that infrastructure investments bring different economic benefits to China. China's alternative means of promoting economic and industrial growth through the borders and regions' Comprehensive partnership has not had attractive economic benefits. (Dumor et al., 2021) use the structural gravity approach and neural network analysis and shows that The Belt and Road countries will increase exports by only 5.053%. It shows export networks need to be considered from a financial and political perspective. Their findings are aligned with the model we are using. Similarly, (Mao, 2019) shows

that the influence of China's BRI export performance in node countries was assessed by various techniques. They conclude that BRI in China was on trend, positively impacting the border country's trade with China. Analysis of heterogeneity showed lower significant impacts on Asian trade, Asian and African countries and positive impacts on regions that are way same as our results. (Dumor et al., 2021) Using panel data gravity equations, we see the influence of China's Belt Road Project on participating countries in different dimensions, which are trade and immigration. By using Poisson's fixed-effects pseudo-maximum-likelihood estimator to account for both types of variables, our results are highly predictive of explaining different regional economic growth in three regions. Stressed importance. The literature and other papers related to the bilateral trade of China shows results that are similar in that if the trade increase between countries, the GDP of the world also increase simultaneously.

Limitations and Policy Implication

Only some variables that are related to consensual trade were used in this study. Low data limits of main variables. Twenty years and he only looks at bilateral data for 30 countries to know the impact. Therefore, in future studies, the gravitational structural model can be extended using fixed effects. Future researchers can use other variables related to bilateral trade in Belt and Road countries, such as employment, inflation, and global indicators of bilateral trade. Belt and Road leaders should expand trade ties and improve free trade agreements to remove trade barriers and promote economic cooperation within and outside the region. Furthermore, free access to global markets should be maintained through multilateral frameworks such as the WTO, which strengthen trade and investment reforms.

Conclusion

After the "One Belt, One Road" framework is officially launched, the potential driving force of

the initial planning and its economic influence on China with the world, the countries that are a part of this initiative and regions that make up Belt & Road, and the entire global network. Has been much discussed. The study is on a panel dataset approach to consensual trade with 30 BRI member countries over the period 2000–2019. Our study focused on whether the adoption of the BRI affects China's trade. SGM and multivariate regression methods (fixed effects approach) were used to avoid temporal invariance and to confirm the validity of the results. Empirical results show that increased trade between countries had a significant effect on consensual trade volume, while the distance from China had a significant effect on consensual trade. I have proven that it works. Moreover, the measure of GDP income per capita is significant and influences consensual trade with China and BRI. The influence of China's coefficient magnitude is greater than that of the Belt Road region, which is understandable, and it was expected that the influence of the Belt and Road countries would be clearly improved in the near future. Moreover, the Belt Road has had a negligible effect on the global gross domestic product, which has increased due to the consensual trade of China. Moreover, the results of the study have some suggestions for making policy. The Belt and Road economy will need to make significant changes to improve bilateral trade. These changes may improve trade with China. Variations should also aim to provide a practical framework by removing barriers to simplifying trade policies to increase trade, necessary initiation for completion of the Belt Road Project. Countries need to reform their policies to maintain global business standards of simplicity and time.

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Appendix

A1

List Of BRI countries Used in Sample

Azerbaijan	Malaysia	Serbia
Bangladesh	Moldova	Singapore
Cambodia	Mongolia	Tajikistan
Hungary	Myanmar	Thailand
India	Oman	Turkey
Indonesia	Pakistan	Turkmenistan
Iran	Poland	UAE
Israel	Qatar	United Kingdom
Kazakhstan	Romania	Uzbekistan
Kyrgyz republic	Russian Federation	Vietnam