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Trade with Chinese characteristics – economics versus politics

Abstract

Over the past twenty years, China has become the world's largest trading nation and a significant trading partner for most countries. Despite these important links, concerns regarding China's commercial and diplomatic goals persist due to its unique state-centric economic structure. This paper applies an augmented gravity model to tease out drivers of China's bilateral trade relationships, asking why some countries are more important than others as sources of Chinese imports. Our results show that both business and political considerations drive China's import decisions. Political friendliness with China, as measured by UN General Assembly voting records, or established trade agreements, has a positive impact on exports to China. The results further suggest that countries with official diplomatic ties with Taiwan export less to China. Membership in China's Belt and Road Initiative, however, does not generally translate into a significant increase in Chinese imports from the member country.

Keywords: gravity model, international trade, China
JEL codes: C23, F14, F15

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Non-technical summary

FOCUS

China is the world's largest trading nation and a significant trade partner for all countries. It also has a long history of using economic coercion as a foreign policy instrument. Understanding how China operates in international markets is particularly important in the current period of elevated geopolitical tensions. This paper studies the drivers behind China's bilateral trade relationships, assessing the political factors that enter into play when China sources import goods.

CONTRIBUTION

The paper deepens the existing understanding on how business and politics go hand-in-hand in the Chinese economy. It contributes to the trade literature in three ways. First, because China's economic structure differs from that of other leading economies, generic gravity models of trade flows can fail to capture factors unique to China's political environment. We therefore present comprehensive analysis of Chinese trade. Second, we take a broad approach by capturing Chinese import flows from the majority of countries globally, regardless of geographic location or participation in trade agreements. Third, we combine two strands of the literature on gravity modeling of international trade to examine both economic and political factors impacting trade flows. Our model includes both traditional gravity variables and variables that capture the political alignments of China's trading partners.

FINDINGS

Both business and political considerations motivate China's import decisions. Trade is used as a foreign policy tool to punish or reward the political stance of its trading partners. China like-mindedness (for example, voting as China does in the UN General Assembly or not maintaining official relations with Taiwan) is rewarded with increased exports to China. Not aligning with China's political views tends to reduce a country's exports to China.

1 Introduction

China's opening up and integration with global production chains has been a major driving force of world trade in recent decades. Its trade value has grown by more than twelve-fold since its accession into the World Trade Organization (WTO) in 2001, and today it accounts for over 15 % of global goods trade (4 % in 2001), surpassing the United States as the most important global trading partner in 2010 (Rodarte, 2023). China currently claims to be the top trading partner for more than 120 countries and regions in the world (Lin, 2023). Given the country's importance in world trade, understanding the driving forces of China's bilateral trade relations is vital for businesses, policymakers, academics, and many other groups.

China's long history of using economic coercion as an instrument of foreign policy has drawn increased attention in the current period of trade tensions. Zhou et al. (2023) argue that Chinese policies have become more proactive both in their attempts to influence established international trade rules and practices, and their efforts to protect the country's domestic interests. The use of trade policy to punish countries for their supposedly anti-China actions is now commonplace. For example, China imposed restrictions on imports of Australian coal, timber, barley, and other goods after Australia demanded an international inquiry into the origins of Covid-19. China blacklisted Lithuanian imports following Lithuania's 2021 decision to allow use of the word "Taiwan" in the name of the representative office in Vilnius rather than Beijing's preferred monicker "Taipei." Such behavior distinguishes China from most nations in the world, and suggests political motivations may underlie China's import patterns.

This paper explores the determinants of bilateral imports by China from a sample of 184 countries between 2002 and 2022, paying particular attention to politically inclined drivers of Chinese imports. A gravity model of international trade is empirically tested to explore the relationship between China's imports and its trading partners around the world. We focus solely on imports as they are likely to be especially impacted by policies such as those related to national security issues, rather than political factors that might influence Chinese exports such as subsidies or other industrial policies. Traditional gravity models of international trade, which are used to study many economic aspects that influence trade flows, may hide in the residual additional factors that link trade flows to a country's political friendliness with China. As such, we combine business and political drivers impacting Chinese trade. China is not a democracy[1] and promotes its own alternative to the West's

[1] China's 2023 value for the Liberal Democracy Index was only 0.04; the index ranges from 0 to 1 (most democratic). See: https://v-dem.net/.

individual-based value system. Its policymakers are potentially more able than their free-market counterparts in exercising power to impact the country's trade relationships. Against this backdrop, our paper contributes to the broader understanding of how China operates in the global marketplace. To address whether political considerations are reflected in China's trade flows, we incorporate several variables into our model to capture the sample country's political alignment with China.

We find that there is more to Chinese trade than business motives. Political considerations influence China's import decisions and China uses trade as a foreign policy tool to punish or reward its trading partner's political actions. We show that political "unfriendliness" with China, as measured by UN General Assembly voting records, has a negative impact on a country's exports to China. Our results also suggest that established trade agreements with China have a positive impact on Chinese imports, while having official diplomatic ties with Taiwan are punished by China through diminished imports. On the other hand, participation in China's Belt and Road Initiative (BRI) does not automatically translate into a significant increase in Chinese imports from the member country. Moreover, East-West divisions may also influence China's import decisions. For example, China purchases fewer goods from NATO members, as well as European and North American countries generally. Finally, we ask whether political considerations have mattered more during President Xi Jinping's time in power, dividing our sample into pre-Xi and Xi-era sub-samples (2002–2012 and 2013–2022, respectively). Xi was appointed paramount leader of China in November 2012. Many important political programmes, including the BRI, have been directly initiated by Xi. During Xi's tenure in office, China's quest for increased economic and political power seems to have been stronger than during his predecessors' eras. China has seen a marked increase, for example, in its influence in the Global South.

The paper contributes to existing literature in three ways. First, it presents a comprehensive China-specific gravity model. As China is the world's largest trading nation and operates under a different economic system than other major economies, studies focusing on its specific trading patterns are needed. Indeed, applying generic facts about the drivers of world trade to China may lead to misleading conclusions. Regardless, only a limited number of studies focus solely on China. Our paper helps fill this gap in the literature. Second, we capture trade flows from the majority of the world's countries, breaking from the typical gravity model-based studies on China centering on a specific trade agreement, region, or sector, to take a broader approach. Third, we combine two branches of existing literature of gravity models of international trade: economic and political fac-

tors that impact trade flows. As to political factors, the existing literature tends to take on one political feature at a time (e.g. Nitsch, 2007 and Fuchs & Klann, 2013). Our broad scope considers multiple, yet uncorrelated, variables that hopefully capture a country's political alignment with China.

A vast body of literature uses the gravity model in studying determinants of trade flows, a country's trade potential, the trade-enhancing impacts of preferential trading arrangements or currency unions, and the adverse impact of trade distortions (e.g. Bougheas et al., 1999; Frankel & Rose, 2002; Glick & Rose, 2002; Martinez-Zarzoso & Nowak-Lehmann, 2003; Maciejewski & Wach, 2019; Martínez-Martínez et al. 2023). Most gravity models suggest that the volume of bilateral trade flows is positively impacted by country-specific characteristics such as a large economy, common language, shared border, or free trade agreements, while physical distance, tariffs, and other trade barriers adversely impact bilateral trade (e.g. Anderson & van Wincoop, 2003; Brun et al., 2005; Helpman et al., 2008; Raimondi & Olper, 2011; Yotov et al., 2016; Zhang et al., 2022).

China-related gravity models tend to focus on specific themes such as Asian integration or the Belt and Road Initiative. Bussière and Schnatz (2009) build a gravity model-based trade intensity benchmark and show that China is well integrated with world markets. Yang and Martinez-Zarzoso (2014) use the gravity approach to analyze the ASEAN-China free trade agreement, concluding that the pact leads to increased trade for both agricultural and manufactured goods. Foo et al. (2020) conclude that BRI membership positively impacts trade flows between China and ASEAN countries. Similarly, Yu et al. (2020) find that China's export potential to BRI countries increased significantly after the roll-out of the initiative. Irshad et al. (2017), employing the gravity model to explain China's trade patterns with OPEC member countries, demonstrate that WTO membership and bilateral exchange rates are significant determinants of trade. Jayasooriya (2021) builds a Bayesian gravity model for Asian imports and shows that digitalization has affected trade integration in the region. Zhang et al. (2022) study trade flows of renewable energy goods by China, ASEAN, Japan, and South Korea. In addition to the traditional gravity variables, they find that the economic freedom of the exporter encourages bilateral trade and that China has great potential to export renewable energy goods. Similarly, the gravity model analysis of Jing et al. (2020) points to China's renewable energy trade potential with BRI countries.

As this study also seeks to connect Chinese trade with political considerations, the other relevant strand of literature focuses on political factors impacting trade flows. Acemoglu and Yared (2010) argue that trade and globalization depend on countries' political decisions and face political constraints related to nationalism and militarism. Rose (2007) shows that official interactions between trading partners through diplomatic representations abroad boost bilateral trade, while Nitsch

(2007) finds that state visits have a positive effect on bilateral exports. Aidt and Gassebner (2010) find that autocracies trade significantly less than democracies, even after controlling for differences in trade policy. Somewhat surprisingly, Davis and Meunier (2011) find that political tensions do not impact the bilateral trade of the US or Japan with other countries. Meanwhile, Jakubik and Ruta (2023) note that during periods of elevated trade policy uncertainty, countries tend to trade more with like-minded partners. In the Chinese context, Alfonso et al. (2023) find that bilateral political relationships with China explain the dynamics of current account balances in the US, UK, and Germany. Du et al. (2017), on the other hand, argue that even though political factors influence exports to China, the shocks are usually short-lived. Highly relevant for our study, Fuchs and Klann (2013) show that countries officially receiving the Dalai Lama, a red line for China, experience a drop in their exports to China.

The paper proceeds as follows. Following this introduction, Section 2 introduces our data, reviews the gravity model, and presents the methodology used. In Section 3, we present and discuss our main results. Section 4 introduces additional variables, conducts robustness checks, and takes a deeper look at Chinese imports at the sectoral level. Section 5 concludes.

2 Data and methodology

2.1 Data

Our dataset, which covers the period from 2002 to 2022, includes 185 countries counting China. We chose 2002 as our starting year to capture China's accession to the World Trade Organization in December 2001. We also split the observation period into two parts, 2002–2012 and 2013–2022, to examine for possible political shifts related to President Xi Jinping's ascendence to the leader of the Communist Party.

For the purposes of this paper, we define China as mainland China and Hong Kong, with the latter being an important entry point for goods arriving in the Chinese territory. Our data are compiled from various sources. Table A1 in the Appendix includes data descriptions and sources for all variables (including those used and discussed later in this paper), while Table A2 provides summary statistics for all variables. Table A3 in the Appendix portrays correlation coefficients between all variables. The dependent variable in our model is Chinese imports of goods. The data are

sourced from the UN Comtrade[2] and valued in US dollars. Given that food and energy prices tend to be volatile, we expand our study and use an additional data series on imports excluding food and energy. In addition, we divide sectoral imports into 1) chemicals, 2) manufacturing and 3) machinery and transport equipment. These data are also sourced from the UN Comtrade.[3]

Regarding independent variables, the first part of our specification includes typical gravity model variables. The economic importance of a country is measured by two variables: nominal GDP to capture the size of an economy and real GDP per capita to capture its level of economic development. The former is nominal GDP in US dollars, sourced from the World Bank's World Development Indicators (WDI) DataBank.[4] For the latter, we use real GDP per capita in 2015 US dollars (also retrieved from the WDI). Transaction costs are captured by two variables: distance and tariffs. Distance data are from the GeoDist Database provided by le Centre d'études prospectives et d'informations internationals (CEPII)[5]. The distance variable measures the bilateral distance between mainland China and its trading partner in kilometers, calculated following the great circle formula, which uses the latitude and longitude of a sample country's official capital, or in some cases the most populous city[6]. In the case of China, distances are calculated for Beijing. China implements different import tariffs for each trade partner, and they vary over time. To account for such China-imposed costs, we utilize the World Bank's World Integrated Trade Solutions (WITS) database[7]. We use China's weighted-average tariff data by country for 2002–2021. The original data source is WTO (complemented by the UN's Trade Analysis Information System data, TRAINS, when WTO data are not available). Here we choose the effectively applied tariffs (AHS), defined in WITS as the lowest tariff rate available (MFN tariff, or preferential tariff if it exists). We also use weighted-average tariff data derived separately for other items than food and energy, as well as in all three sectors (chemicals, manufacturing, and machinery & transport).

The second part of our gravity model specification includes variables that capture official bilateral relations with China. Eager to promote deeper economic integration, China has entered into a number of trade agreements since joining the WTO in 2001. To assess the impact of such trade

[2] UN Comtrade Database, https://comtradeplus.un.org/
[3] We define imports excluding food and energy as all BEC categories except 1 (food and beverages) and 3 (fuels and lubricants). Chemical imports are SITC category 5 (chemicals and related products), machinery and transport equipment imports SITC category 7 (machinery, transport equipment), and manufacturing imports are SITC categories 6 (basic manufactures) and 8 (miscellaneous manufactured articles).
[4] World Bank World Development Indicators, databank.worldbank.org/source/world-development-indicators
[5] CEPII GeoDist Database, www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=6
[6] For the following countries the most populous city is used instead of the country's official capital: Australia, Benin, Bolivia, Brazil, Canada, Côte d'Ivoire, Germany, Kazakhstan, Nigeria, South Africa, Tanzania, and the US.
[7] World Integrated Trade Solutions Database https://wits.worldbank.org/default.aspx

agreements on Chinese imports, we use a time-series dummy variable retrieved from Mario Larch's Regional Trade Agreements Database.[8] It captures a broad range of regional trade agreement types: customs unions, free trade agreements, partial scope agreements, economic integration agreements, customs unions & economic integration agreements, free trade & economic integration agreements, and partial scope & economic integration agreements. China currently has trade agreements with 27 countries globally. Most (24) are free trade & economic integration agreements, while the remaining three fall into the category of partial scope & economic integration agreements. Geographically, most agreement partners in our sample are countries in Asia/Oceania (18), while three are in Europe, three in Latin America, and one in Africa[9].

Beyond traditional trade agreements, China's Belt and Road Initiative (BRI), a global infrastructure development strategy adopted by the Chinese government in 2013, aims at enhancing connectivity and the "free flow of economic factors" across Asian, European, and African continents.[10] As Western countries have raised concerns regarding China's geopolitical motivations behind the BRI,[11] joining in the initiative may be considered as a proxy for political friendliness toward China. As such, we include a time-series dummy variable that captures a country's membership in the BRI. As no official membership list is published by the Chinese government, we rely on information gathered by Nedopil (2023) at the Green Finance & Development Center at FISF Fudan University.[12] Nedopil claims that there were 146 to 151 countries, including China, that were members of the BRI as of December 2023.[13] In our sample, there are 140 countries that have signed a BRI Memorandum of Understanding (MoU). In Section 6, we examine an alternative BRI variable that only takes into account countries that have actually received foreign direct investment from China under the BRI initiative.

To further account for political differences and non-compliance, we include the voting records of source countries in UN General Assembly resolutions. In particular, we define a time-varying annual variable that measures the dissimilarity of an exporting country's voting behavior to that

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[8] Mario Larch's Regional Trade Agreements Database, www.ewf.uni-bayreuth.de/en/research/RTA-data/index.html
[9] Asia/Oceania: Australia, Bangladesh, Brunei, Cambodia, Georgia, Indonesia, India, Lao PDR, Malaysia, Myanmar, New Zealand, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Thailand, and Vietnam.
Europe: Iceland, Norway, and Switzerland.
Latin America: Chile, Costa Rica, and Peru.
Africa: Mauritius.
[10] https://english.www.gov.cn/news/top_news/2015/03/28/content_281475079055789.htm
[11] See e.g., https://www.congress.gov/118/chrg/CHRG-118hhrg53672/CHRG-118hhrg53672.pdf and https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698824/EPRS_BRI(2021)698824_EN.pdf
[12] https://greenfdc.org/countries-of-the-belt-and-road-initiative-bri/
[13] For some countries listed as having signed a BRI Memorandum of Understanding, the availability of independent information is limited and partly contradictory.

of China in each General Assembly session. To do this, we use the ideal point estimates of Bailey et al. (2017) reflecting the positions of UN members toward the US-led liberal order. These ideal point estimates allow for more reliable intertemporal comparisons, are less sensitive to shifts in the UN agenda, and better separate signal from noise in identifying foreign policy shifts. We define our variable as the absolute difference between each source country's ideal point estimate and that of China's.[14]

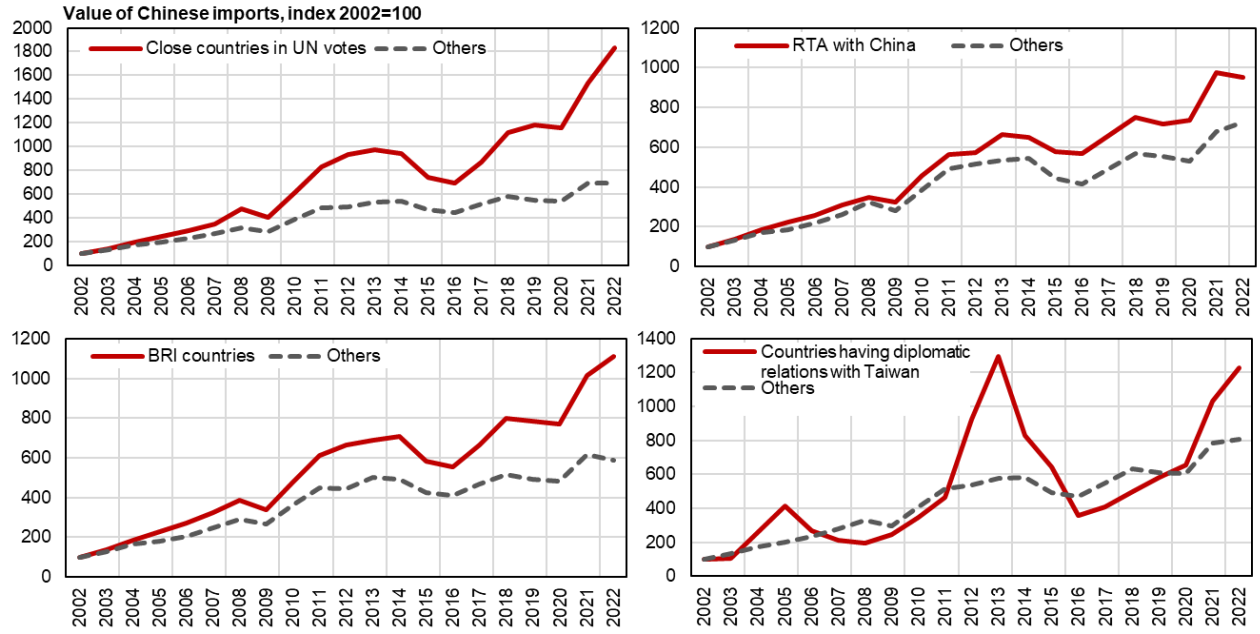
For our final task, we include a Taiwan dummy to take into account whether a source country has official diplomatic relations with the Republic of China (Taiwan). Under the official "one China principle," Taiwan is part of the Chinese state represented by the People's Republic of China and thus cannot be recognized as a sovereign state. China does not generally object to other countries having trade or cultural offices in Taiwan as long as they refrain from formally engaging in diplomatic activities, and any country seeking to establish official ties China must refuse to recognize Taiwan as a sovereign state. Thus, while many countries have unofficial relations, only 13 countries (plus Vatican City) as of 2022 maintained full diplomatic relations with Taiwan.[15] In the case of the Republic of Nauru[16] and Saint Lucia, these relations were established during our observation period (2005 and 2007, respectively). In addition, 13 countries cut their official diplomatic ties with Taiwan during our observation period.[17]

Figure 1 points to political characteristics of countries that may translate into larger exports to China. The figure depicts the development of Chinese imports from countries that align closely with China in UN General Assembly voting, have a regional trade agreement (RTA) with China, are part of the BRI, or have diplomatic relations with Taiwan. The figure shows that those countries with the closest voting records to China in UN General Assembly in 2022 have increased their exports to China by almost 20-fold since 2002. (Other countries, in contrast have "only" increased their China trade seven-fold.) Similarly, China imported more from countries that had an RTA with China or countries that were part of the BRI. Meanwhile, countries maintaining diplomatic relations

[14] Dataset available in Voeten et al. (2009), Erik; Strezhnev, Anton; Bailey, Michael, 2009, "United Nations General Assembly Voting Data," https://doi.org/10.7910/DVN/LEJUQZ, Harvard Dataverse, V31.
[15] Marshall Islands, Republic of Nauru, Palau, Tuvalu, Eswatini, Vatican, Belize, Honduras, Guatemala, Haiti, Paraguay, St. Kitts and Nevis, Saint Lucia and St. Vincent and the Grenadines. Data derived from the website of Ministry of Foreign Affairs Republic of China (Taiwan) https://en.mofa.gov.tw/
[16] Republic of Nauru cut off its diplomatic relations with Taiwan in January 2024 and Honduras in 2023, i.e. after the end of our observation period.
[17] Nicaragua (2021), Kiribati (2019), Solomon Islands (2019), Burkina Faso (2018), Dominican Republic (2018), El Salvador (2018), Panama (2017), Sao Tome and Principe (2016), Gambia (2013), Malawi (2008), Costa Rica (2007), Dominica (2004), and Liberia (2003). Cut-off years were collected from official national websites and media reports.

with Taiwan in 2022 benefited in terms of export flows to China only in some years. This peculiar result likely reflects other underlying characteristics or is of minor relevance in practice as the countries in this group account for a miniscule share of Chinese imports.

Figure 1. Chinese imports from countries politically aligning with China using four different measures.



Note: The figure depicts in red the total value of Chinese (Mainland China + Hong Kong) imports from countries voting in UN within the 25th percentile of countries closest to China (top left), having an RTA with China (top right), a BRI member (bottom left) or having diplomatic relations with Taiwan (bottom right). The country selection is based on the 2022 situation. The dashed line depicts the sum of Chinese imports from all other countries in our sample. Both import values are indexed so that 2002=100.

2.2 Methodology

The gravity model of trade is a special form of a spatial interaction model incorporating two basic factors affecting the level of trade flows between two locations: size and distance.[18] The gravity equation has turned out to be a successful empirical trade device by providing high statistical explanatory power giving rise to a number of empirical papers (among the first ones e.g. Tinbergen, 1962; Pöyhönen, 1963; Linneman, 1966).[19]

[18] The gravity model was inspired by the notion of gravity in physics, whereby the force of gravity between two objects is proportional to the product of their masses divided by the square distance between them. In international trade, the gravity model predicts that the flow of goods between two countries is positively related to their size (or income level) and negatively related to the distance between them. Excellent summaries of the history of gravity models are provided in Baldwin and Taglioni (2006) and Yotov et al. (2016).

[19] Despite its popularity, the gravity model of trade lacked theoretical explanation until Anderson (1979) provided clear micro-foundations under the assumptions of product differentiation by place of origin and constant elasticity of substitution expenditures. Another early theoretical contributor is Bergstrand (1985). The most important structural gravity theories today are those of Eaton and Kortum (2002), who derive gravity on the supply side, and Anderson and Wincoop

Yotov et al. (2016) give an extensive presentation of the structural gravity model. Equation (1) represent the theoretical gravity equation that can be decomposed into two terms: a size term and a trade cost term.

$$X_{i,j} = \frac{Y_i E_j}{Y}\left(\frac{t_{ij}}{\Pi_i P_j}\right)^{1-\sigma}. \quad (1)$$

The dependent variable $X_{i,j}$ denotes trade flows from exporter *i* to destination *j*. The size term, Y_iE_j/Y, represents the proportional frictionless level of trade between partners *i* and *j* in absence of any trade related costs, where Y_i and E_j are the nominal income (i.e. production) in country *i* and aggregate expenditure of country *j*, respectively, and *Y* represents the global economy. In a frictionless world where the trade cost term $(t_{ij}/(\Pi_i P_j))^{1-\sigma}$ would equal to 1, consumers' expenditure share on goods from a particular country would be equal to the share of production in the source country in the global economy, i.e. $\frac{X_{ij}}{E_j} = \frac{Y_i}{Y}$. The size term in itself signifies that i) large producers will export more to all destinations, ii) big markets will import from all sources, and iii) trade flows between two countries increases with their similarity in size.

The trade cost term, $(t_{ij}/(\Pi_i P_j))^{1-\sigma}$, captures the total effects of trade costs that make the realized trade flows differ from the frictionless level. The bilateral trade cost, *t*, is typically proxied by various geographic and trade policy variables such as physical distance or tariffs. The structural terms Π and *P* present the outward and inward multilateral resistance, that is, the ease of market access by exporters and importers, respectively. These multilateral resistances translate the initial partial equilibrium effects of trade policy at the bilateral level to country-specific effects on consumer and producer prices. Finally, $\sigma > 1$ is the elasticity of substitution among goods from different countries.

Under the assumption that equation (1) holds in each period of time *t*, it can be log-linearized. This yields the most popular version of the empirical gravity equation used regularly in the trade literature studying the effects of various determinants of bilateral trade:

$$\ln X_{ij,t} = \ln E_{j,t} + \ln Y_{i,t} - lnY_t + (1-\sigma)(\ln t_{ij,t} - \ln P_{j,t} - \ln \Pi_{i,t}) + \varepsilon_{ij,t}. \quad (2)$$

(2003), who, popularizing the model of Anderson (1979), emphasize the importance of the general equilibrium effects of trade costs.

An obvious challenge is that multilateral resistance terms are theoretical constructs; they are not directly observable (Yotov et al., 2016; Baldwin and Taglioni, 2006). The existing literature has proposed solutions from approximating with different remoteness indices (Wei, 1996; Baier & Bergstrand, 2009) to simply using directional (importer or exporter) fixed effects in cross-section estimations (Hummels, 1999; Feenstra, 2016) or exporter-time and importer-time fixed effects in a dynamic setting with panel data (Olivero & Yotov, 2012). However, in addition to accounting for the multilateral resistance terms, these exporter-time and importer-time fixed effects absorb all other observable and unobservable country-specific characteristics varying across these dimensions, including national policies, institutions, and exchange rates (Yotov et al., 2016). In addition to unobserved theoretical multilateral resistances discussed above, Yotov et al. (2016) present a number of other challenges followed with solutions derived from earlier literature. We follow these suggestions wherever appropriate and possible.

To estimate our equation, we use the Poisson Pseudo Maximum Likelihood (PPML) estimator as proposed by Santos Silva & Tenreyro (2006). The PPML estimates the gravity model in a multiplicative, rather than logarithmic, form. This solves the problem of heteroskedasticity, which often plagues trade data and can make OLS estimates of regression coefficients and standard errors inefficient and biased. The PPML also effectively handles the possible presence of zero trade flow observations in our data.

Gravity estimations should also include domestic trade flow data. The inclusion of domestic trade data is desirable for several reasons (Yotov et al., 2016). It is consistent with economic theory in that consumers choose among and consume domestic and foreign varieties of goods and services. It leads to theoretically consistent identification of the effects of bilateral trade policies (Dai et al., 2014), allows us to account for the effects of non-discriminatory trade policies (Heid et al., 2021), capture the effects of globalization on international trade, and correct for biases in the estimation of the regional trade agreements on trade (Bergstrand et al., 2015). Nonetheless, accounting for intra-Chinese (domestic) trade flows is not straightforward. Here, we follow Heid et al. (2021) (as well as Bergstrand et al., 2015, who use commodity-level data) and define the intra-China trade as apparent consumption, i.e. the difference between gross manufacturing production and total

exports.[20] We take the total manufacturing output from UNIDO's INDSTAT 2 database (ISIC revision 3), where it is available for China up to 2020. Total goods exports are from UN Comtrade Database.

As a result, we estimate the following comprehensive econometric version of the structural gravity model on trade:

$$I_{i,t}^{k} = \exp\left[\ln GDP_{i,t} \times \ln GDP\_cap_{i,t} \times \ln Dist_i \times lnTariff_{i,t-1}^{k} \times RTA_{i,t-1} \times BRI_{i,t-1} \times \ln UN\_vote_{i,t-1} \times Taiwan_{i,t-1} \times \gamma_t\right] + \varepsilon_{i,t}^{k}, \quad (3)$$

where $I_{i,t}^{k}$ is China's nominal good import value from source country *i* in year *t*, including domestic trade. Superscript *k*, in turn, denotes all imports, imports excluding food and energy, imports of chemicals, imports of manufacturing, and imports of machinery and transport equipment. $GDP_{i,t}$ is the log of nominal GDP, $GDP\_cap_{i,t}$ is the log of real GDP per capita, and $Dist_i$ is the log of geographical distance between China and the source country. As distance is time-invariant, this variable also absorbs all unobservable exporter-specific characteristics that might affect trade. $Tariff_{i,t}^{k}$ is the three-year moving average of the log of weighted average of imports tariffs for each source country *i* in sector *k*, $RTA_{i,t}$ is a dummy that equals one if China has an effective trade agreement with the source country at year *t*, $BRI_{i,t}$ is a dummy that equals one after the announcement of a memorandum of understanding of the Belt and Road Initiative, and $Taiwan_{i,t}$ is a dummy that equals one if the source country has official diplomatic ties with Taiwan in year *t*. $UN\_vote_{i,t}$ (in logs) signals the discordancy of the source country with China's voting behavior in the UN General Assembly. For *Tariff, RTA, BRI, UN_vote,* and *Taiwan*, we use one-year lagged observations to take into account the fact that the impact is unlikely to be instantaneous and as the data is in annual frequency, we do not know the exact month the change takes place. In addition, year-fixed effects take into account any China-specific characteristics that vary in time and might affect the level of its imports throughout our sample period.

Following gravity theory, we expect the coefficient of nominal GDP and real GDP per capita to be positive, as larger, more developed economies tend to export more. Similarly, as the proximity of two countries has a positive impact on bilateral trade, we expect geographical distance

[20] Here we consider only Mainland China domestic trade. The reason is that Hong Kong's goods exports are over 20 times its gross manufacturing output, making the apparent domestic consumption strongly negative and not in line with the theory. China's domestic trade is calculated separately for trade excluding food and energy, as well as in all the three different sectors (chemicals, manufacturing, and machinery & transport).

to have a negative coefficient. The effect of import tariffs imposed by China is expected to be negative, while trade agreements are expected to positively impact imports as costs of trade decline. Further, because political commitment to China's Belt and Road Initiative strengthens a source country's possibilities to trade with China, we expect to find a positive coefficient for the BRI variable. Similarly, we expect the UN vote and the Taiwan dummy variables to have negative coefficients. The more the source country's voting behavior matches that of China (the UN vote variable is smaller), the more we expect China to reward it with closer economic ties. Of course, the causality could go the other way. If a country's exports are heavily dependent on China, it might be pressed to back China politically in international fora. Lastly, we expect a source country's maintaining or establishing official diplomatic ties with Taiwan to hamper its export flows to China.

3 Results

3.1 Baseline estimations

Table 1 presents our main results. The first column shows the results where the dependent variable is total Chinese imports, and the second column focuses on imports excluding food and energy. With respect to total imports, China imports more from larger, more developed economies. As expected by gravity theory, the coefficients of nominal GDP and real GDP per capita are positive and statistically significant. In addition, we find the coefficient of the distance variable to be negative and significant, which is again in line with earlier literature, i.e. as the physical distance between two countries increases, trade flows diminish due to increased transaction costs. Again, China imports more from geographically proximate countries. Direct trade costs also matter. China imports less from source countries with higher import tariffs as shown by the coefficient of the tariff variable that is negative and statistically significant.

The coefficients of our politically inclined variables also have the expected signs. China imports relatively more from countries with which it has an effective trade agreement, i.e. the coefficient for trade agreements (RTA) is positive and statistically significant. This is in line with Yang & Martinez-Zarzoso (2014), who find that an ASEAN-China FTA increases bilateral trade. The size of the estimate, 0.766, suggests that a trade agreement with China, with all else held constant, increase imports from a source country by 115 % on average (since $(e^{0.766}-1) \times 100 = 115.1$ %). This

number is similar in size as corresponding numbers found in the literature (e.g. Baier & Bergstrand, 2007).

We also find a positive coefficient for the BRI variable. Nevertheless, it fails to be statistically significant. While we acknowledge that the BRI was officially launched only in 2013, which can impact the result, we consider this an intriguing finding given that China has promoted the BRI as bringing beneficial trade opportunities. Moreover, previous studies have found a significant impact for Chinese exports and bilateral total trade (Yu et al., 2020; Foo et al., 2020), yet to our best knowledge there are no corresponding studies focusing solely on imports. Against this backdrop, we further discuss the BRI variable in Section 4.

The coefficients for the UN vote and diplomatic ties with Taiwan variables are also in line with our initial hypothesis. Both are negative and statistically significant. Countries with UN General Assembly voting patterns that diverge from China or have established diplomatic ties with Taiwan export relatively less to China than to other countries. These results are similar in nature to Fuchs & Klann (2013), who show that China punishes countries officially receiving the Dalai Lama by reducing their export opportunities. If a source country moves one standard deviation closer to China politically in UN General Assembly voting, Chinese imports increase by 12 %. The most like-minded country in our sample exports on average some 65 % more to China than the country most divergent politically (difference between minimum and maximum values of our UN vote variable)[21]. In addition, if a country has official diplomatic ties with Taiwan, it exports on average 69 % less to China than countries with no official ties.

The results for imports excluding food and energy (second column of Table 1) are broadly similar. The coefficients for nominal GDP, real GDP per capita, and distance variables are all similar in size as for total imports. Meanwhile, the coefficient for the tariff variable is smaller for imports excluding food and energy. This implies tariffs have a larger impact on food and energy imports, potentially reflecting China's food and energy security considerations.

For our politically oriented variables, the sign and significance are similar for the trade agreement (positive and statistically significant at the 1 % level), the BRI (positive but statistically insignificant), and the UN vote (negative and statistically significant at the 1 % level) variables. As for the Taiwan variable, the coefficient is somewhat less negative for imports excluding food and energy, and significant at the 5 % level (instead of 1 % for all imports). This implies that a country's diplomatic relations with Taiwan have a significant negative impact particularly on food and energy

[21] Niger is the most like-minded with China while the US is the most divergent politically.

exports to China. As a caveat, one should note that the value of total exports to China (as well as exports excluding food and energy) of countries having diplomatic relations with Taiwan is very small to start with, suggesting it may be wise to not read too much into the results. While the drivers behind the results related to food and energy warrant separate study, we note that the outcome could be driven by the fact that China – despite high domestic production – has become a net importer of both food and energy. As China's sensitivity to food and energy supply disruptions caused by geo-political tensions has increased over the past decade, food and energy security have become top priorities for the Chinese government.[22]

Table 1. Baseline estimations

PPML estimations are performed. The dependent variable in (1), (3), and (5) is all Chinese imports. In (2), (4), and (6), it is Chinese imports excluding food and energy. Columns (1) and (2) show the results for the full sample 2002–2022. Columns (3) and (4) cover the years 2002–2012, while columns (5) and (6) cover 2013–2022. Definitions of the variables are presented in Section 2. Robust standard errors are in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10 %, 5 %, and 1 % level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	2002-2022		2002-2012		2013-2022	
Variables	All imports	Imports excl. food and energy	All imports	Imports excl. food and energy	All imports	Imports excl. food and energy
(ln) GDP	0.855***	0.894***	0.861***	0.910***	0.858***	0.889***
	(0.044)	(0.042)	(0.046)	(0.044)	(0.047)	(0.045)
(ln) Real GDP per capita	0.360***	0.430***	0.327***	0.395***	0.378***	0.452***
	(0.072)	(0.064)	(0.075)	(0.061)	(0.085)	(0.083)
(ln) Distance	-0.595***	-0.696***	-0.725***	-0.809***	-0.518***	-0.632***
	(0.083)	(0.092)	(0.081)	(0.090)	(0.086)	(0.091)
(ln) Tariffs	-0.371***	-0.146***	-0.379***	-0.180***	-0.372***	-0.130***
	(0.061)	(0.029)	(0.072)	(0.030)	(0.067)	(0.032)
RTA (lagged)	0.766***	0.800***	0.739***	0.729***	0.757***	0.812***
	(0.140)	(0.163)	(0.160)	(0.164)	(0.146)	(0.175)
BRI (lagged)	0.192	0.211			0.271*	0.285*
	(0.144)	(0.141)			(0.151)	(0.150)
(ln) UN vote (lagged)	-0.183***	-0.179***	-0.189***	-0.178***	-0.177***	-0.176***
	(0.048)	(0.052)	(0.057)	(0.054)	(0.047)	(0.056)
Taiwan (lagged)	-1.160***	-0.993**	-0.689	-0.541	-1.611***	-1.699***
	(0.406)	(0.457)	(0.504)	(0.448)	(0.304)	(0.286)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,049	2,841	1,674	1,512	1,375	1,329
R-squared	0.859	0.874	0.898	0.905	0.848	0.865

[22] See e.g., https://www.spglobal.com/commodityinsights/en/market-insights/blogs/agriculture/080923-chinas-quest-for-food-security-is-bound-to-be-a-long-drawn-saga and https://www.sciencedirect.com/science/article/pii/S2949821X23000339.

3.2 The pre-Xi and Xi eras

In addition to looking at the full sample from 2002 to 2022, we divide the time span in two subperiods. Columns (3) and (4) in Table 1 present the results for the years preceding President Xi Jinping's era (2002–2012) for total imports and for imports excluding food and energy, respectively. Columns (5) and (6) show the results for 2013–2022, i.e. years under Xi's leadership.

The coefficients for nominal GDP, real GDP per capita, tariffs, trade agreement, and the UN vote variables are relatively similar in size and in statistical significance for both subperiods. However, the distance variable has a somewhat larger impact in the earlier period due to the more negative coefficient value in 2002–2012. A possible reason is that transportation links and capabilities globally have improved over the past decade as part of our "shrinking world."

The statistical significance of the BRI variable remains small, even when focusing solely on the latter subperiod. The size of the coefficient suggests that by joining the BRI, a source country could export on average 31 % more to China relative to other countries, but the coefficient is statistically significant only at the 10 % level.

Having official political ties with Taiwan has had a much stronger impact on trade since President Xi Jinping assumed power. The coefficients are larger in size and statistically significant from 2013 onwards.[23] For total imports, China imported on average 80 % less from countries with official diplomatic ties with Taiwan (the marginal effect was -69 % for the full sample). For imports excluding food and energy, the impact is slightly larger (-82 %). These results provide us with a clear indication that geopolitical considerations, including the Taiwan issue, have received increased attention in China since President Xi took office. China has punished countries that side with Taiwan by buying less from them.

3.3 Stepwise estimations

We use stepwise estimations to analyze the relative importance of our politically inclined variables. They reveal which variable is the most influential in impacting Chinese imports. We first redo our

[23] This result is further verified by having the full time period in one estimation and using a dummy for the latter time period (2013–2022) and interacting it with RTA, BRI, UN vote, and Taiwan variables. We find that RTA is somewhat less important in determining Chinese imports after 2013, and relations with Taiwan only become statistically significant after 2013. However, as the number of explanatory variables increases substantially after using dummy-interactions, we prefer to estimate our two subperiods separately.

main estimation for total imports using a forward stepwise estimation technique, and then we replicate the exercise with a backward stepwise estimation technique to make sure the outcome is consistent. Table 2 presents the results.

The base estimation in column (1) includes only the typical gravity model variables: nominal GDP, real GDP per capita, distance, and level of tariffs. We then add politically inclined variables one at a time. We include the variable that improves the model the most until no further gains are achieved. The political variable adding most to the overall explanatory power of our model is the trade agreement RTA dummy. The base model with the RTA dummy added is presented in column (2). Next, we again add all our remaining policy variables one at a time into this improved model. The next policy variable that gets included into the model is the UN vote variable, for which the results appear in column (3). After adding the RTA and UN vote variables, the next one improving the model the most is the Taiwan dummy with results shown in column (4). At this point, it is clear that the overall explanatory power of the model is enhanced only marginally. Diplomatic ties with Taiwan matter, but clearly less than how differently to China countries vote at the UN General Assembly or if they have a trade agreement with China. Finally, it seems that the Belt and Road Initiative, although promoted by China as opening up trade opportunities, is the least important among our political variables. Its inclusion reduces the model's overall explanatory power, and its coefficient is not statistically significant.[24] This result is shown in column (5), which is also the starting point for the backward stepwise estimation. We conduct the backward stepwise estimation to confirm the result of the forward stepwise. Indeed, both techniques result in a same outcome, which is shown in column (6) (as well as in column (4)).

The results from the stepwise estimations give further support to our earlier findings that trade agreements and political like-mindedness underpin exports to China. Meanwhile, a BRI membership is not necessarily an initiative that enhances a country's trade potential with China. Against this backdrop, we will look further into the BRI in the next section.

[24] One could argue that as the trade agreement (RTA) dummy is highly significant, it could crowd out the importance and significance of the BRI agreements. However, even if we exclude all countries having a trade agreement with China from the sample, the BRI still fails to be statistically significant.

Table 2. Stepwise estimations

PPML forward stepwise estimations shown in columns (1) to (4), while backward stepwise estimations appear in columns (5) and (6). The dependent variable is all Chinese imports. The time span for all estimations is 2002–2022. Definitions of the variables are provided in Section 2. Robust standard errors are in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10 %, 5 %, and 1 % level, respectively.

	(1) Stepwise forward	(2) Stepwise forward	(3) Stepwise forward	(4) Stepwise foward		(5) Stepwise backward	(6) Stepwise backward
Variables	First	Second	Third	Fourth	Variables	First	Second
(ln) GDP	0.785***	0.818***	0.853***	0.848***	(ln) GDP	0.855***	0.848***
	(0.048)	(0.048)	(0.046)	(0.046)		(0.044)	(0.046)
(ln) GDP per capita	0.198**	0.259***	0.356***	0.353***	(ln) GDP per capita	0.360***	0.353***
	(0.093)	(0.079)	(0.073)	(0.073)		(0.072)	(0.073)
(ln) Distance	-0.832***	-0.598***	-0.608***	-0.606***	(ln) Distance	-0.595***	-0.606***
	(0.073)	(0.100)	(0.082)	(0.081)		(0.083)	(0.081)
(ln) Tariffs	-0.389***	-0.400***	-0.374***	-0.372***	(ln) Tariffs	-0.371***	-0.372***
	(0.056)	(0.057)	(0.061)	(0.061)		(0.061)	(0.061)
RTA (lagged)		0.824***	0.773***	0.767***	RTA (lagged)	0.766***	0.767***
		(0.165)	(0.136)	(0.136)		(0.140)	(0.136)
(ln) UN vote (lagged)			-0.187***	-0.185***	BRI (lagged)	0.192	
			(0.048)	(0.048)		(0.144)	
Taiwan (lagged)				-1.196***	(ln) UN vote (lagged)	-0.183***	-0.185***
				(0.403)		(0.048)	(0.048)
					Taiwan (lagged)	-1.160***	-1.196***
						(0.406)	(0.403)
Year FE	Yes	Yes	Yes	Yes	Year FE	Yes	Yes
Observations	3,053	3,053	3,049	3,049	Observations	3,049	3,049
R-squared	0.841	0.845	0.862	0.863	R-squared	0.859	0.863

4. Deep dive with additional estimations

4.1 Baseline model augmented with new variables

To dive deeper into the possible political factors influencing Chinese imports, we introduce four new variables into our estimations: an alternative BRI dummy, the Liberal Democracy Index, a NATO membership dummy, and regional dummies.

First, we replace the original BRI variable with an alternative one. Based on our original definition of BRI membership, a total of 140 countries were part of the initiative after signing a Memorandum of Understanding with China. One can question, of course, whether signing an MoU is a sufficient basis for expecting more bilateral trade. For this reason, our alternative BRI measure uses a narrower definition of the BRI membership. We consider only those countries that have received direct Chinese investment under the BRI framework. We would expect this new variable to

be more statistically significant than the broader measure. The dummy variable gets a value of one starting from the year a country received its first direct investment from China, and the variable is lagged by one year. The Chinese overseas investment data are retrieved from the China Global Investment Tracker maintained by the American Enterprise Institute.[25] Based on this definition, 87 of the 184 countries in our sample have received BRI investments from China.[26]. Columns (1) to (3) in Table 3 include the results for our narrower BRI variable. By this definition, the impact of the BRI membership seems slightly stronger. When looking at the subperiod 2013–2022, its coefficient is somewhat larger in size compared with the coefficient of the broader BRI definition in column (5) in Table 1. Based on this narrower definition, China imports on average 37 % more from countries that have joined the BRI (31 % based on the broader measure). Moreover, the coefficient has become statistically significant at the 5 % level, compared with the 10 % level for the original BRI variable.

Second, we study whether the fact that a source country is a liberal democracy has an impact on Chinese imports. In other words, we ask whether China favors other autocracies over democracies in its bilateral trade. The Liberal Democracy Index by V-Dem Institute incorporates several measures of electoral democracy, including whether the country has free and fair elections, a free and independent media, as well as measures for rule of law, checks and balances, and civil liberties. The higher the index number, the closer the country is to being a full liberal democracy. Denmark receives the highest score (of 0.897) in our sample, while Eritrea ranks lowest (0.005). We expect a negative and significant coefficient for the index. Moreover, we expect that its impact is stronger during Xi Jinping's era. Our estimation results are presented in columns (4) to (6) of Table 3. The coefficient of the index is negative as we would have expected and larger for the subperiod starting in 2012, yet it fails to be significant for all three time periods. Apparently, China does not increase imports from a country just on the basis of that country's preference for autocatic rule.

Third, we consider whether membership in the North Atlantic Treaty Organization (NATO) influences a country's exports to China. Increased global East-West division could prompt China to reduce its imports from countries that are members in the most important US-led Western alliance. Indeed, China intentionally portrays its foreign policy as "anti-Western". We thus expect the NATO variable to be negative, significant, and larger after 2012. The NATO dummy gets a

[25] AEI China Global Investment Tracker, https://www.aei.org/china-global-investment-tracker/.
[26] Five more countries received BRI investment in 2023. Again, they fall outside of our observation period.

value of one the year a country joins the alliance, and the variable is lagged by one year in our estimations. At the end of our study period in 2022, NATO had 28 member countries in Europe and 2 in North America.[27] Our results, presented in columns (7) to (9) in Table 3, show that being a member of the NATO had an adverse impact on Chinese imports from the source country. The coefficient is negative and statistically significant at the 1 % level for all imports and all time periods. The marginal effect of the full time period shows that being a NATO member resulted in 48 % lower exports to China. However, contrary to our initial reasoning, the coefficient is somewhat larger (more negative) for the earlier time period. Before 2013, being a member of NATO decreased country's exports to China by 55 %, whereas for the 2013–2022 time period the effect was -45 %.

Finally, we introduce a set of regional dummies (Asia, Australia & Oceania, Europe, Africa, North America, and Latin America) to see whether China is simply inclined to import from certain regions more than from others, even after controlling for other explanatory variables. All these additional variables are included one by one into the main model, focusing again on the full time period and the two subperiods separately. These results are presented in columns (10) to (12) in Table 3. When including regional dummies into the estimations, the omitted one is always Asia, so that Asia is the region against which all other regions are assessed. The regional dummies that are statistically significant in explaining Chinese imports are those of Europe and North America. Their sign is negative, implying that on average, and controlling for other political as well as trade related variables, China tends to import significantly less from Europe and North America than from Asian countries. All other regional dummies (Africa, Australia & Oceania, as well as Latin America) are statistically insignificant, meaning that countries from these regions did not export less to China relative to Asian countries. For the full time period, China imported on average about 50 % less from European countries and 62 % less from North America, than it did from Asian countries. Nonetheless, we note that trade relations are often reciprocal, so this can be also due to these countries importing less from China. During 2002–2012, China imported on average 56 % less from Europe than from Asia, the impact decreasing to 47 % during the latter part of our sample. For North America, the impact strengthened after 2013. During 2002–2012, China imported on average 62 % less from North America. In 2013–2022, the impact increased to -66 %.[28] As NATO membership resembles the European and North American regional dummies, we also tested a specification that

[27] North Atlantic Treaty Organization member countries: https://www.nato.int/cps/en/natohq/topics_52044.htm. NATO presently has 32 members as Finland and Sweden joined after our observation period.
[28] As our North America dummy includes only Canada and the US, we also test for whether the US is driving the result. Excluding the US from the region does not significantly alter the results, see Section 4.3.

included both NATO membership and our regional dummies. Not surprisingly, the NATO variable turns insignificant, implying that the information carried by the NATO dummy is largely similar to the regional dummies.

To sum up, a narrower definition of the Belt and Road Initiative membership works slightly better in explaining Chinese imports than the more official definition based on MoUs. The result implies that joining the BRI does not necessarily translate to better market access to China. It seems that once China has demonstrated commitment to the new member through such actions as overseas investment, the member country's export potential to China improves. Chinese imports are also impacted by East-West divisions. Both NATO membership and a national location in Europe or North America translated to lesser exports to China. On the other hand, a country's democratic value system, or lack thereof, did not seem to impact China's willingness to import from a source country.

Table 3. Additional variables.

PPML estimations are performed. The dependent variable is all Chinese imports in USD. Columns (1), (4), (7), and (10) give the results for the full sample 2002–2022; columns (2), (5), (8), and (11) for 2002–2012; and columns (3), (6), (9), and (12) for 2013–2022. Definitions of the original variables are presented in Section 2 and the additional variables in Section 4. In columns (10)-(12), the omitted regional dummy variable is that of Asia. Robust standard errors are in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Narrow BRI			Liberal Democracy			NATO			Regional Dummies	
Variables	2002-22	2002-12	2013-22	2002-22	2002-12	2013-22	2002-22	2002-12	2013-22	2002-22	2002-12	2013-22
(ln) GDP	0.854***	0.861***	0.860***	0.857***	0.863***	0.859***	0.891***	0.905***	0.890***	0.900***	0.886***	0.932***
	(0.044)	(0.046)	(0.049)	(0.044)	(0.044)	(0.048)	(0.038)	(0.039)	(0.042)	(0.053)	(0.057)	(0.061)
(ln) Real GDP per capita	0.357***	0.327***	0.376***	0.378***	0.358***	0.393***	0.371***	0.377***	0.380***	0.395***	0.376***	0.416***
	(0.071)	(0.075)	(0.081)	(0.072)	(0.070)	(0.081)	(0.069)	(0.067)	(0.082)	(0.078)	(0.080)	(0.091)
(ln) Distance	-0.585***	-0.725***	-0.482***	-0.587***	-0.717***	-0.507***	-0.424***	-0.448***	-0.383***	-0.333***	-0.381**	-0.264**
	(0.086)	(0.081)	(0.103)	(0.090)	(0.085)	(0.093)	(0.069)	(0.081)	(0.077)	(0.121)	(0.157)	(0.125)
(ln) Tariffs	-0.362***	-0.379***	-0.347***	-0.367***	-0.417***	-0.351***	-0.304***	-0.320***	-0.301***	-0.315***	-0.301***	-0.333***
	(0.061)	(0.072)	(0.068)	(0.065)	(0.075)	(0.071)	(0.059)	(0.072)	(0.065)	(0.058)	(0.078)	(0.062)
RTA (lagged)	0.746***	0.739***	0.708***	0.811***	0.798***	0.804***	0.743***	0.908***	0.686***	0.758***	0.866***	0.721***
	(0.143)	(0.160)	(0.155)	(0.166)	(0.179)	(0.178)	(0.110)	(0.124)	(0.123)	(0.126)	(0.148)	(0.131)
BRI (lagged)				0.158		0.232	0.252*		0.323**	0.276*		0.376***
				(0.136)		(0.146)	(0.144)		(0.144)	(0.141)		(0.139)
(ln) UN vote (lagged)	-0.186***	-0.189***	-0.182***	-0.167***	-0.187***	-0.153**	-0.117**	-0.112*	-0.115**	-0.090**	-0.088	-0.083*
	(0.047)	(0.057)	(0.046)	(0.056)	(0.055)	(0.063)	(0.050)	(0.062)	(0.048)	(0.043)	(0.056)	(0.044)
Taiwan (lagged)	-1.167***	-0.689	-1.605***	-1.097***	-0.669	-1.554***	-1.267***	-0.785	-1.724***	-1.281***	-0.790	-1.681***
	(0.406)	(0.504)	(0.304)	(0.419)	(0.492)	(0.313)	(0.414)	(0.512)	(0.305)	(0.461)	(0.547)	(0.383)
Narrow BRI (lagged)	0.170		0.312**									
	(0.149)		(0.157)									
(ln) Liberal Democracy				-0.087	-0.038	-0.108						
				(0.099)	(0.109)	(0.111)						
NATO (lagged)							-0.658***	-0.788***	-0.598***			
							(0.209)	(0.230)	(0.228)			
Regional Dummy Australia-Oceania										-0.029	0.135	-0.116
										(0.258)	(0.318)	(0.252)
Regional Dummy Europe										-0.689***	-0.813***	-0.633***
										(0.232)	(0.305)	(0.205)
Regional Dummy Africa										-0.009	-0.046	0.004
										(0.481)	(0.457)	(0.505)
Regional Dummy North America										-0.980***	-0.976***	-1.080***
										(0.256)	(0.307)	(0.305)
Regional Dummy Latin America										-0.099	-0.219	-0.065
										(0.308)	(0.347)	(0.311)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,049	1,674	1,375	2,809	1,571	1,238	3,049	1,674	1,375	3,049	1,674	1,375
R-squared	0.858	0.898	0.847	0.859	0.897	0.847	0.885	0.918	0.874	0.892	0.924	0.886

4.2 Robustness checks

We perform a multitude of estimations as robustness checks. Revisiting the BRI variable, we redefine it in such a way that the dummy gets a value of one if a country has been part of the BRI network (based on the broader MoU definition) in any time period. This allows us to test whether BRI membership drives the result or the underlying factor is something else such as cultural ties, or whether a country was inclined to join the BRI by the prospect of China's increasing its imports. Table A4 in the Appendix presents the results. This modified variable is not significant at any time period. This means that it is the actual joining of the BRI that seems to have slight positive impact on Chinese imports and not some underlying common factor. In addition, countries joining the BRI did not trade more or less with China relative to other countries before joining the initiative.

Considering the elevated tensions between China and the US since the outbreak of a trade war in 2018, we rerun our baseline estimations presented in Table 1 excluding the US. This way we can see if the US drives the results. Table A5 in the Appendix presents the results. The estimated coefficients remain largely unchanged.

Next, we examine the possible impact of the Covid-19 pandemic on our results, given that associated lockdowns and movement restrictions caused significant trade disruptions and bottlenecks globally. Therefore, we rerun the baseline estimations with the year 2020 excluded. Table A6 in the Appendix presents the results. The coefficient estimates remain consistent with the baseline.[29]

Overall, the robustness checks show that our main results remain consistent. The significance of the broader BRI variable varies somewhat depending on the model setup. Nonetheless, despite the measure, our results suggest that any alleged export boosting impact of BRI membership should be taken with a grain of salt.

4.3 Sectoral breakdown

We examine the results further by taking a deeper look at specific sectors: chemicals, manufacturing, and machines & transport for all three time periods (2002–2022, 2002–2012, and 2013–2022). During President Xi's reign, China intensified its industrial policies (e.g. the 'Made in China 2025' -program) with a view to increasing China's self-sufficiency and reducing import dependency. The results are presented in Table A7 in the Appendix.

[29] The results remain identical even if we consider the Covid-period to cover the full three years (2020–2022) instead of just the year 2020.

Our sectoral analysis shows that some of the politically inclined variables had a varying impact on imports across sectors. The results suggest that the machines & transport sector, in particular, receives a different treatment than other sectors. For example, it is the only sector for which the coefficient of the broader BRI variable is significant in the 2013–2022 period (albeit only at the 10 % level). It seems that by joining the initiative, a country gets its biggest boost in its machinery & transport sector exports, but only to a limited extent. Meanwhile, the machines & transport sector does not seem to notably benefit from any trade agreement. The coefficient of the RTA dummy fails to be significant in all of the time periods for the sector. As electronics and electrical machinery imports, for instance, are important for China in its climb up the global value chain, it is possible that the country's import demand from the machinery & transport sector would be substantial regardless of trade agreements and is acquired from where the needed goods are produced. Finally, a source country with diplomatic relations with Taiwan does not seem to have a significant impact on the machines & transport sector imports before the 2013–2022 period. This could imply that Xi Jinping's era has been largely politically driven, particularly for sensitive areas such as technology included in the machines & transport sector.

5 Conclusions

China has become the world's largest trading nation and a significant trading partner for most countries globally, while operating a notional socialist market economy unlike other major economies in the world. Thus, a deeper understanding of how China operates in the global marketplace is valuable, particularly as China expects to increase its economic and geopolitical clout in coming years.

In this analysis, we used an augmented gravity model to get clarity on what drives China's bilateral trade relationships, asking why some countries are more important than others as providers of China's imports. The study looked at both business and political factors impacting Chinese trade, taking a comprehensive approach. The paper explored the determinants of bilateral imports by China from a sample of 184 countries between 2002 and 2022, paying particular attention to politically inclined drivers of Chinese imports. To assess for possible impacts from the rise of Xi Jinping to party leadership, the paper divided the time period into two sub-periods for identifying possible drivers of trade flows that changed after 2012 Xi took office.

The paper finds there is more to Chinese trade than business motives. Political considerations not only drive China's import decisions, but the country uses trade as a foreign policy tool to

punish or reward the political inclinations of trading partners. We show that political "unfriendliness" with China has a negative impact on a country's exports to China as measured by country voting records in the UN General Assembly. Meanwhile, established trade agreements translate to higher imports by China. The results also suggest China punishes countries with official diplomatic ties with Taiwan by reducing its imports. On the other hand, signing a memorandum of understanding with China about the Belt and Road Initiative does not automatically translate to a significant increase in Chinese imports from the partner country. The benefit of the arrangement only manifests for the source country after it receives overseas direct investment from China under the BRI framework. Moreover, our analysis suggests that East-West divisions may influence China's import decisions. China purchases less goods from the countries that are NATO members (or are located in Europe or North America). We further show that political considerations have been highly relevant in driving Chinese imports during the entire sample period, with Taiwan relations becoming increasingly critical during President Xi's era.

In China's state-led economy, political stances are likely to affect corporate trade decisions more directly than in market economies. Chinese firms need to take the Communist Party's views into account to operate effectively[30]. The biggest companies in many sectors of the Chinese economy are directly state-owned or have significant state or local-level holdings. Private companies are also increasingly subject to party supervision. Even foreign-owned companies need to have party cells to oversee their operations. In such an environment, companies are likely to go along with the policies of the Communist Party, even if not directly ordered to do so. There are numerous recent examples of smear campaigns against countries that have directly affected the popularity of the firms from those countries operating in Chinese markets[31]. In addition, politics play a more central role in doing business in China. Delegates of more friendly countries are probably more likely to score meetings with high-level officials in China, boosting their business prospects. This environment poses an additional geopolitical risk for countries and companies trading with China.

Amidst the current heightened geopolitical tension, fears of the world moving toward competing country blocs have increased. This would imply that politics may increasingly steer global trade and investment flows, potentially resulting in more uncertainty, higher costs, and decreased efficiency. What our results suggest, however, is that political factors already guided China's import decisions long before the current disputes. Political considerations have directed trade flows

[30] See e.g. https://eastasiaforum.org/2023/08/11/ccp-branches-out-into-private-businesses/.
[31] See e.g. https://kinacentrum.se/en/publications/chinese-consumer-boycotts-of-foreign-companies/

throughout President's Xi Jinping's tenure. It would be interesting to consider if this is a China-specific phenomenon, or whether we might also see similar behavior in other large, even democratic, economic regions. Issue-level voting behavior data at the UN General Assembly sessions would be worth studying in this context, but we must leave this for future research.

Our paper focused on politically inclined variables that are official in nature, including the maintaining of formal diplomatic relations with Taiwan. Nonetheless, taking the study to a more granular level might offer new perspectives since China conceiveably may also exercise its geoeconomic power through unofficial channels. As such, we wonder if the existence of twin city agreements between Taiwan and other countries or other variables capturing nations' business links to Taiwan might be reflected in Chinese trade. Additionally, the presence of Chinese overseas Confucius Institutes or the size of Chinese diaspora in other countries might capture additional dynamics. Again, we find a rich constellation of issues for future research.

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Appendix A

Table A1. Data descriptions and sources

Variable name	Description	Source
Chinese imports	Goods imports by mainland China and Hong Kong in US dollars.	UN Comtrade
Chinese imports, excl. food and energy	Goods imports excluding food and energy (BEC categories 2 and 4-7) by mainland China and Hong Kong in US dollars.	UN Comtrade
Chinese chemicals imports	Goods imports in SITC category 5 by mainland China and Hong Kong in US dollars.	UN Comtrade
Chinese manufacturing imports	Goods imports in SITC categories 6 and 8 by mainland China and Hong Kong in US dollars.	UN Comtrade
Chinese machinery & transport imports	Goods imports in SITC category 7 by mainland China and Hong Kong in US dollars.	UN Comtrade
(ln) Nominal GDP	Natural logarithm of nominal GDP in US dollars.	World Bank World Development Indicators
(ln) Real GDP per capita	Natural logarithm of real GDP per capita in 2015 US dollars.	World Bank World Development Indicators
(ln) Distance	Natural logarithm of bilateral distance between the most important cities or capitals in mainland China and in its trading partner in km.	CEPII GeoDist Database
(ln) Tariffs	Natural logarithm of China's weighted average import tariff rate by trading partner in %.	World Bank WITS Database
RTA (lagged)	Dummy variable taking a value of 1 if there is a trade agreement between China and its trading partner, 0 otherwise. Lagged by 1 year.	Mario Larch's Regional Trade Agreements Database
BRI (lagged)	Dummy variable taking a value of 1 if a trading partner is a member of the Belt and Road Initiative, 0 otherwise. Lagged by 1 year.	Green Finance & Development Center, FISF Fudan University
BRI narrow (lagged)	Dummy variable taking a value of 1 since the year that a country receives its first direct investment from China under the BRI framework, 0 otherwise. Lagged by 1 year.	American Enterprise Institute, The China Global Investment Tracker
(ln) UN vote (lagged)	Natural logarithm of the absolute difference between each source country's ideal point estimate to that of China in UN General Assembly resolutions. Lagged by 1 year.	Harvard Dataverse, United Nations General Assembly Voting Data
Taiwan (lagged)	Dummy variable taking a value of 1 if a trading partner has official diplomatic relations with Taiwan, 0 otherwise. Lagged by 1 year.	Ministry of Foreign Affairs Republic of China (Taiwan)
NATO (lagged)	Dummy variable taking a value of 1 if a trading partner is a member of the NATO, 0 otherwise. Lagged by 1 year.	North Atlantic Treaty Organization (NATO)
(ln) Liberal democracy	Natural logarithm od the Liberal Democracy Index taking value from low (0) to high (1).	Varieties of Democracy Institute

Table A2. Descriptive statistics

Variable	Obs.	Mean	Max.	Min.	Std. Dev.
Chinese imports, all	3,845	4.74E+10	1.36E+13	8.00	6.52E+11
Chinese imports, excluding food and energy	3,808	6.04E+09	2.38E+11	8.00	2.24E+10
Chinese imports, chemicals	3,199	6.94E+09	1.79E+12	1.00	9.03E+10
Chinese imports, manufacturing	3,714	1.05E+10	3.34E+12	1.00	1.49E+11
Chinese imports, machines and transport equip.	3,698	1.61E+10	4.59E+12	2.00	2.17E+11
(ln) Nominal GDP	3,908	24.00	30.87	16.64	2.418
(ln) Real GDP per capita	3,814	8.54	11.63	5.54	1.423
(ln) Distance	3,885	8.98	9.87	6.70	0.541
(ln) Tariffs total imports	3,117	1.21	4.27	-4.61	1.385
(ln) Tariffs exluding food and energy	2,919	3.68	12.18	-12.72	3.858
(ln) Tariffs chemicals	2,220	5.68	11.72	-11.04	1.885
(ln) Tariffs manufacturing	2,651	5.00	9.07	-12.43	2.514
(ln) Tariffs machines and transport equip.	2,355	3.61	9.39	-13.12	3.389
RTA	3,885	0.11	1.00	0.00	0.307
BRI	3,962	0.20	1.00	0.00	0.399
BRI (Narrow measure)	3,885	0.17	1.00	0.00	0.374
(ln) UN vote	3,878	0.75	3.87	0.00	0.706
Taiwan	3,885	0.10	1.00	0.00	0.306
NATO	3,885	0.14	1.00	0.00	0.347
(ln) Liberal Democracy Index	3,485	0.41	0.90	0.01	0.271
Regional dummy (Asia)	4,032	0.24	1.00	0.00	0.430
Regional dummy (Australia & Oceania)	4,032	0.08	1.00	0.00	0.268
Regional dummy (Europe)	4,032	0.20	1.00	0.00	0.398
Regional dummy (Africa)	4,032	0.27	1.00	0.00	0.442
Regional dummy (North America)	4,032	0.01	1.00	0.00	0.102
Regional dummy (Latin America)	4,032	0.17	1.00	0.00	0.373

Table A3. Correlation coefficients.

	Chinese imports, all	Chinese imports, excl. food & energy	Chinese imports, agriculture	Chinese imports, chemicals	Chinese imports, manuf.	Chinese imports, machines & transport	(ln) Nominal GDP	(ln) Real GDP per capita	(ln) Distance	(ln) Tariffs, total imports	(ln) Tariffs, total, excl. food &	(ln) Tariffs, chemicals	(ln) Tariffs, manuf.	(ln) Tariffs, machines & transport	RTA	BRI	Narrow BRI	(ln) UN vote	Taiwan	NATO	(ln) Liberal Democracy Index
Chinese imports, all	1.000																				
Chinese imports, excl. food & energy	0.934	1.000																			
Chinese imports, chemicals	0.917	0.882	0.418	1.000																	
Chinese imports, manufacturing	0.898	0.899	0.379	0.903	1.000																
Chinese imports, machines & transport	0.909	0.906	0.369	0.922	0.882	1.000															
(ln) Nominal GDP	0.576	0.529	0.499	0.512	0.536	0.445	1.000														
(ln) Real GDP per capita	0.300	0.287	0.205	0.305	0.257	0.246	0.504	1.000													
(ln) Distance	-0.353	-0.364	0.007	-0.379	-0.386	-0.413	-0.080	0.075	1.000												
(ln) Tariffs, total imports	-0.012	0.039	0.029	0.051	0.078	0.047	0.079	0.113	-0.019	1.000											
(ln) Tariffs, total excl. food & energy	-0.008	0.018	-0.051	0.073	0.069	0.022	0.192	0.156	-0.080	0.667	1.000										
(ln) Tariffs, chemicals	-0.195	-0.168	-0.172	-0.153	-0.143	-0.159	-0.151	-0.210	0.129	0.155	0.218	1.000									
(ln) Tariffs, manufacturing	-0.087	-0.047	-0.164	0.003	-0.008	-0.021	-0.142	-0.030	0.010	0.287	0.329	0.273	1.000								
(ln) Tariffs, machines & transport	-0.009	-0.006	-0.027	0.021	0.045	-0.065	0.219	0.208	0.040	0.272	0.429	0.004	0.131	1.000							
RTA	0.263	0.256	0.252	0.169	0.216	0.237	0.141	-0.122	-0.387	-0.041	-0.142	-0.172	-0.199	-0.232	1.000						
BRI	-0.030	-0.060	0.000	-0.046	-0.056	-0.017	-0.115	-0.117	-0.111	-0.096	-0.092	-0.107	-0.122	-0.029	0.034	1.000					
Narrow BRI	0.072	0.042	0.092	0.032	0.015	0.069	0.023	-0.080	-0.123	-0.157	-0.104	-0.135	-0.190	-0.054	0.165	0.562	1.000				
(ln) UN vote	0.178	0.198	0.180	0.210	0.197	0.160	0.365	0.597	0.014	0.277	0.235	-0.080	0.077	0.254	-0.225	-0.169	-0.217	1.000			
Taiwan	-0.113	-0.100	-0.105	-0.091	-0.097	-0.081	-0.261	-0.185	0.304	0.005	-0.132	0.111	0.154	-0.093	-0.114	-0.137	-0.130	-0.141	1.000		
NATO	-0.001	0.016	0.084	0.059	0.030	0.032	0.270	0.480	0.046	0.266	0.242	-0.023	0.105	0.267	-0.204	-0.045	-0.117	0.665	-0.157	1.000	
(ln) Liberal Democracy Index	0.154	0.190	0.153	0.151	0.204	0.140	0.335	0.651	0.217	0.206	0.065	-0.072	0.041	0.174	-0.083	-0.179	-0.173	0.601	-0.137	0.552	1.000
Regional dummy (Asia)	0.213	0.195	0.000	0.214	0.199	0.233	-0.021	-0.284	-0.705	-0.211	-0.028	-0.147	-0.080	-0.115	0.413	0.101	0.143	-0.332	-0.174	-0.385	-0.536
Regional dummy (Australia & Oceania)	0.063	0.042	0.188	-0.045	-0.036	-0.052	-0.029	0.104	0.067	-0.031	-0.146	-0.008	0.010	0.011	0.080	-0.022	-0.048	0.124	-0.048	-0.020	0.085
Regional dummy (Europe)	-0.120	-0.099	-0.106	-0.070	-0.060	-0.083	0.176	0.522	-0.016	0.297	0.280	-0.056	0.082	0.264	-0.238	-0.007	-0.088	0.598	-0.196	0.671	0.533
Regional dummy (Africa)	-0.121	-0.104	-0.122	-0.114	-0.098	-0.105	-0.157	-0.332	0.202	0.016	0.055	0.225	0.085	-0.155	-0.145	0.038	0.081	-0.301	-0.042	-0.206	-0.140
Regional dummy (North America)	0.275	0.249	0.458	0.282	0.205	0.195	0.309	0.199	0.096	0.044	0.027	-0.039	-0.018	0.049	-0.063	-0.075	-0.072	0.355	-0.039	0.249	0.147
Regional dummy (Latin America)	-0.135	-0.135	-0.027	-0.157	-0.140	-0.136	-0.165	-0.160	0.617	-0.130	-0.295	0.079	-0.070	-0.087	-0.091	-0.102	-0.075	-0.286	0.509	-0.287	-0.005

Table A4. Baseline estimations with BRI country dummy

PPML estimations are performed. The estimations correspond to the baseline presented in Table 3, but the BRI variable is replaced with a country dummy that takes the value one if the country has ever been part of the Belt & Road Initiative. The dependent variable in columns (1) and (3) is all Chinese imports. In columns (2) and (4), the dependent variable is Chinese imports excluding food & energy. Columns (1) and (2) give the results for the full period 2002–2022, while columns (3) and (4) cover 2013–2022. The variables are defined in Section 2. Robust standard errors are shown in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10 %, 5 %, and 1 % level, respectively.

	(1)	(2)	(3)	(4)
	BRI Country Dummy			
	2002-2022	2002-2022	2013-2022	2013-2022
Variables	All imports	Excluding food and energy	All imports	Excluding food and energy
(ln) Nominal GDP	0.868***	0.880***	0.877***	0.891***
	(0.047)	(0.046)	(0.050)	(0.053)
(ln) Real GDP per capita	0.357***	0.421***	0.326***	0.397***
	(0.071)	(0.067)	(0.074)	(0.061)
(ln) Distance	-0.581***	-0.712***	-0.714***	-0.818***
	(0.097)	(0.093)	(0.087)	(0.084)
(ln) Tariffs	-0.360***	-0.146***	-0.371***	-0.179***
	(0.062)	(0.029)	(0.074)	(0.030)
RTA (lagged)	0.750***	0.812***	0.708***	0.781***
	(0.146)	(0.155)	(0.173)	(0.173)
BRI Country	**0.139**	**-0.046**	**0.103**	**-0.118**
	(0.188)	**(0.176)**	**(0.193)**	**(0.188)**
(ln) UN vote (lagged)	-0.183***	-0.179***	-0.190***	-0.177***
	(0.048)	(0.052)	(0.057)	(0.054)
Taiwan (lagged)	-1.155***	-1.040**	-0.658	-0.559
	(0.412)	(0.457)	(0.507)	(0.458)
Time FE	Yes	Yes	Yes	Yes
Observations	3,049	2,841	1,674	1,512
R-squared	0.857	0.880	0.896	0.909

Table A5. Baseline estimations excluding the US

PPML estimations are performed. The estimations correspond to the baseline presented in Table 3, but exclude the US. The dependent variable in columns (1), (3), and (5) is all Chinese imports. In columns (2), (4), and (6), it is Chinese imports excluding food and energy. Columns (1) and (2) give the results for the full sample 2002–2022. Columns (3) and (4) cover the years 2002–2012, while columns (5) and (6) cover the years 2013–2022. Definitions of the variables are presented in Section 2. Robust standard errors are in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10 %, 5 %, and 1 % level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Excluding the US					
	2002-2022	2002-2022	2002-2012	2002-2012	2013-2022	2013-2022
Variables	All imports	Excluding food and energy	All imports	Excluding food and energy	All imports	Excluding food and energy
(ln) Nominal GDP	0.918***	0.960***	0.900***	0.962***	0.947***	0.976***
	(0.058)	(0.055)	-0.061	(0.057)	(0.065)	(0.064)
(ln) Real GDP per capita	0.364***	0.432***	0.336***	0.407***	0.383***	0.451***
	(0.074)	(0.067)	(0.075)	(0.062)	(0.089)	(0.089)
(ln) Distance	-0.525***	-0.622***	-0.664***	-0.728***	-0.434***	-0.553***
	(0.085)	(0.089)	(0.111)	(0.120)	(0.083)	(0.083)
(ln) Tariffs	-0.401***	-0.153***	-0.408***	-0.188***	-0.404***	-0.137***
	(0.062)	(0.027)	(0.074)	(0.028)	(0.069)	(0.031)
RTA (lagged)	0.809***	0.855***	0.823***	0.839***	0.775***	0.838***
	(0.121)	(0.141)	(0.163)	(0.170)	(0.127)	(0.159)
BRI (lagged)	0.223	0.252			0.326**	0.343**
	(0.149)	(0.155)			(0.149)	(0.162)
(ln) UN vote (lagged)	-0.174***	-0.167***	-0.180***	-0.167***	-0.167***	-0.164***
	(0.049)	(0.053)	(0.060)	(0.057)	(0.047)	(0.058)
Taiwan (lagged)	-1.031**	-0.861*	-0.619	-0.453	-1.422***	-1.522***
	(0.405)	(0.459)	(0.490)	(0.440)	(0.326)	(0.311)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,029	2,822	1,663	1,502	1,366	1,320
R-squared	0.848	0.868	0.890	0.902	0.841	0.860

Table A6. Baseline estimations excluding 2020

PPML estimations are performed. The estimations correspond to the baseline presented in Table 3, yet the year 2020 is excluded. The dependent variable in (1), (3), and (5) is all Chinese imports and in (2), (4), and (6) Chinese imports excluding food and energy. The columns (1) and (2) give the results for the full sample 2002–2022. The columns (3) and (4) cover the years 2002–2012, while the columns (5) and (6) cover the years 2013–2022. Definitions of the variables are presented in Section 2. Robust standard errors are in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Excluding the COVID-19 year 2020					
	2002-2022	2002-2022	2002-2012	2002-2012	2013-2022	2013-2022
Variables	All imports	Excluding food and energy	All imports	Excluding food and energy	All imports	Excluding food and energy
(ln) Nominal GDP	0.858***	0.899***	0.861***	0.910***	0.862***	0.899***
	(0.044)	(0.042)	(0.046)	(0.044)	(0.047)	(0.045)
(ln) Real GDP per capita	0.364***	0.438***	0.327***	0.395***	0.387***	0.468***
	(0.071)	(0.061)	(0.075)	(0.061)	(0.082)	(0.078)
(ln) Distance	-0.603***	-0.705***	-0.725***	-0.809***	-0.524***	-0.641***
	(0.081)	(0.090)	(0.081)	(0.090)	(0.082)	(0.086)
(ln) Tariffs	-0.376***	-0.151***	-0.379***	-0.180***	-0.380***	-0.136***
	(0.062)	(0.029)	(0.072)	(0.030)	(0.069)	(0.032)
RTA (lagged)	0.773***	0.805***	0.739***	0.729***	0.766***	0.818***
	(0.137)	(0.161)	(0.160)	(0.164)	(0.141)	(0.173)
BRI (lagged)	0.205	0.243*			0.288**	0.329**
	(0.139)	(0.139)			(0.146)	(0.147)
(ln) UN vote (lagged)	-0.181***	-0.173***	-0.189***	-0.178***	-0.176***	-0.170***
	(0.049)	(0.050)	(0.057)	(0.054)	(0.047)	(0.053)
Taiwan (lagged)	-1.129***	-0.952**	-0.689	-0.541	-1.581***	-1.648***
	(0.409)	(0.458)	(0.504)	(0.448)	(0.308)	(0.299)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,896	2,700	1,674	1,512	1,222	1,188
R-squared	0.865	0.884	0.898	0.905	0.855	0.879

Table A7. Sectoral estimations.

PPML estimations are performed. The dependent variable in columns (1), (5), and (9) is all Chinese imports. In columns (2), (6), and (10), the dependent variable is Chinese chemical sector imports. In columns (3), (7), and (11), the dependent variable is Chinese manufacturing sector imports. In columns (4), (8), and (12), the dependent variable is Chinese machines & transport sector imports. Columns (1) to (4) give the results for the full period 2002–2022, columns (5) to (8) for 2002–2012, and columns (9) to (12) for 2013–2022. Definitions of the variables are presented in Section 2. Robust standard errors are in parenthesis below estimated coefficients. *, **, *** denote an estimate significantly different from 0 at the 10 %, 5 %, and 1 %level,respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		2002-2022				2002-2012				2013-2022		
Variables	all imports	chemicals	manufacturing	machines and transport	all imports	chemicals	manufacturing	machines and transport	all imports	chemicals	manufacturing	machines and transport
(ln) GDP	0.855***	0.843***	0.892***	0.966***	0.861***	0.870***	0.891***	0.966***	0.858***	0.839***	0.894***	0.983***
	(0.044)	(0.042)	(0.051)	(0.059)	(0.046)	(0.058)	(0.059)	(0.072)	(0.047)	(0.040)	(0.053)	(0.061)
(ln) GDP per capita	0.360***	0.580***	0.221***	0.506***	0.327***	0.538***	0.249***	0.470***	0.378***	0.624***	0.200***	0.527***
	(0.072)	(0.099)	(0.074)	(0.140)	(0.075)	(0.097)	(0.092)	(0.139)	(0.085)	(0.100)	(0.077)	(0.165)
(ln) Distance	-0.595***	-0.924***	-0.814***	-0.951***	-0.725***	-0.885***	-0.982***	-1.049***	-0.518***	-0.919***	-0.704***	-0.895***
	(0.083)	(0.067)	(0.126)	(0.131)	(0.081)	(0.070)	(0.116)	(0.153)	(0.086)	(0.071)	(0.139)	(0.131)
(ln) Tariffs	-0.371***	-0.059	-0.035	-0.180***	-0.379***	-0.097**	-0.103*	-0.203***	-0.372***	-0.060	0.002	-0.177***
	(0.061)	(0.041)	(0.042)	(0.046)	(0.072)	(0.046)	(0.057)	(0.055)	(0.067)	(0.043)	(0.040)	(0.051)
RTA (lagged)	0.766***	0.430**	0.644***	0.419	0.739***	0.759***	0.631***	0.426	0.757***	0.265	0.631**	0.378
	(0.140)	(0.190)	(0.228)	(0.257)	(0.160)	(0.179)	(0.212)	(0.287)	(0.146)	(0.194)	(0.256)	(0.283)
BRI (lagged)	0.192	0.034	0.091	0.233					0.271*	0.148	0.152	0.354*
	(0.144)	(0.138)	(0.191)	(0.189)					(0.151)	(0.131)	(0.186)	(0.212)
(ln) UN vote (lagged)	-0.183***	-0.281***	-0.128**	-0.216***	-0.189***	-0.283***	-0.095	-0.201***	-0.177***	-0.278***	-0.139**	-0.215**
	(0.048)	(0.077)	(0.057)	(0.078)	(0.057)	(0.088)	(0.059)	(0.072)	(0.047)	(0.073)	(0.064)	(0.092)
Taiwan (lagged)	-1.160***	-2.307***	-1.153***	-0.570	-0.689	-1.941***	-0.968*	0.000	-1.611***	-2.483***	-1.265***	-2.239***
	(0.406)	(0.301)	(0.353)	(0.845)	(0.504)	(0.370)	(0.494)	(0.782)	(0.304)	(0.460)	(0.358)	(0.540)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,049	2,176	2,595	2,297	1,674	1,110	1,390	1,169	1,375	1,066	1,205	1,128
R-squared	0.859	0.910	0.868	0.804	0.898	0.929	0.939	0.831	0.848	0.908	0.843	0.800

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