Trade with Chinese Characteristics – Economics Versus Politics

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Agenda

- Motivation
- Related Literature
- Methodology
- Key Results

Motivation

TRADE

- China joined the WTO in 2001; its trade value has grown twelve-fold since.
- China is the world's largest trading nation & a significant trading partner for most countries globally.

POLITICS

- China's political might has increased, particularly in the Global South.
- Concerns regarding China's political goals persist in Western countries.

- What drives China's bilateral trade relationships?
  - Do politics matter in addition to commercial interests?
  - We test whether China rewards or punishes its trading partners based on their political friendliness/reservations toward China.

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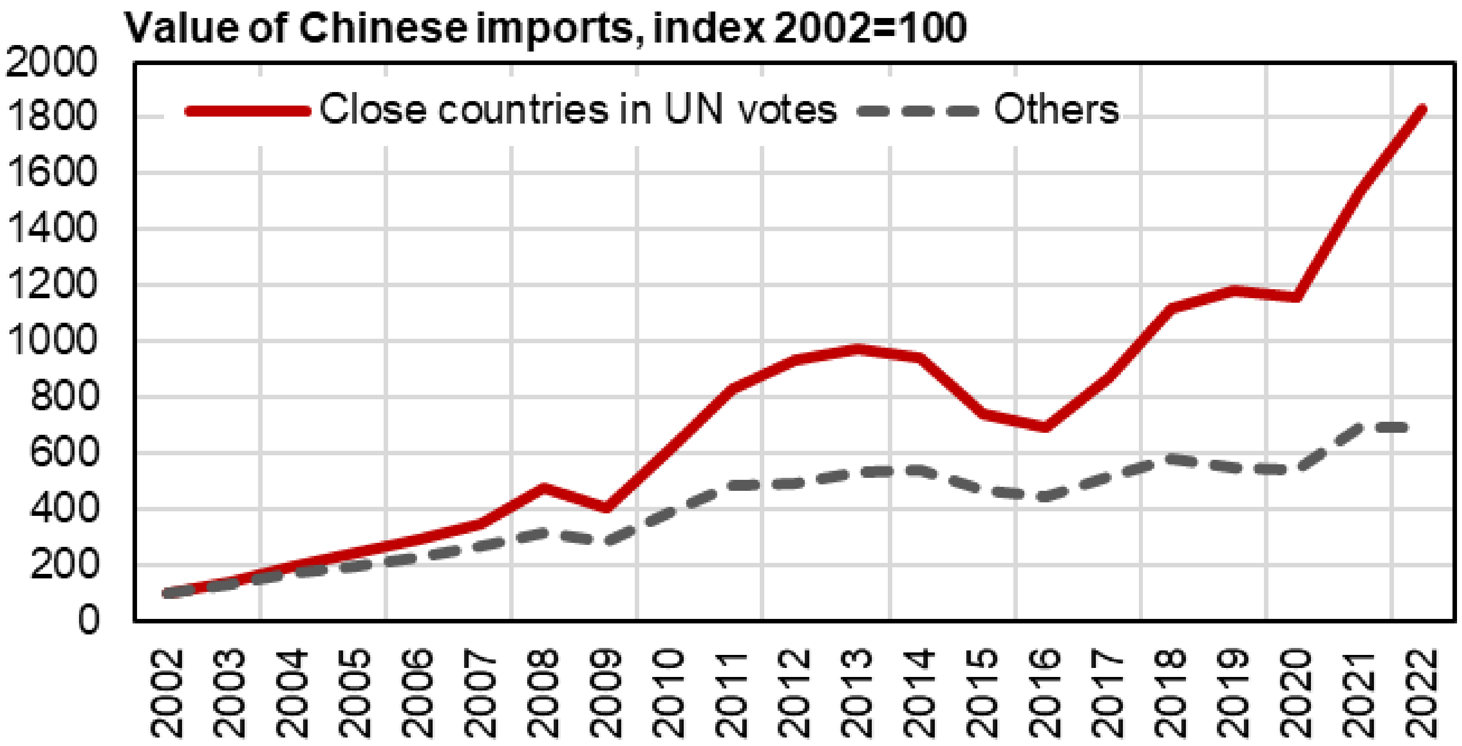
Motivation

- Certain country characteristics, such as like-mindedness with China about global affairs, seem to go hand in hand with higher exports to China.



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Related Literature

- The gravity model of trade has a long history in international economics (see e.g., in Baldwin and Taglioni (2006) and Yotov, Piermartini, and Larch (2016).
  - The flow of goods between two economies is positively related to their size and negatively related to the distance between them.
  - The model has been augmented by additional variables to capture transaction costs etc. (such as tariffs and other trade distortions, as well as trade agreements).
- 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) show that a membership in the Belt-and-Road-Initiative positively impacts trade flows between China and ASEAN countries.
- Fuchs and Klann (2013) show that countries that officially receive the Dalai Lama despite China's opposition are punished by a reduction of their exports to China.

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Methodology

- Our approach: augmented gravity model of international trade
  - Poisson pseudo maximum likelihood (PPML) estimator
  - Sample: 184 countries
  - Time period: 2002-2022
  - Two subperiods, 2002-2012 and 2013-2022, to capture time before President Xi and his era
- Dependent variable: China's goods imports from country *i* in year *t*
- Explanatory variables:

Traditional gravity model variables	Trade-related variables	Politically inclined variables
Nominal GDP	Import tariffs	BRI-membership
Real GDP per capita	Trade agreements	UN-voting
Geographical distance		Taiwan
		NATO-membership

Key Results

- Traditional gravity model variables:
  - China imports more from large and developed countries.
  - China imports less from countries far away.

- Trade-related variables:
  - Higher import duties imposed on the trading partner reduce Chinese imports from that country.
  - A trade agreement with the trading partner has a positive impact on Chinese imports.

Key Results

- Politically inclined variables:
  - China imports less from countries that vote differently in UN General Assemblies.
  - China imports less from countries that have diplomatic ties with Taiwan; the Taiwan issue has become highly significant in Xi's era.
  - Since the inception of the BRI, China has imported more from BRI member countries.
  - China imports less from countries that are part of the NATO / are in Europe or North America.

⇨ **There's more behind Chinese trade than business reasons.**

⇨ **China uses trade as a foreign policy tool to punish or reward its trading partner's political inclinations.**

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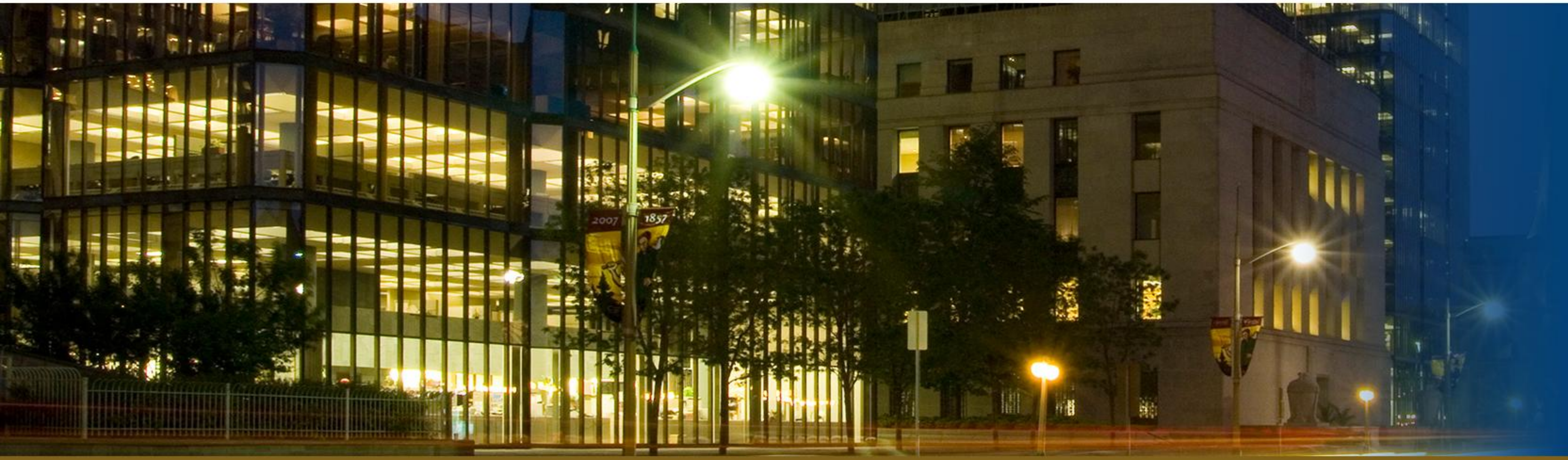
Thank you!



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Data

- A sample of 184 countries, plus China
- China is defined as mainland China + Hong Kong.
- Time period 2002-2022, annual frequency.
- Two subperiods, 2002-2012 and 2013-2022, to capture time before President Xi Jinping and his era.

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

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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

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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

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Methodology

- We use the Poisson Pseudo Maximum Likelihood (PPML) estimator.
  → It solves the problems of heteroscedasticity and zero trade flows.
- Our structural gravity model specification is:

$$I_{i,t}^{k} = \exp\left[\ln GDP_{i,t} \times \ln GDP\_cap_{i,t} \times \ln Dist_{i} \times lnTariff_{i,t-1}^{k} \times RTA_{i,t-1} \times BRI_{i,t-1} \times \ln UN\_vote_{i,t-1} \times Taiwan_{i,t-1} \times \gamma_{t}\right] + \varepsilon_{i,t}^{k}$$

Where $I_{i,t}$ is China's nominal good import value from source country *i* in year *t*,
$GDP_{i,t}$ is nominal GDP,
$GDP\_cap_{i,t}$ is real GDP per capita,
$Dist_{i}$ is the geographical distance between China and the source country,
$Tariff_{i,t}$ is the 3-year MA of the weighted average of imports tariffs for each source country,
$RTA_{i,t}$ 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 BRI,
$UN\_vote_{i,t}$ signals the discordancy of the source country with China's voting behaviour in the UN general assembly,
$Taiwan_{i,t}$ is a dummy that equals one if the source country has diplomatic ties with Taiwan in year *t*.

- Year-fixed effects take into account any China-specific or global characteristics that vary in time and might affect the level of its imports throughout our sample period.

Results – Main Estimations

	(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

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Additional Policy Variables

- Four additions into our estimations:
  1) Narrow BRI
  2) Liberal Democracy Index
  3) NATO membership
  4) Regional dummies

	(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

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Sectoral Estimations

	(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