

Trade Ties That Bind: Strategic Trade in Times of Geoeconomic Fragmentation

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Introduction

The objective of the project is to gauge the resilience of global trade to the risk of bloc-fragmentation through strategic use of trade barriers (TBs). Specifically, it considers how **strategic interactions** driven by **welfare considerations** could affect the **formation of trading blocs** (characterized by different TBs for members and non-members):

- The composition of trading blocs determines **welfare implications** for members and non-members.
- Recent studies assume ex-ante **exogenous alignment of countries** (e.g., *UNGA voting patterns, trade intensity*)

What we do

- Apply quantitative trade model (Caliendo and Parro 2015) to simulate endogenous formation of trading blocs around two or three poles.
- Two Scenarios:
 - A two-pole world – US and China
 - A three-pole world – US, China, EU.
- Test if bloc-fragmentation is a **stable** outcome by allowing “poles” to choose whether to engage in a **strategic competition** with each other, anticipating other countries’ preferred alignments.

Model and Algorithm

- Inner loop: Caliendo and Parro (2015) (multi-country, multi-sector, GE)
- Outer loop: Simulate the endogenous formation of trading blocs with strategic interactions
 - Initial bloc setup: *The US and China are in two separate blocs, all other countries are non-aligned (neutral bloc).*
 - Bilateral trade barriers (TBs) between countries depend on which blocs they choose to join:

B exports to A		Country A		
		US bloc	China bloc	Neutral bloc
Country B	US bloc	No change	No trade	No change
	China bloc	No trade	No change	No change
	Neutral bloc	B’s export to A faces 20% higher TBs	B’s export to A faces 20% higher TBs	No change

Table 1: Bilateral trade barriers (TBs) between blocs

- Countries choose the bloc that maximizes their welfare, taking other countries’ decisions into account.
 - Nash equilibrium:** when no country has incentive to deviate given the actions of others.
- Algorithm: Countries make bloc decisions using “**K-level**” thinking, iteratively updating their choices based on beliefs about others’ strategies, until convergence.
 - Round 1:** Each country believes all others remain **non-aligned** and chooses the bloc that maximizes its welfare.
 - Round 2:** Each country believes all others choose **round 1’s** bloc. **Under this belief**, update the decision.
 - Repeat until converge and **no one deviates**.

Data

- Eora Global Supply Chain Databases, with sectoral IO table.
- 185 economies (with customs-union members making joint decisions), 10 sectors.
- Parameters are calibrated to pre-Covid (2019) data, results are robust to 2023.

Results 1: A Two-Pole World

- A **two-bloc global trade fragmentation may not be the most likely outcome**, as almost 90% of countries (over 60% of global GDP) prefer to remain non-aligned.
- Based on the model calibration, the **welfare** implications are estimated to be somewhat higher for China, and bloc size is slightly tilted to the US (both in the share of GDP at PPP and number of countries).

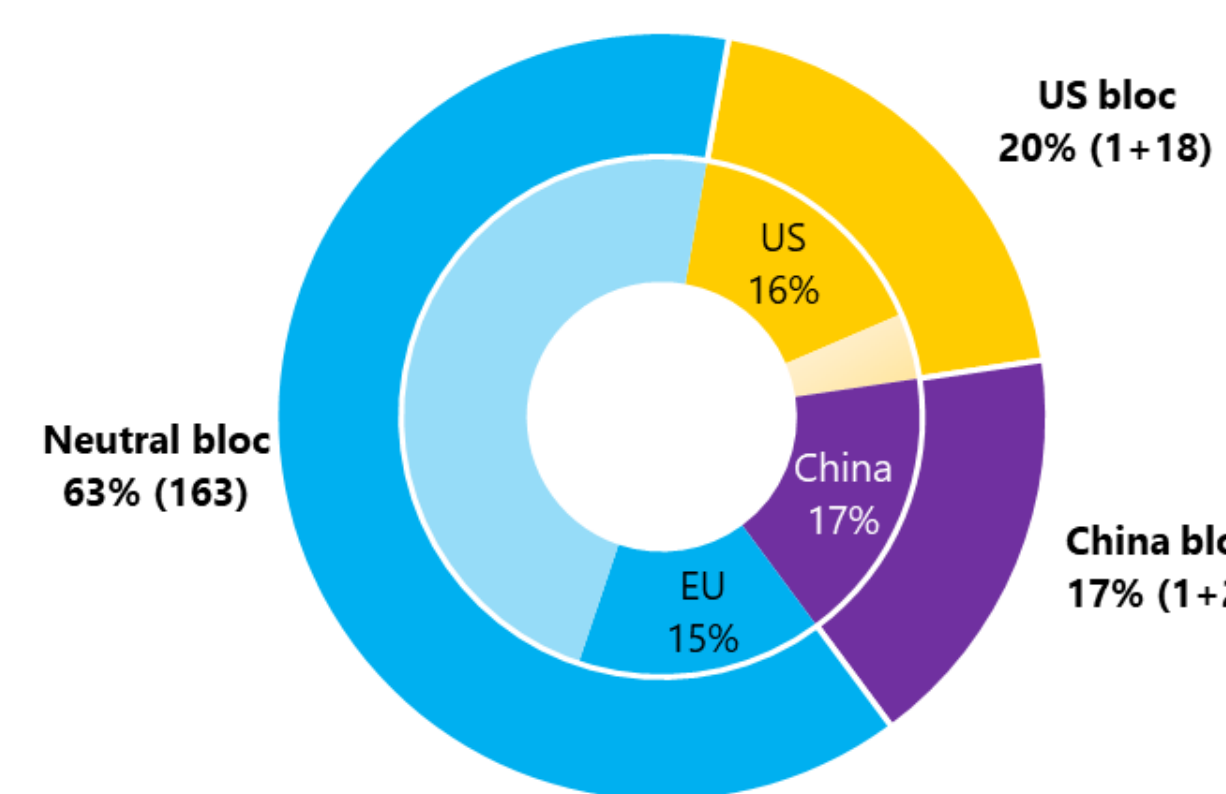


Figure 1. Bloc formation by GDP share (country counts in parentheses)

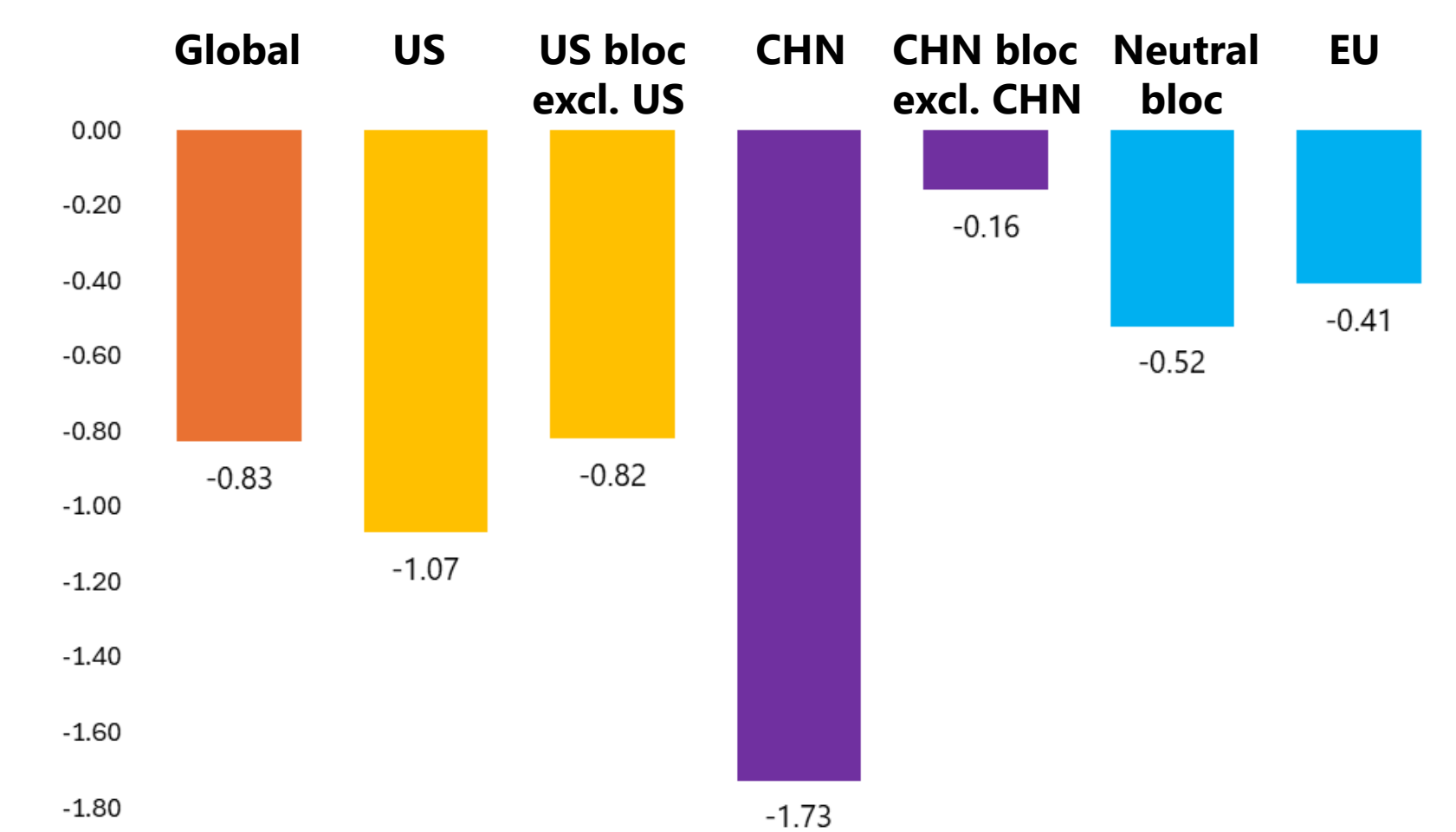


Figure 2. Welfare Change (% GDP)

Results 2: Role of EU

- The **EU** can play a pivotal role: its alignment with the US or China pulls other countries with it. In a three-pole scenario (Fig 3(c)), most countries prefer to stay neutral.

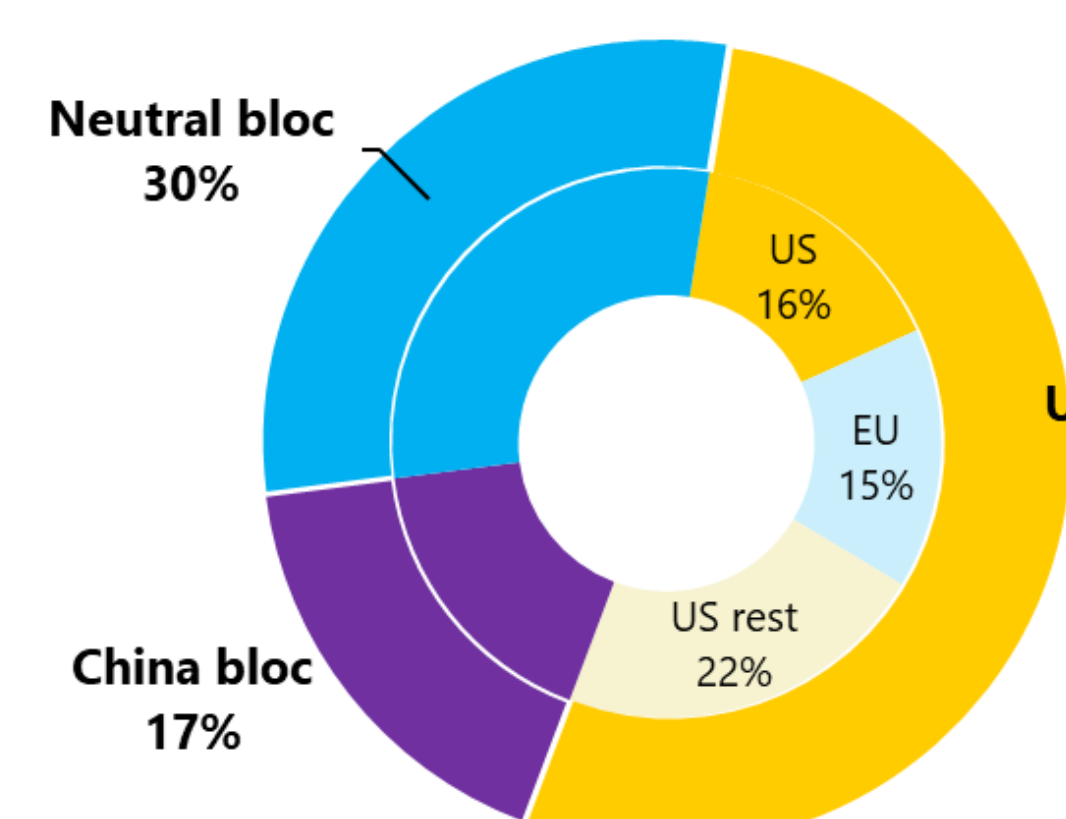


Figure 3(a). EU ex-ante aligned with US

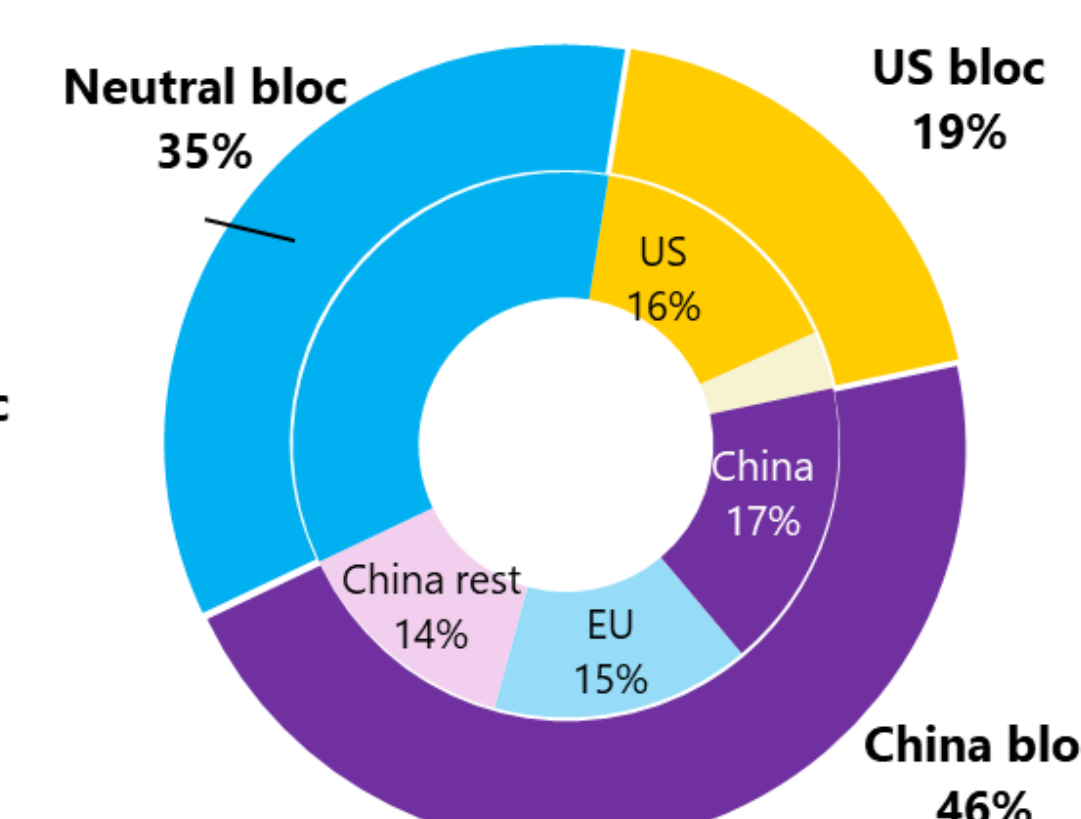


Figure 3(b). EU ex-ante aligned with China

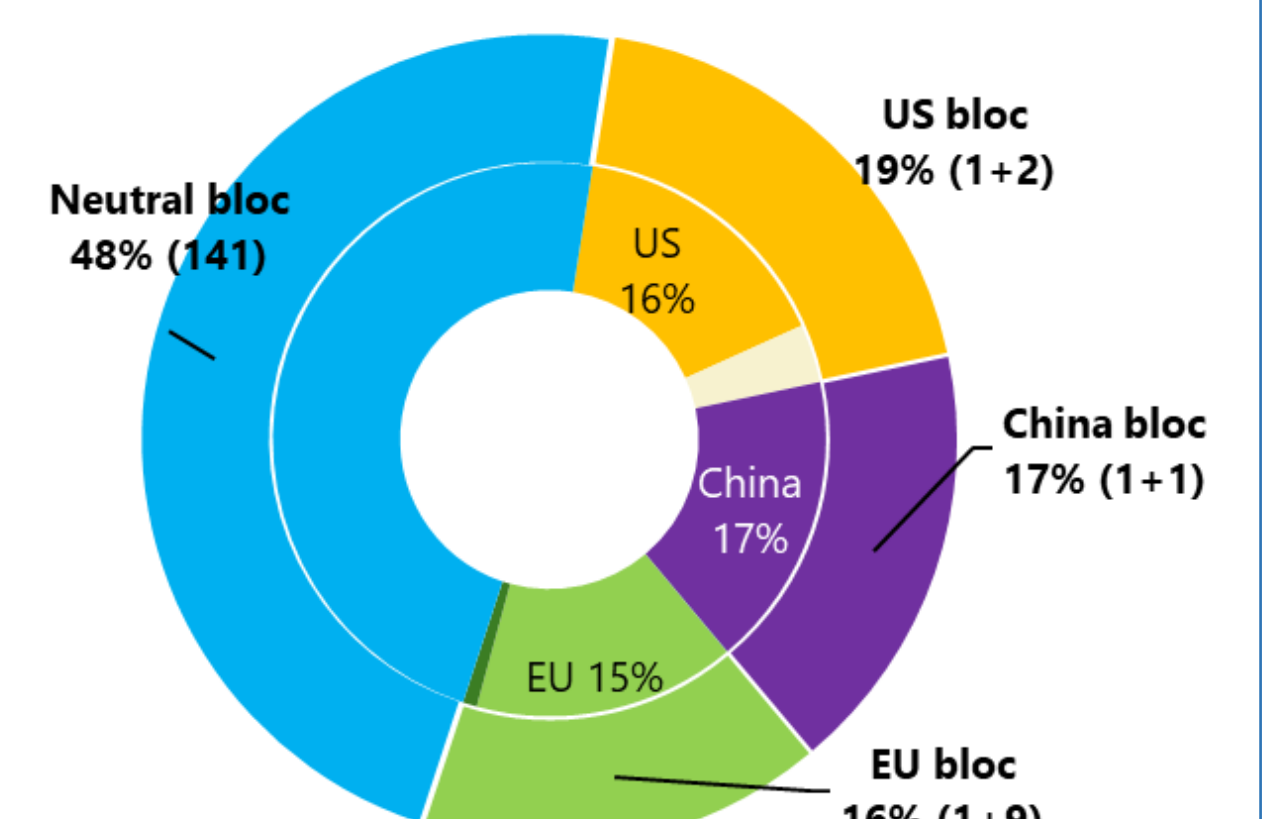


Figure 3(c). EU as its own pole

Extension: Strategic Competition

- In a two-pole world, where “poles” care about relative payoffs and can choose to engage or not to engage in strategic competition, anticipating endogenous bloc formation, the bloc-fragmentation outcome is not stable.

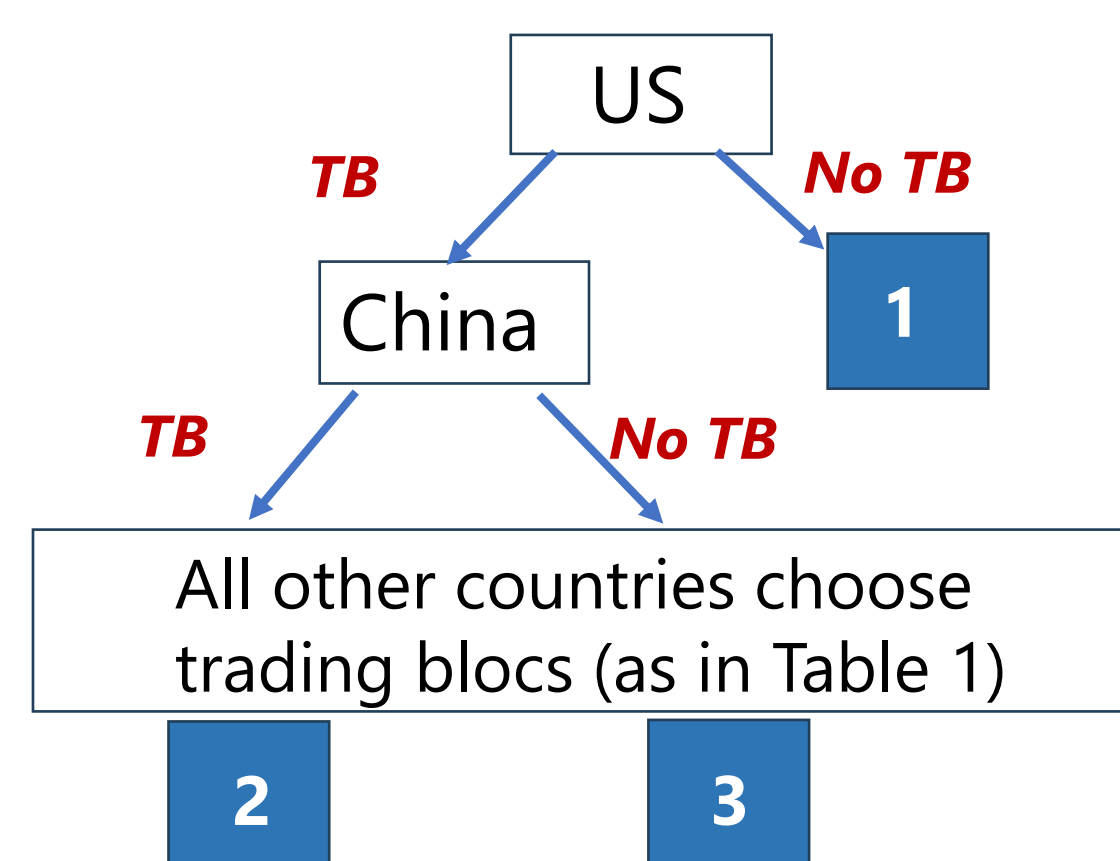


Figure 4. Extended game structure in the two-pole scenario

	Welfare change (% of GDP)			
	absolute		relative	
	US	China	US	China
1	0	0	0	0
2	-1.1	-1.7	0.7	-0.7
3	-1.0	-0.4	-0.6	0.6

Table 2: Welfare change (% of GDP) for different subgames

Conclusions

- Given current configuration of global trade linkages, most countries have diversified trade ties and therefore face strong incentives to **remain non-aligned**.
- In a two-pole world, the **EU** can play a pivotal role, acting as a swing state and influencing other countries’ alignment decisions.
- The bloc-fragmentation equilibrium may **unravel** if none of the “poles” can attract sufficiently large number of countries into its trading bloc.

Key References

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