



BEST Clan

A FRAGMENTED WORLD

DYNAMICS OF FRAGMENTATION
IN THE GLOBAL ECONOMIC ORDER



Introduction

Presentation Overview

1. Introduction
2. Literature Review
3. Data Sources
4. Methodology
 - a. Geopolitical Affinity by Proxy
 - b. Regression Method
5. Findings
6. Discussion
 - a. Economic Interpretation
 - b. International Relations Interpretation
7. Implications and Conclusion



CONCEPTUALIZATION

Globalization was interrupted by the global financial crisis of 2008, and the recovery of the world economy was attempted to be functionalized by unbalanced monetary policies, which made the world economic order even more sensitive than before. Fragmentation is multifaceted and can be caused by a variation of factors, hence there can be different types of fragmentation.



Geopolitical Fragmentation

changes in the dynamics of foreign policy decisions, dividing the international order into varying blocs, which all have some degree of political, economic, financial, and strategic autonomy



Geoconomic Fragmentation

dissolution of global trade into trading blocs of geopolitically aligned countries and regions, occurs due to the disintegration of the multilateral economic order by the formation of regional trade agreements.

Research Question and Hypothesis

Research Question

Within the global economic order, do geopolitical fragmentation and geoeconomic fragmentation affect one another?

Hypothesis

There is a causality between geopolitical fragmentation and geoeconomic fragmentation, leading to the idea that these two types of fragmentation mutually influence each other.

Literature Review

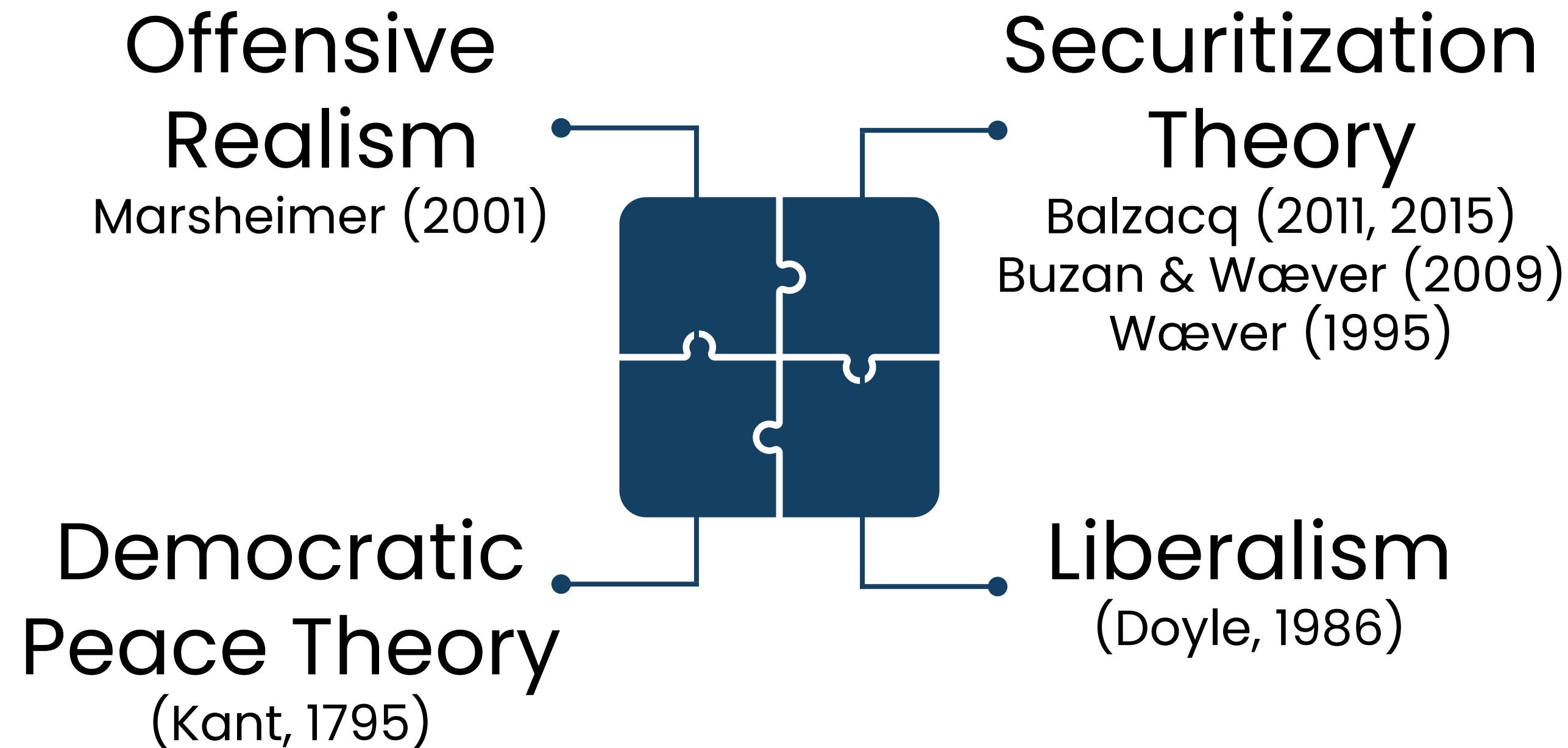


Definition and Conceptualization



Causes and Effects

The four major theories we find relevant while conducting our research:



Liberalism

(Doyle, 1986)

Liberal IR Theory Claims

- international trade mitigates conflict
- economic interdependence leads to political stability
- security concerns put a limit on economic cooperation

GEOECONOMIC FRAGMENTATION AND GEOPOLITICAL FRAGMENTATION SHOULD INFLUENCE EACH OTHER, DUE TO THE CO-DEPENDENT RELATION BETWEEN GEOPOLITICS AND ECONOMIC INTERDEPENDENCE.

Data Sources

26 variables



20 years



194 countries

Geoeconomic Fragmentation

WTO's cumulative Regional Trade Agreements Database:

- Geoeconomic fragmentation is closely linked to the prevalence of Regional Trade Agreements (RTAs) (Nguyen, 2019).

Geopolitical Fragmentation

UNView's United Nations General Assembly Voting Patterns Database:

- Provided voting pattern similarity scores for countries relative to the UN Security Council's five permanent members. (United States, United Kingdom, Russia, France, and China)

Collected our data for our 26 variables from:

World Bank Open Data, Kellogg Institute Database, World Development Indicators, International Migration Database, UNViews, IMF AREAER Database, Regional Trade Agreements Database

Geopolitical Affinity Proxy

Western Affinity = Mean of a country's similarity to the United Kingdom and France

Eastern Affinity = Mean of a country's similarity to China and Russia

Geopolitical Affinity = Western Affinity - Eastern Affinity

UNGA voting data has been collected in 4 different 5-year intervals.

For the purpose of this research, we treated abstentions as no's and excluded resolutions regarding Palestinian-Israeli conflict.

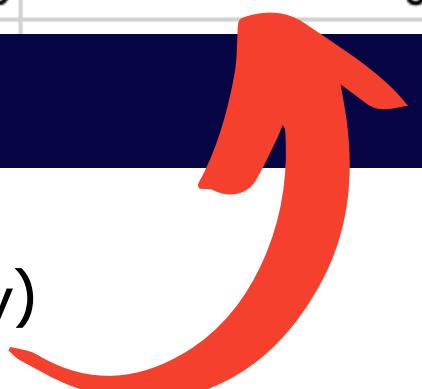
Seeing that the United States' voting behavior is an outlier to how other Western countries vote, we have decided to exclude a country's affinity to the U.S. while calculating Western Affinity.

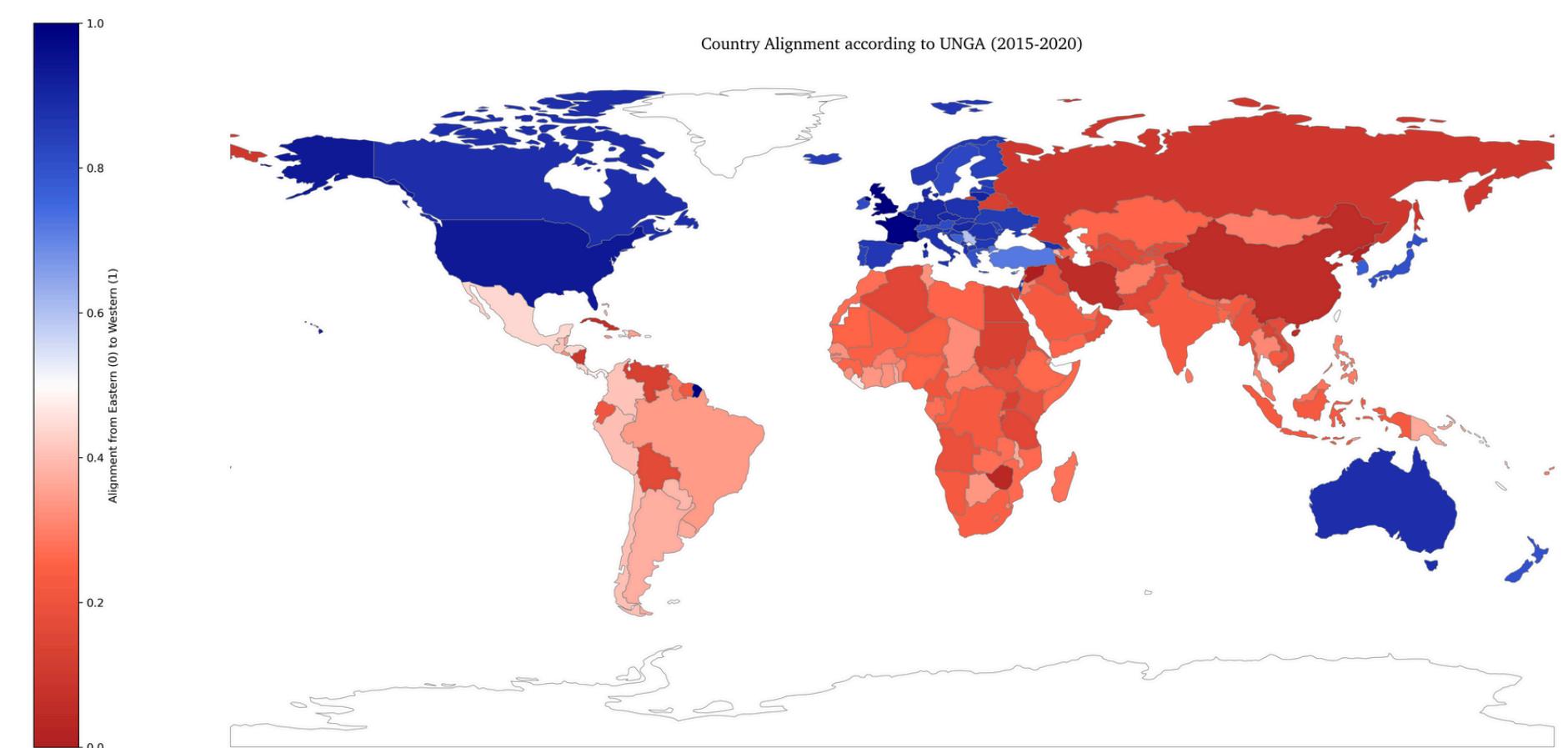
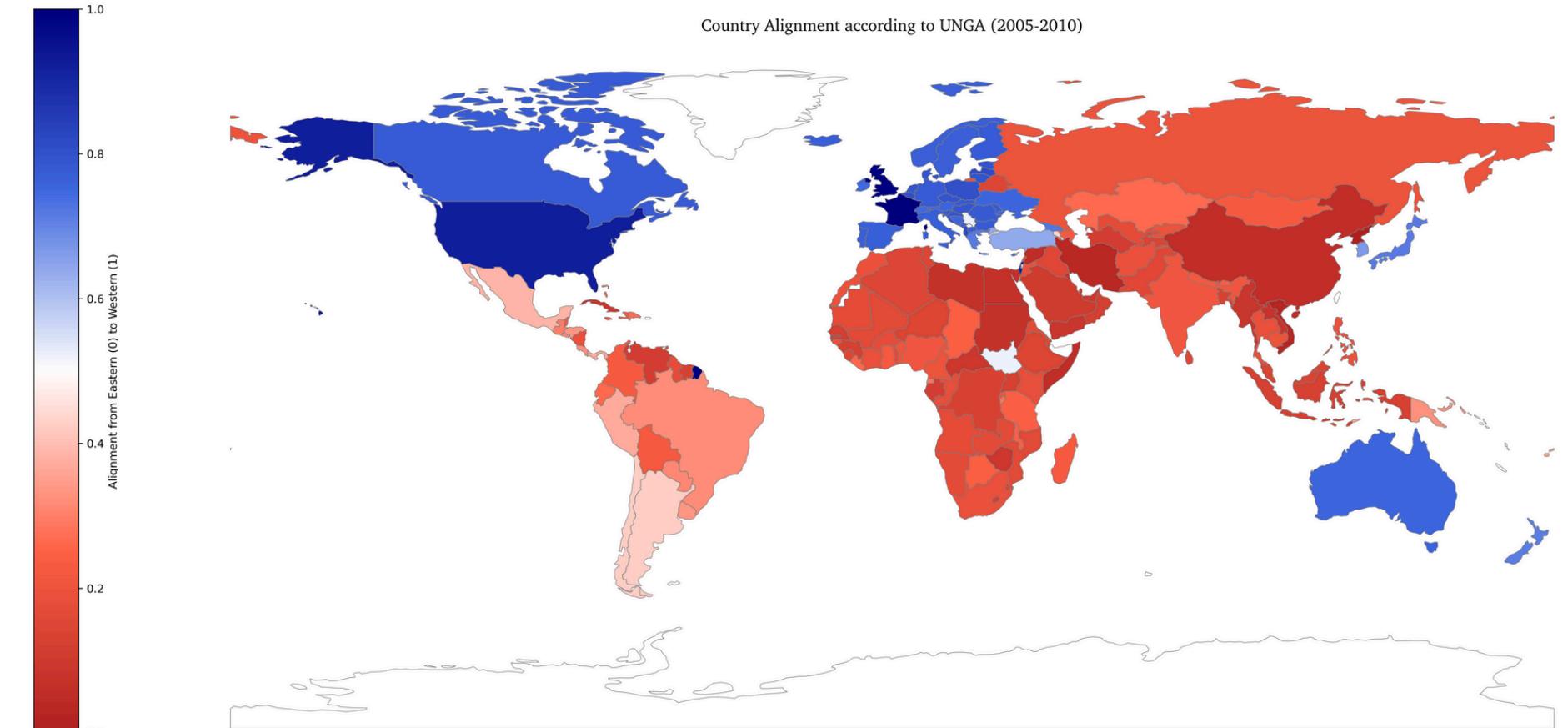
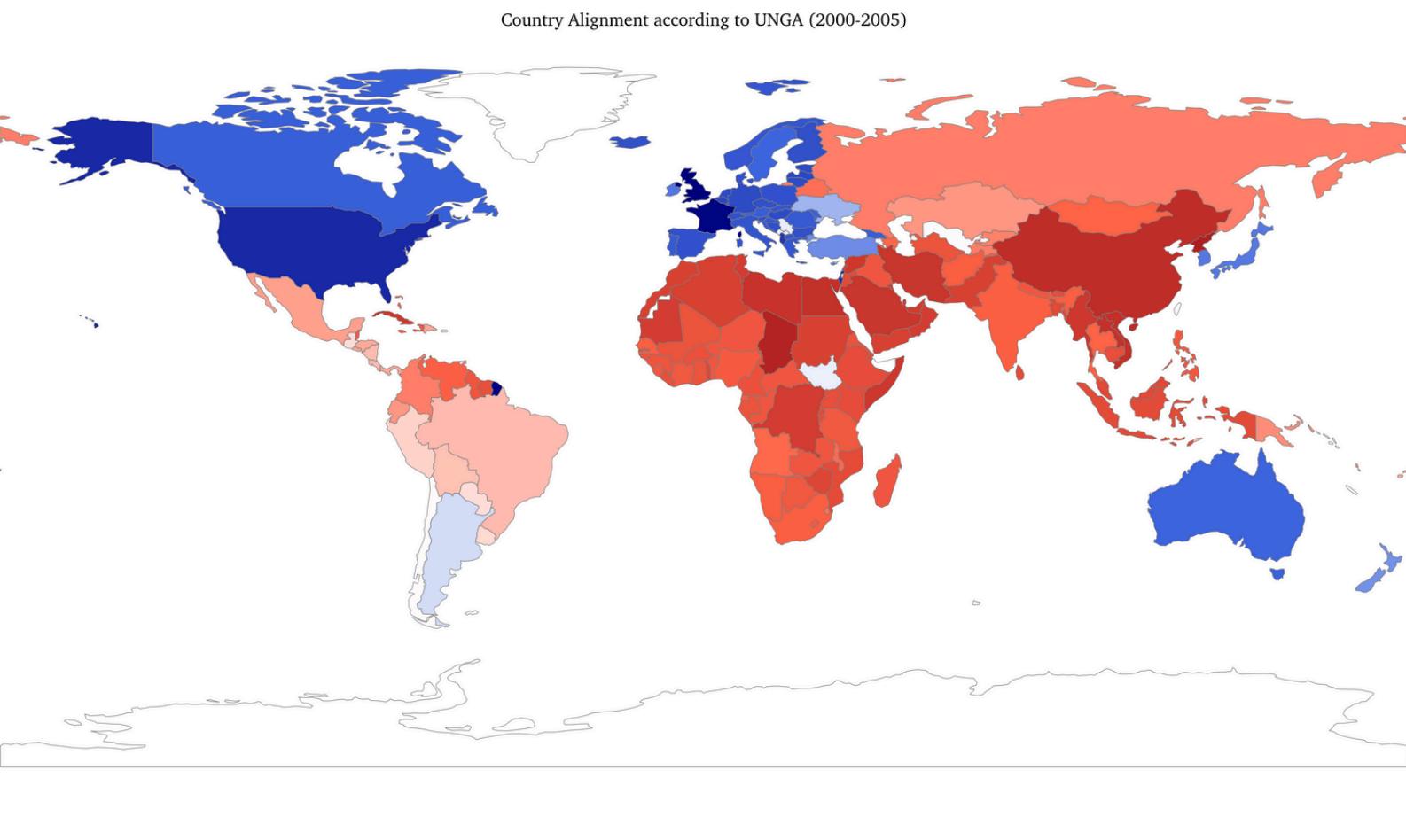
The final Geopolitical Affinity values we have calculated for each country have been normalized into a scale between 1 and 0.

Geopolitical Affinity Proxy

Country	U.S. Similarity	UK Similarity	France Similarity	China Similarity	Russia Similarity	Western Similarity	Eastern Similarity	Position
Afghanistan	0.31	0.46	0.45	0.75	0.56	0.455	0.655	-0.2
Albania	0.73	0.91	0.89	0.51	0.52	0.9	0.515	0.385
Algeria	0.23	0.36	0.37	0.79	0.63	0.365	0.71	-0.345
Andorra	0.71	0.88	0.86	0.51	0.5	0.87	0.505	0.365
Angola	0.24	0.42	0.41	0.79	0.66	0.415	0.725	-0.31
Antigua and Barbuda	0.36	0.5	0.49	0.71	0.53	0.495	0.62	-0.125
Argentina	0.41	0.55	0.53	0.72	0.6	0.54	0.66	-0.12
Armenia	0.48	0.62	0.6	0.71	0.73	0.61	0.72	-0.11
Australia	0.76	0.89	0.87	0.49	0.48	0.88	0.485	0.395

Position = (Western Similarity - Eastern similarity)

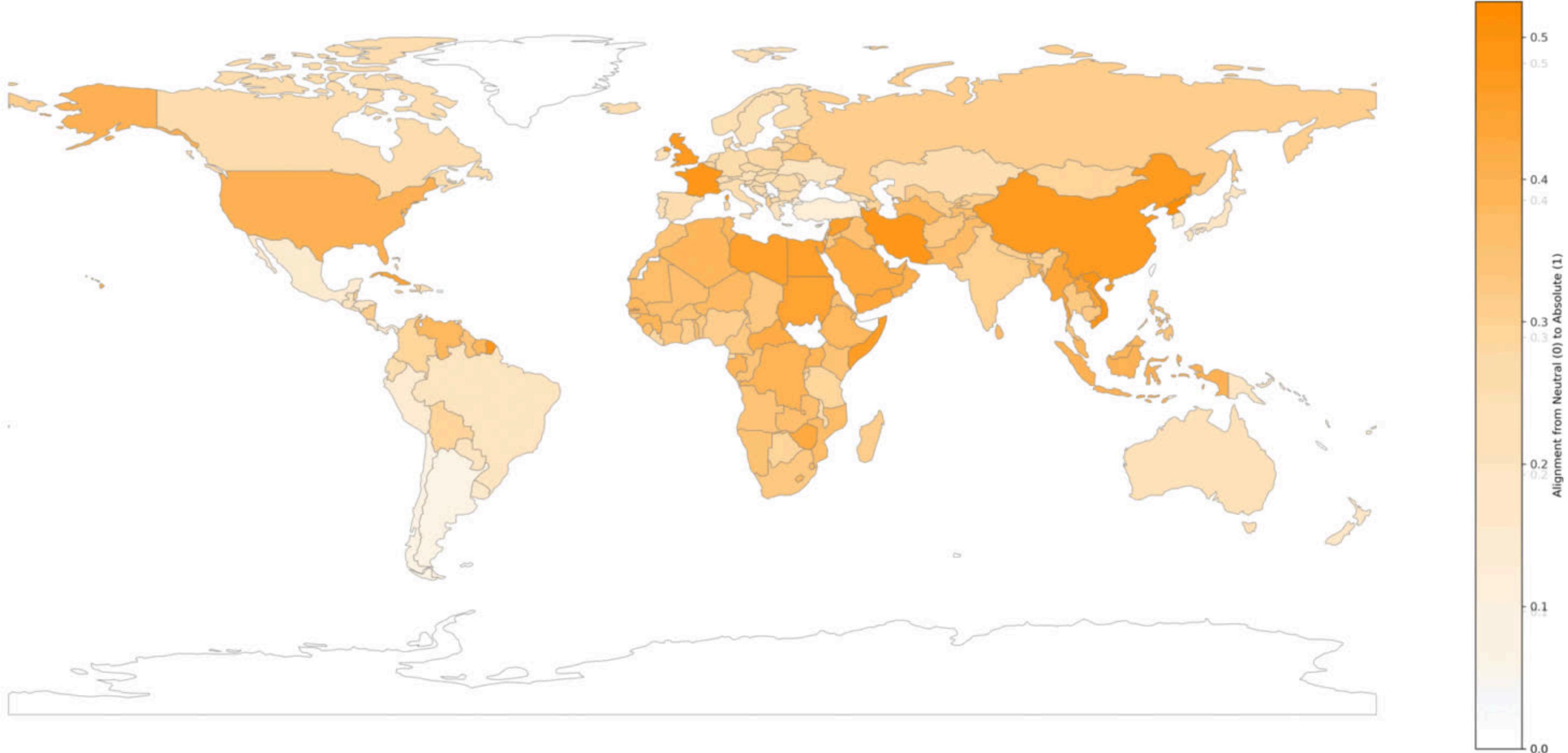




Absolute Affinity to Either Side by UNGA

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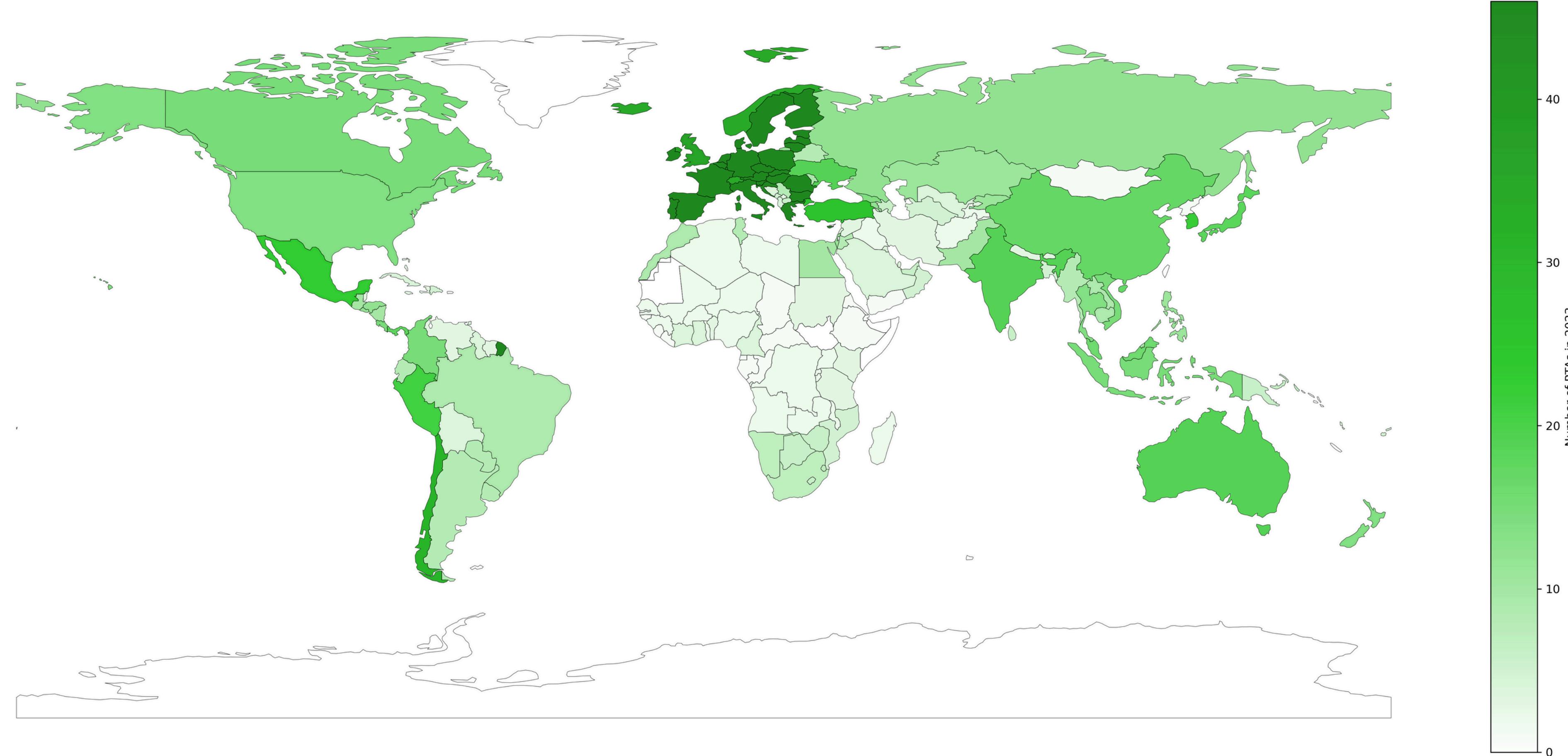
Absolute Affinity to Either Side by UNGA (2005-2010)



Cumulative Number of RTAs by Country in 2023

13

Cumulative Number of Regional Trade Agreements by Country in 2023



METHODOLOGY FOR REGRESSION

GEOECONOMIC FRAGMENTATION-RELATED VARIABLES

Financial:

- FDI
- Portfolio Flows

GEOPOLITICAL FRAGMENTATION-RELATED VARIABLES

Directly Political:

- United Nations General Assembly (UNGA) Position
- Military Spending/GDP
- Political Stability & Absence of Violence Index

OTHER VARIABLES

Other:

- Migrant population as a share of the total population of a country (measured in 5-year time intervals)
- Health Expenditure/GDP

Trade:

- OPT (The fraction of One-Way Preferential Trade Agreement)
- TPT (The fraction of Two-Way Preferential Trade Agreements)
- FT (The fraction of Free Trade Agreements)
- CU (The fraction of Customs Unions)
- EU (The fraction of Economic Unions)
- Applied Tariff Rate
- RTA (number of cumulative RTA agreements)

Political via Trade Policies:

- WTO Membership
- MATR or Measure of Aggregate Trade Restrictions
 - (An unweighted sum of numerous binary variables that are related to trade restrictions but, due to their nonmonetary nature, very difficult to measure within a continuous interval)

Additional Macro Indicators:

[Sachs et al. (1982)]

- GDP
- GDP Growth
- Population Growth
- Real Interest Rate
- Deposit Rate
- Exchange Rate
- Inflation

To Capture Possible Structural Breaks of the Crises via Time Dummies:

- Time Dummy for the years 2008 to 2010
- Time Dummy for the years 2010 to 2015
- Time Dummy for the years 2019 to 2020

Justification of the Estimation Method

- Literature assuming linearity in parameters
- Ordinary Least Squares (OLS)
- Gauss-Markov (G-M) assumptions → BLUE
- Multicollinearity
- *correlations
- *Variance Inflation Factor (VIF)
- Residual autocorrelation
- *Durbin-Watson (DW) test
- Residual heteroskedasticity
- Breusch-Pagan (BP) test → Justifies G-M

$$\begin{aligned}
TradeFlow = & \beta_0 + \beta_1 UNGA + \beta_2 FDI + \beta_3 PortfolioFlows + \beta_4 Tariff + \beta_5 RTA + \beta_6 WTO + \beta_7 MATR + \beta_8 OPT + \beta_9 TPT \\
& + \beta_{10} FT + \beta_{11} CU + \beta_{12} EU + \beta_{13} MilitarySpending + \beta_{14} MigrantPopulation + \beta_{15} HealthExpenditure + \\
& \beta_{16} GDP + \beta_{17} GDPGrowth + \beta_{18} PopulationGrowth + \beta_{19} RealInterestRate + \beta_{20} DepositRate + \\
& \beta_{21} ExchangeRate + \beta_{22} Inflation + \beta_{23} PoliticalStability + \beta_{24}(Time Dummy 2008-2010) + \beta_{25}(Time Dummy \\
& 2010-2015) + \beta_{26}(Time Dummy 2019-2020) + \varepsilon
\end{aligned}$$

Model 1

Years: 2000 – 2020

Including independent variables:

- Trade flow
- UNGA
- FDI
- Portfolio Flows
- Applied Tariff Rate
- RTAs (cumulative)
- WTO membership
- MATR
- Annual GDP
- Annual GDP growth
- Annual population growth
- Annual real interest rate
- Annual deposit rate
- Annual exchange rate
- Annual inflation
- Annual political stability index
- Time dummies for 2008-2010, 2010-2015, and 2019-2020

Model 2

Years: 2000 – 2020

Value added to model 1
(independent variables):

- Military spending
- Health expenditure
- Migrant population

Model 3

Years: 2000 – 2017

Value added to model 2
(independent variables):

- One-Way Preferential Trade A.
- Two-Way Preferential Trade A.
- Free Trade Agreement
- Economic Union
- Customs Union

we included all 26 of our variables to closely examine the impact of economic integration agreements (OTP, TPT, FT, EU, and CU)

Results

Table 1 - RTAs

	Dependent Variable: RTA (Cumulative)		
	Model 1	Model 2	Model 3
UNGA	30.1299	31.759	10.8631
Trade Flow	0.0772***	0.09138***	0.0342***
FDI	2.1859***	1.9542***	1.6972***
Portfolio Flows	2.8364***	-4.4871***	4.0224***
Tariff	0.0848**	0.09**	-0.6492**
WTO Membership	-1.8627	-1.6732	8.3626
One-Way Preferential Trade			17.6301
Two-Way Preferential Trade			135.0517
Free Trade Agreement			1.7739
Customs Union			84.2258
Economic Union			1.6769
Military Spending			-236.14
MATR	0.0687***	0.1555***	0.1302***
Migrant Population			0.099***
Health Expenditure			-2.8175
GDP	7.0835***	1.9029***	5.0791***
GDP Growth	-0.6678*	-0.4456**	-0.0125**
Population Growth	-1.9658	-1.2126	-0.4269
Real Interest Rate	0.04537***	0.2096***	0.041***
Deposit Rate	0.0056***	-0.4097***	0.2039***
Exchange Rate	-0.0012***	0.0063***	0.0038***
Inflation	-0.6592***	-0.4381***	-0.3193***
Political Stability	6.2061	-5.2667	1.5075
2008-2010	2.5727	2.4959	1.6545
2010-2015	5.8217	2.2785	0.5094
2019-2020	7.0003	8.2845	
R-squared	0.66128	0.76982	0.81825

Note: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

UNGA	10.8631
Trade Flow	0.0342***
FDI	1.6972***
Portfolio Flows	4.0224***
Tariff	-0.6492**
Migrant Population	0.1178***

One-Way Preferential Trade	17.6301
Two-Way Preferential Trade	135.0517
Free Trade Agreement	1.7739
Customs Union	84.2258
Economic Union	1.6769

- **Bidirectional relationship between RTA formation and trade flows, with increases in trade flow positively influencing RTA formation by 0.03 percentage points.**
- Despite insignificant coefficients, economic integration agreements may still contribute to geoeconomic fragmentation (RTA formation) with positive coefficients, underscoring their role in shaping regional trade dynamics.
- **UNGA's insignificant impact on trade flows suggests a lack of potential geopolitical influences on RTA formation (geoeconomic fragmentation).**

Results

Table 2 - UNGA (Absolute Term)

	Dependent Variable: UNGA (absolute)		
	Model 1	Model 2	Model 3
<i>Trade Flow</i>	-0.0001***	6.765***	-0.0002***
<i>FDI</i>	1.0676***	7.3269***	2.3765***
<i>Portfolio Flows</i>	2.9748***	4.5841***	7.3796**
<i>Tariff</i>	0.0095**	0.0083**	0.0115**
<i>RTA (Cumulative)</i>	0.0014***	0.0015***	0.0007***
<i>WTO Membership</i>	-1.0842	3.0578	-5.1434
<i>One-Way Preferential Trade</i>			0.541
<i>Two-Way Preferential Trade</i>			0.6814
<i>Free Trade Agreement</i>			0.267
<i>Customs Union</i>			-1.7641
<i>Economic Union</i>			-2.5946
<i>Military Spending</i>		2.0079	2.4621
<i>MATR</i>	0.0007***	-0.0004***	0.0028**
<i>Migrant Population</i>		-0.0021***	0.0006***
<i>Health Expenditure</i>		0.0147	0.0105*
<i>GDP</i>	2.5866***	1.925***	-2.025***
<i>GDP Growth</i>	0.0016**	0.0022**	0.0011**
<i>Population Growth</i>	-0.0001	0.0073	0.0183
<i>Real Interest Rate</i>	-0.0032***	-0.0042***	-0.0042***
<i>Deposit Rate</i>	-0.0064***	-0.0043***	-0.0037***
<i>Exchange Rate</i>	-3.7693***	-5.6465***	-4.6133***
<i>Inflation</i>	0.0045***	0.0039***	0.0039***
<i>Political Stability</i>	0.0142	0.0107	0.0507
<i>2008-2010</i>	-0.0203	-0.0169	-0.0257
<i>2010-2015</i>	0.0217	0.0297	-0.0084
<i>2019-2020</i>	-0.0163	-0.0235	
<i>R-squared</i>	0.51807	0.55009	0.62585

Note: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

<i>Trade Flow</i>	-0.0002***
<i>FDI</i>	2.3765***
<i>Portfolio Flows</i>	7.3796***
<i>Tariff</i>	0.0115**
<i>RTA (Cumulative)</i>	0.0007***
<i>Migrant Population</i>	0.0006***

<i>One-Way Preferential Trade</i>	0.541
<i>Two-Way Preferential Trade</i>	0.6814
<i>Free Trade Agreement</i>	0.267
<i>Customs Union</i>	-1.7641
<i>Economic Union</i>	-2.5946

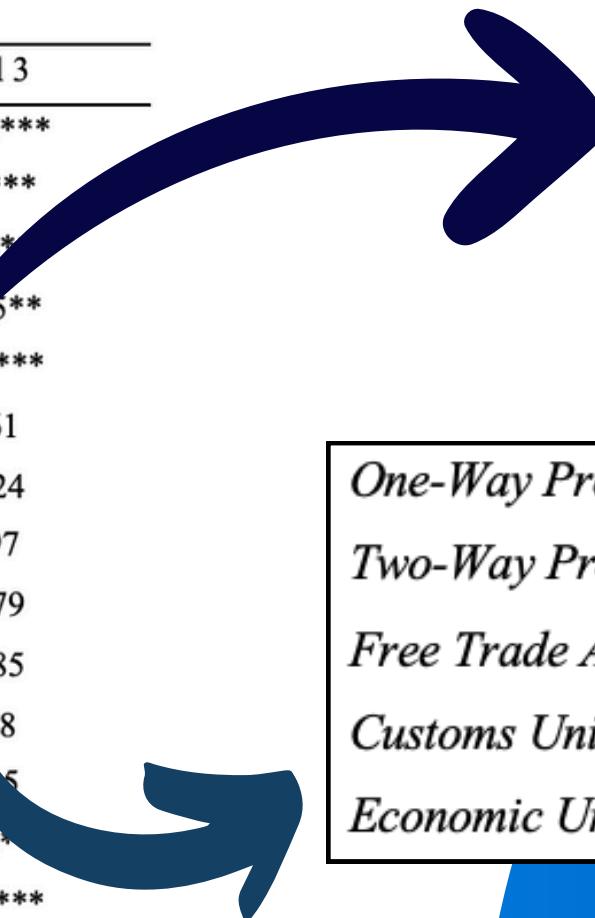
- The significant coefficient for RTA suggests a minor impact of geoeconomic fragmentation on geopolitical fragmentation.
- Increasing FDI and portfolio flows correlate with higher geopolitical fragmentation.
- While economic integration agreements like OTP and TPT contribute positively to geopolitical fragmentation. Conversely, customs unions and economic unions mitigate it.

Results

Table 3 - UNGA

	Dependent Variable: UNGA		
	Model 1	Model 2	Model 3
<i>Trade Flow</i>	-0.0016***	-0.0015***	-0.0016***
<i>FDI</i>	1.6867***	1.1894***	4.222***
<i>Portfolio Flows</i>	-9.1685***	-2.798***	-1.7164*
<i>Tariff</i>	-0.0205**	-0.0232**	-0.025**
<i>RTA (Cumulative)</i>	0.0077***	0.0099***	0.0048***
<i>WTO Membership</i>			7.1561
<i>One-Way Preferential Trade</i>			-0.9324
<i>Two-Way Preferential Trade</i>			1.3197
<i>Free Trade Agreement</i>			-0.6679
<i>Customs Union</i>			-8.1485
<i>Economic Union</i>			-3.148
<i>Military Spending</i>		12.0576	2.315
<i>MATR</i>	-0.0068***	-0.0092***	-0.0046*
<i>Migrant Population</i>			0.0025***
<i>Health Expenditure</i>		0.0494	0.0361*
<i>GDP</i>	4.9717***	2.5766***	-2.3263***
<i>GDP Growth</i>	0.0042**	0.0046**	0.0087**
<i>Population Growth</i>	-0.1004	-0.0759	-0.0425
<i>Real Interest Rate</i>	0.0004***	-0.0029***	0.0008***
<i>Deposit Rate</i>	-0.0084***	-0.0002***	-0.0037***
<i>Exchange Rate</i>	7.7694***	-2.3464***	-1.8355***
<i>Inflation</i>	0.0099***	0.0074***	0.009***
<i>Political Stability</i>	0.1949	0.1849	0.0156
<i>2008-2010</i>	-0.0262	-0.0242	-0.0187
<i>2010-2015</i>	-0.0723	-0.0363	-0.0837
<i>2019-2020</i>	-0.0972	-0.1314	
<i>R-squared</i>	0.8273	0.8556	0.88835

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$



<i>Trade Flow</i>	-0.0016***
<i>FDI</i>	4.222***
<i>Portfolio Flows</i>	-1.7164***
<i>Tariff</i>	-0.0375**
<i>RTA (Cumulative)</i>	0.0048***
<i>Migrant Population</i>	0.0025***

<i>One-Way Preferential Trade</i>	-0.9324
<i>Two-Way Preferential Trade</i>	1.3197
<i>Free Trade Agreement</i>	-0.6679
<i>Customs Union</i>	-8.1485
<i>Economic Union</i>	-3.148

- RTA significantly influences geopolitical alignment towards the Western bloc.
- FDI increases shift countries towards the Western bloc, while portfolio flows push towards the Eastern bloc.
- Tariff reductions also affect geopolitical alignment towards the Western bloc.
- Migrant population growth impacts alignment towards the Western bloc.
- Economic integration agreements have mixed effects on geopolitical alignment.

Results

Table 4 - Trade Flow

	Dependent Variable: Trade Flow		
	Model 1	Model 2	Model 3
UNGA	-191.085	-118.1656	-160.0354
FDI	-3.6239***	3.97***	5.1614***
Portfolio Flows	6.7278***	4.8548***	-11.3663**
Tariff	-8.2302**	-2.3889**	1.5276***
RTA (Cumulative)	2.2103***	2.2064***	-1.8885
WTO Membership	-5.0013	2.2179	-37.2488
One-Way Preferential Trade			210.0557
Two-Way Preferential Trade			-124.1977
Free Trade Agreement			-171.448
Customs Union			-2.3059
Economic Union			2128.6248
Military Spending		3185.9105	0.9803***
MATR	-0.223***	1.1613***	0.8135***
Migrant Population			1.3408***
Health Expenditure		-11.8007	-9.7331*
GDP	-4.2825***	-9.1476***	-1.312***
GDP Growth	3.4882**	-0.0992**	1.6556**
Population Growth	0.6342	0.3681	-9.8994
Real Interest Rate	1.5133***	0.7035***	1.2833***
Deposit Rate	-5.0864***	-2.7452***	-2.4111***
Exchange Rate	0.0257***	0.0007***	0.0233***
Inflation	3.1638***	1.1063***	1.6842***
Political Stability	78.563	65.2089	59.9444
2008-2010	5.3801	-6.5259	-10.5478
2010-2015	-16.7738	-7.64893	-12.3518
2019-2020	-31.8118	-22.7937	
R-squared	0.83306	0.90435	0.884713

Note: *p<0.05 ; **p<0.01 ; ***p<0.001

UNGA	-118.1656
FDI	3.97***
Portfolio Flows	4.8548***
Tariff	-2.3889**
RTA (Cumulative)	2.2064***
Migrant Population	0.8135***

- FDI significantly boosts trade flow, facilitating cross-border transactions and economic integration.
- Portfolio flows similarly enhance trade flow, while higher tariff levels impede trade flow.
- **RTA formation unexpectedly increases trade flow by 2.2 percentage points, defying expectations.**
- Some regional economic agreements notably impact trade flow, hinting at their significant role.
- **The lack of UNGA influence suggests that geopolitical factors may not dominantly affect trade dynamics.**

Results

Table 5 - Military Spending

	Dependent Variable: Military Spending		
	Model 1	Model 2	Model 3
<i>Trade Flow</i>	7.9021***	3.6064***	2.8212***
<i>FDI</i>	-9.8611***	-2.4694***	2.5599***
<i>Portfolio Flows</i>	-3.1013***	-4.8727***	-5.4849***
<i>Tariff</i>	-0.0003**	0.0002**	0.0006*
<i>RTA (Cumulative)</i>	-0.0003***	-0.0003***	-0.0001***
<i>WTO Membership</i>	1.442	-7.752	-2.782
<i>One-Way Preferential Trade</i>			0.0011
<i>Two-Way Preferential Trade</i>			-0.0115
<i>Free Trade Agreement</i>			0.00386
<i>Customs Union</i>			0.202
<i>Economic Union</i>			-5.4966
<i>UNGA</i>	0.0078	0.0105	0.0033
<i>MATR</i>	-9.9337***	0.0001***	0.0001***
<i>Migrant Population</i>		0.0004***	0.0004***
<i>Health Expenditure</i>		-0.0018	-0.0018*
<i>GDP</i>	-1.5612***	-1.3243***	-6.2447***
<i>GDP Growth</i>	0.0003**	0.0001**	6.5262**
<i>Population Growth</i>	-9.0269	-0.001	-0.0006
<i>Real Interest Rate</i>	0.0001***	0.0002***	0.0002***
<i>Deposit Rate</i>	-0.0003***	-0.0005***	-0.0003***
<i>Exchange Rate</i>	5.9437***	6.1214***	5.772***
<i>Inflation</i>	0.0001***	0.0002***	6.2743***
<i>Political Stability</i>	-0.0037	-0.0042	-0.0032
<i>2008-2010</i>	0.0017	0.0008	0.0002
<i>2010-2015</i>	-0.0013	-0.0016	-0.001
<i>2019-2020</i>	0.0027	0.0034	
<i>R-squared</i>	0.78528	0.86361	0.87424

Note: *P<0.05 ; **p<0.01 ; ***p<0.001

<i>Trade Flow</i>	2.8212***
<i>FDI</i>	2.5599***
<i>Portfolio Flows</i>	-5.4849***
<i>Tariff</i>	0.0006**
<i>RTA (Cumulative)</i>	-0.0001***
<i>Migrant Population</i>	0.0004***

<i>WTO Membership</i>	-2.782
<i>UNGA</i>	0.0033

- Trade flow & FDI positively correlate with military spending, indicating economic and financial impact on defense priorities.
- **The migrant population significantly and positively correlates with military spending increase, highlighting demographic effects on security and trade policies.**
- Increased portfolio flows are associated with a significant military spending decrease, signaling a shift in resource allocation.
- Marginal decrease in military spending via RTA formation reflects the impact of geoeconomic fragmentation.
- UNGA alignment correlates with increased military spending for the Western Bloc alignment.
- WTO membership is associated with decreased military spending due to trade regulations.

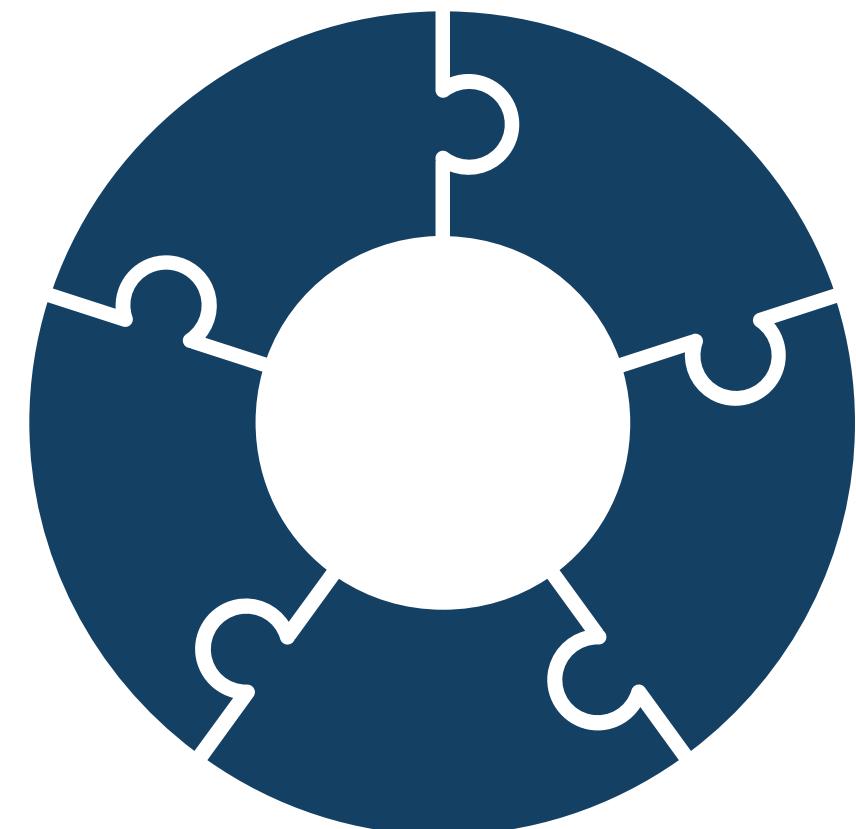
THEORETICAL DISCUSSIONS

LIBERAL THEORY SUPPORTS THE RESEARCH:

- RTA increase leads to UNGA votes being more fragmented
- RTA increase leads to decrease in military spending

LIBERAL THEORY DOES NOT SUPPORT THE RESEARCH:

- trade flow, FDI, portfolio flows and GDP having a positive effect on RTAs



GEOECONOMIC FRAGMENTATION LEADS TO GEOPOLITICAL FRAGMENTATION DUE TO THE DISTURBANCES IN INTERNATIONAL ECONOMIC STABILITY.

CONCLUSION & FUTURE RESEARCH

- positive causal relationship between geoeconomic and geopolitical fragmentation.
- policy makers, international organizations, international corporations.
- focus on the economic integration agreements (OTP, TPT, FT, CU, and EU) that closely impact geoeconomic fragmentation in certain regions with further econometric analysis.



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THANK YOU

FOR YOUR ATTENTION AND COOPERATION

