# THE INFLUENCE OF GLOBALIZATION ON GDP GROWTH IN EASTERN EUROPE

THOMAS L. AINSCOUGH
School of Marketing & Innovation
Muma College of Business
University of South Florida
140 Seventh Avenue South, Saint Petersburg, Florida 33701
UNITED STATES
tlainsco@usf.edu https://www.usf.edu/

*Abstract:* This study examines the impact of economic, political, and social dimensions of globalization on GDP growth in 18 Eastern European countries from 1999 to 2019. Using a Fixed Effects (FE) model with quadratic terms, it captures both linear and nonlinear relationships, with a notable finding of a U-shaped relationship between Trade De Jure Globalization and GDP growth. This suggests that while early stages of trade policy liberalization may reduce growth, significant gains emerge at higher integration levels. The analysis reveals that, although trade activities contribute positively to GDP growth, financial integration appears to exert downward pressure, potentially reflecting the challenges Eastern European economies face in adjusting to financial liberalization. These results underscore the complexity of globalization's effects on economic performance in the region and the importance of considering both the nature and depth of globalization when formulating policy.

*Key-Words:* - Globalization, Economic Growth, Eastern Europe, Panel Data, Fixed Effects Model.
*JEL Classification*: - F43, F63, O52, C23

## 1. Introduction

Globalization has been a significant driver of economic, political, and social change worldwide, particularly influencing countries transitioning to market-oriented economies. It involves the intensification of cross-border interactions and the integration of economies, cultures, and governance structures (Stiglitz, 2002). Understanding how different dimensions of globalization impact economic growth is crucial, especially for Eastern European countries that have undergone significant transformations since the late 20th century.

Eastern Europe presents a unique case for analysis due to its transition from centrally planned economies to market-based systems. The region has experienced varying degrees of economic development, institutional reforms, and integration into the global economy. While globalization has the potential to stimulate growth through increased trade, investment, and technological diffusion, it may also pose challenges related to financial volatility and institutional capacity.

This study examines the impact of various dimensions of globalization—trade, financial, interpersonal, informational, cultural, and political—on GDP growth in 18 Eastern European countries from 1999 to 2019. By utilizing a Fixed Effects (FE) regression model with quadratic terms, the research captures both linear and nonlinear relationships while addressing methodological concerns such as cross-sectional dependence and multicollinearity. The distinction between de facto (actual flows) and de jure (policies facilitating flows) measures of globalization provides a nuanced understanding of how different facets influence economic performance.

## 2. Problem Formulation

While globalization's impact on economic growth is widely recognized, the differentiated effects of its various dimensions—economic, political, social, and cultural—remain under-examined in the context of Eastern European economies transitioning to market-oriented systems. Specifically, there is a need to disentangle the de facto (actual flows) and de jure (policies facilitating flows) components within these dimensions to capture both the tangible cross-border interactions and the regulatory frameworks that shape globalization's influence on GDP growth. This study investigates these complex interactions across 18 Eastern European countries from 1999 to

2019, employing a model that captures both linear and nonlinear relationships. By examining these multifaceted impacts, this research seeks to provide policy-relevant insights into how Eastern European economies can balance the benefits of globalization with the risks posed by rapid integration.

# 3. Literature Review

## 3.1 Trade Globalization

Trade globalization is a key driver of economic growth, facilitating market access and enabling countries to specialize based on comparative advantage. De facto trade globalization, referring to actual trade flows, has been linked to enhanced economic performance. Frankel and Romer (1999) demonstrated that increased international trade positively affects GDP growth. In Eastern Europe, Fidrmuc (2003) found that greater trade volumes allowed countries to access larger markets and import advanced technologies, boosting economic growth.

De jure trade globalization involves adopting trade policies and agreements that facilitate international commerce. Baier and Bergstrand (2007) showed that free trade agreements substantially increase trade volumes among member countries, positively impacting economic growth by reducing barriers and improving resource allocation. Hoekman and Djankov (1997) highlighted that policy reforms aligning with international trade standards helped firms improve production quality and expand exports to Western markets. However, while trade integration contributed to economic development, it did not fully address structural challenges needed for long-term competitiveness in Central and Eastern Europe.

## 3.2 Financial Globalization

Financial globalization encompasses the integration of a country's financial system with international markets. De facto financial globalization refers to actual financial flows, including foreign direct investment and cross-border lending. While financial openness can provide capital for investment and spur growth, it also carries risks. Levine (2001) posited that financial integration enhances growth by improving the efficiency of domestic financial markets, which in turn optimizes resource allocation, boosts productivity, and supports long-term economic development. However, Prasad et al. (2003) found that in countries with weak financial systems, financial globalization can increase volatility and susceptibility to crises, negatively affecting growth. Atoyan et al. (2012) observed that Eastern European economies became vulnerable to external shocks due to excessive reliance on foreign capital inflows.

De jure financial globalization involves policies that facilitate financial integration, such as liberalizing capital accounts. Kose et al. (2006) suggest that financial integration can support economic growth by improving capital allocation and enhancing risk-sharing mechanisms**.** Fries and Taci (2005) found that regulatory reforms and alignment with European Union financial standards positively impacted financial sector development in Eastern Europe.

## 3.3 Interpersonal Globalization

Interpersonal globalization pertains to the movement of people across borders and the exchange of ideas and cultures. De facto interpersonal globalization involves actual exchanges, such as migration and tourism, which can have mixed effects on growth. Remittances from migrants can support domestic economies (World Bank, 2020), but the emigration of skilled workers may reduce human capital and hinder growth (Beine et al., 2008b). Docquier and Rapoport (2012) emphasized that brain drain is a concern for Eastern European countries losing skilled labor.

De jure interpersonal globalization involves policies that facilitate or restrict movement. Mayda (2010) demonstrated that open migration policies increase labor mobility, potentially alleviating labor shortages in destination countries, with the implication being that they may exacerbate brain drain in origin countries. Beine, et al. (2008a) provide empirical evidence that policies facilitating emigration can exacerbate brain drain, leading to a negative impact on GDP growth in source countries. Their analysis of 37 developing nations demonstrates that increased migration flows are associated with a reduction in the domestic human capital stock, thereby supporting the hypothesis that emigration-facilitating policies may hinder economic growth.

## 3.4 Informational Globalization

Informational globalization refers to the flow of information and ideas, facilitated by advancements in information and communication technologies (ICT). De facto informational globalization involves actual access

to global information networks The OECD (2015) Digital Economy Outlook highlights that advancements in Information and Communication Technologies (ICT) significantly drive economic growth by fostering innovation and enhancing productivity across various sectors. The report underscores that increased access to global information through ICT adoption enables businesses and governments to implement innovative practices, thereby positively impacting GDP growth. Cieślik and Kaniewska (2004) demonstrate that increased telecommunications infrastructure in Poland was significantly associated with higher regional income levels.

De jure informational globalization encompasses policies promoting ICT infrastructure development. Röller and Waverman (2001) found that supportive telecommunications infrastructure—facilitated by conducive policies—positively impacts economic growth by enhancing connectivity. Rouvinen (2006) noted that supportive ICT policies, such as fostering competition among mobile operators and standardizing technologies, significantly enhance mobile telephony adoption. The study finds that increased connectivity through digital mobile telephony is positively associated with socio-economic factors, including GDP per capita and trade openness, especially in developing countries.

### 3.5 Cultural Globalization

Cultural globalization involves the exchange of cultural practices and ideas. De facto cultural globalization manifests through cultural exchanges, such as the international spread of media and literature. Scott (2006) suggested that agglomerations of creative industries, facilitate dynamic exchanges of expertise, fostering continuous innovation through temporary project-based networks. These localized clusters stimulate the broader creative economy, enhancing productivity and potentially contributing to regional economic growth. The European Commission (2010 argues that cultural exchanges serve as a catalyst for creativity and economic growth by fostering intercultural dialogue and stimulating demand for cultural products across borders. This document highlights the role of cultural and creative industries in driving innovation, supporting knowledge-based economies, and generating spill-over benefits in sectors like tourism and technology.

De jure cultural globalization pertains to policies supporting cultural industries and promoting international collaborations. Throsby (2010) suggests that cultural policies, especially those supporting intellectual property rights, contribute to economic benefits by fostering the creative industries' growth and innovation. By legitimizing culture within economic policy discussions, such policies can encourage sectoral expansion and productivity, positioning the creative economy as a valuable component of national development. UNESCO (2016) highlights the essential role of culture in fostering sustainable urban development, specifically through cultural heritage preservation and creative industries that yield economic benefits. The report asserts that well-crafted cultural policies can promote economic growth by stimulating innovation, drawing tourism, and generating employment opportunities, thus enhancing both urban sustainability and economic resilience.

### 3.6 Political Globalization

Political globalization refers to the increasing interconnectedness of political systems and international governance structures. De facto political globalization involves active participation in international organizations. Alesina and Dollar (2000) demonstrated that countries which politically align with major donor nations or adjust their voting patterns in global organizations like the UN tend to attract higher foreign aid flows. This pattern illustrates how de facto political globalization — manifesting through informal alignment rather than formal memberships or alliances — can increase resource inflows. By receiving aid through these political alignments, recipient countries benefit from economic resources that indirectly promote growth, underscoring the economic advantages of de facto globalization.

De jure political globalization encompasses formal agreements institutionalizing international cooperation. A study by Dreher, et al. (2009) supports the idea that political de facto globalization, specifically through participation in international organizations, can foster economic growth by attracting international investment. The research indicates that temporary membership on the UN Security Council (UNSC) significantly increases the number of World Bank projects a country receives, as major World Bank shareholders use project allocation as a mechanism to encourage alignment with their strategic interests. Campos and Coricelli (2002) suggested that alignment with Western institutions, such as prospective membership in NATO and the EU, contributed to increased investor confidence in Eastern Europe.

## 4 Hypotheses

Based on the literature review, the following hypotheses are formulated:

H1a: Trade De Facto (TradeDF) has a positive effect on GDP growth. Increased actual trade flows enhance economic performance through market access and specialization.
H1b: Trade De Jure (TradeDJ) has a positive effect on GDP growth. Adoption of trade policies facilitates international commerce and efficiency.
H2a: Financial De Facto (FinancialDF) has a negative effect on GDP growth. Actual financial openness can increase volatility in countries with weak financial systems.
H2b: Financial De Jure (FinancialDJ) has a positive effect on GDP growth. Policies promoting financial integration enhance growth through efficient intermediation.
H3a: Interpersonal De Facto (InterpersonalDF) has a negative effect on GDP growth. Emigration of skilled workers may reduce human capital.
H3b: Interpersonal De Jure (InterpersonalDJ) has a negative effect on GDP growth. Policies facilitating emigration may exacerbate brain drain.
H4a: Informational De Facto (InformationalDF) has a positive effect on GDP growth. Access to global information enhances innovation.
H4b: Informational De Jure (InformationalDJ) has a positive effect on GDP growth. Supportive ICT policies promote connectivity and development.
H5a: Cultural De Facto (CulturalDF) has a positive effect on GDP growth. Cultural exchanges stimulate creative industries.
H5b: Cultural De Jure (CulturalDJ) has a positive effect on GDP growth. Cultural policies enhance economic benefits.
H6a: Political De Facto (PoliticalDF) has a positive effect on GDP growth. Participation in international organizations attracts investment.
H6b: Political De Jure (PoliticalDJ) has a positive effect on GDP growth. Political agreements strengthen institutions.

# 5 Methodology

## 5.1 Data Sources

This study employs panel data from 18 Eastern European countries spanning 1999 to 2019. Although complete data was available from 1998, the analysis begins in 1999 to effectively accommodate the lagged GDP growth variable in the model. The dataset concludes in 2019, deliberately excluding 2020 data to avoid potential distortions related to the economic impacts of the COVID-19 pandemic, which could introduce volatility unrelated to the typical dynamics of globalization and economic growth. The countries included are Albania, Belarus, Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, and Ukraine. The dependent variable is the annual GDP growth rate, sourced from the World Bank's World Development Indicators (World Bank, 2021). Independent variables are derived from the KOF Globalisation Index (Gygli et al., 2019), providing de facto (actual flows) and de jure (policies facilitating flows) measures for various dimensions of globalization, including trade, financial, interpersonal, informational, cultural, and political globalization. The structure of the KOF index is shown in the appendix.

## 5.2 Nonlinear Variables and Centering

Exploratory analysis indicated that certain variables might exhibit nonlinear relationships with GDP growth, prompting the inclusion of quadratic terms for selected variables in the Fixed Effects (FE) model. Specifically, squared terms were added for Lagged GDP Growth, Trade De Jure Globalization, and Political De Jure Globalization based on initial data patterns suggesting curvature. These variables were mean-centered before squaring to reduce multicollinearity between the linear and quadratic terms, following Aiken and West's (1991) approach. This centering enables clearer coefficient interpretation and improves the stability of the estimates.

## 5.3 Lagged Variable

To account for persistence in economic growth and mitigate potential autocorrelation, the analysis incorporates a lagged dependent variable, *LagGDPGrowth*, which represents the previous year's GDP growth rate. A quadratic term, *LagGDPGrowthSq* is included to capture possible nonlinear effects of prior growth on current growth, modeling the varying impact of past growth levels on present economic performance.

### 5.4 Fixed Effects

Country-specific fixed effects ($\alpha_i$) and year-specific fixed effects ( $\lambda_t$) are included to control for unobserved heterogeneity across countries and over time. The country fixed effects account for time-invariant characteristics unique to each country, while the year fixed effects capture global shocks or trends affecting all countries simultaneously.

### 5.5 Addressing Cross-Sectional Dependence and Autocorrelation

The Pesaran CD test indicated the presence of cross-sectional dependence (p-value = 0.0048). To address this, Driscoll-Kraay standard errors were used in the fixed effects model which are robust to cross-sectional dependence, heteroskedasticity, and autocorrelation.

### 5.6 Statistical Model

A Fixed Effects (FE) regression model was employed to control for unobserved heterogeneity across countries and over time. The FE model specification is as follows:

$$(1)\ GDPGrowth_{it} = \alpha_i + \lambda_t + \beta_1 LagGDPGrowth_{it} + \beta_2 LagGDPGrowthSq_{it} + \sum_{k=3}^{K} \beta_k X_{kit} + \epsilon_{it}$$

**where:**

$GDPGrowth_{it}$ is the GDP growth rate of country *i* at time *t*.
$\alpha_i$ represents country-specific fixed effects.
$\lambda_t$ represents year-specific fixed effects.
$LagGDPGrowth_{it}$ is the lagged GDP growth rate.
$LagGDPGrowthSq_{it}$ is the mean centered square of the lagged GDP growth rate.
$X_{kit}$ are the globalization variables and their squared terms where applicable.
$\beta_k$ are the coefficients to be estimated.
$\epsilon_{it}$ is the error term.

## 6 Results and Discussion

The results indicate that LagGDPGrowth, TradeDJ, TradeDJSq, and FinancialDF have significant effects on GDP growth. Specifically, the positive coefficient for LagGDPGrowth suggests economic momentum, while the negative coefficient for TradeDJ alongside the positive coefficient for TradeDJSq indicates a U-shaped relationship between Trade De Jure Globalization and GDP growth—a key finding. The marginal significance of PoliticalDJ points to a potential positive impact of Political De Jure Globalization, whereas FinancialDF negatively affects GDP growth, highlighting the adverse effects of Financial De Facto Globalization. All other variables included in the model were found to be not significant, as summarized in the "Other Variables" row of Table 1.

**Table 1: Fixed Effects Model Results**

| Variable | Coefficient | Std. Error | t-value | p-value | Significance |
|---|---|---|---|---|---|
| LagGDPGrowth | 0.222 | 0.075 | 2.950 | 0.0079 | Significant |
| TradeDJ | -0.467 | 0.173 | -2.698 | 0.0138 | Significant |
| TradeDJSq | 0.0036 | 0.0014 | 2.621 | 0.0164 | Significant |
| PoliticalDJ | 0.476 | 0.253 | 1.880 | 0.0748 | Marginally significant |
| FinancialDF | -0.084 | 0.034 | -2.413 | 0.0256 | Significant |
| Other Variables | — | — | — | — | Not significant |
| R-squared | 0.62 | | | | |
| Adj R-squared | 0.56 | | | | |
| Within R-squared | 0.19 | | | | |

*Note: $p < 0.05$ (Significant), $p < 0.10$ (Marginally significant)*

### 6.1 Interpretation of Significant Results

#### 6.1.1 LagGDPGrowth

As expected, the positive and significant coefficient for the lagged GDP growth ($\beta = 0.222$, p = 0.0079) suggests that prior economic growth positively influences current growth rates. This reflects an economic

momentum effect, where previous growth increases the likelihood of continued growth. The quadratic term was not significant.

#### 6.1.2 TradeDJ and TradeDJSq

The negative coefficient for Trade De Jure Globalization ($\beta$ = -0.467, p = 0.0138) alongside a positive squared term ($\beta$ = 0.0036, p = 0.0164) reveals a U-shaped relationship between trade policy liberalization and GDP growth. Early stages of trade policy adjustments may negatively impact GDP growth due to transitional costs. However, further liberalization eventually yields positive effects as increased trade flows and market integration benefits take effect.

#### 6.1.3 FinancialDF

The negative and significant coefficient for Financial De Facto Globalization ($\beta$ = -0.084, $p$ = 0.0256) implies that actual financial openness adversely affects GDP growth. This may be attributed to increased vulnerability to external financial shocks and volatility, especially in economies with less developed financial systems and regulatory frameworks.

#### 6.1.4 PoliticalDJ

The positive coefficient for Political De Jure Globalization ($\beta$ = 0.476, $p$ = 0.0748) though marginally significant, suggests potential benefits of political globalization policies for GDP growth. Despite not being statistically significant at the 5% level, this indicates that political integration can foster growth by improving institutional quality and attracting foreign investment.

#### 5.1.5 Other Variables

The remaining globalization dimensions—Interpersonal, Informational, and Cultural Globalization—did not exhibit significant effects on GDP growth within this study. This suggests that these dimensions may not have a direct impact on economic performance in the Eastern European context during the period analyzed.

### 6.2 Hypotheses Testing

Hypothesis H1b: Trade De Jure Globalization (TradeDJ) positively influences GDP growth. This hypothesis is partially supported. The U-shaped relationship indicates that initial increases in TradeDJ may negatively impact GDP growth, but beyond a certain level, the effect becomes positive.
Hypothesis H2a: Financial De Facto Globalization (FinancialDF) negatively influences GDP growth. This hypothesis is supported, as FinancialDF has a negative and significant coefficient.
Hypothesis H6b: Political De Jure Globalization (PoliticalDJ) positively influences GDP growth. This hypothesis is marginally supported, given the positive coefficient and marginal significance of PoliticalDJ.
Other Hypotheses: The remaining hypotheses are not supported, as the corresponding variables are not statistically significant.

The significant negative coefficient of TradeDJ and the positive coefficient of TradeDJSq confirm a U-shaped relationship between Trade De Jure Globalization and GDP growth. This suggests that at lower levels of trade policy liberalization, the impact on GDP growth is negative, possibly due to the costs associated with adjusting to new trade regimes and initial market disruptions. However, as trade policies become more liberalized beyond a certain point, the positive effects emerge, leading to enhanced GDP growth. This reflects the benefits of increased market access, economies of scale, technology transfer, and foreign investment that come with deeper integration into the global economy.

## 7. Policy Implications

The findings of this study offer valuable policy implications for Eastern European countries seeking to maximize globalization benefits. The negative impact of Financial De Facto Globalization on GDP growth suggests that policymakers should exercise caution when liberalizing financial markets. Strengthening financial institutions and implementing robust regulatory frameworks are essential to mitigate the risks associated with financial openness, such as exposure to external shocks and financial crises. By enhancing the resilience of the financial sector, countries can better manage capital flows and protect their economies from volatility.

The U-shaped relationship between Trade De Jure Globalization and GDP growth underscores the importance of strategic implementation of trade policies. Policymakers should be aware that initial liberalization

may entail adjustment costs and challenges, such as industry restructuring and increased competition for domestic firms. To navigate these challenges, governments should provide support mechanisms, including retraining programs, subsidies for affected industries, and investments in infrastructure. As trade policies mature and integration deepens, the positive effects on GDP growth become more pronounced. Therefore, sustained commitment to trade liberalization, coupled with supportive domestic policies, can enhance economic performance.

The marginally significant positive effect of Political De Jure Globalization indicates that political integration and cooperation may contribute to economic growth. Policymakers should continue to pursue international agreements and align domestic institutions with global standards. Engagement in international organizations and adherence to international norms can enhance institutional quality, promote stability, and attract foreign investment.

For other dimensions of globalization, such as Interpersonal, Informational, and Cultural Globalization, which did not show significant effects on GDP growth in this study, policymakers should note that these dimensions may not directly influence economic performance within this specific context. However, policies promoting these aspects might still yield substantial indirect benefits in other areas, for example contributing to quality of life, social cohesion, technological advancement, and cultural enrichment. Such non-economic impacts are valuable for broader social progress and integration, even if their effects on GDP growth are not directly measurable.

In summary, Eastern European countries should adopt a balanced approach to globalization. Careful management of financial openness, strategic implementation of trade policies, and active participation in political globalization can optimize the benefits of globalization and promote sustainable economic growth.

# 8. Conclusion

This study provides a comprehensive analysis of the impact of various dimensions of globalization on GDP growth in Eastern Europe, utilizing a Fixed Effects model to capture both linear and nonlinear relationships. The findings highlight the complexity of globalization's effects on economic performance in the region. The negative impact of Financial De Facto Globalization confirms the risks associated with financial openness in economies with less developed financial systems. The U-shaped relationship between Trade De Jure Globalization and GDP growth underscores the importance of a phased approach to trade policy, accounting for initial adjustment costs and recognizing the substantial long-term benefits of deeper integration. The marginally significant positive effect of Political De Jure Globalization suggests that political integration may offer potential growth benefits, meriting further examination.

These results emphasize the need for policymakers to carefully manage globalization processes, tailoring strategies to their country's specific context and developmental stage. By addressing the challenges and leveraging the opportunities presented by different dimensions of globalization, Eastern European countries can advance their economic growth and deepen integration into the global economy.

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## Appendix - Structure of the KOF Globalisation Index

| **Globalisation Index, de facto** | **Weights** | **Globalisation Index, de jure** | **Weights** |
|---|---|---|---|
| ***Economic Globalisation*, de facto** Comprised of: | ***33.3*** | ***Economic Globalisation, de jure*** Comprised of: | ***33.3*** |
| *Trade Globalisation,* de facto | *50.0* | *Trade Globalisation, de jure* | *50.0* |
| Trade in goods | 38.8 | Trade regulations | 26.8 |
| Trade in services | 44.7 | Trade taxes | 24.4 |
| Trade partner diversity | 16.5 | Tariffs | 25.6 |
| | | Trade agreements | 23.2 |
| *Financial Globalisation,* de facto | *50.0* | *Financial Globalisation, de jure* | *50.0* |
| Foreign direct investment | 26.7 | Investment restrictions | 33.3 |
| Portfolio investment | 16.5 | Capital account openness | 38.5 |
| International debt | 27.6 | International Investment Agreements | 28.2 |
| International reserves | 2.1 | | |
| International income payments | 27.1 | | |
| ***Social Globalisation*, de facto** Comprised of: | ***33.3*** | ***Social Globalisation, de jure*** Comprised of: | ***33.3*** |
| *Interpersonal Globalisation,* de facto | *33.3* | *Interpersonal Globalisation, de jure* | *33.3* |
| International voice traffic | 20.8 | Telephone subscriptions | 39.9 |
| Transfers | 21.9 | Freedom to visit | 32.7 |

| | | | |
|---|---|---|---|
| International tourism | 21.0 | International airports | 27.4 |
| International students | 19.1 | | |
| Migration | 17.2 | | |
| *Informational Globalisation,* de facto | *33.3* | *Informational Globalisation, de jure* | *33.3* |
| Used internet bandwidth | 37.2 | Television access | 36.8 |
| International patents | 28.3 | Internet access | 42.6 |
| High technology exports | 34.5 | Press freedom | 20.6 |
| *Cultural Globalisation,* de facto | *33.3* | *Cultural Globalisation, de jure* | *33.3* |
| Trade in cultural goods | 28.1 | Gender parity | 24.7 |
| Trade in personal services | 24.6 | Human capital | 41.4 |
| International trademarks | 9.7 | Civil liberties | 33.9 |
| McDonald's restaurant | 21.6 | | |
| IKEA stores | 16.0 | | |
| ***Political Globalisation*, de facto** | ***33.3*** | ***Political Globalisation, de jure*** | ***33.3*** |
| Embassies | 36.5 | International organisations | 36.2 |
| UN peace keeping missions | 25.7 | International treaties | 33.4 |
| International NGOs | 37.8 | Treaty partner diversity | 30.4 |

(Gygli et al., 2019)