

International Organizations  
PSCI 6316

The University of Texas at Dallas  
School of Economic, Political and Policy Sciences

**Expanding the Horizons:**  
Extension of Borzyskowski & Vabulas (2019)

Author: Shreyas Meher  
Instructor: Clint Peinhardt

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## Citation Information

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## Replication

### Introduction

In their research paper, Hello, goodbye: When do states withdraw from international organizations?, Von Borzyskowski and Vabulas (2019) study why and specifically under what conditions do states withdraw from Intergovernmental Organizations (IGOs). Throughout international relations and IGO literature, we look at the determinants of why states join IGOs and act through them. However there exists a gap in knowledge and literature - why does the inverse occur? That is, why do certain states renege on their IGO membership and leave? The authors lay down the foundation of their paper on this unsolved puzzle, and further augment it with real world examples of states leaving prominent IGOs in recent years. They reference the United States withdrawal from UNESCO, United Kingdom's withdrawal from the European Union as a few examples of states pulling out of IGOs. The authors hypothesize that the growth of nationalism in states, poor IGO performance and misaligned goals between the state and IGO along with geopolitics as the main determinants as to why withdrawals might take place.

This paper extends the logistic regression model for rare events by King and Zeng (2001), applied in Von Borzyskowski and Vabulas (2019), with a Bayesian logistic regression approach. This extension is motivated by the Bayesian framework's capacity to incorporate prior information and offer a comprehensive probabilistic interpretation of the model parameters, enhancing the robustness of inference in the context of rare events. Furthermore, I posit that withdrawals from IO's is also influenced by the network connections that a country shares with other countries - operationalized by the number of shared IO's between the two along with the prestige of a nation (measuring centrality). I test these hypotheses using the Bayesian Logit model along with the original Rare Events Logistic regression and find significant effects for both.

### Replication of the Original Study

One of the foundational steps in this research journey was to replicate the results of the original study, ensuring the credibility of the baseline from which I sought extensions. Table 1 below presents the outcome of my replication effort. The research analyzed original data on IGO withdrawals spanning from 1945 to 2014 on a global scale. The dataset incorporated all 493 IGOs from the updated COW IGO dataset. The chosen unit of analysis was the IGO-member state-year, focusing on how the attributes of

countries and organizations influence the withdrawal trend. This choice is consistent with other recent studies on IGO membership dynamics. The dependent variable, termed as "IGO withdrawal", is binary: it's coded as 1 if member state  $m$  opted to withdraw from IGO  $i$  in year  $t$ , and 0 otherwise.

The model employed in the research is represented as:

$$\text{Withdrawal}_{mti} = \beta_0 + \beta_1 \text{Explanatory}_{mti} + X'_{mti}\beta + \epsilon_{mti}, \quad (1)$$

with:

- $\text{Withdrawal}_{mti}$  as the dependent variable.
- $\beta_1$  representing the parameter of interest linked to the main explanatory variables,  $\text{Explanatory}_{mti}$ .
- $X'_{mti}$  being a set of control variables.
- $\epsilon_{mti}$  as the idiosyncratic error.
- The subscripts:  $m$  for member state,  $t$  for year, and  $i$  for intergovernmental organization.

The rare event logit method was employed for model estimation, with robust standard errors clustered on the IGO.

### Results

In the original research, the findings on state withdrawals from IGOs were both intriguing and somewhat unexpected as shown in Table 1. It turned out that domestic political factors, particularly nationalism, did not have the robust influence many might have assumed. The study's statistics showed that more democratic countries had an unexpectedly higher probability of withdrawing from international organizations. Specifically, an uptick in a nation's democracy score was linked to a 55% increase in the likelihood of it stepping back from these global commitments. This surprising result, especially against the backdrop of presumed democratic stability and commitment to international agreements, suggested a more complex interplay at play within democratic nations. Even traditional bastions of democracy like the United States, Canada, and the United Kingdom were not immune to this trend, often choosing to exit from these international groups.

Interestingly, the characteristics of the IGOs themselves were also a mixed bag when it came to influencing withdrawal decisions, although the average democracy score of the organizations did stand out as a significant factor. From a geopolitical perspective, the data provided solid backing for the importance of state preference divergence and the concept of contagion in these decisions. This adds a layer of complexity to the understanding of global politics and the decision-making processes behind the maintenance or cessation of IGO memberships.

Building upon these findings, I embarked on an extension of the study, delving into additional dimensions that might affect a state's decision to withdraw from an IGO. The initial results had piqued my curiosity, especially the democratic conundrum, leading me to consider other, perhaps less explored, avenues that could shed light on the dynamics of international cooperation and its occasional unraveling.

TABLE 1. *STATA - Determinants of IGO Withdrawals*

	(1) Domestic	(2) IGO	(3) Geopolitics	(4) All
Democracy	0.056 (0.029)*			0.060 (0.025)**
Government orientation change	0.333 (0.270)			0.553 (0.301)*
Nationalist	0.090 (0.467)			-0.496 (0.619)
IO institutionalization		0.035 (0.273)		-0.180 (0.334)
IO average democracy score		-0.019 (0.035)		-0.093 (0.039)**
IO issue area politics		-0.063 (0.459)		-0.542 (0.688)
IO issue area economics		0.365 (0.416)		0.511 (0.435)
Preference diversion from IO average			0.950 (0.153)***	1.175 (0.207)***
Contagion			3.348 (0.400)***	3.166 (0.438)***
State power change			-0.701 (0.144)***	-0.911 (0.930)
Membership duration in IO	0.543 (0.385)	-0.074 (0.286)	-0.536 (0.323)*	0.199 (0.568)
IO size	-0.223 (0.234)	-0.412 (0.218)*	-0.606 (0.192)***	-0.645 (0.317)**
Observations	207830	338942	418898	152158
AIC	1456.366	2625.544	2654.137	972.498
BIC	1548.566	2732.880	2752.645	1131.421

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**TABLE 2.** *Zelig - Determinants of IGO Withdrawals*

	Domestic	IGO	Geopolitics	All
Democracy	0.06* (0.03)			0.06* (0.03)
GovmtOrientChange	0.33 (0.31)			0.55* (0.35)
Nationalist	0.09 (0.30)			-0.50 (0.62)
IOMembershipDuration	0.54 (0.45)	-0.07 (0.22)	-0.54* (0.26)	0.20 (0.52)
IOsize	-0.22* (0.11)	-0.41*** (0.08)	-0.61*** (0.08)	-0.65*** (0.32)
Institutionalization		0.04 (0.10)		-0.18 (0.33)
IOavgDemScore		-0.02 (0.04)		-0.09** (0.04)
IOissuePolitics		-0.06 (0.46)		-0.54 (0.69)
IOissueEcon		0.37 (0.42)		0.51 (0.43)
StatePowerChange			-0.70** (0.22)	-0.91 (0.93)
PrefDiversionFromIOavg			0.95*** (0.15)	1.18*** (0.21)
Contagion (WithdrawalLeadState)			3.35*** (0.46)	3.17*** (0.61)
Observations	207,830	338,942	418,898	152,158
AIC	1456.4	2625.5	2654.1	972.5

Numbers in parentheses are standard errors.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## Robustness Checks

In the pursuit of robustness and methodological transparency, I undertook the task of translating the original study's code from STATA to R. The core of this translation involved adapting King's rare events logit model, which was originally executed in STATA, to R's environment. For this, I employed the Zelig package, which mirrors the functionalities of King's ReLogit application in STATA. The Zelig package is particularly adept at handling rare events data in R, making it an ideal tool for this replication attempt. This coding transformation also doubles as a robustness check. By replicating the study's results using a different software and package, I could confirm the reliability and stability of the original findings. The results, as seen in Table 2, are identical to the ones in Table 1. This further strengthens the validity of the conclusions drawn in the original paper.

The cross-platform validation through Zelig also presented an opportunity to explore the data with R's extensive suite of tools and packages, potentially offering new insights or uncovering nuances that may not have been apparent in the original STATA analysis. Among its suite of tools is a Bayesian logistic regression method, which I selected for my analysis. This method stands out for its ability to incorporate prior information into the model, allowing for a more nuanced estimation process that is particularly well-suited for the intricacies of rare events data. This Bayesian approach represents a significant departure from traditional frequentist methods, offering a different perspective on the data. By using the Bayesian logistic regression, I could incorporate both the observed data and prior beliefs or information, which may come from theory or previous research, into the estimation process. This method not only serves as a robustness check but also enriches the analytical framework, potentially revealing deeper insights into the patterns and drivers of IGO withdrawals.

## **Extension**

### **Introduction**

The logic and goal of extending the work by Borzyskowski and Vabulas on IGO withdrawals commenced from a focal point of intrigue—the concept of contagion. The original study illuminated the role of contagion, suggesting that the decisions of states are not isolated but are influenced by the actions of others within the interconnected world of international organizations. This contagion effect pointed towards a broader network of state interactions and dependencies, which could be critical in understanding the dynamics of IGO withdrawals.

Intrigued by this, I decided to delve deeper into the network structures and social dynamics that characterize these organizations. The premise of my extension is rooted in the hypothesis that a state's position within the network—its connections, centrality, and the prestige it garners therein—could significantly sway its propensity to disengage from IGOs. This notion is not just about the transactional aspects of membership but also about the reputational and strategic considerations that states must grapple with in the international arena. The extension thus explores whether states that hold central positions in the IGO network, wielding greater influence or prestige, exhibit patterns of withdrawal that differ from those at the periphery. Are more central states less likely to withdraw, given their investment in the status quo and the potential reputational costs? Conversely, do these states have more to gain from signaling dissatisfaction or policy shifts by withdrawing, given their prominence?

### **Research Design**

In exploring the conditions that prompt states to withdraw from Intergovernmental Organizations (IGOs), my extension to Von Borzyskowski and Vabulas (2019) moves beyond traditional domestic and international factors. I incorporate insights and data from the paper *International Organizations, Social Networks, and Conflict* by Hafner-Burton and Montgomery (2006). This paper presents a pioneering approach to understanding international relations by examining the role of Intergovernmental Organizations (IGOs) through the lens of social network analysis. Hafner-Burton and Montgomery (2006) argue that IGO memberships not only represent a state attribute, like economic development or regime type, but they also create a varied distribution of social power within the international community. Building on this perspective, my research uses their relational data on IGO memberships to examine how these memberships partition states into clusters with shared structural characteristics and establish hierarchies of prestige in the international system. I hypothesize that these relative network positions and levels of prestige have significant impacts on states' decisions regarding IGO withdrawals.

The concept of centrality in network analysis serves as a key variable in this exploration. Centrality captures the prominence and influence of a state within the network of IGOs, reflecting its potential to shape, and be shaped by, the collective actions within these organizations. I hypothesize that states with higher centrality may

experience greater scrutiny and face higher reputational costs upon withdrawal, thus potentially decreasing their likelihood of leaving an IGO. Another critical variable is network dependence, operationalized as the shared number of IGO memberships among states. This metric reflects the degree of interconnectedness between states within the global institutional architecture. It is anticipated that higher degrees of shared memberships may lead to a contagion effect, where the withdrawal behaviors of one state influence others within the same network cluster.

To empirically assess these constructs, I employ a sophisticated methodological approach using a dataset that captures the nuances of state interactions within IGOs over time. The dataset is enriched with calculated moving averages of both centrality and shared IGO memberships, offering a dynamic perspective on how a state's network position and role within IGOs evolve and potentially influence its decision-making processes regarding organizational membership. In synthesizing these network-based variables with the established determinants of IGO withdrawal, my research design aspires to unveil the latent patterns and causal pathways that underlie states' decisions to disengage from international collaborative frameworks. This approach not only augments the existing literature on IGO withdrawal but also contributes to a more profound understanding of how global governance structures are navigated and negotiated by member states.

- **Hypothesis 1 (Network Dependence and Withdrawal):** The relationship between the number of shared IGO memberships with other states (Network Dependence) and the likelihood of withdrawal from an IGO is expected to be positive. The hypothesis suggests that states with extensive involvement in IGOs may have a higher propensity to reassess and potentially withdraw from these organizations.
- **Hypothesis 2 (Centrality and Withdrawal):** States with higher centrality in the IGO network are less likely to withdraw from an IGO. This hypothesis is premised on the assumption that states with greater prestige and influence within these networks are more concerned about their international commitments and the reputational costs associated with withdrawal.

These hypotheses are designed to test the impact of network centrality and interconnectedness within IGOs on states' withdrawal decisions, using logistic regression analysis.

In line with the original study by von Borzyskowski and Vabulas, this research incorporates several control variables to address potential confounding factors. These controls are critical for ensuring the robustness and validity of the findings, particularly when examining the complex dynamics of state withdrawals from International Governmental Organizations (IGOs). **Length of State Membership in IGO:** The duration of a state's membership in an IGO is a significant factor. This variable is operationalized as the logged number of years a state has been a member of an IGO in the previous year. Longer membership durations could lead to a higher probability of withdrawal due to potential shifts in state preferences or changes in the IGO's original purpose. However, extended membership might also correlate with other factors



like preference divergence or changes in the IGO's level of institutionalization and democratic density. Therefore, it is crucial to account for this variable to disentangle its effects from those of other predictors. **IGO Size:** The size of an IGO, defined as the logged number of other member states in the previous year, is another vital control. Larger IGOs may experience greater preference divergence among members and have varied democratic densities. These aspects can influence a state's decision to withdraw, making the inclusion of IGO size as a control variable essential to the analysis. **Time Dependence:** To account for the binary time-series-cross-section nature of the data, the models include cubic polynomials for time since the last withdrawal in each organization. This approach helps mitigate potential biases arising from time-dependent factors in the data. All independent variables and control variables are lagged by one year to address concerns of endogeneity. This lagging ensures that the analysis is based on the state of affairs preceding the year of potential withdrawal, providing a clearer and more accurate picture of the factors influencing state decisions to leave IGOs.

## Results & Discussion

TABLE 3. *Rare Events Logistic Regression Results*

Coefficient	Estimate	Std. Error	z value	Pr(> z )
Intercept	-7.904	0.886	-8.924	$< 2e - 16^{***}$
Democracy (Lagged)	-0.0117	0.0166	-0.703	0.482
Average IGOs Shared (Lagged)	0.0831	0.0281	2.960	0.003 <sup>***</sup>
Moving Average Centrality (Lagged)	-0.000386	0.000185	-2.091	0.037 <sup>**</sup>
IO Size (Lagged, Log)	-0.382	0.126	-3.026	0.002 <sup>**</sup>
IO Membership Duration (Lagged, Log)	-0.538	0.401	-1.342	0.180
Time	0.348	0.136	2.566	0.010 <sup>**</sup>
Time Squared	-0.0158	0.0060	-2.630	0.009 <sup>**</sup>
Time Cubed	0.000216	0.000086	2.527	0.012 <sup>**</sup>

Significance levels: <sup>\*\*\*</sup> $p < 0.001$ , <sup>\*\*</sup> $p < 0.05$ , <sup>\*</sup> $p < 0.1$

The Rare Events Logistic Regression and Bayesian Logistic Regression models provide significant insights into the factors influencing states' decisions to withdraw from International Governmental Organizations (IGOs). Both models focus on key variables: the level of democracy (Democracy), the average number of shared IGO memberships (AvgIGOsShared), and the moving average centrality in the IGO network (MovingAvgCentrality).

In the Rare Events Logistic Regression model (Table 3), the positive coefficient for AvgIGOsShared (Estimate = 0.0831,  $p = 0.003$ ) suggests that states with a higher number of shared IGO memberships are more likely to withdraw. This result indicates that states with extensive IGO commitments may reevaluate their memberships more often, leading to a greater likelihood of withdrawal. In contrast, the negative coefficient for MovingAvgCentrality (Estimate = -0.000386,  $p = 0.037$ ) implies that states with higher prestige within the IGO network are less likely to withdraw. This tendency can

be attributed to the importance these states place on their international commitments and the potential reputational costs associated with withdrawal.

The Bayesian Logistic Regression model (Table 4) corroborates these findings. The average coefficient for AvgIGOsShared is positive (Mean = 0.0779), with a significant range in the 95% quantile (0.0208 to 0.1272), reinforcing the likelihood of withdrawal among states with greater involvement in IGOs. For MovingAvgCentrality, the negative mean value (-0.000373) and its quantile range (-0.000719 to -0.000034) support the observation that prestigious states are inclined to maintain their IGO memberships.

Overall, these results provide compelling evidence that both network dynamics and the prestige of states within these networks are critical factors in the decision-making process of IGO withdrawals. The findings emphasize the significance of states' positions and roles in the complex landscape of global governance and international relations.

TABLE 4. *Bayesian Logistic Regression Results*

Coefficient	Mean	SD	2.5%	50%	97.5%
Intercept	-7.970	0.883	-9.753	-7.987	-6.290
Democracy (Lagged)	-0.0119	0.0159	-0.0441	-0.0111	0.0172
Average IGOs Shared (Lagged)	0.0779	0.0273	0.0208	0.0793	0.1272
Moving Average Centrality (Lagged)	-0.000373	0.000176	-0.000719	-0.000379	-0.000034
IO Size (Lagged, Log)	-0.380	0.123	-0.618	-0.377	-0.137
IO Membership Duration (Lagged, Log)	-0.599	0.376	-1.374	-0.580	0.111
Time	0.377	0.132	0.122	0.375	0.639
Time Squared	-0.0167	0.0061	-0.0288	-0.0164	-0.0046
Time Cubed	0.000222	0.000089	0.000047	0.000218	0.000400

The analysis of state withdrawals from International Governmental Organizations (IGOs) through Rare Events Logistic Regression and Bayesian Logistic Regression models sheds light on the role of network dynamics and prestige in these decisions.

The first hypothesis posited that states with a higher number of shared IGO memberships, as indicated by AvgIGOsShared, would be more likely to withdraw from IGOs. This hypothesis is substantiated by both models. The positive coefficient for AvgIGOsShared in the Rare Events model (Estimate = 0.0831,  $p = 0.003$ ) and its consistency in the Bayesian model (Mean = 0.0779, with a significant range in the 95% quantile) underscore an intriguing dynamic. States deeply integrated into IGO networks may frequently reassess their commitments, possibly due to an acute awareness of the evolving costs and benefits associated with each IGO. This finding suggests a pragmatic approach by these states towards their international organizational memberships.

The second hypothesis focused on the impact of states' prestige within IGO networks on their likelihood of withdrawal. It was hypothesized that states with higher prestige, as measured by MovingAvgCentrality, would be less inclined to withdraw, considering the reputational costs. This hypothesis also finds robust support in both models. The negative coefficient for MovingAvgCentrality in the Rare

Events model (Estimate = -0.000386,  $p = 0.037$ ) and its alignment in the Bayesian framework (Mean = -0.000373, with a negative quantile range) indicate that prestigious states are indeed more cautious about withdrawing from IGOs. This trend can be attributed to the recognition of the broader implications such withdrawals might have on their international image and influence, as well as potential consequences for their diplomatic and economic engagements.

Based on the analyses conducted, two visual representations have been created to illustrate the relationship between state withdrawals from International Governmental Organizations and the variables of interest: average shared IGO memberships and centrality within the IGO network.

Figure 1 depicts the positive association between the average number of shared IGO memberships and the likelihood of withdrawal. As hypothesized, states with a greater number of shared IGO memberships tend to have an increased probability of withdrawal. This visual trend supports the statistical findings presented earlier and aligns with the first hypothesis.

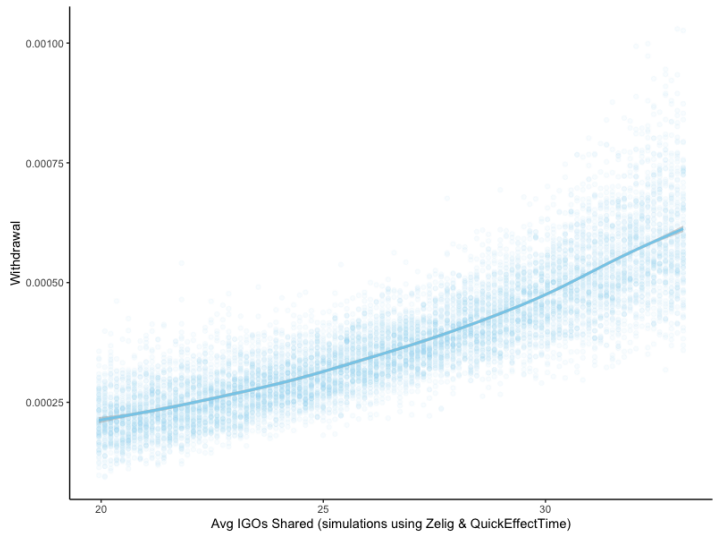
Figure 2 illustrates the inverse relationship between a state's centrality in the IGO network and its withdrawal likelihood. Consistent with the second hypothesis, states that hold a more central position within the IGO network demonstrate a lower propensity for withdrawal. This finding is indicative of the prestige effect, where more central states may incur higher reputational costs upon withdrawal, thereby reducing their tendency to leave the IGO.

The combined results from both analytical approaches underscore the importance of network dynamics and prestige in the decision-making processes related to IGO withdrawals. This adds a novel dimension to our understanding of state behavior in international organizations, moving beyond traditional factors like domestic politics and geopolitical considerations. The findings highlight that states' decisions to withdraw from IGOs are not just influenced by immediate political or economic factors but are also deeply embedded in the complex web of international relations and prestige within the global governance system.

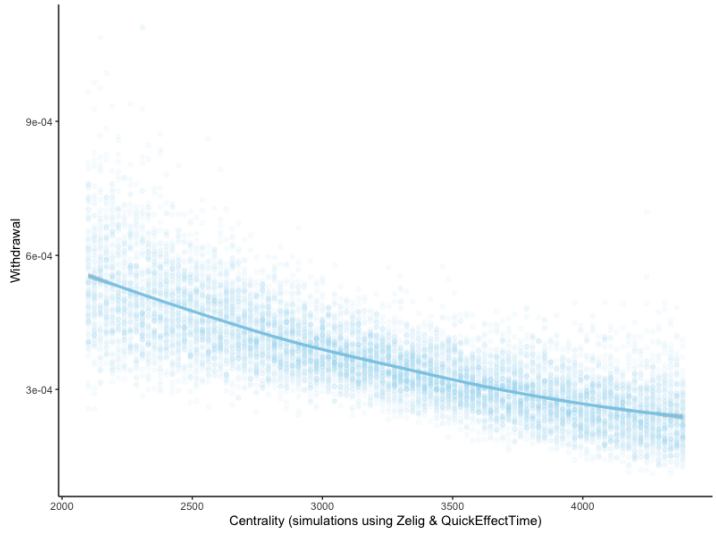
In essence, these results contribute to the discourse on global governance, offering a more nuanced view that integrates the often-overlooked aspects of network dynamics and prestige. They open new avenues for further research, particularly in exploring the interplay between these factors and traditional determinants of IGO withdrawal, and how they collectively shape the evolving landscape of international cooperation and diplomacy.

## Conclusion

The exploration of state withdrawals from International Governmental Organizations (IGOs) through Bayesian Logistic Regression and Rare Events Logistic Regression has yielded significant insights, especially regarding the variables of shared IGO memberships and centrality within the IGO network. The results from both models consistently point to the importance of these network dynamics in influencing a state's



**FIGURE 1.** *Relationship between Average IGOs Shared and Withdrawals*



**FIGURE 2.** *Relationship between Centrality in IGO Network and Withdrawals*

decision to withdraw from an IGO.

The analysis confirms that states with a higher number of shared IGO memberships are more likely to withdraw. This finding might reflect a state's reassessment of its commitments and a higher likelihood of withdrawing due to extensive international engagement. States with higher centrality, reflecting their prestige in the IGO network, show a lower probability of withdrawal. This trend underscores the reputational concerns and the value attached to international commitments by these states. Contrary to initial expectations, the study found limited support for nationalism as a driving force for IGO withdrawals. This outcome aligns with the broader trend observed in international relations where domestic political narratives do not always translate into international policy decisions. The results of this study contribute significantly to our understanding of international organization dynamics. They emphasize the need to consider not just the political and economic factors, but also the network positions and prestige of states in these organizations. These findings open new avenues for future research, particularly in integrating more nuanced measures of nationalism and populism.

A promising direction for future research involves addressing the limitations posed by data constraints. The current study faced challenges due to incomplete data in the Database of Political Institutions. To overcome this, future work could incorporate the macroeconomic history of populism as outlined in the study by Funke, Schularick, and Trebesch (2023). This new dataset presents an opportunity to construct a more robust measure of nationalism and populism, potentially offering a clearer understanding of their impact on IGO withdrawals.

By integrating these more refined measures, subsequent research can delve deeper into the interplay between domestic political ideologies and international organizational behavior. This approach would not only enhance the empirical robustness of the findings but also contribute to a more comprehensive theory of state behavior in global governance.

## Supplementary Material

Supplementary material for this research note is available at this Github repository.

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## **Authors**

**Shreyas Meher** is a PhD student in the The School of Economic, Political and Policy Sciences (EPPS) at UT Dallas. He can be reached at [shreyas.meher@utdallas.edu](mailto:shreyas.meher@utdallas.edu).

## **Key Words**

IGO Withdrawals; Political Structure; Intergovernmental Organizations; Statistical Replication; Institutional Characteristics.