

Comparing Regional Organizations in the United Nations General Assembly – Is There a Shift to Regionalism?

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Draft version, comments very welcome!

Abstract. Recent debates in international relations suggest that regions are becoming new actors in international politics. This paper analyzes whether such a shift to multipolarity can be witnessed by analyzing the voting behavior of regional organizations' member states in the UNGA. In this effort, we apply two different methods to roll-call votes casted in the UNGA since 1990. First, the application of the W-NOMINATE scaling method reveals that voting patterns in the UNGA cannot be described as multipolar. Although the European Union can be identified as a singular actor in the UNGA, we do not find the expected multiplicity of poles in the Assembly. In a second step, we analyze the voting cohesion of regional organizations using zero-one inflated beta regression. The analysis also shows that one can hardly identify any other regional organizations as a unique actor in the UNGA with the exemption of the EU. Thus, the results suggest that a potential shift to regionalism cannot be witnessed by analyzing the voting behavior of regional organizations' member states in the UNGA.

Keywords Regionalism, Regional Organizations, Multipolarity, United Nations General Assembly, W-NOMINATE, Voting Cohesion

Paper prepared for the 55th Annual Convention of the International Studies Association, Toronto, March 26th 2014.

¹ I would like to thank University of Hamburg's corporate capital for covering the travelling and living expenses for the 55th ISA's Annual Convention in Toronto, Canada, March 26th-29th 2014.

Introduction

Since its establishment after WWII, political scientists studied voting in the United Nations General Assembly (UNGA). In the literature, there are two strands that focus on states' voting behavior: First, there are studies that analyze voting patterns within the UNGA and, second, researchers that study the voting cohesion of specific groups, especially of regional organizations like the EU. The first strand mainly formed the first wave of studies that was published from the 1950s onwards (Ball 1951; Hovet 1960; Rieselbach 1960; Lijphart 1963; Russett 1966; Keohane 1967; Keohane 1969; Mueller 1967; Gareau 1970; Newcombe *et al.* 1970). Voeten summarizes these early studies for viewing “the UNGA as an arena in which broader patterns of behavior in world politics could be observed” (2013, 54). In general, these analyses often follow an inductive logic. Most of them tried to specifically analyze the connection between the ideological conflict of the Cold War in the international system and voting patterns within the UNGA. However, the interest in voting patterns in the UNGA decreased for some time during the 1980s. Yet, with Kim and Russett as well as Voeten, the study of voting patterns in the UNGA came again into focus of political scientists, now highlighting possible changes in those patterns after the Cold War (Kim and Russett 1996; Voeten 2000). As Voeten (2000) points prominently out, the voting behavior and the dimensions of conflict have not changed with the end of the Cold War and the UNGA is still dominated by a ‘west vs. the rest’ conflict (see also Voeten 2013, 61). In the UNGA, most resolutions are adopted by large majorities (Marín-Bosch 1987; Marín-Bosch 1998; see also Ferdinand 2013a, 3) and the United States became increasingly isolated within the UNGA over the years, making itself the “lonely superpower” (Voeten 2004). Voting within the UNGA is, therefore, more often than not structured by a majority of states which vote in favor of resolutions and the US which is one of the few states that frequently opposes resolutions.

Besides these analyses of general or country specific voting patterns, the second strand of literature focuses on the voting behavior of groups, e.g. regional organizations (ROs), in the UNGA (Lijphart 1963; Hurwitz 1975; Hurwitz 1976; Stavridis and Pruett 1996; Strömvik 1998; Luif 2003; Johansson-Nogués 2004; Young and Rees 2005; Rasch 2008; Beauguitte 2009; Birnberg 2009; Jakobsson 2009; Hosli *et al.* 2010; Burmester and Jankowski 2013a; Burmester and Jankowski 2013b; Burmester and Jankowski 2014; Ferdinand 2013a; Jin and Hosli 2013; Panke 2013). These analyses are not (primarily) interested in the dimensions of global conflict within the UNGA, but use voting similarities as an indicator for foreign policy preferences of states. Voeten states that “indicators based on UN votes have now become an almost obligatory ingredient in models that explain bilateral and multilateral lending, international conflict, and a host of other

outcomes” (2013, 62). Therefore, these analyses assume that voting in the UNGA is not only about the approval or disapproval of a resolution, but that voting cohesion can be seen as an expression of states’ alignment. In contrast to earlier studies on voting behavior in the UNGA, these analyses follow a more deductive approach.

Based on this understanding of voting behavior, many scholars focused on the voting cohesion of the European Union. Voting cohesion is commonly used as an indicator for the success of the CFSP (c.f. Bouchard and Drieskens 2013, 119-120 for a summary of these analyses). However, most of these analyses lack a comparative perspective. Not until recently, scholars refrained from analyzing the level of voting cohesion of ROs other than the EU (this changed with recent studies by Rasch 2008; Jin and Hosli 2013; Ferdinand 2013a; Burmester and Jankowski 2013a; Burmester and Jankowski 2013b; Burmester and Jankowski 2014 and Panke 2013). Ferdinand points out that ASEAN’s voting cohesion is significantly higher than the EU’s and concludes that “it is striking that despite all the efforts to coordinate the positions of the EU 12, they [...] fall below the degree of cohesion of the ASEAN members” (2013a, 8).²

In our contribution, we ask the question whether there is a shift to regionalism in UNGA voting. We try to find out whether or not regional organizations play a decisive and changing role in UNGA voting since the end of the Cold War. In this effort, we analyze seven regional organizations in a comparative framework using spatial models of voting and zero-one inflated beta regressions. This novel methodological approach combines both existing, above described strands of literature on UNGA voting. We are able to show that regional organizations play a subordinate role in UNGA voting, with the sole exception of the EU. Not only reveals our W-NOMINATE analysis that the EU established itself as an actor in the political space between the US and the postcolonial states, our regression analyses also show that solely the EU is able to vote against the odds: the member states vote more cohesively in contested votes. This is a unique trait and a sign for successful vote coordination and regional integration in the EU case.

Our paper is structured as follows. First, we briefly outline our theoretical argument, in order to explain the relevance of our question. Second, we introduce our methodological approaches: W-NOMINATE and regression analyses with indexes of voting cohesion. We pinpoint the merit

² In contrast, Panke (2013) displays that the EU has the highest voting cohesion of all ROs. However, the definition of voting cohesion by Panke (2013) includes also absences of states. From our point of view this is problematic as the frequency of absences is strongly correlated with the level of development of a country. Moreover, Voeten (2013) states that 68% of all absences are followed by another absence, which suggests that absences cannot be interpreted as a political statement but rather as a consequence of regime changes or other domestic issues of a member state.

of both methods and highlight the synergy effects in combining both. Third, we analyze regional organizations' member states' voting in the UNGA with W-NOMINATE. Fourth, we report the regression analyses for seven regional organizations. Finally, we conclude with a short summary and an outlook on further research possibilities.

Regionalism, regional Organizations and voting in the UNGA

In recent years, scholars discussed the rise of regions as new actors in international politics. In this debate, it is commonly claimed that regions are becoming increasingly important in world politics and constitute a new layer between the nation state and the global system. However, we still know very little about how these layers actually interact. While many scholars have studied regions in terms of intra-regional processes, the questions whether and how regions influence the global system received little scholarly attention.

As outlined by Hettne and Söderbaum, the rise of regions began in the 1980s and is connected to a “comprehensive structural transformation of the global system” (2000, 457). For Hettne and Söderbaum, this transformation is linked to “the move from bipolarity towards a multipolar or perhaps tripolar structure” as well as a “relative decline of American hegemony” (2000: 457). In general, they highlight that the “new regionalism” is a worldwide phenomenon that covers a variety of different regionalization processes. Regionalism is no longer a solely economic oriented process, but covers a wide range of different issues including deepened political cooperation. However, based on this literature, it seems important to highlight that the “new regionalism” in general does not conceptualize regions as a solely state driven process. Instead, regionalization covers an array of different actors.

Yet, when it comes to the interaction of regions with the international system, states remain a – if not the – central unit of analysis for most scholars. For example, Hettne argues that although one can hardly think of a region defined in terms of state borders, a region can become an actor in international politics “simply through the regional organization that represents it” (2005, 555). And with regard to the UN, Hettne and Söderbaum state that “[r]egions, through their regional agencies, have transformed from objects into subjects, making their relationship to the UN much more complex than current policy and academic debates tend to recognize” (2006, 227-228).

This is related to the concept of ‘actorness’, which was developed with regard to the EU (Sjöstedt 1977; Duchêne 1973) but can be applied to other regional organizations as well. The concept refers to the interaction of a regional organization with its external environment and the ability to influence it. For Hettne *et al.*, actorness is not only a means to an end, but results from “the challenges of globalization, as most states are too weak to manage these problems on their own” (2008, 8). Therefore, we assume that regional organizations with a high degree of actorness should be visible as strong and cohesive actors in international politics. The UNGA is a good forum to test for such actorness, since all states are members of this forum and have equal voting power (i.e. one vote per state). As outlined by Lombaerde *et al.* (2010, 751), the outcome of a comparison of ‘regions’ or ‘regional organizations’ depends heavily on how they are compared. Since Panke provides evidence that almost every regional organization is somehow active in vote coordination at the UNGA, the UNGA seems to be an appropriate place for a comparison of regional organizations. Here, regional organizations only differ according to the number of member states.

In spite of the advantages of the UNGA for our comparative approach, a drawback is that we are still missing a clear theoretical concept which would allow us to differentiate between different types of regional organizations (Hulse 2014, 1). Focusing specifically on the case of regional organizations performance in the UNGA, Drieskens *et al.* (2013, 17) state that “the literature on comparative regionalism may be flourishing and promising (De Lombaerde, 2011), but there is no measurement tool to assess the presence and performance of regional organisations (like the EU, African Union and Arab League) in multilateral settings”. This lack of a clear theoretical concept has important consequences for the approach chosen in this paper. First, case selection is quite difficult, since we still know very little about the similarities and differences of regional organizations. Simply put, we are missing clear selection criteria for our analysis. Today, regional organizations exist in dozens and we can barely analyze a small selection of them. The second problem is that we can hardly derive hypotheses from recent debates on regional organizations’ performance at the UNGA other than that an increase in cooperation should lead to an increase of voting similarities between member states. With regard to the European Union, “scholars often raise the question if new steps of integration lead to increased unity in voting, using the former as their point of reference” (Drieskens *et al.* 2013, 17). Of course, such a hypothesis can be transferred to every other regional organization. Yet, it seems problematic to argue which regional organization should perform better than others in this regard as we have no clear way to assess which regional organization is more integrated, especially with regard to ‘political cooperation’.

We deal with these problems in the following way. Our case selection is mainly based on geographical as well as on organization specific aspects. We include seven regional organizations in the analysis: African Union (AU), Arab League (AL), Association of Southeast Asian Nations (ASEAN), Caribbean Community and Common Market (CARICOM), European Union (EU), Mercado Común del Sur (Mercosur), and Pacific Islands Forum (PIF). Each regional organization in our analysis covers a different part of the world. Only in North Africa, we face some problems of overlapping regionalism since some states are members of the AU as well as the Arab League. Further, our selected regional organizations show some degree of difference regarding their aims. For example, Mercosur is primarily an economic oriented regional organization, while the Arab League has a strong focus on regional security issues. CARICOM, however, has committed itself – among other goals – to a closer coordination of foreign policy positions (CARICOM 1973, Art. 4; CARICOM 2001, Art. 6; Lennert 1991, 39-40; Müllerleile 1993, 105-106). ASEAN's role in the UNGA has already received attention and it was highlighted that it is a case which needs further attention (Ferdinand 2013a; Ferdinand 2013b; Burmester and Jankowski 2013a). However, one can argue that ASEAN's main purpose is to foster cooperation within Southeast Asia and to reassure member states' sovereignty (Cockerham 2010; Narine 2012), especially as a reaction to China's rise (Goh 2008; Thomas 2012). The Pacific Islands Forum is an interesting case due to the fact that it consists of some relatively powerful states (Australia and New Zealand) and some very small states. Further, Fry (2005) highlights that PIF is also more and more engaged in becoming a cohesive actor in the UN. Finally, the African continent is covered by the inclusion of the African Union.

Table 1: Regional organizations in the analysis

RO	Established	# member states (2013)	Region
African Union	1963 ^A	54	Africa
Arab League	1946	22 ^B	North Africa, Asia
ASEAN	1967	10	Southeast Asia
CARICOM	1973	15	Caribbean
EU	1952 ^C	28	Europe
Mercosur	1991	6	Latin America
Pacific Islands Forum	1971	16 ^D	Oceania

Notes: A = 1963-2002 Organization of African Unity, since 2002: African Union; B = 22 member states including Palestine; C = Treaty of Paris; D = Fiji suspended since 2009; E = Madagascar suspended since 2009.

Hypotheses

Although we stated above that a clear theoretical framework for the analysis of regional organizations is missing, we develop a few basic hypotheses which can be derived from the general debate on regionalism in world politics. First of all, regionalism is commonly connected to a shift to multipolarity. The assumption is that the international system is increasingly structured by multiple poles. Since the 1950s, voting in the UNGA served as a tool to assess the structure of the international system and this shift to multipolarity should become visible in UNGA voting patterns. Thus, our first hypothesis is that *voting in the UNGA is increasingly structured by regional poles after the end of the Cold War*.

Second, the observation that regions have become actors and transformed from ‘objects to subjects’ implies an increase in ‘actorness’ of regional organizations in the UNGA. When we translate this into UNGA voting, this implies that *voting similarities increased over the last years* (Hypothesis 2).

Third, our next hypothesis reflects on the structure of UNGA voting and argues that, in general, high voting similarities are likely to be observed within the UNGA, since most resolutions receive a huge majority. On average, about eighty percent of UNGA members vote the same. This makes it hard to identify single actors within the UNGA. Kissack (2007) highlighted that one cannot analyze the success of vote coordination in the UNGA in cases in which overall agreement is high, simply due to the fact that a high level of cohesion occurs by chance. However, we can take advantage of this problem by saying that any actor in a parliament should be cohesive independently of the overall closeness of a vote. In contrast to this, one can argue that with increasing conflict on a resolution in the UNGA, the chance of a regional organization to vote incohesively increases statistically. Therefore, if an actor is able to hold its level of voting cohesion and not affected by the statistical effect, we argue that one can interpret this as a clear sign of (successful) vote coordination. Thus, our hypothesis is that *if a regional organization matters on the international level, it should be able to hold its level of voting cohesion even in contested votes in the UNGA* (Hypothesis 3).

Finally, as argued above, regional organizations differ according to their group size. Larger groups have higher chances to influence the outcome of a vote than smaller ones. However, the more members a regional organization has, the more complex it becomes to coordinate the votes between regional organizations member states (Olson 1965; Keohane 1984, 78-79; Axelrod and Keohane 1986; Oye 1986, 19-22; Zangl 2010, 142-143). Thus, we assume that *the more member states participate in a vote, the less likely they are to vote cohesively* (Hypothesis 4).

While we use the W-NOMINATE scaling method for hypothesis 1, hypothesis 2-4 are tested by using voting cohesion scores and regression analysis. Both methods are presented in the following section.

Methods

W-NOMINATE

W-NOMINATE is a scaling method developed by Keith T. Poole and Howard Rosenthal to analyze voting behavior in the US Congress (Poole and Rosenthal 1983; Poole and Rosenthal 1997). W-NOMINATE “seeks to discover unobserved dimensions of conflict that underlie the voting behavior” (Voeten 2000, 192) in parliaments. In principle, it can be compared to a factor analysis. However, W-NOMINATE has some methodological advantages to factor analysis regarding the analysis of voting behavior in parliaments (Voeten 2000, 191-192). W-NOMINATE produces spatial maps of voting in which legislators, i.e. in our case states, are plotted on political dimensions, which are derived from states’ voting behavior. The position of a state is called ideal point and reflects its ideological position in the Assembly.

Since its development in the 1980s, W-NOMINATE has become the standard ideal point estimation procedure for legislative voting and has been applied successfully to a wide range of different parliaments all over the world (amongst other the US Congress (Poole and Rosenthal 1997; Poole and Rosenthal 2007), the European Parliament (Hix 2001; Hix *et al.* 2006; Hix *et al.* 2007), and the Korean National Assembly (Hix and Jun 2009)). One key result of these analyses is that parliamentary voting behavior is commonly structured by very few dimensions, most often not more than one or two. The number of relevant dimensions can be derived from the APRE value which serves as a goodness of fit criteria. It is based on the fact that W-NOMINATE predicts the voting decision of each legislator for a specific vote. If this prediction is correct, the vote has been classified correctly and vice versa. The APRE value indicates whether and by how much this classification procedure produces a better estimation than the trivial classification assumption, i.e. all legislators vote the same way (Poole and Rosenthal 2007, 36). Since an extra dimension is likely to increase the number of correct classifications, the APRE value for the second dimension is higher than the APRE1. However, since APRE2 includes the percentage of APRE1, only the difference between APRE2 and APRE1 can tell us how much the explanatory power of our model increases due to a second dimension.

As with every other scaling method, W-NOMINATE requires the researcher to interpret the revealed dimensions. In ‘normal’ national parliaments and also the European Parliament, the first dimension is commonly referred to as ‘left-right’ or ‘government-opposition’. However, with regard to the UNGA and its comparatively quite different structure, this interpretation of the dimensions cannot be transferred that easily. However, Voeten (2000; 2013) showed that potential dimension in the UNGA are ‘East vs. West’, ‘North vs. South’ or ‘rest vs. West’. The latter occurred more or less after the end of the Cold War, while the other two dimensions played a crucial role before the 1990s.

NOMINATE, thus, can reveal important information about the structure of conflict in the UNGA. Not only the interpretation of the dimensions is of interest to us, but also the proximity of regional organizations’ member states as well as the distance between different voting blocs. In short, W-NOMINATE allows us to get a first indication whether the international system has become multipolar and whether regional organizations are becoming crucial actors in the UNGA.

Indices of voting cohesion

The analysis of voting cohesion makes sense for two reasons. First, although W-NOMINATE can be seen as a superior method for analyzing voting similarities between states, it is rather complicated to analyze resolution specific effects with this method. Second, W-NOMINATE has neither been applied to the voting behavior of regional organizations UNGA, nor in combination with voting indices. While W-NOMINATE works on the aggregate level, indices of voting cohesion allow the analysis of individual variables and cases. In contrast to the explorative and more inductive nature of W-NOMINATE which gives us information about every state in the UNGA, the application of voting cohesion scores follows a deductive logic.

In political science, the analysis of voting cohesion has a long standing tradition, going back to the early studies of Rice (1928). Especially in studies on voting behavior in the UNGA, cohesion scores are often applied to measure the degree of voting unity of specific groups. However, there is little standardization or comparability among the existing voting cohesion scores. Therefore, this section reflects on two aspects connected to the analysis of voting cohesion. In a first step, we briefly discuss the overarching ideas of these indices and compare a selection of commonly used ones. As a second step, we discuss which regression models are appropriate for the analysis of voting cohesion.

There exists an array of suggestions on how to measure voting cohesion. In general, voting cohesion indices are designed as proportions and therefore have a range between zero and one.

Normally, a value of zero represents total incoherence and a value of one denotes perfect voting cohesion. While all cohesion indices agree that perfect voting is defined as all regional organizations' member states casting the same vote, they differ regarding their concept of measuring incohesive voting behavior.

The most prominent indices are the Rice Index (Rice 1928), the Agreement Index (Hix *et al.* 2005) and the Index of Voting Cohesion (Lijphart 1963; renamed by Hurwitz 1975). The Rice Index and the Agreement Index are based on the same logic. They measure voting cohesion as the proportion of the groups 'majority size' and the size of a group. The Index of Voting Cohesion, however, was designed to measure dyadic voting cohesion. Yet, it can be transformed in a way which makes it applicable to groups.

The only difference between the Rice and the Agreement Index is the inclusion of abstentions in the computation of voting cohesion. Both indices follow the logic that they rescale the 'majority size' to a value between 0 and 1 (see the appendix for a more detailed discussion of these indices).³

However, as Desposato (2005) demonstrates, this way of measuring voting cohesion has a major shortcoming: it is biased according to the group size. Statistically, small groups have a higher chance of getting a higher voting cohesion score than larger ones. While the bias is small when we compare large groups, it affects results heavily when small groups are compared to larger ones. Unfortunately, this is often the case when we compare regional organizations. For example, Mercosur consists of only five member states, while the AU has more than 50. Desposato's proposal on how to deal with this problem is quite simple. Instead of measuring the *majority size* of a group, he suggests computing the probability of two randomly chosen group members casting the same vote on a resolution. In general, this can be done by:

Cohesion measured as probability of two members casting the same vote

$$= \frac{\sum_{i=1}^x n_i * (n_i - 1)}{N * (N - 1)}$$

With 'n_i' being the number of votes casted for one of the 'x' voting options and 'N' being the number of all votes the groups casted.

As we discuss in the appendix in detail, this solution made by Desposato (2005) corresponds with the basic logic of the Index of Voting Cohesion. In its original form, the IVC is defined as:

³ The majority size is defined as the mode of the two ('yes' and 'no') or three ('yes', 'abstention', and 'no') voting options of a group. See the appendix for a detailed discussion.

$$IVC = \frac{a+0.5*b}{t}$$

Where ‘a’ is the number of *identical votes*, i.e. two members casted the same vote, and ‘b’ is the number of *solidarity votes*, i.e. one member voted ‘yes’ or ‘no’ while the other abstained. It becomes clear from this computation, that the IVC highlights the specific nature of ‘abstentions’, being a middle ground between ‘yes’ and ‘no’, and treats them as a weaker form of vote defection than casting a ‘no’ vote, when the other state voted with ‘yes’. Although the IVC has so far been exclusively used to measure voting cohesion between two states, it can also be used to measure voting cohesion for a group of states. The modified formula does not substantially differ from the Agreement Index with group size bias correction by Desposato. However, we rescale the index once more so that it has once again a range between zero and one, which is not the case for the Desposato’s solution. Hence, the IVC we use is defined as:

$$IVC = \frac{2*[(Y-1)*Y+(N-1)*N+(A-1)*A+A*(Y+N)-\frac{(Y+N+A)^2}{2}+Y+N+A]}{(Y+N+A)^2}$$

It should be noted that this formula is a more general form of the original IVC by Lijphart, as it is still applicable to a dyad of states as well as to groups of states. Furthermore, the inherent ‘logic’ of the original IVC remains untouched. When one half of a group votes with ‘no’ and the other half votes with ‘yes’, the index becomes zero (divided vote) but when one half of the members abstains and the other half votes cohesively with ‘yes’ or ‘no’, the index is 0.5 (solidarity vote).

Regression models for analyzing voting cohesion

Another unaccounted aspect in the analyses of voting cohesion is which regression model should be used to analyze cohesion scores. Usually, studies choose a simple OLS regression model. This decision seems feasible as cohesion scores are continuous. However, the distribution of cohesion scores and their truncation between zero and one are two important aspects that violate basic assumptions of the OLS regression model.

First, OLS regressions with cohesion scores as the dependent variable may predict values that are smaller than zero or higher than one. These values make no sense, as the dependent variable has a range between zero and one, but are likely to occur when using OLS regressions. Second, another basic assumption is often violated when using OLS for cohesion scores: the normal distribution of errors, which is unlikely if our dependent variable is a proportion. Third, if we use OLS regression to analyze voting cohesion scores, heteroscedasticity is a likely occurrence. All in all, the violation of these three assumptions leads potentially to wrong estimates and standard

errors and, thus, can affect the interpretation of the effects as well as significance levels. Simply put, we are running at risk of overlooking specific relationships between the variables, due to the misfit of the OLS model.

Therefore, we are using a zero-one inflated beta regression (zoib) model for analyzing voting cohesion in the UNGA. This model consists of three separate regression models. One is calculated for the probability that the outcome is zero, another for the probability that the outcome is one, and a third for cases in which the outcome lies between zero and one. For estimating the probability of an outcome of zero or one, the model uses logistic regressions, while the proportion between one and zero is estimated with a beta regression. The beta distribution is quite flexible and allows us to work with skewed data as it is the case with voting cohesion scores in the UNGA. Since cohesion scores of zero do almost never occur with regional organizations, we are only interested in the other two models. The zoib regression model is not only more accurate in methodological terms than an OLS, it also allows for a better interpretation of the observed effects. With other regression models⁴, we might observe an increase in voting cohesion, but we cannot easily analyze whether this increase is due to a higher probability of perfect voting cohesion or due to a decrease in the level of ‘incohesiveness’. By applying zoib, we are able to account for these differences and, therefore, add significant value to the analysis of voting cohesion in the UNGA.

Summary

Both methods used in this paper have decisive strengths and weaknesses. W-NOMINATE enables the researcher to find cleavages and patterns in the voting behavior of a large number of units. However, we have a rather large loss of information due to the fact that W-NOMINATE dichotomizes the voting options and, therefore, treats abstentions as either ‘no’ votes (results reported in the paper) or as missing values (results reported in the appendix). Furthermore, it is difficult to control the observed voting patterns for resolution specific aspects. Yet, we can do so by using indices of voting cohesion. Additionally, this makes our results comparable to most other publications in this line of research.

In this paper, we compute the voting cohesion of seven regional organizations between 1990 and 2010 and run zero-one inflated beta regression analyses in order to gather information on

⁴ This includes all other regression models as for example a ‘fractional logit’-model (Papke and Wooldridge 1996) and normal beta regression which can also be considered for analyzing proportional data.

significant effects on the voting behavior of the respective regional organizations. By applying the comparative framework, we are able to identify several aspects that were hidden in the W-NOMINATE analysis. The European Union is the only regional organization in our analysis that is able to maintain or increase its level of voting coherence in close votes. Furthermore, we show that by including the US vote decision in the regression analysis, we are able to incorporate the major cleavage in the UNGA in our model: while other regional organizations gain cohesion, the EU and PIF vote incohesively if the US vote with 'no'. Also, we observe some interesting effects regarding the topics of the resolutions. All in all, our analysis shows that there is no shift to regionalism in the UNGA. Regional organizations play a subordinate role in the UNGA. The voting patterns are still dominated by a mainly unidimensional conflict structure that separates 'the West from the rest'. However, the European Union seems indeed to be a case sui generis as it is acting as a regional organization on the international level.

Analyzing the UNGA with W-NOMINATE

As a first empirical step, we analyze the voting behavior in the UNGA with W-NOMINATE. According to the standard model of W-NOMINATE, votes with a minority size smaller than 2.5 have been excluded from the analysis. In line with the research design by Voeten (2000), abstentions have been coded as ‘no’. This is due to the fact that W-NOMINATE analyzes binary data, i.e. a state is in favor of a resolution or against it. However, since the UNGA is usually dominated by large majorities, abstaining and voting ‘no’ are two ways of expressing the unwillingness of a state to follow the majority position. Yet, we have controlled our results by estimating models in which abstentions have been coded as missing data. The differences between these models are described below, but not highlighted by spatial maps (we report the ones where ‘abstentions’ are treated as missing data in the appendix). Further, states that became member of a regional organization during one of the observed periods have been included two times in the model: for the period in which they were not member of the regional organization and for the time when they were a member of the regional organization. Therefore, our model includes more than 193 states.

The results of our W-NOMINATE analysis are presented in Table 2 as well as Figure 1 and Figure 2. Table 2 shows that the UNGA is essentially structured by one conflict dimension after 1990. More than 90 percent of every single vote casted (‘yes’ or ‘no’) can be classified correctly by the placement of states on one single dimension. A second dimension adds only limited explanatory power to the model in the period 1990-1999 and became slightly more relevant in the period 2000-2011. This is represented by the APRE1 and APRE2 values which demonstrate that a unidimensional model of voting improves the explanatory value to over 60 percent compared to the trivial assumption that all legislators vote the same way.

Table 2: Summary of W-NOMINATE

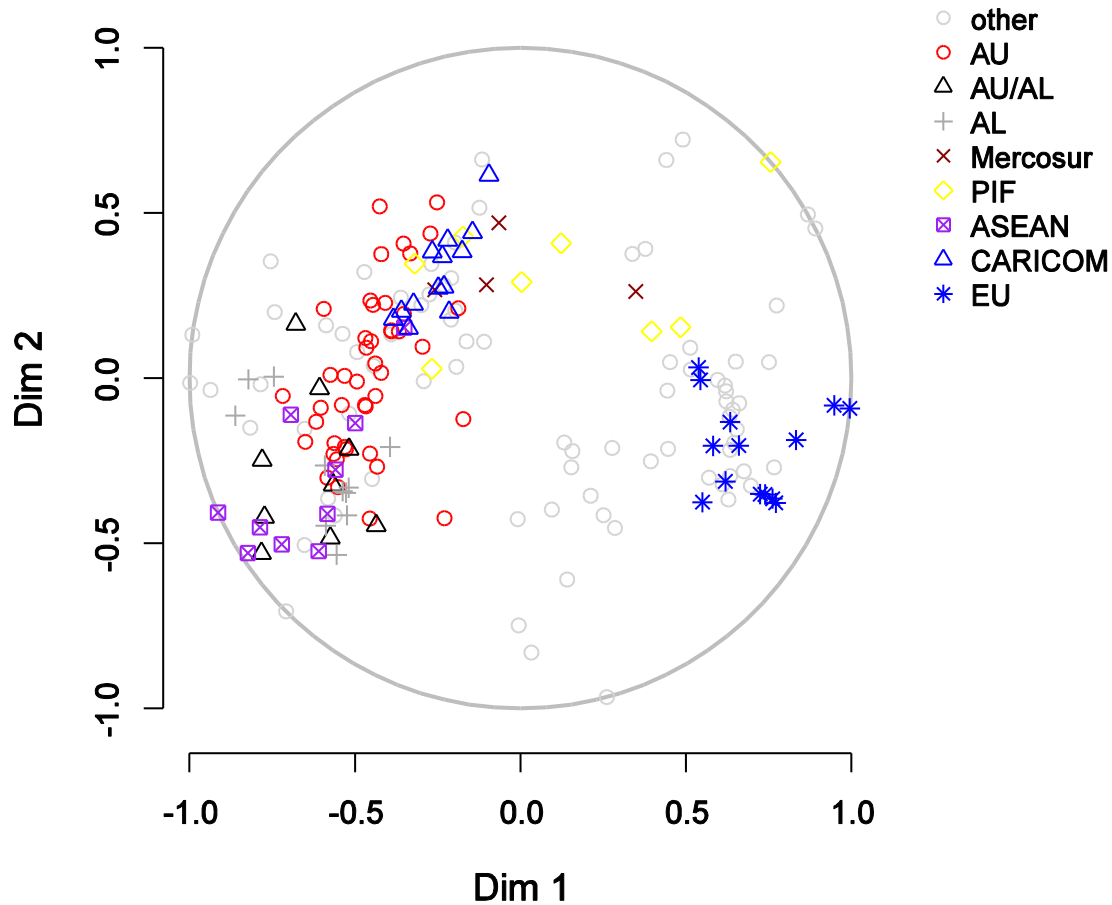
Period of observation	# RCV	Correct classifications		APRE		
		Dim. 1	Dim. 2	Dim. 1	Dim.2	Difference
1990-1999	579	92.3%	93.4%	62.5	67.9	5.4
2000-2011	706	92.8%	94.5%	65.9	73.9	8.0

Annotation: For our computations, we used the „wnominate“-package for R (Poole *et al.* 2011). RCV = roll-call vote, APRE = Aggregate Proportional Reduction in Error.

The spatial maps (Figure 1 and Figure 2) provide additional information to analyze and label the dimension(s) of conflict in the Assembly. During the Cold War (spatial maps not shown in the paper, but see Voeten 2000 for a detailed analysis), UNGA member states aligned themselves alongside a continuum of which the US and the Soviet Union constituted the endpoints.

However, a second dimension was also relevant in some periods, which divided the global South from the global North. With the end of the Cold War, this picture slightly changed: now, the first dimension represents a conflict between the ‘West and the rest’ (Voeten 2000; Voeten 2013).

Figure 1: W-NOMINATE spatial map UNGA 1990-1999

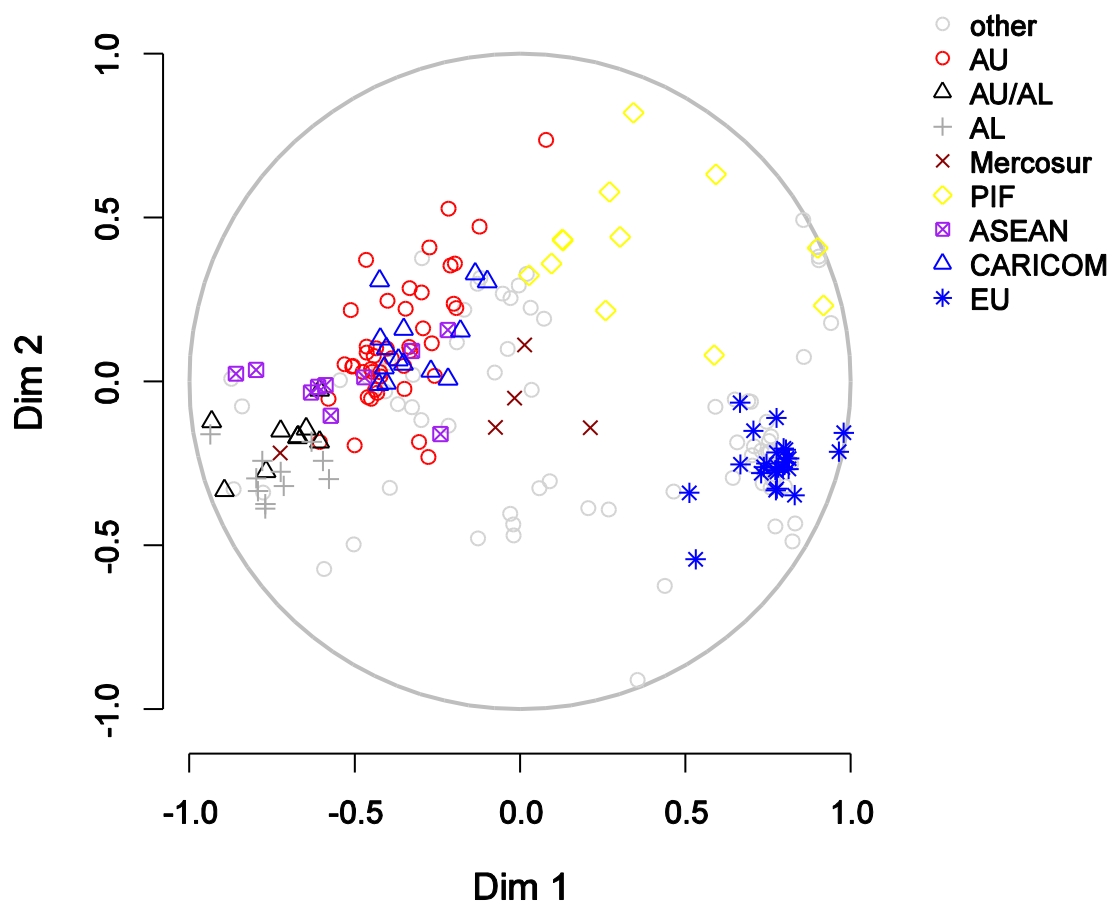


Yet, as we can also see from the spatial maps and the estimated dimensions, a clear shift to multipolarity cannot be witnessed in the UNGA. The so called ‘non-Western’ states form a rather large bloc. Yet, we cannot clearly identify regional organizations. This holds especially true for the years 1990-1999 and to some extent for the period from 2000 to 2011. In both maps, the EU is plotted on the right hand side, with France and the UK being the closest to the US, which is located on the right border of the spatial map. The other regional organizations are mostly part of the large group of ‘non-Western’ states. In general, some trends can be identified in this pattern. For example, CARICOM is placed at the top of the bloc, while ASEAN and Arab League are more at the bottom. The African Union is scattered over the second dimension. Yet, based on the close proximity of all of these regional organizations, it does not seem sensible to call this structure ‘multipolar’. One could argue that regional organizations’ member states are quite close within this bloc, this holds especially true for the Arab League in the period from

2000-2011, but it would be overstated to say that this composition reflects the multipolar order. Finally, PIF is obviously a divided regional organization. Some states are part of the larger bloc on the left, while some others, like Australia, are plotted in direct proximity to the US.

As stated above, we additionally ran our analysis with treating abstentions as missing values. We display the spatial maps from these analyses in the appendix. It can be highlighted that the structure of conflict does not change immensely from the reported analysis. Yet, the UNGA is more polarized if we exclude abstentions. The APRE values increase to over 90. Further, the gap between the US and the EU becomes larger since the EU member states often chose to vote with abstention, while the US votes with ‘no’. Therefore, such a perspective allows for identifying the EU more clearly as an actor in the UNGA. However, other regional organizations cannot be identified anymore. They belong to a rather cohesive bloc.

Figure 2: W-NOMINATE spatial map 2000-2011



The voting cohesion of regional organizations in a comparative perspective

In the following, we use the zero-one inflated beta regression to analyze seven regional organizations more in more detail. We include all roll-call votes between 1990 and 2009, where more than three member states of regional organization in question took part. According to the computation of the IVC, ‘yes’, ‘no’ and ‘abstention’ are incorporated in the analysis, absences are treated as missing values. The voting cohesion of the respective regional organization is used as the dependent variable in the model.

The regression model contains the following independent variables (descriptive statistics are reported in the appendix). First, we include time in a metric variable by setting 1990 as the basis. Second, each resolution has a specific topic. The topics are coded as dummy variable with ‘other’ as the reference category. The other six topics are: Middle East conflict, nuclear weapons, arms control, human rights, colonialism, and (economic) development. We based the coding on the database of Strezhnev and Voeten (2013), yet removed existing double-coding and corrected for cases in which the existing coding seemed to be inappropriate.⁵ Third, to control for the structure of UNGA voting, we included the voting decision of the US as a dummy variable (US votes ‘no’ with ‘yes’/‘abstention’ as the reference category). The analysis with W-NOMINATE revealed that the US voting decision consistently define the endpoint of the most important first dimension of conflict in the UNGA. By including the US position, we can therefore incorporate the findings of our W-NOMINATE analysis. Fourth, we insert another dummy variable that signifies whether the vote was labeled ‘important’ by the US State Department. Again, we hope to attain some form of control for the dominant cleavage. Fifth, for each regional organization, we count the number of member states that take part in a vote and included this value as a metric variable. With this variable, we are able to account for the effect of new member states on the voting behavior cohesion of the regional organization. However, besides the EU and ASEAN, most regional organizations did not grow significantly since the 1990s. Yet, we report some variance due to absences, suspensions, etc. Sixth, we control for the closeness of a vote. For this, we use the Agreement Index⁶ to compute the overall majority share of in the UNGA. Then, we

⁵ For example, cases that dealt with the ‘development of nuclear weapons’ were sometimes coded as ‘nuclear weapon’ issue as well as ‘(economic) development’.

⁶ We cross checked the effect of this variable by using the Rice Index as an indicator for the closeness of a vote. The results did not change significantly.

deduct these values from 1, with a value of 0 denoting a unanimous vote and 1 a vote where all three voting positions received one third of the votes. For this variable, we include a linear and a squared term in the analysis.

We report the results for our regression analyses in Table 3. In the following, we concentrate on the interpretation of the sub-model that computes the probability of a unanimous vote of the respective UNGA ($Pr=1$). For all regional organizations, the time variable shows significant effects on the probability of a perfectly cohesive vote. For the EU, Mercosur, and CARICOM, we report positive effects. This means, e.g. in case of the EU, that, recently, the member states were more likely to “speak with one voice” (Farrell 2006, 29) than twenty years ago. However, for ASEAN, PIF, Arab League, and AU, we report the opposite effect. Regarding the topics, we want to highlight the dummy variable for resolutions on human rights. In such votes, the EU is the only regional organization that is significantly affected: if a resolution addresses human rights, the EU is significantly more likely to act as a unitary actor than on resolutions in the reference category. This can be connected to the conception of the EU as a ‘civilian power’ (Duchêne 1973).

Table 3: zoib regression models (1990-2009)

	EU		PIF		AL		Mercosur		ASEAN		AU		CARICOM	
	Prop	Pr(1)	Prop	Pr(1)	Prop	Pr(1)	Prop	Pr(1)	Prop	Pr(1)	Prop	Pr(1)	Prop	Pr(1)
Year	-0.013 (0.012)	0.128 (0.028) ***	-0.068 (0.007) ***	-0.113 (0.017) ***	-0.077 (0.011) ***	-0.096 (0.022) ***	0.016 (0.006) **	0.084 (0.016) ***	-0.011 (0.01)	-0.06 (0.026) *	0.008 (0.004)	-0.04 (0.011) ***	-0.001 (0.006)	0.082 (0.016) ***
Middle East														
Conflict	0.356 (0.11) **	1.302 (0.234) ***	-0.414 (0.111) ***	-2.209 (0.254) ***	-0.271 (0.232)	2.009 (0.429) ***	0.214 (0.105) *	-0.718 (0.277) *	0.469 (0.131) ***	0.872 (0.287) **	0.234 (0.095) *	-1.446 (0.199) ***	-0.04 (0.118)	-1.495 (0.295) ***
Nuclear Weapons	-0.18 (0.117)	-0.81 (0.221) ***	-0.192 (0.13)	-0.3 (0.245)	-0.049 (0.125)	-0.355 (0.281)	0.232 (0.106) *	-0.651 (0.279) *	0.445 (0.113) ***	-0.168 (0.304)	0.387 (0.116) **	-0.207 (0.225)	0.186 (0.15)	0.472 (0.341)
Arms Control	0.149 (0.15)	-0.482 (0.255)	0.014 (0.157)	0.294 (0.306)	-0.336 (0.143) *	-0.598 (0.276) *	0.252 (0.104) *	-0.219 (0.347)	0.419 (0.105) ***	-0.847 (0.287) **	0.301 (0.11) **	0.009 (0.231)	0.295 (0.155)	0.378 (0.371)
Human Rights	-0.463 (0.214) *	1.121 (0.287) ***	-0.295 (0.12) *	-0.499 (0.307)	-0.344 (0.147) *	-0.381 (0.3)	0.201 (0.119)	0.331 (0.281)	-0.15 (0.125)	-0.297 (0.304)	-0.304 (0.11) **	0.437 (0.232)	-0.125 (0.136)	0.352 (0.294)
Colonialism	-0.255 (0.107) *	-2.548 (0.349) ***	0.28 (0.147)	-0.214 (0.306)	0.105 (0.16)	0.83 (0.45)	0.145 (0.149)	0.306 (0.329)	-0.186 (0.128)	3.154 (0.973) **	0.375 (0.171) *	1.303 (0.338) ***	0.327 (0.143) *	-0.028 (0.384)
Economic Developm ent	0.117 (0.144)	0.192 (0.315)	-0.163 (0.152)	-0.672 (0.376)	0.48 (0.185) **	0.222 (0.383)	0.056 (0.229)	1.265 (0.494) *	0.014 (0.196)	1.216 (0.452) **	0.34 (0.168) *	0.764 (0.356) *	0.483 (0.182) **	0.518 (0.438)
US ‘no’	-0.484 (0.094) ***	-1.297 (0.181) ***	-0.718 (0.066) ***	-1.356 (0.161) ***	0.434 (0.111) ***	1.861 (0.198) ***	-0.028 (0.056)	-0.213 (0.196)	0.172 (0.079) *	1.37 (0.21) ***	0.426 (0.077) ***	1.11 (0.147) ***	-0.099 (0.085)	0.651 (0.207) **
Important Vote (US)	-0.145 (0.118)	-0.336 (0.226)	0.423 (0.079) ***	-0.012 (0.22)	-0.499 (0.101) ***	-1.555 (0.213) ***	-0.051 (0.072)	-0.203 (0.248)	-0.028 (0.071)	-1.581 (0.218) ***	-0.511 (0.074) ***	-1.157 (0.183) ***	-0.14 (0.081)	-0.364 (0.246)
# of Member States	0.04 (0.014) **	-0.061 (0.029) *	-0.012 (0.018)	-0.175 (0.046) ***	0.158 (0.018) ***	0.25 (0.049) ***	-0.084 (0.084)	-0.127 (0.208)	0.078 (0.031) *	0.132 (0.093)	0.026 (0.006) ***	-0.003 (0.012)	0.077 (0.021) ***	-0.111 (0.049) *
Closeness	-3.384 (1.134) **	-10.528 (1.519) ***	-3.364 (0.532) ***	-14.957 (1.254) ***	-2.375 (0.64) ***	-2.989 (1.114) **	0.015 (0.443)	-10.626 (1.053) ***	0.822 (0.511)	-4.663 (1.204) ***	-0.576 (0.415)	-5.926 (0.935) ***	0.129 (0.477)	-3.448 (1.439) *
Closeness (squared)	5.525 (2.032) **	16.013 (2.592) ***	3.945 (0.75) ***	13.424 (1.613) ***	2.278 (0.724) **	0.648 (1.518)	-1.058 (0.6)	5.891 (1.405) ***	-1.288 (0.507) *	0.234 (1.624)	-0.792 (0.505)	1.699 (1.276)	-0.729 (0.566)	-4.242 (2.013) *
Intercept	27.77 (24.994)	-253.895 (56.454) ***	138.71 (14.132) ***	231.632 (35.606) ***	153.415 (23.691) ***	189.616 (44.553) ***	-32.065 (12.379) *	-163.75 (32.576) ***	22.334 (20.396)	122.207 (52.506) *	-15.562 (9.933)	82.785 (22.199) ***	3.91 (13.685)	-161.325 (32.995) ***
N	1445		1425		1445		1438		1445		1445		1440	
PRE	35.9		55.5		53.2		36.2		39.3		55.8		39.7	

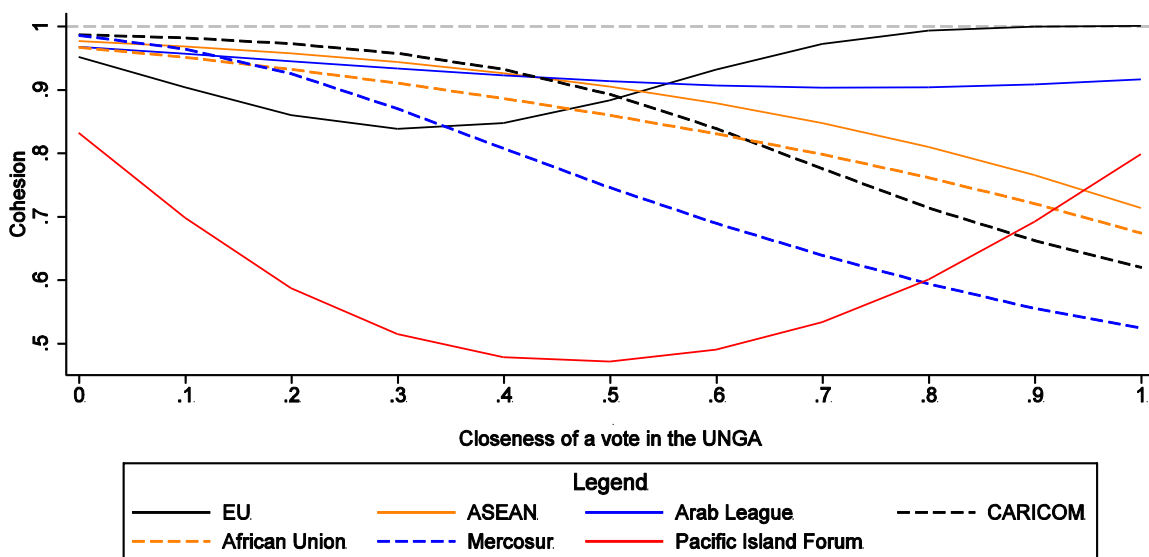
Notes: Unstandardized regression coefficients are given with robust standard errors in parentheses. Dependent variable is the voting cohesion of a regional organization at each vote. *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$. PRE = Proportional Reduction in Error.

The observed dimension of conflict finds its expression in the influence of a US ‘no’ on a given resolution. If the US oppose a resolution, the EU and PIF are more probable to vote incohesively. However, US opposition has a significant positive effect on Arab League’s, CARICOM’s, ASEAN’s, and AU’s member states in forming a common position. If the US votes ‘no’, they are more likely to act cohesively; something that is clearly visible in our W-NOMINATE analysis (c.f. above). Regarding the number of voting member states, we only find the expected effects with the EU, PIF, and CARICOM. In these cases, an increase in the number of voting members has a significant negative effect on the probability of the group to vote cohesively. While we find the opposite effect with the Arab League, the variable is insignificant for the other groups.

The most interesting effect, however, becomes visible if we control for the overall level of conflict in a vote. For easier interpretation, we report the effects of the squared closeness term in Figure 3, Figure 4, and 5.

Figure 3 reveals that almost all regional organizations show the expected effect: AU, ASEAN, Mercosur, CARICOM, and Arab League become increasingly incohesive, the more contested a resolution is in the Assembly. Among these groups, Arab League’s members are less affected than the others. However, the EU and the PIF show an increase in their cohesion, the more contested a vote is. Yet, as the figure denotes, while the EU is able to reach almost perfect cohesion scores, PIF’s scores are rather low.

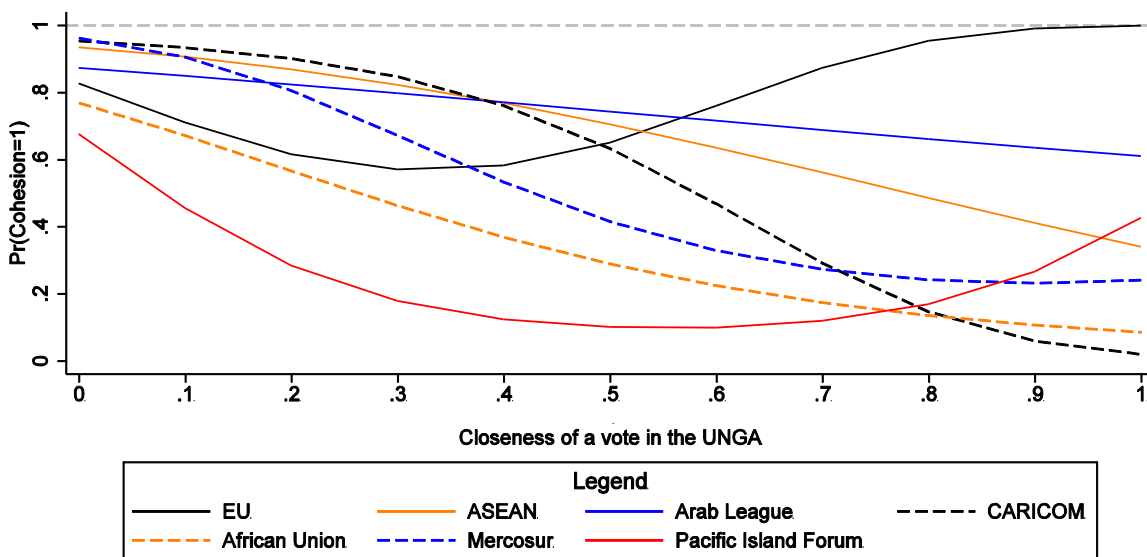
Figure 3: Closeness and Voting Cohesion (overall model)



This observation is even clearer if we look at the sub-model for perfect cohesion (Figure 4). The EU is the third least probable group to achieve perfect cohesion in nearly uncontested votes, reaching the low point at 0.35 (i.e. the majority position receives around 57 percent of the votes). After this point, the probability for ‘speaking with one voice’ augments with increasing conflict up to a point that the EU has a probability of 90 percent and rising, if the majority position receives less than half of the overall votes. On this level, Arab Leagues’ probability is around 70 percent and falling. It seems that the EU member states follow their own national interests in uncontested votes, but act united when push comes to shove. This is even more impressive if we keep in mind that the EU is the second largest group in our analysis, only following the AU. By definition, such a large group is more likely to have vote defections than smaller ones. Groups like Mercosur that have just a fraction of member states as regional organizations like the EU are significantly more affected by conflict in the UNGA. In this sense, the EU member states are beating the odds.

This is not the case for the AU. Unsurprisingly, the AU is extremely affected by the closeness variable. With more than 50 member states, the probability is rather large that with an increasing level of conflict, at least one of the members votes opposing the (united) majority of states. Yet, the AU is still more probable to achieve perfect cohesion than the PIF on resolutions that have a closeness score lower than 0.8.

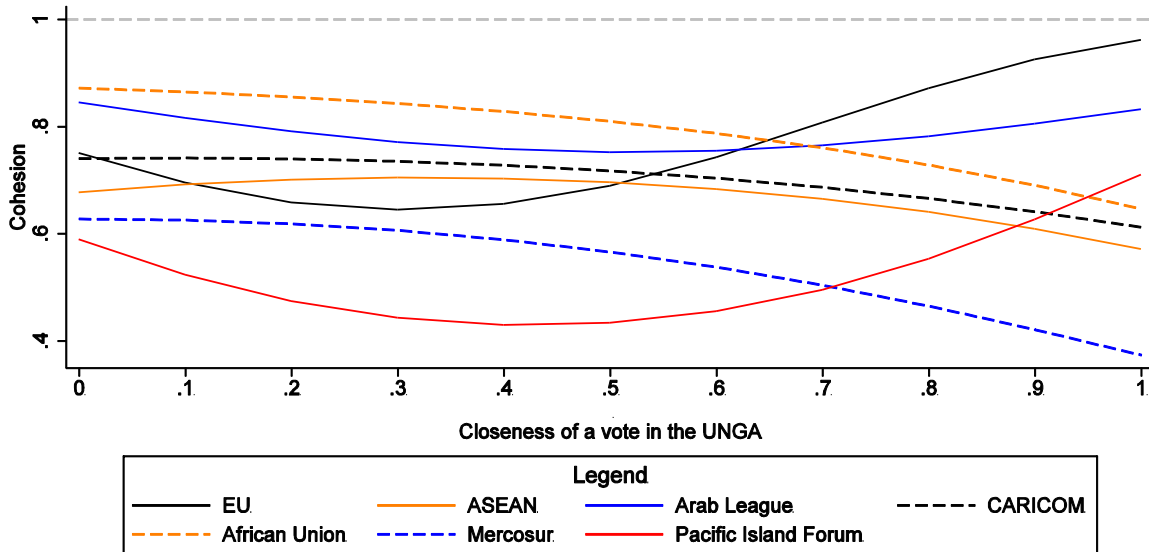
Figure 4: Closeness and Voting Cohesion (Pr=1)



Finally, figure 5 displays the effect of the closeness variable for cases in which a regional organization did not vote cohesively. Even here, we can witness the above described effect of the European

Union's increase in voting cohesion in contested votes. In contrast, Mercosur shows an in general low level of voting cohesion in such votes and an additional decrease the more contested a vote is.

Figure 5: Closeness and Voting Cohesion (Proportion Model)



Conclusion

In this paper, we tried to answer the question whether the often claimed shift to multipolarity in the international system can be witnessed by analyzing voting patterns in the UNGA. In this effort, we used the W-NOMINATE scaling method as well as voting cohesion scores to control for the actorhood of ROs on the global level.

Our first hypothesis, regarding the assumed multipolarity of voting patterns in the UNGA, cannot be confirmed. First, we still find a stable, mostly unidimensional structure of conflict. Second, even in this structure of conflict, most of our analyzed regional organizations cannot be identified as singular actors. Yet, this does not hold true for the European Union and to a certain extent for the Arab League. In general, most regional organizations are part of a larger bloc. Further, if abstentions are excluded from the W-NOMINATE analysis, solely the EU can be identified as an actor in the UNGA.

Our second hypothesis assumed an increase in regional organizations' voting cohesion over the last twenty years. Again, this hypothesis cannot be confirmed for all our cases. Only the EU, Mercosur, and CARICOM show the assumed effect. Some others, including the Arab League, show a negative effect.

Regarding the third hypothesis, the EU is the only actor which holds or even increases its voting cohesion in contested votes. Almost every other regional organization displays a decrease in voting cohesion when a resolution is contested in the UNGA. The Arab League shows just a slight decrease in its voting cohesion. All other regional organizations' voting cohesion decreases rapidly in such cases.

Finally, most regional organizations show a decrease in voting cohesion or no significant effect when more member states participate in a vote.

Overall, our results raise doubts whether this shift to multipolarity can be witnessed in the UNGA. We show that the EU can be perceived as a singular actor. EU member states are plotted in close proximity to each other in the W-NOMINATE spatial maps and EU member states vote as a cohesive bloc even in contested votes, even though the EU is a numerically quite large organization. This cohesiveness in contested votes seems to be a good indication of successful vote coordination. To some extent, this finding holds true for the Arab League. At least in the 2000-2011 period, AL's member states can be identified as a cohesive group in the W-NOMINATE analysis and the level of voting cohesion is merely slightly affected by the closeness of a vote. Yet, these are the only two regional organizations for which we witness such effects. All other regional organizations in our analysis can hardly be identified as unique actors. They might show a high level of voting cohesion, except for the PIF, yet, this seems to be caused by the high level of overall agreement in the UNGA and not by the specific actorness of the regional organizations.

The results of this analysis can be interpreted in two ways. If we are convinced that the analysis of UNGA voting patterns is a valid indicator to control for the performance and effectiveness of regional organizations in international politics, we should conclude that most regional organizations fail in acting cohesively on the international level. This holds especially true, when we consider that in the case of the EU, we can see clear signs of successful vote coordination and actorness in the UNGA. However with respect to the difference in integration processes and the smaller extent to which other regional organizations than the EU coordinate their votes, the analysis of UNGA votes might not be considered a valid indicator. Less integrated organizations with little or no coordination

mechanism are able to achieve very high levels of voting cohesion. Even if they are not able to preserve the cohesion in contested votes, they still achieve unity in most votes as contested resolutions are rare in the UNGA. Overall, we believe that the quantitative analysis of voting patterns in the UNGA has limited value for the analysis of regional integration processes and the study of regionalism. However, the proxy shows that there are interesting cases that need further investigation with qualitative methods.

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Appendix A

Differences between voting cohesion indices

The main difference between the Rice and the Agreement Index is the inclusion of abstentions in the computation of voting cohesion. Both indices follow the logic that they rescale the ‘majority size’ to a value between 0 and 1.⁷ The Rice Index does so, by dividing the difference between the majority and minority size through the sum of all ‘yes’ and ‘no’ votes, yielding to a value of 0 when ‘yes’ and ‘no’ votes are equal and 1 when the majority size is 100 percent. The Agreement Index does the same for the three voting options. It is zero, when ‘yes’, ‘no’ and ‘abstain’ votes are casted equally and is one when all group members cast the same vote. In general, this rescaling of the ‘majority size’ can be expressed as:

$$\text{Cohesion measured as majority size} = MS - \frac{1}{x-1} * (1 - MS)$$

With ‘MS’ being the proportional majority size which has a range from 1/x to 1 and ‘x’ being the number of voting options that are analyzed. For x=2, this formula equals the Rice Index and the Agreement Index for x=3.⁸

However, as Desposato (2005) demonstrates, this way of measuring voting cohesion has a central shortcoming. I.e. it is biased according to the group size. Instead of measuring the *majority size* of a group, Desposato suggests measuring the probability of two randomly chosen group members casting the same vote on a resolution. In general this can be done by:

⁷ The majority size is defined as the mode of the two (‘yes’ and ‘no’) or three (‘yes’, ‘abstention’, and ‘no’) voting options of a group.

⁸ Panke (2013) suggests including abstentions in the computation of voting cohesion. In this case x=4 (but see Voeten 2013 why the inclusion of absences can lead to biased results in the case of UNGA voting).

Cohesion measured as probability of two members casting the same vote

$$= \frac{\sum_{i=1}^x n_i * (n_i - 1)}{N * (N - 1)}$$

With ‘ n_i ’ being the number of votes casted for one of the ‘ x ’ voting options and ‘ N ’ being the number of all votes the groups casted. For the Rice Index this yields

$$\text{Rice Index} = \frac{Y*(Y-1)+N*(N-1)}{(Y+N)*(Y+N-1)}$$

And for the Agreement Index this is:

$$\text{Agreement Index} = \frac{Y*(Y-1)+N*(N-1)+A*(A-1)}{(Y+N+A)*(Y+N+A-1)}$$

This solution made by Desposato (2005) equals the logic on which the Index of Voting Cohesion is based on. In its original form, the IVC is defined as:

$$\text{IVC} = \frac{a+0.5*b}{t}$$

Where ‘ a ’ is the number of identical votes, i.e. two members casted the same vote, and ‘ b ’ is the number of solidarity votes, i.e. one member voted ‘yes’ or ‘no’ while the other abstained. It becomes clear from this computation, that the IVC puts special weight to abstentions and treats them as a weaker form of vote defection than casting a ‘no’ vote when the other state voted with ‘yes’. Although the IVC has so far been exclusively used to measure voting cohesion between two states, it can be also be used to measure voting cohesion for a group of states. The only information needed is how many identical and solidarity votes occurred between the group member states. This leads to a formula quite similar to the above mentioned formulas with group size bias correction:

$$\text{IVC} = \frac{Y*(Y-1)+N*(N-1)+A*(A-1)+A*(Y+N)}{(Y+N+A)*(Y+N+A-1)}$$

Actually, the only difference to the Agreement Index is the “ $A*(Y+N)$ ”-term which occurs due to the weighting of abstentions. It is up to the researcher which of these indices should be used in the analysis. The Rice Index might not be appropriate since it does not include abstentions, which are casted quite often in the UNGA. The Agreement Index treats all of the three voting options equal, while the IVC is higher for groups in which vote defection is due to abstentions instead of a directly opposed vote.

In addition to the rescaling made by Desposato, we rescale the mentioned IVC one more time. As presented above, the IVC cannot become zero when a group has more than three states. This is unsurprising, since in such cases the probability of two member states casting the same vote cannot be zero. Furthermore, this minimum value of the range is getting larger, the more members a group has. Hence, in terms of interpretation, it might be preferred to rescale each groups voting cohesion to the same scale between zero and one. We do so by the using following formula:

$$\text{Index of Voting Cohesion} = \frac{IVC - IVC_{\text{Minimum}}}{1 - IVC_{\text{Minimum}}}$$

The IVC has its minimum value, when 50 percent of the group vote ‘yes’ and the other 50 percent vote ‘no’. This can be expressed as⁹:

$$\text{Index of Voting Cohesion Minimum} = \frac{\frac{Y+N+A}{2} - 1}{Y+N+A-1}$$

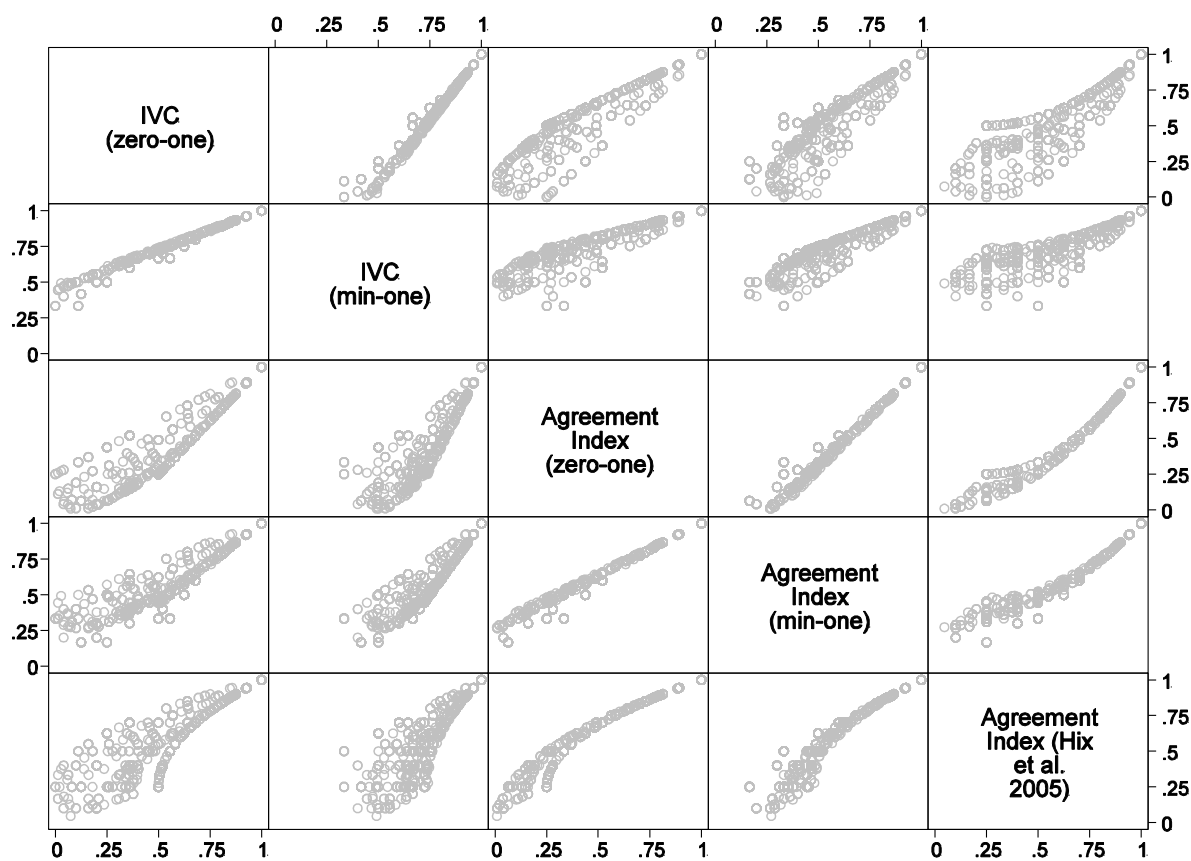
This leads to the final IVC formula of:

$$IVC = \frac{2 * [(Y-1) * Y + (N-1) * N + (A-1) * A + A * (Y+N) - \frac{(Y+N+A)^2}{2} + Y+N+A]}{(Y+N+A)^2}$$

Finally, we can compare the differences between the discussed indices by looking at a correlation matrix. It becomes clear that the solution offered by Desposato and our rescaling procedure to zero-one are almost perfectly correlated. However, if we compare for example the values of our IVC index with the values of the Agreement Index by Hix *et al.*, much variation occurs, especially in cases of disagreement.

⁹ Although we present only the solution of how to rescale the IVC, this can also be done for the Agreement Index and the Rice Index, only the minimum values have to be changed.

Figure 6: Correlation matrix of voting cohesion indices



Appendix B

NOMINATE (excluding abstentions)

The following two figures display the result of our NOMINATE analysis treating abstentions as missing values.

Figure 7: W-NOMINATE 1990-1999 excluding abstentions

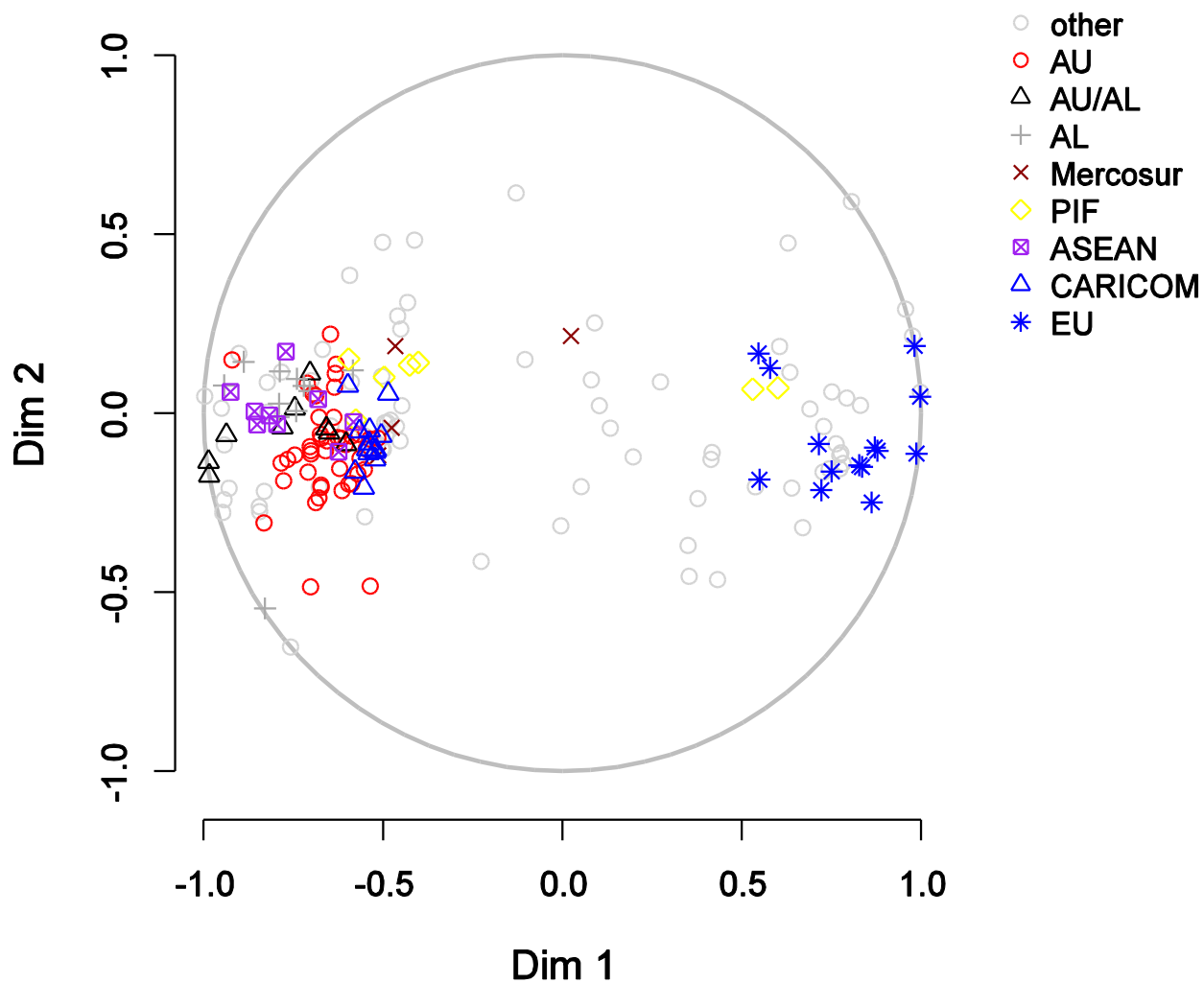
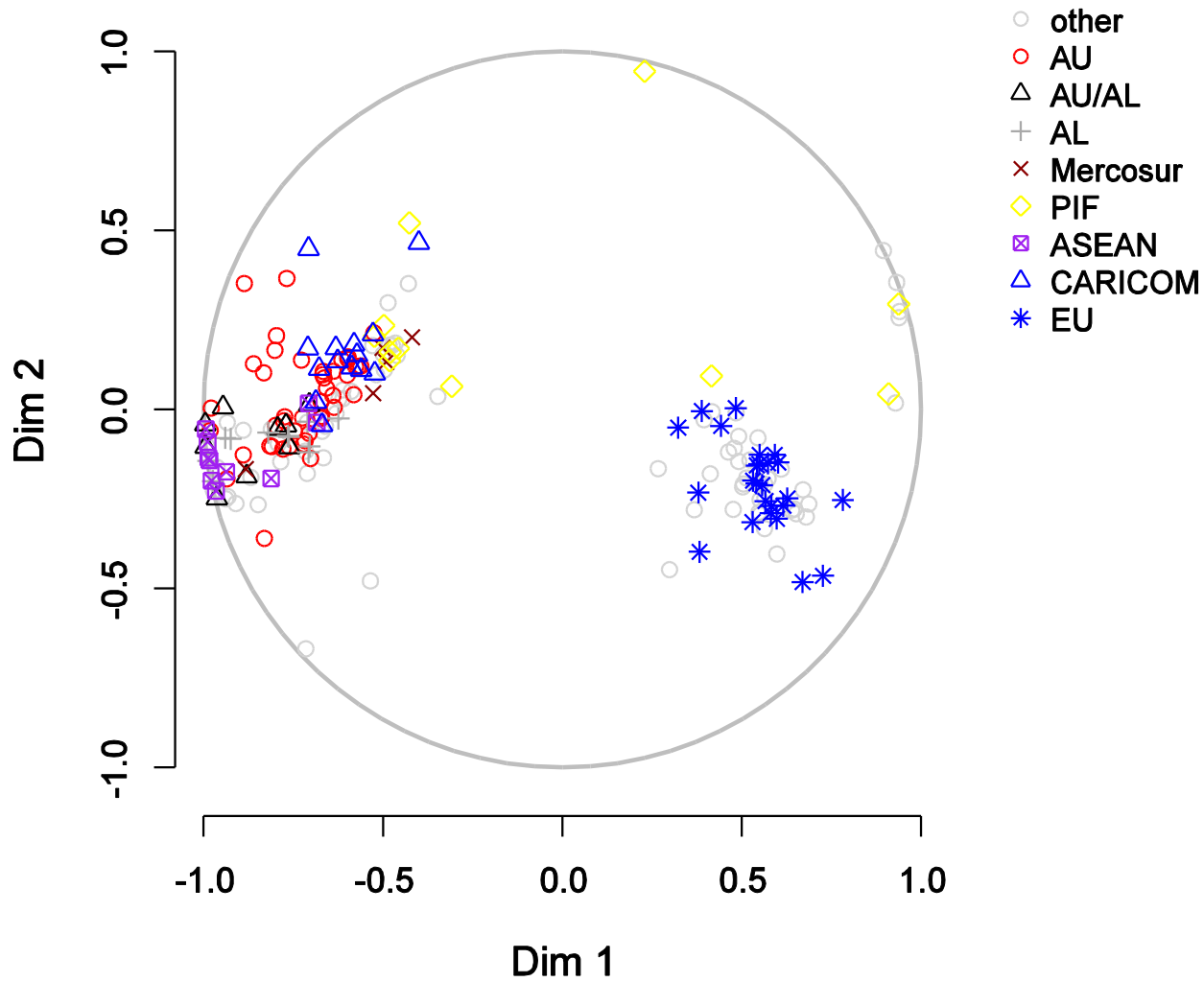


Figure 8: W-NOMINATE 2000-2011 excluding abstentions



Appendix C

Descriptive statistics

Table 4: Descriptive statistics

	N	%	Cum. %		
Topics					
Other	211	14.52	14.52		
Middle East conflict	408	28.08	42.6		
Nuclear weapons	240	16.52	59.12		
Arms control	166	11.42	70.54		
Human rights	225	15.49	86.03		
Colonialism	125	8.6	94.63		
Econ. development	78	5.37	100		
Important vote US					
not important	1,204	82.86	82.86		
important	249	17.14	100		
US voting behavior					
USA: Yes or Abstain	515	35.64	35.64		
USA: No	930	64.36	100		
	N	Mean	Std. Dev.	Min	Max
Closeness	1453	0.262	0.24	0	0.95

Figure 9: Histogram and kernel density plot of closeness variable

