POLARITY, POLARIZATION, AND DEMOCRACY: RESULTS FROM THE LINEAR DEMOCRACY DATA

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Abstract:

This paper empirically improves the model and re-tests the theory proposed by Güner (2016) which argues that democratization is impacted by systemic factors such as polarity and polarization. Guner (2016) argues that individual leadership choices on democratization do not exist in a vacuum and they might be shaped by macro-level, systemic factors. Güner's theory is an interdisciplinary contribution to the study of democracy which combines macro-level international factors and micro-level individual/leader behavior. In this paper, this hypothesis is re-tested, improving the fixed effects panel regression with linear democracy data and extending the observations to from 5499 to 8596. The results support the argument that polarity and polarization have a significant impact on democratization.

Word Count: 3409

Polarity, Polarization, and Democracy

The factors of democracy and democratization has been an important focus of attention among political scientists. Years of research in this area have showed that democratization could be impacted by many complex factors or a combination of them including development, ethnic/religious diversity, inequality, past experiences with democracy or some systemic factors such as international conflict and proximity to democratic neighbors.

Güner 's work (2015 & 2016) have contributed to this discussion by offering a variation of the systemic approach that looks at balances of power in the international system as well as alliance networks. Guner (2015 & 2016) argues that polarization and power polarity are also important factors that might produce a democracy-prone environment. Güner (2015) defines polarity as the distribution of power or capabilities. In this respect, a *"unipolar* system" is defined as an international system which has one dominant state, a "bipolar system" is defined as an international system in which there are two major states of approximately equal capabilities, and a "multipolar system" is defined as a system which has three or more major states of approximately equal capabilities. Polarization is defined as the propensity of countries to cluster in alliance blocs. Alliances can take the form of

defensive agreements among countries, neutrality pacts, or non-aggression pacts. Maximum polarization is obtained when the system is strictly divided into two cliques with half of the units in each and no overlap between the cliques (Maoz, 2006). Zero polarization is obtained when there is maximum overlap among the cliques. Therefore, a system with multiple major states that form two separate blocs is "multipolar" and highly "polarized".

The common agreement among scholars of international relations is that multipolarity and polarization create more uncertainty in the system. According to Geller and Singer (1998), systems in which capabilities are highly concentrated in the hands of very few nations are more certain and the uncertainty levels will rise when capabilities are more equally distributed and not concentrated. Second, uncertainty will rise when the distribution of capability concentration is changing toward higher or lower concentration. Therefore, uncertainty increases during times of power transitions. Third, uncertainty will rise when there is an increase in the rate at which relative capabilities are moving (Geller and Singer, 1998). In addition, polarized systems are more uncertain because of increase in the number of alliance groups.

Güner (2015) argues that multipolarity and polarization increase uncertainty in the system that might serve as a crisis-like situation for authoritarian elites. In democracy literature, it is argued that crisis situations are favorable for new democracies to emerge. Acemoglu and Robinson (2003) explain the emergence of democracy from the cost-benefit calculation of specific groups in a society. When the cost of repression is high, the elites choose to tolerate the demands of masses in favor of democracy. In crisis situations, the collective action problem is easier to solve, opponents to the regime are easier to coordinate, and revolutions are easier and less costly to carry out. Therefore, crisis situations are favorable for new democracies to emerge.

In a similar theoretical framework, Weingast (1997) argues that transition to stable democracy requires the construction of a coordination device that specifies the limits on the state. By allowing citizens to react to violations in concert, such a device makes limits on political officials self-enforcing. According to Weingast (1997), two means of constructing limits are elite pacts and the writing of a constitution. However, a society cannot establish a coordination device at just any time. When the state and its supporters benefit from transgressions against other citizens, this pattern is a stable equilibrium. Breaking this equilibrium is difficult and requires something exogenous to the model. A crisis such as economic changes may destroy the status quo.

According to Güner (2015), uncertainty caused by polarity and polarization might produce a similar crisis-like environment for elites and citizens. Systemic uncertainty might cause transitions to democracy because the cost of repressing democratic demands in an uncertain international setting is higher for authoritarian elites. Uncertainty in the international system produced by polarity and polarization is more likely to increase elites' willingness to concede masses demands in order to gain their people's support. Elites will want to have the support of the masses even more in times of uncertainty in the system and will be more likely to give in to the demands of the people through democratic policies.

It is important to test this theory because it brings a new perspective to explain the determinants of democracy by looking at the balance of power and alliance structure in the international system. International factors might have a considerable impact in determining a country's regime type through impacting elite behavior. This research, therefore, is an interdisciplinary contribution to the study of democracy which combines macro-level international factors and micro-level individual/leader behavior. The theory itself argues that individual leadership choices do not exist in a vacuum and they might be shaped by macro-level, systemic factors.

In this paper, this theoretical argument proposed above by Güner (2015) is empirically re-tested with linear democracy data. Panel regression models are used on 8596 observations, 154 country clusters ranging from 1946 until 2000 to test the hypothesis. The results support the argument that polarity and polarization have a significant impact on democratization.

Measurement and Data

Dependent Variable

In Guner (2016), definition of democracy is based on Cheibub et al. (2010) dataset which measures democracy on a dichotomous level-democracy coded as 1 and authocracy coded as 0. However, some scholars argue that categorizing countries as democratic vs non-democratic lumps together countries with very different degrees of democracy and blurs distinctions between borderline cases (Bollen and Jackman, 1989). In order to check the robustness of Guner (2015)'s hypothesis and Guner (2016) model, in this paper, definition of democracy is based on Polity IV dataset (Marshall and Jaggers, 2010) where the operational indicator of democracy and autocracy is derived from codings of the competitiveness of political participation, the openness and competitiveness of executive recruitment and constraints on the chief executive. Polity IV use linear measure of democracy measured from 0 to 10. This linear measurement of democracy gives us a chance to see different degrees of democracy and alleviates concerns on dichotomous democratic data.

Independent Variables

As argued in Güner (2015), development is considered as one "core" variable that has an impact on democratization and per capita GDP (logged) is the most common measure of development. The GDP data is obtained from Maddison (2008) that contains per capita GDP data from 1820 till 2008 and covers 163 countries that existed within this time period.

It is also argued that *ceteris paribus*, the systemic conflict might be negatively related to the likelihood of democratization and democratic survival (Kadera, Crescenzi, and Shannon, 2003). In order to measure systemic conflict recent, updated Interstate War Data (version 4.0) from COW is used. This dataset covers inter-state wars from 1823 till 2007 (Sarkees and Wayman, 2010). Following other scholars, systemic level of conflict is measured by the number of inter-state war in a given year, normalized by the number of states in the international system (Crescenzi and Enterline, 1999).

In order to measure alliance polarization in the system, Maoz (2006) dataset is used (see Figure 1). Maoz (2006) introduces an "endogenous procedure defining groups and group membership as a result of the structure of relations". His measurement of group membership is analytically useful since he recognizes that states may be members of multiple groups. "The maximum level of network polarization is obtained when there are only two blocs that are mutually exclusive in terms of the members making up each bloc" (Maoz, 2006). The measurement of network polarization is grounded in network analysis. An alliance network consists of a set of states when state i is or is not an ally of state j. Maoz (2006) uses matrix algebra to measure polarization. Network polarization is a product of two concepts: Node Polarization (NPOL) and Clique Overlap Index (COI). In a clique, each state has a

direct tie with other state. "Cliques are not equivalent to alliances: Alliances can be subsets of cliques. If state *i* has bilateral alliances with *j* and *k*, and *j* and *k* also have a bilateral alliance, we have a clique *ijk*" (Maoz, 2006). Node polarization reflects the relationship between the states that form a clique and those that do not. NPOL ranges from 0 to 1. NPOL=0 is obtained if all states form a single clique, and 1 when the cliques are uniformly distributed such that half are in each of the cliques. In addition to Node Polarization Maoz (2006) calculate Clique-by-Clique Overlap (CCO) matrix. Entries in the CCO Matrix are defined such that cco_{ij} denotes the number of states that cliques *i* and *j* share in common.

Network Polarization is defined as NPI (Network Polarization Index)=NPOL*(1-COI). "Maximum network polarization is obtained when the system is strictly divided into two cliques with half of the units in each and no overlap between the cliques. Zero polarization is obtained if all units are members of one clique (NPOL=0)." (Maoz, 2006). Maoz (2006) uses COW2 (Gibler and Sarkees, 2004) and ATOP (Leeds et al., 2002) datasets to construct the Alliance Polarization Index. Alliance Polarization data are available from 1816 till 2000.

Figure 1 below represents Alliance Polarization Index (Alliance NPI) over time. The general tendency in the international system is going toward a less polarized world. Maoz (2006) Alliance Polarization measures show that Cold War era that is known for its bipolar structure is remarkably less polarized than the early and mid-19th century. This is due to the fact that since the middle of 19th century, a growing number of states joined the system which generated many more alliance cliques as well as higher clique overlap (Maoz, 2006). In order to control the increase in the number of states, NPI is normalized by the number of states in the international system.

Figure 1. Alliance Polarization Data, 1816-2000

In this paper, to measure polarity, Singer, Bremer and Stuckey's (1972) measures of CON (Concentration of Capabilities) and MOVE are used. In order to calculate CON and MOVE, Singer, Bremer and Stuckey (1972) start by calculating CINC (Composite Indicator of National Capabilities) which measures a state's material strength looking at a state's demography, military expenditures and personnel, the size of the armed forces, energy consumption and iron/steel production.

In order to measure CON (Concentration of Capabilities), Singer, Bremer and Stuckey (1972) produced an index ranges from 0 reflecting perfect equality in the distribution to 1.0 (in which case one nation holds 100 percent of that capability). As seen in Figure 2 below, system concentration tends to decrease over time but since the mid-1990s, there is an upward movement towards unipolarity.
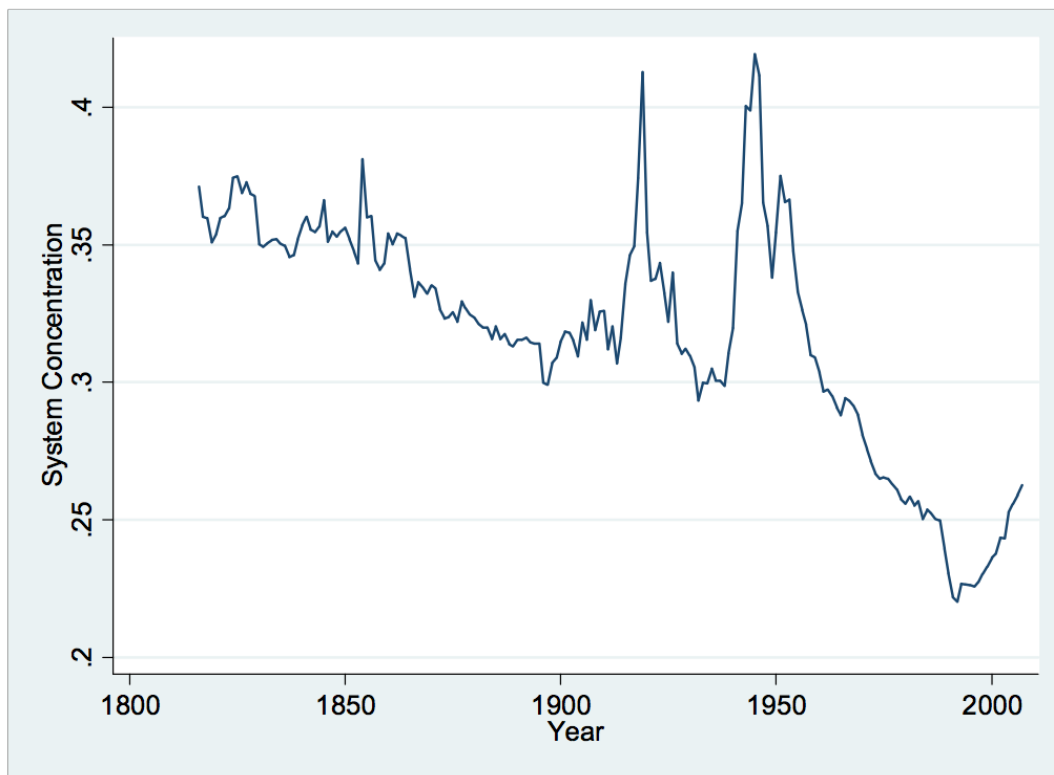

Figure 2. System Concentration Data, 1816-2007

System Movement (MOVE) reflects the capability shares that have been exchanged between and among the major powers during each period, whether or not that redistribution leads to a change in the rank ordering. In other words, MOVE reflects the power movement among countries. Singer, Bremer, and Stuckey (1972) compare the percentage of capability shares held by each of the nations at the beginning and the end of the half decade. In order to make MOVE index comparable across all 30 periods, they normalize MOVE with the size of the system by dividing by the maximum possible amount of movement or redistribution. The dataset used in this research is a modified version of Singer, Bremer, and Stuckey (1972). In this paper, EUGene is used (Bennett and Stam, 2000) which is a program designed primarily for generating data. While the original CON and MOVE scores were

calculated over five-year aggregated periods, EUGene calculates both scores yearly. In addition, Eugene calculates CON and MOVE across the entire system. Also, while original data is from 1820 until 1960, EuGene (Bennett and Stam, 2000) dataset is available from 1816 up to 2007. In this statistical analysis, System Concentration and System Movement are derived from EUGene's system variables.

Model Estimation

In this paper, panel regression models are used to test the hypothesis. The model contains systemic or international independent variables including conflict, polarity and polarization and domestic or internal independent variables including GDP and past transitions to democracy. Whether these variables contribute to a regime's democratic status is analyzed in the Results & Discussion section. Following the suggestions by Gassebner, Lamla and Vreeland (2012), economic development and numbers of past transitions are used as internal independent variables in the model as these two variables have proven to be the most robust determinants that passed through the test of different empirical models. In numerous empirical studies, a country's economic development levels showed a significant positive relationship with its democracy scores. This means that wealthier countries tend to be more democratic (Lipset, 1959). Therefore, GDP as a measure of wealth is sustained in the model. Similarly, different empirical studies show that if a country has experienced democracy previously, it will likely transition to or sustain its democracy even after a certain period of authoritarian rule. However, if a country has never experienced democracy, it will likely stay undemocratic. Therefore, even one-time exposure to democracy is likely to result in subsequent trials. It is shown that as the number of trials of democracy increase, there will be more attempts to democratization or a country will more likely stay democratic. Because of this, the number of past transitions is also taken as an internal independent variable.

In summary, the democracies from 1946 to 2000 are examined and multiple datasets are merged including Polity IV for measures of democracy, Maoz (2006) which measures Network Polarization, COW which measures War and Conflict in the system (Sarkees and Wayman, 2010), Maddison's (2008) GDP which measures development, and Singer, Bremer and Stuckey (1972) which has different measures of polarity such as System Concentration (CON) and System Movement (MOVE).

	MODEL 1 (Guner, 2016) (Dichotomous Data)	MODEL 2 (All variables-5 year lagged) (Guner, 2016) (Dichotomous Data)	MODEL 3 (Linear Data)
Independent Var.	Coefficient	Coefficient	Coefficient
N. Past Democratic Transitions	0.439*** (0.008)	0.242*** (0.010)	3.028***
GDP-logged	0.078***	0.112***	1.485***

	(0.011)	(0.015)	
System Conflict	-0.305*	-0.617***	-0.711
	(0.134)	(0.162)	
System Concentration	0.242	-1.284***	7.532***
	(0.170)	(0.202)	
Alliance Polarization (NPI)	155.972***	209.56***	209.765***
	(21.957)	(25.300)	
Power Movement	2.034***	2.745***	15.492***
	(0.263)	(0.307)	
Constant	-0.696***	-0.450**	-12.019***
	(0.111)	(0.145)	
R square	0.487	0.457	0.52
N (groups)	154	154	-
N (observations)	6269	5499	8596

Table 1. The Impact of Systemic Factors on Democratization, 1946-2000

Results and Discussion

Table 1 shows all the systemic variables and core internal variables with both dichotomous (Guner, 2016) and linear democracy data. Guner (2016) found that Alliance Polarization has a significant impact on democratization. This supports Güner's (2015) hypothesis that uncertain systemic setting resulting from polarization is, in fact, good for the emergence of democracies by providing a crisis like situation that facilitates collective action and increasing the cost of repression. This paper confirms Guner (2016)'s findings with linear democracy data and confirms that system polarization has a significant impact.

System Concentration is the static measure of system capability concentration that ranges from 0 (reflecting perfect equality in the distribution) to 1.0 (in which case one nation holds 100 percent of that capability). Based on the results in Table 1 there is inconsistent impact of system concentration on democracy. While the impact of system concentration on democracy seems to be positive and insignificant on the short term (Model 1), it is negative and significant in the long term. However, in Model 3 when the model is tested with linear data, system

concentration seems to have a positive and significant impact on democracy. Since all these three results are inconsistent, this paper shows that system concentration fails to pass the robustness check as a significant determinant. Similarly, the impact of war on democracy is negative and significant both in the short and the long run with the dichotomous model however the impact is insignificant with linear data (Model 3).

System movement reflects the number of percentage shares that have been exchanged in the system each year. Based on the results, a positive significant relationship is seen between the change of power concentration and democracy. As discussed in Güner (2015), uncertainty caused by systemic power shifts might be impacting elite behavior and Weingast equilibrium, paving the way for a good environment for the emergence of democracies. As seen in Table 1., the system movement is a consistent determinant which passes the test of all three models.

In line with previous research, Table 1 results show that previous experience with democracy has a considerable impact on democratization. In line with Przeworski et al. (2000), economic development has a significant impact on democracy. The results show that both in the short and long run economic development and past experience with democracy have a significant impact on democratization. These results are also supported with Model 3 with linear democracy data.

Overall these results show that alliance polarization and system movement are the most robust indicators of democratization. Uncertainty caused by power shifts and alliance polarization might lead to internal dynamics which are more viable for democracies.

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Entries for all Models are time series coefficients. Standard errors are in parenthesis.

$*p<.05, **p<.01, ***p.<.001$