

The Contagion of Democracy Through International Networks*

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Abstract

Work on democratization typically considers the diffusion of democracy through interstate partnerships. However, such partnerships constitute complex networks that scholars have yet to fully explore as vectors for the spread of democracy. We develop a network theory of democratization which characterizes these networks as epistemic communities that influence elites' attitudes towards favorable regime types. Our theory predicts, and our empirical strategy confirms, that direct and indirect ties in the alliance network are vectors for democratization. In contrast to conventional wisdom, we find that direct influence is only transmitted through the defensive alliance network and find evidence of higher-order effects.

Keywords: democratization; democratic diffusion; socialization; indirect effects; military alliances; intergovernmental organizations

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Introduction

In May 1983, Guatemala’s Jorge Serrano dissolved all checks on his sovereign authority. Within five days, protests and sanctions from Guatemala’s allies in the Organization of American States (OAS) lead the military to remove Serrano from power and install a civilian leader. Guatemala’s military had been heavily socialized by and faced normative costs from its allies, leading them act against a head of state to reestablish democracy (Cameron, 1998; Pevehouse, 2002a; Thérien et al., 2012). This clear example of military-initiated democratization stands in defiance to many accounts of democratization and civil-military relations – why would the military, typically thought to profit from autocratic rule, be so willing to heed the word of their allies and remove an autocrat from power?

This puzzle raises important questions about the role of international institutions on a state’s regime type. Institutional relations constitute complex networks that have been chronically neglected as vectors for regime change or continuity. Using this puzzle and the networks that inform it as motivation, we examine democratization, a process with profound consequences for a variety of political phenomena, such as conflict, trade, and the life and welfare of millions. We begin with the following questions: Is democracy *contagious* across international networks? If so, what are the dynamics affecting its spread? Given that networks contain higher-order (i.e., friend-of-a-friend) indirect neighbors, are there indirect effects that influence democratic diffusion? For example, if the ally-of-my-ally is a democracy, does that create structural incentives for me to democratize?

We propose a theoretical framework that views democratization as a state behavior driven by elites that are socialized within, and influenced by, broader epistemic communities, of which we consider the IGO and alliance networks. While this framework supports and predicts the diffusion of democracy, it makes a novel contribution in predicting the existence of indirect effects and the mechanisms by which they pressure states to democratize. Our results support

this view of democratization and the mechanisms proposed. First, we find that the count of direct and indirect democratic ties are robust in explaining and predicting states' transitions to democratic regimes. The implication is that ties to democracies exert pressure to democratize, whereas ties to autocracies do not exert pressures to autocratize. Second, we find that indirect effects are strongest when the intermediary (e.g. directly connected) states are of the same type as the indirectly connected state. This implies that the 'signal' to democratize is only passed through an indirect chain of like-regimes. Finally, we find support for these mechanisms, but only through the defensive alliance network. This stands in contrast to the conventional wisdom of international relations, that IGOs and regional pressure are the essential vectors for the diffusion of democracy (Pevehouse, 2002a, 2005; Gleditsch & Ward, 2006). While these findings contradict the conventional wisdom of international relations, they are consistent with a substantial body of work in network science on contagion effects (Christakis & Fowler, 2010).

Theories of democratization

Two literatures dominate the study of democratization — the Comparative Politics approach, which emphasizes economics, and the International Relations approach, which is underscored by diffusion and international effects. These approaches have made significant progress in explaining democratization and democratic consolidation, but leave many questions unanswered. While we briefly consider the Comparativist approach, we prioritize a discussion of the International Relations literature on democratization as the present study focuses upon the diffusion of democracy through international networks.

The bulk of the literature on democratization considers the effects of a state's domestic attributes. The 'Social Requisites of Democracy' school finds that multiple indicators of economic development are associated with democratic consolidation and transition (Lipset, 1959; Londregan & Poole, 1990; Przeworski et al., 1996; Acemoglu & Robinson, 2001). While infer-

ences are plagued by the effect of democracy on development (Przeworski & Limongi, 1997; Boix & Stokes, 2003), many find that when attempting to correct for this endogeneity problem support persists (Geddes, 1999; Boix & Stokes, 2003; Epstein et al., 2006). One interesting conclusion from this work is that while higher levels of GDP per capita positively influence democratic consolidation, transitions can occur ‘randomly’ or from external pressures (Boix & Stokes, 2003; Epstein et al., 2006). This provides an opportunity to explore international pressures that may lead to ‘random’ democratization attempts.

Contiguity, geographic distance, and diffusion

Traditionally, diffusion is considered a phenomena occurring among contiguous or geographically proximate states. In defining democratic diffusion as a relational event requiring a sender and a receiver, the probability of democratic transition is typically considered a function of a receiver’s distance to the sender and the density of relevant senders.

Starr (1991) and O’Loughlin et al. (1998) were among the first to rigorously consider the temporal and spatial clustering of democracy, arguing that regionally clustered states have similar internal conditions (with respect to the civil and economic requisites for democracy), and when one state becomes democratic the effects are contagious (O’Loughlin et al., 1998). These results are generally robust to the inclusion of variables known to influence regime change – such as development, presidentialism, and regional differences – and to corrections for selection bias (Brinks & Coppedge, 2006; Wejnert, 2005).

Gleditsch & Ward (2006) in their state of the art model of democratic clustering find that a state’s proximity to democracies and newly democratic states have profound effects on the likelihood that a state transitions to democracy. In addition, they make significant contributions to the meso-level explanations of O’Loughlin et al. (1998), finding that changes in the relative power of actors and groups that would seek democracy are influenced by neighboring

states who may be democratic (925).

Networks, geodesic distance, and diffusion

In addition, and sometimes in contrast, to those who suggest that diffusion is contingent upon geographic distance, some posit that properties of international networks may affect democratic diffusion. Ties within social networks provide conduits for the exchange of information and expertise, and allow for the diffusion of social phenomena (Lazer, 2005). Might the same logic apply to relationships among states? A large set of studies find that Intergovernmental Organization (IGO) networks are powerful vectors for regime type diffusion (Pevehouse, 2002b,a; Gheciu, 2005; Pevehouse, 2005; Zhukov & Stewart, 2013), so perhaps a network-based perspective could guide our approach to democratic diffusion.

Recent and well received studies, however, examine other international networks as conduits for regime type diffusion. Recently an attempt to capture ‘dependence networks’ through indices of alliances, IGOs, and trade ties reaches an interesting conclusion about the external drivers of democratization. Goodliffe & Hawkins (2015) find that the index of these three networks, which is said to capture dependence, is an important variable in explaining transitions to more democratic institutions. The opposite is also true, that dependence can lead a state to autocracy if they are dependent upon autocrats.

While some have considered the bilateral (direct) effects of international networks on democratic diffusion, none have yet considered the greater complexity of these networks nor the possibility of higher-order, or peer-of-peer, network effects. Often, studies employ some measure of contact, such as distance, and argue diffusion is more likely to occur if there is some change in the connected state’s regime from one time to another. Treating diffusion in this way poses three problems. First, it is agnostic to the causal mechanism by which diffusion occurs. Second, it is difficult to understand whether diffusion processes are at work, or whether

one state is simply adjusting to its level of economic development (O’Loughlin et al., 1998). Third and most importantly for our purposes, it foregoes the ability to consider diffusion as a higher-order network process that occurs even if two states do not have direct contact. Our study fills these gaps by including network effects as predictors in a Markov transition model of democratic diffusion to empirically test several candidate mechanisms for diffusion through complex international networks. This offers the opportunity to make an empirical contribution to a burgeoning literature on network diffusion of democracy, but to clearly consider the theoretical mechanisms underlying diffusion.

Network pressure at the micro and meso levels

The core of our theory relates to the diffusion of state behaviors across international networks more than it does to the spread of democracy specifically, though democracy has some properties that warrant special consideration. This may seem odd given the preceding discussion of scholarly research on democracy and democratization. Our view is that by studying the diffusion of state behaviors over networks, we can begin to develop a more general theory of networked behavior in international and comparative politics and also make a novel contribution to our collective understanding of democratization.

When considering the spread of democracy, or any state behavior, over international networks, two questions must be addressed in order to form a complete theory: (1) by what micro-processes do ties between states make one state more likely to adopt the behavior of the other, and (2) how does this process ‘scale up’ (e.g. which meso-processes are at work) when considering diffusion over a large and complex network of states? We consider each of these questions in turn.

Micro-processes affecting diffusion

How does contact between two states lead one of them to adopt the behavior of the other? We propose a micro-process based on adaptive learning and the sub-process of socialization. This mechanism has been extensively studied in the diffusion of phenomena through international networks, including the effect of IGOs on economic policy (Cao, 2009, 2010), human rights policy (Greenhill, 2010), and trade (Ingram et al., 2005). Beyond socialization, there are many other processes such as emulation, competition, and coercion, extensively covered by (Simmons et al., 2006), that we expect to influence the diffusion of democracy. Our approach implies a focus on gradual, elite-driven, transitions to democracy. We feel this is warranted because rapid (e.g. revolutionary), government-replacing, transitions from autocracy to democracy are quite rare. Using the Polity IV data and data on state-failures and coups, there are only 4 instances of states transitioning from autocratic to democratic while having experienced a revolution (operationalized simply as a state failure that was not a coup) since 1940, excluding cases of democratization by invasion (Marshall & Jaggers, 2002). Slow transitions are typically the result of a concessionary process between the government and pro-democracy groups, where the socialization of elites in both the government and pro-democracy groups will affect the strength of the agitation and the government's reaction.

International organizations (IGOs and alliances) play an important role in generating and distributing information (Lazer, 2005). They are venues established as critical mechanisms for diffusion, and are designed to encourage learning and adaptation (Barnett et al., 1999). Military alliances are particularly important because the consent of the military is often necessary for transition from autocracy to democracy (Pevehouse, 2002a). As a result, socializing military leaders to democratic norms is an important and possibly crucial step on the way to elite-driven transition.

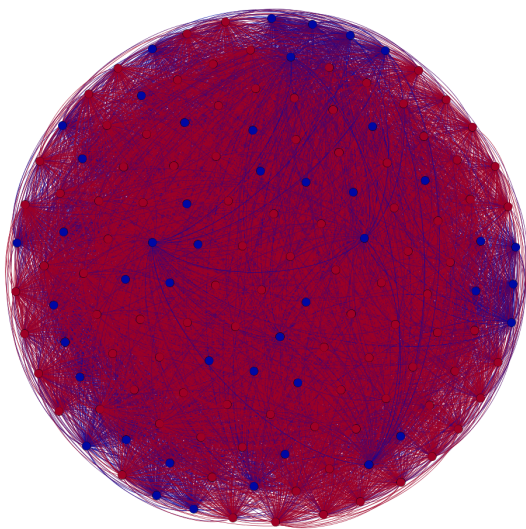
The central microprocess of our theory is socialization: a series of processes by which elites

within a given country are activated to agitate for democracy. The basic premise of the socialization process is that elites in any given government are either members of, or routinely interact with members of, epistemic communities (‘cross-national collectives of individuals with common interests and institutionalized mechanisms for communication’ (Lazer, 2005)). These epistemic communities are considered in Figures 1 and 2 which show the IGO and alliance networks respectively.¹ Common interests span international networks of experts, either working directly in government or interacting regularly with members of government in areas of domestic policy that require international coordination (e.g., defense, fiscal policy, environmental regulation) (Finnemore & Sikkink, 1998; King, 2005; Faleg, 2012). Institutions for epistemic communities are also straightforward: while a variety of informal means of communication/interaction exist (e.g. international media), members of epistemic communities interact through official international institutions that are designed to encourage coordination and exchange. These institutions can take the form of a wide variety of IGOs, including those that arise as, or give birth to, military alliances.

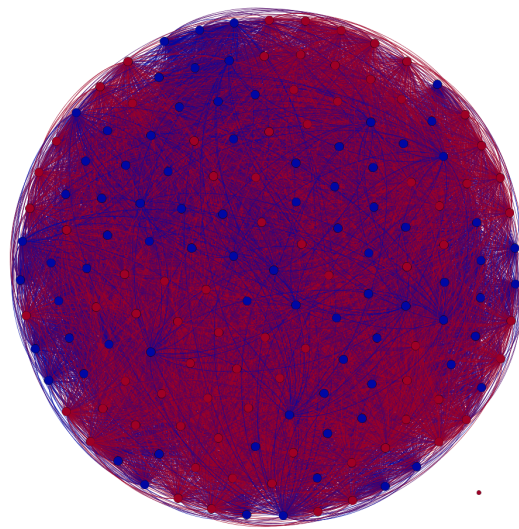
We posit that elites in epistemic communities come to adopt (or select into) a set of norms pertaining to government policy. Through socialization they come to see the deficiencies in their own government’s policies if those policies are out of step with the rest of the epistemic community’s. Socialization into the norms of a community unfolds through several processes that have been found to characterize international communities and organizations, including, e.g., persuasion on the merits of the norms (Checkel, 2005), sufficiently effective sanctions on deviation from the norms (Schimmelfennig, 2000), and internal praise for adherence to the norms (Kelley, 2004).² For example, if alliances require top generals from an autocracy to

¹Of importance when considering these networks is their relative density. The alliance network, shown in Figure 2, is much sparser, perhaps indicating that relationships are much more meaningful and costly than they would be in a much denser network, such as the IGO network shown in Figure 1. The importance of this distinction will be made more apparent in the coming pages.

²DiMaggio & Powell (1983) present a related set of processes that account for the tendency toward isomorphism among elites and their organizations—coercive, mimetic, and normative forces, with socialization

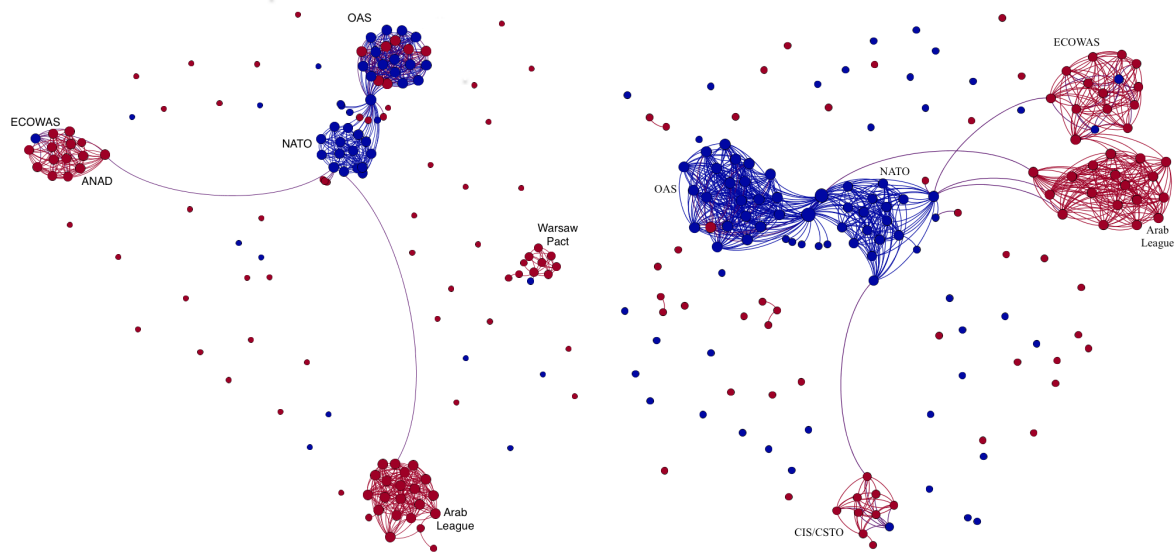


(a) IGO Network, 1985



(b) IGO Network, 1998

Figure 1. IGO networks across time. Democratic nodes are represented in blue, autocratic nodes are represented in red. Networks are exceptionally dense, states are typically connected to every other state in the system.



(a) Defensive Alliance Network, 1985

(b) Defensive Alliance Network, 1998

Figure 2. Defensive alliance networks across time. Democratic states are represented in blue, autocratic states are represented in red. Networks are fairly sparse, states are typically not connected to every other state in the system.

interact routinely with generals from democracies, they will be socialized to adopt attitudes about, say, the need for civilian control of the military and balanced civil-military relations. If the transition to democracy may be stalled by autocrats, this particular form of socialization will be important in democratization efforts for two reasons. First, when the military feels threatened by the prospect of regime change, they have the capacity to use force to curtail the transition (Londregan & Poole, 1990). Second, the group pursuing democracy must balance civil-military relations, pursuing military loyalty in spite of civilian control (Pevehouse, 2002a). Failing to do so may lead to backsliding as the military may reverse democratization attempts. These socialization forces will be amplified if the epistemic community treats democracy as normatively superior to autocracy (Pevehouse, 2002a, 2005). Note that in many institutions democracy may not be normatively superior, and in fact, based upon the institution's values, autocratic forms of governance may be preferred. Our theory and empirical strategy can account for these distinctions.

This tendency to emulate better performing policies applies in the military realm as well. Military leaders engaged in epistemic communities will be exposed to different core values and processes and, if they favor the improvement of their own state, will come to favor those that are successful. Since the close of WWII and certainly since the close of the Cold War, one may reasonably view the 'highest quality' militaries of the world as belonging to democracies. In particular, autocratic states may seek to emulate democracies given that balanced civil-military relations, among other aspects of democracy, are known to enhance battlefield effectiveness (Reiter & Stam, 2002; Biddle & Long, 2004). Thus, autocratic members of a military epistemic community with a fair proportion of democracies will likely come to adopt favorable views of processes ranging from standard operating procedures to civilian oversight/control of the military.

discussed as a normative force. We adopt a broader view, that socialization includes coercive and mimetic forces as well as normative.

Military alliances in particular have properties that make them strong incubators of socialization (Gheciu, 2005). Alliances, particularly peacetime defensive alliances, are difficult to establish.³ They require continuous top-level commitment from governments, and states only agree to participate in them (or conversely to admit new members) if they have strong agreement on the security status quo (Morrow, 1994). Because they will tend to be more homogenous than other types of IGOs, the socialization signal will be stronger and the barriers community members face to emulation will be lower (Goldman & Andres, 1999). Alternatively, consider IGOs, which are relatively heterogeneous, often very focused on specialized issues that may not require direct and high-level engagement between elites with political power. Beyond the elites attending these meetings, in alliances the policies influenced by socialization may be more broad and more related to regime type than in IGOs which may be more focused on specialized bureaucratic considerations. Take for example, NATO and the European Conference of Postal and Telecommunications Administrations (CEPT). The power brokers attending NATO summits are more likely to be high-ranking military and state officials that can influence regime type than those attending CEPT meetings, which may be bureaucrats focusing more upon regulatory best practices for wireless telecommunication. While the distinction in this case may seem particularly stark, we think it nicely underscores the differences in who and what is engaged in alliances and IGOs.

The result of this set of processes is that a substantial cadre of elites in a position to influence their government and its regime type are socialized by the community of states to which their government is connected. Put differently, the local ‘network neighborhood’ of a given state constitutes the alter-basis from which adaptive learning via socialization is likely to occur. Consider the aforementioned case of Guatemala from the introduction. Guatemala

³Military alliances, as we discuss them, are defined by Leeds et al. (2002) as follows: ‘An alliance is a formal agreement among independent states to cooperate militarily in the face of potential or realized military conflict.’ A defensive alliance is an alliance where members promise to ‘provide active military support in the event of an attack on the sovereignty or territorial integrity of one or more alliance partner.’

offers an example of socialization, particularly through opprobrium and the fear of normative costs. Within five days of Serrano’s self coup, protests and sanctions by democratic members of the Organization of American States (OAS) lead the Guatemalan military to remove Serrano from power and install a civilian leader. In this case, the military had been heavily socialized by, and faced normative costs from, its partners in a multinational alliance. The socialization of the Guatemalan military lead them act against a head of state to reestablish democracy, a clear example of military-initiated democratization (Cameron, 1998; Pevehouse, 2002a). The implication is that the international organizations to which a given state is connected (IGOs and military alliances) should exert diffusive pressure on states as the local network of ties is where an influential proportion of elites are socialized and learn which policies/models are most successful.

Our discussion of micro-processes suggests two hypotheses:

H_1 Ties in the IGO and alliance networks, are vectors for the diffusion of democracy from state-to-state.

H_2 Alliance ties have a stronger effect on this diffusion process than IGO ties.

While our theoretical discussion has focused primarily on the diffusion of democracy, it is worth briefly considering the reverse—the diffusion of autocracy. There may very well be international networks that foster the positive diffusion of autocratic regime types, but we are confident that IGO, alliance, and other international agreements do not serve as bases for these networks. The literature is clear on the fact that states with autocratic regimes serve as weak and unreliable parties to international agreements (Clare, 2013; Chang & Wu, 2016; Crescenzi et al., 2012; McGillivray & Smith, 2005; Bauer et al., 2012, e.g.,). In brief, the centrality of the individual rulers, rather than the rules/laws governing the system, and the lack of public accountability in autocratic regimes lessen the domestic incentives for autocratic leaders to adhere

to international agreements. Thus, we hypothesize that international epistemic communities foster the diffusion of democracy, but not the diffusion of autocracy.

Indirect effects and mechanisms for diffusion

From our micro-level theory of diffusion within epistemic communities, we now develop expectations regarding the international network dynamics of democratization. One point on which to be clear from the outset is that both alliances and IGO ties represent complex networks: most states are somehow connected to all the rest (though often through multiple degrees of separation), most states have multiple neighbors to which they are tied in the networks, and the overlapping sets of neighbors allow for the possibility of extremely complicated interdependencies (see Figures 1 and 2).

We posit the presence of indirect effects in the alliance and IGO networks. Consider three states in the alliance system i , j , and k , where i is allied with j and j is allied with k , but i and k are not allied with one another. In this example, i and k are connected by two degrees of geodesic distance. We claim that k will influence i through j . States i and j are co-members of an epistemic community, as are j and k , and i and k may or may not belong to the same community. In the event that they do, the process by which k can help to socialize i without j 's involvement is straightforward: the channels and institutions for communication already exist. In such a situation, k 's signal to i will amplify j 's signal to i , if j and k are of the same type and dampen its signal otherwise.

Yet for at least three reasons it is not necessary that i and k be members of the same community for k to influence i without j . First, the elites in i are able to look out through the network and observe the major attributes of those states connected to its connection j . In other words, the elites of state i may consider their membership in the broader community of states in their network neighborhood. So, the elites of state i may be observing and considering

signals from states to which they are not directly connected. The founding of the OAS, a case discussed in the introduction, provides an example of elites considering higher-order signals. In other words, elites in i may not simply look at the norms and behaviors adopted by their direct connections, but broader community norms and behaviors adopted by their indirect connections. As such, to retain their status and reputation in the epistemic community, they may attempt to look more like their direct and indirect alters.

Second, changes in the ideas held by elites in state j will change before the observable attributes of the state do. Because of their routine interactions in epistemic communities, the elites of state i will be able to observe this shift prior to a shift in the macro-behavior of state j . Thus, as k pressures j to democratize and j begins to come around, the elites of i observe the shift and that pressures them as well.

Third, elites in i may be interested in using their relationship with j to form a relationship with k . Within the context of alliances, knowing that a firm alliance commitment with your ally's ally can bring synergetic security gains (Cranmer et al., 2012), i would prefer a direct alliance relationship with k through an indirect relationship with j . However, to convince k that i will be a desirable ally who would credibly come to their defense or have an identity and set of principles consistent with k , i may need to become democratic (Lai & Reiter, 2000). Given the relative ease and low-cost of joining international institutions, there may be less incentive for i to more closely resemble k . Nevertheless, there may be more exclusive institutions requiring such changes. This produces H_3 :

H_3 Regime type diffusion is characterized by second order diffusion, meaning that the regime types of a state's neighbors' neighbors in the alliance and IGO networks effect transitions in a state's regime type.

Our theory of overlapping epistemic communities through international networks also offers implications regarding the relative magnitude of direct and indirect effects. Concerning

the first-order neighbors examined in the preceding subsection, our claim with respect to socialization of elites is that epistemic communities work the same way regardless of what states constitute the ‘local neighborhood’ in network space. Thus, the elites in state k may socialize elites in state j , who in turn socialize elites in state i . However, since the socialization process is stochastic and incomplete, we would expect direct neighbors to have a stronger effect than second order neighbors.

H_4 First order network effects on regime type transition are stronger than second order effects.

This idea is illustrated in the upper-rightmost cell of Figure 3: the ties to second order neighbors are not as strong as the ties to first order neighbors. However, we do not have a theoretical basis for suspecting a particular decay factor.

The process by which direct and second-order effects through the alliance and IGO networks combine to pressure a state towards a regime type is more complicated. We begin by considering direct, first-order, effects and then extending the logic to indirect effects. To understand first-order effects, consider the direct connection profile of a focal state i . We assume that neighbors of democracies should pressure i towards democracy and neighbors to autocracies should pressure i towards autocracy. Based upon this assumption, we assess the pressure on state i ’s regime type to be a function of i ’s democratic neighbors over its autocratic neighbors. That is to say, a state’s exposure to democracy through alliance and IGO networks may bear directly on the probability of its transition to democracy (Zhukov & Stewart, 2013). The logic of this model is drawn heavily from epidemiology, in which it is, for example, not the number of contacts an individual has, but the number of contacts with infected persons that conditions the individual’s probability of infection.

This logic extends to second-order (and higher) effects as well. In the simplest case, one can consider the ratio of democracies and autocracies at two degrees of geodesic distance. At

two degrees, as well as one, we maintain the claim that democratic and autocratic neighbors cancel one another out and the influence on i exerted by the network is the extent to which one regime type dominates i 's local sub-network. More specifically, the micro-process implied here, with respect to the spread of democracy, is that alters in their epistemic communities move and entrench elites from focal state i , either at one or two degrees. The top-leftmost cell of Figure 3 illustrates this process.

H_5 The total exposure to democratic and autocratic states, at the first and second order, determines the diffusion pressures on a given focal state.

We have not yet considered how the regime types of indirect and direct neighbors combine to influence i 's regime. If the first and second-order alters are of different regime types, the second-order connection pulls the first-order state in a different direction than the first-order state pulls the focal state. The effect of the combined regime types of the first and second-order connections are particularly important when considered in the context of structurally equivalent competitors. As Burt (Burt) reviews, one mechanism of diffusion in social networks is that structurally equivalent nodes—those that are connected to the same sets of nodes—may compete with each other for the value offered by connections to the shared nodes. If the focal node is competing with its second-order neighbor via regime-type transition, the competitiveness between structurally equivalent nodes would only come into effect if the first-order connection were of the same regime type. Since we hypothesize above that indirect neighbors influence the focal state through the epistemic communities that overlap with the direct neighbors, we suspect that if the direct neighbor's regime type is different from the indirect neighbor's, the direct neighbor essentially blocks the effect of the indirect neighbor. The bottommost cell of Figure 3 illustrates this process. This line of reasoning, which suggests like-regime moderation of second-order effects, leads to our final hypothesis:

H_6 The effects of second-order neighbors are only passed to the focal state if the first-order

neighbor is of the same regime type as the second-order neighbor.

Empirical design

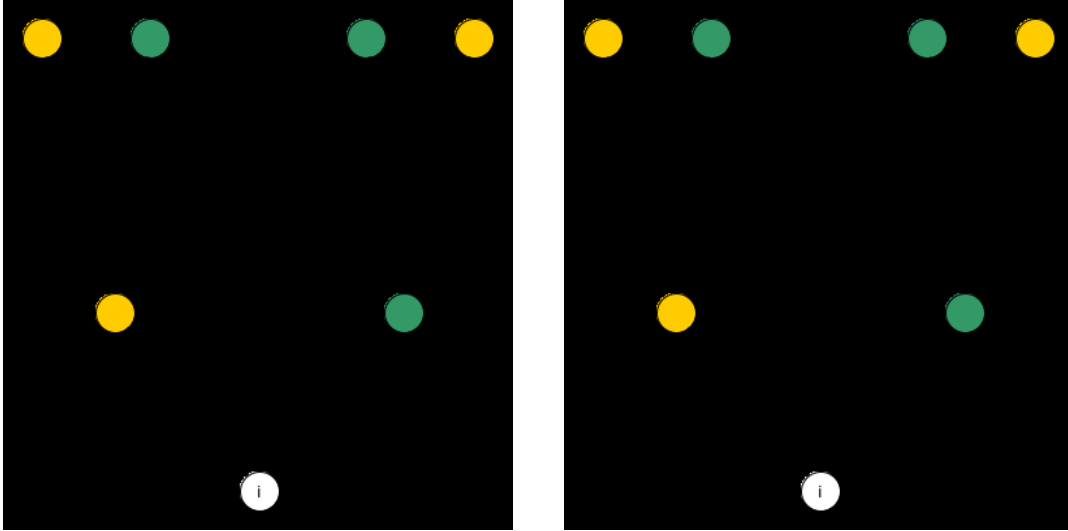
Following much of the literature on democratization, we use a statistical model designed to model transitions between autocratic and democratic regimes, as well as persistence in democracy and autocracy: the Markov switching model (Beck et al., 2001). The model posits that regimes can be of two types: either democratic or autocratic. We code states as being democratic, and numerically coded one, if they score 7 or above on the Polity III scale of institutionalized democracy.⁴ Gleditsch & Ward (2006), among others, apply this model to democratization research.

Assuming a first-order process captures the distinctions between diffusion and homophily, the Markov switching model can provide some leverage when attempting to distinguish diffusion effects from homophily. As such, this may reduce the potential for selection bias. However, we note that homophily and diffusion are exceptionally difficult to disentangle (Shalizi & Thomas, 2011). While we attempt to improve our ability to capture diffusion by explicitly modeling the transition process, one cannot rule out the possibility that homophily confounds our analyses as it does any other observational analyses where the vector for diffusion is not randomly or exogenously assigned. Nevertheless, we believe attempting to predict transitions regardless of the confounding effect of homophily is important for understanding a well theorized process. We provide an extended discussion of the diffusion-homophily problem in the context of our study in the Supplementary Information (SI) Appendix.

We specify a first-order transition model that captures not only changes in democratic

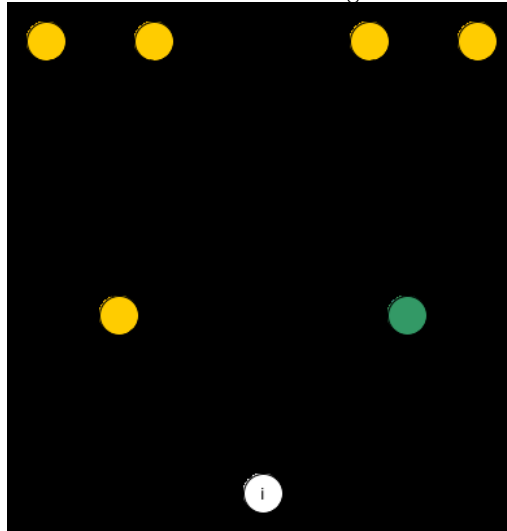
⁴There may be substantial variation in what constitutes an autocratic regime under this definition, including a number of transitioning states, failed states, and occupied territories. The purpose, and the reason such a simple coding is satisfactory, is to study transitions into and out of democratic status – captured nicely by the binary coding. Results based upon this coding scheme are fairly robust (Gleditsch & Ward, 2006).

Figure 3. Candidate theoretical models for the spread of democracy



Basic Network Exposure. A count of the number of democracies (yellow) within two degrees of state i . Network exposure is computed as the sum of democracies within a defined network. In this case, $E_i = 3$.

Discounting by Geodesic Distance. Here, we can compute exposure in the same ways as described to the left, but discount democracies/autocracies that are removed by more than one degree.



Democracies as Moderators of Second-Order Effects. It may be that second-order democratic pressure is only transmitted through democracies.

status, but the persistence of democratic and autocratic status. States' regimes are modeled using a transition matrix:

$$\begin{pmatrix} p_{00} & p_{01} \\ p_{10} & p_{11} \end{pmatrix}. \quad (1)$$

In our case, p_{00} refers to an autocracy remaining an autocracy from time $t-1$ to time t , p_{01} refers to an autocratic-to-democratic transition, p_{10} refers to a democratic-to-autocratic transition, and p_{11} refers to a democracy remaining a democracy. Both p_{01} and p_{11} are estimated with a generalized linear model and, because the rows must sum to one, the full matrix is easily recovered from these quantities. The probabilities p_{01} and p_{11} are modeled as

$$\begin{aligned} p(y_t = 1 | y_{t-1} = 0) &= \text{Probit}^{-1}[\mathbf{x}_t \beta] \\ p(y_t = 1 | y_{t-1} = 1) &= \text{Probit}^{-1}[\mathbf{x}_t \gamma], \end{aligned} \quad (2)$$

which is written more compactly as

$$P(y_{it} = 1 | y_{i,t-1}, \mathbf{x}_{it}) = \text{Probit}^{-1} [\mathbf{x}_{it}^T \beta + y_{i,t-1} \mathbf{x}_{it}^T \alpha], \quad (3)$$

where $\gamma = \alpha + \beta$ and the variance of γ is given by $\text{Var}(\alpha) + \text{Var}(\beta) + 2\text{Cov}(\alpha, \beta)$.

In interpreting this model, the effect of a regressor on $P(y_{it} = 1 | y_{i,t-1} = 0)$ is given by the coefficient $\hat{\beta}$. $\hat{\beta}$ is interpreted as the effect of a variable on the likelihood of a transition from autocracy to democracy. Other information can be extracted from this model, including the likelihood of a democracy transitioning to autocracy at t , which is $1 - \hat{p}_{11}$.⁵ As such, this model is dynamic and accounts for time explicitly, simultaneously modeling transitions in a

⁵One might prefer a Heckman probit model to model leadership change in autocratic countries, and then subsequent transitions to democracy as utilized in [Kennedy \(2010\)](#), [Miller \(2012\)](#), and [Houle et al. \(2016\)](#). However, our theory does not have implications for leadership change. Instead, we focus on democratization and do not see conflating autocratic regime stability with leadership breakdowns that fail to yield democracy as problematic.

country’s regime type between two years (first-order processes) and the stability of a state’s regime between years.

Data & measures

We employ a sample of 6,842 country-years spanning 1951 to 2002. The availability of data prior to 1950 on GDP per capita and constraints to economic growth, two essential controls, is only considered credible during this temporal domain (Gleditsch & Ward, 2006, 924). Given our desire to protect against sample selection bias due to missing at random (MAR) economic data, this is a defensible sample (Gleditsch, 2002; Gleditsch & Ward, 2006). The final year of analysis, 2002, is imposed as a result of the limits associated with the Gleditsch & Ward (2001) minimum distance data which only includes measures up to 2002. In this section we introduce our network-based variable, *Magnitude*, which operationalizes network pressure towards certain regime types. We then discuss the international and national-based controls that we include in our analysis.

Network measures

Given our theory, international network pressure towards democratization are understood as a contagion effect. This is to say, a state’s exposure to democracy through the alliance and IGO networks may bear directly on its probability of ‘infective’ transition. The specific claim about the micro-process that this hypothesis carries is that elites exposed to democratic alters through their epistemic communities are influenced by them, but are not entrenched by exposure to autocratic alters because they are of the same type and/or they see democratic alters as being normatively/functionally superior.⁶

We operationalize network exposure through two predictors measured across the alliance

⁶An alternative measure that does not make this assumption, which we refer to as *Balance*, is presented in the SI Appendix. The results from this measure parallel those presented here.

and IGOs networks. These predictors allow the evaluation of four distinct contagion processes. The first predictor, first-order magnitude, is the direction (positive or negative) of the difference of democrats and autocrats at geodesic distance one measured in both the alliance and IGO networks. This direction is then multiplied by the logged magnitude at geodesic distance one, which is one plus the absolute difference of democrats and autocrats. As such, this network predictor generates two variables that are included in the model: first-order magnitude in the alliance network, and first-order magnitude in the IGO network. The second predictor, second-order magnitude, only differs from first-order magnitude in that it evaluates the measure at geodesic distance two instead of geodesic distance one. Similarly, this predictor creates two additional variables: second-order magnitude in the alliance network, and second-order magnitude in the IGO network.

We seek to embed two analytic properties in our measure of network exposure to democracy. First, as discussed above, we require that it reflects the total magnitude of exposure—strictly increasing in the number of democratic neighbors and decreasing in autocratic neighbors, with limits established only by the number of states in the system. Second, we require that our measure increase at a decreasing rate as the number of democratic neighbors departs from the number of autocratic neighbors. States have limited capacity with which to process and respond to the pressure of neighbors, so we expect that the effect of exposure to increase less with each additional baseline unit of exposure. As we note below, we define our measure on the log scale.

It is worth noting that these measures do not explicitly measure socialization, but rather, the opportunity for socialization. Measuring socialization is a widely acknowledged problem in the study of international relations (Simmons et al., 2006), there are no sources for country-year data on direct state-to-state pressure to change policy or, in this case, democratize. This has lead scholars to typically focus on measuring the vectors for socialization (Greenhill, 2010).

Our measures parallel the established Greenhill (2010) IGO Context variable by measuring the epistemic communities through which socializing pressure could be applied (in our case, the IGO and alliance networks) and a proxy for the preferences of those that could potentially apply pressure (in this case, regime type).

Network exposure magnitude is measured as $Magnitude_t = (1 - 2 \times \mathbf{I}(A_t > D_t)) * \log(1 + |D_t - A_t|)$, where D_t and A_t refer to the number of democratic and autocratic neighbors at geodesic distances of one or two depending on whether one is computing first- or second-order magnitude in the alliance or IGO network in year t , and $\mathbf{I}()$ is the indicator function that evaluates to 1 if its argument is true and 0 if its argument is false. We measure this cumulatively—including alliances and IGO co-memberships established prior to t , but still existing at time t —as we expect diffusion pressure to build over time.⁷ The alliance network is taken from the Alliance Treaty Obligation and Provisions (ATOP) dataset, where a tie is defined if two states share a defensive alliance obligation at time t . (Leeds et al., 2002). The IGO network is drawn from the Correlates of War dataset on IGO membership (Pevehouse et al., 2004). This network is undirected and weighted by the count of joint-IGO memberships between two states. We define two states as tied in this network if they share at least one joint-IGO membership. We believe this binarization is preferred given IGO heterogeneity. For example, the degree of high-level engagement occurring between Asian states in ASEAN is likely larger than in the Asian and Pacific Coconut Community. As such, while a binarization of this network loses information on the number of joint-membership, it does so to prevent small groups that should not inform socialization from driving our results. We choose not to examine the effect of the trade network on democratization as trade does not appear to directly inform democratization (Ahlquist & Wibbels, 2012; Zhukov & Stewart, 2013; Doces & Magee,

⁷While one may be simply interested in the proportion of democracies to autocracies at a geodesic distance, such measures reflect a distinct ‘balancing’ process. The measure used allows for a cleaner direction and size-based interpretation, as opposed to a fractional interpretation.

[2015; Manger & Pickup, 2016]. For an extended discussion of this point, we refer the reader to the SI Appendix.

International factors

For guidance on the international factors to include as controls, we follow [Gleditsch & Ward 2006]. We include four predictors designed to capture the diffusion of regime types at local and global levels. The first predictor, capturing local diffusion, is the proportion of neighboring states within a 500 kilometer radius (defined in terms of minimum distance) that are democracies [Gleditsch & Ward, 2001, 2006]. The second international predictor captures global diffusion by measuring the global proportion of democracies [Gleditsch & Ward, 2006].

The third predictor is a binary indicator for whether a state within a 500 kilometer radius has recently transitioned to democracy which may capture the increase in empowerment for agitators [Gleditsch & Ward, 2006]. The fourth and final international predictor is peace years in territory [Gleditsch & Ward, 2006], defined as the number of years since the last civil war or the state’s founding, which captures territorial threats that can undermine the prospects for democracy. Accounting for geographic factors in addition to IGO and alliance ties produces a well featured specification with respect to international effects, particularly since trade and ethnic ties have recently been discounted [Zhukov & Stewart, 2013].

National factors

Comparative and International Relation studies alike often include domestic attributes as important control variables. As domestic factors may influence democratization and our network measures [Geddes, 1999; Epstein et al., 2006], we include such variables to ensure sound inferences. Indeed, [Shalizi & Thomas 2011] highlight the importance of controlling for features of nodes (i.e., states) that affect tie formation in the network when the inferential goal is to

estimate diffusion/contagion effects. When it comes to both alliances (Kinne, 2018, e.g.,) and IGOs (Boehmer & Nordstrom, 2008, e.g.,), we adjust for two important features that predict tie formation—GDP per-capita, and the level of democratization.

To capture dynamics posited by the ‘Social Requisites’ school, we include the two conventionally used predictors that reflect domestic economic conditions. First, we include the log of the lagged level of real GDP per capita, as suggested by Przeworski & Limongi (1997); Gleditsch (2002); Gleditsch & Ward (2006). Second, we use a measure of economic growth, defined by the change in real GDP per capita (Gleditsch, 2002), to account for the effect of economic crises on regime change (Gasiorowski, 1995). Beyond local economic conditions, we include a indicator for if the state is experiencing civil conflict as such states may be more likely to transition to or from democracy (Gleditsch, 2004).⁸ The SI Appendix includes additional information on each of these control variables.

One might note that a variety of other domestic factors, such as economic inequality (Muller, 1995; Acemoglu & Robinson, 2001), poverty (Londregan & Poole, 1990, 1996), crises (Haggard & Kaufman, 1995), and education (Benavot, 1996) could be included. However, these variables are excluded to maintain model parsimony and comparability with the model specifications of Gleditsch & Ward (2006).

Results

We find that the defensive alliance network is an influential vector for direct and indirect regime type diffusion and that, contrary to many previous findings, the IGO network is not. Diffusive pressures exist through indirect and higher-order mechanisms even when accounting for the possibility of like-regime mediation. These results constitute the first evidence for

⁸Another common predictor of regime stability is how long a state has had a particular regime (Gleditsch & Choung, 2004; Gleditsch & Ward, 2006). These variables are excluded as their use produces quasi-separation that undermines the model’s reliability.

indirect effects on regime type and their presence demonstrates the utility of our network-based perspective when examining international phenomena.

We begin by considering the results of a model specified with the previously described variables – a model which closely resembles the ‘state of the art’ model specification utilized by Gleditsch & Ward (2006), with the addition of our network covariates. We seek to maintain comparability to the Gleditsch & Ward (2006) in an effort to compare the importance of the network approach relative to the conventional baseline model. We then move to a series of out-of-sample predictive tests to (a) help identify the best predicting specification, and (b) demonstrate that our model fits the data well both in-sample and out. Note finally that the Markov transition models presented here are estimated as two separate equations for transitions and stability, and as such, interacting the Magnitude variables with lagged regime type is not necessary as it would be if we were to estimate all effects with a single model.

Vectors of regime type diffusion

Based on our theory, we expect certain epistemic communities, such as alliances, to have greater influence on regime-type diffusion than others, including IGOs. When examining the hypothesis that ties in international networks (both alliances and IGOs) are vectors for the diffusion of democracy, H_1 , we find qualified support as evidenced by the model presented in Table 11 – the IGO network appears to have very little influence as a vector for regime type diffusion. However, the alliance network has statistically significant effects at the first and second-order. The effect for alliances, as well as the lack of an effect for IGOs, is as we hypothesized (H_2) based on the amount of elite contact that occurs, and the importance of military socialization in transitioning to democracy. We also find strong support for these effects in the model presented in Table 11⁹

⁹This result is also robust to the measurement of democratic exposure. The SI includes a parallel analysis of a distinct model that looks at the proportion of exposure to democracies relative to autocracy, a measure we

	Aut→Dem Trans. ($\hat{\beta}$)		Dem Stability ($\hat{\gamma}$)	
Magnitude [1 Degree] [Alliance]	0.048	(0.014)		
Magnitude [2 Degrees] [Alliance]	0.028	(0.013)		
Magnitude [1 Degree] [IGO]	-0.005	(0.015)		
Magnitude [2 Degrees] [IGO]	-0.001	(0.013)		
log(GDP PC [lag])	0.410	(0.069)	0.053	(0.048)
Proportion of Neighboring Democracies	0.531	(0.233)	0.837	(0.184)
Civil War	-0.726	(0.586)	0.265	(0.362)
Peace Years at Territory	-0.003	(0.002)	0.005	(0.002)
Economic Growth	0.255	(0.072)	-0.012	(0.029)
Global Proportion of Democracies	0.716	(0.768)	2.197	(0.491)
Neighboring Transitions to Democracy	-0.174	(0.201)		
BIC	1374.93			
Observations	6725			
States	165			
Temporal Domain	1951-2002			

Table I. Magnitude model results. Two equation Markov transition models (probit) of autocratic to democratic regime transitions as well as democratic stability. Coefficients and standard errors indicated in bold are significant at or beyond the traditional $\alpha = 0.05$ level.

The lack of effects for the IGO network, predicted by our theory, are surprising given results reported by Pevehouse (2002a, 2005). We have two explanations for this inconsistency with the literature which are previewed in our theory section. First, if diffusion is a function of interaction between high-level government officials, then alliances are a better mechanism for transmission than IGOs given that their nature requires high-stakes coordination and engagement over broad issues related to a state’s security and regime. This occurs relative to IGOs, in which many may not require such a degree of engagement and may cover more specialized bureaucratic considerations. Second, our results may reveal something about the types of elites that are important to regime change. Large effects for the alliance covariates demonstrate that when military elites engage in epistemic communities and are socialized to view democracy favorably, a country is more likely to transition to democracy. This makes sense as the mili-

refer to as Balance. The Balance results presented in the SI and the Magnitude results presented here have the same substantive implications. The SI appendix also considers temporal variation in this model using annual fixed-effects and a Cold War dummy variable.

tary is usually a chief stakeholder in the state and military consent for transitions away from autocratic control is often necessary.

To make better sense of the model’s projections, consider the case of the Dominican Republic. In the year of transition, 1996, the model predicts that the Dominican Republic will democratize with a predicted probability of 0.3. While this might seem low, one must remember that democratic transitions are rare events, and assigning such a relatively high value to such a rare event is actually fairly remarkable. The Dominican Republic’s democratization was the culmination of years of influence exercised by its democratic allies in the Organization of American States (Fearon & Laitin, 2005; Arceneaux & Pion-Berlin, 2007), an institution known for socializing its members to liberalize (Campbell, 2019). Compared to other cases, the Dominican Republic had relatively high first and second-order alliance magnitude values and relatively low levels of GDP or economic development. In other words, beyond alliance effects, they were missing many of the other observable factors that might push a state to democratize.

First and Second-Order Network Effects

The results reported in Table I provide the first evidence that second-order (i.e. indirect) effects exist for regime type diffusion. The second-degree alliance term is positive and statistically significant, providing direct support for H_3 . Figure 5 illustrates this second order effect: the predicted probability of democratic transition increases noticeably and with confidence bands not including zero as the democratic magnitude measure increases. While many in the literature on democratic diffusion acknowledge that there are direct effects that induce democratization through diffusion (e.g., Goodliffe & Hawkins, 2015; Gleditsch & Ward, 2006; Wejnert, 2005; Pevehouse, 2002a; O’Loughlin et al., 1998; Starr, 1991), we are the first to document higher-order effects. Thus, this result constitutes a completely novel finding—the *ally of a state’s ally*

influences regime change even where no direct connection exists.

The coefficient sizes reported in Table II suggest that we find support for the idea that higher-order effects at two degrees of geodesic distance should be smaller than direct effects at geodesic distance one (H_4). This is corroborated in Figure 4, which shows the change in the probability of transitioning to democracy when going from no allies to one democratic ally at either the first or second-order. It does appear that there is a difference between these two, favoring a stronger effect for the first-order ally over the second-order ally. When considering difference in the differences of transition, calculated by subtracting the difference in the probability of transition from no allies and one democratic ally at the second-order from the difference in the probability of transition from no allies to one democratic ally at the first-order, we find a value of 0.0004. This should demonstrate that first-order democratic allies are more influential than second-order democratic allies in promoting regime transition.

Careful consideration of the uncertainty associated with these effects, however, does not demonstrate support for our hypothesis as the differences in effect sizes is not statistically reliable. The 95% confidence intervals for the predicted probability changes for the effect of the full range of values of magnitude at geodesic distance one and two overlap, as shown in Figure 5. While the fitted value curve for the effect is consistently higher at geodesic distance one, the confidence intervals are much wider and always encapsulate the effect at two degrees of geodesic distance.

We find robust support for the hypothesis that the exposure of a state to democratic neighbors, both at one and two degrees of geodesic distance, drives diffusion pressures (H_5 , illustrated in the upper leftmost panel of Figure 3). The effect of alliances at one and two geodesic degrees is reliable at the traditional $\alpha = 0.05$ level. As the first and second-order magnitude variables increase and a state has a more democracies to autocracies in its local and extended network, there are significant increases in the likelihood that an autocracy transitions to democracy.

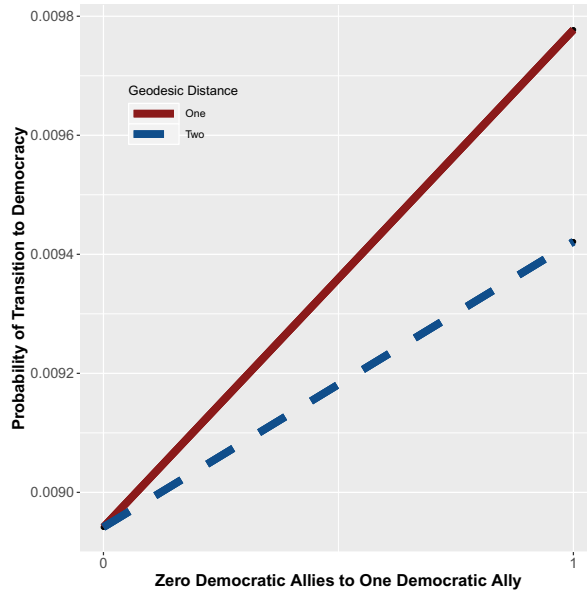


Figure 4. Change in predicted probability by adding one democratic ally. Plot shows the marginal change in the predicted probability of transition when going from no allies to one democratic ally at the first order or second order. All other variables are held constant at either their mean or median values.

The substantive effect of these variables is visualized in Figure 5.¹⁰ It is instructive to consider the significance of our alliance-based diffusion finding in the context of one of our control variables—the proportion of neighboring democracies. One of the most defining features of the alliance network is the strong regional geographic clustering of alliances (Cranmer et al., 2012). The finding of alliance-based diffusion with a control for geographic diffusion indicates that alliance ties serve as an effective vector of the diffusion of democracy that spans interregional relationships.

¹⁰These results, among those previously discussed, are corroborated through a temporal bootstrap estimation routine designed to break temporal dependence by sampling a pseudorandom number of years. These results are presented in the SI Appendix.

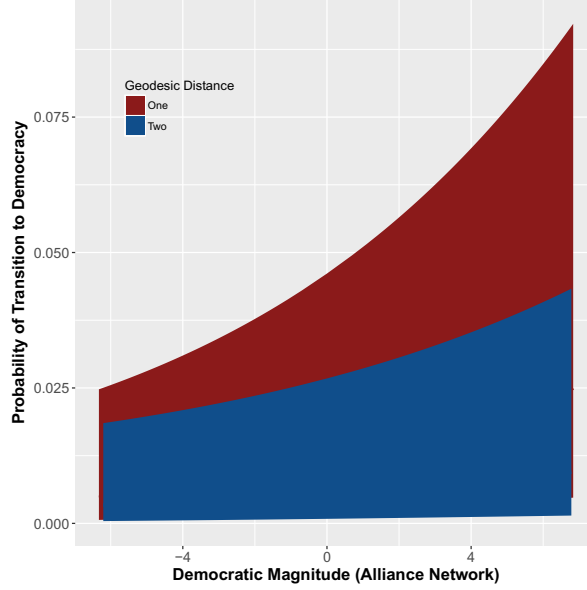


Figure 5. Predicted probability curves for alliance magnitude. Values for all other variables are held constant at either their mean or median values.

Controls and comparison to previous findings

Given that the state of the art model put forward by [Gleditsch & Ward \(2006\)](#) explores diffusion as a function of geographic proximity, comparing our model results to theirs can show the added value of a networks approach. Table [1](#) shows that when including network effects, the neighboring transition to democracy variable for which [Gleditsch & Ward \(2006\)](#) find support in their Model 1 is no longer statistically significant. This makes sense and may demonstrate that alliances, which is highly correlated with geographic contiguity, are actually driving the effects estimated by [Gleditsch & Ward \(2006\)](#).

Another implication of Table [1](#) is that we do not find support for the findings of [Przeworski & Limongi \(1997\)](#), and we only find partial support for [Boix & Stokes \(2003\)](#). That is, we find no evidence to suggest that democratizations occur randomly and are then sustained through economic development. In fact, the opposite seems to be the case: high values of logged-

GDP per capita are associated with democratization attempts, but are weakly associated with democratic stability. In fact, many of the diffusion variables that Gleditsch & Ward (2006) discuss are more influential with respect to explaining democratic stability than these more traditional domestic factors.

Like-regime moderation of diffusion effects

Table III presents an extension of the previously-discussed model in which we account for regime-type matching. In these models, we match the regime type at the first and second geodesic degree. For example, a second-order democracy (autocracy) only adds a value of one to the focal observation’s measurement value if the regime type of the first-order connection is also a democracy (autocracy). In this case, the pressure to democratize is only included for a second-order democracy if the first-order state is also a democracy. These models provide a direct test of H_6 , which is that the effects of second-order neighbors are only passed to the focal state if the first-order connection is of the same type as the second-order connection. This is to suggest that the state at the first-order moderate the signals that get passed onto the focal state.

The results provide strong support for our hypothesis that first order regimes moderate the effect of second-order neighbors (H_6). When matching regime types between one and two geodesic distances, strong support for the second-order Magnitude variable remains. This demonstrates that, even when accounting for direct exposure to democracy or autocracy directly, indirect effects exist. Not only does this support H_6 , but this demonstrates the robustness of the indirect effects described in H_3 .

	Aut→Dem Trans. ($\hat{\beta}$)		Dem Stability ($\hat{\gamma}$)	
Magnitude [1 Degree] [Alliance]	0.016	(0.015)		
Magnitude [2 Paths] [Alliance]	0.107	(0.025)		
Magnitude [1 Degree] [IGO]	0.008	(0.021)		
Magnitude [2 Paths] [IGO]	-0.017	(0.020)		
log(Per-capita GDP [lag])	0.377	(0.069)	0.053	(0.048)
Proportion of Neighboring Democracies	0.492	(0.230)	0.837	(0.184)
Civil War	-0.785	(0.586)	0.265	(0.362)
Peace Years at Territory	-0.004	(0.002)	0.005	(0.002)
Economic Growth	0.252	(0.072)	-0.012	(0.029)
Global Proportion of Democracies	1.385	(0.760)	2.197	(0.491)
Neighboring Transitions to Democracy	-0.191	(0.202)		
BIC		1360.755		
Observations		6725		
States		165		
Temporal Domain		1951-2002		

Table II. Magnitude model of democratic transitions and democratic stability, like-regime matching. Two equation Markov transition models (probit) of autocratic to democratic regime transitions as well as democratic stability. Second-order effects for magnitude compute their respective measures only if the first-order connection is of the same regime type as the second. Coefficients and standard errors indicated in bold are significant at or beyond the traditional $\alpha = 0.05$ level.

Predictive performance and model fit

To assess how well our model fits the data-generating process, we employ out-of-sample prediction via cross-validation.¹¹ This exercise provides insight into how well our model performs, while guarding against overfitting. The results reaffirm support for the previously hypothesized effects, the Magnitude Model performs better than a baseline model without network effects. All specifications of the Magnitude Model presented here minimize mean predictive error relative to the baseline.

Leave-one-out cross-validation (LOOCV) is a technique often used as a harder test for model assessment (Efron, 1983). This technique iteratively selects one observation, k , from the

¹¹In the SI, we present the results from Precision-Recall Curves (PR) fit to our models. While PR Curves show that our model performs quite well, it is unclear whether the addition of network effects significantly improves out-of-sample fit.

dataset to exclude for N observations. The model of interest is then fit on the remaining $N - 1$ observations, not nodes in the network, and attempts to predict the dependent variable value for k and stores the error term for that observation. As a metric of comparative model performance, we compare the mean forecasting errors for the Magnitude Model and variations on it to a baseline model specified without our network covariates. A lower mean forecasting error demonstrates the ability of the model to accurately predict the outcome for each observation.¹² When comparing the mean predictive error of the Full Magnitude Model with all network variables ($\mu_\epsilon = 0.02034$) and that of the baseline specification ($\mu_\epsilon = 0.02035$), we see a modest improvement in model performance. In addition, the Alliance Magnitude Model excluding IGO variables improves predictive accuracy over the full model and the baseline ($\mu_\epsilon = 0.02031$).

To see the gain in predictive performance for each network covariate relative to the baseline, we specify two models. The first is the baseline model with the addition of the first-order magnitude variable measured in the alliance network. The second model is the baseline model with the second-order magnitude in the alliance network variable included. As expected the former outperforms the latter, which is evidence of decay in the predictive power of each variable between the first- and second-order effects. Nevertheless, each model outperforms the baseline. The first model has a mean predictive error of 0.02030, while the second model has a mean predictive error of 0.02034. This improvement in the ability of the Magnitude model, or either alliance variable, to minimize mean predictive error is evidence of superior model fit and performance achieved through adopting a networks-based perspective.

Conclusion

We developed a network-based approach to understanding and predicting democratization. The results demonstrate that not only are there direct network effects that lead to the diffusion of

¹²This model is a loose approximation of Gleditsch & Ward (2006) Model 1.

regime type, but for the first time, that there are also higher-order (i.e., neighbor-of-neighbor) effects. These higher-order effects exist independent of the regime type at the first-order. These results, however, only occur in diffusion through the alliance network, which challenges many IGO results from the regime type diffusion literature (Gleditsch & Ward, 2006; Brinks & Coppedge, 2006; Pevehouse, 2005). Our study suggests that the socialization of military elites in alliances leads to favorable conditions for democratization. We posit that military elites from autocratic regimes face normative incentives to mimic their democratic peers and change their opinions towards democracy. Such changes of opinion can be essential in creating the political conditions necessary for democracy (Pevehouse, 2002a).

To test our network theory of the diffusion of democracy, we examined the diffusion of regime type in the alliance and IGO networks. We found that network-based mechanisms, such as the count of democratic ties at one and two degrees of geodesic distance, play a larger role than geospatial features alone in determining regime type diffusion. Specifically, we found that the raw exposure of an autocracy to democracies within one and two geodesic degrees from a state in the alliance network can help explain that state’s decision to democratize. These effects are generally supported through predictive tests including cross-validation. We should caution readers from interpreting the effects estimated to be true causal effects. Identification of the true treatment effect of our network measures is complicated by a variety of factors, such as the difficulty in disentangling homophily and diffusion (Shalizi & Thomas, 2011). Nevertheless, the theoretical and empirical contributions made here are significant.

Beyond the findings previously discussed, there are four broad implications of our results. First, scholars and practitioners alike should look more closely at alliances as institutions to promote democratization. Second, when comparing models in out-of-sample prediction, it appears that network effects add significant value in the overall predictive performance of the model, thus making them essential elements of regime type diffusion models. Third, future

work should consider the higher-order effects in diffusion through international networks; our study has likely only scratched the surface. Finally, while domestic factors described by political economists do appear to influence regime transition, significant support exists for a variety of diffusion-based dynamics.

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