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Extending the bargaining power model: Explaining bargaining outcomes among nations, MNEs, and NGOs

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Abstract
Participants in international bargaining include different types (nation states, MNEs, NGOs, and multilateral organizations) and different numbers of these actors. Our theoretical contribution is to extend the bargaining power paradigm with a framework that models bargaining in this complex environment as a network. The configuration of supports and constraints among all participating actors in the bargaining environment is captured in the structure of the network. Antecedents of an actor's bargaining influence in the network include the actor's basis of power, network position, bargaining outcome preferences, and motivation to influence bargaining. The network bargaining power (NBP) model uses network theory to build upon and integrate insights from previous literature in a way that allows us to simultaneously apply these different insights to explain bargaining outcomes. These insights include effects of coalitions, strategies of less powerful actors leveraging more powerful allies, integration of international and domestic politics, and applicability to MNE-related issues beyond FDI. Finally, we illustrate NBP in a scenario of privatized utilities in the Dominican Republic, in which the bargaining power outcome predicted by NBP differs from that of the canonical bargaining power perspective.
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INTRODUCTION

The bargaining power model has been called "*the* accepted paradigm of host country (HC)–MNC relations in international political economy" (Kobrin, 1987: 610, emphasis in the original). Since the theory's introduction into the international business literature more than 30 years ago (Moran, 1974; Vernon, 1971), numerous empirical studies have used bargaining power theory to explain resolution of conflict between a government and a foreign firm operating in its territory (Fagre & Wells, 1982; Kim, 1988a, b; Lecraw, 1984; Poynter, 1982, 1985; Vachani, 1995). The basic tenet of this canonical, dyadic bargaining power literature is that the lesser the multinational enterprise's (MNE's) bargaining power with a HC, the less likely the MNE is to achieve objectives that conflict with those of the HC.

While canonical bargaining power (CBP) model explains bargaining between the nation state and MNE subsidiary dyad, the

bargaining power model paradigm needs to be extended to explain bargaining over the increasingly complex issues arising among nation states and MNEs today. Consider the following synopses as representative of contemporary international business issues.

> *Government interventions in cross-border acquisitions*: In August of 2005, the Chinese National Offshore Oil Corporation (CNOOC) was forced to withdraw its bid for UNOCAL, the ninth largest US petroleum company, after the US House of Representatives urged the Bush administration to block the deal because it threatened to impair national security.

> *Privatization disputes*: Many governments have overturned or reneged on commitments made to privatized utilities to increase rates or support payment collection efforts, actions that adversely affect governments' political support from their constituents. For example, after Spain's Union Fenosa (UF) acquired controlling stakes in two electricity distribution companies from the government of the Dominican Republic (DR) in 1999, the Dominican government used its influence over the electricity regulator on several occasions to resist rate increases motivated by adverse oil price and foreign exchange movements. Despite the UF subsidiaries' lack of bargaining power in the DR, and their poor financial situation, UF sold its stake to the Dominican government in September 2003 for approximately $350 million – more than the amount originally paid by UF to the DR in 1999.

Two observations stand out in these examples: the number of actors[1] involved, and the different relationships and interdependencies among the actors. Not only are there different types of actors (e.g., governments, MNEs), and different subunits within these types (e.g., the legislative and executive branches of governments, or MNE head offices and subsidiaries), but also multiple actors of each type. Furthermore, the nature of the interactions among actors reflects their legal, economic, and political relationships. Clearly, the number and types of actors and their relationships introduce another level of complexity for the prediction of bargaining outcomes. Recent research has thus called for recognizing and modeling actors that have traditionally been under-analyzed in the bargaining power model (Doh & Teegen, 2002; Teegen, 2003; Teegen, Doh, & Vachani, 2004), or issues other than direct foreign investment (FDI) (Eden, Lenway, & Schuler, 2005). Other scholars have identified the need for a larger number of actors, beyond the existing bargaining literature, which models at most three actors (Eden & Molot, 2002; Keck & Sikkink, 1998; Ramamurti, 2001). This paper develops theory and methodology to address these calls in the literature. Our theoretical contribution is to extend the bargaining power paradigm with a framework that models bargaining as a network. Network theory allows us to integrate many valuable insights from previous literature on coalitions (Hechter, 1987; Olson, 1965), indirect leverage (Gargiulo, 1993; Ramamurti, 2001), supports and constraints (Kobrin, 1987), and roles of multilateral organizations and NGOs (Doh & Ramamurti, 2003; Doh & Teegen, 2002) into a single bargaining model. Furthermore, our theoretical framework captures the complexity of today's bargaining environment by modeling bargaining, in FDI or other issues, as a system consisting of any number or types of actors, with any configuration of supports and constraints directed from one actor to another, while taking into account the relative power and motivation among the actors.

Although dyadic bargaining power theory has been criticized, it has many positive attributes compared with other research streams. Specifically, bargaining power theory is parsimonious, testable, offers a set of well-defined antecedent and outcome constructs, and is sufficiently abstract to enable analysis in many different contexts. These attributes of bargaining theory have resulted in a critical mass of empirical studies that have made bargaining power theory such a well-accepted paradigm of international business. Even more importantly, these studies provide the support to make predictions about business–government interactions that are still unfolding. Therefore, we employ network analysis to retain the desirable parsimony and empirical analysis attributes of canonical bargaining theory. Together, our theory and methodology advance our ability to predict bargaining outcomes for ongoing interactions among nation states, MNEs, NGOs, international organizations, institutions, and other actors. The corresponding practical contribution is that greater predictability can help actors choose strategies more systematically, leading to more preferable bargaining outcomes.

The roadmap for this paper consists of four sections. In the first section, we discuss the insights from relevant literature that we integrate with network theory. The second section presents the theoretical framework, and the third section shows the methodology for data collection and analysis. The final section summarizes the framework's contributions and limitations, outlines future work, and concludes.

RELEVANT LITERATURE

Our contribution is a further step in the development of bargaining power theory. Therefore, we

build upon previous theory and integrate it into our model. In this section, we describe the elements from relevant scholarship that we bring to bear on our model. The original, and most widely applied, version of bargaining power theory focuses on interactions between MNEs and states (for an excellent exposition of the theory, see Kobrin, 1987). We leverage three important points from this "canonical" version of bargaining power theory (henceforth the CBP model). The first is the existence of different bases of power, which may vary among different actors. The second is the causal relationship between each actor's resources and constraints, on one hand, and bargaining outcomes on the other. An actor's own *resources* and *constraints* increase and decrease, respectively, its ability to achieve its bargaining objectives. The third point is the dynamic nature of bargaining. Bargaining power may vary significantly over time, as in Vernon's well-known obsolescing bargain hypothesis (Vernon, 1971).

Over time, bargaining power theory has evolved to reflect the fact that bargaining often involves more than two actors. Several scholars have expanded the analysis of bargaining beyond dyadic models, leading to an "augmented" bargaining power (ABP) model. Doh and Ramamurti (2003) as well as Henisz and Zelner (2005) call attention to the role of multilateral institutions in MNE–HC bargaining. Doh and Teegen (2002), Teegen (2003), and Teegen et al. (2004) show the importance of non-governmental organizations (NGOs) in the relations between MNEs and host governments, following on the seminal work of Keck and Sikkink (1998). Ramamurti (2001) revises the bargaining power model to include a third actor, the MNE's home country, in a second tier of negotiations between the MNE's host and home countries. Eden and Molot (2002) also extend the bargaining power dyadic model to a trilateral model. Eden et al. (2005) call for the extension of bargaining power theory to a more general "political bargaining model", which can be applied to a broader spectrum of business–government bargaining issues, while retaining the resource and constraint antecedents of the traditional bargaining model. We draw on these insights to develop a model that can incorporate more than two actors, and which can be applied not only to FDI, but also to other bargaining situations.

Our network bargaining power (NBP) model thus extends bargaining power in several important ways while building on the theoretical foundations of CBP and ABP. Incorporating the insights of the ABP model, the NBP model can handle multiple numbers and types of actors at multiple levels, including coalitions whose members act in concert, "indirect" strategies in which less powerful actors leverage more powerful allies, and international and domestic interactions combined into one seamless network. In addition, the NBP model is applicable to MNE-related issues beyond FDI. Unlike many empirical applications of CBP, NBP employs a dependent variable that is not specific to FDI. NBP's outcome construct is *bargaining influence*, or the degree to which each actor influences the overall bargaining outcome among the system of actors. This outcome construct can be thought of as a set of relative influence scores, with a separate score for each actor in the network, allowing us to decouple the idiosyncrasies of form and content of possible issue outcomes from the prediction of actor influence. Instead of predicting outcomes directly, the model's bargaining influence scores can be combined with a realistic assumption to make predictions about the content of bargaining outcomes. This assumption is that each actor strives to attain a bargaining outcome that is as close as possible to that actor's own objectives or preferences. Given the set of bargaining influence scores, and the preferred outcome of each actor, the analyst can infer the major provisions likely in the bargaining outcome.

Our model also extends bargaining power theory with respect to the definition and measurement of power. Canonical bargaining theory focuses on the "first face" of power – the power to coerce or constrain (Digeser, 1992) – which is the most widely used definition of power in political science (Barnett & Duvall, 2005), and which infuses realist approaches to international relations (IR). In the 1980s, however, regime theorists in IR argued for a more expansive view of power (Krasner, 1983; Strange, 1996). This literature claims that, in the international system of nations, dominant coalitions of actors establish regimes that perpetuate their dominance by providing public goods to other states in the system. Regime theory also asserts that an actor's political and economic power is not necessarily issue-specific. Actors do not look at each issue in isolation, but manage a gamut of issues, making trade-offs in allocating resources among them, and thus linking what may be conceptually separate issues. Similarly, conflict on one issue may carry over and preclude coordination among actors on another issue, even when the

actors have similar outcome preferences on the second issue. Our model leverages two points from regime theory to add to the CBP model: first, we bring coalitions to the forefront; second, our model takes into account both issue-specific and non-issue-specific relationships among actors.

The "new institutionalist" scholarship (Scott, 1995) documents how a variety of institutions, understood in North's (1993) sense of "rules of the game", shape and constrain the interaction among economic actors, giving rise to a "second face of power" (Digeser, 1992) or "institutional" power (Barnett & Duvall, 2005) – the power held by actors that are able to shape institutions in their own interest. In a number of papers, Henisz and Zelner (e.g., 2005, 2006) show that the structure of a country's political institutions can significantly constrain the ability of policymakers to alter existing bargains, thereby limiting governmental opportunism vis-à-vis MNEs and other private investors. We incorporate the insights of the institutionalist literature in two different ways. First, our model can include formal institutions, whose power and preferences cannot be reduced to those of their members or constituents, as separate actors whenever their power justifies their inclusion in the model. Second, we consider not only the power emanating from formal institutions but also, and very importantly, from normative and cognitive institutions. Normative and cognitive institutions can limit an actor's power by constraining the actor's behavior, and even determining how actors are defined in the first place, leading some scholars to view them as a "fourth face of power" (Digeser, 1992). Normative and cognitive institutions are also a source of power for actors with the ability to shape norms and perceptions (Doh & Teegen, 2002; Watkins & Passow, 2003). Accordingly, our model takes into account cognitive and normative institutions through constructs that capture an actor's knowledge and political influence.[2]

The "private authority" literature analyzes governance among "non-public" actors. Private authority is an example of what has been described as a form of "governance without government" (Rosenau, 1992). An important strand of this literature examines NGO actors (Keim, 2003; Teegen, 2003; Teegen et al., 2004). This research shows that NGOs often exercise influence by framing public discussion and debate on an issue. It also highlights the "indirect" strategies often employed by NGOs (Frooman, 1999; Gargiulo, 1993; Keck & Sikkink, 1998), in which less powerful actors leverage a strong ally to obtain influence over a more powerful third actor. Our model borrows three points from the private authority literature. First, our analysis of bargaining includes non-public actors, particularly NGOs, local firms, and industry associations. Second, our analysis of actors' power considers what we call *knowledge* power, a concept that also reflects the idea of the "fourth face of power", and includes "soft power" (Keohane & Nye, 1998). Actors with knowledge power may lead or influence other actors because of their ideas or knowledge, or their framing of an issue's public perception. Knowledge power can allow actors with little or no economic or legal power to achieve significant influence on bargaining outcomes.[3] Third, in view of the importance of *indirect* strategies for some non-public actors, our approach to bargaining analysis reflects the ability of less powerful actors to leverage favorable relationships with more powerful actors.

Table 1 summarizes the preceding discussion. Because the streams were developed within different fields of study, they typically focus on different issues and contexts, and bring forward different ideas and theories, so for expositional purposes, it makes sense to differentiate them. This does not mean, however, that their use has been limited to a particular field, or that they are mutually exclusive.

NBP models the bargaining environment as a system of actors represented as a network. The conceptualization of multiple political actors as a network is not new (see, e.g., Hafner-Burton, Kahler, & Montgomery, 2009; Hayri & McDermott, 1998; Knoke, 1990; Mahon, Heugens, & Lamertz, 2004; Rowley, 1997). However, network theory has not been applied to bargaining power, and for the most part, the development of network models of political actors has been limited. Mahon et al. (2004: 179) point to the possibilities of network analysis by "suggest[ing] a number of relationships that demonstrate the ability of network analysis to integrate the issue and stakeholder perspectives." But their work falls short, in their own words, of a "full-blown integrative theory" (*ibid.*, 179). In the literature on social movements, advocacy, and activism (Keck & Sikkink, 1998; Tarrow, 2005), the network is a map of an NGO's "opportunity structure" (Keck & Sikkink, 1998: 7; Tarrow, 2005: 7) – the connections among NGOs and their allies and opponents that provide information, access, leverage, and influence, as well as funds to pursue

Table 1 Key research streams on power and the NBP model

	Theory/literature					
	Bargaining power theory			*Regime theory*	*Institutional theory*	*Private authority*
	Canonical bargaining model (CBP)	*Augmented bargaining model (ABP)*	*Network bargaining model (NBP)*			
Theory explains	Why MNE–state bargains are struck, and how bargaining power obsolesces over time	How different types of actors use paths of opportunity to gain influence	Which actors form coalitions, and have the most influence and bargaining power	Why regimes emerge, their function, and efficiency	How rules, norms, and interpretations are established and constrain actors' behavior	When competitors cooperate to establish mutually agreeable rules
Primary actor types	MNE and host country	Multiple public and private actors, domestic and international		Nations, supranational organizations	Multilevel, from world system to organizational subsystems	Non-public actors: firms, NGOs, and non-profit organizations
Outcome constructs	Mostly percentage ownership	Idiosyncratic to the context of the specific issue or field of study	Degree to which actor, or coalition, and influences bargaining outcomes	Convergence of state expectations and principles that guide interaction among actors	Convergence of behavior (isomorphism) and organizational performance	Formation of collective private agreements
Prevalent analysis approach	Variance, multivariate statistics	Process and case studies	Event analysis and network analysis	Process and case studies	Both process and variance	Process and case studies
Actors' bases of power	Economic and legal	Economic, legal, political, and knowledge		Political and economic	Legal, cultural, and knowledge	Economic and knowledge
Types of actor interaction	Coincidence of interest and coercion	Multiple mechanisms among multiple actors		Cooperation	Norms, interpretations, and imitation	Coordination

their agendas further. Keck and Sikkink (1998: 12) theorize in their "boomerang pattern" that "when channels between the state and domestic actors are blocked, the boomerang pattern of influence characteristic of transnational networks may occur; domestic NGOs bypass their state and directly search out international allies to try to bring pressure on their states from outside." Tarrow (2005) builds on Keck and Sikkink's boomerang pattern by introducing a more general process of "externalization". In the international business literature, Henisz and Zelner (2005: 374) theorize on an organization's ability to resist change through "organizational linkages" that provide "channels into the policymaking process". Although they do not mention networks explicitly, they discuss how an actor's direct and indirect ties are employed to cut "side deals" for "special contract terms".

Our paper builds on the idea of networks as "opportunity structures" in two ways. First, in the literature above, the outcome constructs, the actors' sources of leverage or influence, and the types of actors, are idiosyncratic to the context and focus of the particular field of study. Keck and Sikkink's "boomerang pattern", for instance, predicts action, but does not enable us to predict the relative bargaining influence of these actors in determining the outcome. We build on this literature to contribute to the bargaining power paradigm a more overarching network bargaining model with a single, more general, outcome construct, as well as multiple types of leverage and influence and multiple patterns of actor interaction as defined by the network's ties. Second, much of the above literature tends toward description and theory building. We believe that a more general and empirically applicable network bargaining model can better enable comparison and corroboration of bargaining scenarios across the different contexts and foci found in different fields of study. Our theory applies to bargaining scenarios in which there is no implied hierarchy among actors, and no predetermined process, such as voting, by which bargaining outcomes are determined. In the context of international business and MNE-related issues, such scenarios include, but are not limited to, cross-border acquisitions, regulation, privatization, FDI, trade, coopetition, alliances, and corporate social responsibility.

Bueno de Mesquita (2002, 2004, 2006) has developed a political forecasting model (hereafter BDM model) of IR. The BDM and NBP models share two constructs: the power an actor can bring to bear on an issue, and the actor's motivation to deploy its power on an issue. However, NBP is different from the BDM model in that it is based on network theory rather than game theory, and in that it incorporates soft power as an additional dimension of actors' power. Network theory offers a valuable improvement over the BDM model by extending analytical approaches to include multiple actors bargaining as one, such as coalitions of actors, or less powerful actors leveraging more powerful ones. The rational choice approach of game theory requires the explicit modeling of actors' expected utility functions. NBP's antecedents, by contrast, are an actors' motivation on a specific issue and past behavior in bargaining scenarios. However, in general, network models can also incorporate objective functions (Snijders, van de Bunt, & Steglich, 2008; Stokman & Zeggelink, 1996), thereby preserving this feature of game-theoretic models if so desired by the analyst.

THEORY

NBP takes the view that bargaining is power driven. That is, actors use their power in support of their own issue outcome preferences (Boddewyn & Brewer, 1994; Gourevitch, 1999). NBP's primary argument is that the influence an actor brings to bear during bargaining stems from three factors. The first factor is an actor's *basis of power*. The basis of power is an actor's power over other actors in terms of material resources, ability to pass or enforce laws, capital, access to other powerful actors, voting rights, knowledge, or another actor's economic or political dependence on this actor. The second factor is the structural position of an actor in a network, which is captured by the construct we label *prominence*. The third factor is an actor's *motivation* to use its power over other actors to achieve its desired outcome for a specific issue area (Brewer, 1992). The combination of these three factors results in an actor's *bargaining influence*. These three elements of our theory and associated propositions are presented in the following subsections.

The Basis of Power

Following CBP and widely used conceptions of power in political science, we define power as converting resources into influence over another actor (Blalock, 1989; Burt, 1977). The influence can be in the form of getting another actor to do something "it would not otherwise do" (Dahl, 1957), or constraining another actor's choices

(Barnett & Duvall, 2005). Our definition of the basis of power corresponds most closely to "actual power" (Kobrin, 1987) or "effective power" (Keohane & Nye, 1975), by contrast with "potential power" (Burt, 1977; Gourevitch, 1999). The exercise of potential power may be hampered by an actor's lack of efficiency in mobilizing resources to influence other actors (Blalock, 1989: 27; Bueno de Mesquita, 2006: 252). The basis of power reflects the resources effectively mobilized by an actor, and thus includes both resources and degree of resource mobilization (Blalock, 1989) in a single construct. Like Blalock (1989), on the other hand, we do establish a distinction between an actor's basis of power, and the actor's motivation to apply its basis of power to gain influence over another actor on a specific issue.

The basis of power is not an attribute. It is relative to other actors' bases. In other words, an actor's basis of power translates into bargaining influence only to the extent that it is greater than, or less than, the power of other actors as mediated by network structure. Hence NBP considers power to be "fundamentally relational" (Bueno de Mesquita, 2006: 236). By analyzing the network of actors that interact in bargaining over different issues, NBP shows how actors' basis of power may translate into varying levels of bargaining influence according to the array of actors bargaining over a specific issue. The basis of power thus constitutes a more general form of the *resources* and *constraints* discussed in the bargaining power literature (Kobrin, 1987). For example, the economic power of the HC over an MNE may include HC resources valued by the MNE, such as market size and growth, labor pool, or incentives; whereas the economic power of an MNE over an HC may include MNE resources valued by the HC, such as technology, export potential, and employment (Moon & Lado, 2000). Similarly, HC and MNE constraints may be modeled as economic power or political power depending on the nature of the constraint.[4] The basis of power may also include the cross-issue linkages for support or constraint often highlighted by the scholars of IR (Knorr, 1975).

An actor's basis of power is not specific to a particular issue. For example, an actor's capital or ability to pass laws can be a source of power in resolving any issue. NBP posits four relational power antecedents: an actor's economic, legal, knowledge, and political power.[5] These four dimensions appear repeatedly in the IR, private authority, and non-market strategy literatures (Baron, 2003; Boddewyn, 2003). The four power antecedents comprise the various aspects of power that characterize different types of actors. A nation state is a specialized institution in that it alone has sovereignty, or the capacity to pass and enforce laws. Therefore, one could surmise that this legal power gives the state a dominant position in achieving its desirable bargaining outcome. However, a state's economic autonomy is limited; an MNE's ability to move investments and activities to other countries constrains a nation state from exploiting its power fully. In addition, there are cases in which actors have an impact on bargaining with little or no economic or legal power. For example, firms bargaining among themselves, perhaps to establish industry standards (Christmann & Taylor, 2006), employ knowledge power to establish a leadership role in bargaining that defines an accepted way of operating in their industry. Likewise, an NGO's ability to give visibility to an issue, frame the issue discussion in a way that favors its agenda (Litfin, 1994), and mobilize popular opinion, allows it to exercise knowledge and political power in bargaining. Of course, nation states and MNEs also possess political power (Blumentritt & Nigh, 2002, Boddewyn, 1998). Thus, NBP includes the different sources of power associated with different types of actors through the four power antecedents. These antecedents are listed in the middle of Figure 1.

Prominence as an Actor's Power within a System of Actors

Actors' bargaining positions can be mapped in a network, with actors being the nodes and the ties representing an actor exercising supporting or constraining power over another actor. A tie between actors A and B can be characterized by the magnitude or strength of power, the direction of the power, the particular basis of power, and whether the power is a constraint or support. A constraint tie from A to B represents expected actors by A to defy, impede, or at least discourage actor B. A support tie from A to B represents expected actions by A to back, defend, aid, reinforce, or at least encourage B's position. We say "expected" actions because A's past actions, or its command over measurable resources, demonstrate its ability to exert its power, and therefore we expect A to do so if motivated.

Given that the constraint and support ties determine power relationships between all possible pairs of actors within the network, the next question is how do we derive a network level

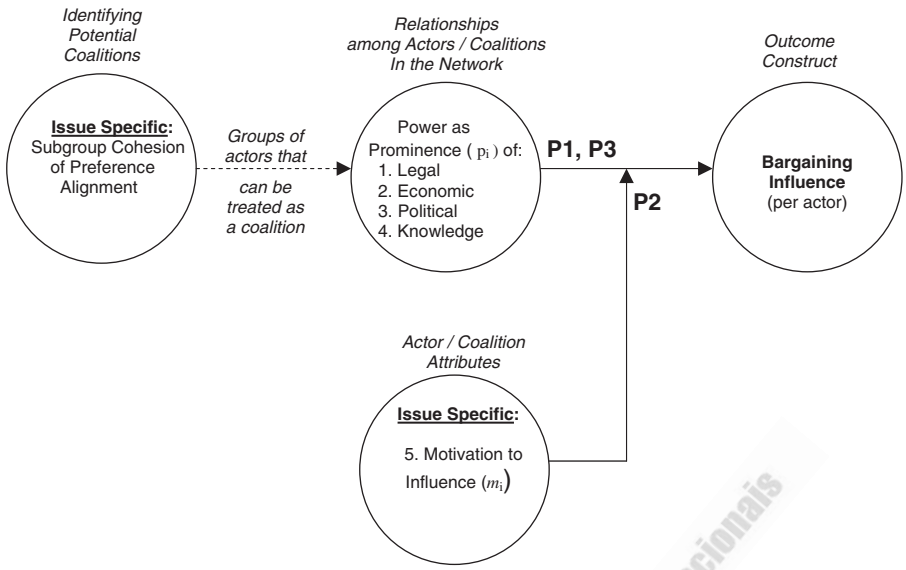

Figure 1 NBP theory.

construct of bargaining influence, the outcome construct, for each actor? That is, how can we take into account the position of each actor in the network in assessing its bargaining influence? At this point, one might intuitively leap to answer that an actor's bargaining influence is positively related to the total magnitude of its direct incoming support ties, and negatively related to the total magnitude of its direct incoming constraint ties. However, such a simple approach ignores "indirect" ties, exemplified in bargaining by weaker actors leveraging the support of more powerful allies. The purpose of this section is to leverage network theory to determine more formally each actor's bargaining influence within the network.

NBP uses the prestige prominence construct, hereafter referred to simply as *prominence*, to capture an actor's bargaining power in the network of actors. The prominence (Knoke, 1990) of an actor is a prestige form of the common network centrality measure (Wasserman & Faust, 1994). Network centrality has been supported as an indicator of power in a number of studies (Galaskiewicz, 1979; Lauman & Pappi, 1976; Mizruchi & Galaskiewicz, 1993). In the context of this research, prominence captures the extent of an actor's power in a system of actors through its direct and indirect ties to other actors (Knoke & Burt, 1983). Prominence is a more complete measure of power than centrality. Prominence takes into account the prominence of all other actors with whom this actor has ties, whereas degree centrality takes into account only the number of direct ties. In the bargaining context, an actor has greater power if it has favorable relationships with other actors who are themselves more powerful. Therefore, prominence captures the indirect power that comes to a less powerful actor when it is an ally of more powerful actors. Prominence is mathematically defined as:

$$p_j = \sum_{i=1}^{n} p_i * z_{ij} \quad \text{which in matrix form is} \quad \mathbf{P} = \mathbf{Z} * \mathbf{P} \tag{1}$$

where p_j is the prominence of actor j, p_i is the prominence of actor i, z_{ij} is the strength of the relation (constraint or support) from actor i to actor j, n is the number of actors, and $\mathbf{Z}$ is the sociomatrix of actor relationships.

We need to calculate prominence for both supporting and constraining actor relationships. Higher prominence for *supporting* relationships indicates greater power, while higher prominence for *constraining* relationships diminishes an actor's power. We calculate prominence for path lengths of 2, as described in the network literature (Bonacich, 1987; Bonacich & Lloyd, 2001), but modified to include supports and constraints in one network. In particular, the prominence for supporting ties, labeled **Ps**, is calculated as

$$\mathbf{Ps} = \alpha * \mathbf{S} * \mathbf{1} + \beta * \mathbf{S}^2 * \mathbf{1} - \beta * \mathbf{S} * \mathbf{C} * \mathbf{1} \tag{2}$$

where $\mathbf{S}$ is the transpose of $\mathbf{Z}$, or $\mathbf{Z}^{\mathrm{T}}$, for supporting relationships; $\mathbf{C}$ is $\mathbf{Z}^{\mathrm{T}}$ for constraining relationships; $\mathbf{1}$ is a column vector of ones; and β is a constant

with value $0 < \beta \leqslant \frac{1}{2}$, reflecting the degree to which a mediating actor transfers indirect effects. The coefficient α is a constant calculated so that the lowest p_i equals zero, giving a baseline of comparison. For our measured values of z_{ij} $(0 \leqslant z_{ij} \leqslant 2)$, $1 < \alpha \leqslant 2$. In Eq. (2), the first term, $\mathbf{S}*\mathbf{1}$, calculates the direct effect, while the second term, $\beta*\mathbf{S}^2*\mathbf{1}$, calculates the indirect effect for supports, and the third term, $\beta*\mathbf{S}*\mathbf{C}*\mathbf{1}$, calculates the indirect effect for constraints. Figure 2 illustrates the application of Eq. (2) for two simple cases for the network of three actors X, Y, and Z. The Greek letters indicate the magnitude of relative power ties, whose range is 0–2. The actions from actor Y to X and Z to Y are direct effects (path length=1), while the indirect effects of Z on X are mediated through Y (path length=2).

Figure 2b illustrates how constraining relationships decrease an actor's power. Here, Z's constraining of Y is bad for X. Case 2b is worse for X than the case of 2a because Y, who is supporting X, is itself constrained by Z, and therefore Y is less powerful in case 2b than in 2a. We can calculate a prominence score for constraints, which we label **Pc**:

$$\mathbf{Pc} = \alpha * \mathbf{C} * \mathbf{1} - \beta * \mathbf{C}^2 * \mathbf{1} + \beta * \mathbf{C} * \mathbf{S} * \mathbf{1} \qquad (3)$$

Equation (3) uses the same **S**, **C**, α, and β as Eq. (2), but the signs of the second and third terms are opposite, and the order of multiplication of the **C** and **S** matrices in the third term is reversed. In Figure 2b, the direct effect of the constraint of Z on Y results in $pc_Y = \alpha\omega$. The larger the value of pc_Y, the more actor Y is constrained, and hence has less bargaining influence to achieve its desired bargaining outcome. The theoretical discussion above can be summarized as follows:

Proposition 1a: An actor's bargaining influence is positively associated with support prominence, Ps, of an actor's legal, economic, knowledge, and political relationships.

Proposition 1b: An actor's bargaining influence is negatively associated with constraint prominence, Pc, of an actor's legal, economic, knowledge, and political relationships.

While the simple networks in Figure 2 illustrate the application of Eqs (2) and (3), these equations are equally applicable to much larger networks of n actors, in which case the **S** and **C** matrices are of dimension $n \times n$. The network in Figure 3

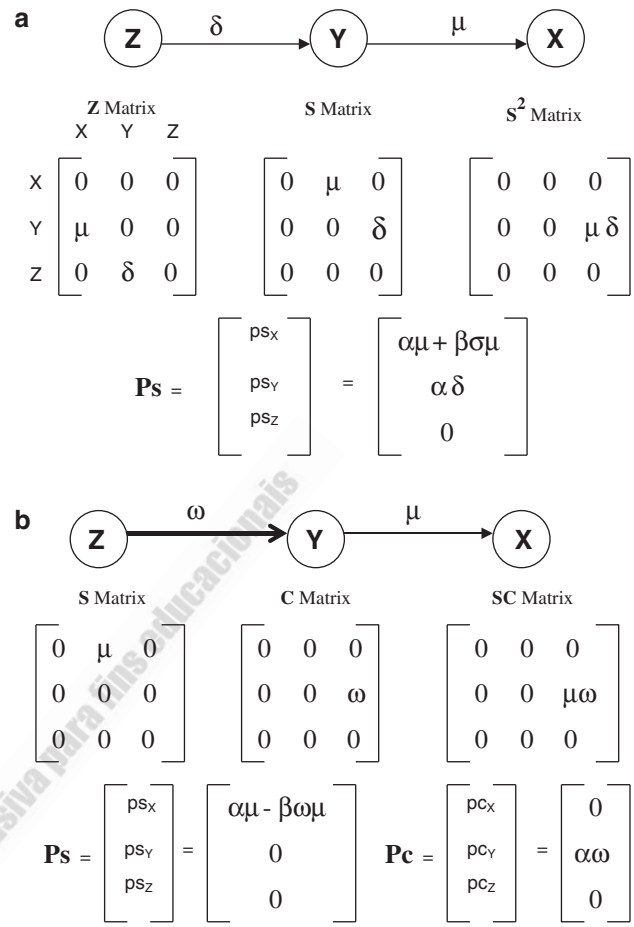

Figure 2 Examples of applying Eqs (2) and (3) (bold arrows are constraints, non-bold arrows are supports): (a) actor Z supports Y, who in turn supports X (C=0); (b) X is supported by Y, who is constrained by Z.

approximates more closely the context of bargaining in IB. This network consists of four types of actors, located in the territory of countries A and B. These include two governments (government of country A and government of country B), two subsidiaries of an MNE located in HCs A and B, and two branches of an NGO located in HCs A and B. Also shown is an international organization of which both country governments are members. Each tie represents an actor's political, economic, knowledge, and legal power relative to the other actors. In effect, we can think of Figure 3 as four superimposed networks, one for each of the four bases of power.

The network approach yields four major advantages for NBP. First, by modeling the actors in a network, we can obtain a systemic view of bargaining among multiple actors. In Eqs (1)–(3),

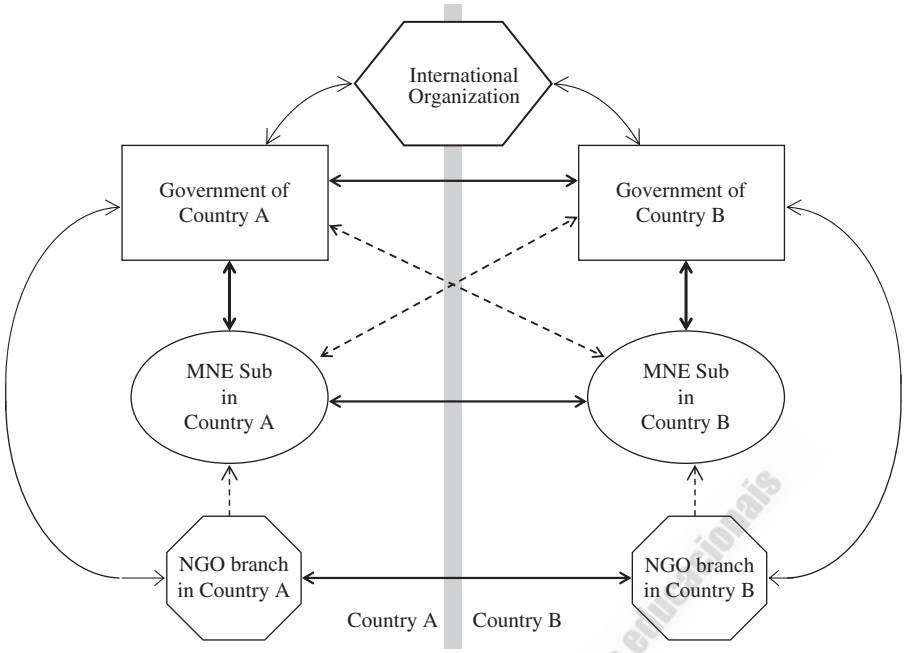

Figure 3 Example of general network for nation states, MNEs, and NGOs.

the actors are not analyzed as separate pairs in isolation. Rather, the analysis is at network level, as the prominence of any one actor is a function of the prominence of all other actors. In this way, the actors are modeled together as a system. The second advantage is that each nation state or organization can be represented in the network by as many actors, at different levels of analysis, as may be a force in bargaining. In the example, the NGO is represented by the two branches in countries A and B. Likewise, a nation state can be represented by multiple actors, which may include different agencies, branches, factions, or political elites, to reflect veto points, for instance (Spiller, 1996); and an MNE as different divisions, subunits, or country organizations. Thus, the granularity of actors is chosen according to the nature of the issue area. The third advantage of NBP is that the model is actor neutral. That is, there is neither hierarchy nor any assumptions in the model that some types of actors are more powerful, or have greater influence in determining the bargaining outcome, than other types of actors. Bargaining influence stems from the values assigned to the ties, or relationships, between each actor and every other actor in the network. A fourth contribution of NBP is that it combines domestic and international politics into one model. Globalization has resulted in international and domestic politics forming a seamless web (Scholte, 2000; Slaughter, 1993). Past analyses that keep these spaces separate have been accused of creating a "boundary that isn't there" (Rosenau, 1997: 4). The relevant domestic politics in the model is the relationship between a nation state and the MNEs and NGOs within its borders. Levy, Keohane, and Haas (1993) argue that the most influential variable accounting for international policy change is the degree of domestic pressure on governments of large industrial democracies. NBP makes no special distinction between domestic and international interactions in the network.

An Actor's Motivation to Use Power in an Issue Area

The degree to which an actor influences the outcome for a particular issue is determined by its motivation to apply its power to this specific issue area (Blalock, 1989; Mahon et al., 2004; Slaughter, 1993). An actor's intention to mobilize power is dependent on this actor's stake in the issue outcome. An actor is not likely to allocate its resources to an issue about which it does not care, while the actor is likely to devote its full attention to an issue linked with its survival or legitimacy. Nevertheless, if an actor senses that the issue outcome is very likely to be aligned with its own preference, regardless of its actions, this actor may not be motivated to devote its resources to influence the outcome for this issue, despite the issue's importance to this actor. Therefore, the motivation factor

is issue specific. Regardless of the reasons that cause, or do not cause, the actor to participate in bargaining, an actor will be a force in the bargaining outcome only to the degree that it is motivated to apply its resources. Therefore, an actor's motivation moderates the effect of power on bargaining influence. This can be expressed algebraically as:

$$\text{Bargaining influence of actor } i = p_i * m_i \qquad (4)$$

where m_i ($0 \leqslant m \leqslant 1$) is actor i's motivation to apply its power to this specific issue. In Eq. (4), m reflects an actor's activities and signals to other actors. Equation (4) is restated in the following proposition:

Proposition 2: An actor's bargaining influence is associated with the actor's prominence in the network moderated by that actor's motivation to set the bargaining outcome for an issue area.

Coalitions and power. Clearly, actors do not always act individually. In some circumstances, an actor interacts with multiple other actors simultaneously. At an extreme, multiple actors with identical policy positions may form a coalition, in effect acting together as one actor. If the power of the coalition is greater than that of the most powerful actor, the most powerful actor will not have the greatest influence, despite the fact that each member of the coalition is less powerful. For this reason, an actor's policy alignment with other actors is important. Multiple actors with similar issue preferences can form a coalition to pool their power.

The existence of coalitions raises the question of their power. Clearly, the power of a coalition is a function of the power of the individual coalition members. It is not correct to assume, however, that this function is merely additive. The sum of the individual members' power defines, in fact, the *minimum* power of the coalition. The power of the coalition may be greater than the sum of its individual members' power if these actors possess complementary bases of power. For example, when governance is based on supermajority voting, a coalition's power increases dramatically when it becomes a blocking coalition, i.e., when its vote can block decisions, even though it still remains a minority in terms of total votes (Tsebelis, 2002). The potential complementarity of actors' bases of power suggests that a coalition's power may exceed the sum of individual power levels. We therefore define the power of a coalition (PP_c) as the following function of the prominence of the individual actors in the coalition:

$$PP_c = s * \sum i \in \mathbb{N}_s p_i \qquad (5)$$

where s ($s \geqslant 1$) is a factor that reflects the synergies among the actors, and p_i is the prominence of actor i in the coalition. An $s > 1$ indicates that there are some symmetries or complementarities among resources of coalition members, making the power of the coalition larger than the sum of the coalition members' individual power. An $s=1$ indicates that there is no complementary resources among coalition members. The following proposition summarizes these arguments.

Proposition 3: A coalition's prominence is, at a minimum, the summation of the legal, economic, knowledge, and political prominence of each of the actors; and greater than summation to the extent that complementarities exist among the coalition members' bases of power.

The coalitions literature (Blalock, 1989; Olson, 1965; Riker, 1962) points also to the problem of a coalition member's motivation within a coalition. Coalitions face two major issues, which Hechter (1987) calls "control" and "dependence". Control is problematic, because coalition members may be tempted to free ride on the efforts of other members. This gives rise to the need to establish mechanisms for monitoring and incentivizing behavior, usually with some loss to the actual power of the coalition as resources have to be diverted inwards. Dependence is also problematic, because not all actors may be equally motivated to get involved in a specific issue, even if they share identical preferences with other members about the outcome. Furthermore, even if all actors are equally motivated and accept their responsibilities within the coalition, exercising power is more problematic in coalitions than for unitary actors. Inefficiency arises from the lack of coordination among actors in a loosely coupled coalition with no central authority, making even the least harmonious unitary actor look very efficient relative to a coalition. Also, coalitions among different actor types and intersectoral coalitions have less cohesion than coalitions among similar actor types and intrasectoral coalitions.

This suggests that Proposition 2 and Eq. (4) apply equally to coalitions as they do to unitary actors, with the only modification being that the

motivation term m is now a composite of the motivations of coalition members. Therefore, for coalitions, the term m must also reflect the history of conflict and cooperation among coalition members. Compared with actors who have a cooperative or neutral history, a coalition whose members have previously been in conflict with one another is less likely to pursue its bargaining agenda, even if the all the coalition's members desire the same bargaining outcome. For a coalition, the term m must take into account the tendency for coalition members to "free-ride" within the coalition. An actor may be motivated to allocate its resources toward achieving its desired bargaining outcome preference when it is not a member of a coalition. However, if this same actor is a coalition member, and it believes that other coalition members are likely to devote sufficient resource to achieving the bargaining outcome it prefers, this actor is not likely to devote its resources to influence the issue's outcome, despite the issue's importance to this actor.

Identifying Coalitions

For some issues, the actors who form a coalition may be obvious from their publicly stated policy affirmed by their behavior and action. However, for other issues, it may not be obvious which actors to include in the coalition, especially if the coalition has core actors but also several other marginal coalition actors at its periphery. We therefore need to identify the members of coalitions with a reasonable degree of objectivity.

Individual actors will choose to be affiliated with a coalition that maximizes their power while maintaining their issue outcome preferences. Actors may be willing to give up some degree of influence to join a coalition if this increases the coalition's power, thereby possibly preventing issue outcomes being set by actors who have opposing views. Of course, whether an actor will choose to be part of a coalition will depend on its desired issue outcome preference relative to that of other actors. The construct that indicates the degree of correlation of two or more actors' issue outcome preferences is labeled *preference alignment* in Figure 1. Actors with low, or negative, *preference alignment* are not likely to participate in a coalition.

We employ network analysis of the system of actors to identify coalitions of actors motivated by common interests. The relevant network variable to identify potential coalitions is what is known in the network analysis literature as *subgroup cohesion* (Wasserman & Faust, 1994). In our context, subgroup cohesion is used to measure the degree to which actors are directly linked to other actors by mutual preferences for an issue outcome. In effect, a subgroup is a coalition whose members may individually not be able to influence bargaining, but who together may be a formidable force in negotiations. A coalition can be determined quantitatively by examining the strength of the *outcome preference alignment* relationship among actors in the network. A subgroup of the network's actors form a clique if the ratio of the strength of outcome *preference alignment* ties within the subgroup to ties outside the subgroup does not decrease with the addition of new actors to the subgroup. More specifically, the variable that captures the degree to which strong ties are within rather than outside the coalition is given by the ratio below (Alba, 1973), labeled herein as coalition cohesion:

$$\text{Coalition cohesion} = \frac{\left(\sum_i \in \mathbb{N}_s \sum_j \in \mathbb{N}_s x_{ij}\right) \Big/ g_s(g_s - 1)}{\left(\sum_i \in \mathbb{N}_s \sum_j \notin \mathbb{N}_s x_{ij}\right) \Big/ g_s(g - g_s)} \tag{6}$$

where there are g actors in the network, g_s actors in the coalition subgroup designated $\mathbb{N}_s$, and x_{ij} is the strength of outcome preference alignment between actors i and j. Larger values of x_{ij} indicate that the issue outcomes preferred by two actors have more in common than two actors with lower x_{ij} values. The numerator of Eq. (6) is the average strength of *preference alignment* within the subgroup, $\mathbb{N}_s$, while the denominator is the average value of *preference alignment* ties from subgroup members to those actors in the network but outside the subgroup. If the value of coalition cohesion is 1, then the average strength of ties among actors within the subgroup does not differ from the average strength of ties from actors in the subgroup to actors outside the subgroup. Therefore, a group of actors with a coalition cohesion greater than 1 represents a potential coalition. Coalitions within the network can then be identified as groups of actors for which the coalition cohesion measure is a maximum. Given a network whose ties are the preference alignments among the actors, finding the coalitions in it can be easily automated by calculating the coalition cohesion of all possible subsets of actors.

METHODS AND EXAMPLE

Quantitative analysis in political economic research may be problematic, but it is not insurmountable

(Nigh, 1985). Empirical analysis is necessary to move beyond *ex post* description to prediction of bargaining outcomes. The purpose of this section is twofold. First, it demonstrates how network analysis can be used to analyze networks of actors to predict bargaining outcomes. Since the purpose of this section is *not* to provide empirical support for NBP, we do not use the measured scores, but instead assign Greek letters to variable values to make the network methods more transparent.[6] The second purpose of this section is to demonstrate through the example case how bargaining outcomes predicted by NBP may vary from those predicted by CBP, as descriptively suggested by the ABP literature. This section consists of two subsections. The first subsection conveys the privatization dispute case that was introduced in the beginning vignette. The second subsection applies NBP to this case.

Example: Unión Fenosa and the Dominican Republic, 1999–2003[7]

In this subsection, we use the example of Unión Fenosa's electricity distribution subsidiaries in the Dominican Republic to show the application of NBP in a specific case. While we have chosen this prototypical bargaining power example of negotiation between a host government and an MNE, which facilitates the comparison with CBP, we do not mean to imply that NBP focuses on, or is limited to, MNE-host bargaining.

Actors and preferences. In this example, we model the Government of the Dominican Republic (GDR) and the Government of Spain (GOS) as unitary actors rather than as multiple, separate actors, such as political elites, regulatory agencies, and the legislative branches of government, as one would find in the institutionalist literature on veto points (e.g., Henisz & Zelner, 2005; Tsebelis, 2002). We have deliberately left out this additional layer of complexity to keep the example more easily understandable.

GDR sought to leverage private capital to provide reliable, affordable electricity to its citizens and businesses through this privatization. At the same time, the GDR regulated factors that affected the revenues and costs of electricity distributors, and hence their profits. The foremost of these factors was electricity prices. The Dominican Republic's Electricity Act specified a formula, based mainly on fuel prices and foreign exchange rates, to determine the electricity prices that distributors could charge. The Act also specified, however, that distributors could not adjust prices according to the formula without prior regulatory approval. Hence actual prices could differ substantially from formula prices. As the regulator was appointed and apparently removed at will by the president of the country, the regulator should be considered fully a part of the GDR and not a separate actor. Regulatory outcomes were extremely important for GDR. Price increases or quality problems such as blackouts could have a major negative electoral impact, or even provoke strikes and riots that created major disruptions for the country; at the same time, subsidies to electricity consumers had a large impact on government finances, and detracted from other government programs.

UF was Spain's third largest electric utility, with interests in both generation and distribution of electricity. In 1999, the Dominican Republic's public electricity monopoly was partially privatized, with its distribution networks split into three companies that were sold in separate auctions. UF won a controlling stake in two of the three distribution companies, formally known as Empresa de Distribución Norte and Empresa de Distribución Sur, or "Edes" for short. UF's goal in acquiring these companies was to make a profit.

Edes therefore had a corporate mandate to make a profit through the sale of electricity purchased from suppliers of power and delivered to end users.[8] Electricity sector regulation was extremely important to Edes and UF. Regulatory decisions had a direct impact on Edes' profitability, and hence on the return on UF's investment.

Although *consumers* (C), including households, businesses, and government entities, were not formally organized (except for the business sector), they were politically mobilized and did act in concert to protest at electricity rate increases and put political pressure on GDR to maintain affordable rates and reliable service. For consumers, electricity sector regulation ranked very high in importance. Electricity prices impacted on household budgets and business profits. Poor service imposed many kinds of costs, such as higher crime or disruption of business activities.

The GOS was concerned about Spanish FDI in Latin America, particularly in utilities such as electricity and telecoms. Most Spanish FDI was concentrated in Latin American utilities (Horcajo, 2004: 50, 169). Low profitability of these investments would harm Spain's financial sector (the major shareholders of Spanish utilities were Spain's major banks) and subject Spain's "national champions" – mainly banks and utilities – to possible

takeovers by foreign entities. In addition, there were close political linkages between UF and Spanish political elites, including GOS (Guillén, 2005: 69, 101; Pérez, 1997). At the same time, as the government of the former colonial power, GOS could be concerned about Spanish prestige and influence on Dominican society.

Relationships among actors. As the procedure for computing bargaining influence scores is similar for each dimension of power, we limit our illustration to political power. Political power is the most complex and hence the most interesting dimension in this case. Legal power is almost entirely in the hands of GDR, which has law-making and enforcement authority in the country. At the economic level, Edes was dependent on customer payments and subsidies from GDR, but GDR was itself dependent on investment from UF and especially from GOS, which also provided aid and access to the Spanish job market for Dominican immigrants. And knowledge power was concentrated in Edes, since it had the most accurate knowledge about conditions in the electric power sector, and especially about the distribution of electricity.

In political terms, consumers exercised a significant amount of power over GDR, because consumers voted in elections, exercised political influence through campaign financing and lobbying, or protested, leading to serious rioting and violence (Economic Intelligence Unit, 2003). At the same time, GDR had political power over consumers, especially through consumers' willingness to trade their votes for private benefits such as electricity subsidies (Espinal & Hartlyn, 1999).

GDR also exerted significant political power over Edes. As owner of 50% of Edes' equity, GDR participated in Edes' governance. This does not mean, however, that Edes was powerless before GDR. Edes could exacerbate public pressure on GDR by affecting the quality of electricity service, as consumers looked to the government to guarantee service quality. Edes also enjoyed wide visibility and contact with the population, which it could use to convey negative messages about GDR.

We also view GDR as having a small amount of power over GOS, due to GDR's ability to embarrass GOS through accusations of neocolonialism if GOS attempted to exercise influence too openly. Nonetheless, GOS retained significant political over GDR through ties between Dominican and Spanish political elites, and Spain's prestige as a wealthy, democratic former colonial power.

Coalitions. The alignment of preferences among the major actors provides a good indication of coalitions that were likely to emerge as Edes bargained with GDR. Strong central control by UF ensured that Edes and UF were closely aligned on all issues affecting Edes, allowing us to treat Edes and UF as a coalition. By contrast, consumers perceived UF as being purely interested in making money at their expense, by providing poor service at high prices. The wide gap between consumers and the utilities posed a dilemma for GDR. GDR was a shareholder in Edes and wanted to attract foreign investment, but it was electorally answerable to consumers.

Unlike GDR, GOS could be expected to care mainly for Spanish investment and hence UF's interests. This did not mean, however, that GOS and UF are fully aligned. Although their interests generally coincided, GOS's concern about Spanish prestige and influence on Dominican society could lead to some divergence.

Network Analysis/Bargaining Influence Results

The network in Figure 4b captures the complexity of the relationships among the multiple types and

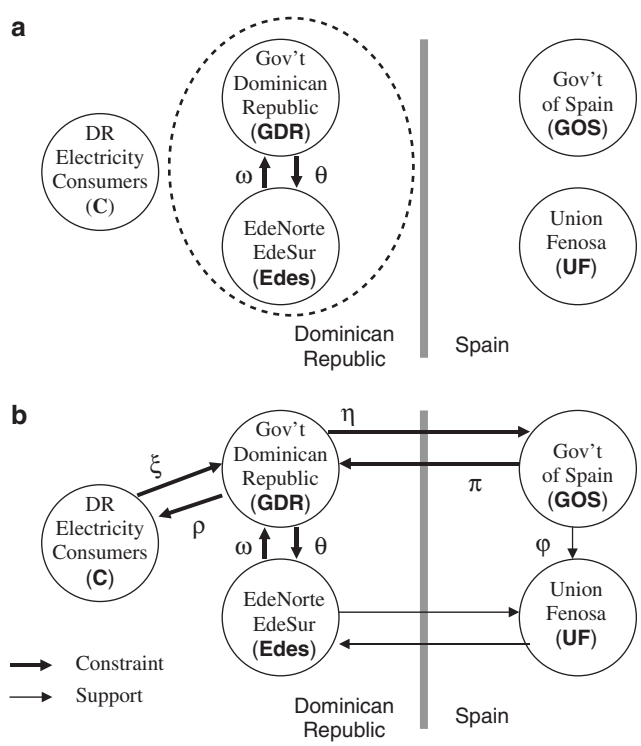

Figure 4 Privatization disputes in DR using (a) canonical bargaining power (CBP) model, and (b) network bargaining power (NBP) model.

numbers of actors in this example. The bold arrows indicate *constraints* of one actor on another, and the non-bold arrows represent the *support* of one actor by another. First, we calculate the constraint prominence of political power based on the dyadic constraints of GDR over C (ρ) and Edes (θ) and GOS (η); C over GDR (ξ); Edes over GDR (ω); and GOS over GDR (π). The only support is from GOS to Edes with a tie value ϕ. As is typical in many bargaining situations, the actors in this network would have sufficient power to achieve their desired goals if they could ignore the constraints from other actors. These constraints are most revealing in explaining the reasons why actors cannot achieve what they desire to do. Applying Eq. (3), the matrices that correspond to the network of Figure 4b are:

$$\mathbf{C} = \begin{array}{c} \\ \text{GDR} \\ \text{C} \\ \text{Edes} \\ \text{GOS} \end{array} \begin{array}{c} \begin{array}{cccc} \text{GDR} & \text{C} & \text{Edes} & \text{GOS} \end{array} \\ \begin{bmatrix} 0 & \xi & \omega & \pi \\ \rho & 0 & 0 & 0 \\ \theta & 0 & 0 & 0 \\ \eta & 0 & 0 & 0 \end{bmatrix} \end{array}$$

$$\mathbf{S} = \begin{array}{c} \\ \text{GDR} \\ \text{C} \\ \text{Edes} \\ \text{GOS} \end{array} \begin{array}{c} \begin{array}{cccc} \text{GDR} & \text{C} & \text{Edes} & \text{GOS} \end{array} \\ \begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \phi \\ 0 & 0 & 0 & 0 \end{bmatrix} \end{array}$$

$$\mathbf{Pc} = \begin{bmatrix} p_{\text{GDR}} \\ p_{\text{C}} \\ p_{\text{Edes}} \\ p_{\text{GOS}} \end{bmatrix}$$

In the matrices above, the coalition of Edes and UF is treated as a unitary actor labeled Edes. Using the matrices above in Eq. (3), we calculate **Pc**, which can be expressed in algebraic form as

$$\begin{aligned} p_{\text{GDR}} &= \alpha(\xi + \omega + \pi) - \beta(\xi\rho + \omega\theta + \pi\eta) + \beta\omega\phi \\ p_{\text{C}} &= \alpha\rho - \beta\rho(\xi + \omega + \pi) \\ p_{\text{Edes}} &= \alpha\theta - \beta\theta(\xi + \omega + \pi) \\ p_{\text{GOS}} &= \alpha\eta - \beta\eta(\xi + \omega + \pi) \end{aligned} \tag{8}$$

It is instructive to relate the terms in the above equations to Figure 4b. The first term in each equation, with α coefficient, is due to an actor's direct ties. For example, GDR had direct constraint ties of ξ, ω and π, which contributed to the first term of p_{GDR}. The second term, with a negative β coefficient, is the indirect effect, which detracts from the total constraint due to the actors doing the constraining being themselves constrained. For example, GDR constrains C, Edes and GOS to varying degrees, which in turn detracts from these actors constraining GDR. The third term in p_{GDR}, $\beta\omega\phi$, represents the additional constraint on GDR due to GOS's support of Edes. It is also instructive to understand how the structure of the network contributes to the prominence of each actor. We can do this by simply assuming that all actors have equal power, in which case the network structure accounts for differences in prominence. If we set $\xi=\omega=\pi=\rho=\theta=\eta=\phi=1$, $\beta=\frac{1}{2}$, and $\alpha=1.5$ (so the baseline constraint is zero), the constraint prominence scores, **Pc**, are $p_{\text{GDR}}=3.5$, $p_{\text{C}}=0$, $p_{\text{Edes}}=0$, $p_{\text{GOS}}=0$. In this case of equal power, GDR is most constrained and therefore is least likely to achieve its desired outcome. The structure of the network, in which GDR is constrained by three other actors, who are in turn only constrained by GDR, reflects these results.

If we restrict NBP to the HC–foreign subsidiary dyad, Eqs (2) and (3) yield bargaining influence scores consistent with CBP's prediction of the most influential actor. The dotted line in Figure 4a represents the boundary of CBP, focusing on bilateral bargaining between Edes and GDR. Applying Eq. (3) to the dyad in Figure 4a, we can calculate **Pc** as

$$\begin{aligned} p_{\text{GDR}} &= \alpha\omega - \beta\omega\theta \\ p_{\text{Edes}} &= \alpha\theta - \beta\theta\omega \end{aligned} \tag{9}$$

From Eq. (9), we can conclude that GDR is less constrained than Edes, or $p_{\text{GDR}} < p_{\text{Edes}}$, if $\omega < \theta$, or the relative power of GDR is greater than Edes by itself. That $\omega < \theta$ follows from the "obsolescing" aspect of bargaining power theory (Vernon, 1971), which states that a government gains more bargaining power over time as the subsidiary is unable to easily extricate its sunk investment from this country. The theory is certainly applicable to our example, as Edes' main investment, the country's geographically dispersed electricity power grid, cannot be extricated. Indeed, we can observe from the case that $\omega < \theta$ as Edes alone has never been able to exercise power over GDR, as indicated by Edes' losses for many months during the DR's economic and financial crises. Although Edes was entitled to rate increases according to its contract, GDR did not approve rate increases that matched Edes' cost

increments. Therefore, NBP's prediction agrees with CBP if one restricts the network to the dyad in Figure 4a.

However, we know from the case that GDR did not have the greatest influence of all the actors. The GDR was not able to achieve its desirable outcomes during two important bargaining episodes in the three-year period of privatization. The first was when GOS approached GDR at the request of the UF head office, and GDR had to take some action to appease UF and Edes. In July 2001, GDR and UF signed the "Madrid Agreement", which provided government subsidies to compensate Edes rather than incur the wrath of consumers by raising electricity rates. The second instance was in September 2003 as GOS was again involved when GDR and Edes finally agreed to dissolve the partnership. Despite Edes being largely insolvent, UF sold its Edes stake to GDR for approximately $350 million – an amount *more* than originally paid by UF to GDR for Edes. Ironically, GDR seemed to be one of the *least* influential actors, in contrast to the opposite prediction of CBP.

Insights into these actual results can be gained from examining Eq. (8), the result of applying NBP to the bigger picture in Figure 4b. We can compare the *constraint* prominence of GDR, p_{GDR}, with that of Edes, p_{Edes}, much like we did above for the dyad. GDR is more constrained than Edes, and has less bargaining influence, when $p_{\mathrm{GDR}} > p_{\mathrm{Edes}}$ or $(p_{\mathrm{GDR}} - p_{\mathrm{Edes}}) > 0$. Using Eq. (8) and collecting terms:

$$\begin{aligned} p_{\mathrm{GDR}} - p_{\mathrm{Edes}} = {} & \alpha(\xi + \omega + \pi - \theta) \\ & + \beta[\xi(\theta - \rho) + \pi(\theta - \eta) + \omega\phi] \end{aligned} \tag{10}$$

This expression is positive if both terms, direct and indirect effects with coefficients α and β respectively, are positive. The direct effect term, $\xi + \omega + \pi - \theta$, is of greater significance, as its coefficient α is >1 for network power ties in our range of $0 \leqslant z_{ij} \leqslant 2$, whereas the indirect effects of the second term have coefficient $\beta = \frac{1}{2}$. Although Edes alone had insignificant power over GDR (ω), one can make an effective argument from the case that Spain's (GOS) power over GDR (π) is substantial, as indicated by the "Madrid Agreement", in which Spain summoned DR representatives to Madrid to address the conflict between Edes and GDR. In addition, the power of C over GDR (ξ) is significant, as GDR compensated Edes with subsidies rather than antagonize consumers by raising electricity rates. Therefore we can conclude that GOS's power over GDR (π) together with C's power over GDR (ξ) is greater than the power of GDR over Edes alone (θ), and hence the direct effect expression, $\xi + \omega + \pi - \theta$, is positive.

Next, we direct our attention to the indirect effects, the second term in Eq. (10). It is clear from the case that the power of GDR over Edes alone (θ) is greater than the power of GDR over GOS (η), and thus $\theta - \eta$ is positive. Also, one can infer that the power of GDR over Edes alone (θ) is greater than the power of GDR over C (ρ), as consumers had sufficient political power over GDR to keep consumer electricity rates flat for more than a year, despite a combination of imported fuel price increases and currency depreciation. Thus, we can conclude that $\theta - \rho$ is positive. Finally, even if either $\theta - \rho$ or $\theta - \eta$ were slightly negative, this would be offset by the positive term $\omega\phi$, which stems from the support of Edes by GOS. Therefore, even before we measure power ties to calculate influence scores, we can understand how NBP would predict that GDR would have less bargaining influence than Edes, contrary to what is predicted by CBP.

It is also worthwhile to compare the results predicted by NBP with the "boomerang" theory (Keck & Sikkink, 1998) in the ABP literature. The boomerang theory would predict that frustrated domestic actors, such as Edes, would search out international allies, such as GOS, to try to bring pressure on their governments, in this case GDR, from outside. However, we could not take away any conclusion from this theory as to which actor is most likely to achieve its desired bargaining outcome. We cannot necessarily conclude that Edes will get its way, as that depends on the relative power of the frustrated domestic actor's international allies compared with the power of the state and its own allies. Therefore, these results suggest that one must simultaneously take into account two aspects of bargaining to better predict outcomes: (1) the power of each actor relative to all other actors participating in bargaining; and (2) the structure of the network that captures which actors are constraining and which are supporting each of the other actors. CBP focuses on the first, but ignores the second; whereas the "boomerang" theory and much of the ABP literature focuses on the second, but ignores the first. An important contribution of NBP to extending bargaining power theory is using both network theory and network analysis to take into account both aspects of bargaining simultaneously, with a model that more accurately captures the complexity of the issue's environment.

CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

NBP offers a promising approach to address several shortcomings of CBP theory pointed out by recent IB scholarship, as well as by research in other social sciences. First, NBP's main theoretical contribution is extending the bargaining power paradigm through the development of a network-based theoretical framework. This theoretical framework enables us to integrate relevant ideas from existing scholarship while extending them to multiple types and numbers of actors. These ideas include coalition theory, indirect leverage, supports and constraints, and the roles of multilateral organizations and NGOs. The NBP model also combines multiple types and numbers of actors, including domestic and international actors, into one system.

In addition, NBP employs network analysis to offer a methodological contribution. While network analysis is not a "large *n*" statistical analysis, NBP, like regression, offers a mathematical relation among antecedents, based on historical data, which lends itself to prediction of likely future outcomes. At the same time, like case studies, NBP allows a researcher to understand and explain the particular underlying mechanisms through which actors exert influence in a particular issue area. While our focus is *ex ante* analysis, NBP offers several other advantages over case studies for *ex post* analysis. NBP offers a methodology that is more objective, transparent, and rigorous than case studies. In addition, NBP provides a tractable method of analyzing bargaining scenarios, regardless of the number of actors. Case studies become less manageable to analyze and more difficult to explain beyond a handful of actors. The only effect of the number of actors on NBP is the dimensions of the matrices. Lastly, NBP is sufficiently abstract to permit analysis across multiple contexts. NBP offers a common method that can be used to compare patterns of bargaining outcomes in different contexts analyzed by different researchers. This is in contrast to case studies, which tend to be idiosyncratic to the issue or context, and whose results in different issue areas are difficult to compare.

Of course, NBP is not without its limitations, which it shares with the theory's foundations in bargaining theory and network theory. As in any network analysis, the researcher needs to define the network boundaries, as NBP defines neither the number of actors nor the extent of the international environment to be included in the network. As in CBP, the relative importance of economic, political, legal, or knowledge power antecedents is not specified in NBP. Although prominence captures the power within the network structure for each of these types of power, NBP does not specify the relative effects of one type of power over another in predicting the outcome. Also, the outcome predicted by the NBP model assumes the researcher has accurately measured its antecedent variables from data collection. The garbage in, garbage out axiom applies equally to NBP methodology as it does to any other methodology.

When analyzing actor relationships based on the cognitive or normative faces of power, another limitation of NBP in certain cases stems from the model's separating an actor's power from its outcome preferences. Despite the moral or "taken for granted" authority that actor A may have over actor B, actor B may not comply with actor A's desired outcome, X, unless X falls within B's "zone of acceptance" (Barnard, 1938; Simon, 1947). For example, the legitimacy of the US Supreme Court is taken for granted by the vast majority of Americans. However, if the Court were to issue a ruling supporting racial discrimination, there would likely be great resistance to this ruling, including both non-compliance and perhaps the court's deinstitutionalization. In other words, there are limits to what outcome actor B may accept apart from the influence of A's basis of power and motivation. Therefore influence and ideas cannot be fully separated in all cases. NBP models an actor's power and outcome preferences as separate constructs, following from its heritage of previous empirical approaches in the international business and IR literatures, which also separate these constructs. The advantage of such a separation is to allow the modeling of log-rolling, linkages across issue areas, and fungible sources of power, as we discuss in the theory development section above. For cases in which the analyst desires to specify power as dependent on ideas, measures of normative or cognitive power can be calibrated for differences among issues or outcomes by expanding these measures to capture individual actor perceptions or beliefs. Lastly, NBP does not assume that a bargaining scenario will result in a mutually agreeable outcome if actors' outcome preferences are incompatible with other actors' "acceptance zones". For example, a system of two coalitions, each with equally strong bargaining influence scores, but whose preferred policies are opposite, may indicate

a deadlock or stalemate on governance between these two polarized parties.

Future research includes empirical validation of NBP, specifically demonstrating the model's predictive validity with prospective data whose bargaining outcomes have not occurred and are not obvious. For NBP to be supported, it should be able to correctly predict outcomes across multiple types of bargaining issues, with different actors and contexts that vary by outcome preference alignment and density of actors in coalitions. By combining possible values along these two dimensions (outcome preferences and coalitions), a variety of network structures and dynamics can be modeled for each situation in which these actors are negotiating, thus providing the analyst with a useful predictive tool (Cox & Jacobson, 2001).

NBP also has practical significance for decision-makers asking themselves what will happen if they follow a certain course of action on a given issue or situation. Such a question leads naturally to the decision-maker's interest in changing less desirable outcomes and finding out how can such a change be brought about. NBP provides a systematic approach to answering these practical questions. It does so by enabling the analyst to explore the implications of changing the model in a variety of ways, such as adding, deleting, or modifying values of network ties to reflect changes in actors' relationships; combining actors in coalitions; or introducing additional actors who may participate in bargaining. The model also allows identification of pivotal actors, i.e., those with a major impact on bargaining outcomes. In this way, the project's theory can be used to model the impact of interventions designed to achieve a particular bargaining outcome by a business strategist or government policy planner.

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NOTES

[1]An actor is defined herein as someone (as a member of a political elite) or something (an organization, institution, government, or any part or subunit of these entities) that influences bargaining. It does not imply a level of analysis.

[2]We are leaving out reference to the "third face of power" (Digeser, 1992). Strongly influenced by Marxist and world systems perspectives (Lukes, 1975), the third face of power suffers in our view from important conceptual problems, which make it difficult to distinguish it from the second and fourth faces.

[3]An important debate in the literature on power is the extent to which agency can exist in the "fourth face of power" – in other words, whether actors can shape cognitive institutions to their advantage (Digeser, 1992; Barnett & Duvall, 2005). The private authority literature shows that this possibility should not be *a priori* excluded.

[4]An MNE's economic power over an HC may include both MNE resources valued by the HC, e.g., export potential, as well as HC constraints, e.g., external debt problems, because both are of an economic nature. As Kobrin (1987: 618) observes, the "line between resources and constraints is diffuse and its location may be situationally specific."

[5]These four antecedents should not be confused with the "four faces of power" (Digeser, 1992), although, as previously discussed, our choice of antecedents is informed by scholarship on the faces of power.

[6]Data collection procedures and measures one would use to obtain numerical scores for NBP variables are provided in a working paper available from the authors.

[7]Information about the example is from AEAI (2003) and AES Dominicana (2004), and information gathered through fieldwork conducted by one of the authors as part of several consulting engagements for USAID from 2002 to 2004. Information presented herein does not represent the views of the US government, its agents, or representatives.

[8]Although Edes was 50% owned by GDR and 50% by UF, the latter also had operating control, making Edes in effect a UF subsidiary. UF appeared to exercise a clear control over Edes, with little participation by GDR in managerial decisions.

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