

# An International Pecking Order?

## States' Position within International Hierarchies and International Conflict

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### **Abstract**

The absence of a formal global government does not preclude formation of informal hierarchical structures. This paper refines the definition of international hierarchy and explores its effects by asking how state location within this hierarchy affects conflict behavior. I regard hierarchy as a set of bargains between the dominant state and each individual subordinate state. Reflecting the degree of legitimate authority that a subordinate cedes to the dominant power, the outcomes of these bargains exist on a continuum that ranges from complete autonomy to complete control and varies over time in response to changes in the strategic environment. States that are higher in the hierarchy are more constrained in their foreign policy behaviors and are less likely to independently initiate conflict. When conflict occurs, states select targets strategically because dominant states consider the hierarchical position of the challenger and target when deciding whether to punish challengers, either militarily or economically. I find support for these theoretical expectations by analyzing the effects of US hierarchy between 1950-2000 using a two-stage strategic probit.

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# Introduction

A hierarchical international order is often contrasted to one of anarchy (e.g., Waltz 1979). The term ‘anarchy,’ however, while technically correct given the absence of a world government, implies lawlessness, chaos, and random violence (Mueller 2009, 39). Consistent with more recent theoretical accounts, I argue that the absence of a formal global government does not preclude the formation of informal hierarchical structures (Deudney 2007; Lake 2009; Weber 1997). I build on these accounts to argue that every state in the international system assumes one of two roles: that of a *dominant*, who acts as the creator and enforcer of social contracts between others, or a *subordinate*, who decides to what degree (if any) to adhere to and legitimize the authority of the dominant in exchange for certain benefits. Thus, hierarchy is a dyadic- rather than system-level variable; and states’ positions within it operate as signals of security and stability to other actors. Importantly, since multiple states may assume the dominant role at the same time, the theory developed here allows for the existence of several hierarchies. In the case of multiple dominant states, these states have to compete for available subordinates. In addition, dyadically established dominant-subordinate relationships or social contracts may also have spillover effects on interactions among third-party states. The goal of the paper is to explore the direct and indirect effects of social hierarchy on international conflict.

This paper’s hierarchical explanation of conflict sheds light on a significant proportion of the variation in conflict, especially conflict among small powers, which is unexplained by more traditional accounts (Bennett and Stam 2004). Traditional accounts cannot explain, for example, why Poland and Ukraine—both relatively weak international actors—supplied troops to the United States (US) led invasion of Iraq in 2003, in the absence of any outstanding grievances with Iraq, a formal alliance with the US, and despite rather vocal domestic oppositions and, even more strikingly, risking the wrath of Russia—an alternative dominant state.

A hierarchical theory helps explain such puzzling behavior, pointing out that Poland and Ukraine adhered to US requests in support of a US-enforced global order, viewed by them as

legitimate. In return for their deference, the US provided these countries with benefits, such as economic aid and security guarantees. This does not mean, however, that the preferences of these countries are in perfect harmony with those of the US or that they acquiesce to all US demands. Nor is this purely an artifact of power disparities between states. In fact, as I show later, the degree of hierarchy is uncorrelated with military power. Thus, in contrast to earlier theories of hierarchy that fixate on capability distributions (e.g., Organski 1958), I focus on what Lake (1996, 2) refers to as *relational* or *contractual hierarchy*.<sup>1</sup> What this means is that some states tacitly accept, to varying degrees, the legitimate authority of a dominant state to regulate their behavior.<sup>2</sup> Many former British colonies, for example, have joined the Commonwealth of Nations, accepting restrictions regarding their political regime, domestic legal system, and permitting their citizens to join the United Kingdom's armed forces. These hierarchical arrangements condition the behavior of subordinate states towards the dominant as well as vis-a-vis one another.

Within the international system, only a handful of states have the economic and military capabilities to enforce social contracts and form global hierarchies. Not all states, however, that possess the capabilities to act as a dominant power are viewed as legitimate to do so. In order to be a dominant, a state must have both 'power and purpose' (Art 1998/1999, 82). Purpose, or authority, is important because power relations alone cannot explain why subordinates take actions that legitimize a dominant state, such as holding a reserve currency (Lake 2009, 20) or transforming domestic legal codes and practices (Davie 2000; Morrow 1991, 912). The presence of potential alternative hierarchies, moreover, means that dominant states must compete for legitimacy. Yet, for a variety of reasons, not all states that meet the conditions to act as a dominant state choose to do so. Germany and Japan, for example,

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<sup>1</sup>See Pahre (2005) and Thompson (1988) for an overview of theories of hierarchy that focus on military capabilities.

<sup>2</sup>Theories regarding social contracts have a long history. Classic examples include the work of Hobbes (1652), Locke (1690), and Rousseau (1762). Rawls (1974, 2001) and Binmore (1994, 1998) provide more recent examples. The kind of influence that a state gains is frequently referred to as *relational power* as opposed to *military power* since the relationship is based upon authority being voluntarily conferred onto one party by another rather than taken by military coercion (Giddens 1984; Haugaard 2006; Lentner 2005). This is akin to soft power, where citizens in a subordinate state lobby their own government to change policies to those sought by the hegemon (Nye 1990). Relational power differs from soft power in that only state governments are considered.

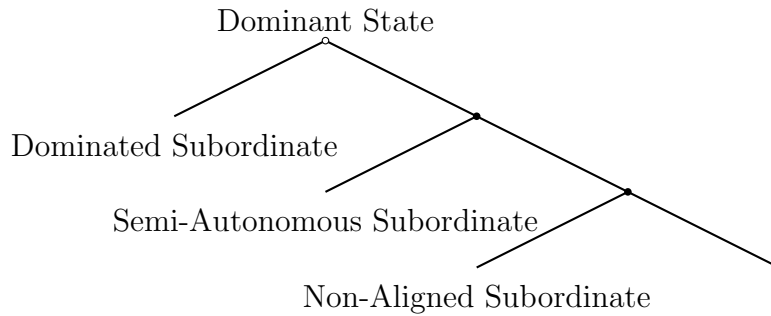
currently have the economic and military capacity to be a global power but have not sought the role of being a global dominant state. Thus, by themselves, economic and military power are not sufficient conditions to act as a dominant state.

This paper's definition of hierarchy in dyadic rather than systemic terms is important, because not all subordinate assign the same level of legitimacy to a dominant state. Hierarchy reflects the degree of authority that a subordinate cedes to the dominant power in exchange for certain benefits (e.g., order or protection). Dominant and subordinate states may prefer some degree of hierarchy since each can gain more economic and security benefits from cooperation than by acting alone. Each state, however, has their own ideal point concerning the optimal level of hierarchy with each dominant state. The outcome of the bargain exists on a continuum, ranging from complete autonomy to complete control, and is a function of each state's ideal point and their relative power distribution. Moreover, this outcome is subject to potential revisions as the strategic environment of each state changes, altering their ideal points. Finally, a failure or refusal to fulfill its obligations by either party leads to a decrease in the degree of hierarchy between them. Thus, hierarchy can vary over time.

This can be illustrated with the case of Yugoslavia and the Soviet Union. In the immediate aftermath of World War II, Yugoslavia was closely aligned with the Soviet Union and accepted their position as the leader of global communism. In 1948 this had changed, however, as Yugoslavia rejected Soviet input when creating their own economic plan. Moreover, Yugoslavia intervened in the Greek civil war and concluded a treaty with Bulgaria, both without Soviet permission (Priestland 2009, 218-219). The Soviet Union responded by expelling Yugoslavia from the Communist Information Bureau. By 1955 the two states exchanged ambassadors and had largely reconciled, though Yugoslavia would never again be completely subservient to the Soviet Union (Priestland 2009, 332-333; Valdez 1993, 40).

Figure 1 displays a simplification of how states are arranged under the hierarchy of a dominant state. The relationship between a dominant and a subordinate depends on the subordinate's relative position within this hierarchy. The "dominated subordinate" level, for example, consists of states that have given up the most sovereignty and who, in return,

Figure 1: International Hierarchy as a Relationship with a Dominant State.



expect the highest level of protection or other benefits. These states are the most likely to pursue policies in line with that of the dominant, including abstention from any unsanctioned conflict initiation. Examples of potential dominant states include the US, Russia (or the Soviet Union during the Cold War), and Great Britain. Within the US hierarchy, Canada and South Korea are examples of “dominated subordinates,” Greece and Saudi Arabia are “semi-autonomous subordinates,” while India and Myanmar are “non-aligned subordinates,” as is the rival dominant state of Russia.<sup>3</sup>

The effect of hierarchy, however, goes beyond dominant–subordinate relationships, permeating inter-state interactions at all levels. Subordinates are less likely to initiate conflicts against states located closer to the dominant because they recognize that these states have even stronger security benefits than themselves. This means that a “semi-autonomous subordinate” is more constrained in its interactions with a “dominated subordinate” than with a “non-aligned subordinate” because the dominant state is more likely to act in response to aggression towards the former than the latter. In this way, hierarchy operates as a type of general deterrence where states closer to the dominant are less likely to be targets of aggression than states that are lower in the hierarchy.

This theory generates several predictions. Subordinates with greater degrees of hierarchy are less likely to adjust the status quo by initiating a conflict because they accept the

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<sup>3</sup>Because there are multiple hierarchies, it is possible for a state to be in more than one hierarchy at a time. This is especially true if the two dominant states are closely linked, such as the US and Great Britain, where Great Britain heads its own hierarchy but is also a “semi-autonomous” subordinate within the US hierarchy.

existing political order. In addition, dominant states account for the global political climate by considering the existence of alternative hierarchies. When a dominant state is weak compared to potential alternatives, it enforces the political order more stringently in order to provide a clear benefit to subordinates. Finally, subordinates' loci within the hierarchy affect their behavior toward one another. Conflict initiators select targets located at lower hierarchical positions in order to reduce the likelihood of a response by the dominant state.

I test these theoretical expectations by analyzing the effect of US hierarchy between the period 1950-2000 using a two-stage strategic probit model (Bas, Signorino and Walker 2008; Signorino 2003). The two-stage estimator is able to account for the non-randomness of the sample by acknowledging that the conflict behavior of a subordinate state is conditioned by both its own actions and the expected actions of the dominant. The estimator assumes that before initiating a challenge, the subordinate calculates its expected utility from a challenge to the status quo in a probabilistic manner, by using the information from observed dominant responses to other challenges. In a way, this process of estimation treats subordinate states as capable of estimating the threat of the dominant's punishment in response to their own challenge, and making their decision to challenge with such a threat in mind. An important advantage of such a modeling approach is that it gets around the problem of unobservable or implicit threats on the part of the dominant, such as the US implicit threat to China in case of an invasion of Taiwan. The estimation approach used here allows for such threats, by estimating them probabilistically from the observed data (Signorino 1999; Smith 1999).

The estimation approach is able to differentiate between two distinct types of "non-conflict" events: those in which the subordinate defers to the status quo and those in which the subordinate initiates a conflict and the dominant acquiesces by not responding to their aggression. The results of the analysis demonstrate that subordinate states with greater degrees of hierarchy are less likely to initiate conflict. In addition, dominant states are more likely to respond with coercive action to subordinate state that initiate conflict when alternative hierarchies are strong and when the initiating subordinate state is positioned lower in the hierarchy than their target.

My account of international relations contributes to the larger literature by demonstrating the importance of social contracts to state behavior. State location within an international hierarchy affects who initiates conflict, which states are targeted, and whether the dominant power reacts coercively to the initiator. This means that social contracts affect not only their primary parties, but also influence interactions among third-party states. This study also adds to the extended deterrence literature by proposing a continuous rather than dichotomous measure of a “protégé” and acknowledging that this role depends on a state’s relative location vis-à-vis the conflict initiator in the dominant power’s hierarchy. Finally, by treating hierarchy as a relational form of power, I argue that multiple hierarchies can exist simultaneously and that dominant powers must compete for subordinate states.

## **Hierarchy as a Social Contract**

Many scholars posit that insecurity creates an environment that promotes conflict and dissuades cooperation (Fearon 1995; Morgenthau 1948; Waltz 1979). Given this security dilemma, it is surprising how rare militarized conflict actually occurs. Deudney (2007, 27) argues that “insecurity results from the absence of restraint on violent power” and identifies two sources of restraint: material and socially constructed. Material factors put physical restraints—geographical or technological—on a state’s reach (i.e., loss of strength gradient) (Boulding 1965). Hierarchy, on the other hand, acts as a social constraint, limiting the power of the dominant by alleviating the commitment problem and limiting subordinates by reducing their autonomy.

Liberal theorists, such as Ikenberry (2000) and Keohane (2005), primarily focus on hierarchy as it relates to the dominant state (e.g., limiting power through institutions). Dominants limit their own power and provide public goods in return for legitimacy. They do this to preserve resources and extend their dominance over the system. Such accounts usually point to hierarchy along specific dimensions or issues (e.g., monetary policy, energy policy, or security) (Keohane and Nye 1977, Ch 3). The multi-dimensionality of hierarchy matters because the cost of activating power in one area (i.e., military) may be large and not necessarily easily

transferable to other areas (i.e., environmental policy) (Conybeare 1987, 49-50). Thus, not all dimensions of hierarchy are weighted equally on all policy outcomes.

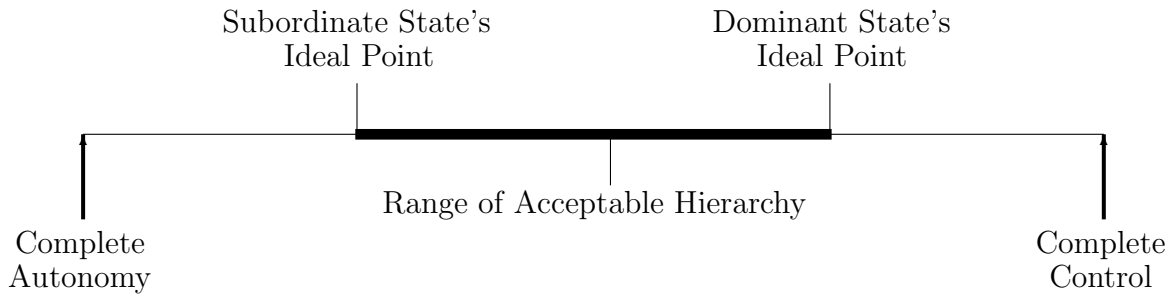
I extend this literature in two important ways. First, I argue that not all subordinates concede authority to the same degree. For example, following World War II, Great Britain and France were members of NATO and closely adhered to US foreign policy. After its withdrawal from NATO's military structure in 1966, however, France pursued an independent foreign policy, while Great Britain continued to operate in conjunction with the US. A country's hierarchical position may also vary over time. After the Iraqi invasion of Kuwait in 1990, Saudi Arabia and Turkey each allowed a US led coalition to use their territory in an effort to expel Iraq, with Saudi Arabia even contributing troops. In contrast, both states were formally opposed to the 2003 US led invasion of Iraq and neither granted coalition forces access to their territory.

Second, dominant states seldom provide true public goods; instead, subordinates must accept certain conditions in order to receive benefits. The goods provided by dominant states are excludable and do not equally benefit all states. For example, while the US provides a global reserve currency, states must peg their currency to the US dollar to gain the benefits of monetary stability. Doing so, however, restricts their domestic monetary autonomy and subjects them to the decisions of the US with little independent influence over these outcomes. Countries like El Salvador that "merge" their currency by pegging it directly to the US dollar have little say when the US Federal Reserve considers a rate hike, yet their domestic economy experiences the ramifications of such decisions. Likewise, Great Britain is often credited with protecting the seas in the 19th century. They did not, however, build naval bases at equal intervals for all shipping lanes; instead, they built them along the shipping lanes deemed important by the Empire and along the coasts of subordinate regions (Herman 2004, 445, 448). Thus, hierarchy is not a system-level, but a dyad-level variable.

Hierarchy is a tacit social contract reached through a process of negotiation between a dominant and each subordinate state (Deudney 2007; Lake 1996, 2009). In this negotiation, each state attempts to move the outcome closer to its ideal point, as displayed in Figure 2.



Figure 2: Bargaining Range of the Level of Hierarchy

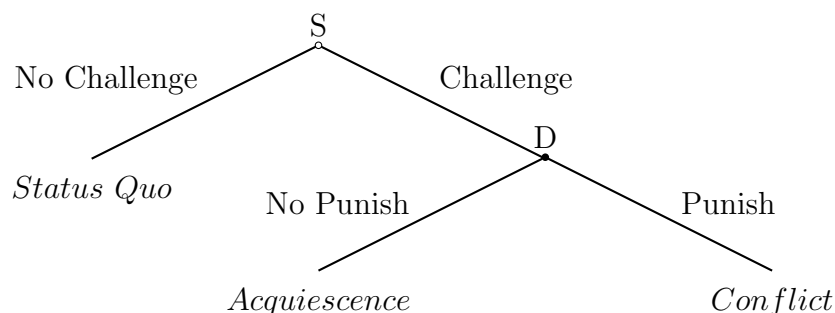


Each states' ideal point is conditioned by their strategic environment and varies somewhere between complete autonomy and complete control (Morrow 1991; Weber 1997). A subordinate existing within a threatening neighborhood may seek security assurances from the dominant and surrender a greater degree of its foreign policy autonomy, as in the case of South Korea. The ideal point of the dominant may also be less than complete control; after all, it may not want to pay the administrative costs of occupying another state (i.e., it lacks strategic value, logistically difficult to manage, etc).

The outcome of the bargain is based upon each state's ideal point and their relative power. Therefore, either state may seek to renegotiate the level of hierarchy if there is a change in their internal or external environment (Powell 1999; Werner 1999). Subordinates may seek greater autonomy in light of benefits generated from political order while dominants may seek more control than the subordinate views as legitimate (Lake 2009, 30-32). A subordinate may also become more willing to allow the dominant state to station troops within its borders or otherwise surrender its foreign policy autonomy, when it fears an external invasion. After the threat subsides, the subordinate may revert to seeking more autonomy.

The precise location of the ideal points along the continuum are private information, held by each party, yet can be approximated based upon states' observable actions. In this paper, I focus on two types of such actions: challenges on the part of subordinates and punishments by the dominants. Subordinates engaging in the global political environment strictly of their own accord are considered to be *challenging* their hierarchical status quo location and trying to establish a new status quo closer to their own ideal point. This is a challenge because any

Figure 3: Structure and Outcomes of Challenges and Punishments in the Hierarchical Order



action that has not previously been approved by the dominant is a move strictly away from the dominant’s ideal point. Such unsanctioned behavior may be subject to “coercive, violent, and punitive actions” from the dominant (Holsti 1982, 218). I define these punitive actions as *punishments* and conceptualized them as costly actions by dominant states directed at a subordinate in response to a challenge (Alt, Calvert and Humes 1988).

The use of a divisible measure of hierarchy means that cases of pure equality (anarchy) between dominant and subordinate are treated as a special case or a particular type of political order. Pure hierarchy (empire) can be thought of in the same way. By treating hierarchy as a dyad- rather than system-level variable, this theory allows for a simultaneous existence of multiple political orders, thus leading to a more general and rich account of world politics.<sup>4</sup>

The basic structure of the social contract relationship is presented in Figure 3. In the first stage, the subordinate chooses whether to challenge the status quo. If the subordinate challenges, it moves to the second stage where the dominant determines whether the challenge is worth the cost of punishment. In order for the subordinate state to maximize its (expected) utility, it must account for the expected behavior of the dominant state. That is, the subordinate must decide whether punishment by the dominant is credible and whether the potential gain is worth the cost of punishment. There are three possible outcomes from this interaction: maintaining the status quo, acquiescence by the dominant state, and conflict

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<sup>4</sup>While the origins of hierarchy are outside of the scope of the current study, there is work that addresses it. For an evolutionary account, see Binmore (1994, 1998); for a socio-historical perspective, see Ferguson and Mansbach (1996) and Ruggie (1986).

between the subordinate and dominant states.

A state's position within the dominant's hierarchy is an important determinant of whether it will initiate a conflict. Since hierarchy is a bargain where a subordinate recognizes the dominant's authority in return for some benefit, higher degrees of hierarchy mean that the subordinate is more accepting of the status quo. That is, barring some change to the benefits they receive, the subordinate state is deriving positive utility from the current political order. By extension, states located higher within the hierarchy are less likely to challenge the dominant state while states located at lower positions are expected to act more autonomously.

*Hypothesis 1: The greater the degree of hierarchy between a subordinate and dominant state, the less likely the subordinate is to challenge the status quo.*

Because hierarchy is a form of relational power, authority is given rather than assumed (Lake 2009, 20). Thus, a dominant only holds its position because subordinate states are willing to confer authority to it. While a dominant can coerce other states to act by threatening violence (i.e. imperialism), such actions are costly and do not permit the same degree of global influence as gaining legitimacy. In fact, predatory actions undermine the legitimacy on which the social contract is built. If the dominant state abuses its position or fails to provide sufficient benefits, a subordinate may choose to adjust their ideal point closer to complete autonomy or turn to alternative providers of hierarchy.

The presence of multiple dominants in the system, each with their own hierarchy, forces dominants to compete for subordinates (i.e., the US or Soviet Union during the Cold War). One way to do this is to provide political order by punishing states that initiate conflicts aimed at members that are closer to the dominant (i.e. "dominated subordinates"). The absence of competition, on the other hand, alleviates the pressure on the dominant to provide order to their subordinates, just as a monopolistic firm faces less pressure to provide quality products to customers. With few legitimate alternative hierarchies to compete with, dominant states are more likely to find that the costs of enforcement outweigh the benefits of strictly regulating subordinates' foreign policies or providing protection. Thus, when the

dominant is strong relative to other great powers, the dominant state is less likely to defend their subordinates.

*Hypothesis 2: When a dominant state is strong relative to alternative great powers, it is less likely to punish challenges.*

Not all challenges are viewed equally by the dominant. States low in the hierarchy are more likely to challenge since they are generally outside of the dominant power's influence. However, if challenges are directed against third parties that are closer to the dominant, the likelihood of punishment increases. Attacks against states close to the dominant are viewed as serious challenges to their political order, perhaps even as an indirect attack on the dominant state itself. This is well known within the deterrence literature, where an attack on a "protégé" is treated as an attack on the defending dominant power (George and Smoke 1974; Huth 1988). Allowing attacks on subordinates that are located high within the hierarchy would be a violation of the social contract and potentially call into question the legitimacy of the hierarchical arrangement.

Similarly, some targets receive more protection than others. Though states that are close to the dominant are unlikely to challenge, such states are unlikely to be punished, especially if their target occupies a lower position within the hierarchy. This is because when punishing, the dominant takes into account not just the absolute hierarchy position of the challenger and the target, but also their relative positions vis-à-vis each other or *relative hierarchy*.<sup>5</sup> Here the theory builds on the general deterrence literature, and extends it by treating the status of a "protégé" as a continuous and relational rather than a binary measure. Therefore, challenging subordinates consider their location in the relative hierarchy—and the associated risk of punishment—when selecting their targets. Thus, the concept of general deterrence is enriched by considering the implicit threat of retaliation dependent on the location of the target and aggressor within dominant's hierarchy. This theoretical insight helps explain the reaction of the US during the 1956 Suez War when France, Great Britain, and Israel, all

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<sup>5</sup>This is similar to the role of relative bias, as opposed to absolute bias, that a mediator has towards disputants impacting mediation success (Savun 2008).

closely aligned with the US, invaded Egypt. Specifically, US growing displeasure with the invasion can be explained by Egypt's ascent within the US hierarchy at that time. One is left to wonder if US would have been as likely to risk tensions with its long-time allies, had it not been actively wooing Egypt as the focal point of its Middle East policy (Burns 1985, 11; Gaddis 1998, 168; Neff 1981, 43).

*Hypothesis 3: When the challenger is located higher within the hierarchy than the target, they are less likely to be punished.*

## Research Design

I test the hypotheses using a two-stage strategic probit model (Bas, Signorino and Walker 2008; Signorino 2003). This statistical estimator is appropriate, as it allows to account for the nonrandomness of the sample, resulting from the strategic selection of targets on the part of challengers (Danilovic 2001; Smith 1996). A failure to model this selection effect would produce biased estimates and incorrect inferences.<sup>6</sup> A two-stage strategic probit model is in effect as a recursive system of equations, also referred to as statistical backwards induction (SBI) (Bas, Signorino and Walker 2008, 26-27).<sup>7</sup> In substantive terms, the estimator effectively treats subordinate states as able to calculate their expected utilities from a challenge by estimating the probability of a punishment from other observed cases of challenges. The challengers use this estimated probability, or a belief regarding the threat of punishment, to weigh the costs and benefits they would derive from challenging the status quo.

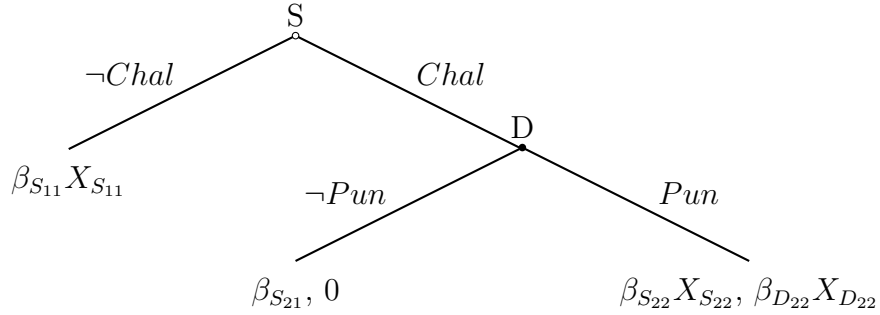
A strategic probit model is an extension of a random utility model (McFadden 1976). The

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<sup>6</sup>Though a strategic probit is a type of selection model, it is important to note that it is not the same as a bivariate selection model (Signorino 2002; Smith 1999). In a traditional selection model, a state's behavior in the first stage is conditioned only by its own expected action in the second stage Heckman (1979). In a strategic model, however, a state's behavior in the first stage is conditioned on both its own expected behavior *and* the expected behavior of the other state in the second stage. Signorino (2002) uses Monte Carlo simulations to demonstrate that a strategic model outperforms the bivariate selection model unless states are almost completely unaware of one another's preferences.

<sup>7</sup>The model can also be estimated simultaneously rather than recursively. SBI is used because it more quickly and easily identifies and computes the likelihood function while making better use of observed data (Bas, Signorino and Walker 2008, 7-8).

Figure 4: Specification of the Strategic Probit.



utilities associated with each outcome are composed of an observable and an unobservable component, such that  $U_{ij}^* = U_{ij} + \pi_{ij}$  where  $i$  is the state and  $j$  is the payoff. The observable utility  $U_{ij}$  is captured by a set of regressors and the unobservable component  $\pi_{ij}$  represents private information that is known only to state  $i$ . State  $i$ 's private component is assumed to be a random variable with a standard normal distribution. The private information component accounts for uncertainty regarding the other state's true intentions (Midlarsky 1974; Signorino 1999). The less certain a state is, the less information the observed utilities convey and the greater the variance associated with their utility calculation (Signorino 2003).

Figure 4 displays the empirical specification of the strategic model. Consistent with the theory outlined above, subordinates located high within the dominant state's hierarchy are expected to maintain the status quo. Thus,  $X_{S_{11}}$  represents the subordinate's degree of hierarchy, which is treated as the observable component of the utility function. This can be written formally as  $U_S(-Chal) = \beta_{S_{11}} X_{S_{11}}$ . Standard explanations of why a subordinate would initiate a conflict with a targeted state are captured by observable variables represented by  $X_{S_{22}}$ , while the subordinate's utility from the dominant state acquiescing to a challenge is captured by a constant,  $\beta_{S_{21}}$ . Each outcome depends on the expected action of the dominant, where  $p$  represents the subordinate's belief that the dominant will punish them and  $1 - p$  that they will not punish. Thus, the subordinate's expected utility from challenging can be rewritten as  $U_S(Chal) = p(\beta_{S_{11}} X_{S_{11}}) + (1 - p)(\beta_{S_{21}})$ . The theoretical expectations associated with the dominant state are represented by  $X_{D_{22}}$ , which captures both the theoretically relevant position of a dominant relative to alternative dominant states

and the degree of relative hierarchy between a challenging subordinate and their target. This can be written as  $U_D(Pun) = \beta_{D22}X_{D22}$ . Finally, the acquiescence outcome for the dominant is normalized to zero, or  $U_D(\neg Pun) = 0$ .<sup>8</sup>

Consistent with the SBI principles, the second stage of the model (the dominant's response to a challenge) is estimated first, and the resulting expectation is used to condition the behavior in the first stage (the subordinate's decision to challenge). Because the variance is assumed to be normally distributed, the probability that  $U_D(Pun) > U_D(\neg Pun)$  in cases where a challenge occurred can be estimated using a probit model. This provides estimates for  $\beta_{D22}$  as well as for  $p$ , the subordinate's belief that the dominant punishes a challenge. From observing cases where the dominant has been forced to respond to a challenge, a subordinate is able to gather information and estimate the probability of punishment from other cases. When  $p$  is low, they believe that punishment is unlikely, while if  $p$  is high, they believe that punishment is likely.

The subordinate's expected value for challenging can be calculated by multiplying  $p$  with the regressors  $X_{S22}$  while  $1 - p$  is multiplied with the constant from the *Acquiesce* outcome. That is, the benefits that a challenging state expects to gain are conditioned by the risk that the dominant punishes their action. These modified regressors are then included in a probit model identifying the probability that  $U_S(Chal) > U_S(\neg Chal)$ , which is the likelihood that the subordinate challenges (Bas, Signorino and Walker 2008, 7-9, 18-19). The modified regressors are necessary because using ordinary first-order regressors would produce biased and inconsistent parameters (Signorino and Yilmaz 2003). Thus, the use of the strategic model allows for isolating the effects of each theoretically relevant factor for both subordinate and dominant states.

Calculating the standard errors (SEs) is slightly more complicated. SEs for coefficients related to the dominant's choice require no modification because the dominant's choice does not depend on the expected actions of anyone else (Bas, Signorino and Walker 2008, 29).

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<sup>8</sup>In order to statistically identify the model, the same variable cannot be included in every equation associated with an actor (Signorino and Tarar 2006, fn 12). In the case of the subordinate state, a constant term is suppressed in the conflict equation.

Instead, the dominant acts only when a subordinate challenges. Potential problems arise, however, when calculating SEs associated with the subordinate's coefficients because the subordinate's decision is conditioned by the expected action of the dominant state. Ignoring this conditional relationship would produce inconsistent SEs. I account for this by employing nonparametric bootstraps.

I treat directed dyad-years as the level of analysis for the period 1950-2000. Dyad-years are necessary because hierarchy varies by country and over time. Directed dyads account for both the actions of State A toward State B and State B towards State A. This allows for identification of which subordinate state initiates a conflict in the first stage of the analysis—a challenge of the status quo—and if the dominant state punishes the challenger in the second stage. Directed dyads are generated using the software package EUgene for all Correlates of War state system members (Bennett and Stam 2000). The time period 1950-2000 is used owing to data availability of the hierarchy explanatory variable. I measure hierarchy using data originally generated by Lake (2009, Ch 3). These data treat the US as the system's dominant state and are discussed in more detail below. There are 532,962 non-missing observations in the sample.<sup>9</sup>

## Dependent Variables

Two dependent variables are used to represent the actions of the subordinate and dominant. The first dependent variable indicates whether a state challenges the status quo. *Challenging* is coded as 1 for any initiation of a military interstate dispute (MID) by state A, with the exclusion of joiners on the side of the dominant (the US). Any independent dispute initiation, therefore, is viewed as an attempt to move the status quo closer to their ideal point and, by definition, away from that of the dominant. MID data are obtained from the Correlates of War (Ghosn, Palmer and Bremer 2004).

Given the general willingness of the US to resort to military means when it seeks interna-

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<sup>9</sup>The missingness is primarily due to the economic variables. Note that excluding these variables from the analysis does not significantly alter the substantive results.



tional change,<sup>10</sup> as well as its tendency to form coalitions<sup>11</sup> or aid allies, states that initiate conflict without initial US support must find their existing situation unacceptable and are unwilling to compromise their aims to the extent that is necessary to gain US support (Morrow 1991, 909). While the US may later offer to support an ally's aggressive actions, the lack of the initial US support suggests that it did not want a conflict to occur, at least at that particular time. Hence, such conflict initiation represents at least a nominal challenge to US authority.

The second dependent variable represents coercive responses by the dominant to challenges. *Punishments* are operationalized as a dichotomous variable indicating either a MID or economic sanctions initiated by the US towards the challenger in the same year. MIDs and economic sanctions are only considered a *punishment* if the subordinate has already initiated a challenge. In the sample, punishments occur in twenty-three percent (133/575) of *challenges*. Data related to the threat or use of sanctions are gathered from the Threat and Imposition of Sanctions dataset (Morgan, Krustev and Bapat 2006). Sanctions are coded as "actions such as tariffs, export controls, embargoes, import bans, travel bans, freezing assets, cutting foreign aid, and/or blockades" (Morgan, Krustev and Bapat 2006, 1). Both militarized and economic actions are included because they may be used as substitute forms of punishment (Most and Starr 1989). Approximately two-thirds (88/133) of all *punishments* within the sample are MIDs, economic sanctions making up the remaining one third.

## Independent Variables

### Subordinate Status Quo Regressors ( $X_{S11}$ )

Hierarchy is more than just coercion by a powerful state over a weak state; it is the degree of legitimacy conferred on a dominant state. The literature offers several alternative oper-

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<sup>10</sup>Great powers have a higher than average tendency toward conflict initiation (e.g., Bremer 1992)

<sup>11</sup>The US and other major powers frequently build coalitions or seek authorization from international bodies prior to initiating conflicts (Krahmann 2005; Tago 2007). The US, for instance, has been a member of a coalition in all of its modern wars (Silkett 1993). This is not the result of happenstance; the US actively seeks to build multilateral coalitions when initiating conflicts, in part to legitimize such actions (Mastanduno 1997; Lake 2009).

ationalizations of this concept (Pahre 2005, 480-481). I use Lake's (2009, Ch 3) measures of hierarchy because they are continuous variables that capture the degree of legitimization along multiple dimensions that each subordinate affords the dominant each year.

Lake measures hierarchy along two dimensions: security and economic. He operationalizes *security hierarchy* with two measures. The first is based on the number of *military personnel* that the US stationed in a country divided by the host country's population.<sup>12</sup> Lake (2009, 69) argues that "to the extent that B accepts A's personnel on a continuing basis, this control can be regarded as legitimate and, therefore, authoritative" (see also Morrow 1991, 905). This means that as a subordinate accepts more of the dominant's troops, they are tacitly accepting their authority. The measure acknowledges that hierarchy is a two way street: a subordinate must permit the dominant to maintain troops within its territory and the dominant must want to do so (e.g., the territory holds strategic value).<sup>13</sup>

The second measure of *security hierarchy* concerns the number of allies that the subordinate shares with the dominant as a proportion of all alliances. The logic here is that states with non-diversified alliance portfolios are more accepting of the dominant state's foreign policy (see Morrow 1991). In other words, states with more independent allies are more independent of the dominant state. *Shared alliances* is operationalized as one divided by the the number of independent alliances; hence, the larger the value, the less independent allies and the greater the level of hierarchy.<sup>14</sup> As a robustness check, the security variables are used both as an additive index and as separate variables, though they are not highly correlated ( $r = 0.17$ ) within the sample.

The second dimension captures *economic hierarchy*. This is also operationalized with two measures. The first concerns exchange rates. The level of autonomy a state has over

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<sup>12</sup>Each of the hierarchy measures is normalized to 1 by dividing them by their highest value in 1995 to ease comparability between states and over time (Lake 2009, 69).

<sup>13</sup>While in cases where troops originally placed in a country at the conclusion of a war hardly seems like a subordinate state granting "permission" (e.g., Germany and Japan at the end of World War II), their post-conflict governments did agree to the arrangement. In addition, subsequent governments choose whether to allow troops to remain in their territory. While the political costs to demanding the removal of troops is likely to be high, such an option is available if the state is willing to pay them.

<sup>14</sup>Lake (2009, fn 13) notes that a subordinate state is assumed to be allied with itself. This means that the denominator is always at least one.

its exchange rate directly affects its control over its monetary policy. Higher degrees of hierarchy imply that states have less control over their domestic economy. This measure seems an especially appropriate measure of authority “since exchange rates are typically chosen with only minimal pressure from the anchor country, but are nevertheless constraining...” (Lake 2009, 73). *Exchange rate* is coded on a four-point scale using IMF measures where higher scores indicate greater hierarchy. These are, in order of most to least autonomous: floating exchanges, a crawling peg, fixed exchange, and “merged” or “dollarization.” Floating exchange rates change value according to market forces and include most of the world’s major currencies (e.g., the euro, Japanese yen, British pound, and US dollar). Crawling pegs are currencies that ‘float’ within a specified range of a foreign currency or a bundle of foreign currencies (e.g., Chinese yuan). Fixed exchange rates include most countries during the 1950s and 1960s under Bretton Woods. Lastly, dollarization refers to pegging one’s currency directly to a foreign currency, such as the US dollar (e.g., Ecuador, El Salvador, and Panama).

The second measure looks at a subordinate’s trade dependence on the dominant compared to other major powers in the system. Similar to the independent allies argument, failure to diversify trading partners is viewed as an acceptance of the status quo. *Trade dependence* is operationalized as a country’s total trade with the US divided by its GDP. The level of trade dependence the state has with each of the other major powers (defined as the other permanent members of the UN Security Council) are calculated and subtracted from that of the US and truncated at zero. As with security measures, I include model specifications with the additive index and with separate measures since the two economic measures are not highly correlated ( $r = 0.23$ ) within the sample.

The measures of hierarchy outlined above capture a contractual relational power that exists independent of coercive military power. In fact, neither the *security* nor *economic* dimensions of hierarchy are highly correlated with traditional measures of military power, such as the *power ratio* measure (discussed below), with  $r = -0.09$  and  $r = 0.01$  within the sample, respectively. This means that a stronger state in terms of coercive capabilities, such

as Great Britain or Japan, is nearly as likely to be a “dominated subordinate” as a weaker state, such as El Salvador or New Zealand.

### **Subordinate Conflict Regressors ( $X_{S22}$ )**

Subordinate’s utility from challenging the status quo depends on a number of factors. States that are strong in terms of military power are expected to seek greater autonomy. Two measures are used to represent a state’s military capabilities: *power ratio* and *power change*. These are measured using the Correlates of War’s CINC variable, which measures a country’s power based upon economic and military capabilities and population size (Singer, Bremer and Stuckey 1972). *Power ratio* is measured as the CINC score of the state A divided by the sum of A and B or  $power\ ratio = \frac{CINC\ A}{CINC\ A + CINC\ B}$ . In this equation, state A represents the challenger and B the target state. Perfect preponderance would equal 1 and perfect symmetry would equal 0.5. The stronger a challenger is compared to its target, the more likely it is to win a conflict and extract whatever benefit it sought from the losing party. *Power change* acknowledges that growing states may be more dangerous while weakening states less so as later developers learn from those that transition before them (Gerschenkron 1962). *Power change* is measured by subtracting the previous year’s CINC value from that of the current year. *Power ratio* and *power change* are rescaled as percentage points for ease of interpretation.

I also include a control for *Civil wars*, which are expected to reduce the likelihood of a challenge, as states experiencing a civil war are preoccupied with domestic concerns. Civil war data are coded dichotomously and are obtained from the Correlates of War project (Sarkees 2000). The number of *previous challenges* by a state is also included in the analysis as conflict is path dependent, with both states viewing each other in more antagonistic terms with each additional conflict (Colaresi 2004; Jones, Bremer and Singer 1996).

Subordinates are more likely to initiate challenges against contiguous neighbors. Contiguous states are more likely to have unresolved territorial issues, which tend to be more contentious than other issue types (Hensel 2001; Hensel et al. 2008; Vasquez 2009). The

effect of contiguity goes beyond merely having increased interaction; contiguous states exhibit different behavior towards neighbors than they would towards other states with similar characteristics (i.e. regime type, trade volumes) (Reed and Chiba 2010; Vasquez 1995). I treat *contiguity* as a dichotomous variable where 1 indicates that states share a land border and 0 otherwise.<sup>15</sup>

Finally, previous studies demonstrate that democracies are less likely to attack other democracies (Reed 2000; Russett and Oneal 2001). *Joint democracy* may represent an ideological cost (Maoz and Russett 1993) or operate as an institutional constraint on leaders who wish to initiate a conflict (Buono de Mesquita et al. 1999). Democracy is measured using the 21 point Polity score of the country where scores of 10 indicate democracy and scores of -10 autocracy (Marshall and Jaggers 2008). *Joint democracy* is a dichotomous variable that is given a value of 1 if both members have democracy scores of at least 6, and 0 otherwise.<sup>16</sup>

### **Dominant Conflict Regressors ( $X_{D_{22}}$ )**

Several variables are expected to affect whether the dominant punishes a challenge. The most important of these are the strength of alternative dominants and the challenger's location within the hierarchy vis-à-vis its target. Dominant states compete for the authority of subordinates. When multiple dominant states are present and strong, subordinates are free to join the hierarchies that provide the greatest benefits. When one dominant is strong compared to other powers, however, it is under less pressure to provide expensive benefits, such as political order. *Global power* represents the degree to which the dominant state has military supremacy over other major powers. This variable is measured as a ratio of the dominant state's CINC score over the total CINC score of all great powers, rescaled as percentage points for ease of interpretation.

*Relative hierarchy* variables are used to reflect the hierarchical position of the challenger compared to that of the target state. As was noted earlier, not all challenges are weighted

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<sup>15</sup>Changing the operationalization of *contiguity* to include neighbors with 12 miles or even 400 miles of open sea did not substantially alter the results.

<sup>16</sup>Other thresholds were used in the two models without altering the results in any meaningful way.

equally by the dominant. This variable represents the severity of a challenge as it is viewed by the dominant state. When the challenger attacks a target that outranks it within the dominant's hierarchy, such a challenge receives a negative *relative hierarchy* score, as the dominant views this as a significant challenge against their legitimacy. When, on the other hand, the challenger outranks its target within the hierarchy, such a challenge will receive a positive *relative hierarchy* score, as the dominant is less likely to view this as a serious challenge. The US is more likely to “look the other way” when a state that is relatively high within its hierarchy, such as Israel, is settling scores with an external rival that is lower in the hierarchy, such as Iran, but it much more likely to come to the aid of Israel, if the direction of the threat is reversed. Mathematically, values of *relative hierarchy* are generated as the difference in hierarchy scores between every state and its potential target (i.e. every state relative to every other state). This is done for both the security and economic dimensions of hierarchy, and for each of their components. This variable is especially important when considering *Hypothesis 3*.

The punishment equation also contains a number of control variables. A dominant power is more likely to punish challengers that it can defeat rather than those that stand a greater chance of defeating them in a conflict. That is, the US is more likely to punish challengers as the balance of capabilities are increasingly in its favor. To capture this, I include a *power ratio* variable, that is calculated as a ratio in CINC score between the US and the challenger or  $power\ ratio = \frac{US\ CINC}{US\ CINC + Challenger\ CINC}$ . There is a point, however, where dominant states are unlikely to care if the weakest states in the system challenge their authority, since such actions are of likely trivial consequence to the larger region or system. To capture this non-linear effect, a squared term is included.

*Concurrent MIDs* is a count variable tracking the total number of MIDs with US involvement in a given year. I expect a negative association between *concurrent MIDs* and punishment, since US involvement elsewhere ties up its forces and increases the marginal cost of additional interventions.

More distant locations increase the cost of fighting, as the costs of supporting troops

increases (Bueno de Mesquita 1981). This holds even if the dominant state has troops stationed in nearby states, as invading and/or occupying a hostile country requires greater logistical prowess. Data regarding *distance* are logged and obtained from EUGene (Bennett and Stam 2000).

I also control for the effect of *previous challenges* and *joint democracy*. *Previous challenges* are expected to increase the probability of punishment while democratic dominants are expected to be less likely to punish democratic challengers, for the same reasons as discussed in the subordinate's conflict equation.

## Empirical Analysis

Table 1 presents the results of the strategic probit and Figures 5 and 6 provide substantive interpretations of these results. Model 1 displays the specification with the aggregated hierarchy measures, while model 2 presents the specification using individual hierarchy components. Each model includes the coefficients and standard errors from both the subordinate and dominant states. I describe the results of each model before moving on to discussing their substantive implications.

In the first model, the coefficient for *security hierarchy* is positive and statistically significant for the subordinate in the status quo equation, while the coefficient for *economic hierarchy* is insignificant. The second model demonstrates that the *security hierarchy* result is driven by *shared alliances*, as it is positive and statistically significant while *military personnel* is insignificant. Each of these results indicates that the status quo becomes more attractive as the degree of hierarchy increases. This provides support for *Hypothesis 1*—that subordinates located higher within the hierarchy are less likely to challenge the status quo.

The lack of significance on the *economic hierarchy* variable in model 1 suggests that the economic dimension may be less important to subordinates' strategic decision-making. The outcomes in model 2, however, suggest otherwise. The coefficients for *trade dependence* and *exchange rate* are both statistically significant, but while *trade dependence* is negative, *exchange rate* is positive. This means that *trade dependence* partially mitigates the positive

Table 1: Strategic Probit of Challenge and Punishment in the US Hierarchy.

Model Actor	Aggregate		Components	
	Subordinate	Dominant	Subordinate	Dominant
<b>Status Quo Equation:</b>				
Security Hierarchy	0.245** (0.065)			
Shared Alliances			0.180** (0.036)	
Military Personnel			0.041 (0.056)	
Economic Hierarchy	0.027 (0.056)			
Trade Dependence			-0.254** (0.103)	
Exchange Rate			0.71† (0.045)	
Constant	4.082** (0.252)		4.119** (0.249)	
<b>Acquiesce Equation:</b>				
Constant	1.098** (0.282)		1.148** (0.280)	
<b>Conflict Equation:</b>				
Global Power		-0.087** (0.018)		-0.089** (0.018)
Relative Security (Challenger - Target)		-0.783** (0.234)		
Relative Alliances				-0.463** (0.141)
Relative Personnel				-0.096 (0.247)
Relative Economic (Challenger - Target)		-0.187 (0.172)		
Relative Trade				0.106 (0.256)
Relative Exchange				-0.239† (0.155)
Power Ratio (Challenger, Target)	0.162 (0.234)		0.226 (0.240)	
US Power Ratio (US, Challenger)		0.829** (0.222)		0.847** (0.222)
US Power Ratio <sup>2</sup>		-0.502** (0.125)		-0.513** (0.125)
Power Change	3.318** (1.350)		3.119* (1.326)	
Concurrent US MIDs		0.070 (0.051)		0.069 (0.051)
Civil War	0.964** (0.174)		1.031** (0.180)	
Previous Challenges	1.005** (0.049)	-0.081** (0.026)	0.941** (0.047)	-0.083** (0.026)
Contiguity	3.361** (0.160)		3.407** (0.154)	
Distance		-0.234* (0.099)		-0.223* (0.100)
Joint Democracy	-0.984** (0.229)	-0.109 (0.157)	-0.984** (0.227)	-0.116 (0.159)
Constant		-29.242** (9.904)		-30.020** (9.921)
Log-Likelihood	-3567.078	-249.568	-3561.767	-248.462
Observations	533095	575	533095	575

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , † $p < 0.13$ . Subordinate standard errors calculated with bootstraps (500 simulations).



effect associated with *exchange rate*. Thus, while the overall effect of *economic hierarchy* is still positive, the summation of its components generates greater variation in their net effect and produces the insignificant result in model 1. This offers mild support for the prediction that economic hierarchy restricts conflict behavior. Consistent with Lake (2009, 73), this suggests that *exchange rate* may be a better indicator of economic hierarchy than *trade dependence*. While trade dependence is to some degree contingent on factors outside of subordinate's control (i.e., location, population size), exchange rates are set with minimal pressure on the part of the dominant and, thus, may be a better reflection of legitimacy.

Table 1 provides support for *Hypothesis 2*, which posited that when the dominant state is strong relative to alternative great powers, it is less likely to punish the challenging subordinates. The *global power* coefficient is negative and statistically significant in the dominant's conflict equation. This means that an increase in the dominant's power vis-à-vis other great powers results in a decrease in the probability of punishments. This result holds in each model.

*Relative security* is also negative and statistically significant. Recall that this variable reflects the position of the challenger compared to that of its target. The negative coefficient on *relative security* indicates that a challenger with a higher position within the hierarchy relative to their target is less likely to be punished. The probability of punishment decreases as the challenger's advantage increases. In other words, dominants are more likely to acquiesce to these types of challenges. *Relative alliances* appears to be the driving force for this result, as its coefficient is positive and statistically significant while the coefficient associated with *relative personnel* is insignificant. The degree of relative economic hierarchy does not seem to have the same impact, as the *relative economic* coefficients are statistically insignificant in the dominant's punishment equation for both the aggregate and component models. This outcome provides support for *Hypothesis 3*, which posited that challengers act strategically and generally choose targets, who are located below them in the hierarchy.

Most of the remaining variables have the expected effects. It is worth noting that the *power ratio* between a potential challenger and their target is not statistically significant

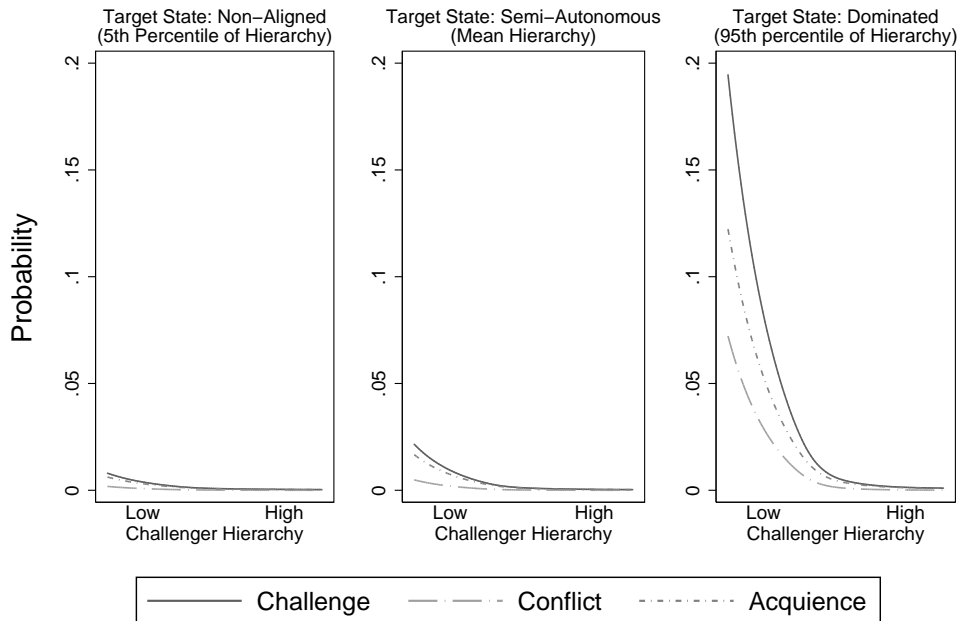
after accounting for the expected behavior of dominant states. The insignificant effect of *concurrent MIDs* indicates that dominants are just as likely to punish challengers when they are already engaged in existing MIDs. *Joint democracy* is negative and statistically significant for the subordinate, reflecting the well known tendency of democracies not to initiate conflicts with one another. However, the result in the dominant’s conflict equation suggests that the dominant punishes challenges indiscriminately of their regime type.<sup>17</sup> Finally, and somewhat surprisingly, states engaged in *civil war* are more likely to initiate challenges. This may be explained by previous studies that find governments sometimes attempt to divert attention away from domestic conflict by engaging in foreign conflicts (Enterline and Gleditsch 2000; Gleditsch, Salehyan and Schultz 2008) or those that highlight the transnational aspects of civil war (Gleditsch 2007; Salehyan and Gleditsch 2006).

Directly interpreting the effects of hierarchy in Table 1 is difficult because hierarchy enters the model in two separate ways—in the subordinate’s status quo equation and in the dominant’s punishment equation. For ease of interpretation, Figure 5 presents predicted probabilities for each of the three outcomes of the subordinate-dominant relations: status quo, acquiescence by the dominant, and conflict between the dominant and subordinate. Predicted probabilities are calculated by varying security hierarchy for the challenger while holding the target’s level of hierarchy constant at either the 5th percentile, the mean, or the 95th percentile. Substantively, these values reflect “non-aligned,” “semi-autonomous,” and “dominated subordinates” as depicted in Figure 1. It is necessary to hold the target state’s level of hierarchy constant because changes in the challenger’s hierarchy impact the probability of challenges in two ways: directly as subordinates with higher hierarchy positions are less likely to challenge, and indirectly as increases in its hierarchy score also change its relative hierarchy vis-à-vis the target. The latter affects the likelihood of punishment for the potential challenger, thus impacting its expected utility of challenging. To make the predicted probabilities more realistic, I examine each outcome for the situation where challengers are

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<sup>17</sup>This results seems to be an artifact of including economic sanctions as a form of punishment; in additional analyses where only MIDs are coded as *punishment* (not displayed here, but available upon request), democratic challengers are less likely to be punished at a statistically significant level. The primary explanatory variables are robust to this and other model specifications.

Figure 5: Predicted Outcomes at Varying Levels of Hierarchy.



Note: Predicted probabilities for each outcome are of contiguous states where the challenger is autocratic. All other variables held to their mean or median.

autocrats and their target is a contiguous state, with all other variables held at their mean or median values, as appropriate.<sup>18</sup>

Figure 5 illustrates four substantively important results. First, comparing the location of the long dashed line among the three parts of the graph from left to right, we can see that there is a direct relationship between the target’s hierarchical position and the probability of dominant-subordinate conflict. The probability of conflict is greater as we move from non-aligned to semi-autonomous targets, and as we move from the semi-autonomous to dominated targets. Second, challenges against states that are higher within the hierarchy constitute the most common type of challenges, even despite the fact that such challenges are the most likely to be punished by the dominant. This interesting relationship can be observed by exploring the increased position of the solid line, as we move from left to right on

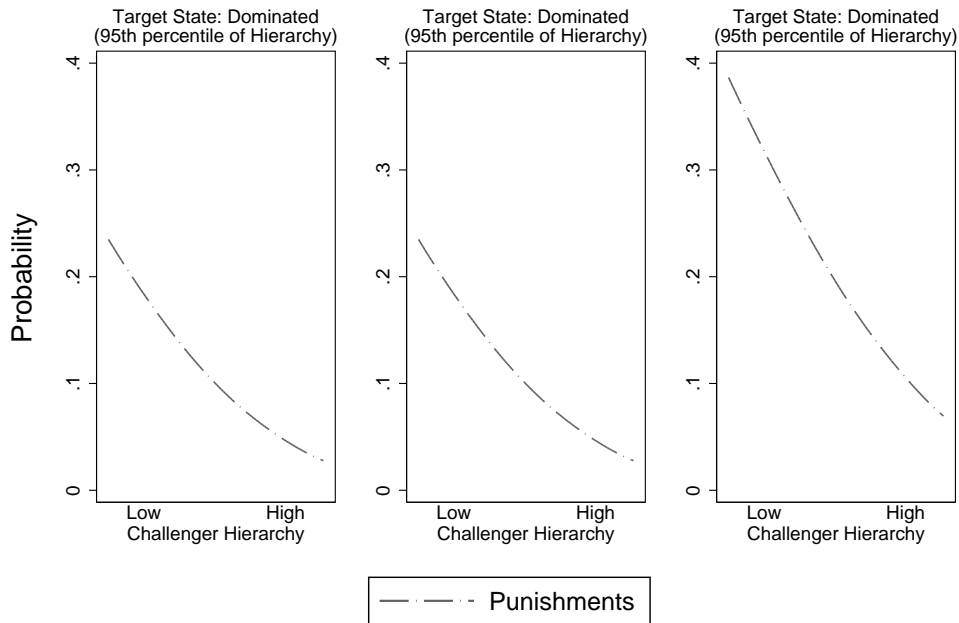
<sup>18</sup>Holding all variables at their mean or median values generates similar results. The benefit of setting variables to more meaningful values is that it helps create and examine more realistic and substantively important scenarios (Signorino and Tarar 2006, 596).

the graphs: we see that non-aligned states are targeted less frequently than semi-autonomous states, and semi-autonomous states are targeted less frequently than the dominated states. A possible explanation for this pattern is that states that are located at a low position within one hierarchy are located at a high position in an alternative, rival hierarchy. It is important to keep in mind, however, that some of this pattern may be a simple artifact of the relative nature of the hierarchy measure: states that are the most likely to challenge—states with low hierarchy position—will, by construction, have few targets that are even lower than them in the hierarchy. Third, states that are closer to the dominant are less likely to challenge, regardless of the hierarchical position of the target. This is evident by looking at the declining slope of the solid line in each of the graphs. This is consistent with the theoretical expectation that states located higher within the hierarchy are more accepting of the status quo and are less likely to act in a unilateral manner. Finally, dominants are always more likely to acquiesce than punish, as the short dashed line is always located above the long dashed line.

Figure 6 reflects the proportion of challenges that result in conflict as opposed to acquiescence and demonstrates that dominant states do not weigh all challenges equally. Figure 6 shows that conflict between the dominant and the challenger is more likely for targets located closer to the dominant within the hierarchy. This is evident by the increased position of the line when moving left to right across the graphs. While dominants are always more likely to acquiesce to challenges than to punish, they are especially likely to acquiesce when the target is positioned lower than the challenger, as opposed to when the target is positioned higher than the challenger. Moreover, dominants are more likely to acquiesce to states that are located at higher positions within in their hierarchy. This is illustrated by the declining slope of the line as the degree of hierarchy increases in each of the graphs.

The net effect of this strategic interplay is that “dominated subordinates” rarely challenge, but when they do, the dominant state frequently acquiesces. This is counter-intuitive: one would think that the low probability of a punishment would make such challenges *more*, not *less* likely. This insightful and non-straightforward finding supports the social contract

Figure 6: Proportion of Punishments if a Challenge Occurred.



Note: Predicted probabilities for conflict as a proportion of all challenges where challengers are autocratic and target is contiguous. All other variables held to their mean or median.

theory developed in this paper. Even more broadly, this finding provides evidence for the existence of a non-material social constraints on state behavior—a concept that has been long posited, yet supported by scant empirical explorations (Bull 1977; Wendt 1999).

The theoretical findings also highlight the existence of two forms of “non-conflict” events between the dominant and the subordinates: (1) subordinate’s acceptance of the status quo, and (2) a peaceful challenge or the acquiescence by the dominant. Distinguishing these two types of events is important, as their conflating leads to significant underestimates of the degree of global instability and conceptual oversimplification of what constitutes a status quo challenge.

## Conclusion

The paper develops and tests a social explanation of international conflict, deterrence, and acquiescence. It posits that conflict is regulated by tacitly negotiated hierarchies between dominant and subordinate states. Expanding on previous studies, I argue that social hierarchy is best conceptualized as a series of bilateral bargains reached between a dominant and each individual subordinate and reflects the degree of authority that a subordinate cedes to the dominant in exchange for certain benefits. Thus, hierarchy is a dyadic- rather than system-level variable.

Hierarchy has direct and indirect effects on conflict behavior. Subordinates that are located higher within the hierarchy are less likely to challenge the status quo. When challenges occur, however, the dominant states uses information on the relative hierarchical positions of both the challenger and the target to decide whether to punish. Challenges aimed at states positioned higher in the relative hierarchy are especially likely to be punished, while the reverse is true for challenges directed at states with relatively lower positions. Subordinates act strategically when selecting targets in order to reduce the risk of punishment. Additionally, the theory allows for co-existence of multiple dominant states who then have to compete for subordinates by providing them with political order. Competition among dominant states results in stricter enforcement of the status quo and, hence, higher probability of punishment.

A more nuanced definition of hierarchy developed in this paper helps shed new light on the strategic causes of international conflict. It highlights that states exist in a strategic environment where they are affected not only by the characteristics of states they directly interact with, but by indirect relationships with dominant powers as well.

This paper opens up a number of directions for future research. First, future research might examine the dynamics associated with hierarchies other than the US, such as that of Great Britain or France during the nineteenth and early twentieth century. Second, the social hierarchical theory developed here applies beyond the current substantive application. It would be worthwhile, for example, to investigate whether the theory can explain colonial

uprisings within the British Empire given the variation in the degree of direct rule. Lastly, the theory can be applied to economic behavior, as hierarchy may cause domestic economic policy to reflect the normative theories espoused by the dominant power, as well as operate as a signal of security and stability to firms and investors, affecting trade patterns and investment flows.

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