

External Threat as Coercion

Pamela Emanuelson

Sociology and Anthropology, North Dakota State University
pamela.emanuelson@ndsu.edu

David Willer

Department of Sociology (Emeritus), University of South Carolina
willer@mailbox.sc.edu

Abstract

In coercive relations, threats of negative sanctions extract valued positive sanctions from coercees. Only when coercion is direct, however, are the negative sanctions controlled by the coercer who benefits from the threats. Not previously investigated, indirect coercion relies on threats and negative sanctions that are external to the exploitative relation. We suggest that indirect coercion is ubiquitous. From their inception states have used the threat of external enemies to justify rulers' increased powers and to provide a patina of legitimacy while, on a smaller scale, criminal organizations such as the mafia have long profited from offering protection. The purpose of this paper is to theoretically model and experimentally investigate indirect coercion and compare its effectiveness in extracting valued resources to that of direct coercion. Previous research has shown that all power structures, whether exchange, conflict or coercive, take two distinct forms, strong and weak. Therefore, experiments on strong and weak indirect coercion are run and are compared to new and previous experiments on strong and weak direct coercion. Theoretically grounded predictions are derived and tested for those structures.

Keywords

External Threat, Experiment, Social Structure, Coercion

Introduction

In coercion threats of negative sanctions are intended to produce compliance, to extract valued resources from one or more coercees. When coercion is direct, the coercer controls the negative sanction used to threaten coercees. That is, as in the case of a mugger who wields a gun to threaten a victim, the threat is internal to the coercer-coercee relation. In contrast, when coercion is indirect, negative sanctions are external to the exploitative relation. For example, political leaders can benefit when citizens believe enemies of the state are hostile to them as citizens. Here we develop and test a theoretic model for indirect coercion.

By external threat we mean an outside force that threatens some or all of those in a relation or structure. The focus of this paper is on the effect of external threats on the extraction of valued resources. The effects of external threats have long been of interest to social theory. Among classical social theorists, perhaps Simmel ([1908] 1955) looked most closely at those effects. He saw external threat as leading to power centralization (89) and to either increased solidarity or destruction of the group (92, 97). Military force is developed to counter external threats and Simmel's core example of power centralization was the army where "unconditional rule of the central authority excludes any independent movement of the elements." ([1908] 1955: 89).

Interestingly, the internal effects of external threats have an appearance very like legitimation, particularly the legitimation of political regimes (Walker and Zelditch 1993; Zelditch 2001). R. Willer (2004) showed that increased external threat level was associated with increased support for the U.S. President.¹ External threats due to war have been seen to increase solidarity and support of rulers in contending nations (Popov 1974).

Must outside threats be real to have their effect? Experiments conducted by Barclay and Benard (2013) show that those of high rank exaggerate outside threats in order to promote cooperation and suppress competition with them. Similarly, Hayden and Villeneuve (2012) found two chiefdoms on the island of Futuna in hostile conflict to the benefit of the chiefs of both. Was the conflict real? Hayden and Villeneuve doubted that it was given that conflict was so evenly balanced and continued for hundreds of years.

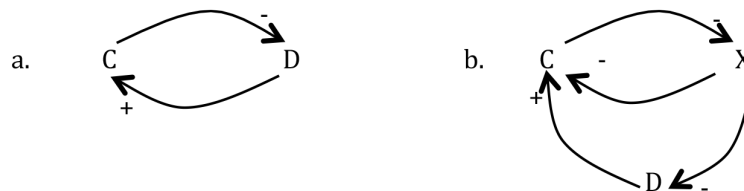
External threats, if believed, need not have any basis in fact because, very frequently, those subject to the threat have no way to discover whether those threats are real or imaginary. For example, there were no Weapons of Mass Destruction in Iraq, but the U.S. went to war to destroy them, a war for which there was little opposition.

Recently, theory and research have focused on a number of different effects of external threat. To mention only a few studies: Benard (2012) found that conflict increases both norm enforcement and contributions to the group while other research suggests that external threat increases support for leaders (Van Vugt, Hogan and Kaiser 2008; Gavrilets and Fortunato 2014). Puurtinen and Mappes (2009) found that group competition resolves public goods problems, increases within-group cooperation while intensifying morally grounded emotions such as anger and guilt. Bornstein and associates in a series of studies (Bornstein, Erev and Rosen 1990; Bornstein, Gneezy and Nagel 2002; Bornstein 2003) showed that the paired threats of intergroup conflict interacted with the group payoff structure frequently reducing free riding and increasing group cohesion. According to Bornstein, "Intergroup conflicts are complex—more complex than any other form of social interdependence." (2003:141).²

Formulations for indirect coercion offered here bring into focus theoretically relevant elements of complex, historical and contemporary coercive structures. Formal models are intended to provide opportunities for explanations outside the laboratory that are grounded in experimentally tested theory. For example, macro-theories of the rise of the state have long faced difficulties in explaining the leap from chiefdoms, where the chief's coercive power is limited, to states where coercive power is centralized and concentrated. A recent theory proposes that use of external threats by chiefs gives rise to the conditions necessary for the formation of nascent states (Chacon et al. 2015). Chacon et al. propose that the high levels of conflict, typical among chiefdoms, produces indirect coercion within each political unit, centralizing the means of power in the hands of the chief and his emerging warrior caste with the end point of this process being the centralized coercive state.

The focus of this research is on whether external threats affect power exercise in structures and, if so, to what degree. For the coercive relations on which we focus, the exercise of power is measured by the proportion of valued resources extracted by threat (D. Willer, Lovaglia and Markovsky 1997; D. Willer 1999). As shown in Figure 1, between actors C and D threats can stem from inside or outside their relation. When C threatens to send a negative sanction to D with the aim of extracting value held by D, as in Figure 1a, the relation is properly called coercion (Russell 2003; D. Willer 1984, 1987; Chacon et al. 2015). By contrast, in Figure 1b the threat comes from X who is outside the C – D relation. In that three-actor structure, typically C agrees to shield D from X's threat—for a price. As shown, C shields D by engaging X in conflict. The edge connecting D to C in both 1a and 1b represents the price that D pays to avoid the negative. Because C is exploiting D in both cases, we call the three-actor structure (where the threat is outside the C – D relation) indirect coercion. For clarity, the two-actor coercive relation will now be called direct coercion.³

Figure 1: Networks of Direct and Indirect Coercion



Stated in terms of the Figure 1b diagram, the central research question for this paper is: How large is the transmission from the coercee D to the coercer C for a given threat from X? That question will be investigated in small social structures of one C, one X and five Ds. Thus the research question is not whether a group will develop centralized leadership when faced with an external threat (Benard and Doan 2011: 205), but, once developed, what is the volume of support given by the group? Call that volume of support the rate of coercive exploitation. Once the central research question is answered, we will compare rates of coercive exploitation between the indirect coercive structures studied here and the direct coercive structures either previously studied or newly investigated here.

Indirect coercion is ubiquitous and takes many forms. Here are a few examples. The mafia offering the shopkeeper protection from dangerous local thugs does so for a fee. The mafia is profiting from indirect coercion (Gambetta 1993).⁴ Citizens failing to support their governments are told that they will suffer when their country is conquered (Popov 1974). The political leaders who are empowered by that external threat are benefiting from indirect coercion (R. Willer 2004; Chacon et al. 2015). The political use of external threat, real or imagined, to increase support is not new. It has been known since chiefdoms and

early states (Carneiro 1970, 1991, 2012; Haas 1982; Keeley 1996; Kirch 1997, 2010; Redmond 1998; LeBlanc 2003).⁵

The paper is organized in the following way. First, actors' motives in direct and indirect coercive relations are explained. Then, relations are combined to form coercive social structures and the workings of those structures are explicated. As direct coercion is known to take two structural forms, weak and strong, the mechanics of each type are explained.⁶ From these formulations, the paper derives four types of coercive structure: strong direct, strong indirect, weak direct and weak indirect. Values reflecting actors' motives as affected by structure are plugged into Resistance Equations to predict rates of coercive exploitation. Experiments test rates of coercive exploitation in indirect coercion structures against predictions and against rates in direct coercion. The paper concludes with a discussion of future directions for research.

Modeling Coercive Relations and Coercive Structures

This section has two parts. In the first, coercion as a social relation is explicated. The initial conditions of coercion are related to its dynamics. As we show, coercion is not a form of exchange: the two are sharply contrasting kinds of social relations. In the second part, we explain why some structures are weak power and others are strong power. By 'strong power structure' we mean a structure in which power exercise goes to the extreme because those low in power compete to offer better and better agreements to those high in power. No such dynamics are seen in weak power structures. Instead, agreements are reached there by negotiation and compromise.

The Coercive Relation

The direct coercive relation shares this in common with exchange: both are mixed motive relations. By "mixed motive" we mean that those engaged in the relation prefer agreement over failure to agree, but are opposed insofar as the terms of that agreement are concerned (Luce and Raiffa 1957). For example, in exchange, both buyer and seller seek agreement, but the buyer seeks the lowest price while the seller seeks the highest. In coercion, both coercer and coercee prefer agreement, thus avoiding completion of the threat, but the coercer seeks to extract many valued resources while the coercee seeks to send few.

It is immediately obvious, however, that, beyond mixed motives, exchange and coercion share little or nothing in common. Certainly their dynamics stand in sharp contrast. In exchange at agreement two positive sanctions flow: the buyer sends the price to the seller and the seller sends the commodity to the buyer. At agreement in direct coercion, however, there is but one positive sanction flow: the valued resources are sent by the coercee to the coercer. Furthermore, the two also differ at confrontation—when agreement is not attained. In exchange at confrontation nothing is bought and nothing is sold: no sanctions flow. By contrast, at confrontation in coercion, the coercer sends the threatened negative sanction to the coercee (D. Willer 1987).

These contrasting dynamics are the result of contrasting conditions initial to the two relations. In exchange, both begin with resources valuable to the other and are, as a consequence, motivated to send and receive. No such motives exist in coercion. In direct coercion only the coercee initially holds positively valued resources while the coercer has only the ability to negatively sanction the coercee.⁷ Coercion and exchange are not the same nor is it useful to think of coercion as a form of exchange.

For the experimental investigation of coercion, any of an array of possible initial conditions could be employed. The coercee could be given many or only a few valued resources while the negative sanction could vary widely in its effect both to transmitter and receiver. For example, in direct coercion, the coercer could be allocated a negative sanction costless to send and of such great effect when received that

any coercee, under its threat, would send all its resources to the coercer. By contrast, a feeble negative would extract few if any resources. As will be seen, there are good reasons to balance the value of positives held by coercee and the (negative) value of negative sanctions held by coercer such that agreements, in the absence of structural effects, will be medial within the negotiation set.⁸

Strong and Weak Coercive Power Structures

Any structure in which power exercise goes to the extreme because those low in power compete to offer better and better agreements to those high in power is called a strong power structure. Strong power structures are not such because of the kind of relations they contain. To the contrary, strong power structures composed of exchange relations (D. Willer 1984), conflict relations (D. Willer, Simpson, Szmataka and Mazur 1996), and coercive relations (D. Willer 1987) have been identified. For example, a labor market with more workers than jobs is an exchange strong power structure. In the absence of minimum wage legislation, the competition of workers for jobs will drive wages toward subsistence. Historical examples of coercive strong power structures were noted first by Marx and then by Weber. Both saw coercive exploitation go to the extreme when there was a ready supply of new slaves (Marx [1867] 1967; Weber [1896] 1976); but neither explained why rates of coercive exploitation were related to conditions of the slave market itself some distance from the slave estates. Formulations for strong coercive power structures offered below may help to explain those rates.⁹

Previous experimental research on direct coercion built strong power structures in the following way. Five coercees each initially held the same number of valued resources, 10 in number, all some or none of which could be sent to the coercer. The coercer initially held two negative sanctions either of which when sent allowed the coercer to confiscate all the coercee's resources. Each negative cost the coercer one point to send – thus giving the coercer a profit of nine. Therefore, the coercer was always motivated to send both negatives unless offered nine by all coercees. Each coercee was motivated to keep as many resources as possible while avoiding the coercer's negatives. The measure of coercive exploitation in this structure is the number of resources sent by the coercees who did not receive a negative from the coercee.

Though the coercer could sanction only 2 of the 5 coercees, because the coercer profited from transmitting its negative sanctions, the coercees had good reason to believe that the negatives would be sent if they were recalcitrant. Therefore, the coercees competed to make better and better offers: the structure was strong power (D. Willer 1987). In the section to follow we will give an analogous design for a strong power structure where coercion is indirect.

The weak power structure for direct coercion was very similar to the one just given: it differed only in one regard. The transmission of the negative merely eliminated the value of the coercee's resources. Thus there was a cost of one to the coercer when a negative sanction was transmitted. As a result, the coercer was motivated to conserve its negatives using them, through negotiations and compromise, to extract some of the coercee's resources. Coercees did not compete and, since they did not, rates of coercive exploitation in the weak structure were medial, like those predicted for the coercive dyad.

Predictions

For this research, the resistance equation and associated procedures previously used to predict the rate of coercive exploitation for direct coercion (D. Willer 1984; 1987; 1999) are extended to indirect coercion. The rate of coercive exploitation is the size of the flow from D to C—which is to say the number of resources sent by D. That rate determines the payoff gained by C, called P_C and payoff lost by D, called P_D , wherein $P_C = -P_D$. Initial conditions are the maximum possible payoff for each, P_{max} , and the payoff

for each when agreement is not reached, P_{con} —the confrontation payoff. In direct coercion P_{con} occurs when the coercer sends its negative sanction to the coercee. In the resistance equation, R_{ij} , i 's resistance to j 's offers is

$$R_{ij} = \frac{P_{i\max} - P_i}{P_i - P_{i\text{con}}} \quad 1)$$

Let C , the coercer and D , the coercee agree at equal resistance. Then,

$$R_{Cd} = \frac{P_{C\max} - P_C}{P_C - P_{C\text{con}}} = \frac{P_{D\max} - P_D}{P_D - P_{D\text{con}}} = R_{Dc} \quad 2)$$

In previous research, the cost to D of receiving C 's negative was -10 while the cost to C to transmit it was -1 . D initially held ten resources each worth 1 each to D and to C . When those resources are divisible by units no smaller than one and D prefers to receive the negative than send all ten resources to C , the initial conditions of the coercive relation are:

$$\begin{array}{ll} P_{C\max} = 9 & P_{D\max} = 0 \\ P_{C\text{con}} = -1 & P_{D\text{con}} = -10 \end{array}$$

$P_{D\max} = 0$ because C 's sanction costs -1 to use. Since D will not send more to C than D would lose having received the negative sanction, $P_{C\max} = 9$. If agreement is not reached, C sanctions D at a cost of $P_{C\text{con}} = -1$ and having received the sanction, $P_{D\text{con}} = -10$. Plugging these values into equation 2,

$$\frac{9 - P_C}{P_C - (-1)} = \frac{0 - P_D}{P_D - (-10)}$$

Since $P_C = -P_D$, for the dyadic coercive relation, $P_C = 4.5$ and $P_D = -4.5$.

Figure 2: A Direct Coercive Structure with Five Coercees

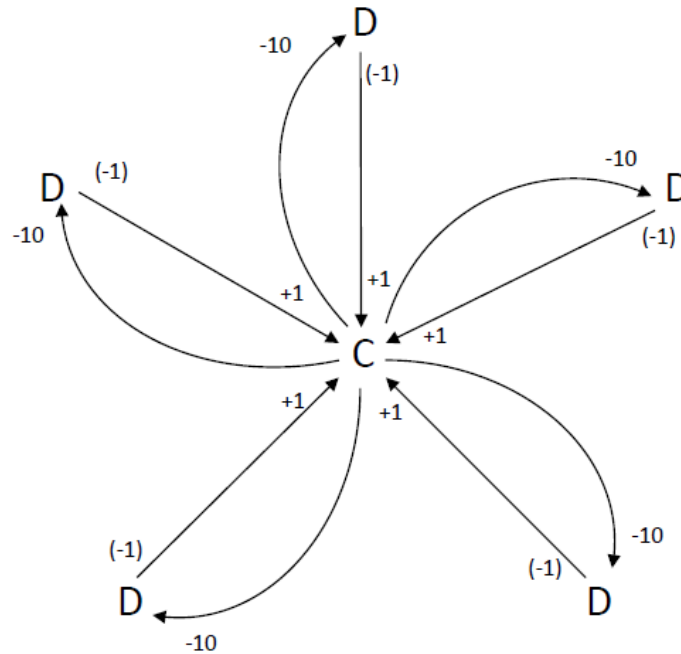
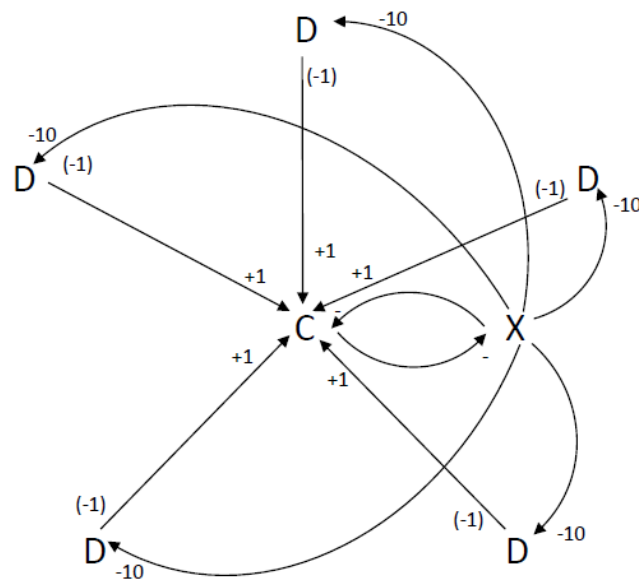


Figure 2 displays a direct coercive structure with 5 relations connected at C. When the structure is weak the Ds do not compete to avoid sanctions, and power exercise is a function of the negative sanction exactly as it is in the coercive dyad. Generalizing the above model, C is predicted to gain an average of 4.5 resources in each of its five relations to Ds. Note that direct coercion has two steps. In step 1, the C and D negotiate over how many, if any, of D's resources will be sent to C. In step 2, C decides whether or not to send negatives to recalcitrant Ds.

Indirect coercion is modeled as having three steps. In step 1, the C and D negotiate over how many, if any, of D's resources will be sent to C. In step 2, C decides whether to block X. In step 3, if not blocked, X sends one (or two) negatives to D (s), thus confiscating all resources then held. The motivations of C, D and X follow from the model. C seeks to gain as many of D's resources as possible by indirect threat, D seeks to keep as many resources as possible while avoiding X's confiscation, and X seeks to confiscate some or all of D's resources.

Figure 3: An Indirect Coercive Structure with Five Coercees



Seeking to avoid X's sanction, D will negotiate with C offering C resources in return for protection. In the absence of protection, since X gains by confiscating D's resources, X will send negative sanctions to D. For any D receiving X's negative, all resources then held are lost. Therefore, $P_{Dcon} = -10$. Since C's cost to sanction X is -1, seeking a gain of at least 1, C will not protect any D for fewer than 2 resources: thus $P_{Dmax} = -2$. When D's negotiations with C fail, C does nothing and $P_{Ccon} = 0$. As in direct coercion, D will not offer more than will be lost when negatively sanctioned: thus, $P_{Cmax} = 9$.

$$P_{Cmax} = 9$$

$$P_{Dmax} = -2$$

$$P_{Ccon} = 0$$

$$P_{Dcon} = -10$$

Plugging these values into equation 2,

$$\frac{9 - P_C}{P_C - 0} = \frac{-2 - P_D}{P_D - (-10)}$$

For the indirect coercive relation $P_C = 5.3$ and $P_D = -5.3$, a prediction that also holds for the weak Figure 3 indirect coercive structure.

Comparing the two weak coercive structures, the goal was to build them to be as similar to each other as possible. Thus the two departed from similar sanction flows. Nevertheless, the two structures are distinct and, as a consequence, initial conditions slightly differ as do predictions.

Strong Structures

As explained above, power structures are strong when they produce competition among those low in power to avoid ongoing confrontations such that power exercise moves toward the maximum. In strong direct coercive structures, there are ongoing confrontations when the coercees making the lowest offers are routinely negatively sanctioned.¹⁰ The C is motivated to routinely negatively sanction when those negatives confiscate the D's resources. Seeking to avoid being negatively sanctioned, low power coercees make better and better offers to the coercer approaching $P_C = P_{Cmax} = 9$. That prediction was supported by previous research on direct coercive strong structures (D. Willer 1987).

We predict analogous dynamics resulting in the same outcome when indirect coercive structures are strong. Indirect coercive structures are strong when C partially blocks X only when fewer than nine resources were received from any D and only blocks X completely when all offers received from Ds were 9. That is to say, some Ds will be sanctioned as long as one or more Ds are offering fewer than 9 resources to C. Since negative sanctions are routine, rates of coercive exploitation for indirect strong coercive power structures are predicted to be the same as those previously predicted and observed for strong direct coercive power structures.

Design

Indirect Coercion

Like all experimental studies of coercion, the investigations of indirect coercive structures were repeated games. Corresponding to the modeled structure above, each round had three steps. Step 1 began with ten resources being allocated to each D: those resources were each worth one point to all positions of the structure. Step 1 continued through C's negotiations with the five Ds. With negotiations completed, all, some or none of each D's resources were sent to C. For Step 2, C sent to X neither, either or both of two resources previously allocated to C. Each of those resources blocked X from negatively sanctioning one D. The cost to C of sending each was one point. For Step 3, X negatively sanctioned two Ds—or fewer when blocked—confiscating all resources then held by the D(s).

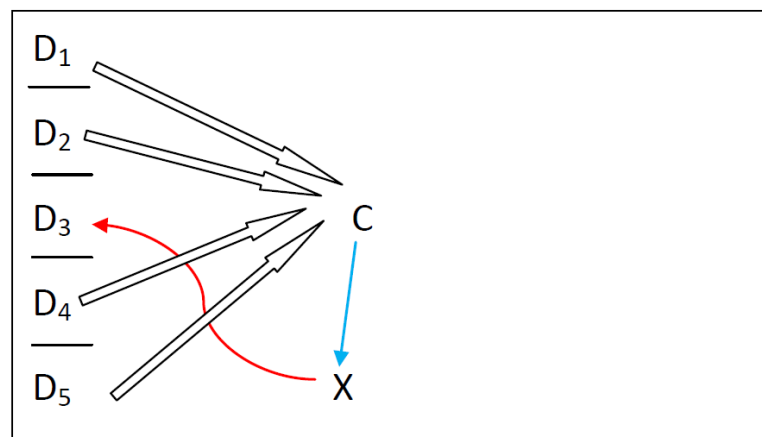
Here are the subjects' incentives by position. D's payoff increases with the number of resources retained, but is zero if negatively sanctioned by X. C's payoff varies with resources received from the Ds and is reduced by one (two) point(s) when blocking X. Since X confiscates resources held by two or fewer Ds, the payoff to X varies with resources the D(s) retained, but is smaller or zero when partly or wholly blocked by C.¹¹

All experiments were full information. All subjects were informed of the payoffs of all others and all observed the interactions of steps 1, 2 and 3 that led up to those payoffs. At the conclusion of each round new resources were allocated to each position. At the conclusion of an experimental session subjects were paid by points gained.

Experiments on strong indirect coercive structures were conducted using ExNet 2, web-based software designed to experimentally investigate social structures. All positions in the network were displayed on each subject's PC screen as were all offers, acceptances and sanction transmissions. C and X positions were simulated.¹² C accepted its three best offers or accepted all five when they were maximal at 9 resources each. Were all Ds to send 9, C blocked X from any action. When Ds offered fewer, X could act and confiscated resources of one (two) D(s). Thus the acts of the two simulated actors were consistent with the motives of C and X as stated above. Importantly, on the subjects' ExNet screens, C and X positions were clearly distinct as were the activities emanating from them.

Weak indirect coercive structure experiments were conducted using a face-to-face design: subjects were seated as shown in Figure 4. Each round had the three steps explained above. Subjects communicated offers and agreements while passing and receiving counters corresponding to the resource movements explained above. Subjects could hear all offers, acceptances and observe all transmissions. While barriers prevented direct communications between Ds, subjects in C and X positions were in line of sight of all D subjects. Because the strategy space of negotiations in weak indirect coercive structures is much larger than that of strong indirect coercive structures, no simulated actors were used. Unlike the strong structure, in the weak structure Ds failing to make extreme offers were not necessarily sanctioned by X. That is, it was C's decision at what offers to partially or completely block X. (See subject instructions for weak indirect coercion in Appendix).

Figure 4: Face-to-Face Experimental Network for Weak Indirect Coercion



Direct Coercion

New experiments using a simulated C were run for direct coercion. As for strong indirect structures, strong direct structures were run as repeated games. As modeled above, in each round there were two steps: step 1 when resources were allocated and Ds made offers and agreements with C, and step 2 where C could send negatives to Ds. Using ExNet 2 subjects' screens displayed all positions, offers, acceptances and sanction transmissions. In the direct coercive structure a simulated C accepted all offers of 9 and,

failing four or five such offers, accepted its three best offers. When offers were tied, C selected randomly. C sent a negative sanction to at most two Ds and, when it did, it selected those Ds who had made the lowest offers. Again subjects were paid by points earned at the end of the study.

Data for weak direct coercion was taken from D. Willer (1987). The design used was consistent with the model given above and analogous to that used here for weak indirect coercion.

Results

For the experiments, subjects interested in gaining income were recruited from a pool of university students. In the tables, the measure used for the rate of coercive exploitation is the payoff to C, the coercer resulting from resources sent by the Ds. Avoiding repeated measures, for C's payoff, means were taken across relations and rounds of each session, giving one datum point per session. Then means and s.d.'s of the tables were calculated from session means. For the strong indirect coercion structure there were eight sessions of ten rounds each. Each round consisted of the three steps outlined above. Each session had five subjects (all in D positions) for a total of 40 subjects. Likewise, strong direct coercion structures were eight sessions of ten rounds each. Each round each subject was in one of five D positions for a total of 40 subjects. For the weak indirect coercive structure there were six sessions of twenty-one rounds each and one session of nine rounds all with seven subjects for a total of 49 subjects.¹³ Table 1 shows that substituting simulated actors for subjects does not affect power exercised in strong direct coercive structures.

Table 1: Mean Payoffs for Simulated Actors and Subjects Acting in the C Position in Strong Direct Coercive Structures

<i>Networks</i>	<i>N</i>	<i>Coercer Payoff</i>	<i>Standard Deviation</i>	<i>t</i>	<i>P*</i>
Strong Direct Coercion Real Subject*	8	8.41	0.476		
				0.392	0.350 {NS}
Strong Direct Coercion Simulated Actor	8	8.50	0.390		

*Values are taken from (Willer 1987).

**Significance in {}.

Table 2 compares observed payoffs to C to predicted values and finds significant differences for both strong and weak indirect coercive structures. Since all error variance is away from the predicted extreme of 9, the results for strong structures do not necessarily imply that the predicted extreme was not attained. Looking at the last five rounds of each session, the mode was 9 indicating that the extreme was attained, albeit not across all data points. For weak indirect coercion, however, the coercer's payoff, 4.02 was significantly different from (and smaller than) 5.3 predicted by resistance. That difference indicates that indirect coercion was not as effective at extracting positive sanctions as predicted. We will return to this result in the Discussion.

Table 2: Mean and Predicted Payoffs to C in Strong and Weak Indirect Coercive Structures

Strength	Network	n	C Payoff*	Predicted Payoff	t	P
Strong	Indirect Coercion	8	8.45 (0.704)	9	2.21	< .05
Weak	Indirect Coercion	7	4.02 (0.538)	5.3	6.29	<.001

* Standard Deviations are in ()

Table 3: Mean Payoffs to C in Two Types of Strong and Weak Coercive Structures

Strength	Networks	n	C Payoff	Standard Deviation	t	P*
Strong	Indirect Coercion	8	8.45	0.704	0.177	0.431 {NS}
	Direct Coercion	8	8.50	0.390		
Weak	Indirect Coercion	7	4.02	0.538	4.97	<.01
	Direct** Coercion	8	5.39	0.519		

* P values for non-significance are in {}.

**Value taken from Willer (1987).

Table 3 shows that external threats have much in common with threats occurring inside coercive relations. For these comparisons, but for the source of the threat, the experimental designs for two strong coercive structures are very similar. In both the simulated C accepted its three best offers or all offers if they were at the theoretical extreme of 9. As in indirect coercion, in direct coercion the Ds received one (two) negative sanction every round iff all offers were not at that extreme. The experiments on the two weak structures were also similar in that both used the face-to-face design and did not employ simulated actors in any position.

As displayed, rates of coercive exploitation were not significantly different for the two kinds of strong coercive structures. This result furthers our understanding of strong structures. As in previous research, strong structures are strong because conditions of the structure produce competition among those low in power, a competition that drives rates to the extreme.¹⁴ That competition and its result in rates of exploitation approaching the extreme was previously observed in experiments on strong exchange structures, power-at-a-distance structures that were strong at each step, hierarchical structures with mobility, and strong direct coercive structures (D. Willer 1999). Here we see that phenomenon again in experiments on strong indirect coercion.

In contrast to results for strong structures, mean payoff to Cs in weak indirect coercive structures is significantly lower than the mean payoff to Cs in weak direct coercive structures. Stated in terms of rates of coercive exploitation, the rate is higher in direct than in indirect coercion. This is a significant difference that cannot be a result of the payoff structure of the two types for, from the point of view of the coercees, their best possible outcome (P_{Dmax}) is worse for indirect than for direct coercion. It is worse because, knowing that it costs C to block X, Ds must pay C at least enough to offset C's costs. As a result, while resistance predictions for rates of exploitation in indirect coercion are less favorable to the Ds than those for direct coercion, mean observed rates were more favorable to the Ds. We will now examine this difference further.

Discussion

This study offers theory predicting the effect of outside threats on rates of exploitation in indirect coercive power structures and experiments testing those predictions. Are the indirect coercion threats stemming from outside the structure as effective as those of direct coercion where threats are inside? The answer is yes for strong power structures. When a structure is strong, competition among those low in power drives the rate of coercive exploitation toward the extreme. That process was observed in both indirect and direct coercive power structures. In weak structures, however, rates of coercive exploitation do not move to the extreme. In weak structures, indirect coercion is not as effective as direct. Rates of coercive exploitation in indirect weak coercive power structures were both lower than predicted and were lower than rates of analogous structures with inside threats. Why this difference?

Two possible explanations spring to mind. First, since experimental subjects could readily see and identify the threat source, it may be that outside threats appeared less real, were less believed and thus were less effective. This inference is consistent with the absence of difference between inside and outside threats in strong structures where threats undoubtedly were highly believable because they were routinely fulfilled by negative sanctioning. Second, unlike in direct coercion, the position seeking and receiving valued resources, in indirect coercion did not control the negative sanctions that extracted the valued resources from the coercees. Since it did not, coercees had reason to hope that they could send fewer resources and yet avoid receiving the negative sanction. Only future research can determine whether either of these possible explanations has a basis in fact.

The goal of this paper has been to compare direct and indirect coercive structures. Since comparison across strong and weak types was not a goal, it mattered not that different designs were used to investigate strong and weak structures. They were different in that, in all strong structures only coercee positions were occupied by human subjects, but in direct and indirect weak coercive structures no positions were simulated. This difference did not affect our analyses because all-human and partly simulated structures were not compared. Nevertheless, comparisons of rates of coercive exploitation in weak and strong structures are a legitimate interest and most of the research to that end has been done. Results for all-human experiments on weak indirect and direct structures are reported in Table 3 while results for all-human strong direct are reported in Table 1. Thus, to compare across strong and weak types, it only remains to run all-human experiments on strong indirect coercive power structures.

Formulations for indirect coercion offer opportunities for explanations outside the laboratory that are grounded in experimentally tested theory. Examples include those mentioned in the introduction to this paper. A new theory for the rise of the state provides a further example. Chacon et al. (2015) propose that increasing conflict, typical of relations among chiefdoms, produces indirect coercion within each, centralizing power in the hands of the chief and his emerging warrior caste resulting in the centralized coercive state. Bornstein (2003) has already shown that increased solidarity within groups leads "to the

escalation of the conflict between them” (130). Is there positive feedback of conflict between coercive power structures linked by indirect coercion? To answer that question, future experiments would place two structures like that of Figure 3 in potential conflict relations with Cs playing the role of X for the coercees of the other structure.

Future studies can examine alternative relations between leaders and external threats. The experiments of this study investigated only one form of indirect coercion, the form in which external threats of X were blocked by negatives from C. When X is blocked by negatives, there must be some degree of parity in the powers of X and C. By contrast, in religious doctrine, the gods are very powerful, too powerful to be stopped by priestly threat (Stark and Bainbridge 1987). Since gods cannot be stopped by threat, either they are manipulated by offerings and tributes or god’s wrath is avoided by teaching the god’s rules to the laity (Goody 1983; Weber [1922] 1964). Even all-powerful gods are reputed to accept praise and offerings from mere humans. Furthermore, states have paid tributes to powers outside who threaten. For example, there is a long history of tribute payment by China to barbarian nomads of the steppe (Barfield 1989). A very different form of indirect coercion has been studied by Elder (2004) where one country pays or threatens a second inducing it to coerce a third. Certainly the investigation of external threats and their effects on social structures has only begun.

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¹ Vidal (1998) suggests that only during times of war is the American presidency powerful.

² Bornstein added that, the complexity is compounded because, unlike games against nature, other groups "compete back" (2003: 130). For a review of research on external threats focusing on cohesion see Benard and Doan (2011).

³ It has been suggested that there is an underlying equivalence between direct and indirect coercion because the latter simply splits the C position in two. While this is certainly a valid point at one level, both the theoretic models for and empirical cases of direct and indirect coercion are clearly distinct. For example, no one would confuse threats stemming from an enemy nation with calls for taxes by one's own government.

⁴ Protection is indirect coercion whereas the 'protection racket,' when the mafia offers protection from itself, is direct coercion (Lupo 2009; Pileggi 1986).

⁵ Indirect coercion should not be conflated with third party punishment or exchange externalities. In third party punishment, the punishment is in response to "violations of the behavioral standard" (Fehr and Fischbacher 2004: 64). In fact, the empirical referents of indirect coercion are quite distinct from those in third party punishment, which refers to the enforcement of norms in collectives including cultural ideals of fairness (Fehr and Fischbacher 2004; Kahneman et al. 1986; Turillo et al. 2002). In third party punishment, unlike indirect coercion, there is no beneficiary playing an intermediary role. Dijkstra and van Assen define externalities of exchange as "direct (positive or negative) consequences of exchanges, for the well-being of actors who are not involved in the exchange" (2008: 116). By contrast, indirect coercion contains no exchange.

⁶ Furthermore, as discussed below, weak and strong types are by no means restricted to coercive structures. They also occur in exchange and conflict structures as well.

⁷ For indirect coercion, again only the coercee initially holds valued resources while the threat producing their flow stems from an actor outside the relation.

⁸ The section to follow gives examples in which initial conditions set the limits of the negotiation set.

⁹ The link consists in this: Only when slaves are cheap and easily available can slave structures be strong.

¹⁰ Exchange structures function similarly. In an exchange relation, confrontation is the failure to exchange. Therefore, confrontation is routine when a central high power position has a surplus of exchange partners such that some must fail to exchange. That is to say, competition among those low in power is produced by that exclusion from exchange (D. Willer 1984; Corra 2005).

¹¹ Why does C block X when it costs one (two) point(s) to do so? Remember, C is offering protection. It is C's blocking of X that motivates Ds to send some of their valued resources to C.

¹² As found in post-experimental interviews, subjects did not suspect that C and X were simulated.

¹³ One session was cut short after 9 rounds when 2 hours was exceeded.

¹⁴ That competition is seen, not only in resultant extreme rates, but in interaction patterns of those low in power. Instead of the give-and-take of hard bargaining, in strong structures the offers of low power subjects form a series of bids, resulting in a race to the bottom of their negotiation set. As a result of competition, interactions observed in all kinds of strong power structures were much more rapid than those of weak power structures.