Working Paper

The Effect of Culture and Power on Cooperation in Common Dilemmas: Implications for Global Resource Management

Shirli Kopelman
Stephen M. Ross School of Business
at the University of Michigan

Ross School of Business Working Paper Series
Working Paper No. 1072
May 2008

Running Head: Culture and Power in Social Dilemmas

The Effect of Culture and Power on Cooperation in Commons Dilemmas: Implications for Global Resource Management

Shirli Kopelman
Assistant Professor of Management and Organizations
University of Michigan
Ross School of Business
701 Tappan Street
Ann Arbor, MI 48109-1234
Phone: 734-936-2767
Fax: 734-615-4323
Email: shirli@bus.umich.edu

May 22, 2008

Forthcoming in Organizational Behavior and Human Decision Processes (OBHDP)

Acknowledgements: I am grateful to Jeanne Brett for her extensive input and guidance throughout this research project, as well as to Rachel Croson, Jane Dutton, Michele Gelfand, David Messick, Donald Munro, Leigh Thompson, the OBHDP reviewers and its editor, Robyn Dawes. Earlier versions of this paper were presented at the Conflict Management Division at the Academy of Management and the International Conference on Social Dilemmas and I greatly appreciate the feedback provided by reviewers and participants at these sessions. Finally, I would also like to thank the Dispute Resolution Research Center for funding this project.

ABSTRACT

This study adopted a contextual framework to examine whether an interaction between group culture and economic power influences self-interest in a simulated commons dilemma. Full-time managers enrolled in executive MBA programs in Germany, Hong Kong, Israel, and the United States (U.S.) made decisions in an asymmetric commons dilemma. Relative to managers from the U.S. and Germany, Israeli managers were more likely to follow an individually rational decision-making approach, taking more resources in a high versus low economic power condition. In contrast, managers from Hong Kong in a high economic power condition followed a collectively rational approach, voluntarily taking fewer resources. Egocentrism mediated this interaction effect of group culture and economic power for the Israeli managers who were more egocentric and believed it was fair to harvest more resources in a high power condition. However, egocentrism did not mediate the interaction effect for managers from Hong Kong. The theoretical and practical implications of the findings highlight the importance of studying the proximal effect of group culture on contextual factors, such as economic power asymmetry, that influence cooperation in social dilemmas.

Key Words: Social Dilemma, Tragedy of the Commons, Take-Some Games, Commons Dilemma, Cooperation, Self-Interest, Culture, Power, Egocentrism, and Fairness.

A contextual approach to culture is crucial to deepening our understanding of psychological factors that influence cooperation in global resource management settings. Natural resources such as clean air, water, and biodiversity are prone to depletion because too many people have legal privileges to use such common property without bearing the costs of overuse and therefore, as a group, they are likely to overuse these resources to the point where they may be eliminated or destroyed. Structural solutions to this *tragedy of the commons* (Hardin, 1968), such as privatization or regulation, may be difficult to apply (Van Vugt, 1998) especially to commons that are global in scale (Young, 2001). To preserve such commons, decision makers from diverse cultural backgrounds must curb self-interested behavior. Despite the plethora of research in social psychology and experimental economics on psychological factors influencing the emergence of cooperation that would lead to sustainable global resource management (Dawes, 1980; Komorita & Parks, 1994; Kopelman, Weber, & Messick, 2002; Messick & Brewer, 1983), the empirical inquiry has focused predominantly on rational choice models (Weber, Kopelman, & Messick, 2004) examining self-interest in a cultural vacuum (Brett & Kopelman, 2004).

Relatively little is known about the effect of culture on the emergence of cooperation. The few studies that have directly tested the effect of culture on commons dilemmas in a theoretically guided paradigm have examined main effects of culture in intra-cultural group settings (e.g., Parks and Vu, 1994; Wade-Benzoni et al., 2002). This paper extends cross-cultural research on cooperation in commons dilemmas by testing the effect of culture in the context of economic power.

CULTURALLY INFORMED DECISIONS IN COMMONS DILEMMAS

Negotiations between interdependent decision makers who risk destroying resources due

to over-use of existing scarce resources are conceptualized as commons dilemmas (Van Lange, Liebrand, Messick, & Wilke, 1992). Commons dilemmas (also called take-some games, common-pool-resource games, or resource dilemmas) are a subset of social dilemmas (for a review see Dawes, 1980; Komorita & Parks, 1994; Messick & Brewer, 1983); situations that are *social* because individual behavior influences others' welfare and represent a *dilemma* because of the inherent conflict between individual and collective goals (Kahan, 1974). Social dilemmas are conceptualized as a form of tacit negotiations (Schelling, 1960; Thompson, 2001), because direct communication and/or a binding contract is either difficult to achieve or illegal.

In micro-level organizational behavior and social psychology research, culture is conceptualized as a subjective construct. Culture is reflected by an individual's mental representations and consists of interrelated patterns or dimensions, which come together to form a unique social identity shared by a minimum of two or more people (Deutsch, 1973). Cross-cultural research often relies on geography as a proxy for culture. But culture amounts to more than external attributes. For example, observed differences in bargaining behavior between decision makers from the United States, Japan, Israel, and Yugoslavia suggested these were not due to differences in languages, currencies, or experimenters, but were attributed to group-level psychological differences, i.e. national culture (Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991). Likewise, a large scale cross-cultural study in 15 different societies examined behavior in several standard economic experimental games (Ultimatum Games, Public Goods Games, and Dictator Games) in which social preferences had been observed in student subjects and found a substantial portion of behavioral variation, indicating the potential importance of culture (Henrich, Boyd, Bowles, Camerer, Fehr, Gintis, et al., 2005).

According to cultural theory, nations and subgroups within nations, institutions, and

organizations can be characterized by a distinct pattern of cultural values (Hofstede, 1980; Schwartz, 1992; Triandis, 1989). A shift to studying values as a broad construct that explains cultural differences has enabled researchers to understand the complexity of culture in familiar psychological territory and adopt a theoretical lens that lends itself to empirical measurement (Bond, 1997; Gelfand & Dyer, 2000). Distinct patterns of values provide a deeper understanding of culture without relying solely on geography as a proxy for culture.

A theoretical framework based on cultural values can help understand psychological factors that influence cooperation in social dilemmas. Few theoretically grounded studies have tested the effect of culture on commons dilemmas. For example, comparisons of cooperative choice behavior in the U.S. versus the Netherlands found no national differences (e.g., Liebrand & Van Run, 1985); however, these two countries are not expected to differ with respect to most cultural values (Hofstede, 1980; Schwartz, 1994) and thus, this non-finding may not be surprising. Often, hypotheses theoretically grounded in differences in cultural values focus on individualism versus collectivism and predict that collectivists, who are more group focused, will be more cooperative. In line with these predictions, Parks and Vu (1994) compared groups of U.S. decision makers to groups of Vietnamese decision makers. Indeed, the Vietnamese decision makers, who were assumed to be collectivists, were more cooperative than U.S. decision makers, who were assumed to be individualists. More recently, a comparison of Japanese and U.S. managers (samples were confirmed to be more collectivist and individualist respectively) corroborated these findings; intra-cultural groups of Japanese managers were more cooperative than intra-cultural groups of U.S. managers (Wade-Benzoni et al., 2002). Together, these studies suggest a main effect of culture such that decision makers from collectivist cultures will find it easier to forgo individual gains (for the greater good of the group) than decision makers from

individualist cultures who will be more self-interested.

This paper extends this literature by adopting a contextual framework that highlights the importance of looking at interactions effects between culture and situational factors. Thus, whereas culture may be necessary to better understand cooperation in inter-cultural commons dilemmas, it may not be a sufficient determinant of decision-making (Gelfand & Dyer, 2000). In fact, studies on trust and cooperation in settings similar to commons dilemmas suggest a more complex relationship between culture and decision-making. For example, in a give-some public goods dilemma, U.S. decision makers had higher levels of trust and cooperation than Japanese decision makers, but only in the absence of a sanctioning system (Yamagishi, 1988). A comparison of decision makers from China, Korea, Japan, and the U.S. found that individualist versus collectivist orientation and social identity (group members framed as neighbors vs. random participants) resulted in different relationships between trust and reciprocal behavior in one-shot exchange episodes (Buchan, Croson, & Dawes, 2002). Likewise, other-regarding preferences such as trust, reciprocity and altruism varied by country of origin (Buchan, Johnson, Croson, 2006) as did the boundaries of trust and trustworthiness (Buchan & Croson, 2004). A study that explored depersonalized trust (trust toward a relatively unknown target person) found that the existence of a potential indirect relationship link increased trust for outgroup members more for Japanese than for Americans (Yuki, Maddux, Brewer, & Takemura, 2005). In a study of the prisoner's dilemma, knowledge that the partner had about the nationality of the participant exerted an effect only when the other party was an ingroup member, but these findings did not differ for Australian and Japanese participants (Yamagishi, Makimura, Foddy, Matsuda, & Kiyonari, 2005).

An interaction between culture and structural relationships was also found in cooperation

patterns in a single-group, as compared to an intergroup prisoner's dilemma (IPD), which replicated increased cooperation in the latter (Bornstein and Ben-Yossef, 1994), but only for vertical (hierarchical) individualists (Probst, Carnevale, and Triandis, 1999). Although vertical individualists increased levels of cooperation in the IPD setting, cooperating in that setting was aligned with self-interest of maximizing individual outcomes. Building on the above research that studied culture in the context of structural situational factors, this paper examines culture in the context of economic power asymmetry.

CULTURE IN THE CONTEXT OF ECONOMIC POWER ASYMMETRY

Rather than solely isolating the influence of culture on cooperation, this study adopts a contextual approach (Gelfand & Dyer, 2000) and examines culture in the context of power. Most conceptions of power are founded on Weber's (1947) classic definition of power as the probability that a person can carry out his or her own will despite resistance. Power dynamics influence decisions in interdependent settings (for a review see Kim, Pinkley, and Fragale, 2005) and understanding the ubiquitous role of power in governing and influencing human behavior has extended to social dilemma settings (e.g. Massey, Freeman, and Zelditch, 1997; Mannix, 1991; Mannix, 1993; Wade-Benzoni et al., 1996). Decision makers in a commons dilemma may have equal economic power (symmetric setting) or economic power may be distributed asymmetrically. Perhaps because of the ambiguity introduced by power asymmetry, decision makers are generally more self-interested in asymmetric commons dilemmas (Wade-Benzoni, Tenbrunsel, & Bazerman, 1996). However, little is known about the interaction between culture and power in social dilemmas.

In an asymmetric commons dilemma in which economic power of decision makers is

unequally distributed, culture may influence how power is enacted. By examining the interaction between group culture and economic power asymmetry this study integrates a subjective-psychological approach with a structural-sociological approach (Morris, Podolny, & Ariel, 2000). A structural approach to culture, in contrast to a subjective approach to culture, focuses on the external relations that constrain behavior. In this paper, social structure, a contextual factor reflected by economic power asymmetry, is hypothesized to play an important role in determining cross-cultural differences in decision making. Contingent on how managers psychologically interpret power asymmetry between social actors in a commons dilemma, they may endorse different cultural norms (what is appropriate behavior) for the purpose of allocating resources, therefore taking relatively more or less of the resource for themselves.

How decision makers interpret power asymmetry is proposed to differ depending on the distinct pattern of values (what is important) endorsed by their culture. Values are cross-situational principles that guide one's life (Schwartz, 1994). Two cultural values—hierarchy versus egalitarianism (also labeled as vertical versus horizontal respectively) and individualism versus collectivism, combined these are conceptualized as horizontal- versus vertical - individualism or collectivism—have frequently been studied in the decision-making (Triandis & Gelfand, 1998) and negotiation (Brett & Okumura, 1998) literature. Hierarchy versus egalitarianism refers to the importance placed on ascribed hierarchical roles in structuring interactions and allocating resources. In hierarchical cultures, there is a preference for differentiated social status (whether merit-based or due to class structure) that has implications for who holds power in social situations (Hofstede, 1980; Schwartz, 1994). Social status exists in cultures that are egalitarian (low on hierarchy), but people are less receptive to power differences (Leung, 1997), suggesting that they are less likely to behaviorally respond to power differences.

Self-direction—a discrete subset of the broader concept of individualism versus collectivism (Hofstede, 1980; Triandis, 1995) —focuses specifically on what drives individuals (Schwartz, 1992, 1994). People high on self-direction are driven to advance their own goals and value autonomy, freedom, independence, and self-reliance over the interests of their in-group. Thus, cultural configurations of self-direction and hierarchy are likely to inform decision-making in commons dilemmas.

Managers studied in the current research project were previously found to differ at the group level with respect to self-direction and hierarchy (Brett, 2001), representing the four possible combinations as follows: vertical-individualism (Israel), vertical-collectivism (Hong Kong), horizontal-individualism (U.S.), and horizontal-collectivism (Germany). The basic argument put forth in the current empirical investigation is that managers from Israel and Hong Kong, who are relatively hierarchical, will be influenced by an economic power manipulation, but whether they focus on individual versus group goals will result in different patterns of self-interested behavior. Vertical-individualists (Israeli managers) will be more self-interested in contrast to vertical-collectivists (Hong Kong managers) who are more likely to consider the group. In contrast, for managers from the U.S. (horizontal-individualist cultural group) and Germany (horizontal-collectivist cultural group), who are relatively egalitarian with respect to cultural values, contextual cues of economic power will not be salient.

In Hong Kong, hierarchy is embedded in a traditional status-oriented social structure, which is relatively stable. Chinese managers in Hong Kong are group-oriented, which may influence the meaning of hierarchy in organizations; collectivism, tradition, and conservatism generate a norm whereby low-status members are expected to concede to high-status members. Traditionally, senior officials have quiet disciplinary control over the conduct of all individual

employees. At the same time, high-status members have a social responsibility to look out for the needs of lower-status members and for the group in general. The highest priorities, ones that often converge with self-interest, are to family and networks of mutually beneficial actors (called *guanxi* in Chinese society). These networks are informal, often with one elder who has power, financial resources, and, especially, ties to powerful government officials, greater than others in the network. Though informal, social ties are cohesive and dedicated to reciprocal favors. The collective goals of these units trump those of most other groups in the individual's allocation of personal resources and care. When the group or environmental fabric is threatened, an inverse equity norm would guide the behavior of powerful actors such that they will be willing to forgo a loss or show "voluntary restraint" (R. M. March, 1988, p. 49) to benefit the group. For high power individuals in the group, voluntary restraint would be routine. However, an inverse equity norm would not be expected of low power players, who would continue to focus on the collective goals and contribute their share to the best of their ability. An inverse equity norm resonates with the idea of *noblesse oblige* (nobility obliges), which is generally used to confer that with wealth, power, and prestige comes social responsibility. Thus, in vertical-collective groups like those found in Hong Kong, an inverse equity norm would only influence high-status decision makers in a position of economic power, who would show restraint in self-interest.

Although Israel was a collectivist-egalitarian culture with a strong socialist-communal influence, in recent decades it has affirmed the virtues of individualism (e.g., Ezrahi, 1997) and adopted capitalistic values and norms. Managers, who are at the forefront of this change, score high on self-direction and hierarchy (e.g., Brett, 2001; Gandal, Roccas, & Sagiv, 2005; Knafo & Sagiv, 2004; Sagiv & Schwartz, 2000). In Israel, individual position in the hierarchical structure relates to individual accomplishments, rather than birthrights or family status, and therefore

Israeli managers who are high on self-direction and focus on individual goals are more likely to be guided by an equity norm. Therefore, I suggest that in a merit-based hierarchy, economic power implies that a decision maker has earned the right to exercise power and leverage common resources to maximize profits. In fact, prior research on single versus inter-group prisoner's dilemma settings found that vertical-individualists consistently maximized individual payoffs, even if the behaviors required to do so differed (defect in the single-group dilemma and cooperate in inter-group dilemma). Vertical-individualists were least cooperative in the single-group dilemma (vertical-collectivists were most cooperative) and more cooperative than vertical-collectivists in the inter-group dilemma (Probst et al, 1999). Therefore I hypothesize that Israeli decision makers will be attune to the economic power differences and will consistently strive to maximize individual profits.

Whereas managers from Hong Kong (vertical-collectivist cultural group) may interpret economic power differently than those from Israel (vertical-individualist cultural group), both are relatively hierarchical, and will attend to situational economic power cues and adjust their behavior according to culturally-based norms. Chinese managers from Hong Kong will adopt an inverse equity norm in a position of high economic power, whereas Israeli managers will adopt an equity norm. In contrast, managers from less hierarchical cultures—horizontal-individualists (U.S. managers) and horizontal-collectivists (German managers) —will not be as sensitive to the context of economic power and thus serve as a benchmark.

Thus, the first hypothesis of this paper is an interaction effect between cultural group and economic power on self-interested behavior in a commons dilemma, such that:

> **Hypothesis 1a**: Relative to managers from the U.S. (horizontal-individualists) and Germany (horizontal-collectivists), Chinese managers from Hong Kong (vertical-collectivists) will be less self-interested (more cooperative) in a high economic power condition.

Hypothesis 1b: Relative to managers from the U.S. (horizontal-individualists) and Germany (horizontal-collectivists), Israeli managers (vertical-individualists) will be more self-interested (less cooperative) in a high economic power condition and less self-interested (more cooperative) in a low power condition.

EGOCENTRISM AS A PSYCHOLOGICAL MECHANISM

The question of what is a fair allocation of resources has been the subject of much research. Largely spurred on by Kahneman, Knetsch, and Thaler's (1986) seminal article demonstrating that the decision context and frame significantly influence what people believe to be fair and the tendency for parties to arrive at judgments that reflect a self-serving bias – to conflate what is fair with what benefits oneself – is an important determinant of deadlocks in interdependent decision making contexts (Babcock and Loewenstein, 1997). Perceptions of fairness influence the balance of power between decision making parties (Pinkley, Neale, and Bennett 1994) and their degrees of self-servingness – or egocentrism (Thompson and Loewenstein 1992). In general, research suggests that for the egocentrism bias to occur there needs to be some form of asymmetry in how the environment is viewed, and the cultural orientation of each party can be one such factor (Gelfand et al. 2002).

Culture may influence why given the same objective information, decision makers may have substantially different ideas about what is the fair outcome. For example, a cultural view of judgment biases in negotiations confirmed that self-serving biases of fairness are more prevalent in individualistic cultures, such as the U.S., than in collectivistic cultures, such as Japan (Gelfand et al., 2002). Gelfand and colleagues suggested that the difference relates to different types of self-regard, in that positive self-regard (the need to "stand out") characterizes North American culture, whereas critical self-regard (the need to "blend in") characterizes Japanese culture (Heine, Lehman, Markus, & Kitayama, 1999).

In commons dilemmas, egocentrism, or the belief that a decision maker deserves a larger

proportion of the common resources, leads to greater self-interest. For example, egocentrism not only explains over-harvesting behavior, but the reduction of egocentric interpretations of fairness is one reason why communication enhances cooperative behavior (Wade-Benzoni, Tenbrunsel, & Bazerman, 1996). Although a study that compared decision makers from the U.S. and Japan did not find a significant main effect of culture on egocentrism (Wade-Benzoni et al., 2002), there may have been an interaction effect such that negotiators in high power conditions believed they deserved more or less of the total available resources. Examining not only what influences fair beliefs, but also when those fair beliefs influence bargaining behavior Buchan, Croson, and Johnson (2004) found that fairness beliefs predict bargaining behavior when they are aligned with one's own self-interest. They examined fairness beliefs in the U.S. and Japan under varying conditions of buyer power, and found a significant power by country interaction. In the U.S., participants believed that it is fair that the party with greater power takes a larger share of the surplus. In Japan, participants believed that it is fair that the party with greater power earns a smaller portion of the surplus, sharing more of it with the weaker partner. In their experiment, power was manipulated by providing buyers a best alternative to the negotiated agreement (BATNA) and comparing it to a control group without a BATNA. In general, in egalitarian cultures such as the U.S., negotiation power is derived from one's BATNA, a concept that does not necessarily take into account the other party. In contrast, in hierarchical cultures such as Japan, power is relationally based and indicates higher social status (Brett and Okamura, 1998; Leung, 1997). This study differs, in that parties are interdependent with respect to outcomes; even if an agreement is not reached. The power manipulation, rather than being manipulated through a strong alternative to the negotiation, is manipulated through relative economic power to extract value from the common resource. That is, the economic power manipulation

introduces a hierarchical social structure to the commons dilemma task. Therefore, it is likely that the power manipulation will be more salient to decision makers from hierarchical cultures (vertical-individualists and vertical-collectivists) than egalitarian cultures (horizontal - individualists and horizontal-collectivists).

Building on Buchan, Croson, and Johnson (2004) findings that what was believed to be fair had a significant influence on bargaining behavior (fully mediating the influence of power in a negotiation), I predict that the beliefs of vertical-individualists and vertical-collectivists about fairness in a hierarchical setting will be aligned with self-interest. Thus, mirroring hypothesis 1a and 1b, I argue that in a high power condition Israeli managers (vertical-individualists) more so than U.S. (horizontal-individualists) and German (horizontal-collectivists) managers, will believe that it is fair to maximize individual profits by harvesting more resources, whereas Chinese managers from Hong Kong will believe it is not fair to exercise their economic power in a high power condition, i.e., they will believe that noblesse oblige represents a fair distribution of resources. And in a low power condition Israeli managers will believe that it is fair to harvest less resources. In essence, managers will perceive the allocation norms they adopt, equity versus inverse equity, as a fair share of the common resources.

Thus, I hypothesize an interaction effect between cultural group and economic power such that:

> **Hypothesis 2a**: Relative to managers from the U.S. (horizontal-individualists) and Germany (horizontal-collectivists), Chinese managers from Hong Kong (vertical-collectivists) will be less egocentric in a high economic power condition.
>
> **Hypothesis 2b**: Relative to managers from the U.S. (horizontal-individualists) and Germany (horizontal-collectivists), Israeli (vertical-individualists) managers will be more egocentric in a high economic power condition and less egocentric in a low power condition.

Furthermore, I hypothesize that:

Hypothesis 3: The interaction of cultural group and economic power (culture∗power) on self-interest will be mediated by egocentrism, such that the effect of culture∗power will be significantly diminished when egocentrism is taken into account.

METHODS

Task

The simulation used in this study, Shark Harvesters and Resource Conservation (SHARC), was adapted from a four-party asymmetric resource negotiation developed by Wade-Benzoni et al. (1996). The substantive details, as well as the payoff structure of the commons dilemma reflect real-world scenarios in the fishing industry. Participants played the role of representatives of one of four fishing associations that fished for sharks for income. Two fishing associations were comprised of commercial fishermen who fished for sharks for consumption purposes [Large Commercial (LC) and Small Commercial (SC)]. The other two associations operated boats on which customers fished for sharks for recreational purposes [Recreational Competition (RC) and Recreational Tours (RT)]. Similar to most social dilemma experiments, all participants had full information about the payoffs of all parties. The background materials explained that the population of large coastal sharks was in danger because the fishing industry was collectively over-harvesting and depleting the resource faster than it could be replenished. The common goal of all representatives was to resolve the exploitation problem. The individual goal of each representative was to protect the economic well-being of the members of his/her particular fishing association. The exercise materials informed participants that their profits would consist of two components: current harvest and expected profit from future harvests. Consequently, each association's net present value was a function of its harvest level, the value the association placed on shark harvesting in the future, and the total harvest of all four associations (see the Appendix).

Sample, Design, and Procedure

Study participants were full-time managers enrolled in executive MBA programs that were affiliated with a U.S. institution, but located in four countries: Germany, Hong Kong, Israel, and the U.S. All programs were taught in English. Managers participated in a one-week joint negotiation workshop hosted by the U.S. program. It is important to note that executive managers did not necessarily represent the general population of these four countries as they self-selected into business careers and attended an executive management program that may have had its own organizational culture. Data were collected over four years. Altogether, 204 managers participated in the experiment (N = 204). The ages of the participants ranged from 27 to 52 years (mean = 37 years); 76% were male.

In a pre-simulation online survey (administered while still in one's country of origin), participants completed a brief cultural values questionnaire. At the workshop itself, a standard introduction to the exercise provided an outline of study activities and timing. Participants were then assigned to the role of representative of one of four fishing associations (LC, SC, RC, or RT). Role assignments were based on the goal of maximizing cultural variability within groups (each group had one representative from each fishing association). Within cultural group, participants were randomly assigned to groups and conditions. All data analyzed in this study were based on decisions that were made by participants as they individually planned to meet with the representatives of the three other associations. Participants did not know who was to play the role of the three other representatives in their group, but expected it would be culturally heterogeneous. Given the larger number of U.S. participants, SC was always represented by a U.S. participant and these decisions were excluded from the analysis. Included in the analysis

were decisions of participants who played the role of representatives of LC, RC, or RT: 34 German participants, 66 Hong Kong participants, 32 Israeli participants, and 72 U.S. participants. The unbalanced cell size was due to the available pool of participants in each program. For the purpose of hypothesis testing, RC and RT were collapsed into the low economic power condition; LC was analyzed as the high economic power condition. Following the economic role manipulation, participants made a series of decisions about what they thought was a fair amount for each association to harvest (used to calculate egocentrism) and what was their intended harvesting decision (used to calculate self-interest).

Measures

Cultural Group

To determine cultural group membership, participants were required to originate from the country where they received their executive management education and view that country's culture as their dominant culture. Participants were asked to report their nationality and citizenship, and to confirm whether it reflected their *dominant* culture. For example, an American expatriate studying in the program in Hong Kong would be automatically excluded, but a manager from Hong Kong in that program was included, even if the individual's citizenship was British, as long as the participant reported his or her dominant culture to be Chinese.

Beyond national cultural level, group culture may have been influenced by industry association (business executives), university affiliation, and/or the unique organizational culture of the executive management program in each country. The four cultural groups—executive MBA students from programs in Germany, Hong Kong, Israel, and the U.S. —were previously found to differ on cultural values of self-direction (a proxy for individualism) and hierarchy

(Brett, 2001). U.S. managers were expected to be horizontal-individualists (low on hierarchy and high on self-direction), the German managers horizontal-collectivists (low on hierarchy and low on self-direction), the Israeli managers vertical-individualists (high on hierarchy and high on self-direction), and the Hong Kong managers vertical-collectivists (high on hierarchy and low on self-direction). Given that the hypotheses about these groups were theoretically grounded in differences in cultural values of self-direction and hierarchy, these differences were measured to conduct a sampling check.

Sampling Check. Cultural values were measured using thirty-eight items from Schwartz's survey (1994), adapted to negotiation contexts (Brett & Okumura, 1998). Participants in the current study rated the degree to which they considered each value a guiding principle in their life on a nine-point Likert like scale that ranged between negative one (opposed to my values) and positive seven (of supreme importance). Responses were standardized with respect to all items in the survey to adjust for individual differences in how participants valued the scale itself (Schwartz & Sagiv, 1995). Based on a confirmatory factor analysis with a Varimax rotation, self-direction and hierarchy accounted for 43.65% of the variance. Self-direction included six items: creativity (uniqueness, imagination), independent (self-reliant, self-sufficient), ambitious (hard-working, aspiring), choosing own goals (selecting *my* own purposes), intelligent (logical, thinking), authority (the right to lead or command), and curious (interested in everything, exploring). A high score indicated self-direction (α = .70). Hierarchy included four items: social power (control over others, dominance), wealth (material possessions, money), social recognition (respect, approval by others), and preserving *my* public image (protecting *my* "face"). A high score indicated the presence of hierarchy (α = .74).

The sampling check confirmed the expected pattern of vertical versus horizontal

individualism and collectivism. A multivariate analysis of variance (MANOVA) with *a priori* contrasts tested the expected group differences on cultural values of self-direction and hierarchy. The model was significant for both: self-direction ($F_{3, 203} = 6.03$, $p = .001$), and hierarchy ($F_{3, 203} = 5.30$, $p = .002$). As expected, Israeli and U.S. managers scored significantly higher on self-direction than Hong Kong and German managers. Furthermore, the Hong Kong and Israeli managers were significantly more hierarchical than German and U.S. managers (Table 1).

Economic Power

Economic power was manipulated. High versus low economic power was reflected both by the harvest level (2000, 1500, 1000, 500) and by the value of preserving the resource (10%, 25%, 70%, 85%) in each association's profit function (see the Appendix). For example, LC had the most economic power (current Harvest Level of 2000 metric tons and 10% dependence on Future), whereas RT had the least (500 metric tons and 85%, respectively).

Egocentrism

The egocentrism measure reflected the market share participants felt their association deserved. Participants were asked what they believed was a fair harvest for their own association, as well as for the other three associations. Based on these decisions, a previously established controlled measure of egocentrism was calculated (for details, see Wade-Benzoni et al., 1996, p. 118). A score of zero indicated no egocentrism, whereas a positive value indicated egocentrism and a negative value indicated the opposite of egocentrism (could be interpreted as unworthiness). Values ranged from -19 to 47 (M = 2.5; SD = 10.9).

Self-Interest

The intended harvest level of each association reflected the self-interest of that decision maker. Based on real-world industry constraints, decision makers were restricted from increasing their intended harvest level above the current level and from reducing it beyond 80% (for details, see the Appendix). To compare self-interest across roles, intended harvest level was standardized by role.

Controls

To rule out the influence of variables external to the theorized model, three demographic variables were considered: gender, age, and years in workforce (work experience). Because age and work experience were highly correlated ($r = 0.56$, $p < .01$), of the two, only work experience was included in the model. Gender, which may account for differences in strategic economic behavior (Croson & Buchan, 1999), was also included as a control variable in the model.

To rule out potential group-level differences in familiarity with the underlying concepts of social dilemmas (e.g., due to differences in prior course work in economics), answers from an exam that was administered three days following this exercise were compared. Exams were graded anonymously, and scores were standardized by class. Although significant differences were found (German managers scored significantly higher than Hong Kong managers), this pattern would not obfuscate the hypothesized relationships. It is also important to note that random assignment to roles (LC, SC, RC, or RT), controlled for individual-level differences in variables such as prior knowledge.

Analysis

An analysis of variance (ANOVA) was used to test the effect of cultural group (categorical variable: German, Hong Kong, Israeli, or the U.S. managers) and economic power (categorical variable: high vs. low) on self-interest (continuous variable), as well as egocentrism (continuous variable). A Baron and Kenny (1986) version of the Sobel test (1982) was used to test whether egocentrism mediated the interaction of cultural group and economic power on self-interest.

RESULTS

Hypothesis 1a and 1b predicted that there would be an interaction between cultural group and economic power (culture∗power) on self-interest. Based on an ANOVA (overall model $F_{9, 203} = 1.6$, $p = .12$), as expected, there was no main effect of cultural group or economic power, but the predicted interaction term culture∗power on self-interest was significant ($F_{3, 203} = 3.21$, $p = .024$).

In the high economic power condition, managers from all cultural groups followed an economically rational pattern of decision-making of defecting (continuing to maximize profits by harvesting closer to the initial 2,000 metric tons in comparison to the recommended cut by 50% to 1,000 metric tons that would ensure the sustainability of the resource). However, Hong Kong mangers were significantly less self-interested (M = 1407, SD = 352) than German mangers (M = 1605, SD = 315) and U.S. managers (M = 1625, SD = 367), whereas Israeli mangers were significantly more self-interested (M = 1777, SD = 351). Contrast tests confirmed these differences ($t = 3.03$, $p = .006$). In the low economic power condition, all managers were economically rational and reduced their original harvest level to maximize their individual profits (note that in the low economic power condition, sustainability goals were aligned with

profitability, as long as at least one other association cooperated and reduced its harvest level), but *a priori* contrasts (t = -1.70, p = .099) revealed the Israeli managers were marginally more self-interested and reduced their harvest level more (M = 297, SD = 259) than Hong Kong (M = 414, SD = 226), German (M = 415, SD = 303), and U.S. (M = 406, SD = 231) managers (Table 2 and Figure 1). In line with the above results, comparing high and low power within each cultural group also confirmed that Israeli managers were significantly more self-interested in the high power condition ($F_{1, 32}$ = 4.28, p = .047) and Hong Kong managers were significantly less self-interested in the high power condition ($F_{1, 66}$ = 4.23, p = .044), and there were no significant differences for the German ($F_{1, 33}$ = 0.08, n.s.) and U.S ($F_{1, 71}$ = 1.17, n.s.) managers. Thus, hypotheses 1a and 1b were confirmed.

Hypothesis 2a and 2b predicted a culture∗power interaction on egocentrism, such that in a high economic power condition Israeli managers would be more egocentric than German and U.S. managers, whereas Hong Kong managers would be less egocentric. In contrast, in a position of low economic power, Israeli managers would be less egocentric than managers from the three other groups. Based on an ANOVA (overall model $F_{9, 203}$ = 2.96, p = .003), there was no main effect of cultural group, but the predicted interaction term culture∗power on egocentrism was significant ($F_{3, 201}$ = 3.10, p = .028). In a high economic power condition, based on *a priori* contrast tests (t = -2.49, p = .029), Israeli managers, as predicted, were significantly more egocentric (M = 11.59, SD = 16.79), but contrary to predictions Hong Kong managers (M = 4.56, SD =14.38) were as egocentric as the German (M = 4.26, SD = 13.7) and U.S. (M = 8.01, SD = 11.15) managers. In the low economic power condition, Israeli managers were significantly less egocentric (M = -3.97, SD = 6.82) than Hong Kong (M = 1.85, SD = 8.15), German (M = 2.31, SD = 10.29), and U.S. (M = 0.38, SD = 7.66) managers (t = 2.54, p = .021). There was also

an unpredicted significant main effect of power such that managers in the high power condition (M = 6.98, SD = 13.79) were more egocentric than in the low power condition (M = .55, SD = 8.36; $F_{1, 201} = 17.58$, $p = .00$). Although the culture∗power interaction was significant, the predictions about Hong Kong (H2a) managers were not confirmed, but the predictions about Israeli managers (H2b) were confirmed (Table 2 and Figure 2).

Hypothesis 3 predicted that egocentrism would mediate the culture∗power effect on self-interest and was confirmed. When egocentrism was added to the ANOVA of cultural group and economic power on self-interest, the culture∗power effect was no longer significant ($F_{3, 203} = 1.73$, $p = .16$). Furthermore, the unstandardized regression coefficient and standard error for the culture∗power effect on egocentrism ($b = 1.05$, *s.e.* = 0.328) and of egocentrism on self-interest ($b = 0.023$, *s.e.* = 0.005) were used to assess mediation according to the Baron and Kenny (1986) version of the Sobol test (1982) and confirmed that egocentrism mediated the effect of culture∗power on self-interest (Z-value = 2.63, $p = .008$) for the overall model. Likewise, analyzed within culture, egocentrism mediated the effect of economic power on self-interest for Israeli managers (Z-value = 2.01, $p = .04$), but was not significant for Hong Kong managers (Z-value = .98, p = n.s.). Thus egocentrism mediated the effect of culture*role for the Israeli managers, but not for the Hong Kong managers.

DISCUSSION

The study builds on prior research on culture and social dilemmas (e.g. Buchan, Croson, & Dawes, 2002; Liebrand & Van Run, 1985; Wade-Benzoni et al., 2002; Wade-Benzoni, Tenbrunsel, & Bazerman, 1996; Yamagishi, 1988) and contributes to the literature on social dilemmas by confirming that an interaction between cultural group and economic power

influences cooperation. The pattern of results suggests that managers from hierarchical versus egalitarian cultures react to situational cues of economic power and enact these cues in different ways, contingent on whether their group culture is also low on self-direction and driven to advance group goals, or high on self-direction and driven to advance individual goals. In a position of high economic power, managers from Hong Kong (vertical-collectivists) were more cooperative than German (horizontal-collectivists) and U.S. (horizontal-individualists) managers, whereas Israeli (vertical-individualists) managers were more self-interested than German and U.S. managers. Thus, on the one hand, managers from Hong Kong exercised voluntary restraint relative to the other managers, taking less of a common resource. Although such voluntary restraint would help sustain the common resource in the long-run, it led them to incur an immediate financial loss. On the other hand, Israeli managers were most likely to follow rational economic theory, which suggests that decision makers will maximize individual profits, irrespective to the long-term effects on the common resource. These empirical findings support the theoretical argument that a contextual model (Gelfand & Dyer, 2000) is better suited for understanding the effects of culture on decision-making.

Not only does this study highlight the importance of looking at culture in the context of proximal variables like economic power, but it also suggests that psychological mechanisms that explain the effect of culture on decision-making may vary by culture. As predicted, Israeli managers with high economic power believed it was fair for them to harvest relatively more resources and maintain their high profits, and it was these egocentric perceptions that mediated the effect of culture and power on self-interested decisions. Thus, the empirical findings suggest that the Israeli managers adopted an equity norm. In contrast, although the Hong Kong managers appeared to follow an inverse-equity allocation norm, they were not less egocentric. It is

puzzling that while the decisions of Hong Kong managers were more socially responsible, taking fewer resources when in positions of high power, they did not perceive this distribution of resources to be fair. Perhaps this reflects the so-called *burden* of social responsibility. It may also represent changing times; these decision makers may still comply with tradition, even though they no longer embrace its underlying ideology. Alternatively, it may be that the Israeli managers recognized the dilemma as a *might* (dominance), in contrast to a *morality* (responsibility) based social interaction (Liebrand, Jansen, Rijken, & Suhre, 1986; Van Lange & Kuhlman, 1994), whereas managers from Hong Kong recognized it a morality based social interaction. But whether equity versus inverse equity norms were adopted, or a might versus morality situation was recognized, future research will need to explore the apparent contradiction between the relative cooperation of the Hong Kong managers and the fact that they did not view their own cooperation as a fair allocation of resources. Whereas egocentrism explains the relatively lower levels of cooperation of Israeli managers with high economic power, there may be a different psychological mechanism at play that would help one understand the relatively higher level of cooperation of the Hong Kong managers with high economic power.

To better understand such interaction effects of culture (e.g. with economic power) on cooperation and possible psychological mechanisms (e.g. egocentrism), we can draw on recent theoretical developments that conceptualize culture as a group level factor that interacts with contextually activated factors. According to the theoretical framework of the *Logic of Appropriateness*, a person's salient identity, the individual's recognition of the situation, and identification of relevant rules offers a more comprehensive understanding of decision-making in social dilemmas than rational choice or expected utility models (Weber, Kopelman, & Messick, 2004). Grounded in March's (1994) model of decision-making, the Logic of Appropriateness is

reflected by a decision maker asking him/herself the question "what does a person like me (identity) do (rules) in a situation like this (recognition)?" This theoretical framework has recently been extended to include culture as a distinct theoretical construct (Kopelman, 2008), conceptualized as a group level factor.

A group level conceptualization of culture suggests that group culture is distinct, although it may interact with decision factors such as identity, recognition, and rules. Consistent with a group level conceptualization of culture, and although it may be considered an empirical limitation of this study, the analyses were run based on group culture membership, and not on individual measures of cultural values as the independent variables. There has been a growing skepticism in the field of psychology that values can fully explain cultural differences in behavior (Gelfand, Nishii, & Raver, 2006). Even when the values constructs are broadened to include other variables, such as attitudes and beliefs, they are still mixed in their ability to explain cross-cultural differences in behavior (see Bond, 1997, for a review). According to Boyd and Richerson (2005), culture is information stored and transmitted from individual to individual through teaching, imitation, and other forms of social learning and is the "property of the population only in a statistical sense" (p.3). Thus, a reductionism approach that relies on individual measures may not be capable of explaining group-level variance.

In the context of the findings of this paper, an expanded model of Logic of Appropriateness (Kopelman, 2008) that includes culture suggests, for example, that an Israeli manager with a *cultural group* lens that is vertical-individualist with respect to cultural values, who *recognizes* the situation as one in which she has relatively high economic power, is likely to believe it is fair to follow an equity based allocation *rule*. Identity was not included in this study; however, an identity factor that has been found to empirically influence cooperation in social

dilemmas is individual differences in social motives (Weber et. al., 2004). Israeli managers would likely have a proself, in contrast to prosocial, social motive (Brett, 2001), fitting the pattern of results.

Theoretically, holding identity, recognition, and rules constant, a decision maker may be more likely to cooperate given a particular cultural group (i.e. a main effect of culture), however, the contextual model of culture (Gelfand & Dyer, 2000) adopted in this study, and the expanded model of appropriateness (Kopelman, 2008) suggest that future research focus on the interactions between culture and the array of psychological factors that influence cooperation in commons dilemmas (for a review, see Kopelman et. al. 2002; Weber, et. al., 2004). For example, identity factors such as self- versus group-focus primes may lead to different levels of cooperation contingent on whether the cultural group is vertical-individualist, vertical-collectivist, horizontal-individualist, and horizontal-collectivist. Interestingly, activating self-focus is not necessarily equivalent to activating self-interest. In fact, *I* primes that activate the self lead to higher levels of cooperation if the social motive of the decision maker is prosocial (Utz, 2004), and therefore self-focus primes could similarly attenuate the influence of group culture. For example, decision makers from vertical-collectivist groups (such as the Hong Kong managers in this study) in high power situations may be even more cooperative in the condition of a self- versus group-focus prime. Moreover, if such self-activation heightens self-awareness and the salience of cultural values, it may be that directly priming decision makers with cultural icons that lead to higher congruence with cultural norms (e.g. Wong & Hong, 2005), would also attenuate cooperation under certain conditions. However, this may be more likely to lead to higher conformity with allocation norms only within tight, versus loose cultural groups (Gelfand et al., 2006).

Group culture may also influence what is recognized as high versus low power. Are these

relative terms, or are there concrete reference points? In the current study, power was manipulated through economic profit calculations that informed participants how an increase versus a decrease in intended harvesting would influence individual profitability, as well as resource sustainability. Future research will need to examine whether other forms of social power (see Kim, Pinkley, and Fragale, 2005 for a review) have a similar impact on cooperation and whether these are more likely to have an impact in a particular cultural group.

In an inter-cultural setting, it is interesting to note that cultural group may refer not only to the cultural background and group affiliation of each decision maker, but also to the composition of the group of interdependent decision makers engaged in the social dilemma. For example, in this study, other than being an asymmetric commons dilemma, recognition of the social context of the interdependent decision makers was complex. Participants may have recognized the situation as an out-group setting (if national culture was salient to them it was an inter-cultural interaction), or as an in-group setting (if organizational culture was salient to them it was an intra-cultural setting). This study measured self-interest prior to discovering the actual cultural and personal identity of the other parties. This design was advantageous to gauging general behavioral tendencies in the anticipated international setting in that it prevented decisions from being influenced by information about the unique composition of the group. However, given that in-group favoring behavior occurs not only in minimal group situations, but also in enduring social categories such as nationality (Yamagishi, Makimura, Foddy, Matsuda, & Kiyonari, 2005), an alternative approach would be to design a study that provides participants with a priori information about the unique composition of an inter-cultural group, and examine how it influences the adoption of particular allocation rules.

To summarize, the empirical findings demonstrated that depending on a manager's

cultural group, high economic power could lead to increased or decreased levels of cooperation in a commons dilemma, and that for some cultures the culture by power interaction was mediated by perceptions of fairness, whereas for others it was not. A colorful and complex empirical story is always interesting; however, understanding behavior in a commons dilemma is not only an academic endeavor, but a real-world problem faced by both managers and policymakers. Commonly shared natural resources are destroyed as a function of pollution (e.g., ozone depletion due to emission of chlorofluorocarbons (CFCs)) or over-consumption (e.g., extinction of fish due to harvest levels that exceed the replenishment rates). Whereas legal scholars search for institutional solutions to the tragedy of the commons, such as privatization (e.g., creative forms of property rights such as Tradable Environmental Allowances (TEA) (Rose, 2002; Titenberg, 2002), scholars of management can offer psychological and behavioral insights that promote cooperation (Kopelman et. al. 2002). It is particularly relevant to better understand the psychological factors that lead decision makers to manage global resources responsibly. This study reinforces case studies in anthropology that draw the attention of researchers to the richness of culturally-distinct solutions that have developed over centuries of common resource management (Ostrom, 1990; Ostrom, Walker, & Gardner, 1992). The empirical findings support the theoretical argument that the cultural group is a critical factor that needs to be studied in the context of situational variables (Gelfand & Dyer, 2000), and may best be captured by an expanded, four factor model of the Logic of Appropriateness (Kopelman, 2008): “what does a *person* like me (identity) *do* (rules) in a *situation* like this (recognition) given this *culture* (group)?”

REFERENCES

Adair, W.L., Okumura, T., & Brett, J.M. (2001). Negotiation behavior when cultures collide: The United States and Japan. Journal of Applied Psychology, 86 (3), 371-385.

Babcock, L. & Loewenstein (1997). Explaining bargaining impasse: The role of self-serving biases. The Journal of Economic Perspectives, 11(1), 109-126.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality & Social Psychology, 51(6), 1173-1182.

Brett, J. M. (2001). Negotiating globally. San Francisco: Jossey-Bass.

Brett, J. M., & Kopelman, S. (2004). Culture and Social Dilemmas. In G. Michelle & B. J. M. (Eds.), Negotiation and culture: research perspectives. Palo Alto: Stanford University Press.

Brett, J. M., & Okumura, T. (1998). Inter- and intracultural negotiation: U.S. and Japanese negotiators. Academy of Management Journal, 41(5), 495-510.

Bond, M. H. (1997). Adding value to the cross-cultural study of organizational behavior. In P.C. Early & M. Erez (Eds.). New perspectives in international industrial/organizational psychology (pp. 256-275). San Francisco, CA: New Lexington Press.

Bornstein, G. & Ben-Yossef, M. (1994). Cooperation in intergroup and single-group social dilemmas. Journal of Experimental Social Psychology, 30, 52-67.

Boyd, R. & Richerson, P. J. (2005). The Origin and Evolution of Cultures. New York: Oxford University Press.

Buchan, N. R., Croson, R. T. A., & Dawes, R. M. (2002). Swift neighbors and persistent strangers: A cross-cultural investigation of trust and reciprocity in social exchange. The American Journal of Sociology, 108(1), 168-206.

Buchan, N.R., Johnson, E.J., & Croson, R.T.A. (2006). Let's get personal: An international examination of the influence of communication, culture and social distance on other regarding preferences. Journal of Economic Behavior & Organization, 60, 373-398.

Buchan, N.R. & Croson, R.T.A. (2004). The boundaries of trust: own and others' actions in the US and China. Journal of Economic Behavior & Organization, 55, 485-504.

Buchan, N. R., Croson, R., & Johnson, E. (2004). When do fair beliefs influence bargaining behavior? Experimental bargaining in Japan and the United States. Journal of Consumer Research, 31, 181-190.

Croson, R., & Buchan, N. (1999). Gender and Culture: International Experimental Evidence from Trust Games. American Economic Review, Papers and Proceedings, 89(2), 386-391.

Dawes, R. M. (1980). Social dilemmas. Annual Review of Psychology, 31, 169-193.

Deutsch, M. (1973). The resolution of conflict. New Haven, CT: Yale University Press.

Ezrahi, Y. (1997). Rubber bullets. Berkeley: University of California Press.

Gandal, N., Roccas, S., & Sagiv, L. (2005). Personal value priorities of economists. Human Relations, 58(10), 1227-1252.

Gelfand, M.J., Nishii, L. H., & Raver, J.L. (2006). On the nature and importance of cultural tightness-looseness. Journal of Applied Psychology, 91(6), 1225-1244.

Gelfand, M. J., & Dyer, N. (2000). A cultural perspective on negotiation: Progress, pitfalls, and prospects. Applied Psychology, 49(1), 62-99.

Gelfand, M. J., Higgins, M., Nishii, L. H., Raver, J. L., Dominguez, A., Murakami, F., et al. (2002). Culture and egocentric perceptions of fairness in conflict and negotiation. Journal of Applied Psychology, 87(5), 833-845.

Hardin, G. (1968). The tragedy of the commons. Science, 162, 1243-1248.

Heine, S. H., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? Psychological Review, 106(4), 766-794.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., et al. (2005). "Economic man" in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. Behavioral and Brain Sciences, 28 (6), 795-815.

Hofstede, G. (1980). Culture's consequences: International differences in work-related values. Newbury Park, CA: Sage.

Kahan, J. P. (1974). Rationality, the prisoner's dilemma, and population. Journal of Social Issues, 30(4), 189-210.

Kahneman, D. Knetsch, J.L., & Thaler, R.H. (1986). Fairness as a constraint on profit seeking: Entitlements in the market. American Economic Review, 74, 728-741.

Kim, P.H., Pinkley, R.L., & Fragale, A.R. (2005). Power dynamics in negotiation. Academy of Management Review, 4, 799-822

Knafo, A., & Sagiv, L. (2004). Values and work environment: Mapping 32 occupations. European Journal of Psychology of Education, 19(3), 255-273.

Komorita, S., & Parks, C. D. (1994). Social dilemmas. Madison, WI: Brown & Benchmark.

Kopelman, S. (2008). The influence of group culture on cooperation in social dilemmas. In A. Biel, D. Eek, T. Garling, & M. Gustafson (Eds.), New issues and paradigms in research on social dilemmas. New York, NY: Springer.

Kopelman, S., Weber, J. M., & Messick, D. M. (2002). Factors influencing cooperation in commons dilemmas: A review of experimental psychological research. In E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Sonich & E. U. Weber (Eds.), The drama of the commons. Washington, DC: National Academy Press.

Leung, K. (1997). Negotiation and reward allocations across cultures. In P. C. Earley & M. Erez (Eds.), New perspectives on international industrial/organizational psychology (pp. 640-675). San Francisco, CA: New Lexington Press.

Liebrand, W. B., & Van Run, G. J. (1985). The effects of social motives on behavior in social dilemmas in two cultures. Journal of Experimental Social Psychology, 21(1), 86-102.

Liebrand, W. B., Jansen, R. W., Rijken, V. M., Suhre, C. J. (1986). Might over morality: Social

value and the perception of others in experimental games. Journal of Experimental Social Psychology, 22(3), 203-215.

Mannix, E.A. (1991). Resource dilemmas and discount rates in decision making groups. Journal of Experimental Social Psychology, 27(4) 379-391.

Mannix, E.A. (1993). Organizations as resource dilemmas: The effects of power balance on coalition formation in small groups. Organization Behavior and Human Decision Processes, 55(1) 1-22.

March, J. (1994). A primer on decision making: How decisions happen. New York: Free Press.

March, R. M. (1988). The Japanese negotiator: Subtlety and strategy beyond western logic. Tokyo, Japan: Kodansha International.

Massey, K., Freeman, S., & Zelditch, M. (1997). Status, power, and accounts. Social Psychology Quarterly, 60(3) 238-251.

Messick, D. M., & Brewer, M. (1983). Solving social dilemmas: A review. In L. Wheeler & P. Shaver (Eds.), Review of personality and social psychology (Vol. 4, pp. 11-44). Beverly Hills, CA: Sage.

Morris, M. W., Podolny, J. M., & Ariel, S. (2000). Missing Relations: Incorporating relational constructs into models of culture. In P.C. Earley & H. Singh (Eds.), Innovations in International and Cross-cultural Management (pp. 52-90). Thousand Oaks, CA: Sage Publications.

Ostrom, E. (1990). Governing the commons: The evolution of institutions for collective action. New York, NY: Cambridge University Press.

Ostrom, E., Walker, J., & Gardner, R. (1992). Covenants with and without a Sword: Self-Governance Is Possible. American Political Science Review, 86(2), 404-417.

Parks, C. D., & Vu, A. D. (1994). Social dilemma behavior of individuals from highly individualist and collectivist cultures. Journal of Conflict Resolution, 38(4), 708-718.

Pfeffer, J. (1981). Power in Organizations. Marchfield, MA: Pitman.

Pinkley, R.L., Neale, M.A., & Bennet, R.J. (1994). The impact of alternatives to settlement in dyadic negotiation. Organizational Behavior and Human Decision Processes, 57, 97-116.

Probst, T.M., Carnevale, P.J., Triandis, H.C. (1999). Cultural values in intergroup and single-group social dilemmas. Organizational Behavior and Human Decision Processes, 77, 171-191.

Rose, C. M. (2002). Common property, regulatory property, and environmental protection: Comparing community based-management to tradable environmental allowances. In E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Sonich & E. U. Weber (Eds.), The drama of the commons (pp. 233-257). Washington, DC: National Academy Press.

Roth, A. E., Prasnikar, V., Okuno-Fujiwara, M., & Zamir, S. (1991). Bargaining and market behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An experimental study. American Economic Review, 81(5), 1068-1095.

Sagiv, L., & Schwartz, S. H. (2000). Value priorities and subjective well-being: Direct relations

and congruity effects. European Journal of Social Psychology, 30(2), 177-198.

Schelling, T. C. (1960). The strategy of conflict. Cambridge, MA: Harvard University.

Schwartz, S. H. (1992). Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. In M. P. Zanna (Ed.), Advances in experimental social psychology (pp. 1-59). New York, NY: Academic Press.

Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim & T. H. C. (Eds.), Individualism and collectivism: Theory, method, and applications. Cross-cultural research and methodology series (Vol. 18, pp. 85-119). Thousand Oaks, CA: Sage.

Schwartz, S. H., & Sagiv, L. (1995). Identifying culture-specifics in the content and structure of values. Journal of Cross-Cultural Psychology, 26(1), 92-116.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), Sociological methodology (pp. 290-312). San Francisco, CA: Jossey-Bass.

Thompson, L. (2001). The Mind and heart of the negotiator (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Thompson, L. & Loewenstein, G. (1992). Egocentric interpretations of fairness in interpersonal conflict, Organizational Behavior and Human Decision Processes, 51, 176-197.

Titenberg, T. (2002). The tradable permits approach to protecting the commons: What have we learned? In E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Sonich & E. U. Weber (Eds.), The drama of the commons (pp. 197-232). Washington, DC: National Academy Press.

Triandis, H. C. (1989). Cross-cultural studies of individualism and collectivism. In J. Berman (Ed.), Nebraska symposium on motivation (pp. 41-133). Lincoln, NB: University of Nebraska Press.

Triandis, H. C. (1995). Individualism and collectivism. Boulder, CO: Westview Press.

Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. Journal of Personality & Social Psychology, 74(1), 118-128.

Utz, S. (2004). Self-activation is a two-edged sword: The effects of *I* primes on cooperation. Journal of Experimental Social Psychology, 40, 769-776.

Van Lange, P. & Kuhlman, M. (1994). Social value orientations and impressions of partner's honesty and intelligence: A test of the might versus morality effect. Journal of Personality and Social Psychology, 67(1), 126-141.

Van Lange, P., Liebrand, W., Messick, D. M., & Wilke, H. A. (1992). Social dilemmas: The state of the art introduction and literature review. In W. B. G. Liebrand, D. M. Messick & H. A. Wilke (Eds.), Social dilemmas: Theoretical issues and research findings (1st ed., pp. vii, 334). New York, NY: Pergamon Press.

Van Vugt, M. (1998). The conflicts in modern society. Psychologist, 11(6), 289-292.

Wade-Benzoni, K. A., Okumura, T., Brett, J. M., Moore, D. A., Tenbrunsel, A. E., & Bazerman,

M. H. (2002). Cognitions and behavior in asymmetric social dilemmas: A comparison of two cultures. Journal of Applied Psychology, 87(1), 87-95.

Wade-Benzoni, K. A., Tenbrunsel, A. E., & Bazerman, M. H. (1996). Egocentric interpretations of fairness in asymmetric, environmental social dilemmas: Explaining harvesting behavior and the role of communication. Organizational Behavior & Human Decision Processes, 67(2), 111-126.

Weber, M. (1924). Economy and Society: An Outline of Interpretive Sociology. E. Fishchoff et al. trans. 1978 ed. Berkeley: University of California Press (first published in 1924).

Weber, M. (1947). The Theory of Social and Economic Organization. New York: Free Press.

Weber, J. M., Kopelman, S., & Messick, D. M. (2004). A conceptual review of decision making in social dilemmas: Applying a logic of appropriateness. Personality and Social Psychology Review, 8(3), 281-307.

Wong, R. Y. & Hong, Y. (2005). Dynamic influences of culture on cooperation in prisoner's dilemma. Psychological Science, 16(6), 429-434).

Yamagishi, T. (1988). The provision of a sanctioning system in the United States and Japan. Social Psychology Quarterly, 51(3), 265-271.

Yamagishi, T., Makimura, Y, Foddy, M., Matsuda, M., Kiyonari, T., & Platow, M.J. (2005). Comparisons of Australians and Japanese on group-based cooperation. Asian Journal of Social Psychology, 8, 173-190.

Young, O. R. (2001). Institutional interplay: The environmental consequences of cross-scale interactions. In E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Sonich & E. U. Weber (Eds.), The drama of the commons. Washington, DC: National Academy Press.

Yuki, M., Maddux, W.W., Brewer, M. B., and Takemura, K. (2005). Cross-cultural differences in relationship- and group-based trust. Personality and Social Psychology Bulletin, 31, 48-62.

Table 1. Sampling Check of Group Differences in Cultural Values

Cultural Group of Managers	n	Cultural Values	
		Self-Direction	Hierarchy
Hong Kong			
M	66	0.51_b	-0.03_c
SD		0.50	0.57
German			
M	34	0.38_b	-0.38_d
SD		0.46	0.55
Israeli			
M	32	0.76_a	-0.02_c
SD		0.38	0.55
U.S.			
M	72	0.67_a	-0.30_d
SD		0.39	0.58
N	204		
F		6.03	5.30
p		0.001	0.002

Note . Means with different subscripts differ significantly at a $p < .05$ by *a priori* contrast effects.

Table 2. Descriptive Statistics for Self-Interest (Harvesting) and Egocentrism (Controlled)

	Self-Interest						Egocentrism			
Power	Low Economic Power			High Economic Power			Low		High	
Cultural Group of Managers	n	Metric Tons	Z-score	n	Metric Tons	Z-score	n	Controlled	n	Controlled
Hong Kong (Vertical-Collectivist)										
M	43	414_{i}	0.03	23	1407_{a}	-0.49	42	1.85_{a}	23	4.56_{a}
SD		226	0.96		352	0.92		8.15		14.38
German (Horizontal-Collectivist)										
M	23	415_{i}	-0.08	11	1605_{b}	0.02	23	2.31_{a}	10	4.26_{a}
SD		303	1.10		315	0.82		10.29		13.70
Israeli (Vertical-Individualist)										
M	19	297_{ii}	-0.40	13	1777_{c}	0.47	19	-3.97_{b}	13	11.59_{b}
SD		259	1.06		351	0.91		6.82		16.79
U.S. (Horizontal-Individualist)										
M	50	406_{i}	0.08	22	1625_{b}	0.08	50	0.38_{a}	22	8.01_{a}
SD		231	0.95		367	0.96		7.66		11.15
Total										
M	135	395	-0.03	69	1578	-0.05	134	0.56	68	6.98
SD		247	1.00		369	0.96		8.36		13.79
Culture*Power Interaction										
F						3.21				3.10
df						3				3
N						203				201
p						0.024				0.028

Note . In each column, means with different subscripts differ significantly (Roman numerals at $p < .10$; Alphabetical letters at $p < .05$).

Figure 1. Interaction Effect between Manager's Cultural Group and Economic Power on Self-Interest

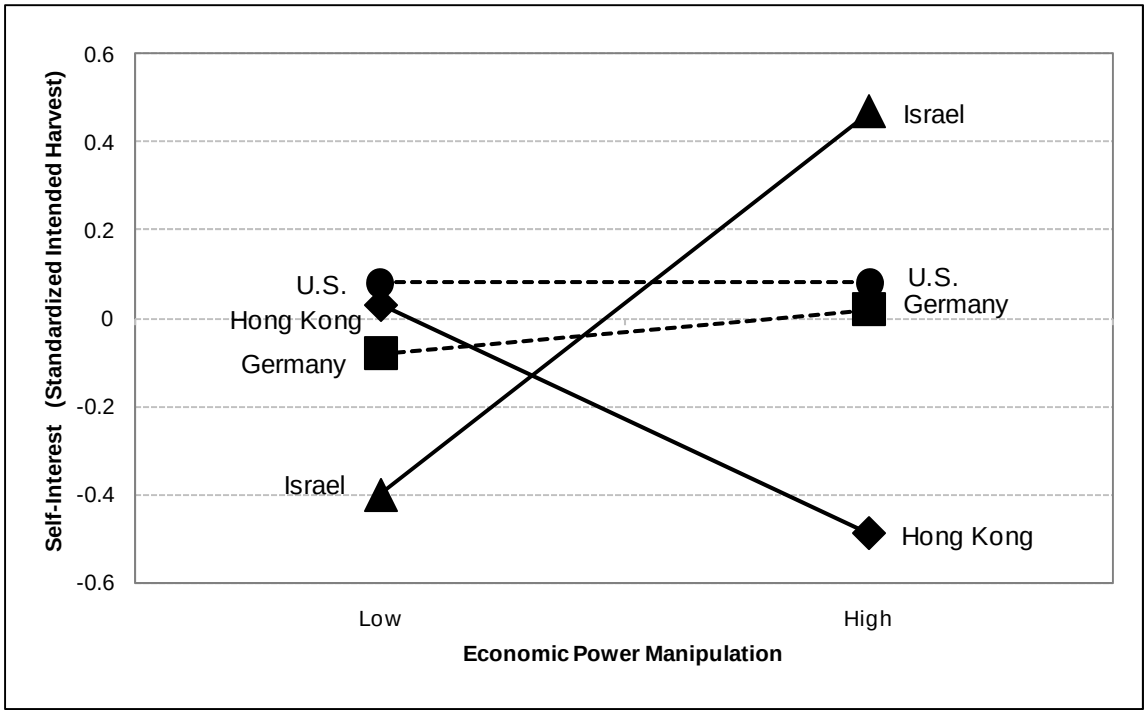
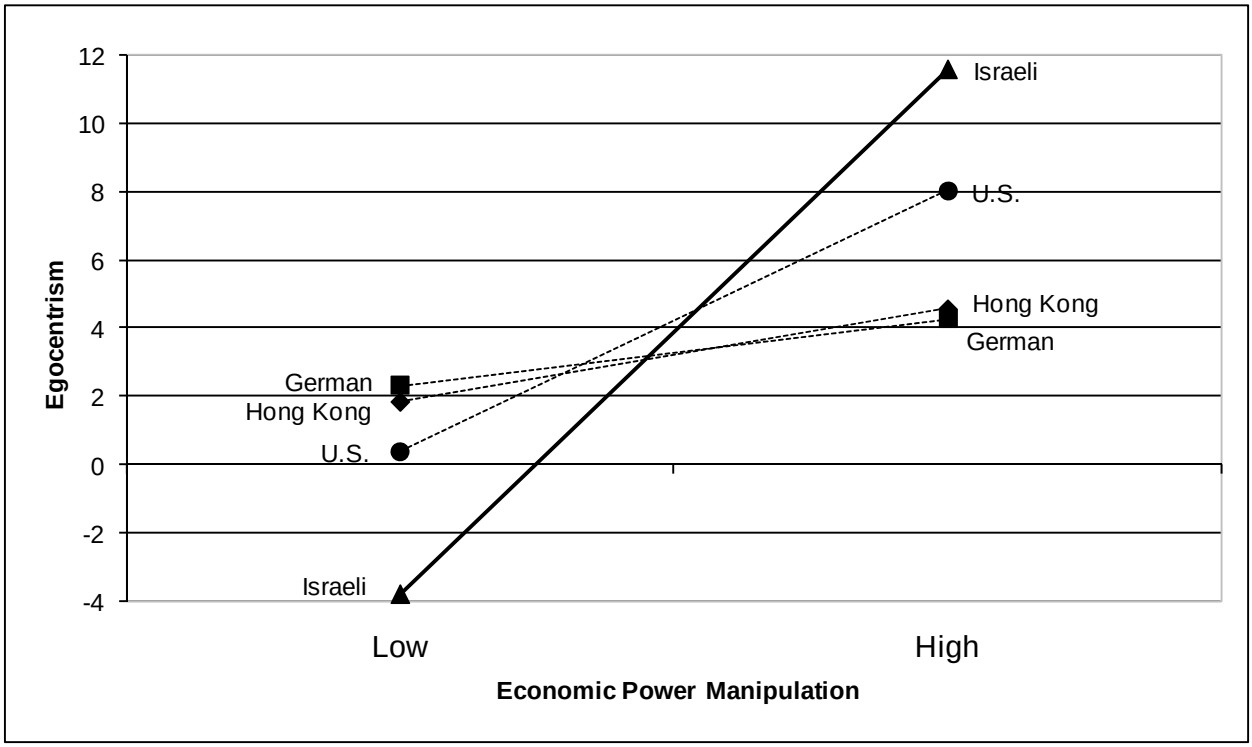


Figure 2. Interaction Effect between Managers' Cultural Group and Economic Power on Egocentrism



APPENDIX

Profit Formulas

The payoff structure was described by the following net present value (NPV) profit functions:

Large Commercial (LC):	$10,000 x (LC Harvest Level + .10[Future])
Small Commercial (SC):	$10,000 x (SC Harvest Level + .25[Future])
Recreational Competition (RC):	$10,000 x (RC Harvest Level + .70[Future])
Recreational Tours (RT):	$10,000 x (RT Harvest Level + .85[Future])

Payoffs were multiplied by a factor of 10,000 to bring the dollar values to the appropriate industry scale. The variables and constraints also reflect real-world restrictions of this industry, and are defined below.

Associations' Harvest Level: How many metric tons (m.t.) of sharks are representative of what each association decides to take from the resource.

Constraints:
(1) Harvest level could not be increased from the current level, which reflected the maximum capacity of each association.
(2) Harvest level could not be reduced by more than 80% of the current level (i.e., all parties had to remain in business).
(3) No transfer payments (i.e., neither profits nor sharks could not be exchanged).

Ranges in metric tons:
LC: 400 – 2,000; SC: 300 – 1,500; RC: 200 – 1,000; RT: 100 – 500.

Future: Level of the resource that would remain available for reproduction and sustain future harvesting. It was calculated as:

= 5000 – Total Harvest Level (Total)

Total = LC Harvest Level + SC Harvest Level + RC Harvest Level + RT Harvest Level.

Constraint: Future could not exceed 2,500 (i.e., there was no added value to conserving resource beyond environmentally recommended level of 2,500).

Range:
$0 \leq \text{Future} \leq 2{,}500$ m.t.